Response to Comments from Coonse Well Drilling to the 2008 Proposed Draft Well Construction Rules

Line 250 – Concur, text modified
Line 252 – Concur, text deleted
Line 278 – This statement is one of the criteria used to determine when an excavation is to be permitted as an injection well.
Line 319 – Do not concur, a pitless does allow for the pump discharge pipe to be buried.
Line 371 – interstices refers to the pore spaces in rocks, formations, soil, etc. The term was changed to “pore spaces”.
Line 374 – Yes, the definition of unconsolidated formations has included clay as early as the April 1968 rules. “Impervious” is not the same as unconsolidated or consolidated.
Line 450 – These construction Rules also apply to injection wells, and Idaho Code, 42-3902(19), includes “waste disposal and injection wells” as injection wells.
Line 520 –This text has been deleted
Line 522 - This text has been deleted
Line 526 – This text has been deleted
Line 528 - This text has been deleted
Line 534 – Concur, text inserted
Line 538 - This text has been deleted
Line641 – 643 – It is unclear how a screen at the bottom of a well with a full length seal would facilitate comingling of waters from different aquifers inside the casing.
Line 649 – As written this text applies to artesian and non-artesian water.
Line 662 -664 – Do not concur, this is general sealing language that describes when additional seals are required.
Lines 666 – 699, This language is being reworked.
Line 699 - This language is being reworked.
Line 707 – 710 – Concur, this language has been changed to reflect ”repair to meet requirements when well was originally constructed”.
Line 757 – Do not concur, why should this be deleted?
Line 767 – 781 – no comment necessary
Line 1007 – Do not concur. Approved seal material does not include “clay”.
Line 1044 – This language has been reworked.
Line 1091 – Do not concur. Continued sand production from a well can result in formation subsidence and eventual seal failure.
Line 1419 – Do not concur, this language is actually on, and therefore consistent with, the start card.
Line 1421 – Do not concur, why would the driller not visit the proposed well location to determine access, evaluate terrain, set back requirements, etc. before submitting a start card? A GPS reading of the proposed well location can acquired prior to filing a start card.

Coonse Well Drilling & Pump Co., Inc.

15851 GUNFIRE ROAD
CALDWELL, ID 83607
PH # 454-0190 · FAX # 454-2743

Fax

To: Chad Hersley **From:** GARY COONSE

Fax: 287-6700 **Date:** April 8, 2008

Phone: 287-4930 **Pages:** Cover + 3 pages

Re: Comments for Rules & Regs **CC:**

☐ **Urgent** x **For Review** ☐ **Please Comment** ☐ **Please Reply** ☐ **Please Recycle**

Comments: Chad, here are my comments and ideas on the new draft. Please call me if you have any questions or want to discuss further.

Gary

COMMENTS FOR RULES & REGULATIONS

Submitted by
Gary E Coonse

LINE 250 – Drawdown – difference in vertical distance between pumping level & static water level in a well

LINE 252 – QUESTION -: Why is this definition needed? If needed, why isn't cable tool, auger or other means included?

LINE 278 – "It is deeper than its largest straight line surface dimension; and…" (what does this statement mean?)

LINE 319 –STRIKE-"~~buried pipe discharge from the well~~"
INSERT - "transfer of water from the well".

LINE 371 – What does "interstices" mean?

LINE 374 – Has clay always been defined as unconsolidated? Clay is more impervious than rock as far as water transfer is concerned.

LINE 450 – Why should waste disposal even be considered in standards? There should not be any waste disposal wells drilled!

LINE 520 –Static water level needs to be recorded upon job completion or monitored closely when drilling in high incidence of artesian pressures.

LINE 522 – Bottomhole temperatures need to be monitored zone by zone when drilling in areas of geothermal potentials.

LINE 526 – Delete

LINE 528 – Driller shall retain a copy of the daily well log and/or the Driller Report for at least 1 year after submission of the Drillers Report to the IDWR

LINE 534 – Insert "Daily" between "the & well".

COMMENTS FOR RULES & REGULATIONS

Submitted by
Gary E Coonse

LINE 538 – Insert "contractor / owner"

LINES -641 – 643 – Question: Even if full-length seals are used with screen assemblies at the bottom, how will this be enforced? What equipment is available to monitor different qualities, different pressures, or different temperatures if this water has been co-mingled within the casing?

LINES 649 - Remove the entire sentence starting with "The" and ending on LINE 651 "of groundwater" It seams to me that we are saying the same thing twice starting with the next sentence.

LINES 662 – 664 – Delete and leave this alone until dealing with Artesian Section.

LINES 666 – 699 – (At least 4" larger than nominal sized permanent casing) Throughout these lines this statement will work in a number of instances.

LINE 699 – Insert: This sealing method shall require a bore hole 4-inches larger than the nominal permanent casing size.

LINEs 707 – 710 – When a well driller moves a permanent well casing or causes damage to an existing seal, the well driller shall repair, replace or install a seal to restore the seal to its original condition. (In some cases, it will be impossible, to install a 58 ft seal without re-drilling the well. Let's restore it to its original condition.

LINE 757 – Strike " ~~and in contact with~~".

LINES 767 – 781 - I will submit a separate follow-up on this issue. (In my opinion, this section is the most controversial and challenging within the Drilling Community.

LINE 1007 – Well owner or person installing the pitless adapter shall replace disturbed annualar seal with appropriate seal material or clay that meets 98% compaction. (This statement could be replaced by ASTM rules for compaction…(I am not sure if this is correct percentage. Reason for clay is that it is generally on site; otherwise this could become a very disagreeable item that is fairly insignificant as compared to overall rule upgrades.)

COMMENTS FOR RULES & REGULATIONS

Submitted by
Gary E Coonse

LINE 1044 – Disinfection / Decontamination
Before initial usage of well, driller / pump installer shall properly clean and treat well with proper solutions of chemicals. For this purpose, domestic laundry bleaches containing sodium hypochlorite, such as Clorox or Purex. Calcium hypochlorite in powder or tablet form may be used. Hypochlorite solutions should be thoroughly mixed throughout the well by either drilling tools, pumps, or other suitable means to ensure a proper calculated solution. Solutions should be re-circulated once pumping equipment is installed so well casing and pumping equipment above water table is treated.

The well should remain undisturbed for 24 hours, then pumped to waste…
After treatment it is recommended to take a sample of fresh water from the well to a certified lab and tested for bacteriological purity.

Add to formula table 1 gallon of common domestic bleach mixed with 500 gallon if water will typically provide a 50 ppm solution. Most drillers will use common bleach and this is easily understandable and readily available..

LINE 1091 – Sand Production – Even though I'm adamant that you use screens and our company has a stellar reputation as far as installing wells that are sand-free, I will have to say that, in most cases, sand production has little to do with water protection in my opinion. Where do you draw the line? Is this not consumer protection? It is impossible to *always* construct a well that will conform to this rule, and I don't like the waiver rule of this requirement. Once again, this may be one of the significant/ insignificant rules that we don't need. My suggestion would be to strike LINE 1091 – 1108..

LINE 1419 - Strike "~~no less than 72 hours prior to commencing~~" Insert – "prior to"
Fax copies of start cards and other forms should be considered as valid as the original. .

LINE 1421 – Strike - "~~the coordinates in degrees and decimal minutes acquired with a GPS in order to obtain a start card.~~" Often times, drillers submit a start card based upon information received from the contractor/owner, This generally includes address, lot, block, subdivision, township, section, range, etc. We have GPS's and we use them especially when addresses are not available. This is not a good rule for every occasion. I believe there will be just as many errors made on documenting GPS coordinates as with any address errors.

Andrew
WELL DRILLING SERVICES, INC.
"The Water Professionals"

June 18, 2008

Line 138: Permeability should be 10 to the -6 power. Concur, changed accordingly.

Line 175: Cement grout (neat cement) or have another definition for neat cement grout. Concur, changed accordingly

Line 277-278: Should we add abandonment of well also? Concur, changed accordingly.

Line 582: Strike (18) feet from this line. Do not concur, refers only to protective casing for plastic pipe used at the surface of a well.

Line 647-648: Strike last sentence. Concur, changed accordingly.

Line 651: Change (2) inch annular space to nominal (2) inch annular space. Text has been modified to reflect nominal diameter of casing.

Line 726-740: This section needs lots of work. To general to address specifically.

Line 765-770: Delete this section or make language more strick on materials used for access pipes. Concur, changed accordingly.

Line 844-845: What is sufficient size? Concur, changed accordingly.

Line 851-853: Strike all. Concur, changed accordingly.

Line 917: What is approved seal material? See definition of approved seal material.

Line 980: Need clarification on what is over pumped. See definition of over pumping.

Line 1047-1049: Delete this section. This language is being modified following the Negotiated Rule Making session held April 2, 2008.

Line 1382-1384: What is definition of verbal approval. Synonymous with start card

Line 1385-1389: Do we need a start card or a $75.00 permit fee to abandon a well? No, see line 1502 of March 26, 2008 Draft.

Line 1455-1461: This should state that a licensed driller needs to be present for the construction of the bore hole that will be converted to a well. This provision allows a borehole that does not meet the definition of a well, and therefore does not require a drillers license to create, to be converted into a well by a licensed driller.

Thank you,
Roger Buchanan CWD/PI
Andrew Well Drilling

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Comments from Terry Daugherty.

1. On line item 462 in separation of well form the 300' for holding more than 50 head of livestock could create a lot of waivers, I believe this is a little much with the new seal requirements.

The Department concurs, this set back requirement has been deleted.

2. On line item 650 on dry pour chips our experience shows a min of 4" on a side thru water to a depth of 700'. Beyond this depth more annulus may be required. My thoughts are dept. needs some definition on these depths and sizes, through water and not.
The Department concurs, a larger annular space is needed, text has been modified, see lines 696 through 700 in March 26, 2008 Draft.

3. On line item 654 grout seals should have min 2" on a side.
An adequate grout seal can be achieved in a one inch annulas if proper placement techniques are used.

4. On line item 726 artesian water I've read many times am a little concerned on verbiage know basically it not much more than original, but the way I read this basically 90% of the wells drilled in Idaho will have total seal from top to confining layer above production zone, I need further explanation on this.
This language will likely be refined during the rule making process.

5. On line item 765 access pipes for injection of filter pack, I need to know annular space requirements, or what is required.
Text has been deleted and replaced by text starting on 670 of the March 26 Draft.

6. On line item 772 do we even need this whole paragraph, in my eyes rules already have this covered, and this just makes it harder to understand.
Concur, text has been deleted

7. On line item 961 pitless adpts. I need some verification if a pitless unit is required to be put on by a licensed water well driller.
Only a licensed driller can modify a well, however the current definition of “modify” excludes a properly installed pitless adapter as a modification.

8. On line item 1017 How will the pump installers that are not lic. drillers get this info.

Disinfecting and decontamination language is being modified following Negotiated rule making meeting held on April 2, 2008.

I believe we need a definition for waiver and who is responsible for wells lifetime if a well gets a wavier.
Concur, will be included.

Response to Tom Richardsons comments (TIF file)

Preface. Concur, changed accordingly
000 Concur, changed accordingly
010
01 Concur, changed accordingly
02 Concur, changed accordingly
03 Concur, changed accordingly
04 Concur, changed accordingly
09
c. Do not concur, 25% is within the manufactures recommendations.
16 Concur, changed accordingly
17 Do not concur, open loop heat exchange well meets the definition of a well
18 This term is used in Rule 30, Low temperature geothermal wells

22.c Concur, changed accordingly
27Concur, was not deleted from March 26 draft but will be from following draft.
31 This is addressed as written in item c. “”used for subsurface placement of fluids.”
32 This term is used in Rule 30, Low temperature geothermal wells
33 Do not concur, protecting the pump from the potential of a rock falling into the borehole is different than several feet of the borehole collapsing, which would require permanent casing to maintain the opening.
37 Do not concur, however
41 This term is used in Rule 30, Low temperature geothermal wells
46 This term is used in Rule 30, Low temperature geothermal wells
47 Concur, changed accordingly
48 Concur, changed accordingly
49 Concur, changed accordingly
52 Do not concur, consolidated formations can also be unstable if highly fractured
53 Concur, changed accordingly
58 Concur, changed accordingly
60 Concur, changed accordingly

025
01a. Concur, changed accordingly
04
.b This required under the licensing rules however, following the April 2, 2008 negotiated rule making session, this may be removed form well construction rules.
05. casing Pre-perforated casing would be considered screen. Straight and plumb is defined by “to allow for installation or removal of screens, pumps....”. We recognize that not everyone agrees that the benefits of a 58 foot seal are immediately obvious.
a)Concur in part, changed accordingly, “wall thickness” remains deleted as agreed by T. Richardson per telecom, included provision for two passes when stick welding.
b) Concur, changed accordingly
07 Liner Do not concur, protecting the pump from the potential of a rock falling into the borehole is different than several feet of the borehole collapsing, which would require permanent casing to maintain the opening
08 screens
b) Do not concur, this is an important distinction between screening across several producing zones from the same aquifer and screens placed to acquire water from different aquifers.
09 sealing
a). We recognize that not everyone agrees that the benefits of a 58 foot seal are immediately obvious. Language has been modified to reflect nominal sizes of casing.
16
b) Concur, changed accordingly
c) Concur, changed accordingly
17 Do not concur at this time, language remains as is.
19
b) Do not concur at this time, language remains as is.
21 Concur, changed accordingly
22This language is subject to change through the ongoing negotited rule making process.
23 Concur, changed accordingly
27
e) Disinfecting and decontamination language is being modified following Negotiated rule making meeting held on April 2, 2008.
iii Disinfecting and decontamination language is being modified following Negotiated rule making meeting held on April 2, 2008.

Suggested definitions. Concur, changed accordingly

H2O WELL SERVICE INC.,
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HAYDEN, ID 83835
208-772-4004 FAX #208-772-4892

FACSIMILE TRANSMITTAL SHEET

TO: Tom Neace	**FROM:** Tom Richardson
COMPANY: IDWR	**DATE:** 3/19/08
RE: Rules	**YOUR REFERENCE NUMBER:**

☐ **URGENT** ☐ **FOR REVIEW** ☐ **PLEASE COMMENT** ☐ **PLEASE REPLY**

NOTES/COMMENTS:

Tom,
Here are some comments on the newest draf of the rules. I went through it pretty fast but I didn't want to get into long descriptions of the details. I hope we can sit down and go over these in detail in the near future. I would be happy to come to Boise for a two day marathon and get these hammered out. Let me know what you think.

Tom Richardson

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Visit our Web site @ www.andrewwelldrill.com

025. Construction of cold water wells

01.
a). Line 448 change guard to prevent same as line 437.
04.
b) Delete v, vi, vii. This seems like a lot to keep track of. can't we do this verbally?

05. Casing
Unperforated seems to be used everywhere casing is used. Why? Do we need to define when preperforated casing can be used? If you are going to talk about straight and plumb, then you will need to define that and have a way to measure it. I am against the 58ft seal. It adds unnecessary cost to the public. And in unconfined aquifers it serves no purpose.

a) Steel casing
Manufactures do not make recommendations on how to weld pipe. (Line 542). Plumb needs to be removed. If the well is slightly out of plumb the pipe must continue that direction. Line(544) leave in wall thickness. Line (545)
Two passes not required on 6" casing.. The casing requirements are given don't tell them how to do it.
b) Thermoplastic casing
Minimum depth of 4 ft (monuments for monitor wells)
07. Liner
Liners are installed to protect the pump from soft or caving zones in the well. So they are to maintain the structural integrity of the well. If that is not allowed why have liners?
08. Screens
b) Delete.This is already defined in sealing why is it in screens?
09. Sealing
a) I don't support the 58ft seal. I would like to see surface seals separated from formation seals. We need to revise the sizes to reflect nominal hole sizes for the different bit sizes. I have included the Washington sealing requirements which might help for some of the language we need.

16 .Closed loop heat exchange wells
b) To specific as long as it seals what does it matter. Some contractors use regular bentonite which is an approved seal material.
c) I don't think this would meet the intent of the rules. This should be deleted.

17. Can we separate commercial wells from domestic wells for access ports?
Can we change artesian water (10.) to Artesian water well and include the sealing And capping requirements?

19. Completion of a well
b. We use two rivets. Four seems like a lot. We need to do something different for

geothermal loop systems. Also what about large irrigation wells that pour a slab and cut the casing flush with the floor for the discharge head?

21. Dry Hole Wells.
    Every dry hole shall be backfilled. Should we say abandoned / decommissioned.

22. I don't like this over pumping rule. Any well can be over pumped. And most are at some time. Further discussion needed.

23. Unusable Water Well.
    There is that word shall. Can we combine 21 and 23?

27. Disinfection and Decontamination.
    e. Disinfection Procedures.
        iii. We need to think about well rehab and acid treatments.

Comments to the current draft recieved on March 12th.

Preface,

Separate responsibilities, well driller for construction and home owner for maintenace.

000. Ad "with" after rules for grammar.

010.

01. Abandoned well should be a well no longer used. That needs to be "Decommissioned" Define decommissioning in definitions.

02. Delete

03. Change well bore to borehole. Well bore not defined in definitions. Rewrite line106 to say " or the space between to strings of casing."

04. Delete. All seals are placed in the annulus. Define in seals.

09.

c. I would like to see 20% solids. It is a thinner mix and allows for more time When pumping.

16. Usually stated as 5% by dry weight.

17. Should also define open loop heat exchange well.

18. Conductor pipe. I don't know the difference between this and just casing. If it is Permanent than it is casing. I think it should be deleted.

22.

c. Rewrite, kind of muddy.

27. Delete drive point. Do we need this?

31. Needs a better definition to include the discharge of water from an open loop heat exchange system.

32. Delete. Casing is just casing.

33. Liner should be used to prevent the collapse of the borehole otherwise why use use it? The purpose is to protect the pump. Ok from what.

37. Over pumping should not need to be defined . Delete

41. Delete. Just casing

46. Delete. Just casing.

47. Delete. Should be defined in seal. And it has nothing to do with the surface.

48. Temporary surface casing. Include surface.

49. Include the word PVC.

52. Delete this is defined in unconsolidated formations.

53. Same as abandoned.

58. Any person who operates drilling equipment, is employed by a well contractor, or who controls, supervises, or oversees the construction of a well. And is licensed under this chapter.

60." Well Owner" Any person ,firm, partnership, copartnership, corporation, association, other entity, or any combination of these, who ownsthe property on which the well is or will be constructed. Or has the right to well by means of an easement, covenant, or other enforceable legal instrument for the purpose of benefiting from the well.

Items not listed that should be considered.

Dewatering well
Draw down
Drilled well
Drilling log
Open loop heat exchange well
Static water level
Trimmie pipe

WHAT ARE THE STANDARDS FOR SURFACE SEALS?

(1) All Water wells constructed shall have a surface seal which seals the annular space between the bore hole and the permanent surface casing.
   a. The seal shall be constructed to prevent surface contaminants from reaching the ground water.
   b. The surface seal must have a minimum diameter of four inches larger than the nominal sized of the surface casing, to include the outside diameter of the bell, in bell and hub couplings.
   c. The surface seal must extend from land surface to a minimum depth of eighteen feet. Except, when the minimum surface seal requirements for driven, jetted, dewatering and some dug wells are less than eighteen feet. See the appropriate section for these wells for a detailed description of their sealing requirements.

(2) Sealing material must be placed in an open annular space that is a minimum of four inches greater in diameter than the nominal size of the permanent casing.

(3) The completed surface seal must fully surround the permanent casing, must be evenly distributed, free of voids, and extend to undisturbed or recompacted soil.

(4) After the permanent casing has been set in final position, the annular space shall be filled to land surface with bentonite or neat cement grout or neat cement. Leaving voids for future installation of equipment such as a pitless adapter is prohibited.

(5) A Temporary surface casing with a minimum length of eighteen feet and a minimum nominal diameter of four inches greater than the permanent casing shall be used in all unconsolidated formations such as in gravels, sands, or other unstable conditions when the use of drilling fluid or other means of keeping the bore hole open are not employed. Except driven and jetted wells shall utilize a temporary surface casing with a minimum length of six feet and a minimum nominal diameter of four inches greater than the permanent casing shall be used in all unconsolidated formations such as in gravels, sands or other unstable conditions when the use of drilling fluid or other means of keeping the bore hole open are not employed.

(6) Whenever reconstruction involves permanent surface casing movement; or the existing surface seal is damaged; or a surface seal never existed; the driller shall repair, replace, or install a minimum of eighteen feet of surface seal around the permanent casing.

WHAT ARE THE REQUIREMENTS FOR FORMATION SEALING?

(1) Unconsolidated formation sealing – Without significant clay beds or other confining formations – Drilled wells that penetrate an aquifer overlain by unconsolidated formations such as sand and gravel without significant clay beds (at least six feet thick) or other confining formations shall be sealed in accordance with the surface sealing requirements, the above referenced.

(2) Unconsolidated formation sealing – With significant clay beds or other significant confining formations – Drilled wells that penetrate an aquifer overlain by clay or other confining formations that are at least six feet think, shall be sealed to prevent movement of water or contamination in the annular space between the permanent casing and the clay or other confining formation(s). One of the following methods shall be used to seal the annular space:
   a. A drill hole at least four inches greater in diameter than the nominal size of the permanent well casing shall extend from the land surface into the clay bed or other confining formations located directly above the aquifer to be developed. The annular space shall be filled with bentonite (slurry or unhydrated), neat cement grout, or neat cement to form a watertight seal between the permanent casing and all significant confining formations encountered during drilling. If bentonite slurry, neat cement grout, or neat cement is used to seal the annular space it must be placed by either pumping or tremmying the seal

material from the lowest clay bed or other confining formation of significance encountered, to land surface. The drill hole shall be kept open through the use of a temporary casing or any other drilling method that stabilized the bore hole wall. (as referred to in figure 1)

b. An upper drill hole at least four inches greater in diameter than the nominal size of the permanent well casing shall extend to a minimum of eighteen feet from land surface. A temporary casing or other means of maintaining an open bore hole shall be utilized. All temporary casing will have an outside diameter of a minimum of four inches larger than the permanent casing (for example, a ten inch temporary casing for a six inch permanent casing). The upper drill hole shall always contain a minimum of nine feet of sealant throughout the advancement of the permanent casing. Except, if the temporary casing is removed or not utilized, the upper drill hole shall be kept full of sealant. See figure 1.

(3) Consolidated formations – In drilled wells that penetrate an aquifer, either within or overlain by a consolidated formation, sealing of the casing shall conform with one of the following procedures.

a. Procedure one – An upper drill hole at least four inches greater in diameter than the nominal size of the inches greater in diameter than the nominal size of the permanent well casing shall extend from land surface into a sound, unfractured, consolidated formation. An unperforated permanent casing shall be installed to extend to this same depth, and the lower part of the casing shall be driven into the consolidated formation and sealed in a manner that establishes a watertight seal between the formation and the casing. The remainder of the annular space to land surface shall be filled with neat cement grout, neat cement, or bentonite.

(i) If the consolidated formation is encountered at a depth less than eighteen feet from land surface, the upper drill hole and permanent casing shall extend to a minimum of eighteen feet from land surface. See Figure 2.

(ii) If neat cement grout, neat cement, or bentonite slurry is placed by pumping to seal the entire annulus from the bottom up to land surface, the upper drill hole may be a minimum of two inches larger than the outside diameter of the permanent casing.

b. Procedure two – An upper drill hole at least four inches greater in diameter than the nominal size of the permanent casing extends from land surface to a depth of at least eighteen feet. An unperforated permanent casing shall be driven into the consolidated formation and sealed in a manner that establishes a watertight seal between the formation and the casing. Throughout the driving of the well casing to the consolidated formation, the annular space between the upper drill hole and the permanent casing shall be kept at least one-half full with unhydrated bentonite, or bentonite slurry. The remainder of the annular space to land surface shall be filled with cement grout, neat cement, or bentonite. See figure 2.

c. If temporary surface casing is used in either procedure (a) or (b) of this subsection, the casing must be a minimum of eighteen feet long and at least four inches larger in diameter than the permanent casing. If a consolidated formation is encountered within the first eighteen feet, the temporary casing may terminate at the interface of the consolidated formation. Withdrawal of the temporary casing must take place simultaneously with proper sealing of the annular space to land .

WHAT ARE THE SPECIAL SEALING STANDARDS FOR ARTESIAN WELLS?

(1) When flowing artesian conditions are known or suspected, the operator shall have a written sealing plan prepared prior to initiation of construction. The plan shall identify the type of sealing

material that will be used and the method for sealing. The plan shall also contain at least one alternative construction method for sealing and an emergency contingency section which will identify steps to be taken if the ground water flow cannot be controlled.

(2) When artesian water is encountered in the well, an unperforated well casing shall extend into the confining stratum overlying the artesian zone. The casing shall be sealed into the confining stratum to prevent surface and subsurface leakage from the artesian zone. If the well flows at land surface, if must be equipped with a control valve so that flow can be completely stopped.

(3) The well shall be completed with seals, packers or grout that eliminates leakage around the well casing. The driller shall not move the drilling rig from the well site until leakage is completely stopped, unless authority for temporary removal is granted by the department, or when loss of life or property is imminent.

From: Loper, David [mailto:David.Loper@phd3.idaho.gov]
Sent: Wednesday, April 09, 2008 4:21 PM
To: Neace, Thomas
Cc: Crawford, Brian
Subject: RE: Well Construction Rules Negotiated Rulemaking
Importance: High

Tom,

Please find the below comments for the Draft Rules:

1. It may be beneficial to add in the separation chart an additional set back requirement to cover Effluent Pipe Separation Distances. The Subsurface Sewage rules require a 50 foot set back from a well. Effluent Pipes are those pipes that carry wastewater from a septic tank to the drainfield. You may reference the Rule IDAPA 58.01.03.007.22.

Concur – Please see table on line 503 of April 18 DRAFT

2. You may want to consider splitting out the proposed requirement for the surface water setback. You may want to consider keeping the current proposed set back for Intermittent and Permanent surface water; however, may want to reduce the separation distance for Temporary, including ditches. Canals are a tough one??? You may want to take a look at the definitions of Temporary, Permanent and Intermittent surface water in the subsurface rules or look at the chart IDAPA 58.01.03.008.02.d.

Concur – Please see table on line 503 of April 18 DRAFT

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Southwest District Health is in support and commends IDWR's effort to improve the well construction rules to protect Idaho's ground water.

If questions give me a call,

Thanks,

David M. Loper, REHS/RS
Director, Environmental Health Services
Southwest District Health
920 Main Street
Caldwell, ID 83605
Phone: 208.455.5401 (Fax 208.455.5405)

To: **Tom Neace, IDWR**

From: **Lance Nielsen, IDEQ**

Subject: **Comments on Draft IDWR Well Construction Standards**

Date: **April 11, 2008**

Thank you for the opportunity to participate in the negotiated rulemaking on the draft IDWR Well Construction Standards. The DEQ supports the revisions to this important rule. The new draft of the rules has good clarity and is easy to understand. They should be easier for everyone to use. Following are DEQ's comments regarding the March 26, 2008 version of the draft rules:

1. Definition for "public water system":

A definition is needed for Public Water System. Rule 35, line 1278, refers to "public supply," which is undefined and appears to mean "public water system" well. We recommend "public supply" be replaced with "public water system well," and that the definition of "public water system" be inserted on line 338. The definition is found in IDAPA 58.01.08.003 and reads as follows:

> "**Public Water System**. A system for the provision to the public of water for human consumption through pipes or, after August 5, 1998, other constructed conveyances, if such system has at least fifteen (15) service connections, regardless of the number of water sources or configuration of the distribution system, or regularly serves an average of at least twenty-five (25) individuals daily at least sixty (60) days out of the year. Such term includes: any collection, treatment, storage, and distribution facilities under the control of the operator of such system and used primarily in connection with such system; and any collection or pretreatment storage facilities not under such control which are used primarily in connection with such system. Such term does not include any "special irrigation district." A public water system is either a "community water system" or a "noncommunity water system."

Concur – please see line 340 of the April 18 DRAFT

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Section 01 of Rule 35 starting on line 1278 should now read:

> **01. Public Water System well.** All wells that are constructed for public water systems shall, in addition to meeting these standards, meet all of the requirements set for the by the Idaho Department of Environmental Quality Rules, IDAPA 58.01.08, "Idaho Rules for Public Drinking Water Systems."

Concur – please see line 1243 of April 18 DRAFT

2. DEQ has additional well construction standards and siting and separation distance requirements for Public Water System wells:

IDWR has done an excellent job clarifying that DEQ has additional well construction standards and siting and separation distance requirements for wells that will serve public water systems. That language is found on lines 483-486 (siting and separation distances) and lines 1278-1281 (well construction standards). Similar language is needed in regards to well casing thickness. We request the following language be added on line 560:

All wells that are constructed for public water systems shall, in addition to meeting these standards, meet all of the casing wall thickness requirements set for the by the Idaho Department of Environmental Quality Rules, IDAPA 58.01.08, "Idaho Rules for Public Drinking Water Systems."

Concur – please see line 595 of April 18 Draft

The rationale for the well casing thickness was previously stated in DEQ's March 29, 2007 written comments. DEQ has adopted the well casing wall thickness requirements from the 2003 Edition of the Recommended Standards for Water Works commonly referred to as "Ten State Standards." IDWR may want to consider using this casing wall thickness for all wells for the reasons stated in our prior comments.

Sealing:

We support the requirement for a minimum 58 foot well seal for all wells. DEQ supports actions that protect source water from contamination or degradation. The "Idaho Rules for Public Drinking Water Systems" require, in most cases, the 58 foot well seal for PWS wells to "*…prevent unwanted water from reaching the intake zone of the well…."* (IDAPA58.01.08.510.03.b.i). A similar requirement for all wells would provide an additional level of protection to deeper aquifers and the wells that draw from them. For this reason, we also support extending the seal to the deepest confining layer above the production zone/well screen (see lines 767-781).

To: **Tom Neace, IDWR**

From: **Lance Nielsen, IDEQ**

Subject: **Comments on Draft IDWR Well Construction Standards**

Date: **May 5, 2008**

Introduction: Thank you for the opportunity to participate in the negotiated rulemaking on the draft IDWR Well Construction Standards. The DEQ supports revisions to this important rule that result in increased protection of the ground water resource. Thank you for including DEQ's April 11, 2008 comments regarding the March 26, 2008 draft rules. We continue to support enhanced sealing standards because they are necessary to protect ground water from contamination and degradation. The proposed 58 foot minimum seal requirement for all wells will provide an additional level of protection to deeper aquifers and their beneficial uses.

Following are DEQ's comments regarding the April 18, 2008 version of the draft rules:

Lines 534-556: Records. DEQ recommends not deleting the language which specifies what information that needs to be recorded in the well log. Please add items i through vii, found on lines 543 through 556, back into the rule. It is best to be clear about the information required of the regulated community so it is easier for them to comply with the rules. Although this information may already be required by the Well Driller Licensing Rules, it will be clearer if the requirements are clearly stated in the Well Construction Standards Rules.
Specific reference to IDAPA 37.03.10, "Well Driller Licensing Rules" will be inserted, which includes the language regarding required records. Because licensed well drillers are responsible for compliance with the well construction standards and the licensing rules, this requirement can be implemented by reference to the existing rule.

Lines 565-566: Copies of well drilling permit and well driller's report for well owner. DEQ recommends not deleting these lines from the rule. The well owner should be provided copies of the permit and the driller's report because the well owner is ultimately responsible for the well.
Specific reference to IDAPA 37.03.10, "Well Driller Licensing Rules" will be inserted, which includes the language regarding required records. Because licensed well drillers are responsible for compliance with the well construction standards and the licensing rules, this requirement can be implemented by reference to the existing rule. Well owners can obtain copies of the well report from the Department if necessary.

Line 389: Tremie Pipe. DEQ recommends adding the following language at the end of line 389: "*from the bottom to the top of the borehole/well".* The current definition could be misinterpreted to just convey grout from a grout truck to the top of a well, which is not the intent. Adding this language would clarify that grout seals are to be placed from the bottom up, consistent with the language on line 718.
Concur, text added.

Summary: DEQ supports the draft Well Construction Standards Rules as the minimum standards necessary to protect of Idaho's valuable ground water resources, and more specifically, the drinking water beneficial use of ground water. With the drilling of 4,000 to 5,000 new wells annually, it is important to ensure that all wells are properly constructed and maintained to ensure the long-term beneficial use of ground water resource.

C:\lnielsen's Documents\Well Construction Standards IDWR\DEQ-Nielsen comments-draft Well Const Stds 5-5-08.doc

07. Sealing Requirements.

f... **Artesian Water**. When artesian water is encountered, imperforated well casing shall be sealed into the confining layer overlying the artesian zone. The casing shall be sealed into the confining layer to prevent surface and subsurface exchange or movement of water from the artesian zone. If the well flows at land surface, it shall be equipped with a control valve and pressure gage so the flow can be completely stopped and monitored. The operator shall not move his drill rig from the well until the leakage is completely stopped, unless authority for temporary removal is granted by the director, or when loss of life or property is imminent.

The Department does not concur. Language proposed by IGWA is similar to that already provided and the interpretation provided below is not consistent with other pertinent sections of the Rules. Sealing is specifically defined in the Rules as "the placement of approved seal material in the required annular space…". Therefore the proposed language does not "allow the driller to seal into the confining layer by any means". Artesian language has been modified in the May 2008 DRAFT to accommodate artesian head relative to the formation in which it is encountered.

This language allows the driller to seal the casing into the confining layer by any means that might be necessary to prevent the movement of water into another zone. The current draft would require the driller to pull all of the casing from the well and install four inch Larger temporary casing to the confining layer or mud rotary the well back to the confining layer. The driller would then install the permanent casing, install the seal and pull the temporary casing back out.
By definition this would apply to 80% of all wells. If the water rises above where it was encountered it is artesian that could be one inch or one hundred feet. The new draft would put an unnecessary cost onto the consumer that would be hard to justify.

The IGWA Board of Directors has met every week for the last 7 weeks at 8:00 p.m. Mountain Standard Time to provide inputs/comments/suggestions to the April 20th DRAFT of the Well Construction Rules. We held our last meeting last night (March 25th).

We ask that the IDWR take these comments into consideration as we proceed with Negotiated Rulemaking. Since you indicated that a version of this DRAFT was not available to strike and score, I will be referencing IGWA's suggested changes by Page #, Line # and Rule #. Thank you for allowing IGWA to submit comments.

Definitions

Page 2 of 29 - Lines 73 -78 - 03. Annular Seal (also Seal). This needs to be defined and not describe the process of creating an Annual Seal.
Concur, see "Approved seal or Seal Material definition in March 26, 2008 Draft.
Page 2 of 29 - Lines 88-89 - .06. Area of Drilling Concern. Needs to be defined instead of referencing Idaho Statute (for everyone to be able to read what it says as Drillers don't carry around Code Books).
Concur, will incorporate into March 26, 2008 Draft
Page 2 of 29 - Lines 91 - 94 - .07 Artesian Well. Strike on lines 91-92 "**low temperature geothermal resource(s**)" See March 26 Draft. Strike on lines 93-94 "**those wells in which the water rises to and flows naturally at the land surface**." Add to line 94 following "flowing" and before "artesian wells" **and non-flowing.** Concur, will incorporate into March 26, 2008 Draft

Page 2 of 29 - Line 96 - .08 Artificial Filter Pack. Strike **(also Filter Pack).** Concur, incorporated in March 26, 2008

Page 2 of 29 - Line 101 - .09 Bentonite. Add after "permeability," and before "sodium montmorillonite" **calcium or**. Do not concur, calcium bentonite does not have the same swelling properties as sodium bentonite.

Page 3 of 29 - Lines 123 - 126 - 12. Casing. This definition needs overhauled. Washington has a better definition in their Rules that IGWA likes better. Provide the specific definition for consideration.

Page 3 of 29 - Lines 136 - 138 15. Conductor Pipe. Strike the entire definition. Do not concur, this term is used in rule 30 for Low Temperature Geothermal Resource wells**.**

Page 3 of 29 - Lines 143 - 145 17. Consolidated Formations. Line 143 - After "occuring" and before "earth materials" add **stable.** Do not concur, consolidated formations that are fractured may also be unstable. After "shale." on line 145 add: **that are sufficiently hard or durable to sustain an open borehole without caving.** Concur, will either delete "shale" or incorporate suggested language**.**

Page 3 of 29 - Lines 147 - 150 18. Contaminant. IGWA asks if this definition includes drill polymers, etc. Is not intended to include industry standard drilling additives.

Page 4 of 29 - Lines 196 - 198 30. Intermediate Casing. How is this definition different from the definition of casing? This term is used in rule 30 for Low Temperature Geothermal Resource wells

Page 4 of 29 - Lines 200 - 203 31. Liner. Needs redefined. Shale traps cannot be used on liner. IGWA would help with this definition. If shale traps or seal material is installed on the pipe it would be considered casing

Page 4 of 29 - Lines 208-211 33. Modify (also Modification). The old definition is a better definition than this one - please use old definition. The current definition is consistent with the more recent definition provided in the Licensing Rules.

Page 5 of 29 - Add **Nominal Space** as a definition between Definition 37 and 38 as it is not currently defined. Will consider adding a definition of "nominal diameter" to the March 26, 2008 Draft, to account for the annular space measured between the borehole wall and a nominal diameter casing.

Page 5 of 29 - Lines 229 - 232 38. Overpumping. Line 229 after "where," and before "water is withdrawn" strike "**during routine operation**". Line 231 after "sustained basis" add **a period** (.)and strike "**causing excessive sand production, aquifer material compaction or excavation, borehole erosin, land subsidence near the well, and/or premature well failure**." Language is under review following the April 2, 2008 negotiated rulemaking session.

Page 5 of 29 - Lines 249 - 251 43. Seal Material. Line 250 after (cement grout) add **a period** (.) and strike "**placed into an annular space or other location within a well required to prevent the waste and contamination of ground water**." see "Approved seal or Seal Material definition in March 26, 2008 Draft

Page 5 of 29 - Lines 253-256 44. Solid, Non-Weathered Zone. Strike the entire definition. Concur, addressed in the March 26, 2008 draft.

Page 5 of 29 - Line 258 45. Stable Unit. Strike "**Unit**" and add "**Formation**". Definition was deleted in the March 26, 2008 draft

Page 5 of 29 - Lines 262 - 264 46. Surface Casing. Strike the entire definition. Do not concur, this term is used and applies to Rule 30.

Page 5 of 29 - Line 267 47. Surface Seal. Line 266 after "perimeter of the" and on Line 267 before "casing that prevents" strike "**surface**" and add "**temporary**". Definition was deleted in the March 26, 2008 draft.

Page 5 of 29 - Lines 270-271 48. Temporary Casing. Line 270 after "borehole within" strike "**unstable units or**". Definition was changed to "temporary surface casing" in the March 26, 2008 draft. Line 271 after "unconsolidated formations" strike "**and/or to prevent the entrance of water into the borehole**". Concur, will delete reference to water.

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Page 6 of 29 - Line 278 50. Unconsolidated Formation. After "Naturally occuring" and before "earth materials" add "**unstable**". Do not concur, unconsolidated formations may be stable under some conditions. For example, unconsolidated soil or gravel in trench can be stabilized with proper sloping.

Page 6 of 29 - Line 281 51. Unstable Unit. After "Unstable" strike "**Unit**" and add "**Formation**". Concur, will incorporate in March 26, 2008 draft
Line 281 strike "**All unconsolidated formations, and those portions of consolidated formations**". Line 282 after "borehole without caving" strike "**or producing obstructions without the**". Do not concur caving consolidated formations can be considered unstable. Line

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283 strike "**aid of fluid hydraulics or other means of chemical or physical stabilization**." Do not concur caving consolidated formations can be considered unstable.

Page 6 of 29 - Lines 285 - 287 52. Unused or Unusable Water Well. Needs a better definition with homeowner responsibility.
Definition was deleted in the March 26, 2008 draft

Substance Part of the Rules

Page 7 of 29 - Chart after Line 348. Strike the last four items on the chart "**Concentrated Livestock Holding Areas at 100 and 300 feet/ Above Ground Chemical Storage Tanks at 50 feet / Streams, Canals, Irrigation Ditches, etc. at 50 feet**" These are simply not needed.
Concur in part, livestock holding areas were deleted in the March 26, 2008 draft, setback distances from ditches and chemical tanks may be deleted if deeper seals (58 feet) are accepted.

Page 8 of 29 - Lines 364 - 366 (i.). Strike Lines 364 - 366 **"Areas of special geologic conditions identified by the Department may allow for less stringent or require more stringent construction practices. The Well Driller shall observe and comply with more stringent requirments within such identified areas**." Concur, areas of special geologic conditions were deleted in March 26, 2008 draft.

Page 8 of 29 - Lines 368 - 375 02. Waivers. Drillers also need to have verbal waivers be granted by the Director instead of only written ones due to time constraints.
Concur, will consider verbal waivers in next draft.

Page 8 of 29 - Line 391 06. Documents to be Provided to Well Owner. Line 391 after "well driller's report" strike "**upon completion of the well**" and add "**within 30 days completion of the well**".
Concur, will incorporate in next draft.

Page 8 of 29 - Line 403 02. a. Requirements for Casing and Liner Intallation. Line 403 after "steel" and before "casing" strike "**surface**".
Concur, language was deleted from March 26, 2008 draft.

Page 8 of 29 - Line 406 02. b. Requirements for Casing and Liner Installation. Line 406 after "steel" and before "casing" strike "**surface**".
Concur, language was deleted from March 26, 2008 draft.

Page 8 of 29 - Line 411 02. d. Requirements for Casing and Liner Installation. Line 411 after "steel" and before "casing" strike "**surface**".
Concur, language was deleted from March 26, 2008 draft.

Page 9 of 29 - Chart after Line 437. This Chart is still not the way the IGWA wants it. IGWA and IDWR need to discuss this in greater depth.
Needs further consideration, this chart was the product of driller input from the previous 13 negotiated rule making sessions. IGWA will need to provide a chart that demonstrates consensus from drillers.

Page 10 of 29 - Line 461. After "casing within unstable" strike "**units**" and add "**formations**".
Concur, will incorporate into next draft.

Page 10 of 29 - Lines 468 - 470. i. Line 468 After "Stable" strike "**Units**" and add "**Formations**".
Concur, will incorporate into next draft.
After "SDR 21," strike "**or a minimum rating of**". Line 469 before "for nominal diameters of" strike "**schedule 40**". After "nominal diameters of" strike "**four (4) inches**" and add "**six (6) inches**". Need clarification, drillers have indicated that SDR 21 rating does not apply to casing diameters of 4 inches or less. Line 470 before "stable" strike "**uninterrupted**" and after "stable" strike "**units**" and add "**formations**". Concur, language was deleted from March 26, 2008 draft

Page 10 of 29 - Lines 472-474 ii. Line 472 after "Stable" strike "**Units**" and add "**Formations**".
Concur, will incorporate into next draft After "SDR 17," strike "**or a minimum rating of**". Line 473 after "for nominal diameters of" strike "**four (4) inches**" and add "six (6) inches". Line 474 before "stable" strike "**uninterrupted**" and after "stable" strike "**units**" and add "**formations**".
Concur, will incorporate into next draft

Page 10 of 29 - Lines 476-480 iii. Line 476 after "Unstable" strike "**Units,** or for all other conditions:" and add "**Formations**". Line 477 after "SDR 17," strike "**or a minimum rating of**".
Concur, SDR 17 language was deleted from March 26, 2008 draft After "nominal diameters of" strike "**four (4)**". Need clarification, drillers have indicated that SDR 21 rating does not apply to casing diameters of 4 inches or less
Line 478 before "or less." strike "**inches**". Need clarification, drillers have indicated that SDR 21 rating does not apply to casing diameters of 4 inches or less

Page 10 of 29 - Line 505 e. After "steel" and before "casing" strike "**surface**".
Concur, will incorporate into next draft

Page 10 of 29 Lines 510-516 041. Standards for Plumbness and Alignment of Casing and Liner. This needs to be reworked between IDWR and IGWA.
Concur, language was deleted from March 26, 2008 draft

Page 11 of 29 Line 521 .01 After "artificial" add "**or**". After "natural," and before "filter pack" strike "**and reserve**".
Concur, language was deleted from March 26, 2008 draft

Page 11 of 29 Line 545 b. Need an explanation from IDWR on what "**horizontal hydraulic pressure**" is.
Concur, language was deleted from March 26, 2008 draft

Page 11 of 29 - Lines 548-549 c. Strike all of c.
Concur, language was deleted from March 26, 2008 draft

Page 11 of 29 - Lines 551-552 d. Strike all of d.
Concur, language was deleted from March 26, 2008 draft

Page 11 of 29 - Lines 560-561 02. b. Strike all of 02. b.
Concur, language was deleted from March 26, 2008 draft

Page 12 of 29 - Line 584 04. a. After "overlying the production zone(s)" add "**or from the confining layer immediately above the production zone to the highest static water level**".
language was deleted from March 26, 2008 draft

Page 12 of 29 - Line 586 04. b. After "Install an annualr seal(s) strike "**through the uppermost confining layer; and**".

Concur, language was deleted from March 26, 2008 draft

Page 12 of 29 - Lines 594-618. Strike all of this language and work this out between IGWA and IDWR.

Concur, language was deleted from March 26, 2008 draft

Page 13 of 29 - Lines 634-636 051. .01 d. Line 634 after "rounded silica sand," strike "**of any gradation between U.S. standard sieve sizes**" and add "**in accordance with Manufacturer's Specifications**". Line 635 strike **"#50 and #10 to bentonite grout not to exceed a by weight ration of five (5) parts sand to one (1) part bentonite (250**". Line 636 strike at the beginning of the sentence "**lbs sand to 50 lbs. bentonite)".**

Concur, language was deleted from March 26, 2008 draft

Page 13 of 29 - Lines 643-651. There is no reference to Neat Cements and there needs to be.

Concur, see March 26, 2008 draft line 178

Page 13 of 29 - Line 659 04. Brett McCarty already e-mailed over the language for this one to you.

I have not seen this correspondence, to whom was this e-mailed, or approximately what date so we can search again.

Pages 14-15 of 29 - Chart after Line 722 - Strike the entire Chart as it needs to also account for Nominal Spaces.

Concur, language was deleted from March 26, 2008 draft

Page 15 of 29 - Lines 724-741 - Strike all language in Lines 724-74.

Concur, language was deleted from March 26, 2008 draft

Page 16 of 29 - Line 789 02. - After "seal shall be exposed" add "**to**".

Concur, language was deleted from March 26, 2008 draft

Page 16 of 29 - Line 803 Rule 56. After "(Rule" strike "**57"** and add "**56**".

Concur, language will be modified following the negotiated rule making session on April 2, 2008.

Page 16 of 29 - Rule 61 - Strike all of Rule 61.

Concur, language was deleted from March 26, 2008 draft

Page 18 of 29 - .080 c. Strike **Line 889** 080. c.

Concur, language was deleted from March 26, 2008 draft. Sand production language now covered under Rule 25.

Page 19 of 29 - Lines 958-960 - 087. Unusable Water Well. Strike **Lines 958-960**. IGWA will work with IDWR on new language for this.

Concur, language was deleted from March 26, 2008 draft

Page 19 of 29 - Lines 970-971 - 092. Hydro-Fracturing. Line 970 after "fracturing pressures" strike "**and other data as requested**". Line 971 strike "**by the Department**".

This language has not changed and is original to the existing Rules.

Page 20 of 29 - Lines 990-1018 - Strike **Lines 990-1018.**
Language is under review following the April 2, 2008 negotiated rulemaking session.

Page 20 - 29 - Strike **Chart following Line1018.**
Language is under review following the April 2, 2008 negotiated rulemaking session.

Page 21 of 29 - Line 1025 - 01. After "standard sieve" strike **"#200**" and add **"#40 or coarser**". After "produced shall not" and before "The well" strike "**exceed 15 ppm**" and add "**exceed a manageable amount of sand**".
Do not concur, #200 sieve is consistent with the USCS sand size and "manageable amount of sand is not quantifiable." To be enforceable it needs to be quantifiable.

Page 21 of 29 - Lines 1030-1031 - Strike **Lines 1030-1031.**
Do not concur, this language is consistent with the statutory restriction on commingling.

Page 21 of 29 - Lines 1036-1041 Rule 96 - Strike **Lines 1036-1041 Rule 96.**
Language is under review following the April 2, 2008 negotiated rulemaking session.

Pages 21-22 of 29 - Lines 1043-1077 Rule 97 - IGWA would like to discuss this further with IDWR.
Provide specific language to be considered.

Page 25 of 29 - Line1268 05. After "any and before "usable well" strike "**unused or**".
Language is under review following the April 2, 2008 negotiated rulemaking session.

Page 26 of 29 - Lines 1328 d. - 1346 h. - IGWA is confused because this allows for a verbal waiver, when IDWR has stated all along that verbal waivers would not exist, only written ones.
The referenced line allows for verbal approval of a "permit", not waiver. Verbal waivers are being considered for inclusion.

Page 27 of 29 - Appendices - IGWA is requesting better accuracy with these proposed drawings than presented last year.
Concur, drawing will be updated consistent with the final draft.

That is really all. Thank you for allowing IGWA to submit comments. We look forward to the discussion next week.

Roger

From: Roger Batt [mailto:Rbatt@spro.net]
Sent: Thursday, May 08, 2008 4:52 PM
To: Neace, Thomas; Tuthill, Dave; Brett McCarty; Chad Draper; Henry Baker; Jay Meade; Rob Dawson; Roger Buchanan; Steve Baker; Tom Richardson; Tony Hackett
Subject: FW: Suggested Language

Tom,

IGWA is asking IDWR to consider this language in addition to what is already in Rule 50 so that some members of our Association can continue to drill and stay in competition with other drillers in the state.

Thank you,

Roger

Add to Rule 50 (line 379):

Temporary Casing
The driller shall be allowed the option to leave the Temporary Casing in place. Bentonite Grout sealing material must be used to construct the seal when the casing is left in place. The Grout must be placed with sufficient pressure to force it through the casing perforations and into the annular space between the casing and borehole wall and into the Formations to provide a full-length seal from the confining layer to the surface.

Line 379 is under Rule 10 - Definitions and therefore not an appropriate place to insert language on methodology. This concept has been incorporated into the May 2008 DRAFT under Rule025.07.e.i.

Nathan, Thanks for informing me of the new draft and providing a copy to me. In general, I don't have too much heartburn over what I've read, however—there are a few things I strongly disagree with. 1)I think that the definition and requirements for LOW TEMPERATURE GEOTHERMAL should be redone. Most people I encounter feel 85 degrees F is too low. Most would like to see that limit raised. 2)Disinfection for every well, every application, every scenario, every time in the hole is pretty crazy. I don't know how else to describe it. Disinfection at the conclusion of the work, and using good judgment against sending obviously contaminated, filthy tooling or pumps down the well should suffice. 3)And this is the biggie: Minimum seal depths to 58-feet across the board? There certainly are cases where more than the current minimum of 18-feet is appropriate, however this is usually sufficient to protect a given point source and the surrounding groundwater from any surface contamination. **Seal depths should be based on the geologic conditions at each unique well location.** Here is a great example of how ridiculous arbitrary seal depths can be—and yes it is an example of DEQ tunnel-vision, ignoring lithologic data and the **INTENT** of a given rule in favor of following a badly written rule. In the 2007 WATER IMPROVEMENT PROJECT—PRODUCTION WELL for the CITY OF HEYBURN: The seal depth is drawn and written as 60-feet. DEQ reviewed and approved this poor design simply because is met their rule—the problem is that the test hole log (both versions) clearly indicate SAND to 80-feet. The seal depth should be about 85-feet, but apparently, geology doesn't matter. (?) It is time for subsurface geology to determine seal depths—not bureaucracy. Until science and reason determine well design, arbitrary depths won't make any sense or have any positive effects.
On a positive note, I appreciate language being added, informing well owners about—and making them responsible for maintenance or modification of their own wells. I hope that this process goes more smoothly for all of us, and that a more perfect document can come out of the process. I believe the best way to do that is to keep the rules simple, science-based, and keep procedures out of the rules. Fair enforcement of the rules is and remains the most important part of any changes.
Please incorporate my comments into the formal feedback of the negotiated rulemaking process, or let me know if I need to submit them in a more direct way.
Thank you,
Alan Lloyd

Response to Comments.

1) Do not concur. Low Temperature Geothermal is defined by statute as eighty-five degrees Fahrenheit. The existing Rules and the proposed Rule Revision are based on and consistent with the statutes. Changing the statutory definition requires changing the statute, which is not accomplished by the rule making process.
2) Concur, disinfection requirements have changed significantly in the final draft to accommodate in-situ disinfection of a well at completion.
3) Do not concur. Establishing a deeper seal as the minimum will, based on a survey of well logs from across the state ensure that the majority of wells are sealed into a confining layer or consolidated formation. Designing annular seals based on unique geologic conditions at each well location assumes every driller has more than a basic knowledge of geology. Typically, designing a well by interpreting geology requires a licensed geologist or engineer.

Response to comments to the March 26, 2008 DRAFT Well Construction Rules, received from SPF Water Engineering, LLC.

Line 165. Concur, see line 137 of the May 16, 2008 Draft.
Line 205 and 206. Concur, see lines 174 and 175 of the May 16, 2008 Draft
Line 210-212 and lines 222-224. Don not concur.
Lines252-254. Concur, deleted from May 16, 2008 Draft.
Lines 299-300. This definition is consistent with the definition provided in IDAPA 37.03.10, Well Driller Licensing Rules.
Lines 311-313. Concur, deleted from May 16, 2008 Draft.
Line 350. Do not concur.
Line 432. Concur, see lines 450-451 of the May 16, 2008 Draft.
Line 446. Concur, see lines 464-470 of the May 16, 2008 Draft.
Line 481

- Concur
- Concur, see table in May 16, 2008 Draft
- Separation distances listed are a compilation of District Health, DEQ, and IDWR requirements.
- See Uniform Plumbing Code
- This has been changed to 20 feet
- Do not concur, may require piping form the pump to the ditch.

Line 549. Do not concur, a pedestal is not a slab.
Line 577. The purpose of this table is to illustrate the minimum standards.
Line 603. Concur, change made.
Line 658. Do not concur. 07.i and 07.k require that casing be installed 5 feet below the water table and to the confining layer, respectively, and sealed to a minimum of 58 feet. Casing does not constitute a seal.
Lines 662 and 678. Do not concur.
Line 678. Concur, change made.
Lines 694 and 699. Concur, change made.
Lines 736 through 738. Do not concur.
Lines 746 through 748, 757,to 760, 769 and 770,778 and 779. Do not concur.
Line 846. Concur, change made.
Line 879. Concur, change made.
Lines 940 and 941. Concur. Added definition of unusable well and deleted unused.
Line 942. Concur, change made.
Lines 1023 an 1024. This text has not been modified from the original Rule. It requires that the pressure not be transmitted to the well casing but does not preclude the use of packers.
Line 1036 and 1037. Do not concur. Diluting the substance in drilling fluid does not constitute “pure form”.
Lines 1066 and 1067, 1079 through 1081. Concur, this section has been changed significantly and no longer contains this language.
Line 1092. This will need to considered on a case by case basis for well that are problematic. One would have to consider time in production and quantity of sand being produced.

Line 1116. Concur, change made.
Line 1116 and 1117. Do not concur.

SPF Water Engineering, LLC
water resource consultants

April 21, 2008

Tom Neace, P.G.
Idaho Department of Water Resources
P.O. Box 83720
Boise, ID 83720-0098

Subject: Comments on Well Construction Standards Rules

Dear Tom:

The following are my comments to the draft rules that were attached to your email dated March 26, 2008 (rules08_March262008_draft.pdf).

Line 165. Add "or borehole" after "bottom of a well"

Lines 205 and 206. Strike "and includes rocks such as basalt, rhyolite, sandstone, limestone, and shale."

Lines 210-212 and lines 222-224. These sections are problematic for almost any heating or cooling well system. Injection of almost any fluid will alter the groundwater temperature and will likely increase the concentration of some substance (even if it is benign).

Lines 252-254. This is the definition of a rotary drilled well. By this definition, a cable tool well is not a drilled well. What is the purpose of this definition here?

Lines 299-300. "or alter the well to not meet well construction standards". I don't understand the intent of this phrase. Perhaps it should be struck?

Lines 311-313. Strike "exceeding the design capacity of the well, or at a rate greater than the aquifer is capable of producing on a sustained basis,". Reasons - Who determines the design capacity of a well? Design capacity is very subjective. With regard to aquifer capacity, a well can be properly equipped with a pump that will produce more than the sustainable aquifer capacity for certain purposes. For example, a domestic well can properly be equipped with a 7 gpm pump in a well completed in an aquifer that will sustain no more than 5 gpm to the well on a continuous (24-hr per day) basis.

Line 350. Add "above or below ground surface" after "The level"

Line 432. Change "constructed. Or" to " constructed, or"

Line 446. Strike "except geothermal resource wells."

600 East River Park Lane, Suite 105 · Boise, ID 83706 · 208.383.4140 · fax 208.383.4156 · www.spfwater.com

Line 481 (separation distance table)

- Add "separate ownership" after "Existing Public Water Supply well"
- For drainfield of systems with more than 2,500 GPD of sewage inflow, the wastewater rules allow less separation depending on soil type. I suggest that you reference the DEQ rules.
- The main line sewer line (both pressurized and gravity) separations will impact the ability to install sewer lines where wells are within close distances of roads. Do these regulations already exist elsewhere?
- Is there a definition of "pressure tested" for secondary sewer lines?
- Strike "50 feet" for above ground chemical storage tanks unless there is a clear basis for this in other regulations. Otherwise, tanks with water treatment or disinfection chemicals could not be present in a well house.
- Strike "Streams, canals, ….water". This would prohibit irrigation wells from discharging directly into ditches.

Line 549. Add ", other than pedestals" after slabs.

Line 577. What is the purpose of this table? It makes no sense relative to collapse strength, and may imply a casing thickness is safe for construction when it is likely to collapse under differential hydraulic pressure.

Line 603. Change "fou" to "four"

Line 658 and later. I suggest that the last two sentences in lines 658-660 be struck. Reason - Why 58 feet? This number is random and in many situations it is arguable whether it provides more aquifer protection than a minimum of 18 feet. It increases cost, but often without a benefit. The rules for sealing in consolidated formations (07.i) and unconsolidated formations (07.k) are clear without a 58-foot minimum. In those formations, regardless of depth, a well needs to be sealed either 5 feet into the overlying consolidated formation (rule 07.i), or into the confining layer immediately above and in contact with the production zone (rule 07.k). Those rules need to be enforced. In unconsolidated formations without clay layers, does a 58-foot seal provide significantly more protection?

Lines 662 and 663. Strike "at depths greater than fifty eight (58) feet in artesian wells or".

Line 678. Change "provided" to "provide"

Lines 694 and 699. Change " 12" minimum " to either "11 7/8"minimum" or "12" nominal"

Lines 736 through 738. strike "extends and" and "sealed to a depth not less than fifty-eight (58) feet. If the well depth is less than fifty eight (58) feet from land surface, unperforated well casing shall be installed and "

Lines 746 through 748. strike "to at least five (5) feet below the water table and be sealed to a depth not less than fifty eight (58) feet. If the well depth is less than fifty eight (58) feet, unperforated well casing shall extend"

Line 757 insert "the confining layer immediately above the production zone" after "sealed to"

Lines 757 to 760. Strike "a depth not less than fifty eight (58) feet .....(18) feet, whichever is greater"

Lines 769 and 770. Strike "and be sealed from land surface to depth not less than fifty eight (58) feet"

Lines 778 and 779. Strike "and install an annular seal from land surface to a depth not less than fifty eight (58) feet"

Line 846. Add a comma after "construction"

Line 879. Strike "in"

Lines 940 and 941. Where is the definition of "Unused or Unusable Water Well"?

Line 942 Strike "or"

Lines 1023 and 1024. In hydraulic fracturing, isn't the pressure often transmitted from the bottom of the well casing? I haven't been involved in fracturing for many years, but I was under the impression that it is common to place a packer near the bottom of the casing for fracturing (rather than use a formation packer placed against the borehole wall.

Lines 1036 through 1037. Strike "and do not contain a concentration of any substance in excess of Primary Drinking Water Standards, as set forth in IDAPA 58.01.08, "Rules for Public Drinking Water Systems" Reason – Many fluids and additives in pure form likely do not meet drinking water standards.

Lines 1066 and 1067. Strike "and ensure that the water has a chlorine residual of not more than one (1) part per million of free chlorine". This does not seem to be necessary unless manufacture's recommendations specifically call for less than 1 ppm free chlorine.

Lines 1079 through 1081. Strike these lines. The lines would prevent disinfection and chemical treatment of wells. Protection of groundwater quality is provided elsewhere in these and other rules.

Line 1092. 15 ppm when? Immediately after starting, 15 minutes after starting, or one hour after starting? It makes a difference. Also, do you want to describe how it is measured?

Line 1116 Add "and" after "(non-pumping) water level,"

Line 1116 and 1117 strike ", and the sustainable production rate".

Thank you for the opportunity to comment. Please contact me with any questions.

Sincerely,

Terry M. Scanlan, P.E., P.G.

Resolution to comments received from the Technical Advisory Committee to the Draft well Construction Rules, rules08_strikethrough_draft.doc

From: Dittus, Roger

Comment 1) I think it's good. One suggestion is to give an example of "next larger nominal size". Maybe use the same format you use in giving an example of nominal diameter: "(e.g. the next larger nominal size for a 6-inch nominal casing/ 10-inch nominal borehole is 6-inch nominal casing/ 12-inch nominal borehole)"

Perhaps reword c. (c. Dry bentonite seals shall be installed consistent with the manufacturer's specifications and recommendations for application and placement.)to "Installation of dry bentonite seals shall be consistent with the manufacturer's specifications and recommendations for application and placement."

Resolution. Rule 025.07.c now states
"a borehole at least 2" larger than the outside diameter of the casing to be sealed. (Note: a 7 7/8" diameter (8" nominal) bore hole around a 6 5/8" casing does not satisfy the minimum annular space requirements).

Rule 025.07.d now states
"For dry bentonite seals the minimum annular space required shall provided for a uniform seal thickness not less than 1 5/8" on all sides of the casing or a borehole at least 4" larger than the "**nominal diameter"** of the casing to be sealed. e.g., (6 5/8 casing (nominal 6") requires a 10" nominal temporary casing or a 9 7/8" minimum borehole)"

iii. Granular bentonite shall not be placed through water.

iv. If a granular bentonite seal is placed deeper than 200 feet, the minimum annular space shall be increased to the next larger nominal size e.g., (6 5/8 casing (nominal 6") requires a 12" nominal temporary casing or a 12" minimum borehole).

Comment 2) Approved seal material. Bentonite grout, Chips, Granules, or Pellets as defined in these Rules

09.c. For annular seals above or below the saturated zone consisting of bentonite grout, or annular seals above the saturated zone consisting of approved dry bentonite products, the nominal pipe diameter must be at least four (4) inches less than the nominal drill-bit diameter and result in an annular space at least one-and-one-half (1-1/2) inches larger than the greatest outside diameter of the well casing, including bells, couplings, and collars or casing shoes.

For annular seals below the unsaturated zone and comprised of approved dry bentonite products, the nominal pipe diameter must be at least six (6) inches less than the nominal drill-bit size or require an-annular space at least one and one-half (2) inches larger than the greatest outside diameter of the well casing, including bells, couplings, and collars or casing shoes

Resolution. Rule 025.07.d iii. iv. and v now state;

iii Granular bentonite shall not be placed through water.

iv. If a granular bentonite seal is placed deeper than 200 feet, the minimum annular space shall be increased to the next larger nominal size e.g., (6 5/8 casing (nominal 6") requires a 12" nominal temporary casing or a 12" minimum borehole).

v. Bentonite chips may be place through water or drilling fluid of appropriate viscosity. Bentonite chip seals placed through water or drilling fluid to depths greater than 58 feet will require the minimum annular space to be increased to the next larger nominal size e.g., (6 5/8 casing (nominal 6") requires a 12" nominal temporary casing or a 12" minimum borehole).

From: Spillers, Paul

Subject: RE: Draft Well Construction Rules

My questions/comments on the drilling rules, by line…..

Comment 1) Line 66 – Not sure what rule 4 is, or incorporation by reference. Are there other rules other that what's here, because I saw references to some other rules that I didn't see in the rules? For that matter, what is a rule as it relates to the text? Are the major sections in the rules, also referred to as individual rules? For instance, section 010 Definitions says ("Rule 10"), but Section 28 Sand Production doesn't say "Rule 28". If rule sections are referred to as (Rule XX), you should probably be consistent and print (Rule) behind every number?
Resolution. Anticipate the rules coordinator assisting us with proper formatting and required sections of the rules. Reference to Rule 28 has been changed to Rule 025 Paragraph 23. All Rule heading appear to be followed by "Rule #", subsections of rules are not.

Comment 2) Line 107 – Minimum annular space-do you still need a minimum of 2-inches? Otherwise, my drilling experience would suggest that anything less than 2-inches could result in difficulty in placing a competent seal? (This goes for gravity feeding or tremie)
Resolution. Sealing language has been updated in the March 26 Draft to reflect annular space.

Comment 3) Line 280 – Didn't see Rule 85 anywhere. These rules seem to stop at Rule 50. There's a section 020 covering pitless adaptors starting on line 960.
Resolution. Concur, Changed accordingly

Line 323 – Sand typically has an upper limit in size (smaller than gravel). Unified Soil Classification System says 4.75 millimeters, Dictionary of Geologic Terms says 2 mm. For the purpose of these rules, in the extreme upper limit is a cobble or boulder defined as sand? See also line 1060.
Resolution. Concur, Changed accordingly

Line 443 – I'll bet the discussion must have been lively in this section. How about instead of the well driller determining whether additional measures are necessary, could it be "well driller or "Department"?
Resolution. Based on comments received during the April 2, 2008 negotiated rule making meeting, this will likely be modified in the next draft.

Line 613 – I didn't see Rule 43. (Section 028, line 1058 or Section 029, line 1077 deal with sand production-did you mean one of those?)
Resolution. Concur, Changed accordingly

Lines 650-652 – Is this section consistent with line 107?

Resolution. Language has been modified to reflect nominal diameter of casing.

Lines 701-708 – How do you account for monitoring wells screened across the water table? Does the exception have something to do with the water already being contaminated? For monitoring wells completed like this, is the P.G. accepting some or all of the responsibility for this completion?
Resolution. Yes, all monitoring wells require an approval.

Line 1074 – Does Rule 28 start on line 1058? This is an example of my question in line 66.
Resolution. Concur, Changed accordingly

Line 1364, and Line1384 – wells should actually be well's (no, I didn't read the whole document for punctuation. I just noticed these)
Resolution. Concur, Changed accordingly

Line 1407 – Two periods at the end of the sentence
Resolution. Concur, Changed accordingly

From: Lance.Nielsen@deq.idaho.gov **Sent:** Thursday, March 20, 2008 11:11 AM

Thanks for the opportunity to review and comment on the draft IDWR Well Construction Rules. It is obvious that a lot of good work went into preparing the current draft. DEQ's comments were prepared by Ed Hagen. As I stated last week, I will be unable to participate in the conference call tomorrow afternoon, but think our written comments pretty thoroughly cover our opinions. I would like to highlight a few points:

- Sealing requirements starting on line 626: DEQ supports the 58 foot seal below land surface as an appropriate method of protection the resource and its beneficial uses. In addition, this modification to sealing requirements makes the IDWR rule consistent with the well construction standards for public water system wells.
  Resolution. No resolution required

- Line 717: Regarding the 58 foot seal, DEQ suggests extending the seal to the deepest confining layer above the well screen or opening instead of to the first confining layer. Once again, this would be an appropriate protection of the resource and its beneficial uses.
  Resolution. This approach, while more protective if done properly, is difficult to regulate and leads to varying interpretations of what constitutes a confining layer and at what depth it is encountered.

- Most of the remaining comments suggest modifications to the draft rule that would make them consistent with the Ground Water Quality Rule and the Ground Water Quality Standards set in that rule.
  Resolution. No resolution required

Thanks again for the opportunity to comment. Let me know if you have any questions, and when the group is next scheduled to meet.

Ed Hagan's comments on IDWR well construction rules 3/19/08

Line	Comments

117	Should definition of should be consistent with existing Ground Water Quality Rule definition? Resolution. Concur, changed accordingly
199	Consolidated formations – The way it is currently written suggests basalt and rhyolite are sedimentary rocks that have been lithified. Suggest "*Naturally occurring geologic formations that have been lithified (turned to stone) such as sandstone, limestone, or shale or competent igneous rocks such as basalt or rhyolite*." Resolution. Concur, changed accordingly.
204	Should definition of contaminant be consistent with existing Ground Water Quality Rule definition? Resolution. Concur, changed accordingly
206	delete "*or to lesser degrees*". Resolution. Concur, changed accordingly
213	delete *State Drinking Water Standards* replace with *Idaho Ground Water Quality Standards* Resolution. Concur, changed accordingly
217	use term *beneficial use* instead of *designated or protected.* The terms *designated or protected* are not defined in your rule. The term *Beneficial uses* is defined in Idaho Ground Water Quality Rule and can be included in your rule. The term beneficial use is also used on line 981. Resolution. Concur, changed accordingly
275	use milligrams per liter (mg/L) instead of ppm. Resolution. Concur, changed accordingly
309	Can a production string be used for a cold water resource? This term is used in Rule 30, Low Temperature Geothermal Resource Wells.
488	Add the words "*of the*" after the word *occurrence*. Resolution. Concur, changed accordingly
666	insert *(18)* after the word *eighteen*. Changed to "fifty eight (58)
717	Suggest extending seal to deepest confining layer above the well screen or opening instead of the first confining layer. This approach, while more protective if done properly, is difficult to regulate and leads to varying interpretations of what constitutes a confining layer and at what depth it is encountered.
1047	The Ground Water Quality Rule indicates no degradation should occur. I would refer to Ground Water Quality standards instead of drinking water standards. This section should agree with the UIC rules on injection wells. Resolution. Concur, changed accordingly