

FEDERAL ENERGY REGULATORY COMMISSION
Office of Energy Projects
Division of Dam Safety and Inspections
888 First Street, NE Routing Code: PJ-13
Washington, DC 20426
(202) 502-6025 Office – (202) 219-2731 Facsimile

September 26, 2000

MEMORANDUM TO : Regional Director

FROM : Daniel J. Mahoney, Deputy Director
Division of Dam Safety and Inspections

SUBJECT : FERC Tainter Gate Initiative Revision 1

In January 1998 we implemented the Tainter Gate initiative. After an analysis of the results of the initiative to date, and an extensive discussion with licensees, consultants and other Federal agencies, including the October 1999, FERC Taintergate Workshop in Crystal City, VA and the February 2000, Spillway Gate Technical Seminar in Emmitsburg, MD, adjustments to our initiative are appropriate.

In general, the adjustments will lessen the requirements of the tainter gate initiative for smaller or less significant gates. During the original development of the taintergate program, we had extensive discussion about whether we should exempt certain gates from the initiative. The decision was not to differentiate between high hazard and low hazard gates, and apply the initiative to all gates. Our concern at that time was that licensees would spend an inordinate amount of engineering effort trying to show a gate was low hazard, rather than just applying the effort to a safety evaluation of the gates. We believe at this point in time, with the input from the dam safety community from the above coordination efforts, we have a better understanding of the safety of most of our taintergates. An adjustment to our current initiative will not compromise the safety of the projects, and may improve the initiative by allowing project owners to focus resources on the more important gates.

The FERC tainter gate initiative will now recognize 2 categories of tainter gates, and adjust the requirements of the program accordingly.

Category 1- Failure or mis-operation (failure to operate) would have dam safety or operational consequences.

1. Structural failure would endanger downstream life and property.
2. Failure to open or close would significantly effect the project's ability to safely pass a flood, endanger upstream life and property, or effect a project purpose or compliance requirement, including important environmental requirements.

Category 2 - Failure would have minimal to no consequences.

Inspection, testing and analysis requirements will depend on the gate category, and is described in the attached table (Attachment 1). We will consider all gates to be Category 1, until the licensee or project owner provides the justification for the gates to be considered Category 2.

Please notify the licensees, exemptees, applicants and project owners. Attached is a sample letter to the licensees for your use (Attachment 2). You are free to edit its form but not its substance.

Attachments

**FERC TAINTER GATE INITIATIVE
REVISION**

The FERC Tainter Gate Initiative was instituted in February of 1998 in response to the findings of the Bureau of Reclamations forensic findings on the 1995 Folsom Dam gate failure. This letter is intended to give guidance on the continuing responsibilities that you have under the initiative. The table below outlines licensee responsibilities:

	Category 1	Category 2
	1) A structural failure of a gate or a gate's inability to open or close endangers downstream life during normal operations and flood events. 2) A failure to open or close results in a significant un-controlled reservoir level rise or drop during normal operations or flood events affecting upstream property or resources.	1) Gates located at low hazard potential dams. 2) A gate failing in the open or closed position would not impact the dam's ability to safely pass flood flows or affect upstream property or resources.
Close-up Detailed Inspection	10 yrs	NA
Ampere Testing	1 yr	NA
Full Height Testing	5 yrs	10 yrs
Annual Operation Test	1 yr	1 yr
Required Analysis	Static	NA

All tainter gates at high and significant hazard potential dams are considered category 1 gates by default. A licensee may request a re-categorization by the FERC. The FERC will base categorization decisions on the following risk factors:

Consequences of gate failure. Gates can fail in both open and closed position. The upstream and downstream consequences of each failure scenario must be considered.

Redundancy. Gate failure at a site with many small gates may not be as serious as gate failure at a site with few large gates.

Operator Reliability. If all gates are operated by one traveling hoist, then hoist failure becomes much more critical. (Common cause failure)

Project function. If failure of a gate makes it impossible for the project to function as intended, gate failure becomes more critical.

Bulkhead Provisions. If there is another method of stopping flow, the consequences of gate failure may be lessened.

Explanation of Requirements

1) Close up Detailed Inspection. If the inspector is not close enough to touch the gate feature he/she is inspecting, the inspection can not be considered a "Close up Detailed Inspection". The purpose of this inspection is to detect broken welds and bolts, fatigue cracks, and the initiation of corrosion. Observations from a distance are not sufficient for this purpose.

2) Ampere Testing. The purpose of this is to obtain a periodic easily obtainable spot check of the health of the gate operating machinery.

3) Full Height Testing. This must be performed periodically to insure that the gate can operate through its full intended travel in the event that extreme flood events must be passed.

4) Annual Operation Test. Every year the operational readiness of each gate must be demonstrated.

5) Analysis. Analysis previously performed in response to the Tainter Gate Initiative need not be re performed. However as with all analyses and studies contained in the STID, it is the responsibility of the Part 12 consultant to review and comment on the accuracy and appropriateness of tainter gate analyses. Gates may require re-analysis if changes have been made to the gates, or if anticipated loading conditions have changed. While static analyses will be sufficient for most gates, large high consequence gates in high seismic areas may require dynamic analysis.

Attachment 2

Dear Licensee:

Re: Tainter Gate Initiative Revision 1

Our letter to you, dated XXXX 1998, required inspection, analysis and testing be done on all of your tainter gates. As a result of our ongoing review of this tainter gate initiative, we have recognized the need to focus inspection, testing, and analysis efforts on gates whose failure would have dam safety or operational consequences. To this end, the FERC will now recognize 2 categories of taintergates:

Category 1- Failure or mis-operation (failure to operate) would have dam safety or operational consequences.

1. Structural failure would endanger downstream life and property.
2. Failure to open or close would significantly effect the project's ability to safely pass a flood, endanger upstream life and property, or effect a project purpose or compliance requirement, including important environmental requirements.

Category 2 - Failure would have minimal to no consequences.

The requirements based on gate category are included in Attachment 1. Gates will be considered Category 1 unless an justification for Category 2 is made by the licensee. The FERC will base its decisions on the following risk factors :

Consequences of gate failure. Gates can fail in both open and closed position. The upstream and downstream consequences of each failure scenario must be considered.

Redundancy. Gate failure at a site with many small gates may not be as serious as gate failure at a site with a few large gates.

Operator Reliability. If all gates are operated by one traveling hoist, then hoist failure becomes much more critical. (Common cause failure)

Project function. If failure of a gate makes it impossible for the project to function as intended, including fulfilling important environmental requirements, gate failure becomes more critical.

Bulkhead Provisions. If there is another method of stopping flow, the consequences of gate failure may be lessened.

If you have any questions concerning this matter please call (Regional Office representative) at xxx xxx-xxxx. Thank you for your cooperation in this important dam safety initiative.

Regional Director

Attachment: