

**ADOPTED REGULATION OF
THE STATE ENGINEER**

LCB File No. R054-14

Effective October 24, 2014

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

AUTHORITY: §§1-5, 13, 14, 16, 17, 20 and 21, NRS 532.120; §§6 and 15, NRS 532.120 and 535.030; §§7-12, NRS 532.120 and 535.010; §18, NRS 532.120 and 533.435; §19, NRS 532.120, 535.030 and 535.035.

A REGULATION relating to dams; revising provisions relating to hazard classifications of dams; revising provisions relating to the notice of, and application for approval of, construction, reconstruction, alteration and decommissioning of dams; revising provisions governing the abandonment of a dam; revising provisions relating to a request for approval to impound water; specifying the manner in which the storage capacity for a flood control detention basin will be determined for the purpose of charging a certain fee; requiring an inspection of a dam that is the subject of a certain complaint; revising requirements regarding the maintenance of an operation manual and log for each dam; revising provisions governing the transfer of an approval to impound water that is associated with a dam; and providing other matters properly relating thereto.

Legislative Counsel's Digest:

Under existing law, the State Engineer is authorized to regulate the construction, reconstruction, alteration and operation of dams and other obstructions of waterways in Nevada. (NRS 532.110, 532.120, chapter 535 of NRS) This regulation proposes amendments to regulations that the State Engineer has adopted pursuant to that authority.

Section 4 of this regulation provides that any lake, reservoir, stream or watercourse that serves as a potable water supply is to be considered a “lifeline,” the possible disruption of which is to be considered when assigning a hazard classification to each dam. **Section 7** of this regulation revises the information that a person must submit to the State Engineer before constructing, reconstructing or altering a dam. **Section 7** also eliminates the authority of the owner or builder of a dam to prepare the set of plans for the dam that must be submitted before constructing, reconstructing or altering a dam; instead, the plans must be prepared only by a person licensed pursuant to the provisions of chapter 623, 624 or 625 of NRS. **Section 8** of this regulation requires a person filing an application for approval of plans for a dam to submit to the State Engineer a potential hazard classification report, which must address any potential impacts of the dam and include a recommendation for the hazard classification to be assigned to the dam.

Sections 8 and 9 of this regulation require that an application for approval of plans for a dam or for decommissioning a dam only be submitted to the State Engineer in person or by mail.

Section 10 of this regulation revises the period during which the State Engineer will examine and approve or disapprove of each application to construct, reconstruct, alter or decommission a dam. **Section 10** also removes the requirement that the State Engineer provide the Board of Wildlife Commissioners with a copy of any terms imposed on an approved application as a condition of the approval. **Sections 11 and 12** of this regulation revise calculations of information in the plans and specifications for the approval of an application. **Section 13** of this regulation changes the procedure for abandoning a dam: instead of the owner providing notice to the State Engineer, the owner must follow the procedures for decommissioning a dam or transferring approval to impound.

Section 14 of this regulation eliminates the requirement that all water rights associated with a dam have been moved, cancelled, denied, withdrawn or forfeited before the State Engineer will close the file associated with the dam. **Section 15** of this regulation removes the deadline by which the State Engineer may request any missing or additional information or correction of deficiencies in a request for approval to impound water behind a dam. **Section 16** of this regulation removes obsolete dates but maintains a duty of each owner or operator of a dam who seeks to obtain an approval to impound water, and each owner or operator of a dam for which an approval to impound has been granted or that otherwise is impounding water or is capable of impounding water, to submit to the State Engineer an emergency action plan. The emergency action plan: (1) must follow a format presented by the Federal Emergency Management Agency or approved by the State Engineer; (2) must address appropriate steps to be taken in the event of a potential or actual emergency at the dam; and (3) for those sections requiring numeric analysis, calculations or mapping, must be prepared under the direction of a professional engineer.

Section 18 of this regulation specifies the standard by which the State Engineer will determine, for a flood control detention basin, the storage capacity that is subject to the fee required by NRS 533.435. **Section 19** of this regulation provides that the State Engineer will inspect or require the owner to inspect any dam that is subject to a complaint submitted to the State Engineer alleging that the reservoir created by the dam is unsafe. **Section 20** of this regulation requires each owner and operator of a dam to maintain an operation manual and log for each dam that he or she owns or operates. **Section 21** of this regulation provides that the legal conveyance of a water right associated with a dam constitutes the transfer of any approval to impound water that is associated with the dam and does not require any further action by the State Engineer.

Section 1. Chapter 535 of NAC is hereby amended by adding thereto the provisions set forth as sections 2, 3 and 4 of this regulation.

Sec. 2. *“Breach” means a discontinuity, whether intentional or accidental, in a dam that allows impounded water to escape in an uncontrolled manner.*

Sec. 3. *“Failure of the dam” means any damage to a dam or its appurtenances such that any impounded water may no longer be detained or released in a controlled manner.*

Sec. 4. *“Lifeline” includes, without limitation:*

- 1. A road that is the sole means of access to a community;*
- 2. A 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;*
- 3. A transmission line for gas or electricity that serves a hospital or other comparable facility;*
- 4. A railroad line used or proposed to be used in interstate commerce; and*
- 5. A lake, reservoir, stream or watercourse that serves as a potable supply of water.*

Sec. 5. NAC 535.010 is hereby amended to read as follows:

535.010 As used in this chapter, unless the context otherwise requires, the words and terms defined in NAC 535.015 to 535.100, inclusive, *and sections 2, 3 and 4 of this regulation* have the meanings ascribed to them in those sections.

Sec. 6. NAC 535.140 is hereby amended to read as follows:

- 535.140
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 *of the dam* carries a high probability of causing a loss of human life.
 - (b) Significant hazard if ~~its~~ failure *of the dam* 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 ~~fits~~ failure *of the dam* 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. 7. NAC 535.200 is hereby amended to read as follows:

535.200 1. A person who is required, pursuant to NRS 535.010, to notify the State Engineer before he or she 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 *or diverted* by the dam.
- (f) The number of the permit for each water right for the water to be impounded *or diverted* 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 **H** *and identified by latitude and longitude*. 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 receiving 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 NAC 535.210 or 535.220 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. 8. NAC 535.210 is hereby amended to read as follows:

535.210 1. Except as otherwise provided in NAC 535.220, 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 ~~or~~ *in person or by mail:*

(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 potential hazard classification report;*

(5) A set of plans; and

~~(5)~~ (6) If required or permitted by the State Engineer, one or more addenda.

↳ 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~~ *Be on* a form provided by the State Engineer;

(b) ~~Complete~~ *Be complete*;

(c) ~~Signed by~~ *Bear the original signature of* each owner of the dam or ~~by~~ an agent

authorized to sign the application on behalf of the owner; and

(d) ~~Bound~~ *Be 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 groundwater 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 potential hazard classification report must:*

(a) Address any potential impact of the dam on life, property and any lifeline, both downstream of the dam and within the potential reservoir inundation area, for:

(1) Bank-full reservoir conditions;

(2) Maximum discharge conditions; and

(3) Dam breach conditions; and

(b) Make a recommendation for the hazard classification to be assigned to the dam, including, without limitation, identification of the conditions that justify the recommendation.

7. 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.

~~17.1~~ 8. 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.

~~18.1~~ **9.** 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~~.

~~9.1~~ **1.1, unless a deformation analysis showing adequate residual strength and retention of freeboard is provided.**

10. 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.

~~10.1~~ **11.** As used in this section, “design earthquake” means a hypothetical earthquake of a specified magnitude *or return period* used in the design of a dam.

Sec. 9. NAC 535.220 is hereby amended to read as follows:

535.220 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 ~~1.1~~ *in person or by mail*:

- (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.

↪ 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~~ *Be on* a form provided by the State Engineer;
- (b) ~~Complete~~ *Be complete*; and
- (c) ~~Signed by~~ *Bear the original signature of* 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. 10. NAC 535.230 is hereby amended to read as follows:

535.230 1. The State Engineer will reject an application that:

(a) Appears to be incomplete; or

(b) Lacks the correct fee.

↪ The rejected application, any accompanying plans or specifications and the fee, if any, will be returned to the applicant **⚡ within 90 days after receipt of the application.**

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.

↪ 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 or her approval of an application by imposing terms of approval on the work proposed. ~~If the State Engineer imposes such terms, he or she 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 the State Engineer's stamp and signature;

(b) Retain a copy of the application for his or her 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. 11. NAC 535.240 is hereby amended to read as follows:

535.240 1. Except as otherwise provided in NAC 535.220, 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~~ A flood whose annual chance of exceedence is ~~10-21~~ 0.1 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. 12. NAC 535.250 is hereby amended to read as follows:

535.250 1. Except as otherwise provided in NAC 535.220, 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.

↪ 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;~~ *a horizontal-to-vertical ratio of 3:1;* or

(2) If the embankment is free-draining rockfill, not greater than ~~26.56 degrees from horizontal;~~ *a horizontal-to-vertical ratio of 2:1.*

Sec. 13. NAC 535.280 is hereby amended to read as follows:

535.280 ~~1.~~ An owner shall not abandon a dam ~~unless, not later than 30 days before doing 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.~~ *except by decommissioning pursuant to NAC 535.220 or through a transfer pursuant to NAC 535.380.*

Sec. 14. NAC 535.290 is hereby amended to read as follows:

535.290 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; *or*
- (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. 15. NAC 535.300 is hereby amended to read as follows:

535.300 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 the 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 receiving 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†, “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. 16. NAC 535.320 is hereby amended to read as follows:

535.320 1. To obtain an approval to impound, including a temporary approval to impound, an owner or operator *of a dam classified as high hazard or significant hazard* 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.† for the dam.~~

2. An owner or operator ~~†who is not required to submit an emergency action plan pursuant to subsection 1†~~ *of a dam classified as high hazard or significant hazard for which an approval to impound has been granted as of October 24, 2014, or that otherwise is impounding water or is capable of impounding water as of October 24, 2014,* 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.† for the dam.~~

3. An emergency action plan *submitted pursuant to this section* must:

(a) ~~†Be†~~ *Follow the format presented by the Federal Emergency Management Agency in the Federal Guidelines for Dam Safety: Emergency Action Planning for Dams (FEMA Publication No. P-64) or an equivalent format approved by the State Engineer;*

(b) For those sections requiring numeric analysis, calculations or mapping, 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~~ *Update* the plan as necessary to keep it current and incorporate lessons learned from the exercises ~~;~~ *and*

(c) Submit any updates to the plan to the State Engineer.

Sec. 17. NAC 535.330 is hereby amended to read as follows:

535.330 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, ~~fits~~ failure *of the dam* is reasonably possible.

5. The file associated with the dam is closed pursuant to NAC 535.290.

Sec. 18. NAC 535.350 is hereby amended to read as follows:

535.350 1. ~~Except as otherwise provided in subsection 4, the~~ *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~~ *Except as otherwise provided in subsection 3, 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. *For a flood control detention basin, the State Engineer will use, except as otherwise provided in this subsection, the capacity to the spillway invert elevation in effect as of December 31 of the fiscal year of the assessment as the storage capacity subject to the fee. If a flood control detention basin lacks a spillway, the State Engineer will use the capacity relative to the inflow design flood in effect as of December 31 of the fiscal year of the assessment as the storage capacity subject to the fee.*

4. 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.† of the assessment.~~

5. *As used in this section, “flood control detention basin” means a basin behind a dam which normally does not contain any impounded water and has an ungated outlet structure for the controlled release of water that is impounded during or after a flood to prevent erosion or downstream flooding.*

Sec. 19. NAC 535.360 is hereby amended to read as follows:

535.360 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 dam that is the subject of a complaint submitted to the State Engineer which alleges that the reservoir created by the dam is in an unsafe condition or is being used in an unsafe manner. An inspection by an owner required by the State Engineer pursuant to this paragraph must be completed not later than the date specified by the State Engineer.*

(d) 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 the State Engineer's office;

- (2) The specific action the State Engineer is taking; and
- (3) The authority under which the State Engineer 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 or her 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. 20. NAC 535.370 is hereby amended to read as follows:

535.370 1. ~~Each~~ *Each owner and each* operator shall:

- (a) Operate and maintain his or her dam and works appurtenant to the 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 the 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 or her dam to meet changing downstream hazard conditions or upstream watershed modifications.

(e) Maintain an operation manual and log for each dam that he or she owns or operates.

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. 21. NAC 535.380 is hereby amended to read as follows:

535.380 1. ~~HH~~ *Except as otherwise provided in subsection 3, 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 or her of the approval to impound.

2. The State Engineer will transfer the approval to impound *pursuant to subsection 1* 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 or she is, or proposes to become, an owner of the dam;

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

(3) An acknowledgment that the new or prospective owner 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. *A conveyance of a water right associated with a dam shall be deemed to be a transfer of any approval to impound that is associated with the dam and does not require any action of the State Engineer pursuant to this section.*

4. 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.

LEGISLATIVE REVIEW OF ADOPTED REGULATIONS AS REQUIRED BY
NRS 233B.066
LCB FILE R054-14

The following statement is submitted for adopted amendments to Nevada Administrative Code (NAC) Chapter 535.

1. A clear and concise explanation of the need for the adopted regulation.

The adopted regulation is required to stay abreast of advances in dam safety state of practice, revisions to statutes and clarify language.

2. A description of how public comment was solicited, a summary of public response and an explanation of how other interested persons may obtain a copy of the summary.

Notices of workshop and hearing on the proposed regulation were emailed to persons who were known to have an interest in the subject of dam safety. These documents and the proposed regulation were made available at the website of the Office of the State Engineer, Division of Water Resources (DWR), www.water.nv.gov, and posted at the following locations:

Division of Water Resources, 901 South Stewart Street, Carson City, Nevada 89701
Division of Water Resources, Southern Nevada Branch Office, 400 Shadow Lane, Suite 201, Las Vegas, Nevada 89106
Division of Water Resources, Humboldt River Water Master, 1250 Lamoille Highway, Suite 1047, Elko, Nevada 89801
Blasdel Building, Musser Street, Carson City, Nevada 89701

Workshops were held in Elko, Las Vegas and Carson City and a hearing was held in Carson City. A summary of public comment is attached hereto.

A copy of the summary of public response to the proposed regulation may be obtained from the Division of Water Resources, 901 South Stewart Street, Suite 2002, Carson City, Nevada 89701, 775-684-2800. Or email to sgilbert@water.nv.gov.

3. The number of persons who:

- a. **Attended each hearing:** July 15, 2014 - 3
- b. **Testified at each hearing:** July 15, 2014 - 3
- c. **Submitted to the agency written comments:** July 8, 2014 – 1; July 18, 2014 - 1

4. For each person identified in paragraphs (b) and (c) of number 3 above, the following information if provided to the agency conducting the hearing:

- a. **Name;**
- b. **Telephone number;**
- c. **Business address;**

- d. Business telephone number;**
- e. Electronic mail address; and**
- f. Name of entity or organization represented.**
 - i. Gene Tortelli, (775) 828-9604 (bus.), gtortelli@golder.com, Golder Associates.
 - ii. Chris MacMahon, (775) 828-9604 (bus.), cjmacmahon@golder.com, Golder Associates.
 - iii. Gary Hurban, (775) 828-6800 (bus.), ghurban@srk.com, SRK Consulting.
 - iv. Judy Kareck, (775) 827-6111 (bus.), jkareck@lumosenineering.com, Lumos & Associates.
 - v. Steve Parrish, (702) 685-0000 (bus.), Clark County Regional Flood Control District.

5. A description of how comment was solicited from affected businesses, a summary of their response, and an explanation how other interested persons may obtain a copy of the summary.

Comments were solicited from affected businesses in the same manner as they were solicited from the public. The summary may be obtained as instructed in response to question #1.

6. If the regulation was adopted without changing any part of the proposed regulation, a summary of the reasons for adopting the regulation without change.

The permanent regulation was adopted on August 11, 2014, and included changes suggested by staff and in response to public comment.

7. The estimated economic effect of the adopted regulation on the businesses which it is to regulate and on the public. These must be stated separately, and in each case include:

- a. Both adverse and beneficial effects; and**
- b. Both the immediate and long-term effects.**

- a. Both adverse and beneficial effects.

Dam owners will have an additional minor requirement for documentation of dam operation and maintenance by compilation of an operation and maintenance manual and documentation of dam conditions and activities (log) upon every visit to the dam which should not involve any additional expense. Dam owners and the public will benefit from use of the documentation by prolonged service life of the dams and earlier discovery of any anomalous conditions that may require further intervention before a catastrophic failure occurs.

Dam owners will have an additional requirement for the application for approval of plans for construction, modification or alteration of a dam in the form of a downstream hazard analysis which should not involve any additional expense.

The State Engineer currently requires justification of the hazard potential of a dam to set the parameters for design and this requirement formalizes the process. Dam owners will benefit from having the requirement plainly spelled out in the regulation instead of becoming aware of it during the review process.

Dam owners will no longer be able to provide notice of construction, reconstruction or alteration of a dam without plans prepared by a licensed engineer. This requirement will involve additional expense to the dam owner through retaining a licensed engineer. The additional expense varies greatly and is generally about 10% of construction cost. Dam owners and the public will benefit from having a better product that is less likely to fail or underperform.

- b. Both immediate and long term effects.

See Item #5(a).

8. The estimated cost to the agency for enforcement of the adopted regulation.

There is no additional cost to the agency for enforcement of this regulation.

9. A description of any regulations or other state or government agencies which the proposed regulation overlaps or duplicates and a statement explaining why the duplication or overlapping is necessary. If the regulation overlaps or duplicates a federal regulation, the name of the regulating federal agency.

There are no other state or government agency regulations that the proposed amendments duplicate.

10. If the regulation includes provisions that are more stringent than a federal regulation which regulates the same activity, a summary of such provisions.

N/A

11. If the regulation provides a new fee or increases an existing fee, the total annual amount the agency expects to collect and the manner in which the money will be used.

N/A

12. Is the proposed regulation likely to impose a direct and significant economic burden upon a small business or directly restrict the formation, operation or expansion of a small business? What methods did the agency use in determining the impact of the regulation on a small business?

The State Engineer has determined that the proposed amendments to the regulation do not impose a direct and significant economic burden upon a small business or restrict the

formation, operation or expansion of a small business. In making this determination the State Engineer considered the fact that the proposed amendments codify existing practice, clarify language or impose a minor record keeping activity. The amendment disallowing non-use of a professional engineer may in fact promote small business.