



Checklist for Reviewing Dam Failure Analyses

GENERAL INFORMATION

DAM KEY SEQ. No: _____

Dam name: _____ River: _____

Owner: _____ County: _____ F.F.#: _____

Location: Section _____ Town _____ Range _____ E W Circle one _____ KSN _____

Consultant: _____ Reviewer(s): _____

Engineer: _____ Phone: _____

Email: _____

SUBMITTAL

Hydrology: Input file name: _____

Hydraulics: Input file name: _____

Regional flood: Plan name: _____

Dam failure: Plan name: _____

Dam nonexistent: Plan name: _____

Report supplied: Additional materials: _____

SUPPORTING INFORMATION

- | | |
|---|---|
| <input type="checkbox"/> Submitted by PE, stamped | <input type="checkbox"/> Floodway data tables |
| <input type="checkbox"/> Purpose for analysis | <input type="checkbox"/> Cross sections as coded in the model |
| <input type="checkbox"/> Description of dam (existing or proposed) | <input type="checkbox"/> Structures identified |
| <input type="checkbox"/> Sketch of dam layout | <input type="checkbox"/> Peak flows |
| <input type="checkbox"/> BM description & identification | <input type="checkbox"/> Maximum velocities |
| <input type="checkbox"/> Cross section through dam (is it representative) | <input type="checkbox"/> Floodway widths |
| <input type="checkbox"/> Key elevations identified | <input type="checkbox"/> Maximum flood stage elevations |

PROFILES:

- Cross sections and structures identified
- Channel bottom
- 100-year with dam in place
- 100-year with dam failure
- 100-year dam nonexistent

PLOTS:

- Surveyed cross sections
- Cross sections as coded
- D/S bridges, dams
- Inflow hydrograph
- Hydrographs at D/S face of each structure

MAPS SUITABLE FOR ZONING:

- | | |
|---|---|
| <input type="checkbox"/> Title & date | <input type="checkbox"/> Structures identified |
| <input type="checkbox"/> Scale, North arrow, legend | <input type="checkbox"/> Floodplain delineation |

- Roads identified
- Cross sections as coded

- Floodway delineation
- PE stamped

HYDROLOGY

Description of hydrology: _____

Methods used to compute peak flows: _____

Methods used to check flows: _____

_____ Q_5	_____ Q_{25}	_____ Q_{100}	_____ Q_{500}
_____ Q_{10}	_____ Q_{50}	_____ Q_{200}	_____ Q_{1000}

Is there an existing FIS: Regional flood computed for FIS:

Reason for any differences between regional flood and Q_{100} used: _____

Should action be taken to correct regional flood flows: _____

Recommendations: _____

Completed: ___ / ___ / _____ Hydrology approved: ___ / ___ / _____

GEOMETRICAL DATA

CROSS SECTIONS:

- _____ Number of river miles modeled
- _____ Number of cross sections
- Cross section detailing (nu. of points)
- _____ Surveyed cross sections
- _____ Map/type
- Representation of surveyed conditions
- Cross section spacing
- n-values represent conditions
- Depth of flooding in cross sections

DOWNSTREAM OBSTRUCTIONS:

- _____ Number of bridges
- Descriptions for bridges given, plots
- _____ Number of bridges modeled
- Representation of bridge geometry
- Reason for not using bridge routine
- Restrictive cross section representative
- _____ Number of D/S dams
- Description for dams given, plots
- _____ Modeling technique

ANALYTICAL PROCEDURES

RESERVOIR:

_____ Cross sections representative
_____ Starting WS Elev. at routing
_____ Elevation – area (volume) rating curve
_____ Max. WS Elev. with dam in place
Dam outflow rating scheme: _____

RATING CURVE METHOD

_____ All outlet works are included
_____ Operation possible during flooding
_____ Appropriate starting elevations

DISCHARGE COEFF. METHOD

_____ All outlet works are included
_____ Are coefficients documented
_____ Can coefficients be reproduced

BREACH:

_____ Method of breach used
 Was it appropriate
_____ Normal pool elevation
_____ Operating range
_____ Starting WS Elev. at breach initiation
_____ Breach at max. pool, overtop., or other
_____ Width of breach
_____ Side slope of breach
_____ Time for breach development
_____ Elevation at bottom of breach
_____ Elevation of river immediately D/S
 Sensitivity analyses performed

FAILURE ANALYSIS:

_____ Flood routing option used
_____ Reservoir routing option used
_____ D/S channel routing option used
 Initial conditions reasonable
 Does the model work correctly
 Is flow balanced
 Reservoir depletion table
 Peak flows, elevations, velocities

ANALYSIS WAS CARRIED TO CONVERGENCE:

Undeveloped areas to within 1.0' of the regional computed dam nonexistent profile
 Developed areas to within 0.0' of the regional computed profile with dam in place

What D/S development is in hydraulic shadow of the dam: _____

Do the results make sense Are they what you expected

Are there any unusual physical characteristics, which might change the analyses requirements:

Are visible problems with analyses explained

DAM NONEXISTENT:

What D/S development is in the dam nonexistent profile: _____

Is cross section at dam location representative of what conditions would be if dam were removed

CALIBRATION:

Model calibrated to historical data Model calibrated to FIS data

HAZARD RATING ASSIGNED

<input type="checkbox"/> HIGH	<input type="checkbox"/> SIGNIFICANT	<input type="checkbox"/> LOW
<input type="checkbox"/> Development in hydraulic shadow	_____	Required principle spillway capacity
<input type="checkbox"/> Development in w/o dam FP/FW	_____	Required total spillway capacity
<input type="checkbox"/> Inventory of D/S structures	_____	Can dam pass design flow
<input type="checkbox"/> All other information necessary	_____	Is there any freeboard
_____ Did we field check	_____	How much freeboard available

STABILITY ANALYSIS

_____ Method used to calculate sliding	_____ Embankment stability addressed
_____ Method used to calculate overturning	_____ Any subsurface investigation made
_____ Foundation stability addressed	_____ Embankment slopes look stable

FACTORS OF SAFETY

ELEVATION	SLIDING	OVERTURNING	FOUNDATION
Normal pool	_____	_____	_____
Maximum pool	_____	_____	_____
Maximum load, (ice)	_____	_____	_____
Adequacy of safety factors	<input type="checkbox"/>	Overall dam safety adequacy	<input type="checkbox"/>

SUMMARY

BASED ON REVIEW THE FOLLOWING REQUIREMENTS ARE DEEMED COMPLETE:

- | | |
|--|--|
| <input type="checkbox"/> 333.05 (2) (a) – Hydrology | <input type="checkbox"/> 333.05 (2) (e) – Design flow |
| <input type="checkbox"/> 333.05 (2) (b) – Hydraulic shadow | <input type="checkbox"/> 333.05 (2) (f) – Routed design flow |
| <input type="checkbox"/> 333.05 (2) (c) – Hazard rating | <input type="checkbox"/> 333.05 (2) (g) – Stability analysis |
| <input type="checkbox"/> 333.05 (2) (d) – Dam nonexistent | |

The following items are lacking and need to be addressed: _____

The items found lacking above were resolved as follows: _____

Analyses deemed complete: _____ / _____ / _____

Approval letter sent: _____ / _____ / _____

6-month letter drafted: _____ / _____ / _____