

C 1 3136

SEQUENCE NO. (MDE USE ONLY)

STATE OF MARYLAND WELL COMPLETION REPORT

THIS REPORT MUST BE SUBMITTED WITHIN 45 DAYS AFTER WELL IS COMPLETED.

(THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

COUNTY NUMBER

ST/CO USE ONLY

DATE WELL COMPLETED

Depth of Well

PERMIT NO. FROM "PERMIT TO DRILL WELL"

DATE Received MM DO YY

MM DO YY 1 27 10

22 405 26

8/19/10 OK RW HD-45-1852

OWNER: STEVENS, ERIC last name first name STREET OR RFD: 12240 Philadelphia first name TOWN: ELICOTT CITY SUBDIVISION SECTION LOT

WELL LOG Not required for driven wells

STATE THE KIND OF FORMATIONS PENETRATED, THEIR COLOR, DEPTH, THICKNESS AND IF WATER BEARING

Table with columns: DESCRIPTION, FEET (FROM, TO), check if water bearing. Rows include: Soil (0-1), Orange clay w/ gravel (1-4), Tan sandy soil (4-93), Hard gray rock (93-194), Hard green rock (194-241), Hard gray rock (241-405), 2x 405 geo bores (1. 94' PVC, 2. 54' steel).

GROUTING RECORD

WELL HAS BEEN GROUTED (Y/N) TYPE OF GROUTING MATERIAL (Cement CM, Bentonite Clay BC) NO. OF BAGS 19 NO. OF POUNDS 475 GALLONS OF WATER 475 DEPTH OF GROUT SEAL (to nearest foot) from 2 ft. to 405 ft.

CASING RECORD

MAIN CASING TYPE: Nominal diameter top (main) casing (nearest inch): Total depth of main casing (nearest foot): 60 61 63 64 66 70

OTHER CASING (if used) diameter inch depth (feet) from to

SCREEN RECORD

screen type or open hole (ST, BR, HO, PL, OT) DEPTH (nearest ft.)

NUMBER OF UNSUCCESSFUL WELLS: 0

WELL HYDROFRACTURED (Y/N)

CIRCLE APPROPRIATE LETTER: A WELL WAS ABANDONED AND SEALED WHEN THIS WELL WAS COMPLETED; E ELECTRIC LOG OBTAINED; P TEST WELL CONVERTED TO PRODUCTION WELL

I HEREBY CERTIFY THAT THIS WELL HAS BEEN CONSTRUCTED IN ACCORDANCE WITH COMAR 26.04.04 "WELL CONSTRUCTION" AND IN CONFORMANCE WITH ALL CONDITIONS STATED IN THE ABOVE CAPTIONED PERMIT...

DRILLERS LIC. NO.: MW D 355

DRILLERS SIGNATURE (MUST MATCH SIGNATURE ON APPLICATION)

LIC. NO.: MW D 558

SITE SUPERVISOR (sign. of driller or journeyman responsible for sitework if different from permittee)

Table with columns: E A C H S R E E N, rows for depth intervals (1-11, 15-17, 21-23, 24-26, 30-32, 36-38, 39-41, 45-47, 51-53) and slot size (1, 2, 3) diameter of screen (56, 60) from to

GRAVEL PACK IF WELL DRILLED WAS FLOWING WELL INSERT F IN BOX 68

MDE USE ONLY (NOT TO BE FILLED IN BY DRILLER) T (E.R.O.S.) W Q

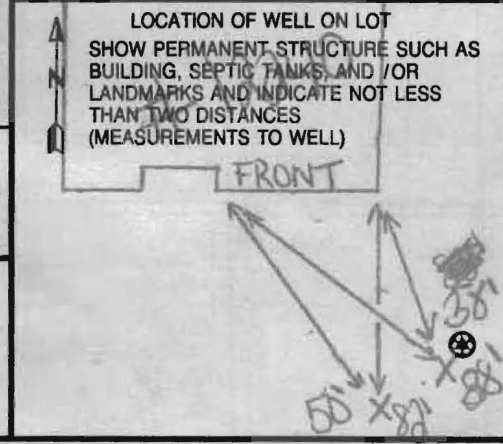
TELESCOPE CASING LOG INDICATOR OTHER DATA

PUMPING TEST

HOURS PUMPED (nearest hour) 8 9 PUMPING RATE (gal. per min.) 11 15 METHOD USED TO MEASURE PUMPING RATE WATER LEVEL (distance from land surface) BEFORE PUMPING 17 20 ft. WHEN PUMPING 22 25 ft. TYPE OF PUMP USED (for test) A air P piston T turbine C centrifugal R rotary O other (describe below) J jet S submersible

PUMP INSTALLED

DRILLER INSTALLED PUMP (YES/NO) IF DRILLER INSTALLS PUMP, THIS SECTION MUST BE COMPLETED FOR ALL WELLS. TYPE OF PUMP INSTALLED PLACE (A,C,J,P,R,S,T,O) IN BOX 29. CAPACITY: GALLONS PER MINUTE (to nearest gallon) 31 35 PUMP HORSE POWER 37 41 PUMP COLUMN LENGTH (nearest ft.) 43 47 CASING HEIGHT (circle appropriate box and enter casing height) + above } LAND SURFACE - below } (nearest foot)



B 1 3136

SEQUENCE NO. (MDE USE ONLY)

STATE OF MARYLAND APPLICATION FOR PERMIT TO DRILL WELL please type

STATE PERMIT NUMBER

HO-95-1852 fill in this form completely

Date Received (APA)

OWNER INFORMATION

8 MM DD YY 13 STAVENS, ERIC 15 Last Name Owner First Name 34 12240 Tridelphia Road 36 Street or RFD 55 ELICOTT CITY, Md 21042 57 Town 70 State 72 Zip 76

B 3

LOCATION OF WELL

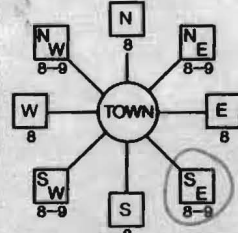
8 COUNTY 21 23 SUBDIVISION 42 SECTION 44 46 LOT 48 50 WEST Friendship 52 NEAREST TOWN 71 MILES FROM TOWN (enter 0 if in town) 2.0 MI 73 76 77 78

DRILLER INFORMATION

Driller's Name MICHAEL BARON M W D 355 76 License No. 81 Firm Name BARON WELL DRILLING SERVICE Address 222 Underwood Ln, Bel Air, Md 12-14-09 Signature Date

B 4

1 2 DIRECTION OF WELL FROM TOWN (CIRCLE BOX)



11 12240 Tridelphia Road 30 NEAR WHAT ROAD 34 20 37 ON WHICH SIDE OF ROAD (CIRCLE APPROPRIATE BOX) NORTH WEST SOUTH EAST DISTANCE FROM ROAD ENTER FT OR MI 38 39 TAX MAP: 15 BLK: 24 PARCEL 109

B 2

WELL INFORMATION

APPROX. PUMPING RATE (GAL. PER MIN.) 8 000 12 AVERAGE DAILY QUANTITY NEEDED (GAL. PER DAY) 14 20

USE FOR WATER (CIRCLE APPROPRIATE BOX)

- D DOMESTIC POTABLE SUPPLY & RESIDENTIAL IRRIGATION F FARMING (LIVESTOCK WATERING & AGRICULTURAL IRRIGATION) I INDUSTRIAL, COMMERCIAL, DEWATERING P PUBLIC WATER SUPPLY WELL T TEST, OBSERVATION, MONITORING G GEO-THERMAL

NOT TO BE FILLED IN BY DRILLER HEALTH DEPARTMENT APPROVAL

Howard COUNTY NAME 13 COUNTY NO. STATE SIGNATURE INSERT S 41 DATE ISSUED 1/5/10 CO SIGNATURE 1/5/11 EXP. DATE NORTH GRID 527 000 EAST GRID 0816 000

APPROXIMATE DEPTH OF WELL 400 FEET

APPROXIMATE DIAMETER OF WELL 6 INCH NEAREST INCH

METHOD OF DRILLING (circle one)

BORED (or Augered) JETTED Jetted & DRIVEN AIR-ROTary AIR-PERCussion ROTARY (Hydraulic Rotary) CABLE REVERSE-ROTary DRIVE-POINT other

REPLACEMENT OR DEEPEMED WELLS (CIRCLE APPROPRIATE BOX)

- N THIS WELL WILL NOT REPLACE AN EXISTING WELL Y THIS WELL WILL REPLACE A WELL THAT WILL BE ABANDONED AND SEALED S THIS WELL WILL REPLACE A WELL THAT WILL BE USED AS A STANDBY-CONTACT LOCAL APPROVING AUTHORITY FOR POLICY ON STANDBY WELLS D THIS WELL WILL DEEPEM AN EXISTING WELL

PERMIT NUMBER OF WELL TO BE REPLACED OR DEEPEMED (IF AVAILABLE) 41 52

Not to be filled in by driller (MDE OR COUNTY USE ONLY)

APPROX. PERMIT NUMBER G

PERMIT No. HO-95-1852

SHOW MAJOR FEATURES OF BOX & LOCATE WELL WITH AN X

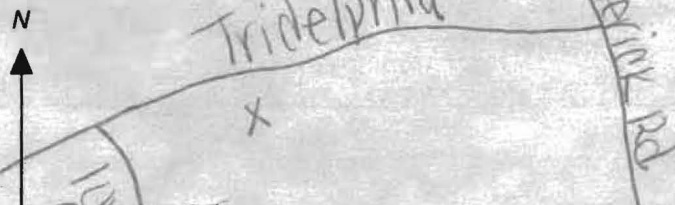
SOURCES OF DRILLING WATER

- 1. 2. 3.

WRITE THE BOX NUMBER FROM THE MAP HERE

E 82016 000 000 N 53027

DRAW A SKETCH BELOW SHOWING LOCATION OF WELL IN RELATION TO NEARBY TOWNS AND ROADS AND GIVE DISTANCE FROM WELL TO NEAREST ROAD JUNCTION



SPECIAL CONDITIONS

APPROVING AUTHORITIES SHOULD USE SEPARATE SHEET IF NEEDED

See Attached Memo



Bureau of Environmental Health
7178 Gateway Drive Columbia, MD 21046
(410) 313-2640 Fax (410) 313-2648
TDD (410) 313-2323 Toll Free 1-866-313-6300
website: www.hchealth.org

Peter L. Beilenson, M.D., M.P.H., Health Officer

Tuesday, January 05, 2010

IMPORTANT

MEMORANDUM - Geothermal Wells

To: Michael Barlow Well Drilling
FILE

From: Kevin Wolf, Environmental Sanitarian
Well and Septic Program

Re: **Geothermal Wells,**
12240 Triadelphia Road, *Eric Stevens Property*

The following information accompanies geothermal well application permits:

*A **Site Plan** that is to scale or a plan that shows nominal distances from features on the property to the geobores and indicates other pertinent features and structures on, or to be constructed on, the property; this includes but not limited to wells, and septic's.*

In conjunction with this statement and current regulations, geothermal bores must be separated by 30' to any wells and 50' to any adjacent septic's if geobores are up-gradient and 100' separation if down-gradient.

These separations will be enforced by Health Department approving authorities.

(The following Information taken directly from memorandum of understanding, MDE dated November 30th, 2007 Chief, On-site Systems Division,)

Remember, bentonite alone should be mixed at a ratio of 2 lbs or greater per gallon of water. If *thermal-enhanced* grout is to be used, remember to follow manufactures specifications when mixing. Health Department officials can inspect this grout by requesting the well driller to collect a sample of the grout in a bucket. If it the sand settles out within 1 hour, the grout mix is improper. Thermal enhanced bentonite grouts are a mixture of bentonite and quartz sand. The sand stays suspended in the clay for the life of the well. Please refer to the NGWA published article "Guidelines for the Construction of Vertical Boreholes for Closed Loop Heat Pump Systems" (1997)

Geothermal Wells may be permitted by cluster. The size of the cluster shall be determined by the Delegated Approving Authority.

Any questions regarding anything mentioned here, please feel free to call me. 410-313-1771

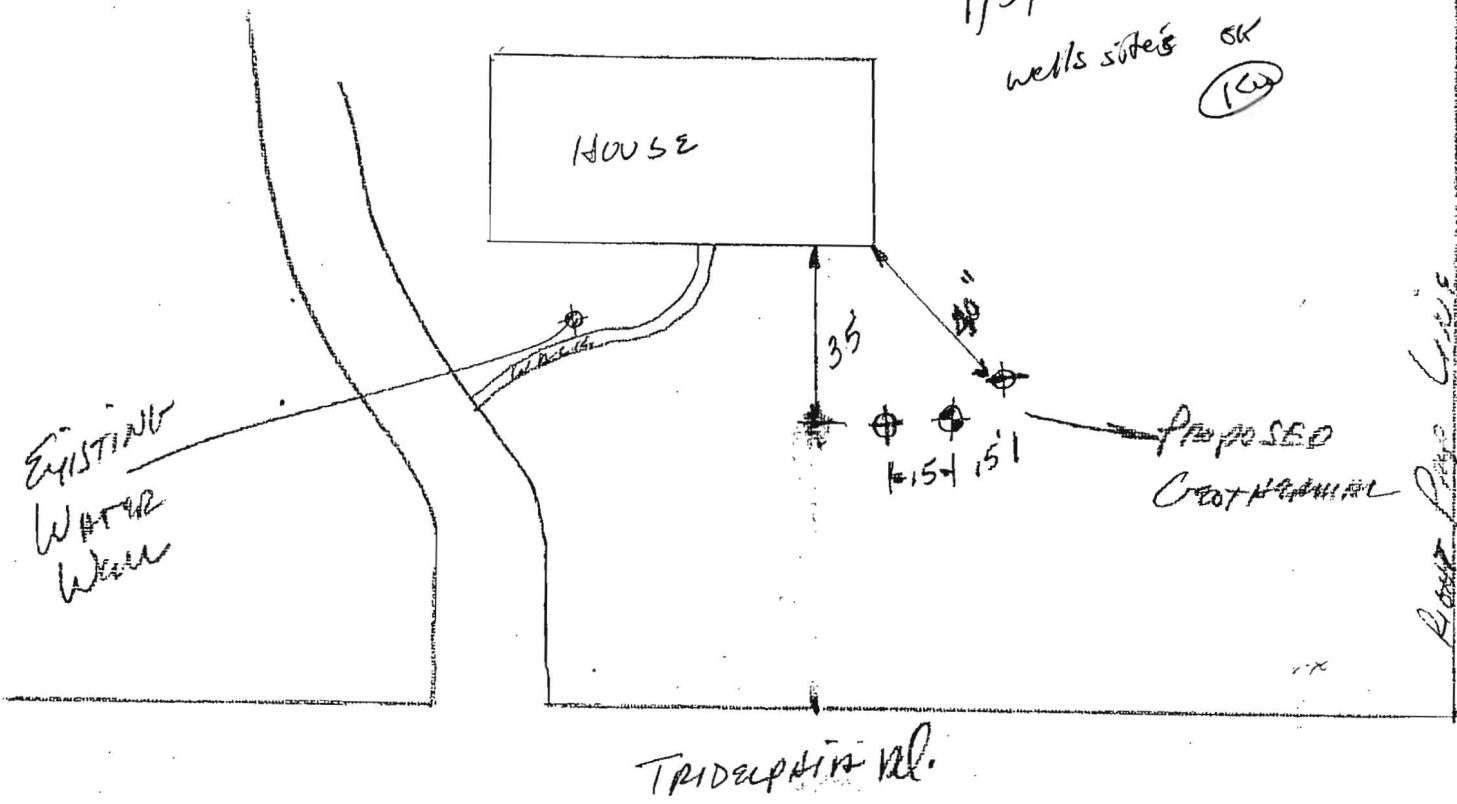
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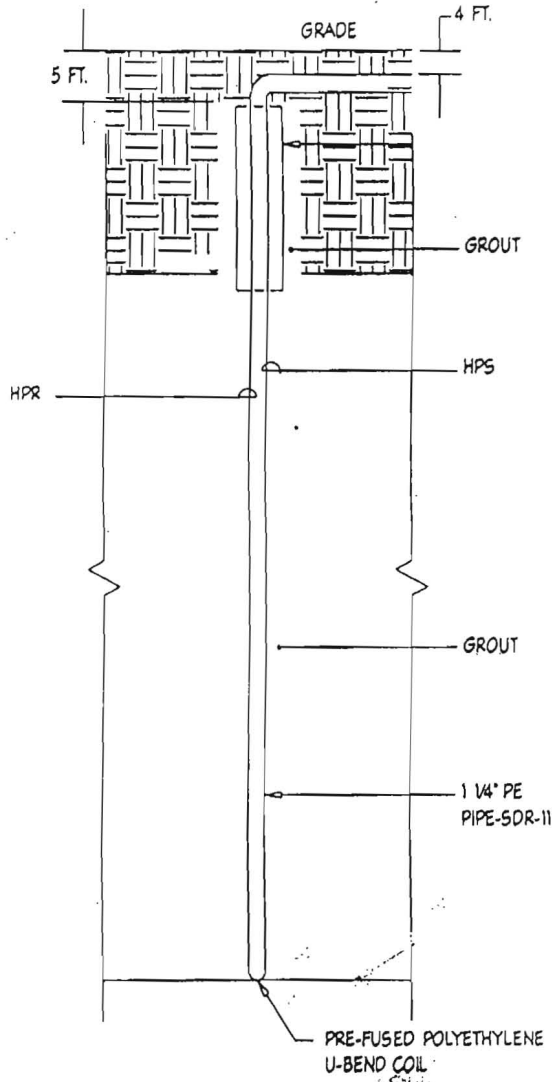
Providing Quality Systems for Over 20 Years
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Test Borings & Consulting • Geothermal Drilling & Systems
NGWA & IGSHPA Certified

Geostatic
Sonic
System

1/5/10
wells sites SK
(10)



BORES will be grouted
from bottom to top



4 TYPICAL BORE HOLE DETAIL
M1.00 NOT TO SCALE