ADOPTED REGULATION OF

THE STATE ENGINEER

LCB File No. R124-02

Effective May 30, 2003

EXPLANATION – Matter in ***italics*** is new; matter in brackets ~~[omitted material]~~ is material to be omitted.

AUTHORITY: §§1-47, NRS 532.120.

Section 1. Chapter 535 of NAC is hereby amended by adding thereto the provisions set forth as sections 2 to 47, inclusive, of this regulation.

Sec. 2. ***As used in this chapter, unless the context otherwise requires, the words and terms defined in sections 3 to 20, inclusive, of this regulation have the meanings ascribed to them in those sections.***

Sec. 3. ***"Alters" or "alteration" includes breaching, decommissioning, modifying, raising and removing.***

Sec. 4. ***"Applicant" means a person who files an application for approval of plans for a dam.***

Sec. 5. ***"Application for approval of plans for a dam" means an application submitted pursuant to paragraph (b) of subsection 2 of NRS 535.010 for approval of plans and specifications for a new dam or for the reconstruction or alteration of an existing dam.***

Sec. 6. ***"Capacity" means the maximum volume of water, expressed in acre-feet, that a dam is physically capable of impounding without overtopping.***

Sec. 7. ***"Closure" means the permanent revocation by the State Engineer of permission to construct, maintain or operate a dam or to impound water behind a dam.***

Sec. 8. ***"Dam" means any structure that stores or diverts water for a beneficial purpose. The term includes a dam that is proposed. The term does not include a levee or road embankment that is:***

1. Designed as a levee or floodwall intended to constrain the water of a creek or river to its natural floodplain in the event of a flood;

2. Designed as a levee for the reinforcement of a ditch, watercourse or canal; or

3. Designed for the sole purpose of supporting a roadbed, path or other means of conveyance for the transportation of vehicles, pedestrians, trains or bulk commodities if the levee or embankment:

(a) Is free-draining;

(b) Has a residence time for impounded storm water of less than 24 hours; and

(c) Unless the levee or embankment is less than 10 feet in height, has drainage capacity sufficient to pass, without overtopping, an amount of water equal to the storm runoff generated by a storm whose annual chance of exceedence is 1 percent.

Sec. 9. ***"Decommission" means to physically render a dam incapable of impounding any significant quantity of water.***

Sec. 10. ***"Impounding" includes any detention of water without regard to the duration of the detention.***

Sec. 11. ***"Inflow design flood" means a hypothetical flood of a given magnitude that is used to determine the design of a dam and its related hydraulic features.***

Sec. 12. ***"Maximum conservation elevation" means that elevation to which water is approved to be stored pursuant to the approval to impound.***

Sec. 13. ***"Maximum credible earthquake" means a hypothetical earthquake of a magnitude determined by the United States Geological Survey as the worst-case scenario that is reasonably possible for the region in which a dam is located.***

Sec. 14. ***"Operator" means a person, including an owner or his designee, who controls the day-to-day operations of a dam.***

Sec. 15. ***"Owner" means a person, including a governmental agency or quasi-governmental agency, that:***

1. Causes a dam to be built, rebuilt or modified;

2. Owns or controls real property on which a dam is constructed;

3. Owns or controls real property inundated by the reservoir created by a dam;

4. Owns a water right that is impounded or diverted by a dam;

5. Is a successor in interest in a chain of title that expressly mentions a dam;

6. Is a local cooperator who will assume any control over a project constructed by the United States Army Corps of Engineers or the United States Bureau of Reclamation; or

7. Is identified by the State Engineer as a person responsible for a dam.

Sec. 16. ***"Probable maximum flood" means a hypothetical flood whose magnitude is:***

1. The largest that could be expected from the most severe combination of critical meteorologic and hydrologic conditions that are reasonably possible for the region in which a dam is located; and

2. Such that there is virtually no chance of its being exceeded.

Sec. 17. ***"Professional engineer" has the meaning ascribed to it NRS 625.060.***

Sec. 18. ***"State Engineer" has the meaning ascribed to it in NRS 533.015.***

Sec. 19. *"Water" includes any potentially mobile fluid or semifluid substance that is capable of being impounded by a dam, including, without limitation, tailings, slimes, organic waste and sewage.*

Sec. 20. *"Water right" means a valid appropriation of the public waters of this state pursuant to chapters 533 and 534 of NRS.*

Sec. 21. *For the purposes of this chapter, each "elevation" must be expressed as a deviation from a point included in the North American Vertical Datum of 1988.*

Sec. 22. *For the purposes of this chapter:*

1. The height of a dam is the maximum difference in elevation between the crest and the toe of the dam.

2. The crest of a dam is the nominal top horizontal surface of the dam excluding railings or parapet walls.

3. The toe of a dam is the contact between the outer shell of the dam and the natural ground surface on the downstream side of the dam.

Sec. 23. *For the purposes of this chapter, a dam is:*

1. Small if it is less than 20 feet in height and impounds less than 100 acre-feet of water.

2. Medium if it is neither small nor large.

3. Large if it is 50 feet or more in height or impounds 10,000 acre-feet or more of water.

Sec. 24. *1. The State Engineer will assign a hazard classification to each dam.*

2. The State Engineer will determine the immediate consequences to persons and property located downstream from the dam in the event of a failure of the dam. The State Engineer will classify a dam as:

(a) High hazard if its failure carries a high probability of causing a loss of human life.

(b) Significant hazard if its failure carries a:

(1) Reasonable probability of causing a loss of human life; or

(2) High probability of causing extensive economic loss or disruption in a lifeline.

(c) Low hazard if its failure carries a:

(1) Very low probability of causing a loss of human life; and

(2) Reasonable probability of causing little, if any, economic loss or disruption in a lifeline.

3. If changes in the persons or property located downstream from a dam change the immediate consequences in the event of a failure of the dam, the State Engineer will change the hazard classification of the dam accordingly.

4. The hazard classification of a dam does not constitute a warranty in favor of anyone concerning the actual safety of the dam.

5. As used in this section, "lifeline" includes, without limitation, a:

(a) Road that is the sole means of access to a community;

(b) Major trunk or transmission line for gas or electricity, the disruption of which could pose significant risks to the public health, safety or welfare of the affected community;

(c) Transmission line for gas or electricity that serves a hospital or other comparable facility; and

(d) Railroad line used or proposed to be used in interstate commerce.

Sec. 25. *1. A person who is required, pursuant to NRS 535.010, to notify the State Engineer before he constructs, reconstructs or alters a dam must submit to the State Engineer:*

(a) A description of all work that is proposed.

(b) The name, mailing address and telephone number of each owner of the dam.

(c) The name, mailing address and telephone number of the operator of the dam.

(d) The name, mailing address and telephone number of each professional engineer in responsible charge of work in connection with the proposed work on the dam.

(e) The source of the water to be impounded by the dam.

(f) The number of the permit for each water right for the water to be impounded by the dam.

(g) The date on which the work on the dam is anticipated to commence.

(h) The location of the dam. The location must be expressed by bearing and distance to a known section corner from a reference point on the dam. The reference point must be on the long axis of the dam at the station where the toe is at the lowest elevation. If no single point meets this criterion, the reference point must be at the intersection of the long axis and the principle outlet centerline of the dam.

(i) An estimate of the length, height and volume of the dam.

(j) The capacity of the reservoir to be created by the dam.

(k) A set of plans for the proposed work. The set of plans must:

(1) Consist of at least three sheets of paper that are each 11 by 17 inches in size and contain:

(I) A cover sheet that includes the names of all the owners, the name of the dam or project and a location plat for the dam that includes a referenced section corner;

(II) A plan view of the dam and impoundment that shows the alignments of cross sections of the dam; and

(III) One or more cross sections of the dam that depict the outlet, spillway and maximum embankment height.

(2) Be prepared by a person licensed pursuant to the provisions of chapter 623, 624 or 625 of NRS, or by an owner or builder of the dam.

2. The State Engineer will review the notice and its accompanying materials and, not later than 30 days after he receives the notice, will respond in writing stating:

(a) The deficiencies, if any, in the submission that must be cured;

(b) That approval of the plans and specifications pursuant to subsection 2 of NRS 535.010 is required before construction may begin; or

(c) That no such approval is necessary.

3. A person who files a completed application for approval of plans for a dam pursuant to section 26 or 27 of this regulation shall be deemed to have complied with this section.

4. As used in this section, "responsible charge of work" has the meaning ascribed to it in NRS 625.080.

Sec. 26. *1. Except as otherwise provided in section 27 of this regulation, a person who is required by NRS 535.010 to file an application for approval of plans for a dam must submit to the State Engineer:*

(a) The application;

(b) The fee for examining and acting upon such plans and specifications required by NRS 533.435; and

(c) Three copies of the plans and specifications, including, without limitation:

(1) A design report;

(2) A geotechnical report;

(3) The specifications for construction;

(4) A set of plans; and

(5) If required or permitted by the State Engineer, one or more addenda.

FLUSH ***Each element of the plans and specifications must be prepared by or under the supervision of a professional engineer and must bear the wet stamp and signature of the professional engineer.***

2. The application must be:

(a) On a form provided by the State Engineer;

(b) Complete;

(c) Signed by each owner of the dam or by an agent authorized to sign the application on behalf of the owner; and

(d) Bound separately from the plans and specifications.

3. The design report must include, without limitation:

(a) A description of the proposed structure;

(b) Discussions of:

(1) The design approach;

(2) The downstream hazard in the event of a failure of the dam or a large release of water;

(3) Any special conditions at the site of which the applicant is aware;

(4) Selection of the inflow design flood; and

(5) Selection of the design earthquake; and

(c) Calculations that establish:

(1) The dam's freeboard;

(2) The dam's inflow design flood;

(3) The dam's outlet capacity;

(4) The dam's spillway capacity;

(5) The dam's storm surcharge; and

(6) If the dam is:

(I) Concrete, the dam's stability under critical reservoir and seismic loading conditions for sliding, overturning, cracking and abutment failure; or

(II) An earthen embankment, the dam's slope stability under static, seismic, rapid fill and rapid draw down conditions.

4. The geotechnical report must:

(a) Include, or if filed with the plans refer to, one or more plats showing each test pit, borehole or other exploration site;

(b) Show the lithology at each exploration site, including standard penetration test results or other means of estimating bearing capacity;

(c) Include estimates of the:

(1) Suitability of the site for the proposed project;

(2) Foundation bearing capacity of the site; and

(3) Expected settlement;

(d) Indicate the soil properties in each relevant area, including, without limitation:

(1) The foundation;

(2) Each abutment;

(3) The reservoir; and

(4) The borrow;

(e) Show the depth to ground water and permeability of foundation materials;

(f) Explore seismic hazards in the area; and

(g) Include a discussion of any special conditions at the site of which the applicant is aware.

5. The specifications for construction must:

(a) Address all aspects of construction;

(b) Include a schedule of testing for quality assurance and quality control;

(c) Provide a precise citation to the location of any other common specification to which it refers; and

(d) Be on standard paper that is 8 1/2 by 11 inches in size.

6. The plans must:

(a) Depict the proposed work adequately and include, without limitation:

(1) A cover sheet that includes, without limitation:

(I) The name of each owner of the dam;

(II) The name of the dam; and

(III) A location plat that shows at least one section corner;

(2) A second sheet that shows elevation-capacity and elevation-area curves;

(3) A third sheet which includes a plan view of the dam and impoundment that shows, without limitation:

(I) The alignments of cross sections of the dam;

(II) The reference point of the dam, tied to a found section corner and identified by latitude and longitude; and

(III) Section corners and postconstruction elevation contours;

(4) A fourth sheet which includes cross sections at each outlet and spillway, and at the maximum embankment height, that show preconstruction and postconstruction ground elevation contours; and

(5) A fifth sheet that shows appurtenant works and details.

(b) Show a tie with bearing and distance to a found section corner from a reference point on the dam. The reference point must be on the long axis at the station where the toe is at the lowest elevation. If no single point meets this criterion, the reference point must be at the intersection of the long axis and the centerline of the principle outlet.

(c) Not include any spurious or excessive detail, including, without limitation, plantings, streets, buildings and pipelines, unless their location directly affects construction, operation or maintenance of the project.

(d) Unless the use of exaggerated dimensions is necessary for clarity, have the same vertical and horizontal scales.

(e) Be in one color on standard paper that is 24 by 36 inches in size.

7. Each addendum must:

(a) Be reasonably necessary; and

(b) Be on standard paper that, if the addendum consists of:

(1) Text only, is 8 1/2 by 11 inches in size; or

(2) An illustration, is not larger than 11 by 17 inches in size.

8. A calculation included in the plans and specifications that concerns strength or stability must incorporate a factor of safety. The factor of safety:

(a) If the calculation describes conditions of steady-state seepage static load, must not be less than 1.4;

(b) If the calculation describes conditions of postconstruction static load, must not be less than 1.3;

(c) If the calculation describes conditions of rapid reservoir draw down load, must not be less than 1.25; or

(d) If the calculation describes conditions of seismic load, must not be less than 1.0.

9. For the purposes of determining whether a person is required to apply for approval of plans for a dam pursuant to paragraph (b) of subsection 2 of NRS 535.010, the State Engineer will calculate the capacity of the dam as the volume of water, expressed in acre-feet, detained above the anticipated elevation of the lowest point on the toe of the dam.

10. As used in this section, "design earthquake," means a hypothetical earthquake of a specified magnitude used in the design of a dam.

Sec. 27. *1. A person who is required by NRS 535.010 to file an application for approval of plans for the decommissioning of a dam must submit to the State Engineer:*

(a) The application; and

(b) Three copies of the plans and specifications, including, without limitation:

(1) A design report;

(2) The specifications for construction; and

(3) A set of plans.

FLUSH *Each element of the plans and specifications must be prepared by or under the supervision of a professional engineer and must bear the wet stamp and signature of the professional engineer.*

2. The application must be:

(a) On a form provided by the State Engineer;

(b) Complete; and

(c) Signed by each owner of the dam or by an agent authorized to sign the application on behalf of the owner.

3. The design report must include, without limitation:

(a) A detailed description of the proposed work;

(b) Discussions of:

(1) The plan for release of water impounded by the dam;

(2) The stabilization of sediment;

(3) The anticipated consequences to persons and property located downstream from the dam;

(4) Design features to prevent a sudden release of water or slope failure during decommissioning; and

(5) Erosion control; and

(c) If a breach in an embankment of the dam is designed with a bottom width that is less than the height of the embankment, calculations that establish the slope stability of the walls of the breach.

4. The specifications for construction must:

(a) Address all aspects of construction;

(b) Include a schedule of testing for quality assurance and quality control;

(c) Provide a precise citation to the location of any other common specification to which it refers;

(d) Be on standard paper that is 8 1/2 by 11 inches in size; and

(e) Set forth the sequence of activities, including a timetable.

5. The plans must:

(a) Depict the proposed work adequately and include, without limitation:

(1) A cover sheet that includes, without limitation:

(I) The name of each owner of the dam;

(II) The name of the dam; and

(III) A location plat that shows at least one section corner;

(2) A second sheet which includes a plan view of the existing dam and impoundment that shows, without limitation:

(I) The alignments of cross sections of the dam showing proposed alterations to the dam and impoundment;

(II) The reference point of the dam, tied to a found section corner and identified by latitude and longitude; and

(III) Section corners and elevation contours; and

(3) A third sheet which includes a plan view of the dam and impoundment at the completion of decommissioning that shows, without limitation:

(I) Details of proposed alterations to the dam and impoundment, including any new construction for the purposes of erosion control; and

(II) Representative cross sections through the dam, breach and impoundment.

(b) Show a tie with bearing and distance to a found section corner from a reference point on the existing dam. The reference point must be on the long axis at the station where the toe is at the lowest elevation. If no single point meets this criterion, the reference point must be at the intersection of the long axis and the centerline of the principle outlet.

(c) Unless the use of exaggerated dimensions is necessary for clarity, have the same vertical and horizontal scales.

6. For the purposes of determining whether a person is required to apply for approval of plans for the decommissioning of a dam pursuant to paragraph (b) of subsection 2 of NRS 535.010, the State Engineer will calculate the capacity of the dam as the volume of water, expressed in acre-feet, detained above the anticipated elevation of the lowest point on the toe of the dam.

7. As used in this section, "decommissioning" includes breaching and removing.

Sec. 28. *1. The State Engineer will reject an application that:*

(a) Appears to be incomplete; or

(b) Lacks the correct fee.

FLUSH *The rejected application, any accompanying plans or specifications and the fee, if any, will be returned to the applicant.*

2. The State Engineer will:

(a) Examine each unrejected application in the order in which it is received; and

(b) Approve or disapprove the application within 90 days after receipt.

3. If the State Engineer returns the plans and specifications to the applicant for correction or revision pursuant to subsection 3 of NRS 535.010, the State Engineer will:

(a) Identify the defects or other deficiencies;

(b) Establish a reasonable time, not to exceed 60 days after the date of receipt, within which the applicant may revise or correct and resubmit the plans; and

(c) Retain the fee.

FLUSH *There is no additional fee for the resubmission of a revised or corrected application within the time established by the State Engineer.*

4. The State Engineer may condition his approval of an application by imposing terms of approval on the work proposed. If the State Engineer imposes such terms, he will provide a copy of the terms to the Board of Wildlife Commissioners.

5. If the State Engineer approves, or approves as conditioned, the plans and specifications for a dam, the State Engineer will:

(a) Endorse the application with his stamp and signature;

(b) Retain a copy of the application for his records;

(c) Return a copy of the application to the applicant; and

(d) Deem the endorsed application a permit issued by the State of Nevada for the purposes of NRS 535.050.

Sec. 29. *1. Except as otherwise provided in section 27 of this regulation, to obtain the approval of the State Engineer pursuant to NRS 535.010, the plans and specifications must, in addition to all other applicable requirements, demonstrate to the satisfaction of the State Engineer that:*

(a) The dam and reservoir are able to accommodate the inflow design flood for the tributary watershed without the failure of the dam or any other unintended release of water.

(b) The inflow design flood selected is appropriate given the intended purpose, hazard classification and size of the dam.

2. For the purposes of this section, the inflow design flood used for design purposes must not, except as otherwise provided in subsection 3, be less than:

(a) A probable maximum flood, if the dam:

(1) Is classified as high hazard or is a large dam and classified as significant hazard; or

(2) Lacks one or more spillways.

(b) The greater of one-half of the probable maximum flood or a flood whose annual chance of exceedence is 0.2 percent, if the dam is a small or medium dam and is classified as significant hazard.

(c) A flood whose annual chance of exceedence is 1 percent, for all other dams.

3. The State Engineer will approve plans that use an inflow design flood which is less than those set forth in subsection 2 if the applicant provides an incremental damage analysis that demonstrates, to the satisfaction of the State Engineer, that a lesser event is appropriate.

4. An applicant may use one or more watershed diversion structures in lieu of spillways for the protection of a dam embankment so long as:

(a) The impoundment created by the embankment so protected is temporary; and

(b) The diversion structures are designed to accommodate the greater of the inflow design flood or five times the expected life of the impoundment.

5. A dam must have freeboard adequate to prevent overtopping by wave run-up and reservoir fetch above the storm surcharge elevation. The adequacy of the freeboard must be demonstrated by evidence satisfactory to the State Engineer in the form of:

(a) A wave run-up and reservoir fetch calculation; or

(b) Proof that the freeboard is not less than 3 feet above the storm surcharge elevation.

6. As used in this section, "storm surcharge elevation" means the elevation that the water surface would reach if the inflow design flood of a dam were added to a reservoir that is at its maximum conservation elevation.

Sec. 30. *1. Except as otherwise provided in section 27 of this regulation, to obtain the approval of the State Engineer pursuant to NRS 535.010, the plans and specifications must, in addition to all other applicable requirements, demonstrate to the satisfaction of the State Engineer that the dam is able to accommodate an earthquake or other extreme motion event without the failure of the dam or any other unintended release of water.*

2. Except as otherwise provided in subsection 3, the applicant must calculate the seismic response to a maximum credible earthquake of a dam and its foundation, including, without limitation:

(a) Potential liquefaction;

(b) Loss of material strength;

(c) Settlement;

(d) Ground displacement; and

(e) Wave action due to landslide or seiche.

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Any numeric analysis of the seismic response must be calculated for the normal maximum loading condition with steady-state seepage. If a pseudo static stability analysis is performed for an earthen embankment, the calculations must be accompanied by a description of the assumptions used in deriving the seismic coefficient used in the calculations.

3. Subsection 2 does not apply to a dam classified as low hazard or to a small earth dam classified as significant hazard, if the applicant demonstrates to the satisfaction of the State Engineer that the:

(a) Static slope stability factor of safety is 1.5 or greater under normal maximum loading with steady-state seepage;

(b) Peak site acceleration is not greater than 6.5 feet per second squared;

(c) Materials used in the foundation and embankment are not prone to liquefaction; and

(d) Slope of the embankment is:

(1) If the embankment is earthen, not greater than 18.43 degrees from horizontal; or

(2) If the embankment is free-draining rockfill, not greater than 26.56 degrees from horizontal.

Sec. 31. *1. A professional engineer shall provide design and construction oversight for any work on a dam for which the plans and specifications require the approval of the State Engineer pursuant to NRS 535.010.*

2. A contractor licensed pursuant to chapter 624 of NRS shall perform all construction on a dam classified as high hazard or significant hazard and on a large or medium dam classified as low hazard.

3. A small dam classified as low hazard may be designed by empirical methods.

Sec. 32. *1. An applicant who begins construction of a dam pursuant to an application approved by the State Engineer shall:*

(a) Comply with all terms and conditions imposed by the State Engineer as conditions for approval; and

(b) Ensure that all construction conforms to the plans as approved.

2. A dam built in violation of this section is not legally established or recognized for the purposes of NRS 535.050, and the State Engineer may order the removal of such a dam pursuant to that section. In addition, if the dam presents an immediate danger, the State Engineer may take the remedial steps authorized in NRS 535.030.

Sec. 33. *1. An owner shall not abandon a dam unless, not later than 30 days before he does so, the owner notifies the State Engineer.*

2. The notice must include:

(a) The name, mailing address and telephone number of each owner of the dam.

(b) The number of the permit for each water right for the water formerly impounded by the dam.

(c) The location of the dam. The location must be expressed by bearing and distance to a known section corner from a reference point on the dam. The reference point must be on the long axis of the dam at the station where the toe is at the lowest elevation. If no single point meets this criterion, the reference point must be at the intersection of the long axis and the principle outlet centerline of the dam.

Sec. 34. *1. A person whose application for approval of plans for the decommissioning of a dam has been approved by the State Engineer may apply for the closure of the file associated with the dam.*

2. The State Engineer will close a file if:

(a) The dam has been breached intentionally or through mishap;

(b) The dam and impoundment have been decommissioned;

(c) The dam was not built;

(d) All water rights associated with the dam have been moved, cancelled, denied, withdrawn or forfeited; or

(e) The applicant withdraws the application for approval of plans for a dam.

3. If the State Engineer closes the file, the dam may not be returned to service and no water may be impounded behind the dam represented by that file until an owner complies with all applicable sections of this chapter and chapter 535 of NRS.

Sec. 35. ***1. Except as otherwise provided in subsection 8, an owner of a dam approved by the State Engineer pursuant to this chapter shall not put his dam into operation, or otherwise impound any water, until the owner obtains an approval to impound, including a temporary approval to impound, from the State Engineer.***

2. To obtain an approval to impound, an owner or operator must submit to the State Engineer:

(a) The name, mailing address and telephone number of the operator of the dam;

(b) Proof of completion of work, including, without limitation:

(1) A completed cover sheet on a form supplied by the State Engineer;

(2) The certification of a professional engineer that the construction was in substantial compliance with the plans and specifications as approved;

(3) Documentation, satisfactory to the State Engineer, of quality assurance and quality control in the construction of the dam;

(4) A set of plans for the dam as-built; and

(5) Any other documents required by the terms of the approval; and

(c) The fee for filing proof of completion of work required by NRS 533.435.

3. An owner or operator may request an approval to impound a volume of water that is less than that granted to the applicant as specified in the approval of the application for approval of plans for a dam by submitting proof of completion of work for the work actually performed.

4. The State Engineer will request, in writing, any missing or additional information or correction of deficiencies not later than 30 days after he receives a request for approval to impound.

5. The State Engineer will grant, in writing, an approval to impound upon:

(a) Successful completion of terms pertaining to construction;

(b) Submittal of a complete proof of completion of work form; and

(c) Receipt of all requested additional information, if any.

6. The approval to impound will set forth, without limitation:

(a) The approved capacity of the reservoir to the maximum conservation elevation;

(b) The approved height of the dam;

(c) The minimum amount of freeboard that is required to be maintained; and

(d) Any other conditions or restrictions on operation imposed by the State Engineer.

7. If the State Engineer orders a dam or embankment to be breached or maintained in a drained condition pursuant to NRS 535.030:

(a) The current approval to impound water shall be deemed revoked; and

(b) No water may be impounded behind the structure until:

(1) All conditions of the order have been satisfied; and

(2) The owner has obtained a new approval to impound pursuant to this chapter.

8. A dam in existence before March 15, 1951, shall be deemed to have approval to impound that volume of water for which water rights had been established pursuant to chapters 533 and 534 of NRS by that date.

9. As used in this section:

(a) "As-built" means record drawings prepared from surveys made during construction and upon completion of the structure.

(b) If the dam is a storm water detention dam that is designed to be and is operated in a normally drained state, "maximum conservation elevation" means the upstream invert elevation of the low-level outlet.

Sec. 36. *1. The State Engineer may grant a temporary approval to impound.*

2. An applicant may request a temporary approval to impound by submitting to the State Engineer:

(a) The reason for the necessity of a temporary approval to impound;

(b) A timetable for submitting the deficient or missing information or documents;

(c) A completed proof of completion of work cover sheet;

(d) The certification of a professional engineer that the construction is in substantial compliance with the plans and specifications as approved; and

(e) The fee for filing proof of completion of work required by NRS 533.435.

3. If the State Engineer grants a temporary approval to impound, he will establish a specific expiration date not to exceed 90 days after the date of the approval.

Sec. 37. *1. To obtain an approval to impound, including a temporary approval to impound, an owner or operator must submit to the State Engineer an emergency action plan:*

(a) If the dam is classified as high hazard, on or after May 30, 2003.

(b) If the dam is classified as significant hazard, on or after March 31, 2005.

2. An owner or operator who is not required to submit an emergency action plan pursuant to subsection 1 shall submit to the State Engineer an emergency action plan:

(a) If the dam is classified as high hazard, not later than March 31, 2005.

(b) If the dam is classified as significant hazard, not later than March 31, 2007.

3. An emergency action plan must:

(a) Be prepared under the direction of a professional engineer;

(b) Conform to the format specified by the State Engineer;

(c) Include a detailed response for each foreseeable emergency; and

(d) Include one or more inundation maps.

4. An owner or operator subject to this section shall:

(a) Perform periodic exercises under the plan; and

(b) Modify the plan as necessary to keep it current and incorporate lessons learned from the exercises.

Sec. 38. *The State Engineer may revoke an approval to impound, including a temporary approval to impound, if:*

1. The approval is based on a water right that is moved, cancelled, denied, withdrawn or forfeited.

2. The terms of the approval to impound are violated.

3. The dam is operated in an unsafe manner.

4. The dam is damaged to such an extent that, in the opinion of the State Engineer, its failure is reasonably possible.

5. The file associated with the dam is closed pursuant to section 34 of this regulation.

Sec. 39. *1. Notwithstanding any provision in section 35, 36 or 37 of this regulation to the contrary, an owner or operator shall not impound an amount of water that is greater than the amount for which he possesses water rights that are legally established and recognized:*

(a) Through a valid claim of vested right;

(b) By decree of a court of competent jurisdiction; or

(c) Pursuant to a permit issued by the State Engineer.

2. If a water right for water impounded by a dam is moved, cancelled, denied, withdrawn or declared forfeited, the owner shall:

(a) Reduce the amount of water impounded to the amount of water rights remaining; or

(b) If the owner retains no water rights, decommission the dam.

Sec. 40. *1. Except as otherwise provided in subsection 4, the State Engineer will, not later than December 31 of each year, assess each private, nonagricultural dam that is operated pursuant to an approval to impound, including a temporary approval to impound, the fee for approved storage required by NRS 533.435.*

2. The State Engineer will use the approved capacity stated in the approval to impound, including a temporary approval to impound, in effect as of December 31 of the fiscal year of the assessment as the approved storage capacity subject to the fee.

3. The fee is due and payable upon receipt.

4. This section does not apply to a storm water detention dam so long as the dam:

(a) Has an unregulated outlet; and

(b) Is free-draining.

Sec. 41. *1. The State Engineer will, pursuant to NRS 535.030, inspect or require an owner to inspect:*

(a) A dam classified as high hazard not less than once a year;

(b) A dam classified as significant hazard not less than once every 3 years; and

(c) Any other dam not less than once every 5 years.

2. The State Engineer may at any time inspect, or require an owner to inspect, a dam under construction to determine the condition of any element relevant to the safety of the dam, including, without limitation:

(a) The preparation of the foundation;

(b) The placement and compaction of the material;

(c) The construction of the outlet;

(d) Armoring; and

(e) Filling.

3. The State Engineer will send to the operator:

(a) A copy of each report of a safety inspection;

(b) A list of repairs, if any, that are required; and

(c) A list of repairs or other maintenance, if any, that are recommended.

4. If an operator fails to complete all required repairs in a reasonable time or the State Engineer concludes that a hazardous condition exists that may threaten life or property, the State Engineer may order the operator to lower, drain or cease diverting water into the reservoir until the operator satisfies the State Engineer that the repair has been completed or the condition has been rectified.

5. If the State Engineer determines, pursuant to subsection 3 of NRS 535.030, that immediate remedial action is necessary to safeguard life or property, the State Engineer will:

(a) Take such action;

(b) Post, at the headworks of the dam, a notice that states:

(1) The telephone number and address of his office;

(2) The specific action he is taking; and

(3) The authority under which he is acting; and

(c) Serve a copy of the notice on the operator at the most recent address provided by the operator or owner.

6. The State Engineer may enter onto private land for the purposes of administering this section.

7. The State Engineer may, pursuant to NRS 535.030, require an owner or his designee to:

(a) Submit to the State Engineer a proposed schedule of inspections of the dam and any works appurtenant to the dam;

(b) If the State Engineer approves the inspection schedule, cause the inspections to be conducted;

(c) Maintain records of all inspections and any actions taken to correct any deficiencies identified; and

(d) File with the State Engineer, not later than 30 days after each inspection, a copy of the report of the inspector.

Sec. 42. *1. An operator shall:*

(a) Operate and maintain his dam and works appurtenant to his dam in a safe manner and in accordance with all applicable permits, laws and regulations.

(b) Take all necessary action allowed by law to prevent the failure of his dam.

(c) Notify the State Engineer and local responsible authorities of any:

(1) Problem or unusual event at the dam; or

(2) Change in the name or address of an operator or owner of the dam, reservoir, shoreline or water right associated with the dam.

(d) Modify his dam to meet changing downstream hazard conditions or upstream watershed modifications.

2. If a dam has multiple owners, each owner must be party to an agreement that allocates responsibility for the maintenance of the dam and regulation of water impounded by the dam among all the owners. A copy of the current agreement must be maintained in the office of the State Engineer.

3. The State Engineer will direct communications relating to a dam to the operator. Notice to the operator shall be deemed notice to every owner.

Sec. 43. *1. If there is an actual or proposed change in the ownership of a dam for which an approval to impound, including a temporary approval to impound, has been granted by the State Engineer, the new or prospective owner may obtain the transfer to him of the approval to impound.*

2. The State Engineer will transfer the approval to impound if:

(a) The holder of the approval to impound consents in writing to the transfer; and

(b) The new or prospective owner of the dam submits, in writing:

(1) Proof that he is, or proposes to become, an owner of the dam;

(2) The date of the change in ownership; and

(3) An acknowledgment that he has received a copy of the approval to impound that is in effect and is aware of its terms, including, without limitation, any conditions or restrictions on operation imposed by the State Engineer.

3. Nothing in this section affects any duty, responsibility or other obligation to which a party to the transfer of the approval to impound is otherwise subject pursuant to the provisions of this chapter or chapter 535 of NRS.

Sec. 44. *A person who violates any provision of this chapter may, depending on the nature of the violation:*

1. Be assessed a civil penalty;

2. Be punished pursuant to subsection 8 of NRS 535.010; and

3. If the State Engineer orders the removal of the dam pursuant to NRS 535.050, be required to bear the expenses of such removal.

Sec. 45. *An application, correspondence, plan, report or other document submitted to the State Engineer pursuant to this chapter takes effect on the day when a physical copy is received in the office of the State Engineer and is stamped accordingly.*

Sec. 46. *The State Engineer may, upon a showing of good cause, grant a variance from any provision of this chapter, including, without limitation, an extension of time to comply with any such provision.*

Sec. 47. *Nothing in this chapter grants an exemption from any applicable federal, state or local requirement.*

NOTICE OF ADOPTION OF PROPOSED REGULATION
LCB File No. R124-02

The State Engineer adopted regulations assigned LCB File No. R124-02 which pertain to chapter 414 of the Nevada Administrative Code on April 22, 2003

Notice date: 7/23/2002 **Date of adoption by agency:** 4/22/2003
Hearing date: 8/27/2002, 8/28/2002, 8/29/2002 **Filing date:** 5/30/2003

INFORMATIONAL STATEMENT

NRS233B.06 (1.a) The Division of Water Resources (division) solicited Public comment by posting a notice of workshop and hearing in each county library in which the division does not operate a branch office and in each major newspaper in Nevada. The notice was also posted at the office of the state engineer in Carson City and at the branch offices in both Elko and Las Vegas. An electronic version of the notice was also posted on the division's web-site.

Public response was limited. No comments were generated from any member of the public who did not have a stake in the regulated industry.

NRS233B.06 (1.b(1)) A workshop and hearing was held in Las Vegas, Carson City and Elko on successive days. One person attended each hearing in Elko and Las Vegas, whereas two persons attended the hearing in Carson City.

NRS233B.06 (1.b(2)) All of the hearing attendees testified (four total).

NRS233B.06 (1.b(3)) A request for an extension for the submittal of written testimony was granted by the state engineer and a total of seven written responses were received (three via e-mail).

NRS233B.06 (1.c) Regulated industry comments were solicited by the same vehicle as the public comments with the addition of opportunistic personal contact by staff members and a mailing list of dam owners and engineers. All of the attendees at the workshops and hearings were directly involved in the regulated industry. An assembled copy of the comments is available from the division for the $4.60 cost of copying the material. A copy of this statement may be requested at no charge. A transcript of each hearing is on file in the office of the state engineer and is available for review.

The comments may be summarized in nine facets. First, several grammar, logic and syntax errors were pointed out. Second, the format was confusing to the reader. Third, Revised

factors of safety for stability calculations were suggested along with a request to eliminate the provision allowing for the pseudo-static analysis of an earth embankment under seismic loading (earthquake) conditions and a suggestion that the maximum credible earthquake (MCE) was not always an appropriate standard. Fourth, the definition of "water" was called into question. Fifth, the perception that tailings dams were unique enough to require separate regulations or a separate section within the regulations was elucidated. Sixth, a request that existing dams be "grand fathered." Seventh, a request that legislation be enacted to address the owner's responsibility when downstream areas become developed. Eighth, various comments on the application procedure and requirements. Lastly, an assertion that the dam storage fee is being inappropriately charged.

These comments were given full consideration in the promulgation of the revised regulations.

NRS233B.06 (1.d) Not applicable.

NRS233B.06 (1.e) The economic effect on the regulated industry will be in two parts:

First part, to the engineering/consulting community, will be beneficial both immediately and over the long term. The adoption of the regulation will eliminate some confusion and delays in processing applications for permits to construct dams. Imposition of a timeline for the formulation of Emergency Action Plans (EAPs) will provide opportunities for the dam owner community to make additional contracts for their services. **Too many variables exist to be able to provide a definitive dollar figure**.

Second part, to the dam owner community, will have beneficial and adverse aspects. The adoption of the regulation will be beneficial by eliminating some confusion and delays in processing applications for permits to construct dams, potentially favorable terms for hazard insurance and the possibility that generation of an inundation map will allow a hazard reduction for the dam. Imposition of a timeline for the formulation of EAPs may be adverse by causing some dam owners to generate EAPs more quickly than previously anticipated or by causing dam owners to generate EAPs who had not previously anticipated the need. **The actual figure is impossible to determine due to the wide variety of dams and their associated specific hazards but may range from no cost to an annualized cost of approximately $1,000.00 per dam**. The cost will be part of the maintenance of the dam over the life of the structure. Immediate impacts will be on persons making an application for a permit to construct a dam and

on owners of high hazard dams. Long-term impacts will be on all owners of high and significant hazard dams. Owners of low hazard dams may feel a long-term impact if development occurs downstream leading to a reclassification of their dam to a higher hazard rating.

The economic effect on the general public will be beneficial. Generation of EAPs will better define flood risks downstream. Exact definition of flood risk has the potential for lowering flood insurance needs or eliminating the necessity of having to purchase flood insurance. **A dollar figure for this benefit is similarly impossible to determine at this time**.

NRS233B.06 (1.f) The economic effect on the Division will be negligible as the adopted regulation reflects current policy and practice of the State Engineer.

NRS233B.06 (1.g) The regulation overlaps or duplicates in part several portions of Federal Energy Regulatory Commission, United States Army Corps of Engineers (COE), United States Department of the Interior, Bureau of Reclamation (BOR), and United States Department of the Interior, Bureau of Indian Affairs safety of dams regulations. However, the cited federal agencies missions are specific and do not address the larger body of dam owners in Nevada. BOR and COE projects are exempt from oversight by the division pursuant to NRS 535.010(7) and NRS 535.030(4). These regulations have been specifically suggested by Federal Emergency Management Administration. Some aspects of Nevada Department of Conservation and Natural Resources, Division of Environmental Protection (NDEP) water pollution control permitting appears to be duplicated. Reference is specifically made to NDEP guidance document WTS-37 in which a specific inflow design flood (IDF) is called out for wastewater ponds. Since the NDEP permitting process is limited to water pollution control, the division's regulations must exist in order to apply to all dams. Under most circumstances, the requirement is identical. On occasion, the division's requirement is more stringent and should override the NDEP guideline for structural safety purposes.

NRS233B.06 (1.h) Not applicable.

NRS233B.06 (1.i) No new or increased fees.