iowa Department of Natural Resources -	Geological Survey
109 Trowbridge Hall, Iowa City, IA 52242-1319	PH (319) 335-1575

WELL RECORD

PWTS Permit No. <u>W2007-724</u>

wa Department of Natural Resources – Geological Survey PWTS Well No 09 Trowbridge Hall, Iowa City, IA 52242-1319 PH (319) 335-1575 PWTS Well No	County Permit No PWSID No
Site identification	Drill method International auger I cable other
Property Owner City of North Liberty Other ID ASR Well	Hole size hole size continued
Address 5 E. Cherry St., No. Liberty, IA 52317	<u>34 inch from 0 ft to 80 ft</u> <u>23 inch from 156 ft</u> $b_{675}$ ft
Tenant	29_inch from 80_ft tal_156ttinch fromft toft
WeinDeptin	Record all depth measurements from ground level (GL). Use (+) for above GL measurements.
Location County Johnson	Casing         Drive shoe (yes / no )         Pitless adapter (yes / no )           Size (ID/OD)         Type / Wt         Depth top         Depth bottom         Amount (length)
0.06mi. N and 0.1 mi. of intersection of Front St and Vandello Dr	Size (ID/OD)         Type / Wt         Depth         top         Depth         bottom         Amount (length)           30" OD         A53 1/2"         O         80         80
SE	24" OD         A53 1/2"         +2         1156         1156
GPS Coordinates (NAD83 datum only) decImal degrees:	-1
4 <u>1°43'37.14"</u> N. Latitude <u>91°36'01.32"</u> W. Longitude.	Perforated or slotted casing? (see / no )
Show exact location of well in section grid with a dot (•). S	Perforated / slotted from <u>No</u> ft toft
	Perforated / slotted from NO ft to ft
	Casing grouted? (yes / Placement method 2,5"/Bradenhead
	Type   Depth top   Depth bottom   Amount (vol/wt)
	Neat cement 0 80 125sx 148cf
$\downarrow$	Neat cement 0 1156 1299sx 1538cf
Rg ō	Well screen? (400 / no)
	Diameter Slot size Depth top Depth bottom Length Material
Formation log	0
From To Color Hardness Formation description	0
See Layne Well	Bottom capped (yes / no ) with
Information Sheet-	Seals / Packers ( yes / no ) kind depthft
3 pages - attached	Gravel packed (yes / no ) fromft toft
	type amount
	Well developed? (yes/no)
	Explain 7 hr. Dual Wall Reverse Air 1675' - 1160', (pumped, einited, for4_hrs at 2,000± GPM
	Pump installed?         (monoc)         Date         /
	Installer's name
	Type of pump Depth to intake ft
	Pump dlameter Rated capacity GPM
	Water information Aquifer: 🗆 sand / gravel 😰 limestone 😰 sandstone
	Main water-supply zone from <u>1156</u> ft to <u>1675</u> ft 🗆 seepage well
	Static water level <u>347</u> ft ( below / etc.) GL; tape Sairline E-line estimate
	Pumping water level <u>460</u> ft below GL; 🗆 tape 🖾 alrline 🗆 E-line 🗅 estimate
	At yield of <u>1,882</u> GPM; Sorifice Dvolumetric Destimate for <u>24.5</u> hours
use additional sheets as needed	Measurements taken at <u>8</u> ; <u>00</u> (AM / 🖛) Date <u>5</u> / <u>21</u> / <u>09</u>
<b>Remarks</b> (including depth of lost drilling fluids, materials, or tools) Open hole drilled with 7"x4" dual well air reverse method	Water quality test? (yes/**)Date tested 5 / 21 / 09Tested by Hygienic Laboratory, U of I 2009015080
Well use   Heat pump  Commercial	Contractor Layne - Western Co.
□ Domestic XI Municipal □ Monitoring □ Livestock □ Public supply ⊠ Other <u>ASR</u>	
Test well Irigation	Address 721 W. Illinois Avenue
	Driller Derek Good & Greg Thomas Certification no.8011,801

Send original form to: Iowa Department of Natural Resources - Geological Survey

Make photocopies for: Well Contractor, Customer, and County Health Department



WELL INFORMATION - ROCK WELLS

Layne®-	Western
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a division of Layne Christensen Company PROFESSIONAL SERVICES FOR WATER SYSTEMS

721 West Illinois Avenue • Aurora, Illinois 60506-2892 • Phone 630/897-6941 229 West Indiana Avenue • Beecher, Illinois 60401 • Phone 708/946-2244

Name Of Job         City of North Liberty ASR         Date         May 29, 2009											
City North Libe	erty						S	tate _	IA		
Well No. ASR		Drillers	Derek	Good #8011, S	S. Alward	t & G	. Thoma	s <u>#80</u> 12.	<u>Ed</u> Hall, To	olpushe	r
Well Location	380	f	ít. (W	) and110	0	ft. (	S	) of the	NE		corner of
the NE 1/4	4 of Section	24	,Twp. 80	( <u>N</u>	), Ra	nge	7	(	)_Johr	ison	County
Otherwise located a	s 41º-43'	37.14"N,	91°-36' 01.32	"W. West of F	Recreatio	n Tra	ail & Mud	dy Creek,	approxima	tely 350	' N of
	C.L. \	/andello [	Drive								
	/30/08				Work Cor	nplete	ed: <u>5/29</u>	/09			
Casing Record: Amount 80' 1158'	Dia. 30" OD 24" OD	Wt. o	r Thickness 1/2" Wall 1/2" Wall	Materia Steel Steel		with with with	Weld Weld	joints fro	m	0 to +2 to to	80' 1156'
Hole Record:						with		_ joints fro	m	to	
	34	inch from	•		0	_ to	80'				
	28-3/4	inch from			80'	to	1156'				
	22-3/4	inch from			1156'	_ to	1675'				
		inch from				to					
		inch from				to				b	ottom of hole
Cementing Record:	<u>30</u> " OD	pressure	grouted with	125 sacks nea	t cemen	- t in 3	4" hole.				
24" OD pressure grouted with 1,299 sacks neat cement in 28-3/4" hole.											
Well Test Data: Stat	tic Level	347'	; pump	ing level 460'	aft	er _	24	hours pur	nping at 18	882	g.p.m.
Length of test 24 hrs. See Well Test Data Sheet Dated May 20-21, 2009											
Remarks: Open hole drilled with reverse air lift method using 7" x 4" dual wall drill rod. Elevation 733.											

160210B Layne Job No.

Well Permit No .:

W2007-724

## WELL LOG

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Descri	ntion
DCGOIL	phon

Feet	Feet	Description
0	то 30	Sand
30	то45	Sand gravel
45	то <u>60</u>	Shale
60	то <u>82</u>	Shale lime sandy
82	то 380	Lime gray
380	то460	Sandy white lime
460	то500	Gray lime
500	то540_	Gummy shale
540	то710_	Gray limey shale
710	то950	Gray lime with white lime
950	955	Lime and shale
955	то <u>1010</u>	Gray and tan lime
1010	то1055	Sand with shaley lime
1055	то <u>1070</u>	Gray brown shale
1070	то1165	Gray lime
1165	то <u>1240</u>	Gray tan limestone, sandstone
1240	то <u>1300</u>	Gray tan lime
1300	то1305_	White lime with sandstone
1305	то1355_	Gray lime
1355	то <u>1365</u>	Gray lime with sandstone
1365	то <u>1375</u>	White tan lime
1375	то <u>1410</u>	Brown lime
1410	то1435_	Light gray tan lime
1435	то <u>1455</u>	Dark brown lime
1455	то1465	Dark brown lime and gravel
1465	то <u>1475</u>	White sandstone
1475	то <u>1495</u>	Gray lime/sandstone
1495	то <u>1505</u>	Tan sandstone
1505	то <u>1530</u>	Tan lime
1530	то <u>1535</u>	White sandstone

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## WELL LOG

Feet		Feet	Description
1535	To	1540	Tan lime, white sand
1540	_ To	1545	Red, green, brown lime, white sand
1545	_ To	1565	Red, green, brown, gray lime
1565	_ То	1600	Brown sandstone
1600	_ То	1605	White sand
1605	То	1625	White sand and white sandstone
1625	_ To	1635	Gray, tan lime
1635	То	1665	Dark brown lime
1665	_ To	1675	Red, gray brown lime

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