Rule 35 Design Reports, Drawings, and Specifications

035. Design Reports, Drawings, and Specifications.

The following provisions shall apply when submitting plans, drawings and specifications for review and approval, prior to commencing construction.

01. Submission of Duplicate Plans, Drawings and Specifications. Any owner who shall desire to construct, enlarge, alter or repair any dam or mine tailings impoundment, shall submit duplicate plans, drawings and specifications prepared by an engineer for the proposed work to the Director with required fees prior to commencing construction. An owner who desires to construct a continuously raised tailings impoundment structure shall submit duplicate copies of plans, drawings, and specifications prepared by an engineer, showing the stages of lift height, by periods of time, and ultimate design height prior to commencing construction of each design stage or phase of construction.

02. Applying for and Obtaining Written Approval. Construction of a new water storage dam or mine tailings impoundment, or the enlargement, alteration or repair of such shall not commence until the owner has applied for and obtained written approval of the plans, drawings and specifications.

04. Preparation and Submission of Plans. Plans and drawings shall be of a sufficient scale with an adequate number of views showing proper dimensions, so that the plans and drawings may be readily interpreted and so that the structure and appurtenances can be built in conformance with the approved design. Plans and drawings shall be submitted in both printed and digital format, with the printed version consisting of paper size 11” x 17” or equivalent dimension. After reviewing the plans, the Director will notify the owner of any required changes.

05. Information Included with Plans. Plans for new water storage dams and mine tailings impoundment structures or the enlargement, alteration or repair of such shall include as much of the following information as determined by the Director to adequately describe the enlargement, alteration or repair and the effect on the existing structure or its appurtenances:

a. A topographic map of the project site showing the location of the proposed construction by section, township and range, and location of all borings, test pits, borrow pits and other locations of samples obtained for field or laboratory testing;

b. A profile along the axis showing the locations, elevations, and depths of borings or test pits, including the visual illustration logs of bore holes, test pits or borrow pits;

c. A cross-section of the structure at maximum section showing elevation and width of crest, slopes of upstream and downstream faces, thickness of riprap, zoning of earth embankment, location of cutoff and bonding trenches, elevations and dimensional heights, size and type of conduits, valves, operating mechanism and dimensions of all other essential elements deemed to be necessary for properly constructing the approved design .;

d. Detailed drawings showing plans, cross and longitudinal sections of appurtenant features such as but not limited to the spillway, training walls, outlet conduits, valves, gates, trashrack, and control works ;

e. A curve or table showing the capacity of the reservoir or tailings impoundment in acre-feet vs gauge height referenced to a common project datum and the computations used in making such determinations.

f. A curve or table showing the outlet discharge capacity in cubic feet per second vs gauge height of reservoir storage level, and the computations used in making such determinations;

g. A curve showing the spillway discharge capacity in cubic feet per second vs gauge height of the reservoir or flood surcharge level above the spillway crest and the computations used in making such determinations;

h. Detailed drawings of spillway structure(s), cross-sections of the channel entrance and exit points to and from the spillway and a spillway profile;

i. Plans for flow measuring devices capable of providing an accurate determination of the flow of the stream above and below the reservoir, and a permanent reservoir or staff gauge near the outlet of the reservoir plainly marked in feet and tenths of a foot referenced to an approved datum;

j. Plans or drawings of instruments recommended by the owner or engineer to monitor the performance of the water storage dam or mine tailings impoundment structure to assure safe operation, or as may be required by the Director as deemed necessary to monitor any structure for benefit of public safety regardless of size.

06. Specifications. Specifications shall be prepared by the design engineer that include instructions for construction of the approved design in accordance with accepted engineering and industry standards of care, including provision adequate observation, inspection, and control of the work by a registered professional engineer during the period of construction.

07. Changes to the Approved Design. The approved design shall not be materially changed without prior written consent of the Director. Significant design changes, while construction is underway, shall be submitted for the Director's review and approval. In emergency situations, the owner shall make the required alterations or repairs necessary to relieve the emergency, and subsequently notify the Director of all alterations or repairs implemented.

08. Inspections. The owner shall provide for and allow inspections by the Department to assure the dam and appurtenant structures are constructed in conformance with the approved plans and specifications, or as may be revised by the design engineer and approved by the Director if there are unforeseen conditions discovered during site preparation or construction which potentially jeopardize the future integrity and safety of the project works. The Department may request of the owner that certain stages of construction shall not proceed without inspection and approval by the Director. Owners are encouraged to give prior notice to the Department, so that inspection(s) can be scheduled to prevent construction delays.

09. Inspection, Examination and Testing of Materials. All materials and workmanship shall be subject to review, inspection, examination or testing by the Director at any and all times.

10. Rejection of Defective Material. The Director may order the owner or engineer to reject defective material.. Rejected workmanship shall be corrected and rejected material shall be replaced with proper material.

11. Suspension of Work. The Director may order the engineer to suspend any work that is or is likely to be subject to damage by inclement weather conditions.

12. Responsibility of Engineer. These provisions shall not relieve the engineer of their responsibility to assure that construction is accomplished in accordance with the approved plans and specifications as mandated by I.C. 54.1202(15), or to unilaterally suspend work as deemed necessary.

14. Design Report. Owners proposing to construct, enlarge, alter or repair a water storage dam or mine tailings impoundment structure shall submit an engineering or design evaluation report to accompany the plans and specifications. The engineering report shall include as much of the following information as necessary to present the technical basis for the design and to describe the analyses used to evaluate performance of the structure and appurtenances.

a. All technical reference(s); equations, calculations, and assumptions used in the design;

b. Hydrologic data used in determining runoff from the drainage areas, reservoir flood routing, pertinent to the project location, and hydraulic evaluations of the outlet(s) and the spillway(s) as may be required for approval of the design plans and specifications.

c. Investigation of site and subsurface conditions, to include the engineering properties of the foundation area and of each type of material to be encountered or used in the construction of the project works.

d. A stability analysis, including an evaluation of overturning, sliding, slope, and foundation stability and a seepage analysis;

i. An evaluation of seismic design loads may be included in the stability analysis for all water storage dams or mine tailings impoundment structures as deemed necessary by the Director for benefit of public safety. The evaluation required for large water storage dams or high hazard structures shall use the maximum ground acceleration generated by the maximum credible earthquake which could affect the dam site.

ii. Seismic analyses may be waived by the Director for new or existing water storage dams or mine tailings impoundment structures if the consequence of failure is demonstrated to be sufficiently low or the critical features of design are demonstrated to be sufficiently conservative to allow minor deformation(s) without releasing the contents of the impounding structure.

e. Geologic description of reservoir area, including evaluation of landslide potential;

j. Engineering properties and the weathering characteristics of the contents proposed for storage in the impoundment, if applicable;

k. Other information which would aid in evaluating the safety of the design.

15. Additional Information/Waiver. The Director may require the filing of such additional information which in his opinion is necessary for benefit of public safety or waive any requirement herein cited if available data demonstrates that it is unnecessary.

16. Alternate Plans. The Director may accept plans and specifications or portions thereof prepared for other agencies which are determined to meet the requirements of Rule 40.

An owner who desires to construct a continuously raised tailings impoundment structure shall submit duplicate copies of plans, drawings, and specifications prepared by an engineer, showing the stages of lift height, by periods of time, and ultimate design height.

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. In emergency situations, the owner shall make the required alterations or repairs necessary to relieve the emergency, and notify the Director.

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After reviewing the plans, the Director will notify the owner of any required changes.

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j. An operation plan;

k. An emergency action plan to help protect downstream of life and property;

l. An abandonment plan that assures the Director to his satisfaction that, upon completion of the mining operation, the site will be in a safe maintenance-free condition.

Owners are encouraged to give prior notice to the Department, so that the inspection can be scheduled to prevent delays.

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e. Geologic description of reservoir area, including evaluation of landslide potential;

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j. Engineering properties and the weathering characteristics of the proposed tailings to be stored in the impoundment;

k. Other information which would aid in evaluating the safety of the design.

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