

“Upper Black Bear 62” Perry Lake Dam Noble County, Oklahoma Questions and Answers

General Information:

By utilizing Public Laws 534 and 566, the State of Oklahoma, conservation districts, and local project sponsors, with assistance from the United State Department of Agriculture, Natural Resources Conservation Service (NRCS) have designed and constructed 2,107 upstream flood control dams across the state.

The concept behind the upstream flood control program is to build small flood control dams on tributaries upstream from rivers or large streams. The series of dams in a watershed store water during heavy rainstorms and slowly release it over a period of several days preventing it from all reaching the river at one time, which reduces flooding and protects life and property.

People around in the 1950’s can still recall the flooding that occurred in many areas across the state that is now protected by flood control dams. This infrastructure is aging and the great benefits it provides are no longer visible to the younger residents and landowners around today. These upstream flood control dams happened because the state through the conservation districts and project sponsors as well as the local landowners had the foresight and commitment to get these structures built.

There are three primary phrases that a dam project progresses through, they are: Planning, Design, and Construction. Planning is the initial review of viable alternatives for developing a proposed plan. The current supplemental plan for this dam was completed in January 2012. Design is the technical evaluation of geology, hydrology, and hydraulics to produce a construction contract that meets state and federal standards. A design generally takes approximately 12 -18 months to complete. The last phase, construction, is implementation of the design. It is the phase where the actual building and moving of dirt occurs. Construction generally takes approximately 12 to 24 months from start to finish.

In general flood control dams are made up of these basic components:

- The earthen dam (Top of Dam) is the primary structural component that holds the flood waters during heavy rainfall events and accumulation of sediment over time.
- The auxiliary spillway is the large flat grassy area on one or both sides of the dam that allows water to flow around the dam during times of a heavy rainfall event.
- The concrete principal spillway tower inlet and pipe is generally the permanent pool lake level and eventual sediment level. The lake level is drawn down with this component during heavy rain fall events.

Q. Difference in High Hazard and Significant Hazard Dams: What are the three hazard classifications of dams in Oklahoma?

A. The highest hazard classification is called a High Hazard or Class C dam. Dams that are classified as high hazard have the potential to cause loss of human life should the dam fail. The middle classification is called a Significant Hazard or Class B dam. These dams are seen as having no probable loss of human life should they fail but they could cause economic loss and disruption of lifeline facilities. The lowest classification, a Low Hazard Dam or Class A dam could cause economic loss to agricultural lands should they fail. These different hazard classifications have specific design criteria that must be met pursuant to the Oklahoma Dam Safety Act as well as federal guidelines on dam safety.

Q. Need for Changes: Why do modifications need to be made to this dam?

A. The Perry Lake dam is also referred to as “Upper Black Bear Watershed flood control structure #62”. The original dam was classified and built as a “significant hazard” dam in 1963. The original design and engineering work contemplated an estimated life of approximately fifty (50) years for the dam. The City of Perry is the current local project sponsor for Perry Lake along with the Noble County Conservation District. The City has maintained the dam site for over fifty (50) years.

Since 1963 development downstream of the dam has occurred. This is significant because pursuant to Oklahoma law downstream development below a dam affects the hazard classification of a dam. As a result, the Perry Lake dam has been reclassified as a “high hazard” dam and in its current state fails to comply with the minimum safety criteria and performance standards mandated by Oklahoma law and federal guidelines.

In order to come into compliance with the laws and safety criteria, the dam must be modified from a “significant hazard” dam to a “high hazard” dam. The modifications as currently planned will protect homes and infrastructure located downstream, and will extend the life of the structure for an additional one hundred (100) years of use for flood control, conservation, and other related benefits.

This modification work can be expensive and labor intensive, but necessary to ensure the dam functions as designed, remains safe, and protects the people that live or work near or downstream of the dam.

Q. Dredging: Why are you not dredging for the sediment storage?

A. Dredging is not a viable option for two main reasons: 1. The material/soil brought up from the bottom of these ponds/lakes is not made up of the proper geological components that can be used to build earthen dams, and 2. Dredging only impacts the sediment storage of a lake/pond and the increased dam safety criteria for a high hazard dam

requires additional detention storage as well as an increase in the spillway capacity for a high hazard dam. Therefore, dredging is not a viable or beneficial option.

Q. Borrow or fill for the dam: Where will borrow for dam construction come from?

A. Usually soils from the excavated auxiliary spillway(s) are used to reinforce and raise the dam.

Q. Project Cost: What is the anticipated cost of the dam modifications?

A. The estimates for the modifications to this dam are \$6.0 million. Federal monies will cover 65% of the cost and the local/state will need to cover the remaining 35% match.

Q. Geological Investigation (GI)/Topographical Surveys: When will the GI and Topographical surveys be conducted for the dam? How long will the geological investigation and site specific surveys take? Who will be contacting and working with the landowners in the areas that need to be surveyed?

A. The G.I. work might start in the latter part of 2014. The time to complete the field boring or sub-soil sampling will be about 2 – 4 months depending on weather and ground conditions. The project sponsors will contact and work with landowners on the scheduling of the G.I. work and any other needed surveys. NRCS and their contractors will be conducting the G.I. as well as any other required surveys. Surveys other than the G.I. work could take approximately 10 days to complete and will be used for potential flood proofing alternatives in the design process.

Q. Design: About how long after all the G.I. survey information is completed and submitted before a design can be presented to the landowners for discussion and review?

A. After the G.I. data is completed it can take anywhere from 12 - 18 months for a preliminary design to be drafted. Once a preliminary design is prepared then the City of Perry will be able to set follow-up meetings with landowners to discuss the results and possible impacts of the preliminary design.

Q. Rural Water line: What will happen to the rural water line that runs across the top of the dam?

A. The project sponsors will work with the Logan County Rural Water District to prevent any disruption in service.

Q. Primary Auxiliary Spillway: Which auxiliary spillway will be the one with the primary flow?

A. This information will be developed in the design phase.

- Q. Roads: Will roads be impacted?
- A. Any road closings, detours, improvements, modifications, signage, etc... to the roads due to construction on the dam will be coordinated by the project sponsors with the assistance of Noble County. Decisions on these items will start to be discussed as the first preliminary dam design is released for review and comment.
- Q. Highway Overtopping: Is there any law that restricts a dam's elevation in regards to the elevation of Interstate I-35 to prevent overtopping the highway?
- A. This is not a safety criteria item of the Oklahoma Dam Safety Act administered and enforced by the Oklahoma Water Resource Board for a high hazard structure.
- Q. Landowner Concerns: How will my landowner concerns be addressed?
- A. The project sponsors set meetings with landowners to learn about their concerns. These concerns will be shared with the design engineers so that they may be considered as they progress through the design phase. The concerns gathered include but are not limited to: ingress/egress for landowners in the construction area; impacts on roads, fences, and gates; channel improvements; waterline locations; utility locations; erosion; upstream development; and other incidental items.
- Q. Landrights: How will landrights and costs be addressed in the future?
- A. The City of Perry will be the primary project sponsor that will work with landowners to resolve any landrights issues related to the dam design modifications. Dam design modifications might require additional land or easements that impact private properties, fences, private ponds, etc....
- Q. Peninsula: Will the peninsula be negatively impacted by the dam modifications and auxiliary spillway?
- A. The peninsula is not a part of the rehabilitation project; however, it may be impacted depending on the final water surface elevation. Designers will work with the City of Perry to address these potential impacts.
- Q. Municipal Intake Tower: Will work be done to the municipal intake tower?
- A. The City of Perry has the sole responsibility to decide what, if any, assessment, improvement, or modifications should and will be made to their municipal intake tower.
- Q. Dam Maintenance: Who is responsible for completing Operations and Maintenance on the dam?

- A. The dam's primary project sponsor, the City of Perry, is responsible for the operations and maintenance of the dam.
- Q. Lake Perry Recreation Facilities: What will happen to the recreation areas?
- A. The recreational area will be discussed with the design engineers before they start the design. As the design progresses, any impacts on these recreational facilities by the dam modifications will be discussed with the City of Perry.