

Lester, Steve

From: Peppersack, Jeff
Sent: Wednesday, January 28, 2009 10:26 AM
To: Lester, Steve
Subject: FW: Gamble Well

Attachments: Comparision between Gamble Edwards BLM.doc; Boise Water Corp Gamble well.pdf

FYI

From: Neely, Ken
Sent: Wednesday, January 28, 2009 9:04 AM
To: Peppersack, Jeff
Subject: Gamble Well

Jeff,

In looking over the hydrographs, the Gamble well has a pattern more similar to the Edwards well in the Stewart Gulch system, than to the BLM well, which is the main monitoring well for the downtown geothermal systems. I did not find any cold water wells with hydrographs similar to the Gamble well. The Gamble well is completed below a thick clayey section, that includes some black and gray "hard rock" which is called lava in one entry on the well log.

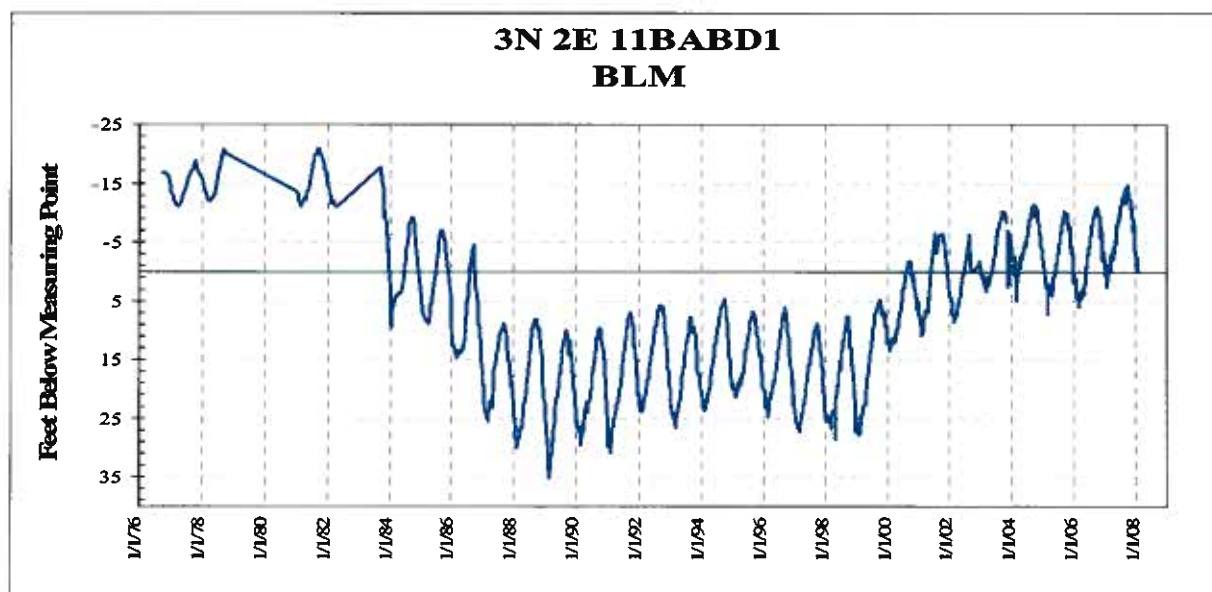
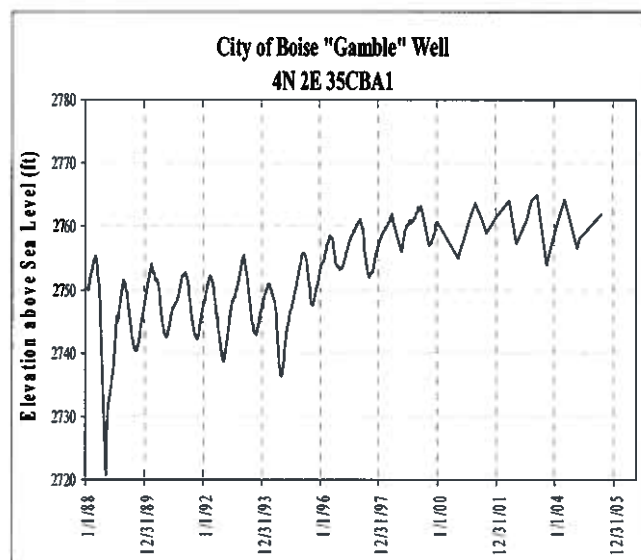
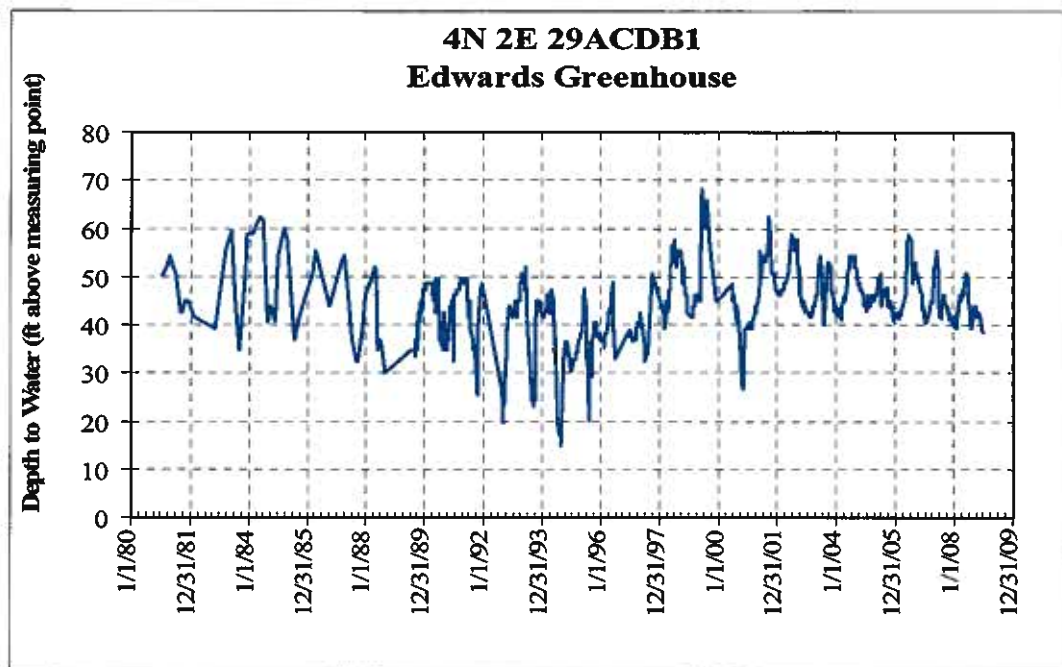
Based on the water level and lithologic info, I would say that the Gamble well is more hydrologically related to the Stewart Gulch low-temp geo system than to the downtown low-temp geo system, or to the shallow cold water system in the area.

Ken



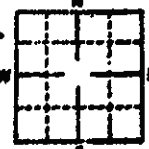
Comparison between Gamble Edwards BLM.doc
Boise Water Corp Gamble well.pdf

Kenneth W. Neely, Technical Hydrogeologist
Idaho Department of Water Resources
Phone: 208-287-4852
Fax: 208-287-6700
Statewide Program Website:
www.idwr.idaho.gov/hydrologic/info/statewide/
Geothermal Website:
<http://energy.idaho.gov/renewableenergy/geothermal.shtml>



STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORTUSE TYPEWRITER OR
BALLPOINT PENState law requires that this report be filed with the Director, Department of Water Resources
within 30 days of completion of the well or abandonment of the well.

La. 2838

1. WELL OWNER Name <u>Boise Water Corp.</u> <u>SEP 5 1979</u> Address <u>500 W. Idaho St.</u> <u>Department of Water Resources</u> <u>Western Regional Office</u> Owner's Permit No. <u>applied for</u>		WATER LEVEL Static water level <u>88</u> feet below land surface. Flowing? ☐ Yes ☒ No G.P.M. flow _____ Artesian closed-in pressure _____ p.s.i. Controlled by: ☐ Valve ☐ Cap ☐ Plug Temperature <u>86</u> °F Quality <u>good</u>																																																																																																																									
2. NATURE OF WORK ☒ New well ☐ Deepened ☐ Replacement ☐ Abandoned (describe method of abandoning) _____		3. WELL TEST DATA ☒ Pump ☐ Boiler ☐ Air ☐ Other _____ <table border="1"><thead><tr><th>Discharge G.P.M.</th><th>Pumping Level</th><th>Hours Pumped</th></tr></thead><tbody><tr><td><u>700</u></td><td><u>142</u></td><td><u>2</u></td></tr><tr><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td></tr></tbody></table>		Discharge G.P.M.	Pumping Level	Hours Pumped	<u>700</u>	<u>142</u>	<u>2</u>																																																																																																																		
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3. PROPOSED USE ☒ Domestic ☐ Irrigation ☐ Test ☐ Municipal ☐ Industrial ☐ Stock ☐ Waste Disposal or Injection ☐ Other _____ (specify type)		4. LITHOLOGIC LOG <table border="1"><thead><tr><th>Hole Diam.</th><th>Depth From To</th><th>Material</th><th>Water Yield No.</th></tr></thead><tbody><tr><td>16</td><td>0 13</td><td>sandy topsoil</td><td>X</td></tr><tr><td></td><td>13 68</td><td>dirty reddish sand</td><td>X</td></tr><tr><td></td><td>68 77</td><td>blue gray clay</td><td>X</td></tr><tr><td></td><td>77 102</td><td>green clay/layers of sand</td><td>X</td></tr><tr><td></td><td>102 112</td><td>blue clay & cemented sand</td><td>X</td></tr><tr><td></td><td>112 125</td><td>brown cemented sand</td><td>X</td></tr><tr><td></td><td>125 189</td><td>cemented blue sand</td><td>X</td></tr><tr><td></td><td>189 354</td><td>blue clay</td><td>X</td></tr><tr><td></td><td>354 377</td><td>blue cemented sand</td><td>X</td></tr><tr><td></td><td>377 427</td><td>blue shaly clay/some sand</td><td>X</td></tr><tr><td></td><td>427 477</td><td>blue sticky gray clay</td><td>X</td></tr><tr><td>10</td><td>477 527</td><td>fine sandy blue clay</td><td>X</td></tr><tr><td></td><td>527 532</td><td>hard light blue sticky clay</td><td>X</td></tr><tr><td></td><td>532 541</td><td>layer of black hard rock & clay</td><td>X</td></tr><tr><td></td><td>541 575</td><td>hard solid black rock (lava)</td><td>X</td></tr><tr><td></td><td>575 614</td><td>hard gray rock</td><td>X</td></tr><tr><td></td><td>614 618</td><td>red sticky clay</td><td>X</td></tr><tr><td></td><td>618 660</td><td>blue clay & cemented sand</td><td>X</td></tr><tr><td></td><td>660 670</td><td>coarse sand</td><td>X</td></tr><tr><td></td><td>670 678</td><td>sticky blue clay</td><td>X</td></tr><tr><td></td><td>678 682</td><td>blue clay & black rock</td><td>X</td></tr><tr><td></td><td>682 705</td><td>black rock, greenish blue & white clay, black pebbles</td><td>X</td></tr><tr><td></td><td>705 710</td><td>scrapstone & silica clay</td><td>X</td></tr><tr><td></td><td>710 720</td><td>hard gray rock</td><td>X</td></tr><tr><td></td><td>720 732</td><td>black rock & sticky clay</td><td>X</td></tr><tr><td></td><td>732 738</td><td>hard gray rock</td><td>X</td></tr><tr><td></td><td>738 771</td><td>coarse clean sand</td><td>X</td></tr><tr><td></td><td>771 781</td><td>dark blue clay</td><td>X</td></tr><tr><td></td><td></td><td>SWL remained between 19' & 21'; 141' hole was cemented to 439'; cased 128' & sealed then dropped to 88'</td><td></td></tr></tbody></table>		Hole Diam.	Depth From To	Material	Water Yield No.	16	0 13	sandy topsoil	X		13 68	dirty reddish sand	X		68 77	blue gray clay	X		77 102	green clay/layers of sand	X		102 112	blue clay & cemented sand	X		112 125	brown cemented sand	X		125 189	cemented blue sand	X		189 354	blue clay	X		354 377	blue cemented sand	X		377 427	blue shaly clay/some sand	X		427 477	blue sticky gray clay	X	10	477 527	fine sandy blue clay	X		527 532	hard light blue sticky clay	X		532 541	layer of black hard rock & clay	X		541 575	hard solid black rock (lava)	X		575 614	hard gray rock	X		614 618	red sticky clay	X		618 660	blue clay & cemented sand	X		660 670	coarse sand	X		670 678	sticky blue clay	X		678 682	blue clay & black rock	X		682 705	black rock, greenish blue & white clay, black pebbles	X		705 710	scrapstone & silica clay	X		710 720	hard gray rock	X		720 732	black rock & sticky clay	X		732 738	hard gray rock	X		738 771	coarse clean sand	X		771 781	dark blue clay	X			SWL remained between 19' & 21'; 141' hole was cemented to 439'; cased 128' & sealed then dropped to 88'	
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4. METHOD DRILLED ☐ Rotary ☐ Air ☐ Hydraulic ☐ Reverse rotary ☒ Cable ☐ Dug ☐ Other _____		5. WELL CONSTRUCTION Casing schedule: ☒ Steel ☐ Concrete ☐ Other _____ <table border="1"><thead><tr><th>Thickness</th><th>Diameter</th><th>From</th><th>To</th></tr></thead><tbody><tr><td><u>2.75</u> inches</td><td><u>12</u> inches</td><td><u>2</u> feet</td><td><u>439</u> feet</td></tr><tr><td><u>1.50</u> inches</td><td><u>6</u> inches</td><td><u>419</u> feet</td><td><u>731</u> feet</td></tr><tr><td><u>1.50</u> inches</td><td><u>6</u> inches</td><td><u>771</u> feet</td><td><u>781</u> feet</td></tr></tbody></table> Was casing drive shoe used? ☐ Yes ☒ No Was a packer or seal used? ☐ Yes ☒ No Perforated? ☐ Yes ☒ No How perforated? ☐ Factory ☐ Knife ☐ Torch Size of perforation _____ inches by _____ inches <table border="1"><thead><tr><th>Number</th><th>From</th><th>To</th></tr></thead><tbody><tr><td>_____ perforations</td><td>_____ feet</td><td>_____ feet</td></tr><tr><td>_____ perforations</td><td>_____ feet</td><td>_____ feet</td></tr><tr><td>_____ perforations</td><td>_____ feet</td><td>_____ feet</td></tr></tbody></table> Well screen installed? ☒ Yes ☐ No Manufacturer's name <u>Johnson</u> Type <u>stainless steel</u> Model No. <u>304</u> Diameter <u>6</u> Slot size <u>40</u> Set from <u>131</u> feet to <u>771</u> feet Diameter _____ Slot size _____ Set from _____ feet to _____ feet Gravel packed? ☒ Yes ☐ No ☐ Size of gravel <u>20</u> sand Placed from <u>700</u> feet to <u>731</u> feet Surface seal depth <u>20'</u> Material used in seal: ☒ Cement grout ☐ Pudding clay ☐ Well cuttings Sealing procedure used: ☐ Slurry pit ☒ Temp. surface casing ☒ Overbore to seal depth Method of joining casing: ☐ Threaded ☒ Welded ☐ Solvent Weld ☐ Cemented between struts Describe access port <u>stand pipe & cap</u>		Thickness	Diameter	From	To	<u>2.75</u> inches	<u>12</u> inches	<u>2</u> feet	<u>439</u> feet	<u>1.50</u> inches	<u>6</u> inches	<u>419</u> feet	<u>731</u> feet	<u>1.50</u> inches	<u>6</u> inches	<u>771</u> feet	<u>781</u> feet	Number	From	To	_____ perforations	_____ feet	_____ feet	_____ perforations	_____ feet	_____ feet	_____ perforations	_____ feet	_____ feet																																																																																												
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6. LOCATION OF WELL Sketch map location must agree with written location.  Subdivision Name _____ Lot No. _____ Block No. _____ County <u>Ada</u> T. <u>4</u> S. <u>35</u> E. <u>35</u>		10. Work started <u>April 20, 1979</u> finished <u>Aug. 1, 1979</u> 11. DRILLERS CERTIFICATION I/We certify that all minimum well construction standards were complied with at the time the rig was removed. Firm Name <u>H. E. Stevens & Sons</u> Firm No. <u>353</u> Address <u>3709 Fairbairn Drive</u> Date <u>Aug. 28, 1979</u> Signed by (Firm Official) <u>[Signature]</u> and (Operator) <u>[Signature]</u>																																																																																																																									

USE ADDITIONAL SHEETS IF NECESSARY - FORWARD THE RIGHTS COPY TO THE DEPARTMENT

USE TYPEWRITER OR
BALLPOINT PEN

OWNER

Notes _____

Address

Owner's Permit No. _____

Static water level _____ feet below land surface.

Flawing? ☐ Yes ☐ No G.P.M. flow _____

Artesian closed-in pressure _____ p.s.i.

Controlled by: ☐ Valve ☒ Cap ☐ Plug

Temperature _____ of Quality _____

☐ Pump ☐ Boiler ☐ Air ☐ Other _____

Hole Diam.	Depth		Material	Water Yard
	From	To		

Casing schedule: ☐ Steel ☐ Concrete ☐ Other

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~~Department of Water Resources~~
~~Western Regional Office~~

1990

USE ADDITIONAL SHEETS IF NECESSARY - FORWARD THE WHITE COPY TO THE DEPARTMENT