Oregon
Theodore R. Kulongoski, Governor

Water Resources Department
North Mall Office Building
725 Summer Street NE, Suite A
Salem, OR 97301-1266
503-986-0900
FAX 503-986-0904

April 2, 2007

CARPENTER DRILLING
JODY L CARPENTER #1669
11 S GOOSE GAP RD
BENTON CITY WA 99320

Dear Mr. Carpenter:

The Special Standard request you submitted for owner: Richard Smith, Start Card number 123791, is hereby approved as described in Attachment A. Your Special Standard request form is enclosed. All other construction standards must be adhered to.

The Well Construction Standards serve to protect ground water resources. By approving and issuing this special construction standard the Oregon Water Resources Department is not representing that a well constructed with this condition will maintain structural integrity or that it meets engineering standards. The well constructor/or landowner is responsible for ensuring that a well is constructed in a manner that protects ground water resources as required under Oregon Administrative Rules 690-200 through 690-240.

If you have any questions concerning this letter, I may be contacted at 503 986-0852, or by e-mail at Juno.G.Pandian@wrd.state.or.us.

Sincerely,

Ms. Juno Pandian, Manger
Well Construction & Compliance Section

enclosure

cc: Brian Mayer, NC Region Well Inspector

This is a final order in other than contested case. This order is subject to judicial review under ORS 183.484. Any petition for judicial review must be filed within the 60 day time period specified by ORS 183.484(2). Pursuant to ORS 536.075 and OAR 137-004-0080 you may either petition for judicial review or petition the Director for reconsideration of this order. A petition for reconsideration may be granted or denied by the Director, and if no action is taken within 60 days following the date the petition was filed, the petition shall be deemed denied.

WORK PLAN

The following steps are intended to provide general guidance and a path forward. It is not intended as a prescriptive control on filed actions. Conditions encountered may require changes to the following plan as deemed necessary during operations. All depths provided ar e in feet as measured from ground surface (BGS- Below Ground Surface)

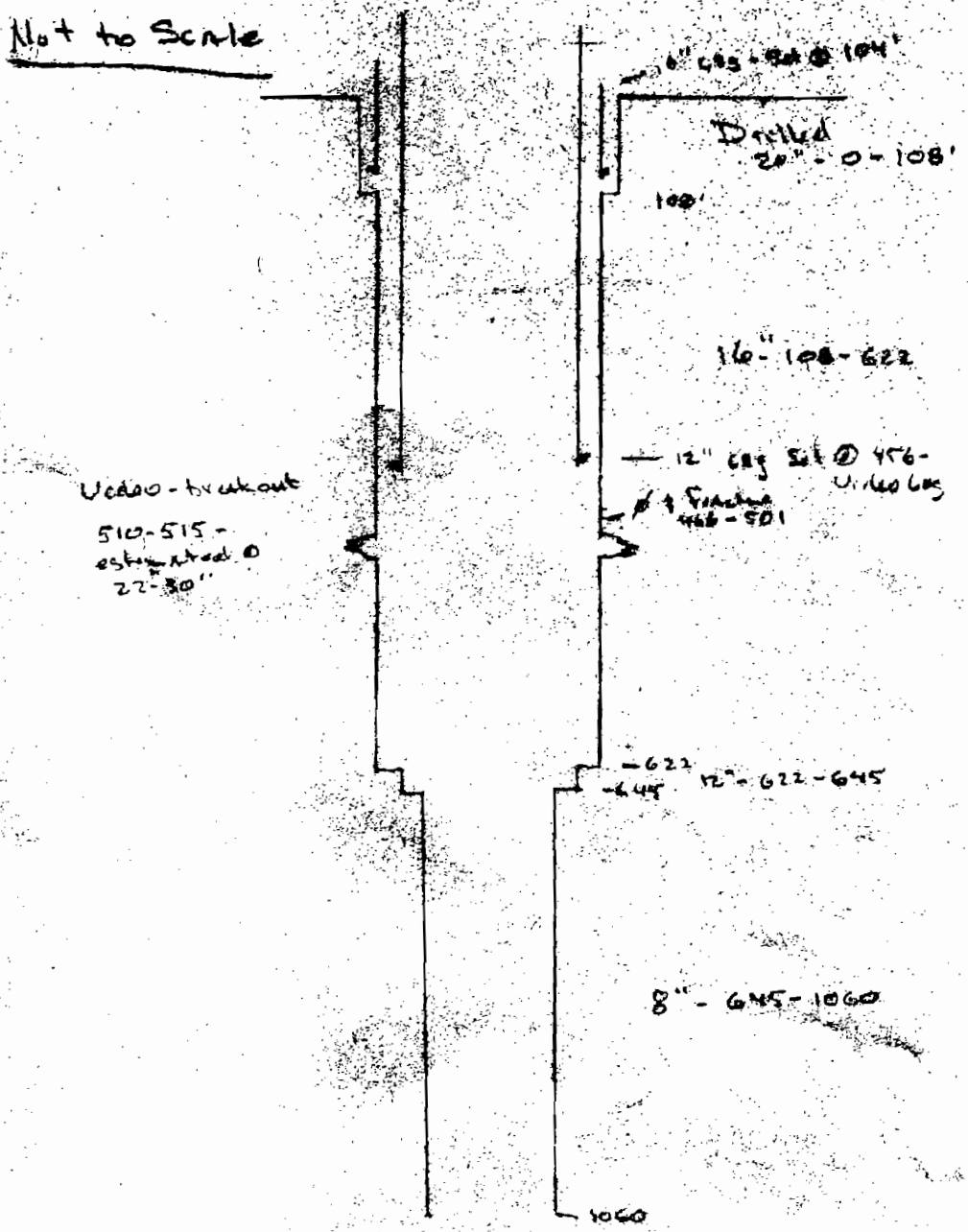
1. Upon mobilization measure to top of water and total depth of the well to verify TD as 1060' and TOW as 407'. If significant variance is noted contact Terry Tolan at 1-509-591-2930 or Kent Reynolds at 1-509-308-3000.
2. Fill borehole from **total depth to 540 ft** BGS with "pea gravel". Calculations indicate that a volume of 10 cu yards will be required to fill this zone. During placement of gravel run tools into borehole to compact materials after placement of approximately 2 yards of materials (e.g. compact hole 4-5 times during filling). Record volume placed.
    - Volume calculations utilize. Hole capacity numbers from Halliburton Cementing Tables and are based on nominal hole size.
      8"- .3491 cu ft/ft X 415 ft= 144.9 cu ft
      12"- .7854 cu ft/ft X 23 ft= 18.1 cu ft
      16"- 1.3963 cu ft/ft= 114.5 cu ft
      277.5 cubic ft=10.2778 cu yards
3. Place approximately 5' of coarse sand (8-10 or 10-12 sorted/washed sand- or equivalent) as pad on gravel- **535 to 540 ft** BGS. This will require 6.98 cu ft of material. Each 8-12 mesh sack of sand is 1.01 cu ft. The lift will require 7 sacks of sand. Record volume placed.
    - This may be poured from surface (allow sufficient time for drop through water). Tag with tools for measurement and compaction (add sand if necessary to achieve full 5 foot lift).
4. Place approximately 5' of Hole Plug/Chunks (5/8" or larger) **530 to 535 ft** BGS. Each 50# sack is approximately .7 cu ft. and approximately 7 cubic feet is required to fill zone=10 50# sacks. Record volume placed.
    - This material may be poured from surface (allow sufficient time for drop through water and for enough hydration time to provide hole sealing capacity-1 hour- before proceeding).
5. Run tremmie pipe to 525 ft BGS. Mix and place 5.5 sacks of Type I/II Portland cement. Mix at 6 gallons of water per 94# sack. This will provide 1.28 cu ft/sack and result in 7 cu feet of material= 5 foot lift-**525 to 530 ft** BGS.
6. Pull tremmie minimum of 20 ft and flush with sufficient water to clear. On site support/driller will calculate and document flush volume.
7. Wait on cement for minimum of 8 hours.
8. Tag cement top. measure top of water and document.
9. Place tremmie at approximately 515 ft BGS and initiate pumping of a neat cement mix. The entire lift will require 10 yards of neat cement (Type I/II Portland cement mixed at 6 gallons of water per 94# sack).. This is approximately a 50% overage to place enough volume to result in a minimum of 100 psi of cement pressure on bottom and will result in a top of cement at 235 ft BGS (e.g. 221 ft of cement inside of casing) assuming no loss to formation.
    - After placement of approximately 3 yards of material 20 feet of tremmie may be removed from total string length. For each 27 cu ft placed (1 yard) after the first 3 yards, 20 feet of tremmie may be removed to reduce bottom hole pumping pressures.

- After placement of cement, pull tremmie to approximately 150 ft BGS and flush with sufficient water to clear tubing and fill hole to surface with water. The combined pressure of 290 foot cement column and 235 foot water column will be approximately 390 psi. of bottom hole pressure..
- Monitor water level. If water levels fall enough to indicate that top of cement level may be approaching the bottom of casing (e.g. 456 ft BGS). That is, if measurement to the top of water approaches 200 ft, mix and place sufficient cement to assure cement remains in breakout zone. Volume of this lift will be a field call based on how quickly materials are being lost to formation. Pull tremmie above calculated top of lift and flush with sufficient water to clear.
- Monitor water level. If water levels continue to fall and calculations show that cement may be again approaching the casing shoe repeat above step.
- Monitor water level for 4 hours placing cement as necessary.

10. Wait a minimum of 8 hours, tag top of cement, record depth. If levels have fallen to flow top or breakout zone additional cementing is required. Contact Terry Tolan at 1-509-591-2930 or Kent Reynolds at 1-509-308-3000 for confirmation of lift volumes and actions.
11. If measurement indicates cement inside of casing proceed to drill out cement to 456 ft BGS. If a minimum of 24 hours has passed since placement of cement when 456 ft BGS is achieved drill ahead. If not, wait until cement in porosity/flow top and break out zones has had a minimum of 24 hours set time and drill ahead.
12. When drilling measure to the top of water at the beginning and end of each shift and record the readings. When drilling has reached 515 ft BGS stop drilling and measure to the top of water to verify that the break out zone is sealed. If a camera run is determined to be necessary bail the drilling slurry and add water to allow for clear camera viewing. If the seal is not intact re-cementing will be conducted contact Terry Tolan at 1-509-591-2930 or Kent Reynolds at 1-509-308-3000 to verify volumes and actions.
13. Drill to total depth by use of hard tool, bailer and sand pump as necessary to remove all materials from the well.

Materials Required:
10 yards of pea gravel
10 yards of neat cement
10 -100# sacks of 8-12 mesh silica sand
15 -50# sacks of coarse hole plug chunk bentonite
1 pallet of cement Type I/II Portland (as back-up for spotting cement as needed and placement of pad)
5 -100# sacks of Pure Gold or equivalent Bentonite Grout (for addition to cement slurry as needed if volume loss problems are encountered)
5- 100# sacks of CaCl granules/powder (for preparation of a CaCl wash to spot in front of cement if volume loss problems are encountered)
5- 50# sacks of LCM for hole plugging or volume loss assistance

Current Configuration as determined from document review.



Oregon Water Resources Department
725 Summer Street NE, Suite A
Salem Oregon 97301-1266
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www.wrd.state.or.us

Special Standards

Request Form

REQUEST FOR WRITTEN APPROVAL TO USE CONSTRUCTION METHODS NOT INCLUDED IN OREGON ADMINISTRATIVE RULES 690-200 THROUGH 690-240

Before the request can be considered, this form must be completed. Requests shall be submitted to the Well Construction Program Coordinator, Water Resources Department, 725 Summer Street NE, Suite A, Salem OR 97301-1266. Requests may also be considered by the appropriate Regional Manager.

Date of request: 03/26/07 **Oral approval date (if applicable):** ________

Bonded Well Constructor **(name, license #, and mailing address):** Lic # 1669
Carpenter Drilling - Jody L. Carpenter 11 South Goose Gap Rd Benton 99352.

(1) Location of Well: SW 1/4 NW 1/4 Tax lot 401 Section 3,
Township 4 N, Range 30 E, Umatilla County
Address at well site: South of milepost 2 on Kozmos Road
OWRD Well # UMAT 55752 and UMAT 55856

(2) Start Card Number(s)(for work to be done): 123791

(3) Name and Address of Land Owner: Richard Smith
980 Hurlburt Ave., Hermiston, OR 97838

(4) Distance to the nearest septic tank, drainfield, closed sewage line (if water supply well)
greater than 0.25 miles

(5) The unusual site conditions which necessitate this request: maintain existing hole diameter

(6) The proposed construction methods that the bonded well constructor believes will be adequate for this well: (attach additional pages if needed)
See Attached