PROPOSED REGULATION OF

THE STATE ENGINEER

LCB File No. R039-12

May 1, 2012

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

AUTHORITY: §§1-10, 12-16 and 25-53, NRS 534.020 and 534.110; §11, NRS 534.020, 534.050 and 534.110; §§17-24, NRS 534.020, 534.110 and 534.140.

A REGULATION relating to wells; adopting requirements for the drilling of instrumentation boreholes; providing for the waiver of certain requirements governing the drilling of monitoring wells which are not required by federal, state or local law; amending various provisions governing the licensure and continuing education of well drillers; amending various provisions governing the duties of well drillers; amending various provisions governing the construction, drilling and plugging of wells, monitoring wells and boreholes; amending various provisions governing the waiver of certain requirements governing the drilling of wells; and providing other matters properly relating thereto.

Section 1. Chapter 534 of NAC is hereby amended by adding thereto the provisions set forth as sections 2 to 11, inclusive, of this regulation.

Sec. 2. ***"Bentonite chips" means a crushed or crushed and formed raw, native predominantly sodium montmorillonite clay which:***

1. Has a size gradation between 3/4 inch and 8 mesh;

2. Is designed for dry installation that hydrates and swells upon contact with water as a sealant for hole decommissioning, casing seals or any vertical seal to prevent water movement up or down a borehole; and

3. May be coated to retard hydration for in-water applications.

➥ The term includes, without limitation, chip bentonite, bentonite pellets or bentonite tablets.

Sec. 3. *"Cement-bentonite grout" means a mixture of sodium bentonite and Portland cement that, when mixed with water, is specifically designed to seal and plug instrumentation boreholes and:*

1. Consists of a range of water to cement to bentonite ratios by weight of between 2.5 to 1 to 0.3 and 4 to 1 to 1. For example, the ratio by weight of 2.5 to 1 to 0.3 is obtained by mixing 30 gallons of water per 94 pound bag of Portland cement with 25 pounds of bentonite;

2. Has hydraulic conductivity or permeability values of 10^{-7} centimeters per second or less;

3. Has a fluid weight of not less than 10 pounds per gallon; and

4. Has a 28-day compressive strength of at least 100 pounds per square inch.

Sec. 4. *"Instrumentation borehole" means a borehole constructed by intentionally placing or leaving any monitoring instrumentation in the hole as the hole is plugged and sealed at the time of construction.*

Sec. 5. *For the purposes of this chapter, a core hole is deemed to be a specific type of borehole.*

Sec. 6. *For the purposes of this chapter, an electrical cathodic protection conductor is a part of a system to prevent corrosion or to provide electrical grounding and is deemed to be a specific type of instrumentation borehole.*

Sec. 7. *If a well is regulated by the Bureau of Safe Drinking Water of the Division of Environmental Protection of the State Department of Conservation and Natural Resources, the well must be constructed in accordance with chapter 445A of NAC.*

Sec. 8. *If an artesian condition is encountered in any well such that water is flowing at the surface, the artesian water strata must be contained pursuant to NRS 534.060 and NAC*

534.378 and the well must be sealed by placing concrete grout, cement grout or neat cement by tremie pipe in an upward direction from the bottom of the well to the surface. The owner and the lessor of the land on which the well is located, the operator of the exploration project and the drilling contractor for the project shall take the necessary steps to prevent the loss of water above or below the surface and to prevent the vertical movement of water in the well bore.

Sec. 9. *If a nonartesian condition is encountered in any borehole, blast hole or seismic shot hole, the water strata must be contained pursuant to NRS 534.060 and NAC 534.378, and the borehole, blast hole or seismic shot hole must be sealed by placing concrete grout, cement grout, bentonite chips or neat cement by tremie pipe in an upward direction from the bottom of the borehole to the surface. The owner and the lessor of the land on which the borehole, blast hole or seismic shot hole is located, the operator of the exploration project and the drilling contractor for the project shall take the necessary steps to prevent the loss of water above or below the surface and to prevent the vertical movement of water in the well bore.*

Sec. 10. *1. An instrumentation borehole may be drilled by an unlicensed well driller.*

2. The installation of monitoring instruments and simultaneous plugging must be:

(a) Completed by a well driller who is licensed in this State; and

(b) Supervised and documented by the responsible project geologist, hydrologist or engineer.

3. An instrumentation borehole must be permanently plugged at the time of completion pursuant to NAC 534.4371.

4. Documentation of each instrumentation borehole must be completed and maintained pursuant to NAC 534.4369.

Sec. 11. *1. A request for a waiver to drill a monitoring well which is not required for the purpose of complying with a federal, state or local law must be submitted to the State Engineer in writing and contain:*

(a) The location of the proposed monitoring well by public land survey, county assessor's parcel number, map of the vicinity and plat map;

(b) The name, address and telephone number of the owner of the land on which the monitoring well will be located;

(c) A statement of the reason for requesting the waiver;

(d) A proposed construction sketch of the monitoring well;

(e) The name of the monitoring well or, if a waiver is requested for multiple monitoring wells, a list of all monitoring wells for which a waiver is requested on the "Additional Well Locations" form;

(f) If requested or previously required, a current, updated copy of the MO-Summary Sheet;

(g) The name, address and telephone number of the person who:

(1) Will collect data from the monitoring well; and

(2) Will be available to answer questions concerning the monitoring well;

(h) A notarized affidavit, on a form prescribed by the Division, which indicates the person who will be responsible for plugging the well upon abandonment and which is signed by:

(1) For private lands, the person or authorized representative of the company that is the owner of record of the property; or

(2) For public lands, the person or authorized representative of the company that has the appropriate authorization to use the public lands; and

(i) Written authorization to access the project area from:

(1) For private lands, the person or authorized representative of the company that is the owner of record of the property; or

(2) For public lands, the person or authorized representative of the company that has the appropriate authorization to use the public lands.

2. A waiver to drill a monitoring well issued pursuant to this section will bear a unique number preceded by the letters "MO." The notice of intent to drill submitted to the Division pursuant to NAC 534.320 and the record of work submitted to the Division pursuant to NRS 534.170 must bear this number.

3. A copy of the waiver must be in the possession of the well driller at the drill site.

4. The monitoring well must be completed as a well pursuant to the provisions of this chapter or the waiver before the drill rig is removed from the drill site.

5. Water from the monitoring well may not be used for any purpose other than the purpose set forth in the waiver without the written approval of the State Engineer.

Sec. 12. NAC 534.042 is hereby amended to read as follows:

534.042 "Bentonite grout" means ~~[a mixture of]~~ a commercially manufactured product ~~[and]~~ ***consisting of the sodium montmorillonite that, when mixed with*** water ~~[mixed]~~ pursuant to the specifications recommended by the manufacturer ***,*** ~~[which]~~ is specifically designed by the manufacturer to seal ~~[, grout]~~ and plug wells and boreholes and:

1. Consists of not more than ~~[87.9]~~ ***84.6*** percent water and not less than ~~[12.1]~~ ***15.4*** percent sodium bentonite by weight of water ~~[;]~~ ***, except that additional additives may increase the solids ratio above and beyond the minimum 15.4 percent sodium bentonite;***

2. Has ~~[the ability to gel;]~~ ***an API standard filter press fluid loss of less than 9.0 cubic centimeters;***

3. ~~[Does not separate into water and solid materials after it gels;]~~ ***Has a gel strength or yield point or a shear strength of some minimum standard or is easily hydrated in fresh water in the ratio of 33 gallons per 50 pound bag of bentonite grout;***

4. Has hydraulic conductivity or permeability values of 10^{-7} centimeters per second or less; and

5. Has a fluid weight of not less than ~~[9]~~ ***9.2*** pounds per gallon.

Sec. 13. NAC 534.047 is hereby amended to read as follows:

534.047 "Borehole" means a penetration in the ground that is deeper than the longest dimension of its opening at the surface and is made to obtain geologic, ~~[hydrologic,]~~ geophysical or geotechnical information ~~[, to obtain information]~~ relating to engineering or for any ~~[other]~~ purpose other than for use as a well.

Sec. 14. NAC 534.148 is hereby amended to read as follows:

534.148 "Monitoring well" means any well that is constructed to evaluate, observe or determine the quality, quantity, temperature, pressure or other characteristic of groundwater or an aquifer. The term includes an observation well, piezometer, drive point well or vapor extraction well. ***The term does not include an instrumentation borehole that is plugged and sealed and is not open to the atmosphere upon completion.***

Sec. 15. NAC 534.194 is hereby amended to read as follows:

534.194 "Sodium bentonite" means a colloidal clay that:

1. Consists primarily of the ***weathered volcanic clay*** mineral montmorillonite ~~[;]~~ ***where sodium is the predominant, exchangeable cation;***

2. Has the ability to swell; and

3. ~~[May be]~~ ***Is easily hydrated when*** mixed with ***fresh*** water to form bentonite ***drilling fluids or bentonite*** grout.

Sec. 16. NAC 534.220 is hereby amended to read as follows:

534.220 "Well" means a penetration in the ground made for the purpose of measuring, testing ***,*** ~~[or]~~ sampling ~~[the underground strata]~~ or producing groundwater. The term includes a water well, monitoring well or exploratory well.

Sec. 17. NAC 534.280 is hereby amended to read as follows:

534.280 An application for a well-drilling license must be submitted to the Division. The application:

1. Must be completed and signed by the applicant on a form provided by the Division;

2. Must be accompanied by the fee prescribed in NRS 534.140; ~~[and]~~

3. Is valid, for each section of the examination that is required pursuant to NAC 534.282 ~~[, for]~~ ***:***

(a) For the first three dates on which that section of the examination is given which immediately follow the date on which the application is ~~[submitted to]~~ ***processed by*** the Division ~~[.]~~ ***; or***

(b) For the first three dates on which a section of the examination is offered following the successful completion of the previous section of the examination; and

4. Is valid for not more than 1 year after the date on which the Division receives the application or not more than 1 year after the date on which an application is no longer valid pursuant to subsection 3, whichever is later.

Sec. 18. NAC 534.282 is hereby amended to read as follows:

534.282 1. An applicant for a well-drilling license must:

(a) Be at least 18 years of age;

(b) Be a citizen of the United States, or be lawfully entitled to remain and work in the United States;

(c) Submit an application and the fee pursuant to NAC 534.280;

(d) Demonstrate a good working knowledge of:

(1) Standard drilling practice;

(2) The regulations of the State Engineer and applicable laws relating to well drilling; and

(3) The method by which land is described by public land survey;

(e) Have at least 2 years of experience as a well driller determined to be appropriate by the State Engineer for the license for which the applicant applies;

(f) Have at least four ***professional*** references determined to be satisfactory ***and appropriate*** by the State Engineer for the license for which the applicant applies; and

(g) Pass an examination, consisting of the following three sections:

(1) A written examination on which the applicant must obtain a ***passing*** score of at least 70 percent;

(2) A section which requires the applicant to use a ***standard 7.5 minute topographic*** map ***from the United States Geological Survey*** to provide the public land survey description of the location of a well; and

(3) An oral examination conducted by the Board.

2. The State Engineer may deny an applicant a license if the applicant:

(a) Fails to notify the Division that he or she cannot appear for the examination as instructed by a notice to appear before the State Engineer or the Board; or

(b) Fails to pass all three sections of the examination described in paragraph (g) of subsection 1 within the period for which the application is valid pursuant to NAC 534.280.

Sec. 19. NAC 534.292 is hereby amended to read as follows:

534.292 1. The Division will ***send by certified*** mail to each licensed well driller a notice to renew his or her license approximately 30 days before the expiration of the license. Failure to receive the notice does not relieve a well driller of the well driller's obligation to ***file the appropriate forms*** and pay the fee for renewal in a timely manner.

2. A well driller shall notify the Division of any change in his or her mailing address within 30 days after the change.

Sec. 20. NAC 534.2923 is hereby amended to read as follows:

534.2923 1. A well driller may renew his or her well-drilling license by submitting a renewal application to the Division. The renewal application must:

(a) Be completed and signed by the well driller on a form provided by the Division;

(b) Be accompanied by the renewal fee prescribed in NRS 534.140; and

(c) Except as otherwise provided in ~~[paragraph (b) of subsection 5 of NAC 534.2927, subsection]~~ ***subsections 5 and*** 6 of NAC 534.2927 ***,*** ~~[and subsection 4 of NAC 534.293,]~~ include documentation satisfactory to the Division that the applicant has completed eight credit units of continuing education within the previous year beginning July 1 and ending June 30. ***At least once within consecutive renewal periods, the units of continuing education completed by an applicant must include the completion of a course in the statutes and regulations governing well drilling in this State.***

2. If the State Engineer has notified a well driller during the previous year that the well driller has violated a provision of this chapter or chapter 534 of NRS related to welding

involving work that does not comply with the construction standards for wells, the well driller must obtain a certificate as a certified welder from the American Welding Society or another similar organization approved by the Division and include the certificate with the well driller's application for renewal of his or her license.

Sec. 21. NAC 534.2927 is hereby amended to read as follows:

534.2927 1. A credit unit of continuing education is earned for each hour the holder of a well-drilling license attends a workshop, seminar or course or participates in any other type of educational activity related to well drilling or related subjects approved by the Division. Such educational activities may include, without limitation, the completion of college courses ~~[, correspondence courses or videotaped]~~ ***or Internet*** courses, ***compiling and instructing courses approved by the Division,*** active participation ~~[in]~~ ***on the board of a*** professional ~~[organizations]~~ ***organization*** and authoring appropriate publications.

2. A well driller must maintain documentation verifying that he or she has completed the number of credit units of continuing education required by NAC 534.2923. Documentation of completion of continuing education which is satisfactory to the Division includes, without limitation:

(a) A log, on a form provided by the State Engineer, indicating the type of educational activity claimed, the sponsoring organization, the duration of the course or activity, the name of the instructor and the number of credit units; and

(b) Documents providing evidence of attendance at or participation in an educational activity, including, without limitation, a certificate of completion.

3. A well driller shall maintain the documentation required pursuant to subsection 2 for a period of 3 years after the date of completion of the credit units of continuing education and shall make the documentation available for review by the State Engineer at the request of the Division.

4. Except as otherwise provided in subsection 5 or 6, the Division shall deny the renewal of a license if, at the time of renewal, the well driller is unable to provide documentation of completion of the number of credit units of continuing education required by NAC 534.2923.

5. The Division may ~~[~~:

~~(a) Withhold action on the application for renewal of the license for a period not to exceed 90 days to allow a well driller to provide documentation of the required credit units of continuing education. The well driller is not authorized to drill until the documentation is provided and the Division has renewed the license.~~

~~(b) Exempt~~~~]~~ ***exempt*** a well driller from all or part of the number of credit units of continuing education required by NAC 534.2923 if the well driller:

~~[(1)]~~ ***(a)*** Served on active duty in the Armed Forces of the United States for 120 consecutive days or more during the licensing period immediately preceding the application for renewal; ~~[or~~

~~(2)]~~ ***(b)*** Was prevented from earning the number of credit units of continuing education required by NAC 534.2923 because of a physical disability, serious illness or other extenuating circumstances ~~[.]~~ ***; or***

(c) Is within the first renewal period after the applicant has applied or reapplied for his or her license and has passed all three parts of the examination.

6. A well driller who has allowed his or her license to expire or otherwise become of no effect is exempt from the requirements of continuing education set forth in NAC 534.2923 unless

the well driller files an application for renewal of the license within ~~[3 years]~~ ***1 year*** after the license expired or otherwise became of no effect.

7. A well driller who is not a resident of this State is subject to the same requirements of continuing education as a well driller who is a resident of this State.

8. The Division shall request that the Nevada Ground Water Association:

(a) Develop a program for continuing education for review and, if appropriate, approval by the Division;

(b) Implement a program that is developed and approved pursuant to paragraph (a);

(c) Provide recommendations to the Division concerning:

(1) The amount and nature of continuing education that is necessary to maintain and improve the competency of a well driller; and

(2) The number of credit units of continuing education that should be assigned to specific educational activities; and

(d) Encourage other associations for well drillers, related professional organizations and educational institutions to make additional educational activities available for well drillers.

9. If the Nevada Ground Water Association does not submit a program for continuing education to the Division pursuant to subsection 8, or if the program submitted pursuant to subsection 8 is not approved by the Division, the Division may request that the Board or another established professional organization approved by the State Engineer:

(a) Develop a program for continuing education for review and, if appropriate, approval by the Division; and

(b) Implement a program that is developed and approved pursuant to paragraph (a).

10. The Division shall review each educational activity submitted to the Division to satisfy the continuing education requirements set forth in NAC 534.2923 to determine the number of credit units of continuing education, if any, to assign to the educational activity.

11. The Division is not obligated to provide credit units of continuing education for a course that has not been completed before the Division has approved the course.

Sec. 22. NAC 534.293 is hereby amended to read as follows:

534.293 A well driller whose license has been expired for more than 1 year or whose license has been suspended or revoked must:

1. File a new application with the fee required by NRS 534.140 to obtain a license;

2. Pass the examination required by NAC 534.282; ***and***

3. Reduce the number of demerit points the well driller has accumulated against his or her license to 74 or less **.** ~~[; and~~

~~4. Provide documentation satisfactory to the Division that the well driller has completed the requirements for continuing education set forth in NAC 534.2923 within the 12 months immediately preceding the date on which the well driller files his or her new application for a license pursuant to subsection 1.]~~

Sec. 23. NAC 534.296 is hereby amended to read as follows:

534.296 1. The State Engineer may issue a temporary well-drilling license to an employee of a drilling contractor if the drilling contractor has insufficient personnel to complete existing contracts ~~[.]~~ ***and a valid application for a well-drilling license for the employee has been submitted to the Division pursuant to NAC 534.280.***

2. If the employee of a drilling contractor submits an application for a temporary license, the drilling contractor or an employee of the drilling contractor must:

(a) Hold a well-drilling license issued by the State Engineer; and

(b) Sign and submit a letter to the Division containing:

(1) A request that the person named in the application be given a temporary license;

(2) A statement from the contractor or the licensed employee of the contractor stating that the person who is making the statement will take full responsibility for the drilling performed by the prospective temporary licensee; and

(3) A statement that the prospective temporary licensee will comply with all regulations for drilling wells.

3. The State Engineer will evaluate the qualifications of the prospective temporary licensee and, except as otherwise provided in subsection 4, may issue or reissue a temporary license which expires ~~[on the date of]~~ ***if:***

(a) The applicant does not pass the next available written ~~[examination]~~ section of the examination conducted by the Board ~~[.]~~ ***; or***

(b) After the oral examination conducted by the Board pursuant to NAC 534.288, the Board determines that the applicant is not qualified to drill a well without onsite supervision by a well driller licensed in this State.

4. The State Engineer will not:

(a) Issue or reissue a temporary license if the applicant has ***an expired license or has*** had an application denied by the State Engineer pursuant to subsection 2 of NAC 534.282; ~~[or]~~

(b) Reissue a temporary license if the applicant has not obtained a passing score as set forth in NAC 534.282 on the written ~~[examination]~~ section of the examination ~~[.]~~ ***; or***

(c) Reissue a temporary license if, after the oral examination conducted by the Board pursuant to NAC 534.288, the Board determines that the applicant is not qualified to drill a well without the onsite supervision of a well driller licensed in this State.

5. The drilling contractor or the employee of the drilling contractor, whoever signed and submitted the letter described in paragraph (b) of subsection 2, shall inform the Division in writing if the employment of the temporary licensee is terminated before the date of the next available examination. The drilling contractor or the employee of the drilling contractor, whoever signed and submitted the letter described in paragraph (b) of subsection 2, is responsible for any drilling performed by the temporary licensee until the notice of termination is received by the Division. The notice of termination must explain the reasons for terminating the employment of the temporary licensee. The temporary license expires upon receipt of the notice by the Division.

6. Not more than five temporary licenses may be issued under a well-drilling license.

Sec. 24. NAC 534.298 is hereby amended to read as follows:

534.298 A temporary well-drilling license:

1. Is valid until the next scheduled ~~[written]~~ ***oral*** examination ~~[section of the examination administered]~~ ***conducted*** by the Board ~~[;]~~ ***pursuant to NAC 534.288;***

2. Authorizes well drilling to be performed only for the contractor who requested the license; and

3. Is not transferable.

Sec. 25. NAC 534.300 is hereby amended to read as follows:

534.300 1. Except as otherwise provided in NAC 534.315, a well driller shall not drill a water well within a groundwater basin designated by the State Engineer until the well driller

determines that a permit to appropriate the groundwater has been issued pursuant to NRS 534.050.

2. Except as otherwise provided in ~~[subsection]~~ ***subsections*** 3 ~~[,]~~ ***and 5,*** a water well may be drilled to replace an existing well if a valid permit, waiver or certificate of water right exists for the well to be replaced. ***A well driller who drills a water well to replace an existing well must submit to the State Engineer a notice of intent to drill and a log and record of work as prescribed in NAC 534.320 and 534.340.***

3. If continued use will not be made of the existing well, the existing well must be plugged as required by NAC 534.420 at the time the replacement well is drilled unless the owner of the well first obtains a waiver from the requirement that the well be plugged pursuant to subsection 7 or 8 of NRS 534.060 and NAC 534.449. If continued use will be made of the existing well, a permit must be issued for the replacement well before any drilling is commenced.

4. The replacement well must not be drilled more than 300 feet from the location of the existing point of diversion described in the permit and may not be moved outside of the 40-acre subdivision described in the permit, waiver or certificate. ***Drilling must not be suspended without completing the replacement well or plugging the original well unless approved by the Division.***

5. If water service is available from an entity, including, without limitation, a public utility, a water district or a municipality presently engaged in furnishing water to the inhabitants of an area, a well for temporary use for which a revocable permit was granted pursuant to NRS 534.120 may not be drilled, deepened, reconditioned or replaced unless, pursuant to NAC 534.450, a waiver from the provisions of this section is first obtained from the Division.

6. In basins designated by the State Engineer, a waiver is required for any water well:

(a) That does not comply with the requirements for construction prescribed in this chapter;

(b) The water appropriated from which will be used in constructing a highway or exploring for oil, gas, minerals or geothermal resources; or

(c) That may be used as a monitoring well that is not required by a governmental agency.

Sec. 26. NAC 534.310 is hereby amended to read as follows:

534.310 1. Except as otherwise provided in NAC 534.315:

(a) In basins which have not been designated by the State Engineer, a person who drills a well before receiving a permit to appropriate water does so at the risk that a permit to appropriate water cannot be obtained; and

(b) A person shall not use water from a well until a permit or waiver has been obtained pursuant to NRS 534.050.

2. In basins which have not been designated by the State Engineer, the well driller may proceed to drill and perform tests on a well whether or not the owner of the property has a permit to appropriate water. The well driller shall submit to the State Engineer a notice of intent to drill and a log and record of work as prescribed in NAC 534.320 and 534.340.

3. ***A replacement well must not be drilled more than 300 feet from the location of the existing point of diversion described in the permit and may not be moved outside of the 40-acre subdivision described in the permit, waiver or certificate. Drilling must not be suspended without completing the replacement well or plugging the original well unless approved by the Division.***

4. In basins which have not been designated by the State Engineer, a waiver is required for any water well:

(a) That does not comply with the requirements for construction prescribed in this chapter;

(b) The water appropriated from which will be used in constructing a highway or exploring for oil, gas, minerals or geothermal resources; or

(c) That may be used as a monitoring well ~~[.]~~ ***that is not required by a government agency.***

Sec. 27. NAC 534.320 is hereby amended to read as follows:

534.320 1. A well driller shall notify the Division before drilling, reconditioning or plugging a well by submitting a notice of intent to drill. The notice must be submitted for work on an exploratory, water or monitoring well. A well driller shall notify the Division before drilling a geothermal well if a permit to appropriate water is required pursuant to NRS 534.050.

2. The notice of intent to drill submitted pursuant to subsection 1 must give the name of the person for whom the work is being performed, the location of the well by public land survey, the lot number, block number and county assessor's parcel number, the purpose of the well, the date on which the work is to be commenced, the type of work to be done and the diameter of casing to be installed. The notice must include:

(a) The signature of the contractor or the well driller responsible for the work; ~~[and]~~

(b) The license number of the well driller responsible for the work ~~[.]~~ ***; and***

(c) If applicable, the government agency identification number mandating the installation of the well, such as the number of a water right permit, waiver, case file or facility identification.

3. The notice of intent to drill submitted pursuant to subsection 1 must be received by the Division at least 3 working days before the well rig is to be set up and the drilling commenced. If a permit or waiver is required for the drilling operation, the number of the permit or waiver

issued by the Division must be indicated on the notice of intent to drill in addition to the information required by subsection 2.

4. In addition to the requirements of subsections 2 and 3, the notice of intent to drill must include global positioning system coordinates which:

(a) Are either identified by latitude and longitude using decimal degrees or are identified using coordinates of the Universal Transverse Mercator system; and

(b) Specify for each coordinate whether the North American Datum of 1927, North American Datum of 1983 or the World Geodetic System 1984 was used.

5. If a well driller omits any of the information required by this section from the notice of intent to drill submitted to the Division pursuant to subsection 1, the Division may return the notice of intent to drill to the well driller for correction. Well drilling must not begin until after the Division approves the corrected notice of intent to drill.

6. A well driller may submit the notice of intent to drill required pursuant to subsection 1 to the Division in an electronic format if the Division approves this manner of submission for the well driller before the well driller submits the notice of intent to drill.

7. The forms evidencing notice of intent to drill will be furnished by the Division to the well driller on request and will be stamped and self-addressed.

8. If a well is to be drilled in a township that is located north of the Mount Diablo baseline, the notice of intent to drill must be submitted to the office of the Division located in Carson City. If a well is to be drilled in a township which is located south of the Mount Diablo baseline, the notice of intent to drill must be submitted to the office of the Division located in Las Vegas.

Sec. 28. NAC 534.340 is hereby amended to read as follows:

534.340 1. A log and record of work ***must be*** submitted ***within 30 days after the completion of a well*** by ~~[a]~~ ***the*** well driller pursuant to NRS 534.170 ***and*** must be typewritten or legibly handwritten in black ink.

2. In addition to the information required pursuant to NRS 534.170, the following information must be contained in the log and record of work:

(a) The complete name and address of the person for whom the work is being performed.

(b) The location of the well, including:

(1) A description of its location by public land survey and county assessor's parcel number.

(2) Global positioning system coordinates which:

(I) Are either identified by latitude and longitude using decimal degrees or are identified using coordinates of the Universal Transverse Mercator system; and

(II) Specify for each coordinate whether the North American Datum of 1927, North American Datum of 1983 or the World Geodetic System 1984 was used.

(3) In a log and record of work for a well drilled for domestic use, the address of the house to be served by the well, the lot and block description and the name of the subdivision.

(4) If applicable, the waiver number or permit number.

(c) Any pumping test or development data.

(d) An accurate identification of the water-bearing formations.

(e) If the static water level is measured from the top of the casing, the elevation of the top of the casing above the land surface.

(f) Any applicable water rights permit or waiver number.

3. An accurate description of the perforations in the casing must be set forth in the section of the log and record of work that contains a record of the well casing.

4. If the well driller does not have a thermometer, the temperature of the water may be described in the log and record of work as cold, warm or hot.

5. The flow from a well which flows or is pumped may be determined for the purpose of the log and record of work by measuring the length of time it takes to fill a container of known capacity if the flow is not too large to be measured in that manner.

6. As used in this section, "pumping test" means a test of a well conducted by pumping a specified amount or continuous flow of water from a well to determine the characteristics of the well or an aquifer.

Sec. 29. NAC 534.360 is hereby amended to read as follows:

534.360 1. Except as otherwise provided in subsection 2, all wells must be cased to the bottom of the well bore and constructed to prevent contamination or waste of the groundwater.

2. If no additional water is developed in the bottom portion of a well, neat cement, cement grout or concrete grout must be placed by tremie pipe in an upward direction from the bottom of the well to the bottom of the casing. ***Unused pilot holes below the depth of the cased constructed well must have a minimum plug of 5 feet of neat cement or cement grout to isolate the pilot hole from the cased constructed well and may be plugged with bentonite chips below the cement plug.***

3. The casing must:

(a) Except as otherwise provided in this paragraph and NAC 534.362, be of new steel or clean and sanitary used steel. Materials other than steel may be used if the design of the well or the subsurface conditions prevent the use of steel casing and a professional engineer who holds a

certificate of registration issued pursuant to chapter 625 of NRS has approved the casing materials.

(b) Be free of pits and breaks.

(c) ~~[Conform]~~ ***For depths of 300 feet or less, conform*** to the following minimum specifications, allowing for mill tolerance:

(1) If the conductor casing is 50 feet or less in depth, the thickness of the wall must be:

(I) At least 0.141 or 9/64 of an inch if the wall is made of a material other than galvanized steel pipe that has been corrugated; or

(II) At least 0.109 or 7/64 of an inch if the wall is made of galvanized steel pipe that has been corrugated.

(2) If the depth of the conductor casing exceeds 50 feet, and for all production or intermediate casing, the wall must be sufficiently thick to conform to the casing sizes listed in sub-subparagraphs (I) to (IV), inclusive:

(I) If the casing is smaller than 10 inches nominal size, the wall must be at least 0.188 or 3/16 of an inch thick.

(II) For 10-, 12-, 14- and 16-inch nominal size casing, the wall must be at least 0.250 or 1/4 of an inch thick.

(III) For 18- and 20-inch nominal size casing, the wall must be at least 0.312 or 5/16 of an inch thick.

(IV) For casing larger than 20 inches nominal size, the wall must be at least 0.375 or 3/8 of an inch thick.

(d) For depths more than 300 feet, the thickness of the wall must be increased in accordance with the American Water Works Association Standard A100.

4. The top of the casing on all wells must be at least ~~[12]~~ ***18*** inches above the surface of the ground or the finished grade.

5. All production casing joints must be threaded and coupled or welded and be watertight. If the casing joints are welded, each joint must be welded completely. Spot welds of casing joints are prohibited.

6. The well driller shall ensure that the integrity of any casing to be used in the construction of the well has not been impaired by storage, shipping, handling, perforating or exposure to ultraviolet light.

Sec. 30. NAC 534.362 is hereby amended to read as follows:

534.362 1. New thermoplastic water well casing made of polyvinyl chloride may be used as casing in a well if the casing:

(a) Is clearly marked as well casing; and

(b) Complies with the standards adopted by ~~[the American Society for Testing and Materials,]~~ ***ASTM International*** designated as ASTM ~~[F-480-02,]~~ ***F480-12, or the current F480 designation at the time of installation,*** which are hereby incorporated by reference. A copy of the standards may be obtained by mail from ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, Pennsylvania 19428-2959 ***,*** ~~[or]~~ by telephone at (610) 832-9585 ~~[, at a cost of $48.50, or may be obtained]~~ ***or*** at the Internet address **http://www.astm.org**, at a cost of ~~[$45.]~~ ***$57.***

2. If polyvinyl chloride well casing is used:

(a) The differential pressures that may occur during the installation of casing, the development of the well and the operation of the well must be considered by the well driller and the person responsible for designing the well.

(b) The wall thickness must:

(1) For nominal diameters that are 6 inches or less, conform to a rating of schedule 40 or heavier. For example, a nominal pipe that is 6 inches in diameter and has a rating of schedule 40 must have a wall thickness of at least 0.280 inch. The ASTM standard dimension ratio that would exceed this standard is an ASTM standard dimension ratio of 21 or heavier. An ASTM standard dimension ratio of 26 would not satisfy the requirements of this subparagraph for nominal diameters that are 6 inches or less.

(2) For nominal diameters that are more than 6 inches, conform to the ASTM standard dimension ratio of 21 or heavier. ***The standard dimension ratio is equal to the outside diameter divided by the wall thickness.*** For example, a nominal pipe that is 8 inches in diameter and has an ASTM standard dimension ratio of 21 must have a wall thickness of at least 0.410 inch. A rating of schedule 40 would not satisfy the requirements of this subparagraph for a nominal pipe that is 8 inches in diameter and has a wall thickness of 0.322 inch.

(c) The joint connections must be:

(1) Flush-threaded;

(2) Threaded and coupled; or

(3) Joined with nonmetallic couplings that are sealed with elastomeric sealing gaskets and which consist of flexible thermoplastic splines that are inserted into precisely machined grooves in the casing.

➥ The joint connections must not be glued or joined by restraining devices that clamp into or otherwise damage the surface of the casing. If the joint connections are flush-threaded or threaded and coupled, the well driller shall ensure that the connections are not overtightened.

3. If polyvinyl chloride well casing is used in a water well or monitoring well, the well driller shall set a protective steel casing which complies with the provisions of NAC 534.360 and extends not less than 5 feet inside the sanitary seal and not less than ~~[1 foot]~~ ***18 inches*** above the finished grade. The top of the protective casing must be fitted with a locking cap or a standard sanitary well cap.

Sec. 31. NAC 534.378 is hereby amended to read as follows:

534.378 1. If an artesian condition is encountered in a well, the well driller shall, in addition to complying with the provisions of subsections 2 and 3 of NRS 534.060, ensure that unperforated casing extends through the confining strata above the artesian zone. The annular space between the casing and the walls of the well bore must be sealed by placing neat cement, cement grout or bentonite ~~[grout, that consists of not less than 30 percent bentonite,]~~ ***chips*** by tremie pipe in an upward direction from the top of the artesian zone to the level necessary to prevent the leakage of artesian water above or below the surface.

2. Any flow of artesian water must be stopped completely in the manner set forth in subsection 3 of NRS 534.060 before the drill rig is removed from the drill site.

Sec. 32. NAC 534.380 is hereby amended to read as follows:

534.380 1. Except as otherwise provided in subsection 2, before the drill rig is removed from the drill site of a well, the annular space between the well bore and the casing must be sealed to a minimum depth of 50 feet below ground level by:

(a) Placing neat cement, cement grout, concrete grout or bentonite ~~[grout, which consists of not less than 30 percent bentonite,]~~ ***chips*** from the sealing depth to ~~[10]~~ ***20*** feet from the surface; and

(b) Placing neat cement, cement grout or concrete grout from ~~[10]~~ ***20*** feet below the surface to the surface.

2. Before the drill rig is removed from the drill site of a well, the annular space between the well bore and the casing must be sealed to a depth of greater than 50 feet below ground level if sealing to such a depth is required by subsection 1 of NAC 534.370, NAC 534.375, subsection 1 of NAC 534.378 or paragraph (b) of subsection 1 of NAC 534.390. ***If the well is regulated by the Bureau of Safe Drinking Water of the Division of Environmental Protection of the State Department of Conservation and Natural Resources, the annular space must be sealed in accordance with NAC 445A.66905.***

3. The casing must be centered as nearly as practicable in the well bore to allow the sanitary seal to surround the casing.

4. If a temporary conductor casing is used, it must be withdrawn during the placement of the grout.

5. If a pitless adapter is used in domestic or small commercial wells:

(a) The sanitary seal must begin not more than 5 feet below ground level;

(b) The sanitary seal must extend at least 50 feet below ~~[ground level;]~~ ***the bottom elevation of the pitless adapter;*** and

(c) The portion of the casing above the sanitary seal must be backfilled to ground level with uncontaminated soil which is compacted.

6. A pipe used to feed gravel through the cement seal or to provide access to the interior of the well must be fitted with a watertight cap.

7. A licensed well driller must place the seal or directly supervise the placement of the seal.

8. The seal must be placed:

(a) In the annular space within 3 days after the casing is set and before the drill rig is removed from the drill site.

(b) In one continuous mass from the minimum depth of 50 feet below ground level to the surface.

(c) By tremie pipe in an upward direction to displace the fluid to the surface of the ground, if any fluid is standing in the well bore above the sealing depth.

9. The diameter of the well bore must be at least 4 inches larger than the largest diameter of the outside of the outermost casing to be used, including any joints or collars. If a fill pipe for gravel is installed, the diameter of the well bore must be 4 inches larger than the largest diameter of the casing plus the largest diameter of the fill pipe for gravel. A fill pipe for gravel or any other pipe to provide access to the interior of the well must be completely surrounded by the seal. A conductor casing may be used to convey the gravel pack. If a conductor casing is used:

(a) The diameter of the well bore must be at least 4 inches larger than the largest diameter of the conductor casing; and

(b) The annular space between the conductor casing and the well bore must be sealed.

10. A watertight seal must be installed at the surface level between the conductor casing and the production casing to prevent any contaminants from entering the gravel pack conductor area. A welded plate or a seal consisting of neat cement, cement grout or concrete grout from a minimum depth of 10 feet below ground level to the surface must be used. If a welded plate is used, the entire length of the plate must be welded to the conductor casing and production casing.

Sec. 33. NAC 534.420 is hereby amended to read as follows:

534.420 1. Except as otherwise provided in NAC 534.422, wells must be plugged in the manner prescribed in this section by a well driller licensed by the State Engineer.

2. A well driller shall:

(a) Ensure that a notice of his or her intent to plug a water well is received by the Division not less than 3 working days before the drill rig is moved to the location where the well will be plugged; and

(b) Notify the Division not less than 24 hours before beginning to plug the well.

3. Before the well driller begins to plug the well, he or she shall, if possible, obtain the log and record of work for that well from the Division or the owner of the well.

4. On abandonment or order of the State Engineer, a water well must be plugged by:

(a) Removing the pump or debris from the well bore with appropriate equipment; and

(b) If an annular cement seal was not installed, breaking the casing free with appropriate equipment so that the casing may be pulled from the well.

5. If the casing in the well:

(a) Breaks free, the well driller shall plug the borehole in the manner prescribed in NAC 534.4371 as the casing is pulled from the well. The well must be plugged from the total depth of the well to the surface of the well, in stages if necessary, to displace in an upward direction any fluid or debris in the well.

(b) Does not break free, the well driller shall perforate that portion of the casing which extends from the bottom of the well to not less than 50 feet above the top of the uppermost saturated groundwater stratum ~~[.]~~ ***or to the surface of the well.*** That portion of the casing must be perforated not less than four times per each 2 linear feet to allow the plugging fluid to penetrate the annular space and the geologic formation. The perforations made in each 2 linear feet of the casing must be made along a horizontal plane of the well bore. A well with a diameter of more than 8 inches in nominal size must be perforated a sufficient number of additional times

per linear foot to ensure that the plugging fluid penetrates into the annular space and formation. ~~[The]~~ ***Except as otherwise provided in subsection 8, the*** well driller shall then plug the well from the total depth of the well to 50 feet above the uppermost saturated groundwater stratum ***or to the surface of the well with neat cement,*** or to within 20 feet of the surface of the well ~~[, whichever is less,]~~ with neat cement or bentonite ~~[grout specifically designed to plug abandoned wells.]~~ ***chips.*** If the neat cement or ***dry*** bentonite ~~[grout]~~ is not brought to within 20 feet of the surface of the well, the well driller shall:

(1) Measure the depth of the top of the lower plug with the appropriate equipment after he or she has allowed sufficient time for the lower plug to set up;

(2) Continue to install neat cement or bentonite ~~[grout]~~ ***chips*** until the top of the lower plug remains at least 50 feet above the top of the uppermost saturated groundwater stratum; and

(3) Install uncontaminated fill material or one of the plugging materials described in subsection 3 of NAC 534.4371 from the top of the lower plug to within 20 feet of the surface of the well.

6. The well driller shall place a surface plug in the well consisting of neat cement, cement grout or concrete grout from a depth of at least 20 feet to the surface of the well.

7. If the well casing does not break free and there is no evidence of a sanitary seal around the well casing, the well driller shall, in addition to the requirements of subsection 5, perforate the upper 50 feet of casing before setting the surface plug. The casing must have at least four perforations per each 2 linear feet of casing, and the surface plug must consist of neat cement and must extend from 50 feet below ground level to the surface of the well.

8. ***If there is evidence that water bearing formations of different water quality or hydraulic head were encountered during the original well construction and the well casing***

does not break free, and if bentonite chips are used as the plugging material, the well driller must, in addition to the requirements of this section, perforate the casing and place neat cement across each confining formation so that the plugging fluid penetrates the annular space and the geologic formation in that interval.

9. If the well casing does not break free and there is no well log available, the well driller must plug the well in accordance with paragraph (b) of subsection 5, except that bentonite chips must not be used as the plugging material, so that the plugging fluid penetrates the annular space and the geologic formation in the perforated intervals.

10. A well driller shall submit a log and record of work to the Division within 30 days after a water well has been plugged. The log and record of work must contain the location of the well by public land survey and county assessor's parcel number, the name of the owner of the well, the condition of the well, the static water level before plugging and a detailed description of the method of plugging, including, but not limited to:

(a) The depth of the well;

(b) The depth to which the materials used to plug the well were placed;

(c) The type, size and location of the perforations which were made in the casing;

(d) The debris encountered in, milled out of or retrieved from the well; and

(e) The materials used to plug the well.

~~[9.]~~ ***11.*** If there is any standing liquid in the interval of the well bore that is being plugged, all grout materials used pursuant to this section must be placed by tremie pipe in an upward direction.

12. If sodium bentonite chips or pellets are placed in the well, the chips or pellets must be placed in such a manner that a bridge does not occur. If bentonite chips are poured in standing water, the bentonite chips must be screened to eliminate the fines.

Sec. 34. NAC 534.422 is hereby amended to read as follows:

534.422 1. A well driller who wishes to plug a well in a manner that does not comply with the provisions set forth in NAC 534.420 must request approval from the Division.

2. If the Division authorizes the well driller to plug the well in a manner other than the manner set forth in NAC 534.420, the well driller shall comply with the instructions he or she receives from the Division, if any, relating to the manner in which the well must be plugged.

~~[3. A contractor licensed pursuant to chapter 624 of NRS, or any other person, may request and obtain a waiver of the requirement of NAC 534.420 that a well must be plugged by a well driller licensed by the State Engineer if the contractor or other person provides proof satisfactory to the State Engineer that the contractor or other person has the ability to comply with the other requirements of NAC 534.420. A contractor or other person who obtains a waiver pursuant to this subsection must comply with the provisions of NAC 534.420 as if the contractor or other person were a licensed well driller.]~~

Sec. 35. NAC 534.430 is hereby amended to read as follows:

534.430 1. Except as otherwise provided in subsection 3, each well that is drilled, deepened or reconditioned must have:

(a) An access port near the top of the casing that is not less than 1 inch in diameter; ~~[or]~~

(b) A commercially manufactured sanitary well cap that may be easily removed to determine the level of water in the well ~~[.]~~ ***; or***

(c) A reliable electronic means to measure the level of water in the well.

2. An access port must have a watertight, screw-type cap seal to prevent contamination and must be kept closed.

3. On wells that are 8 inches in diameter or smaller, the access may be a 1/2-inch hole at the top of the casing or in the casing cover with a removable plug or bolt.

4. As used in this section, "access port" means an opening in the top of a well casing in the form of a tapped hole and plug or a capped pipe welded on the casing to permit entry of a device to measure the water level of the well.

Sec. 36. NAC 534.432 is hereby amended to read as follows:

534.432 If a well was:

1. Constructed by a person who, at the time the well was constructed, was not the holder of a well-drilling license issued pursuant to NRS 534.140; or

2. Not constructed or completed in compliance with the provisions of this chapter as determined by the State Engineer,

➥ the well must be ~~[abandoned and]~~ plugged in the manner prescribed in NAC 534.420 at the expense of the person who constructed the well.

Sec. 37. NAC 534.4353 is hereby amended to read as follows:

534.4353 1. The owner of a monitoring well shall ensure that the well:

(a) ~~[Does]~~ ***Is constructed in accordance with the provisions of this chapter or a wavier and does*** not ~~[cause]~~ ***allow*** contamination of groundwater during its use; and

(b) Is plugged upon abandonment ~~[.]~~ ***in accordance with NAC 534.4365 when the well is no longer monitored or when otherwise required.***

2. A permit to appropriate water or a waiver from the State Engineer is not required to drill and collect data from a monitoring well unless the well is not constructed in the manner prescribed in this chapter ~~[.]~~ ***or the well is not required by a government agency.***

3. The well driller shall, when submitting the notice of intent to drill pursuant to NAC 534.320, submit to the Division a notarized affidavit **,** on a form prescribed by the Division **,** ***which indicates the person who will be responsible for plugging the well upon abandonment and*** which is signed by ~~[the person who will be responsible for plugging the well and states that he or she will be responsible for plugging the well when it is abandoned. The Division shall prescribe the form required pursuant to this subsection and make copies of the form available upon request.]~~ ***:***

(a) For private lands, the person or authorized representative of the company that is the owner of record of the property; or

(b) For public lands, the person or authorized representative of the company that has the appropriate authorization to use the public lands. A copy of the authorization must be included with the affidavit.

4. The owner of a monitoring well shall ***maintain a record of the current status of the monitoring well and shall*** notify the Division in writing as soon as practicable after determining that the well will no longer be used.

5. If a monitoring well or any other well is to be used to remove a contaminant from groundwater, a permit to appropriate water for environmental purposes must be obtained from the State Engineer pursuant to the provisions of NRS 533.437 to 533.4377, inclusive.

Sec. 38. NAC 534.4355 is hereby amended to read as follows:

534.4355 1. A well driller shall install casing in a monitoring well. If polyvinyl chloride casing is used, it must comply with the standards adopted by ~~[the American Society for Testing and Materials, designated as ASTM F-480.]~~ ***reference pursuant to subsection 1 of NAC 534.362.***

2. The well driller shall take the precautions necessary to prevent contamination of groundwater. The equipment used to construct a monitoring well must be decontaminated before the construction of the well is commenced.

3. The diameter of the casing must not exceed 4 inches in nominal size.

4. The connections of the casing must comply with the provisions of NAC 534.360 or 534.362. The connections must be made watertight by wrapping them with teflon tape, placing a ring or gasket between them or by any other method which will not introduce contaminants into the well.

5. Both ends of the casing must be capped.

6. The perforations must be of a width and length which will allow the strata to be observed while not permitting the infiltration of the gravel pack through the casing or allowing the contaminants or water from separate strata to commingle.

7. To ensure adequate space for the gravel pack and seals, the well bore of a monitoring well must, for the entire length of the casing placed in the well, be not less than 4 inches larger than the diameter of the casing.

8. Not more than one perforated or screened section of casing may be placed in the well bore of a monitoring well unless the vertical intervals of the well bore in between the screened sections are sealed with neat cement, cement grout, ~~[bentonite]~~ ***cement-bentonite*** grout or ~~[fully hydrated sodium]~~ bentonite ~~[tablets or]~~ chips.

9. Not more than one casing may be placed in the well bore of a monitoring well unless the vertical intervals of the well bore in between the screened sections of the casings are sealed with neat cement, cement grout, ~~[~~bentonite~~]~~ ***cement-bentonite*** grout or ~~[~~fully hydrated sodium~~]~~ bentonite ~~[~~tablets or~~]~~ chips.

10. Monitoring wells must be drilled an adequate distance from each other to ensure that there is no commingling of the contaminants or groundwater encountered in the wells.

Sec. 39. NAC 534.4357 is hereby amended to read as follows:

534.4357 1. If the water or vapors which are being monitored in a monitoring well are not encountered within 5 feet below the surface of the ground, the well driller shall place in the annular space of the well:

(a) From the bottom of the well to ***a maximum of*** 2 feet above the uppermost perforation in the casing, a gravel pack which consists of quartz sand, silica or other materials which will not contaminate the groundwater or the geologic formation;

(b) From the gravel pack placed pursuant to paragraph (a) to 2 feet above that gravel pack ~~[~~,~~]~~ ***or to within 20 feet below the surface of the ground, whichever is higher,*** a seal consisting of ~~[~~fully hydrated sodium bentonite pellets or~~]~~ bentonite ~~[~~grout;~~]~~ ***chips;*** and

(c) From the seal placed pursuant to paragraph (b) to the surface, a seal consisting of cement grout ~~[~~,~~]~~ ***or*** neat cement ***.*** ~~[~~, concrete or bentonite grout.~~]~~

2. If the water or vapors which are being monitored in a monitoring well are encountered within 5 feet below the surface of the ground, the well driller shall comply with the requirements of subsection 1, except that:

(a) The gravel pack required pursuant to paragraph (a) of subsection 1 must extend only 6 inches above the uppermost perforation in the casing; and

(b) The surface seal required pursuant to paragraph (c) of subsection 1 must be placed from 1 foot below the surface to the surface.

3. The well driller shall ensure that a bridge does not occur in the annular space during the placement of the gravel pack and seals required pursuant to this section.

4. If more than 20 continuous feet of grout are placed in the annular space of the well or if there is standing liquid in the well bore above the sealing depth, the grout must be placed by tremie pipe in an upward direction.

Sec. 40. NAC 534.4361 is hereby amended to read as follows:

534.4361 1. Unless the area surrounding a monitoring well is paved with concrete or asphalt, a surface pad must be installed around the casing at the surface.

2. A threaded or flanged cap or compression seal must be installed to prevent unauthorized use of the well. If the top of the well is flush with the surface and the well protector required pursuant to subsection 3 is of a type which may not be locked, the cap or seal must be of a type which may be locked.

3. The well must also be protected and secured by:

(a) If it is not necessary for the well to be flush with the surface:

(1) Setting a steel surface casing which complies with the requirements set forth in NAC 534.360 and extends not less than 5 feet below the surface pad and not less than 1 foot above the surface pad;

(2) Fitting the top of the steel casing with a locking cap; and

(3) Clearly marking the well as a monitoring well; or

(b) If it is necessary for the well to be flush with the surface:

(1) Placing a well protector capable of supporting vehicular travel which extends one-half inch above the surface pad or concrete or asphalt paving; and

(2) Clearly marking the well as a monitoring well.

4. As used in this section, "surface pad" means a formation of concrete or cement grout with a ~~[diameter]~~ ***radius from the center of the well*** of not less than ~~[1 foot]~~ ***18 inches*** and a thickness of not less than 3 1/2 inches which is set around a monitoring well at a slope to ensure that water flows away from the well.

Sec. 41. NAC 534.4365 is hereby amended to read as follows:

534.4365 1. Except as otherwise provided in this section, a monitoring well must be plugged within 30 days after monitoring is no longer required.

2. ~~[Except as otherwise provided in subsections 3 and 4,]~~ ***If the casing cannot be removed,*** a monitoring well must be plugged by placing neat cement ~~[or a high-solids bentonite grout, which consists of not less than 20 percent bentonite by weight of water,]~~ by tremie pipe in an upward direction from the bottom of the well to the surface of the well. ***Alternatively, the appropriate volume of bentonite chips may be used from the bottom of the monitoring well to within 20 feet below the surface of the well. The well driller shall place a surface plug in the well consisting of neat cement, cement grout or concrete grout from a depth of at least 20 feet to the surface of the well.***

3. If the casing in the monitoring well can be removed from the well bore, the bottom end of the casing in the monitoring well must be removed or perforated and neat cement or ~~[high-solids]~~ bentonite ~~[grout]~~ ***chips*** must be placed by tremie pipe in an upward direction from the bottom of the well to the surface of the well as the casing is removed from the well bore. ***Alternatively, the appropriate volume of bentonite chips may be used from the bottom of the monitoring well to***

within 20 feet below the surface of the well. The well driller shall place a surface plug in the well consisting of neat cement, cement grout or concrete grout from a depth of at least 20 feet to the surface of the well.

4. If the integrity of the borehole remains intact as the casing is removed from the well bore, the well may be plugged ***as a borehole*** as provided in NAC 534.4371.

Sec. 42. NAC 534.4367 is hereby amended to read as follows:

534.4367 1. A well driller may construct a drive point well without placing in the annular space of the well the gravel pack and seals required pursuant to NAC 534.4357.

2. The diameter of the casing used in a drive point well which is not constructed pursuant to the provisions of NAC 534.4357 must not be larger than 2 inches in nominal size.

3. A drive point well which is not constructed pursuant to the provisions of NAC 534.4357 must be ~~[abandoned]~~ ***plugged*** within 60 days after the well is constructed. Upon abandonment, the casing must be removed from the well bore and the well bore must be plugged in the manner provided in NAC 534.4371.

Sec. 43. NAC 534.4371 is hereby amended to read as follows:

534.4371 1. A borehole must be plugged within 60 days after it is drilled.

2. Except as otherwise provided in subsection 4, a borehole must be plugged:

(a) In the manner prescribed ***for plugging a well*** in NAC 534.420; or

(b) If the uppermost saturated groundwater stratum is above the bottom of the borehole:

(1) By placing concrete grout, cement grout, neat cement or bentonite grout by tremie pipe in an upward direction from the bottom of the borehole to within ~~[10]~~ ***20*** feet of the surface and by placing concrete grout, cement grout or neat cement from ~~[10]~~ ***20*** feet below the surface to the surface;

(2) By placing ~~[sodium]~~ bentonite chips ~~[or pellets]~~ specifically designed to be used to plug boreholes from the bottom of the borehole to within ~~[10]~~ ***20*** feet of the surface and by placing concrete grout, cement grout or neat cement from ~~[10]~~ ***20*** feet below the surface to the surface; or

(3) By placing any of the plugging materials described in this subsection from the total depth of the borehole to 50 feet above the uppermost saturated groundwater stratum and by placing concrete grout, cement grout, or neat cement from ~~[10]~~ ***20*** feet below the surface to the surface.

3. If the concrete grout, cement grout, neat cement, bentonite grout or ~~[dry]~~ bentonite ~~[material]~~ ***chips*** is not brought to within ~~[10]~~ ***20*** feet of the surface pursuant to paragraph (b) of subsection 2, the person responsible for plugging the borehole shall:

(a) Measure the depth of the top of the lower plug with the appropriate equipment after he or she has allowed sufficient time for the lower plug to set up;

(b) Continue to install concrete grout, cement grout, neat cement, bentonite grout or dry bentonite ~~[material]~~ ***chips*** until the top of the lower plug remains at least 50 feet above the top of the uppermost saturated groundwater stratum;

(c) Install uncontaminated fill material or one of the plugging materials described in this subsection from the top of the lower plug to within ~~[10]~~ ***20*** feet of the surface; and

(d) Place concrete grout, cement grout or neat cement from ~~[10]~~ ***20*** feet below the surface to the surface.

4. If the elevation of the bottom of the borehole is higher than the preexisting natural elevation of the uppermost saturated groundwater stratum, the borehole must be plugged by:

(a) Backfilling the borehole from the bottom of the borehole to within ~~[10]~~ ***20*** feet of the surface with uncontaminated soil; and

(b) Placing concrete grout, cement grout or neat cement from ~~[10]~~ ***20*** feet below the surface to the surface.

5. If ~~[sodium]~~ bentonite chips ~~[or pellets]~~ or uncontaminated soil are placed in the borehole, they must be placed in such a manner that a bridge does not occur. ~~[Sodium bentonite chips or pellets may not be placed in more than 100 feet of standing liquid unless the chips or pellets have been coated by the manufacturer to delay hydration.]~~ ***If poured in standing water, bentonite chips must be screened to eliminate the fines. Bentonite chips may be placed by tremie pipe.***

6. If casing is set in a borehole, the borehole must be completed as a well pursuant to the provisions of this chapter. The borehole must be plugged pursuant to NAC 534.420, or the casing must be removed from the borehole when it is plugged. The upper portion of the borehole may be permanently cased if the annular space between the casing and the walls of the borehole is completely sealed from the bottom of the casing to the surface pursuant to NAC 534.380.

Sec. 44. NAC 534.4375 is hereby amended to read as follows:

534.4375 If an artesian condition is encountered in any borehole, blast hole or seismic shot hole, the artesian water strata must be contained pursuant to NRS 534.060 and NAC 534.378, and the borehole, blast hole or seismic shot hole must be sealed by ~~[the method described in subsection 2 of NAC 534.4371.]~~ ***placing concrete grout, cement grout, bentonite chips or neat cement by tremie pipe in an upward direction from the bottom of the borehole to the surface.*** The owner and lessor of the land on which a borehole is located, the operator of the exploration project and the drilling contractor for the project shall take the necessary steps to prevent the loss

of water above or below the surface and to prevent the vertical movement of water in the well bore.

Sec. 45. NAC 534.4377 is hereby amended to read as follows:

534.4377 1. ~~[For the purposes of this chapter, blast holes are not boreholes.~~

~~2.]~~ If the construction of a ***seismic*** shot hole or a hole used for the installation of electrical conductors as part of a system to prevent corrosion or provide electrical grounding may cause waste or contamination of the groundwater, the hole shall be deemed a borehole for the purposes of NAC 534.4369 and 534.4371.

2. Any borehole which is drilled for oil, gas or geothermal resource observation, temperature gradient survey, production or injection purposes shall be deemed a borehole for the purposes of NAC 534.4369 and 534.4371, unless another governmental agency has requirements that are the same as or more strict than the requirements of this chapter.

3. Any borehole which is drilled for oil, gas or geothermal resource observation, temperature gradient survey, production or injection purposes, and which has casing or tubing installed for more than 60 days, shall be deemed a well or a monitoring well for the purposes of NAC 534.4351 to 534.4365, inclusive, and subsection 6 of NAC 534.4371, unless another governmental agency has requirements that are the same as or more strict than the requirements of this chapter.

4. Any borehole drilled for geothermal heat loop installation shall be deemed a borehole for the purposes of NAC 534.4369 and 534.4371, unless another governmental agency has requirements that are the same as or more strict than the requirements of this chapter.

Sec. 46. NAC 534.438 is hereby amended to read as follows:

534.438 Before using bentonite grout to seal, grout or plug a ~~[well or]~~ borehole, the ~~[person]~~ ***responsible project geologist, hydrologist or engineer*** using the bentonite grout must:

1. Consider the geology ~~[of the well or]~~ ***encountered in the*** borehole ~~[, the design of the well]~~ and any requirements set forth in this chapter or chapter 534 of NRS in his or her selection of the bentonite grout; ~~[and]~~

2. Mix the bentonite grout and place the bentonite grout in accordance with specifications recommended by the manufacturer ~~[.]~~ ***; and***

3. Place additional cement plugs as necessary, across low permeability geologic formations encountered in the borehole, to ensure that no water can move vertically in the borehole.

Sec. 47. NAC 534.440 is hereby amended to read as follows:

534.440 1. The request for a waiver to drill an exploratory well to determine the quality or quantity of water pursuant to NRS 534.050 in a designated basin must be submitted in writing and contain the following information:

(a) The location by public land survey, county assessor's parcel number, map of the vicinity and plat map of the exploratory well anticipated to be drilled;

(b) The name, address and telephone number of the person who:

(1) Is collecting data from the exploratory well; and

(2) Will be available to answer questions concerning the well;

(c) The reason for requesting a waiver;

(d) The proposed diameter and depth of the exploratory well;

(e) The estimated starting and completion dates of the exploratory well, not to exceed 90 days after authority is given to drill;

(f) The name, address and telephone number of the person who will be responsible for plugging the well, and the name, address and telephone number of the owner of the land where the well will be located if the owner is not the person responsible for plugging the well; ~~[and]~~

(g) A notarized affidavit ***, on a form prescribed by the Division, which indicates the person who will be responsible for plugging the well upon abandonment and which is*** signed by ***:***

(1) For private lands, the person ~~[responsible for plugging the well which states that he or she will be responsible for plugging the well if it is abandoned.]~~ ***or authorized representative of the company that is the owner of record of the property; or***

(2) For public lands, the person or authorized representative of the company that has the appropriate authorization to use the public lands; and

(h) Written authorization to access the project area from:

(1) For private lands, the person or authorized representative of the company that is the owner of record of the property; or

(2) For public lands, the person or authorized representative of the agency that has granted the appropriate authorization to use the public lands.

2. Each waiver for an exploratory well will bear a unique number preceded by the letter "W." The notice of intent to drill submitted to the Division pursuant to NAC 534.320 and the record of work submitted to the Division pursuant to NRS 534.170 must bear this number.

3. An application to appropriate ***underground*** water ***or an application to change an existing underground water right*** must be on file with the Division or accompany each request for a waiver.

4. A copy of the waiver must be in the possession of the well driller at the drill site.

5. The exploratory well must be:

(a) Plugged by the well driller in the manner prescribed in NAC 534.420 within 3 days after the completion of the aquifer tests for which the well was drilled; or

(b) Completed as a well pursuant to the provisions of this chapter before the drill rig is removed from the drill site.

6. The water from the well may not be used for any purpose other than the purposes set forth in the waiver without the written approval of the State Engineer.

7. A waiver to drill an exploratory well will not be granted pursuant to this section for a well in an area in which the Division determines there is sufficient information existing concerning the aquifer for the area.

Sec. 48. NAC 534.442 is hereby amended to read as follows:

534.442 1. A request for a waiver to allow a temporary use of water from an existing well to explore for minerals or to drill a well and to use the water from the well to explore for minerals must be submitted to the State Engineer in writing and contain:

(a) The amount of water that will be used each day;

(b) A brief description of the manner in which the water will be put to a beneficial use;

(c) The location of the water well by public land survey, county assessor's parcel number, map of the vicinity and plat map;

(d) The name, address and telephone number of the person who will be responsible for plugging the well, and the name, address and telephone number of the owner of the land where the well will be located if the owner is not the person responsible for plugging the well;

(e) A notarized affidavit ***, on a form prescribed by the Division, which indicates the person who will be responsible for plugging the well upon abandonment and which is*** signed by ***:***

(1) For private lands, the person ~~[responsible for plugging the well which states that he or she will be responsible for plugging the well if it is abandoned;]~~ ***or authorized representative of the company that is the owner of record of the property; or***

(2) For public lands, the person or authorized representative of the company that has the appropriate authorization to use the public lands;

(f) ***Written authorization to access the project area from:***

(1) For private lands, the person or authorized representative of the company that is the owner of record of the property; or

(2) For public lands, the person or authorized representative of the company that has the appropriate authorization to use the public lands;

(g) The name, address and telephone number of a person who will be available to answer questions concerning the well; and

~~[(g)]~~ ***(h)*** The date the project is scheduled to be completed.

2. A waiver granted for the temporary use of water from a well for the exploration of minerals will bear a unique number preceded by the letters "MM." The notice of intent to drill submitted to the Division pursuant to NAC 534.320 and the record of work submitted to the Division pursuant to NRS 534.170 must bear this number.

3. A copy of the waiver must be in the possession of the well driller at the drill site.

4. The well must be plugged in the manner prescribed in NAC 534.420 within 3 days after the completion of the project.

5. The water from the well may not be used for any purpose other than the purpose set forth in the waiver without the written approval of the State Engineer.

Sec. 49. NAC 534.444 is hereby amended to read as follows:

534.444 1. A request for a waiver to allow the temporary use of water from an existing well to explore for oil, gas or geothermal resources, or to drill a well and use the water from the well to explore for oil, gas or geothermal resources, must be submitted to the State Engineer in writing and contain:

(a) The location of the proposed water well and the oil, gas or geothermal well by public land survey, county assessor's parcel number, map of the vicinity and plat map;

(b) The oil, gas or geothermal state or federal permit and lease number, name of the well and American Petroleum Institute number, if assigned;

(c) The amount of water that will be consumed from the well each day;

(d) The date the project is scheduled to be completed;

(e) The name, address and telephone number of the person responsible for plugging the well, and the name, address and telephone number of the owner of the land if the owner is not the person who is responsible for plugging the well;

(f) A notarized affidavit ***, on a form prescribed by the Division, which indicates the person who will be responsible for plugging the well upon abandonment and which is*** signed by ***:***

(1) For the private lands, the person ~~[responsible for plugging the well which states that he or she will be responsible for plugging the well if it is abandoned; and]~~ ***or authorized representative of the company that is the owner of record of the property; or***

(2) For public lands, the person or authorized representative of the company that has the appropriate authorization to use the public lands;

(g) ***Written authorization to access the project area from:***

(1) For private lands, the person or authorized representative of the company that is the owner of record of the property; or

(2) For public lands, the person or authorized representative of the agency that has granted the appropriate authorization to use the public lands; and

(h) The name, address and telephone number of a person who will be available to answer questions concerning the well.

2. A waiver that allows the temporary use of water from a water well to explore for oil, gas or geothermal resources will bear a unique number preceded by the letters "OG." The notice of intent to drill submitted to the Division pursuant to NAC 534.320 and the record of work submitted to the Division pursuant to NRS 534.170 must bear this number.

3. A copy of the waiver must be in the possession of the well driller at the drill site.

4. The well must be plugged in the manner prescribed in NAC 534.420 within 3 days after the completion of the project.

5. The water from the well may not be used for any purpose other than the purpose set forth in the waiver without the written approval of the State Engineer.

Sec. 50. NAC 534.446 is hereby amended to read as follows:

534.446 1. A request for a waiver to allow the temporary use of water from an existing well for the construction of a highway, or to drill a well and use the water from the well for the construction of a highway, must be submitted to the State Engineer in writing and contain:

(a) The location of the proposed water well by public land survey, county assessor's parcel number, map of the vicinity and plat map;

(b) The project and contract number, if applicable;

(c) The total amount of water that will be consumed each day;

(d) The name, address and telephone number of the ~~[person]~~ ***contractor*** responsible for plugging the well, and the name, address and telephone number of the owner of the land where

the well will be located if the owner is not the person responsible for plugging the well ~~[;]~~ ***in accordance with NAC 534.420;***

(e) A notarized affidavit signed by the ~~[person]~~ ***contractor*** responsible for plugging the well which states that he or she will be responsible for plugging the well ***;*** ~~[if it is abandoned;]~~

(f) The name, address and telephone number of a person who will be available to answer questions concerning the project; and

(g) The date the project is scheduled to be completed.

2. A waiver that allows the temporary use of water from a well for the construction of a highway will bear a unique number preceded by the letter "C." The notice of intent to drill submitted to the Division pursuant to NAC 534.320 and the record of work submitted to the Division pursuant to NRS 534.170 must bear this number.

3. A copy of the waiver must be in the possession of the well driller at the drill site.

4. The well must be plugged in the manner prescribed in NAC 534.420 within 3 days after the completion of the project.

5. The water from the well may not be used for any purpose other than the purpose set forth in the waiver without the written approval of the State Engineer.

Sec. 51. NAC 534.448 is hereby amended to read as follows:

534.448 1. A request for a waiver to drill a well in a shallow groundwater system for removing water for the purpose of alleviating potential hazards to persons and property resulting from the rise of groundwater caused by secondary recharge must be submitted to the State Engineer in writing and contain:

(a) The location of the proposed well by public land survey, county assessor's parcel number, map of the vicinity and plat map;

(b) The project and contract number, if applicable;

(c) The total amount of water that will be consumed each day;

(d) The name, address and telephone number of the person responsible for plugging the well, and the name, address and telephone number of the owner of the land where the well will be located if the owner is not the person responsible for plugging the well;

(e) A notarized affidavit ***, on a form prescribed by the Division, which indicates the person who will be responsible for plugging the well upon abandonment and which is*** signed by ~~[the person responsible for plugging the well which states that he or she will be responsible for plugging the well if it is abandoned;]~~ ***:***

(1) For private lands, the person or authorized representative of the company that is the owner of record of the property; or

(2) For public lands, the person or authorized representative of the company that has the appropriate authorization to use the public lands;

(f) ***Written authorization to access the project area from:***

(1) For private lands, the person or authorized representative of the company that is the owner of record of the property; or

(2) For public lands, the person or authorized representative of the company that has the appropriate authorization to use the public lands;

(g) The name, address and telephone number of a person who will be available to answer questions concerning the project; and

~~[(g)]~~ ***(h)*** The date the project is scheduled to be completed.

2. A waiver to drill a well in a shallow groundwater system for removing water for the purpose of alleviating potential hazards to persons and property resulting from the rise of

groundwater caused by secondary recharge will bear a unique number preceded by the letters "DW." The notice of intent to drill submitted to the Division pursuant to NAC 534.320 and the record of work submitted to the Division pursuant to NRS 534.170 must bear this number.

3. A copy of the waiver must be in the possession of the well driller at the drill site.

4. The well must be plugged in the manner prescribed in NAC 534.420 within 3 days after the completion of the project.

5. The water from the well may not be used for any purpose other than the purpose set forth in the waiver without the written approval of the State Engineer.

6. Written authorization from the appropriate agency for the discharge of dewatering water must be submitted with the waiver request.

Sec. 52. NAC 534.449 is hereby amended to read as follows:

534.449 1. The owner of a well, other than a well drilled for domestic use, who wishes to obtain a waiver pursuant to subsection 7 or 8 of NRS 534.060 from the requirement that a well be plugged must submit a written request for the waiver to the State Engineer. The State Engineer will grant such a waiver which is valid for 1 year after the date on which the waiver is requested unless the State Engineer finds that the well is dry or abandoned. On or before the date on which the waiver is no longer valid, the owner of the well may submit a request to extend the waiver or to make the waiver permanent, if appropriate, as determined by the State Engineer.

2. A request for a waiver, the extension of a waiver or to make a waiver permanent made pursuant to subsection 1 must:

(a) Be made on a form provided by the State Engineer; ~~[and]~~

(b) Include sufficient information and evidence for the State Engineer to determine that the well is not in any manner defective, including, without limitation, that the conditions set forth in subsection 2 of NAC 534.427 do not apply to the well ~~[.]~~ ***; and***

(c) A notarized affidavit, on a form prescribed by the Division, which indicates the person who will be responsible for plugging the well upon abandonment and which is signed by:

(1) For private lands, the person or authorized representative of the company that is the owner of record of the property; or

(2) For public lands, the person or authorized representative of the company that has the appropriate authorization to use the public lands.

Sec. 53. NAC 534.450 is hereby amended to read as follows:

534.450 1. Except as otherwise provided in subsection 2, the State Engineer may, for good cause shown, waive a requirement of the provisions of this chapter.

2. The State Engineer will not waive the requirements set forth in ~~[paragraph (c) of]~~ subsection ~~[3]~~ ***4*** of NAC 534.360.

3. A request for a waiver of a requirement of this chapter must be made in writing and include:

(a) A ~~[brief]~~ ***detailed*** statement of the reason for requesting the waiver and the section of the regulations to be waived;

(b) The location or proposed location of the well by public land survey;

(c) The name and address of the owner of the well;

(d) The street address of the location of the well or, if there is no street address, a description of the location of the proposed well, including, but not limited to, common landmarks and cross-streets near the location of the well;

(e) The county assessor's parcel number for the location of the proposed well;

(f) A description of the proposed design and a sectional drawing of the proposed well that includes the depths to the aquifers, the locations of the screens and seals and the materials that will be used;

(g) A notarized affidavit ~~[provided]~~ ***, on a form prescribed*** by the Division ~~[and]~~ ***, which indicates the person who will be responsible for plugging the well upon abandonment and which is*** signed by ~~[the owner of the land where the well will be located or his or her authorized agent which states that the owner of the land will be responsible for plugging the well if it is abandoned;]~~ ***:***

(1) For private lands, the person or authorized representative of the company that is the owner of record of the property; or

(2) For public lands, the person or authorized representative of the company that has the appropriate authorization to use the public lands;

(h) Any available data to categorize the hydraulic heads, water quality and permeability characteristics of the aquifer;

(i) A monitoring plan; and

(j) Any other information required pursuant to the provisions of this chapter.

4. After reviewing the request, the State Engineer will issue a written notice of his or her decision to the owner of the well.

5. Each waiver will bear a unique number preceded by the letter "R." The notice of intent to drill submitted to the Division pursuant to NAC 534.320 and the record of work submitted to the Division pursuant to NRS 534.170 must bear this number.

6. The well driller shall ensure that the well complies with the provisions of the waiver and have a copy of the waiver in the well driller's possession when he or she drills the well.

7. The water from the well may not be used for any purpose other than the purpose set forth in the waiver without the written approval of the State Engineer.