



*Ted Wynne Engineering/Contractor, Inc.*

417 WELSHWOOD DRIVE • SUITE 114 • NASHVILLE, TN 37211  
PHONE: 615-331-7660 • FAX: 615-333-0764

July 17, 2001

Mr. William D. Stalker  
Market Manager- Large Commercial Products & Services  
Tennessee Valley Authority  
535 Marriott Drive, HRT108-401  
Nashville, Tennessee 37214

Re: Cannon County Elementary School  
Woodbury, Tennessee

This office performed a thermal conductivity test on one (1) 200 feet deep, 6 inch diameter vertical bore, backfilled with drilled tailings, July 10, 2001. The following data was derived from test data:

Thermal Conductivity	1.8 BTU/HR-F
Ground Temperature	62.0 F

We feel that based on our observation of the terrain, the above is representative of the area where a field of Vertical Heat Exchangers will be located for this project.

The driller's log is enclosed herewith. According to the Driller's Log submitted to our office the bore hole penetrated more than one water source, thus our office recommends that any future holes drilled should be Grouted to prevent transfer of water from one elevation to another.

Please let us know if any additional information is needed.

Sincerely,

TED WYNNE ENGINEERING CONTRACTORS, INC.

Ted Wynne, P.E.

jh





**TENNESSEE WATER WELL DRILLERS REPORT**  
 DEPARTMENT OF ENVIRONMENT & CONSERVATION  
 THIS REPORT TO BE SUBMITTED BY DRILLER WITHIN 30 DAYS  
 AFTER COMPLETION OF DRILLING WATER WELL WITH REQUIRED FEE  
 TO: DIRECTOR, DIVISION OF WATER SUPPLY, 401 CHURCH ST.  
 L & C TOWER 5TH FLOOR, NASHVILLE, TENNESSEE 37243-1548

**OFFICE USE ONLY**

Well No.: \_\_\_\_\_  
 Date Recd.: \_\_\_\_\_  
 Check#: \_\_\_\_\_  
 Amount Recd: \_\_\_\_\_  
 Receipt# \_\_\_\_\_ Cdr# \_\_\_\_\_

<p>(1) <b>WELL CONTRACTOR</b>          Firm Name: <u>Henry Drilling &amp; Pump</u> Lic. No: <u>327</u>          Operator: <u>Freddie Lancaster</u>          Driller Type: <u>Geo-thermal</u></p>	<p>(8) <b>WELL OWNER</b>          Name: _____          or Company: <u>Cannon County Schools</u>          Address: <u>c/o TVA (Ball Stalker) PO Box 292409</u>          City: <u>Nashville</u> State: <u>TN</u> Zip: <u>37229</u>          Phone #: ( ) _____</p>																																	
<p>(2) <b>WELL LOCATION</b>          County: <u>Cannon</u>          Map No. _____ LETTER _____ (W) (X) (Y) (Z)          Latitude _____ Longitude _____          Well Address: _____          City: _____ Zip: _____          _____ Miles (N) (E) (S) (W) of _____ LANDMARK</p>	<p>(10) <b>PROPOSED USE OF WELL</b>          Residential <input type="checkbox"/> Commercial <input type="checkbox"/> Industrial <input type="checkbox"/> Monitor <input type="checkbox"/> Test <input type="checkbox"/>          Farm <input type="checkbox"/> Irrigation <input type="checkbox"/> Heat Pump <input checked="" type="checkbox"/> Municipal <input type="checkbox"/> Other <input type="checkbox"/>          (Specify) _____</p>																																	
<p>(3) <b>TYPE OF WORK</b>          Date drill rig left site: _____          New Well <input type="checkbox"/> Deepen <input type="checkbox"/> Rework <input type="checkbox"/>          Backfill And Abandon <input type="checkbox"/></p>	<p>(11) <b>PRIMARY CASING</b>          Diameter _____ inches Top Set _____ Above In Ground          From Land Surface to _____ Ft. below ground          Type: Plastic <input type="checkbox"/> Steel <input type="checkbox"/> Galvanized <input type="checkbox"/>          Concrete <input type="checkbox"/> Other <input type="checkbox"/> None <input type="checkbox"/>          Wall Thickness _____ or SDR# _____</p>																																	
<p>(4) <b>WELL COMPLETION DATA</b>          Case Corroded _____ / _____ / _____ Static Level _____ Ft.          Total Depth _____ Ft. Estimated Yield _____ GPM          Depth to bedrock _____ Ft.</p>	<p>(12) <b>WELL FINISH</b>          Open Hole <input type="checkbox"/> Screen <input type="checkbox"/> Slotted or Perf. Pipe <input type="checkbox"/>          From _____ Ft. To _____ Ft.          If Screen, Plastic <input type="checkbox"/> Metal <input type="checkbox"/> Slot Size _____ in.          Gravel Pack From: _____ Ft. to _____ Ft.</p>																																	
<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th colspan="3">(5) <b>WATER-BEARING ZONES</b></th> </tr> <tr> <th>DEPTH IN FT.</th> <th>GPM</th> <th>WATER QUALITY</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">50</td> <td style="text-align: center;">3</td> <td></td> </tr> <tr> <td style="text-align: center;">80</td> <td style="text-align: center;">40</td> <td></td> </tr> <tr> <td style="text-align: center;">140</td> <td style="text-align: center;">10</td> <td></td> </tr> </tbody> </table>	(5) <b>WATER-BEARING ZONES</b>			DEPTH IN FT.	GPM	WATER QUALITY	50	3		80	40		140	10		<p>(13) <b>BACK FILL MATERIAL</b>          Bentonite <input type="checkbox"/> Cement <input type="checkbox"/> From 5 Ft. to 10 Ft.          From _____ To _____ From _____ To _____          Cuttings <u>0</u> <u>200</u> Sand _____          Bentonite _____ Cement _____          Other (Specify) _____</p>																		
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<p>(6) <b>WELL TEST</b>          Tested By: Pumping <input type="checkbox"/> Sewing <input type="checkbox"/> Belling <input type="checkbox"/>          Static Level _____ Ft. Pumping Level _____ Ft. After _____ Hr.          _____ Min. At _____ GPM          Development Time Prior to Test: _____ Hr _____ Min.</p>	<p>(14) <b>LINER CASING</b> Yes <input type="checkbox"/> No <input type="checkbox"/>          Type: Plastic <input type="checkbox"/> Steel <input type="checkbox"/> Diameter _____ in.          From _____ Ft. to _____ Ft.          Packers Installed? Yes <input type="checkbox"/> No <input type="checkbox"/>          Location: _____ Ft. and _____ Ft.</p>																																	
<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th colspan="3">(7) <b>FORMATION LOG</b></th> </tr> <tr> <th>DEPTH IN FT. FROM</th> <th>TO</th> <th>DESCRIPTION (NOTE ROCK COLOR &amp; TYPE &amp; CAVES)</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1</td> <td style="text-align: center;">5</td> <td style="text-align: center;">brown (broken)</td> </tr> <tr> <td style="text-align: center;">5</td> <td style="text-align: center;">21</td> <td style="text-align: center;">brown</td> </tr> <tr> <td style="text-align: center;">21</td> <td style="text-align: center;">22</td> <td style="text-align: center;">Dirt</td> </tr> <tr> <td style="text-align: center;">22</td> <td style="text-align: center;">50</td> <td style="text-align: center;">brown</td> </tr> <tr> <td style="text-align: center;">50</td> <td style="text-align: center;">80</td> <td style="text-align: center;">brown/gray</td> </tr> <tr> <td style="text-align: center;">80</td> <td style="text-align: center;">82</td> <td style="text-align: center;">broken rock</td> </tr> <tr> <td style="text-align: center;">82</td> <td style="text-align: center;">140</td> <td style="text-align: center;">brown/grey</td> </tr> <tr> <td style="text-align: center;">140</td> <td style="text-align: center;">145</td> <td style="text-align: center;">broken</td> </tr> <tr> <td style="text-align: center;">145</td> <td style="text-align: center;">200</td> <td style="text-align: center;">brown/grey</td> </tr> </tbody> </table> <p>(If additional space is needed, use back of form or use comments section)</p>	(7) <b>FORMATION LOG</b>			DEPTH IN FT. FROM	TO	DESCRIPTION (NOTE ROCK COLOR & TYPE & CAVES)	1	5	brown (broken)	5	21	brown	21	22	Dirt	22	50	brown	50	80	brown/gray	80	82	broken rock	82	140	brown/grey	140	145	broken	145	200	brown/grey	<p>(15) <b>ANTICIPATED WATER QUALITY</b>          Clear <input type="checkbox"/> Cloudy <input type="checkbox"/> Dirty <input type="checkbox"/> Muddy <input type="checkbox"/>          Good <input type="checkbox"/> Fair <input type="checkbox"/> Bad <input type="checkbox"/> Iron <input type="checkbox"/> Sulfur <input type="checkbox"/>          Gas <input type="checkbox"/> Oil <input type="checkbox"/> Salt <input type="checkbox"/>          Other (specify) _____</p>
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<p>(8) <b>COMMENTS</b>  <u>3/4" U-Loop piping installed</u></p>	<p>(16) <b>GENERAL INFORMATION</b>          Well Disinfected: Yes <input type="checkbox"/> No <input type="checkbox"/>          Well Capped: Yes <input type="checkbox"/> No <input type="checkbox"/>          Well located greater than fifty feet from septic tank &amp; field line: Yes <input type="checkbox"/> No <input type="checkbox"/>          From information provided by:  <input type="checkbox"/> Property owner (provide written statement by owner)  <input type="checkbox"/> Driller determination  <input type="checkbox"/> Health Department permit          Drilling process water obtained from:          Well <input type="checkbox"/> Springbox <input type="checkbox"/> Public Supply <input checked="" type="checkbox"/> Surface Supply <input type="checkbox"/>          Pump installed by Driller: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>																																	

I certify that the above information is true and accurate to the best of my knowledge. Signed \_\_\_\_\_ Licensed Driller  
 Distribution: White - Central Office Canary - Driller Pink - Homeowner  
 CE-0828 (Rev. 10-99) ROA 1128