

CCR Groundwater Monitoring System



Omaha Public Power District

Nebraska City Station NC2 Ash Disposal Area

Nebraska City, Nebraska

June 2016



OPPD Nebraska City Station NC2 Ash Disposal Area CCR Groundwater Monitoring System

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Table 1. NC2 Ash Disposal Area, Groundwater Monitoring Well System

Appendices

Appendix A Monitoring Well Documentation



Professional Engineer Certification

"I hereby certify that the groundwater monitoring system described in this report for the CCR landfill known as the NC2 Ash Disposal Area at the Nebraska City Generating Station, owned and operated by the Omaha Public Power District, has been designed and constructed to meet the requirements of the Coal Combustion Residual Rule 40 CFR 257.91. I am a duly licensed Professional Engineer under the laws of the State of Nebraska."

Print Name: <u>Lara L. Syrocki</u>

Signature:

Date: 6|23|20|10

License #: <u>E-11855</u>

My license renewal date is December 31, 2016.

1.0 Introduction

On April 17, 2015 the U.S. Environmental Protection Agency (EPA) published the final rule for the regulation and management of Coal Combustion Residuals (CCR) under the Resource Conservation and Recovery Act (RCRA). The rule – effective on October 19, 2015 – applies to Omaha Public Power District's (OPPD's) Nebraska City Generating Station. The Station, located southeast of Nebraska City, Nebraska has two coal-fired combustion units – Unit 1 and Unit 2. CCR from both units may be disposed in the NC2 Ash Disposal Area.

The CCR Rule, 40 CFR Subpart D-Standards for the Disposal of CCRs, Section §257.91 requires groundwater monitoring system that consists of sufficient number of wells at appropriate locations and depths, based on site-specific technical information, to yield groundwater samples from the uppermost aquifer that:

- Accurately represent the quality of both background groundwater, and groundwater passing the boundary of the CCR unit
- Monitor potential contaminant pathways

The groundwater monitoring system at the NC2 Ash Disposal Area meets those requirements. This report includes the following sections in support of the certification.

- Section 1.0 Introduction
- Section 2.0 Facility Background
- Section 3.0 Site Hydrogeology Summary
- Section 4.0 Groundwater Monitoring System

2.0 Facility Background

OPPD has a two-unit (Unit 1 and Unit 2) fossil fuel-fired generating plant at the Nebraska City Station (Station) southeast of Nebraska City, Nebraska. This Station has two existing CCR landfills that are permitted under the current NDEQ Title 132 regulations for fossil fuel combustion ash disposal (the NC1 Ash Disposal Area and NC2 Ash Disposal Area).

The NC2 Ash Disposal Area is an existing lined CCR landfill permitted under NDEQ Title 132 regulations for 40.7 acres; Cell 1 was constructed in 2008/2009 with a composite liner and leachate collection system. Construction for NC2 Ash Disposal Area Cells 2 and 3 started before the effective date of the CCR rule – October 19, 2015 – and construction will continue with excavation, structural fill, and installation of a composite liner and leachate collection system. NC2 Ash Disposal Area is an active, existing CCR landfill as defined by the CCR rule.

3.0 Site Hydrogeology Summary

Based on soil boring advanced at the Station in 2006, the bedrock, in the form of shale, was encountered at a depth of 89 feet below ground surface. The uppermost aquifer, Missouri River Alluvium, depth is anticipated to be from 2 feet to 89 feet below ground surface (bgs).

According to the hydrology assessment conducted at the site in 1995 by SCS Engineers titled *Hydrologic Investigations Report*. The broad upland areas of the Station are underlain by the unconsolidated wind-blown and glacial deposits of Pleistocene age. The surface of the site is generally overlain by fine-grained or cohesive deposits near the surface, based on a study

conducted by D'Appolonia Consulting Engineers in 1975. These deposits consist of silty clays, clayey silts, silty sands and fine sands. The bedrock underlying the Station area is medium hard red to gray shale. Several areas outside the Station area are underlain by a thin formation of limestone interbedded with shale.

Data from the boring logs for the monitoring wells and soil borings at the Station indicates that the subsurface geology at the ash disposal area consists of the following:

- 3 feet of light brown to dark grayish brown lean clay (CL) (Fill/Topsoil), overlying,
- Approximately 9 feet of alluvium consisting of light brown to grayish brown silty clayey sand (SM), poorly graded sand with silty sand (SP-SM), silt with very fine sand to silty very fine sand (ML/SM), and high plastic clay (CH), overlying,
- 28 to 77 feet of gray poorly graded sand (SP) to the boring completion depths varying from 40 to 89 feet.
- Some borings indicate that bedrock was encountered at a depth of 103.5 feet.

In the general vicinity of the Station, two primary sources of groundwater are present, Missouri River alluvium and glacial deposits in the upland area west of the Station property. Groundwater in the Missouri River alluvium is found at starting depths of approximately 2 to 17 feet below ground surface (ft bgs) and is largely affected by the river stages. Based on the monitoring reports for the NC2 Ash Disposal Area, groundwater flow was in the south-southeasterly direction. Groundwater levels from the monitoring wells installed on the Station property in 1975 showed a flow direction generally parallel to the Missouri River.

Slug tests conducted in 1995 on three monitoring wells (MW-1, MW-4 and MW-6) indicate that the horizontal hydraulic conductivity values ranged from 5.7×10^{-4} cm/sec to 8.2×10^{-3} cm/sec. A pumping test was conducted in 2003 by HDR on an 83-foot-deep, 16-inch-diameter well that was installed and pumped at a rate of 1,225 gallons per minute for 72 hours. Water levels were monitored during the pumping period and recovery period in the pumped well and in three observation wells installed for the test. The results of the test indicated that hydraulic conductivity of the aquifer is approximately 2.0×10^{-1} cm/sec, which is in the upper end of the range of literature values for clean sands. It should be noted that the tested interval in the 2003 investigation is deeper (and the sediments coarser) than was tested during the slug tests that were conducted in 1995.

The hydraulic conductivity reported near the NC2 Ash Disposal Area has a range of 1.39×10^{-2} cm/sec to 2.42×10^{-3} cm/sec as reported by HDR in the 2006 Hydrogeologic Characterization Report (HDR 2006). The geometric mean that has been used for groundwater flow velocity calculations at NC2, based on the hydraulic conductivity tests completed in 2006, is 3.4×10^{-3} cm/sec. Effective porosity was reported as 0.405 in HDR 2006. Based on monitoring reports, the gradient has been reported as 0.0017 ft/ft with a velocity of 14.9 ft/year.

From slug test data performed by Terracon (2016) on recently installed well MW-13, the hydraulic conductivity was reported as 3.38×10^{-3} cm/sec. This is within the range of previously recorded data.

4.0 Groundwater Monitoring System

Based on the site-specific specific hydrogeologic information and groundwater flow to the south-southeasterly direction, the groundwater monitoring system for the NC2 Ash Disposal Area for the detection monitoring program consists of three (3) upgradient/background wells, one (1) upgradient/ crossgradient well, and three (3) downgradient wells. This exceeds the minimum number of monitoring wells required by 40 CFR 247.91(c) (i.e. one updgradient and three downgradient). Two (2) additional wells are included for water level measurements and to serve for future 'nature and extent determinations'. The groundwater monitoring system network for the NC2 Ash Disposal Area is summarized below in Table 1.

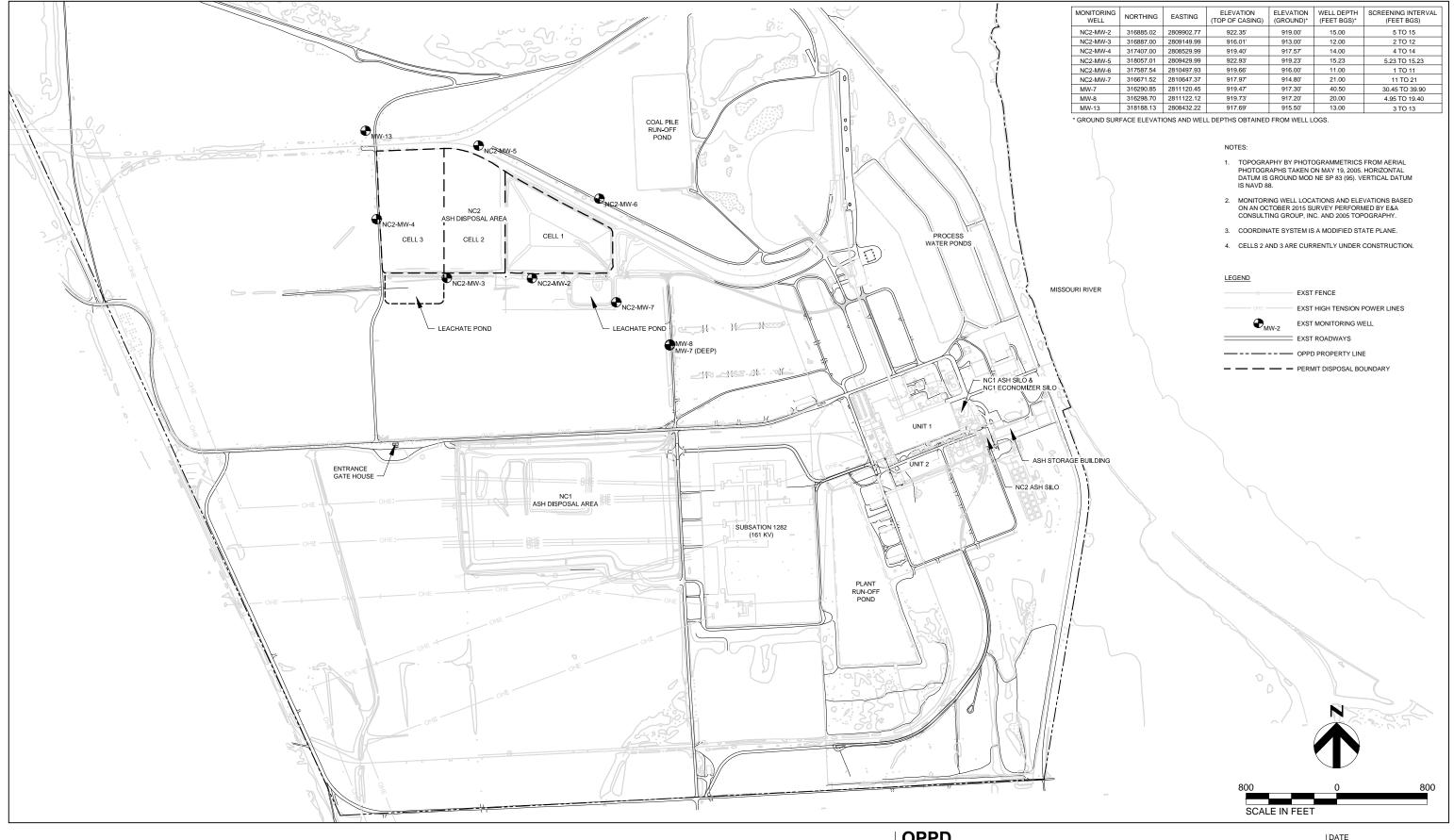
Table 1
OPPD NC2 Ash Disposal Area, Groundwater Monitoring Well System

Monitoring	Date	Well	Well	Gradient	Monitoring							
Well	Installed	Depth	Depth		Program Use							
		(feet bgs)1	(feet from		_							
			TOC) ²									
Detection Monitoring Program												
MW-13	1/26/16	13.0	15.19	Background/Upgradient	Detection							
[NC2]MW-4	9/8/04	14.0	16.01	Background/Upgradient	Detection							
[NC2]MW-5 ³	9/16/04	15.2	18.93	Background/Upgradient	Detection							
[NC2]MW-6	9/7/04	11.0	14.66	Up/Crossgradient	Detection							
[NC2]MW-2	9/8/04	15.0	18.35	Downgradient	Detection							
[NC2]MW-3	9/8/04	12.0	15.01	Downgradient	Detection							
[NC2]MW-7	11/6/13	21.0	23.97	Down/Crossgradient	Detection							
Water Level I	Measuremer	its Only										
MW-7	1/20/99	40.5	42.53	Downgradient	Water Level/Nature &							
(deep well)					Extent Determinations ⁴							
MW-8	1/21/99	20.0	22.46	Downgradient	Water Level/Nature &							
					Extent Determinations ⁴							
Abandoned V	Vell ⁵											
[NC2]MW-1	9/7/04	14.0	17.08	NA	NA							
(replaced with	(Abandoned											
NC2MW-7)	11/6/13)											

Notes:

- 1. Depth from ground surface to bottom of installed well (screen depth). Actual boring depth may be deeper.
- 2. Depth from top of casing to bottom of installed well (screen depth).
- 3. Well repaired on 11/6/13 which raised the top of casing and ground surface.
- 4. Monitoring wells to be sampled for nature and extent determinations if an Appendix IV constituent is detected in one or more of the detection monitoring wells at statistically significant level above groundwater protection standard.
- 5. Abandoned in accordance with State of Nebraska regulations.

The monitoring well locations are shown in Figure 1 attached. The groundwater monitoring wells were constructed of 2-inch-diameter, schedule 40 PVC, flush threaded riser pipe, and machine slotted 10-slot (0.010 inch) screen. The surface completion for each well consists of a steel protective casing, concrete apron, and three bollards/posts. Monitoring well construction logs, registrations or abandonment forms for the groundwater monitoring wells are contained in Appendix A of this report.







OPPD NEBRASKA CITY STATION NC2 ASH DISPOSAL AREA

MONITORING WELL LOCATION MAP

JUNE 2016
FIGURE



Appendix A Monitoring Well Documentation



LOG OF BO											RING NO. MW-1	e 1 of 1	
BOF	BOREHOLE LOCATION ELEVATION DATUM					ATION	DATUM			DRILLER LOGGER			
Sec	Bor	ing I	Locat	ion P	'Ian	U	SGS				Abel Monnarez Bruce Birge	AN 12 971A	
BOR	BORING STARTED BORING COMPLETED					(G COI	MPLETE	D		DRILL RIG DRILLING METHOD			
9)70	7-04 9-7-04				1			CME-75 4.25" HSA				
			ÆT.			8					SURFACE TYPE TOTAL DEPTH (FT.)		
			340	LSI	15 15	TA:	H				Berm/Soybean Field 14	_	
				ER.	Ĭ-1	NTE	-PC		_		WATER LEVEL OBSERVATIONS (FT.)		
ō.	SAMPLE TYPE	RECOVERY, in.	PENETRATION RESISTANCE - BLOWS/FT.	Į.	UNCONFINED COMPRESSION - TSF	MOISTURE CONTENT - %	DRY DEWSTITY - PCF		GRAFFIICLOG	, .	♥ 7.5 ATD		
SAMPLE NO.	LE J	Æ	NA ST	FE ON			Ž	≃4	E	DEPTH, FT.	▼ 8.4 @ 1 Day AD	WELLOG	
ME	ME	ő	SIS	ğ		CSIC	I X	OTHER	Z	I A			
S	Si	RE		RE	St	M	ä	5	3	ā	DESCRIPTION Surface Elevation: 918	.0 ≥ 0.	
1	28	24		4.5+		24 8 71 11834			_		Hard/Medium Dense, Slightly Moist, Mixed Low Plastic Silty Clay/Silt/and Poorly Graded Silty Sand, Very Fine Grained (CL/ML/SM) (Berm Fill)		
2	2S	24		4.5+						-		, and a second	
3	28	15		2,6						5-	5.0 913 Very Stiff, Moist, Dark Grayish Brown, Low Plastic Silty Clay (CL) (Aliuvium)		
4	28	24		1.8 2.8						10		7.0 911 7.5 Very Stiff, Very Moist, Grayish Brown, Silt (ML) (Alluvium)	0
5	2S	16		-							Loose, Wet, Grayish to Yellowish Brown, Silty Clay, Very Fine Grained (SM) (Alluvium)		
6	2S	18		-							Becomes Less Silty (SP-SM/SP) Becomes Very Fine to Fine-Grained, Poorly Graded Sand with Occasional		
7	2S	18.		n	, .	,					Layer of Silty Sand (SP/SP-SM) Becomes Very Silty (SM), Very Fine 14.0 Grained with Some Interbeds of Sandy 904	.0.	
		3.2689						AMORD A VAN	<u> </u>		_	Grained, with Some Interbeds of Sandy Silt (ML) Bottom of Boring @ 14'	
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	KLEINFELDER										LOCATION Nebraska City, Nebraska PROJECT NUMBER		
9312	9312 G Court, Omaha, Nebraska 68127 (402) 331-2260										47962	444 moreon	



Mail to DNR PO Box 94676 Lincoln, NE 68509-4676 Phone (402)471-2363

10262004-162824-WWRF Department of Natural Resources (3)

October 2001 DNR Form 145

DEPARTMENT OF NATURAL RESOURCES

WATER WELL REGISTRATION

FOR DEPARTMENT USE ONLY

	Re Ov	gistration Date 10-26-2004 Sequence No. 163834 Registration No. 1-130442A wher Code No. 40721. Receipt No. 816991 Demaka NRD
1.	a. b. c.	Well Owner's First NameLast Name Company Name Omaha Public Power District
2.		Contractor's License No 19245 Contractor's Name Kleinfelder Contractor's Email Address locoabel@cox.net Drilling Firm Name Kleinfelder Address 9312 G Court City Omaha StateNE Zip 68127 Telephone (402) 331-2260 Drilling Firm's Email Address bhavens@kleinfelder.com
3.	a. b. c. d. e. f. g.	Well location SE ¼ of the SE ¼ of Section 25_, Township 8 North, Range 14 East/West, Otoe County. Natural Resources District Nemaha NRD The well is feet from the (North/ South) section line and (circle one) or Latitude Degree 40 Minute 37 Second 29 Longitude Degree 95 Minute 47 Second 04 Street address and subdivision, if applicable Block Lot Location of water use, if applicable (give legal descriptions) If for irrigation, the land to be irrigated is acres. Well reference letter(s), if applicable MW-1
4.	Geo Mur	Surface Water Permit Number
5.	Purj	Public Water Supply (without spacing) Aquaculture Commercial/Industrial Dewatering (over 90 days) Cround Heat Exchanger Groundwater Source Heat Pump Irrigation Injection Clivestock X_Monitoring Observation Public Water Supply (with spacing (46-638)) Public Water Supply (without spacing) Recovery Other (indicate use)
6.	a. b.	is in a Series. Is this well a part of a series?yes = Yes go to part b of this sectionNo go to part 7 of this application If one or more of the wells in the series is currently registered, give the well registration numberNA How many wells in the series are you registering at this time?6
	Rep a, b, c, e,	accement and abandoned well information. Is this well a replacement well?YesXNo Registration number of abandoned well If not registered, date abandoned well was constructed//

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V 17 1		ייי		

8. Pump Ir	formation.							*
-		at this time	Yes X	. No				
	_				ls muon installe.	d by contractor in	section 22	Yes No
		ımp installer, pl				a by contractor in	3cction 2	
		icense No.						
r un Due	np instanci s r	ima Adduses						
		irm Address				Т-1-		
Cny D	/ <u></u>	3 12	State	/up		Tele	epnone	.
		irm Email Addr				95. I .		
						Estimated		
		т			-	rop pipe	-	
f. Purr	iping equipmer	nt installed (m)_			g. Pump Brand	i		
h. This	s well will be u	sed to pump les	s than 50 gpm	Yes	_No			
9. Well Con	struction Infor	nation.						····
a. Total	l well depth	~ 14 .	feet.		b. Static wate	r level 8.4	feet.	
c. Pumj	ping water leve	~ 14 1NA_	feet		d. Well Const	truction began	· 9 //	$7/_{\text{(year)}} 2004$
e. Well	Construction c	completed (month)	$=9$ $/_{\rm (day)}$ 8	$3/_{\rm (vear} = 2004$	f. Bore h	iole diameter in in	ches Top 6.5	Bottom 6.5
g. Casir	ng and Screen J	oints are Weld	ed Glu	ed	Threaded	XOthe	г	
					ould be in inches	to three decimal	1	
- 	d	ь	С	d	c	f f	g	h
Place	ement	Casing or	Inside	Outside	Wall	Type of	Screen Slot	Trade Name
Depth	in Feet	Screen	Diameter	Diameter	Thickness	Material	Size	
From	To							
		23 T	2015					
0	4	Casing	2.047	2.375	0.328	PVC	N/A	Johnson Screens
4	15	Screen	2.000	2.560	0.560	PVC	0.010	Johnson Screens
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11 6	C1 D1-							
11. Grout and								
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From	To		Grav	el Pack				
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2		14	Gravel			12-20 Sand	<u></u>	
			Olavei	1 ack		12-20 Band		
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Geol	ogic Materials	Logged		1				
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Water Well Contractor's Signaturo

10.13.04 Date

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See Boring Location Plan USGS							USG:	S		Abel Monnarcz	Bruce Birge		
BO	RING S	TARTE	Ð			BOR	ING CO	OMPLETE	ED .		DRILL RIG	DRILLING METHOD	
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			BEO	ER - 1		E E	- PCF				WATER LEVEL OBSERVATIO	NS (FT.)	
ġ	YPE	.H.	[gi	MET		8	ITY	1	95		[▽] 7.5 ATD		
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3	28	15		2.6						5 -	5.0 Very Stiff, Moist, Dark G Low Plastic Silty Clay	rayish Brown,	913.0
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6	28	18		-							Becomes Very Fine to Fin Poorly Graded Sand wit Layer of Silty Sand (SP	th Occasional	
7	28	18		-							Becomes Very Silty (SM), Grained, with Some Inte	Very Fine	904.0
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43		.		:	• •						Nebraska City, I	Nebraska	

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47962

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Notes:			
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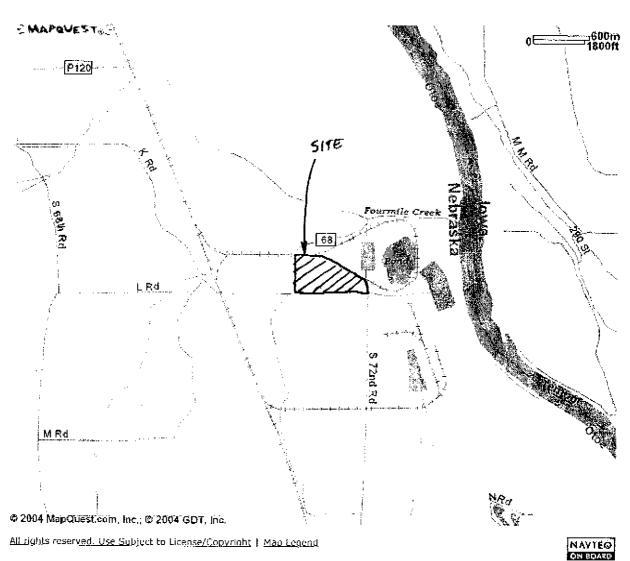
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SITE LOCATION PLAN

6130442 - 6ED-1 WELL LOCATION PLAN OPPO Nebrosko City, Stotion Unit 2 .0Z# Soil Borings E



Submit To: Department of Natural Resources 301 Centennial Mall South PO Box 94676

Lincoln, Nebraska 68509-4676 Phone: (402) 471-2363

STATE OF NEBRASKA **DEPARTMENT OF NATURAL RESOURCES** DNR DECO

Oct 2007

This form is required to be filed within 60 days of decommissioning of the water well

NOTICE OF WATER WELL DECOMMISSIONING

	FOR DEPARTMENT USE ONLY													
Date Filed	Owner Code	e No4	19927	Registration No.	- 130442A									
	162824 - DECF ell ID			NEMAHA	NRD									
Well Owner's First Na OR Company Name Attention Name Address 444 Sout City Omaha	Omaha Public Power District Patrick Finigan	State NE	Last Name	Telephone										
2. Contractor (if applical Address 15080 A City Omaha				ber (402) 330-2202										
Well Location: SE	ted: ted: tation: Legal, Footage and/or GPS of the SE 1/4 of Section feet from the (N SE SE SE SE SE SE SE SE SE SE SE SE SE	n 25, Townshi) section line and	3d. Date of Decommission 9 8 North, Rang 37 47	ge 14 E W , feet from the (E W W) section line									
4. Actual Method for Placement Depth in Fe	Decommissioning of Well et	· _	Detailed	Description of Material										
0	0.5			gravel/dirt										
0.5	0.5		E	PVC cap dentonite grout										
a. Well casing Size: I hereby certify tha	t the information provided on the		Bore Hole Diameter:	6.5" (from well registration for y knowledge.	orm)									
	or (**owner) wells prior to 7/1/2001 of sand	point or if well no	Date longer exists and it is unk	mown when decommissioning o	competive)									
n n	he Denautment messaries	the right to re	anast varification of	the information provided	1									

The Department reserves the right to request verification of the information provides

UG No. (if applicable):

Terracon Job No.: 05137163

Terracon Well ID: MW-1

JAN 08 2014

DEPARTMENT OF NATURAL RESOURCES

NOTICE OF WATER WELL DECOMMISSIONING UPDATE

Registration Number

G-130442A

Sequence Number

162824

Date

January 17, 2014

Person Processing Update

BJ Green

Information regarding the water well referenced above has been changed in the Department's water well registration records. Please note the following changes and the reason changes were made:

This well is located in subsection NENE, section 36, township 8, range 14. It is within the 150' allowance, as it is 39' south of the line separating the SESE of section 25 and the NENE of section 36.

This change has modified Items 3e of DNR DECO. If these changes are inaccurate, please contact the Department of Natural Resources at P.O. Box 94676, Lincoln, NE, 68509-4676, phone (402) 471-2363.

I certify that this update has been forwarded to the owner of the referenced water well and is now a part of the registration records.

Department of Natural Resources

	LOG OF BORING NO. MW-2 Page 1 of 1													
BOR	EHOL	E LOCA	NOITA			ELEV	/ATION	DATUM		À	DRILLER	LOGGER	1	-
See Boring Location Plan USGS						ISGS	1			Abel Monnarez	Bruce Birge			
	ING ST				0.000	BORI	NG CO	MPLETE	מ	1,100	ORILLRIS	DRILLING METHOD		,
9)-8-0:	4			E-BOOK	9	8-0-	4			CME-75	4.25" HSA		
			E			39					SURFACE TYPE T	TOTAL DEPTH (FT.)		
			WS/	12	E-	E					Cornfield/Berm	15		
			PENETRATION RESISTANCE - BLOWS/FT	POCKET PENETROMETER - TSF	UNCONFINED COMPRESSION - TSF	MOISTURE CONTENT -	DRY DENSITY - PCF		prince de la constante de la c		WATER LEVEL OBSERVATIONS	S (FT.)		
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SAMPLE NO.	SAMPLE TYPE	RECOVERY, in.	HH			景		E	SRAPHIC LOG	DEPTH, FT.	- 10.0 AD	30000 - 10 p		WELL LOG
AM	Z.	Ö			Z	<u>ë</u>	RY	OTHER	JEA	À	THE CONTROL SHE	face Elevation:	010 A	W.EI
50	- 1	14	124124		טט	_			 	-	DESCRIPTION Sur Very Stiff, Slightly Moist, I	*	717.0	
1	2S	18		3.8						:	Yellowish Brown, Low, I	Medium &		
										:	High Plastic Clay (CL/C	CH) (Berm Fill)		
										-				
2	28	14		2,6						:	4.50		0140	
								70-7	<u>- </u>		4.2 Stiff, Moist, Grayish Brown	n. High Plastic	914.8	
.3	25	16		1,6						5-	Clay (CH) (Alluvium)	and marstalline on species of		
					İ				3300		6.0 Loose, Wet, Grayish Brown	n High Plastic	913.0	
4	25	24	<i>'</i>							:	Clay (CH) (Alluvium)	u, ingni tasuc		
		Σ,								-		Ā		
											Becomes Soft/Loose, Wet, I Brown, Interbedded Sand	Brown-Grayish		
5	28	24		0.3] -	Very Fine Sand, and Low	v Plastic Clay		
				,					1	10-	with Some Sand (CL/SM	Í/CL) - Clay 💆		
6	28	21									Layer @ 8.5-9.5 Becomes Loose/Soft, Wet,	Gravish		
-										-	Brown, Silty Sand, Very	Fine Grained		
7	25	21								-	to Sandy Silt (SM/ML) (A	Alluvium)		
					,	* *	, ,	,			Becomes Loose, Wet, Gray. Graded Sand with Some	, roony . Silt		
							1			1.5	15.0 (SP/SP-SM) (Alluvium)	Per Aud P	904.0	
	ļ									15-	Bottom of Boring @ 15'		704	
•		Ì									Well Completed Using 3' St	tick Un and		
											Concrete Pad	der op and		
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	The st	ratific	ation li	ines rep	proseni	the ap	ριοχύ	mate bo	undary li	ines bei	ween soil and rock types. In situ the transition	on may be gradual.	******	· · · · ·
									4		PROJECT NAME OPPD Flyash Mo	เทกที่ไม่.		
					_						LOCATION	PROFILE .		
K	V	ŀ	(L	ΕI	NF	E :	L D	ER			Nebraska City, N	Vebraska	—	
	KLEINFELDER										PROJECT NUMBER	1/220 C	/ × × × × × × × × × × × × × × × × × × ×	***
9312	G Cot	urt, On	naha <u>.</u> 1	Vebrus	km 681	27 (40	Z) 331	-2260			47962			



Mail to DNR PO Box 94676 Lincoln, NE 68509-4676 Phone (402)471-2363

10262004-162825 WWRF Department of Natural Resources (3) DNR.Form 145

STATE OF NEBRASKA DEPARTMENT OF NATURAL RESOURCES

WATER WELL REGISTRATION

FOR DEPARTMENT USE ONLY

	Re O	egistration Date 10-26-2004 Sequence No. 162825 Registration No. 11-13044215 wher Code No. 40226 Receipt No. 816991	 NRD
1	. a . b. c.	Well Owner's First Name Last Name Company Name Omaha Public Power District Correspondent Name Omaha Public Power District Attention James J Krajicek Address 444 South 16th Street Mall City Omaha State NE Zip 68102 Telephone (402) 636-2309	
2		Contractor's License No 19245 Contractor's Name Kleinfelder Contractor's Email Address locoabel@cox.net Drilling Firm Name Kleinfelder Address 9312 G Court City Oroaha State NE Zip 68127 Telephone (402) 331-2260 Drilling Firm's Email Address bhavens@kleinfelder.com	. , —
3	d.		ine
4.	Geo Mu	mits nagement Area Permit Number Industrial Permit Number othermal Permit Number Transfer Out-Of-State Permit Number nicipal Permit Number Conduct Permit Number Il Spacing Permit Number Other Permit Number	• •
5.	Pur	pose of well (indicate one)Aquaculture	ction
6.	Well a, b, c,	lls in a Series. Is this well a part of a series?yes _ Yes go to part b of this sectionNo go to part 7 of this application If one or more of the wells in the series is currently registered, give the well registration numberNA How many wells in the series are you registering at this time?6	
7.	a. b. c.	Is this well a replacement well? Yes X No Registration number of abandoned well If not registered, date abandoned well was constructed (m) /(u /(y) Replacement well is feet from abandoned well. d. Abandoned well last operated (m) /(u) /(y) Original well pump column size finches. f. Completion of original well abandonment on (m) /(d) /(d) /(d) /(d) /(d) /(d) /(d) /(d	

a. Is pump invalled at this time: YesNo is pump installed by well owner in section 1? YesNo Is pump installed by contractor in section 2? Yes	8. Pump J	nformation.										
Is pump installed by well owner in section 1? Yes No 1s pump installed by pom finaller, please lift out license number below	•		at this time	Yes X	No							
If pump installed by pump installer, see No. Pump Installer's Name Pump Installer's Email Address Pump Installer's Firm Name Pump Installer's Firm Address Pump Installer's Firm Address Pump Installer's Firm Address City						Is pump installe	ed by contractor i	n section 22	Yes No			
Description Pump Installer's Name Pump Installer's Name Pump Installer's Firm Name Pump Installer's Firm Name Pump Installer's Firm Name Pump Installer's Firm Name Pump Installer's Firm Broall Address Pump Installer's Firm Broall Addr	։ Մրսուր	installed by p	ump installer, pl	ease fill out lie	ense number	below						
Pump Installer's Elmin Madress												
Pump Installer's Firm Bansil Address City	Pu	np Installer's E	Email Address									
City	Pur	np Installer's F	irm Name									
Chy	Pur	np Installer's I	irm Address									
Pump Installer's Firm Brail Address	Cit	у	91	State	Zip		Te	lephone				
C. Pumping rate	Pur	np Installer's F	irm Email Addı	-css					<u>-</u>			
F. Pumping equipment installed (no)	c. Pur	nping rate	gallo	ns per minute	M	easured	Estimated					
F. Pumpling equipment installed for(g					C	e. Length of d	тор ріре	fee	t			
Owell Construction Information a. Total well depth	f. Pun	nping equipme	nt installed _(m) _	/ _{(d /(y)}	٤	g. Pump Brane						
a. Total well depth	h. Thi	s well will be u	sed to pump les	s than 50 gpm	Yes	No						
c. Well Construction completed (needs) 9 (tay) 9 (year_2004 f. Bore hole diameter in inches Top_6.5 Bottom_6.5 g. Casing and Sereen Joints are Welded Glued Threaded X Other O Well Construction (Casing & Screen) - c, d, e, & g measurements should be in inches to three decimal places a b c d e f g h Placement Casing or Inside Depth in Feet Screen Diameter Diameter Thickness Material Size From To												
c. Well Construction completed (needs) 9 (tay) 9 (year_2004 f. Bore hole diameter in inches Top_6.5 Bottom_6.5 g. Casing and Sereen Joints are Welded Glued Threaded X Other O Well Construction (Casing & Screen) - c, d, e, & g measurements should be in inches to three decimal places a b c d e f g h Placement Casing or Inside Depth in Feet Screen Diameter Diameter Thickness Material Size From To	a. Tota	l well depth	- 15	fect.		b. Static water	r level~ 1	0.6 feet.				
Casing and Screen Joints are Welded Glued Threaded X Other	c, rum	hing water ieve	3NA	reet		d. Well Const	truction began (mo	onth). 9/ _{(day).}	8_/ _{(year.} _2004			
Neth Construction (Casing & Screen) c, d, e, & g measurements should be in inches to three decimal places A	e. Well	Construction of	completed _(month)	9/ _(day)	9 ₋ / _{Ocar} 2004	f. Bore h	iole diameter in i	nches Top_6.5	Bottom <u>6.5</u>			
Placement Casing or Inside Diameter Diameter Diameter Diameter Diameter Diameter Thickness Material Size	g. Casi	ng and Screen,	ounts are weld	ea Gr	ea	Threaded	X_Oth	ег				
Placement Casing or Inside Diameter Diameter Diameter Diameter Diameter Diameter Thickness Material Size	10. Well Con	struction (Casi	пg & Screen)- с	. d. e. & g mea	surements sho	ould be in inches	s to three decimal	l places				
Placement Depth in Feet Screen Diameter Diameter Thickness Material Size PVC N/A Johnson Screens Solid Trade Name Diameter Thickness Material Size PVC N/A Johnson Screens Solid Trade Name Pvc N/A Johnson Screens Solid Trade Name Pvc N/A Johnson Screens Solid Trade Name Pvc N/A Johnson Screens Solid Trade Name Pvc N/A Johnson Screens N/A Johnson									h			
Depth in Feet Screen Diameter Diameter Thickness Material Size	Place	Placement Casing or		Inside	Outside	Wall	Type of					
From To Saving 2.047 2.375 0.328 PVC N/A Johnson Screens 5 1.5 Screen 2.000 2.560 0.560 PVC 0.010 Johnson Screens 1. Grout and Gravel Pack Placement Depth in Feet Grout or Gravel Pack 0 3 Bentonite 3/8" Bentonite Holeplug 3 Bentonite 12-20 Sand 12-20 Sand 15 Gravel Pack 12-20	Depth	- I		ŀ			- ·		Trago Ivallic			
Casing 2.047 2.375 0.328 PVC N/A Johnson Screens								3126				
5 15 Screen 2.000 2.560 0.560 PVC 0.010 Johnson Screens 1. Grout and Gravel Pack Placement Depth in Feet Grout or Gravel Pack O 3 Bentonite 3/8" Bentonite Holeplug 3 15 Gravel Pack 12-20 Sand 2. Geologic Materials Logged epth in Feet Description Scc Attached Boring Log Depth in Feet Description From To (Additional sheets may be submitted)		l	Cosino	3.047	2.275	0.300		NY (.				
1. Grout and Gravel Pack Placement Depth in Feet Grout or Gravel Pack 0 3 Bentonite 3/8" Bentonite Holeplug 3 15 Gravel Pack 12-20 Sand 2. Geologic Materials Logged opth in Feet Description See Attached Boring Log or To To To To To To To To To To To To To												
Placement Depth in Feet Grout or Gravel Pack O 3 Bentonite 3/8" Bentonite Holeplug 3 15 Gravel Pack 12-20 Sand Caravel	<u></u>	1.5	Screen	2.000	2.560	0.560	PVC	0.010	Johnson Screens			
Placement Depth in Feet Grout or Gravel Pack O 3 Bentonite 3/8" Bentonite Holeplug 3 15 Gravel Pack 12-20 Sand Caravel			<u></u>				}		, , , , , <u> </u>			
Placement Depth in Feet Grout or Gravel Pack O 3 Bentonite 3/8" Bentonite Holeplug 3 15 Gravel Pack 12-20 Sand Caravel		<u>_ </u>										
Placement Depth in Feet Grout or Gravel Pack O 3 Bentonite 3/8" Bentonite Holeplug 3 15 Gravel Pack 12-20 Sand Caravel		· · · · · · · · · · · · · · · · · · ·										
To Gravel Pack 0 3 Bentonite 3/8" Bentonite Holeplug 3 15 Gravel Pack 12-20 Sand 2. Geologic Materials Logged cepth in Feet Description Sec Attached Boring Log on To CAttached Boring Log (Additional sheets may be submitted)	11. Grout and	Gravel Pack										
To Gravel Pack 0 3 Bentonite 3/8" Bentonite Holeplug 3 15 Gravel Pack 12-20 Sand 2. Geologic Materials Logged cepth in Feet Description To Prom To (Additional sheets may be submitted)	Plac	ement Depth in	Feet	Gre	out or	Material Description						
3 15 Gravel Pack 12-20 Sand 2. Geologic Materials Logged copth in Feet Description Sec Attached Boring Log Orn To Prom To (Additional sheets may be submitted)	From	То		Grav	zi Pack							
3 15 Gravel Pack 12-20 Sand 2. Geologic Materials Logged cepth in Feet Description Sec Attached Boring Log Prom To (Additional sheets may be submitted)	0		3	Benton	ite	3/8" Reptonite Holenlug						
2. Geologic Materials Logged cpth in Feet Description Sec Attached Boring Log Depth in Feet Description To From To (Additional sheets may be submitted)	3		15									
cepth in Feet Description See Attached Boring Log Depth in Feet Description To From To (Additional sheets may be submitted)					THEK				· · · · ·			
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cepth in Feet Description See Attached Boring Log Depth in Feet Description To From To (Additional sheets may be submitted)	· · · · · · · · · · · · · · · · · · ·			· · · · · · · · · · · · · · · · · · ·								
On To From To (Additional sheets may be submitted)		ogic iviaterials										
(Additional sheets may be submitted)			Description So	cc Attached Bor	ng Log			scription				
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			"'						····			
				(Additi	onal sheets m	av be submitted	Ŋ					
I am familiar with the information submitted on this registration, and to the best of my knowledge it is true.				(GAIVELD III	a, co adominio	· /					
\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	3. I am fam	illar with the ir	iformation subn	nitted on this re	gistration, an	d to the best of	my knowledge #	is true				
	. 1/1				J . ,		, ···					

10:13:04 Date

Water Well Contractor's Signature

<u>6130442B</u>

								LOG	OF	BO	RING NO. MW-2	Page 1	of 1
BOF	кеноц	E LOCA	ATION			ELE/	/ATION	DATUM			DRILLER LOGGER		
Sec	Bor	ing I	Locat	ion F	lan	ŧ	JSGS	3			Abel Monnarez Bruce Birge		
		TARTE				BORII	NG CO	MPLETE	D		DRILL RIG DRILLING METHOD		
9)-8-0	4				9	-8-0	4			CME-75 4.25" HSA		
		•	I			35					SURFACE TYPE TOTAL DEPTH (FT.)		
			Š	TSF	<u>ρ</u>		,				Cornfield/Berm 15		
		!	BI _C O	. H	1		- PCF				WATER LEVEL OBSERVATIONS (FT.)		
ø İ	YPE	, in	ğ.	AETH	8 8 8 8	000	ΙΙ				▽ 7.7 ATD		.5
LEN	LE T	ÆRY	EAS EN	ET	RES	J.C.E.E.	ENS	ಷ		ť, FT	¥ 10.6 AD		007
SAMPLE NO	SAMPLE TYPE	RECOVERY, in.	PENETRATION RESISTANCE - BLOWS/FT	POCKET PENETROMETER	UNCONFINED	MOISTURE CONTENT	ORY DENSITY	OTHER	GRAPHIC LOG	DEPTH,			WELL LOG
N.	\$/s	2	F.R	مَ دَ	סמ	-			1 0	<u> </u>	DESCRIPTION Surface Elevation:	919.0	>
I	2S	18		3.8		-				-	Very Stiff, Slightly Moist, Dark Gray to Yellowish Brown, Low, Mcdium & High Plastic Clay (CL/CH) (Berm Fill)		
2	2S	14		2.6						-			
			·		<u> </u>	<u> </u>	<u></u>	· · =			4.2	914.8	
3	28	16		1.6						5 -	Stiff, Moist, Grayish Brown, High Plastic Clay (CH) (Alluvium)		
					ļ	ļ			= = = =] :	6.0	913.0	B
4	2S	24								-	Loose, Wet, Grayish Brown, High Plastic Clay (CH) (Alluvium)		日
										-	▽		
5	2S	24		0.3						-	Becomes Soft/Loose, Wet, Brown-Grayish Brown, Interbedded Sandy Silt, Silty		
.,	7,	/-·T		17.3						10 -	Very Fine Sand, and Low Plastic Clay	j	
,	-0									-	with Some Sand (CL/SM/CL) - Clay ▼ Layer @ 8.5-9.5		
6	28	21] -	Becomes Loose/Soft, Wet, Grayish		日
									1	_	Brown, Silty Sand, Very Fine Grained to Sandy Silt (SM/ML) (Alluvium)		\Box
7	2S	21								-	Becomes Loose, Wet, Gray, Poorly	[:	
								n		-	Graded Sand with Some Silt		
ļ	ļ									15-	15.0 (SP/SP-SM) (Alluvium) Bottom of Boring @ 15'	904.0	
ĺ											notion of Boring (a) 15		
											Well Completed Using 3' Stick Up and Concrete Pad		
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	The st	ratifica	ation li	nes rep	oresent	t the ap	proxi	nate bou	<u>mdary</u> li	ines bet	ween soil and rock types. In situ the transition may be gradual.		
											PROJECT NAME		
		_									OPPD Flyash Monofill		
			- 4					r D			LOCATION		



Nebraska City, Nebraska

PROJECT NUMBER

47962

9312 G Court, Omaha, Nebraska 68127 (402) 331-2260

- MAPQUEST. =

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Nebraska City NE

US

Notes:	P		
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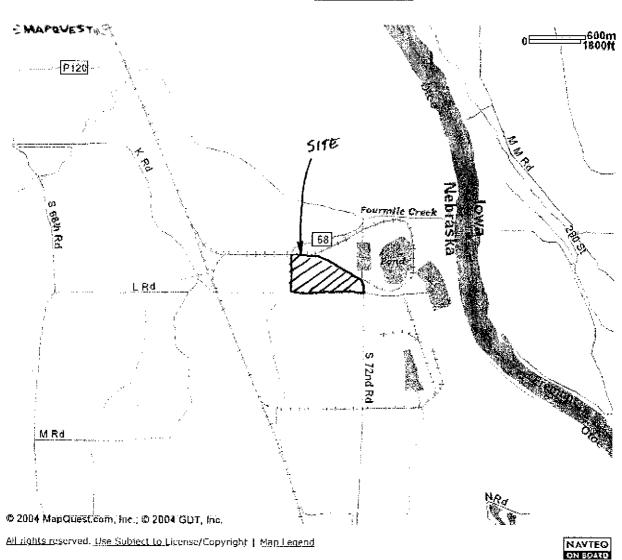
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SITE LOCATION PLAN

6130442 550-1 WELL LOCATION PLAN ,0Z+ OPPD Nebroska City Station Unit Soil Borings EX CEL



	100				7/2	·		LOG	OF	BO	RING NO. MW-3 Page 1 o	f1
BOR	BOREHOLE LOCATION ELEVATION DATUM							DATUM			DRILLER LOGGER	
See	Bor	ing I	Locat	ion P	lan	U	SGS				Abel Monnarez Bruce Birge	
	ING ST					EORIN	IG COX	APLETEL)		DRILL RIG DRILLING METHOD	
9)-8-0′	7			[9	-8-04	<u> </u>			CME-75 4.25" HSA	
			E			2%					BURFACE TYPE TOTAL DEPTH (FT.)	
			W.S.	55	胜	Ę					Cornfield 12	
			N - BLOWS/FT		- TSF	Ê	P.				WATER LEVEL OBSERVATIONS (FT.)	
	퓚	ď.	8.5		дē	Ŕ	ż		8		型 3.5 ATD	
N.	11	RY,	<u>F</u> S	.∦₹		图	S S		SCL	E.	▼ 3.8 AD	g
ET.		0.81				STC	🛱	EB	GRAPHIC LOG	DEPTH, FT.	3.0 110	WELL LOG
SAMPLE NO.	SAMPLE TYPE	RECOVERY, in.	PENETTRATION RESISTANCE -	POCKET PENETROMETER - TSF	UNCONFINED	MOISTURE CONTENT - %	DRY DENSITY - PCF	OTHER	GRA	DEP	DESCRIPTION Surface Elevation: 913.0	WE
								_ .			Stiff, Moist, Very Dark Grayish Brown to 1.0 Yellowish Brown, Medium to High	
1	28	13		1.3							Plastic Clay (CL/CH) (Topsoil) Loose, Very Moist, Light Brown, Poorly	
											Loose, Very Moist, Light Brown, Poorly	
2	2\$	24									Graded Sand, Very Fine to Fine-Grained (SP) (Alluvium)	
											Becomes Wet and Mostly Fine-Grained	
3	28	24								5-		\exists :
			<u> </u>	<u> </u>					-31			
4	28	24									Becomes Medium Deuse	
										-	Decomes Medium Dense	
5	2S	24									Becomes Loose	\blacksquare
נ	20	24			1					10 -	-	
										10-		
б	28	24									12.0 901.0	
									1		Bottom of Boring @ 12'	
											Well Completed Using 3' Stick Up and	
				o constant							Concrete Pad	
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										1		
					Ì							
									1			
	The -	- 12 Equation 4 E	outline.	limae -	hynsense	ri film m	AND PARTY AND	mate ka	การเรือกระ	lines h	tween soil and rock types. In situ the transition may be gradual.	
<u> </u>	Tug a	oralli)	CALOON	ules re	ąneseu	il uic g	pproxi	Marc 60	annany.	THE LE	PROJECT NAME	
OPPD Flyash Monofill												
	K-		Κī	FI	NI	FF	LΓ) E R	?		LOCATION Nebraska City, Nebraska	
KLEINFELDER									~	PROJECT NUMBER	, ,	
931	9312 G Court, Omaha, Nebraska 68127 (402) 331-2260 47962										47962	



Mail to DNR PO Box 94676 Lincoln, NE 68509-4676 Phone (402)471-2363 Department of Natural Resources October 2001

STATE OF NEBRASKA DEPARTMENT OF NATURAL RESOURCES

WATER WELL REGISTRATION

FOR DEPARTMENT USE ONLY

Ro O	egistration Date wner Code No.	1026-200 40226	∠ Sequence N Receipt No.	No. <u>162</u> R16	826 F 991	Registration No.	1-130442 C NRD
1. а. b.	Well Owner's Firs Company Name_ Correspondent Na Address 444 Sor	st Name Omaha Public Po meOmaha nh 16 th Street Mal	ower District Public Power Di	Last Name	Attentio		icek
	Contractor's Emai Drilling Firm Nam Address City	Address	locoabel@cox.r Kleinfelder Court State	net NE Z	p <u>68127</u>	Telephone_	(402) 331-2260
3. a. b. c. d. e. f. g.	Well location S Natural Resources The well is or Latitude Degree Longitude Degree Street address and Block Location of water of	W 4 of the SE 5 District feet from 40 Minute 95 Minute subdivision, if appuse, if applicable (ecland to be irrigate	A of Section _25	_, Township na NRD_ uth) section line) Second 30_ Second 21 ptions)acc	8 North, Ranne andLot_	nge14_ East/West, _ feet from the (Otoc County. (East/West) section line (circle one)
Geo Mui	nits pagement Area Perm thermal Permit Num picipal Permit Numb I Spacing Permit Nu	nber ber		Indust Transt Condu	rial Permit Nun er Out-Of-State et Permit Numl	Number nber 2 Permit Number ber	
5. Puŋ		Ground Heat Ex XMonitori	changerO	Groundwater bservation	cial/Industrial Source Heat Pu Public	impIrrigat Water Supply (with spacing	
a.	ls in a Series. Is this well a part of If one or more of th How many wells in	ie wells in the serje	s is currently reg	gistered, give	the well registr	o part 7 of this applicat ation numberNA_	ion
a. b. c. e.	lacement and aband is this well a replac Registration numbe Replacement well is Original well pump Location of water u	ement well?^ r of abandoned we s feet f column size _	YesX_No II rom abandoned inches	well, d. <i>A</i> s. f. C	bandoned well completion of o	last operated _(m) riginal well abandonine	ructed (m)/(d/(y). _/(d)/(y). ent on (m)/(d/(y)

Q	13044	20
.)	(· • · · ·

(1 D T	P							X)			
	nformation.	4.7.5									
	oump installed	***	YesX								
is pump) installed by v	vell owner in sec	tion 1? Y	esNo	ls pump installe	d by contractor in	section 2?	YesNo			
		ump installer, pl									
b. Pui	np installer's i	License No	P	ump Installer	s Name						
,'13) Ybaa	mp installer's i	Email Address		· ··· · <u>-</u>							
Pul	np installer's)	rum Name									
		Firm Address									
City D	У <u> </u>	Pi 12 . 17 4 1 1	State	Z1p		Tel	cphone				
e Dur	npinstaliersi	urm eman Addr	ess								
		gallo					,.				
		CT		6		lrop pipe					
h. Thi	upung equipme	ent installed (m)	/(d /(y)			d					
		used to pump les	s man ou gpm	Yes	_No						
	struction Infor		_								
a. Tota	i well depth	11	feet.		b. Static water	er level 3.	8 feet,				
c. Pum	ping water lev	elNA	feet , ,			truction began (mo	nth)9/(day)_	8_/ _{(year} 2004			
e. Well g. Casii	no and Screen	Completed (month).	/(dny)^ cel/(dny)^	/ / _{(year} Z004 ad	- I. Bore r Threaded	Note diameter in it	iches Top_6.5	Bottom_6.5			
g. Casi	ng and norcen	Johns are were	<u></u> 010			A. Othe	st				
10. Well Con	struction (Cas	ing & Screen)- c	, d, c, & g mea	surements sho	ould be in inche	s to three decimal	places				
		ь	c	d	е	ſ	g	h			
Place	ement	Casing or	Inside	Outside	Wall	Type of	Screen Slot	Trade Name			
	in Feet	Screen	Diameter	Diameter	Thickness	Material	Size	Trade Name			
From	To	Serecti	Diameter	37/2/116/6/	THICKIESS	Malerial	Size				
			· <u>··</u> · ··· ·								
<u> </u>	2	Casing	2.047	2.375	0.328	PVC	N/A	Johnson Screens			
2	1.1	Screen	2.000	2.560	0.560	PVC	0.010	Johnson Screens			
	<u> </u>			··· <u>-</u>			<u> </u>				
11. Groot and	l Gravel Pack										
	ement Depth is	er Liberat	Cus			34	i-1 D				
	То			out or	Material Description						
From	10	·		el Pack	· <u> </u>						
O		I .	Benton	ite	3/8" Bentonite Holeplug						
}		11	Gravel	Pack	12-20 Sand						
							-				
	<u>l</u>										
l2. Geol	ogic Materials	Lossed		1				" \			
						_					
Depth in Feet From To	1	Description Se	ee Attached Bori	ing Log	Depth in Feet		scription				
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<u>ル・13・0</u>9 Date

Water Well-Contractor's Signature

G130442C

	LOG OF BORING NO. MW-3 Page 1 of 1														
BO	RLHOL	E LOC	ATION			ELEV	/A1IOI	N DATUM			DRILLER	DRILLER LÖGGER			
Se	e Bor	ring]	Locat	ion I	lan	ι	JSGS	5			Abel Mon	narez	Bruce Birge		
	RING S					BORI	NG CC	MPLETE	D		DRILL RIG		DRILLING METHOD		
	9-8-0	7			ļ	9	9-8-0	4			CME-75		4.25" HSA		
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			5	:	- TSF		77				WATERIEVI	EL OBSERVAT	IONS (FT.)		
	ĺщ	. ₫	PENETRATION RESISTANCE - BLOWS/FT	POCKET PENETROMETER	حد	MOISTURE CONTENT.	ORY DENSITY - PCF		0		<u> </u>	EE ODSER ! TE			-
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١.	20	١.,								-	1.0 Stiff, M	loist, Very Dark	Grayish Brown to	912.0	
]	28	13		1.3	İ	-					Yello Plasti	ic Clay (CL/CH	edium to High) (Topsoil) ht Brown, Poorly	2.1 7.11	
				<u> </u>	ļ					-	Loose,	Very Moist, Lig	ht Brown, Poorly		
2	28	24				ļ	!			-	Grade	ed Sand, Very F	ine to		H .
			<u> </u>	ļ- <i></i>		<u> </u>				-		Grained (SP) (A	· 		
3 .	2S	24								5 –	Become	es Wet and Mosi	ly Fine-Grained		
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										-					
4	28	24									Become	s Medium Dens	e		
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5	28	24								-	Become	s Loose			
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6	28	24								^~ -					H
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											PROJECT NAME	: OPPD Flyash l	Manofill		Ì
	_	_										OCTO PIYASH	*101101111		

KLEINFELDER

LOCATION

Nebraska City, Nebraska

47962

9312 G Court, Omaha, Nebraska 68127 (402) 331-2260

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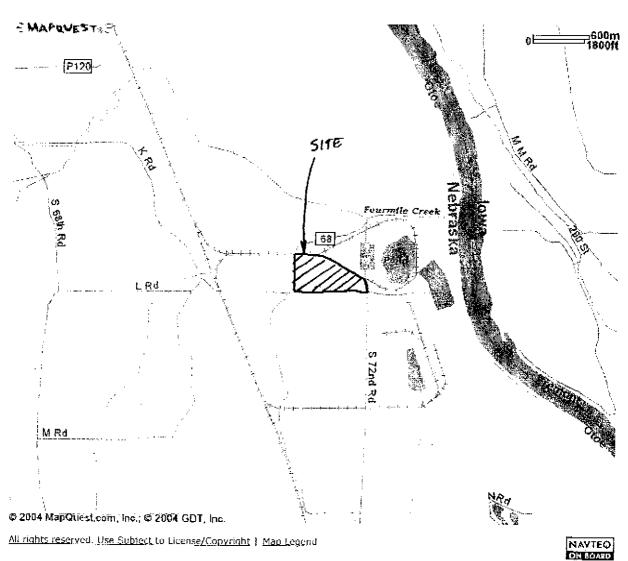
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SITE LOCATION PLAN

6130442 7/16/04 500-1 WELL LOCATION PLA OPPD Neproska City Station Unit 2 Soil Borings 53-11



						_		LOG	OF	BO	RING NO. MW-4	e 1 of 1
BOF	REHOL	E LOC/	MOITA			ELEV	ATION	DATUM			DRILLER LOGGER	
			Locat	ion I	'lan		ISGS	20000	V.0.	*****	Abel Monnarez Bruce Birge	
	ung s '-9-,	TARTE	D					MPLETEI	0		DRILL RIG DRILLING METHOD	
-7	-7-	94°				·	10-0	7			CM E-75 4.25" HSA SURFACE TYPE TOTAL DEPTH (FT.)	- 1 (100)
			ES.	L.							Weedy, Grassy Shoulder of Gisvel Road	
			5	Ĭ.	TSF	A	Ģ				WATER LEVEL OBSERVATIONS (FT.)	
	म्	.i	PENETRATION RESISTANCE - BLOWS/FT	POCKET PENETROMETER - TSF	UNCONFINED COMPRESSION - TSF	MOISTURE CONTENT	ORY DENSITY - PCF		9		▼ 8.0 ATD	_
SAMPLE NO.	SAMPLE TYPE	KY,	PAG PAG	. 0	N SE	REC	VSIT		GRAPHIC LOG	E	and it day in the party of the party.	- g
12	TELE					STO		M		DEPTH, FT.	₹ 6.1 @ 1 Day AD	WELLLOG
SAA	SAN	RECOVERY, in.	PEN	SE	58	MOI	DRY	OTHER	₩ ₩	DEP	DESCRIPTION Surface Elevation: 910	5.5
2 3 4	28 28 28 28	16 5 18 24	EL.	OH 3.0 2.1 2.6 4.5+ 0.5	500	MC	DR		GR	5-	Very Stiff, Moist, Light Brown to Grayish Brown, Low Plastic Silty Clay to Silt (CL) (Roadbed Fill) 5.0 6.0 Hard, Slightly Moist, Dark Brownish Gray, Low Plastic Silty Clay (CL) (Buried Soil) Firm to Soft, Well Completed Using 3' Stick Up and Concrete Padery Moist, Grayish Brown, Silt with Very Fine Sand to Silty Very Fine Sand (ML/SM) (Alluvium) Becomes Wet Loose, Wet, Grayish Brown, Poorly Graded Sand with Some Silt, Very Fine-Grained (SP/SP-SM) (Alluvium)	
								-				
	The st	ralific	ation li	nes rei	present	the an	proxů	nate bou	l Indary I	ines bet	ween sell and rock types. In situ the transition may be gradual.	
											PROJECT NAME	MANUSCRIPT 201 101 101
											OPPD Flyash Monofill	2016 Y 6 200 W
	Y	ŀ	(L .	ΕI	NF	E	L D	ER			Nebraska City, Nebraska	.
											PROJECT NUMBER	
9312	G Cor	urt, On	naha, N	lebrasi	ka 6813	27 (40	2) 331	-2260			47962	



Mail to DNR PO Box 94676 Lincoln, NE 68509-4676

Phone (402)471-2363

10262004-162827-WWRF Department of Natural Resources (3)

October 2001
DNR Form 1/15

STATE OF NEBRASKA DEPARTMENT OF NATURAL RESOURCES

WATER WELL REGISTRATION

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	Registration Date 10-26-2004 Sequence No. 162827 Registration No. 9-	130442D NRD
1	a. Well Owner's First Name	ek
2	a. Contractor's License No 19245 Contractor's Name Kleinfelder Contractor's Email Address locoabel@cox.net b. Drilling Firm Name Kleinfelder Address 9312 G Court City Omaha State NE Zip 68127 Telephone Drilling Firm's Email Address bhavens@kleinfelder.com	
3.	a. Well locationSW 1/4 of the SE 1/4 of Section _25_, Township _8 North, Range14_ East/West,	ast/West) section line (circle one)
4.	Permits Management Area Permit Number Geothermal Permit Number Municipal Permit Number Well Spacing Permit Number Other Permit Number Other Permit Number Other Permit Number	,
5.	Purpose of well (indicate one)AquacultureCommercial/IndustrialDewatering (DomesticGround Heat ExchangerGroundwater Source Heat PumpIrrigationLivestockX_MonitoringObservationPublic Water Supply (with spacing (46Public Water Supply (without spacing)RecoveryOther(indicate use)	nInjection
6.	Wells in a Series. a. Is this well a part of a series?yes _ Yes go to part b of this sectionNo go to part 7 of this application b. If one or more of the wells in the series is currently registered, give the well registration numberNA c. How many wells in the series are you registering at this time?6	
7.	Replacement and abandoned well information. a. Is this well a replacement well?Yes X No b. Registration number of abandoned well If not registered, date abandoned well was constructed. Replacement well is feet from abandoned well. d. Abandoned well last operated (m) e. Original well pump column size inches. f. Completion of original well abandonment g. Location of water use of abandoned well	/ _(d) / _(y)

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-	Information.	•						
		at this time						
Is pum	p installed by w	ell owner in sec	tion 1?Y	es No	ls pump installe	ed by contractor i	n section 2?	YesNo
tt bum	p unstalled by pu	ump instatter, pl	ease fill out lic	ense number	below			
b. Pu	mp Installer's L	license No.	P	ump Installer	's Name			
Pu	mp Installer's L	mail Address						
Pц	mp Installer's F	ırm Name						
Pu	mp Installer's F	irm Address						
CII	ι <u>y_</u> . <u></u>		State	Zip_		Te	lephone	
Pu	mp Installer's F	irm Email Addr	ess.				•	
c. Pu	mping rate	gallo	ns per minute j	M	leasured	Estimated		······
d. Dr	op pipe diamete	er	inches			lrop pipe	fee	ıt.
f. Pur	mping equipme	nt installed _(m) _	_/ _{(d} / _(v)	;		d		
h. Th	is well will be u	sed to pump les	s than 50 gpm	Yes	No			
	istruction Inform					-		
		14	feet		h Static water	er level~ 6	1 Goot	
c. Pun	ming water leve	I NA	feet		d Well Conc	terretion become	1	/. 2004
c, Wel	l Construction of	completed (month)	/(day) /	′ _{(vent} 2004	f. Bore hole	diameter in inche	s Top -6.5	Bottom 6.5
g. Casi	ing and Screen J	oints are Weld	ed GIı	ied	Threaded	X Oth	сг	
	· · · · · · · · · · · · · · · · · · ·					1-194		
10. WEII COI	a	ng & Screen)- c	, a, e, & g mea	isurements she d		s to three decima		· · · · · · · · · · · · · · · · · · ·
<u>Yal-</u> -				·	e e	f	g	h
	ement	Casing or	Inside	Outside	Wall	Type of	Screen Slot	Trade Name
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4	14	Screen	2.000	2.560	0.560	PVC	0.010	Johnson Screens
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11 Grout and	d Gravel Pack							
								
	ement Depth in	Feet		out or	ļ	Mater	ial Description	
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2		14	Gravel	Pack		12-20 Sand		
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			(Additi	onal sheets m	ay be submitted	1)		
7 Y a= C		<i>p</i>	•			· 		·
3. I am fan	moar with the ir	normation subπ	utted on this re	gistration, an	d to the best of	my knowledge it	is true.	
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Water Well Contractor's Signature

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<u>G130442 D</u>

								LOC) OF	во	RING NO.	MW-4		Page I	of 1
BO	REHO	ELOC	иопъ			ELE	/ATION	UATUN	1		DRILLER		LOGGER	<u></u>	
Se	e Bo	ring	Loca:	tion]	Plan :	I	JSGS	3			Abel Monn	arez	Bruce Birge		
BOI	RING S	TARTE	ED			BORI	NG CO	MPLETE	TD .	F	DRILL RIG		DRILLING METHOD 4.25" HSA	<u>-</u>	
			1		Τ΄ ΄	%					SURFACE TYPE		TOTAL DEPTH (FT)		
	ľ		/SA	· TSF	اا	1 -					Weedy, Gr.	assy Shoulder	of Gastvel Road		
				🖫		自	PCF			ļ	WATER LEVEL		· · · · · · · · · · · · · · · · · · ·		
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E N	E T	R Y	123	l Z		ΞΞ	Sign) J	F.	0.07111				Ŋ
SAMPLE NO.	SAMPLE TYPE	1 6	E.I.S.			MOISTURE CONTENT	ORY DENSITY - PCF	汪	H.	Ή̈́	▼ 6.1 @ 1 D	ay AD)11
S.A.I	SAB	RECOVERY, in.	PENETRATION RESISTANCE - BLOWSFT	POCKET PENETROMETER	UNCONFINED COMPRESSION - TSF	MOI	DRY	OTHER	GRAPHIC LOG	рерты, ғт.	 DESCRIPTION	n S	Surface Elevation:	916.5	WELL LOG
I	2S	16	-	3.0						- -	Very Stif Brown		Brown to Grayish		
2	2S	5		2.1						_				ļ	
	v <u>-</u>						-				6.0				
3	28	18		2.6 4.5+					┍	5 -	5.0 Hard, Slig 6.0 Gray, I	ghtly Moist, Da	rk Brownish	911.5 910.5	Ħ
4	2.5	24		0.5						: : :	(Burice Firm to S	oft. Well Comp	leted Using 3'	910.3	
1			··				\dashv			-	Stick U	Jp and Concrete h Brown, Silt w	Padery Moist, ith Very Fine		
										+	——⊤ Sand to) Silty Very Fin	e Sand (ML/SM)	907.5	
~			<u> </u>	\dashv			-			10	(Alluvi Becomes	Wet	1	:	目
5	2S	24	ŀ				Ì			-	Loose, Wo	et, Grayish Bro Sand with Son	wn, Poorly	<u> </u> :-	
											Fine-Gi	rained (SP/SP-S	SM) (Alluvium)		日
							İ		<u> </u>	+	14.0 Bottom of	Boring (a) 14' i	in Sandy	902.5	
ĺ	İ	l		İ							Alluviu				
			-								Well Com	pleted Using 3'	Stick Up and		
					1						Concret	te Pad	Direct to p and		
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	The str	atificat	tion lin	es repr	esent t	he app	roxim	ate bour	rdary lin	es betw	een soil and rock type	s. In situ the transi	tion may be gradual.		
											PROJECT NAME				
Á	P	l v	1 -	1 A	JF	г.	D	гр			LOCATION	PPD Flyash M	 onoim		
١.		I K	Lt	ין וּ	N F	ĽŁ	D	E R			No	ebraska City,	Nebraska		
12 (i Com	ւլ Օու	aha, Ne	hraeki	. 68121	7 (402)	331.5	2260			PROJECT NUMBER	₹ 7962			
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Nebraska City NE US

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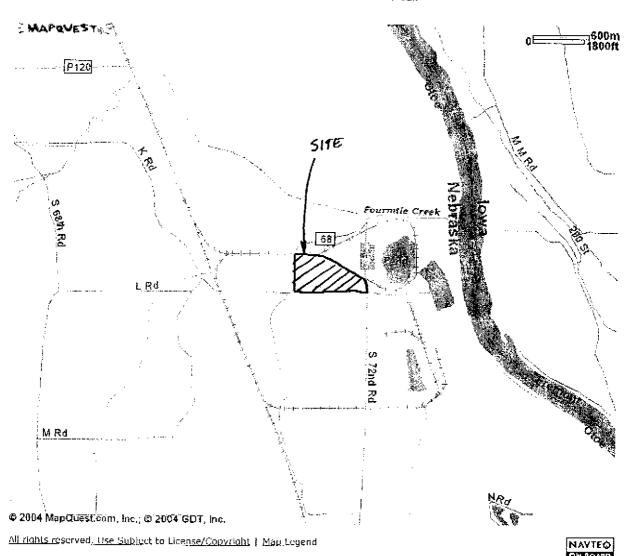
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SITE LOCATION PLAN

130442 7/15/04 560-1 WELL LOCATION PLAY CPPD Mebraska City Station Unit 2 .051 Soil Borings HUN ,007 478



								LOG	OF	BO	RING NO. MW-5		Page 1	of 1
BO	REHOL	E LOC/	KTION			ELEV	ATION	DATUM	*****	221	DRILLER	OGGER	·	
Se	e Bor	ing I	Locat	ion F	lan	υ	SGS	;		*****	Abel Monnarez	Bruce Birge		
BOI	ung s	TARTE	D			BORIN	ig co	MPLETE	ם			RILLING METHOD		
	9-16-	04	1			9	-16-	04	1	1		1.25" HSA		
				١.,								OTAL DEPTH (FT.)		
			I M	ISI	[2]	ż	<u>.</u>				Cindery Road	14		
		١.	PENETRATION RESISTANCE - BLOWS/FT.	POCKET PENETROMETER - TSF	UNCONFINED COMPRESSION - TSF	MOISTURE CONTENT-	DRY DENSITY - PCF				WATER LEVEL OBSERVATIONS	i (FT.)	a	
ġ	SAMPLE TYPE	RECOVERY, in.		MET		2	À		GRAPHIC LOG		♀ 7.0 ATD			6
SAMPLE NO.	197	E	TAN	RET	E SES	TJR.	K	nd		DEPTH, PT.	¥ AD			WELLLOG
B	M	500	Z	ZK	88		XX I	OTHER	ZAP.					
Ŋ	33	E	臣臣	XE	58	X	ā	ō	<u> 5</u>	B	20200102022 22.20001	ace Elevation:	917.0	≱
1	28	16		3.9						-	Very Stiff, Slightly Moist, R Dark Grayish Brown, Lov Plastic Clay with Trace of	v to Medium		
			-						1	-	and Cinders (CL) (Fill)			
2	2S	15		3.3						_	3.5		913.5	
									┼=	-	Very Stiff, Slightly Moist, G Low to Medium Plastic, S	irayish Brown,		
3	25	18		3.3		١ ، ;				5-	5.5 (Alluvium)	inty Clay (CL)	911.5	
										-	Medium Dense Wet Gravis	sh Brown,		
4	28	18									Poorly Graded Sand, Fine (Alluvium)	-Gramen (SP)		
										_				
5	25	18							5	-	Becomes Loose, Poorly Grad	ded Sand with		
,	تعق	10								10-	Silt to Silty Sand, Very Fi	ine Grained		
										10 -	(SP-SM/SM)			
6	28	15									•			
	72									_	•			
7	2S	18									14.0 Becomes Poorly Graded San	ed Time to	903.0	•
	~							Dani-Villa		1 -	Medium Grained (SP)	rd, rine to	. 202,0	
											Buttom of Boring @ 14	-		
											Well Completed using 3' Sti-	ck Up and		
											Concrete Pad	•		
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	The s	ratific	ation I	ines re	ores <u>en</u>	t the ar	proxi	mate bor	undary 1	ines bet	ween soil and rock types. In situ the transition	n may be gradual.		
	1.98					P No to to					PROJECT NAME OPPD Flyash Mon			
											LOCATION CEPT FIVESH MOD	TATIII		
	Z	ł	(L	ΕI	N F	- E	L D	ER			Nebraska City, N	ebraska	·//	20 (30)
	- در مادو ن				y 30.00	Page 2 4 **	(m/2 mm-				PROJECT NUMBER 47962			
9312	. G Co	ort, Or	naha, 1	Vebras	ka 681	27 (40	(A)	1-2260		ANT A	4/304	/ JMEO .		



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10262004-162828-WWR F Department of Natural Resources (3)

Octobra 2001 DNR Form 145

STATE OF NEBRASKA DEPARTMENT OF NATURAL RESOURCES

7	OT IMIORME KIROU
WATER	R WELL REGISTRATION

		FOR DEPARTMENT USE ONLY
	Ro Ov	egistration Date 10-26-2004 Sequence No. 162828 Registration No. 11-130443 E wner Code No. 40226 Receipt No. 16991 Registration No. 1816991 NRD
1.	. a.	Well Owner's First Name Last Name
	b.	Company Name Omaha Public Power District
	c.	Correspondent Name Omaha Public Power District Attention James J. Krajicek
		Address 444 South 16 th Street Mall City Omaha State NE Zip 68102 Telephone (402) 636-2309
7	. a.	
£2 +		Contractor's License No 19245 Contractor's Name Kleinfelder Contractor's Email Address locoabel@cox.net
	b.	Drilling Firm Name Kleinfelder
		Address 9312 G Court
		City Omaha State NE Zip 68127 Telephone (402) 331-2260
		Drilling Firm's Email Address <u>bhavens@kleinfelder.com</u>
3.	a.	Well locationSW_ 1/4 of the SE 1/4 of Section _25 , Township8 North, Range14 _East/West,Otoe County.
	b.	Natural Resources District Nemaha NRD
	C.	The well is feet from the (North/ South) section line and feet from the (East/West) section line (circle one)
		or Latitude Degree 40 Minute 37_ Second 42
		Longitude Degree 95 Minute 47 Second 19
	d,	Street address and subdivision, if applicable
	e.	BlockLotLotLocation of water use, if applicable (give legal descriptions)
	f.	If for irrigation, the land to be irrigated is acres.
	g.	Well reference letter(s), if applicableMW-5
4.	Реп	
	Man	agement Area Permit Number Industrial Permit Number
	Geo Mor	thermat Permit Number Transfer Out-Of-State Permit Number
	Wel	l Spacing Permit Number Other Permit Number
Э.	Pur	pose of well (indicate one) Aquaculture Commercial/Industrial Dewatering (over 90 days)
		Domestic Ground Heat Exchanger Groundwater Source Heat Pump Irrigation Injection Livestock XMonitoring Observation Public Water Supply (with spacing (46-638))
		Public Water Supply (without spacing) Recovery Other (indicate use)
		(indicate use)
6.		ls in a Series.
	a.	Is this well a part of a series?yesYes go to part b of this sectionNo go to part 7 of this application
	b.	If one or more of the wells in the series is currently registered, give the well registration numberNA
	Ç,	How many wells in the series are you registering at this time? 6
		accement and abandoned well information. Is this well a replacement well? YesXNo
	а. b.	Registration number of abandoned well If not registered, date abandoned well was constructed (m) /(d /(y)
	c	Replacement well is feet from abandoned well. d. Abandoned well last operated (m)/(d) /(y)
į	C.	Original well pump column size inches. f. Completion of original well abandonment on $f_{00} = f_{00} = f_{00}$
į	g.	Location of water use of abandoned well

8. Pump b	nformation,							
-		at this time	Ves X	No				
					le mimu inetalla	d by contractor in	rection 22	YesNo
If punin	installed by n	ump installer, pl	esse fill out lic	enre number l	ia pump matane Salom	d by contractor in	1 500(1011 2 :	NO
Pur	mp Installer's l	mail Address		шр шкана	3 Name			****
բա	up Installer's I	irm Name			···· · · · · · · · · · · · · · · ·			
Pur	no Installer's I	irm Address						
Cit	v		State			Tel	enhone	
Pur	no Installer's F	Firm Email Addr				101		
		gailo						
d. Dro	n pine diamet		inches	171	Length of d	гор ріре	fee	1
f. Pun	nping equipme	nt installed			Pumn Brand	i		•
h. Thi	s well will be a	ised to pump les	s than 50 gpm	Yes	No	•		
	struction Infor							
			foot		L Chitin man	- lovel 7	£4	
c. Pum	ping water leve		feet		d Well Const	r level ~ 7_ huction began _{(mo}	reet.	16 /. 2004
e. Well	Construction	completed (month)	$\frac{1661}{9}$ / _(dm/)	17 / (100) 200	4 f. Bore h	rdedon began _{(mo} sole diameter in ir	nth)^(day). uches Top_6.5	Bottom 6.5
g. Casii	ng and Screen	Joints are Weld	 ed Glu	red	Threaded	X Othe	ar 	Bottom_ <u>0.5</u>
0. Well Con	istruction (Cas.		, d, e, & g mea		ould be in inches	to three decimal	places	
	a	ь	С	d	e	f	g	ħ
Place	ement	Casing or	Inside	Outside	Wall	Type of	Screen Slot	Trade Name
Depth	in Feet	Screen	Diameter	Diameter	Thickness	Material	Size	
rom	То	1	ĺ					
0	3	Casing	2.047	2.375	0.328	PVC	N/A	Johnson Screens
	13	Screen	2.000	2.560	0.560	PVC		
	· · · · · · · · · · · · · · · · · · ·	- Sereen	2.000	2.300	0.500	PVC	0.010	Johnson Screens
· · · · · · · · · · · · · · · · · · ·								
	<u> </u>							
	· · · · · · · · · · · · · · · · · · ·							
l, Grout and	Gravel Pack							
Plac	ement Depth is	n Feet	Gre	out or		Mater	ial Description	
rom	То		Grav	el Pack			•	
0		1.5	Benton			3/8" Bentonite	Holephys	
1.5	<u> </u>	J4	Gravel		-			
			CHAVE			12-20 Sand		
		-						
ž, Geor	logic Materials	Logged		1				
epth in Feet		Description S	ee Attached <mark>B</mark> or	ing Log	Depth in Feet	Des	scription	
om To	•			ļ	From To	0		
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			24.13%			3		
			(Addit	ionai sheets m	ay be submitted)		
Lam fan	alliar with the i	nformation even	nittud on this w	anietration on	al to the boot of	my knowledge it	is terro	
		ormation subti	nated on tigs It	zgrauanon, an	a to the oest of t	my knowledge It	15 U IIÇ.	

Water Well Contractor's Signature

10.13.04 Date

G130442E

								LOC	OF	ВО	RING NO. MW-5		Page 1	of 1
BOI	REHOL	E LΩC,	AHON			ELE\	/AT!O	I DATUM			DRILLER	LOGGER		
Se	e Bor	ring l	Locat	ion I	Plan	Į	JSGS	3			Abel Monnarez	Bruce Birge		
BO	RING S	TARTE	D			BORI	NG CO	MPLETE	D		DRILL RIG	DRILLING METHOD		
	9-16-	04			ļ	9)-16 <u>-</u>	04			CME-75	4.25" HSA		
			FT	Ī	[38	ĺ				SURFACE TYPE	TOTAL DEPTH (FT.)		
	}		W.S.	TSF	i	1.2	ļ <u>,</u>				Cindery Road	14		
			PENETRATION RESISTANCE - BLOWS:FT	`- <u> </u>	1 5	MOISTURE CONTENT.	DRY DENSITY - PCF				WATER LEVEL OBSERV	ATIONS (FT.)		
o.	SAMPLE TYPE	.5	Ωg.	POCKET PENETROMETER		Ś	Ž	ļ	S		Ÿ 7.0 ATD			
SAMPLE NO.	E I	RECOVERY, in.	PA'A	\mathbb{S}^{T}	ESS	JRE	ISN:		GRAPHIC LOG	DEPTH, FT.	¥ AD			WELL LOG
MF.	Ę	ģ	EST SIST	SE	léğ.	IST	Y DI	OTHER	APH.	J.H.	1 7000			1.1
SA	SA	NA.	E.E.	Ŏ, Ĕ	UNCONFINED COMPRESSION -	윷	DR	E O	35	DEI	DESCRIPTION	Surface Elevation:	917.0	ЭM
1	28	16		3.9							Very Stiff, Slightly Dark Gravish Bro	Moist, Reddish to own, Low to Medium		
, <u>.</u>					<u> </u>	-						Trace of Fine Debris		
2	2S	15		3.3						-	3.5	, v <i>y</i>	913.5	
									F==		Very Stiff, Slightly	Moist, Grayish Brown,		
3	28	18		3.3						5-	Low to Medium I 5.5 (Alluvium)	Plastic, Silty Clay (CL)	911.5	日
											Madium Danca Wa	et, Grayish Brown,	711	
4	28	18			[-	Poorly Graded Sa (Alluvium)	and, Fine-Grained (SP)		
	///-									_	(Anuvium)	-		
_	20	40								1	Recomes Loose Po	orly Graded Sand with		
5	25	18								-		, Very Fine Grained		
										10 -	(SP-SM/SM)			H
6	28	15								-				
													1	月
7	2S	18					1			_				. ⊟ ∴
										4 -	14.0 Becomes Poorly Gra	aded Sand, Fine to	903.0	
							ĺ				<u>Medium Grained</u> Bottom of Boring (a			
			ļ						[Well Completed using 3' Stick Up and			
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	The st	ratifics	tion li	nes ren	resent	the an	oroxei	nate bon	ndary I	ines heb	veen soil and rock types. In situ th	e transition may be gradual		
						up	pr carri	500	uy l		PROJECT NAME			 .
		_									OPPD Flya	sh Monofill		
	ΑШ						_				LOCATION			



9312 G Court, Omaha, Nebraska 68127 (402) 331-2260

LOCATION

Nebraska City, Nebraska

PROJECT NUMBER

47962

- MAPQUEST.

Bend To Printer Back to Map Nebraska City NE US

Notes:	
••••••	4

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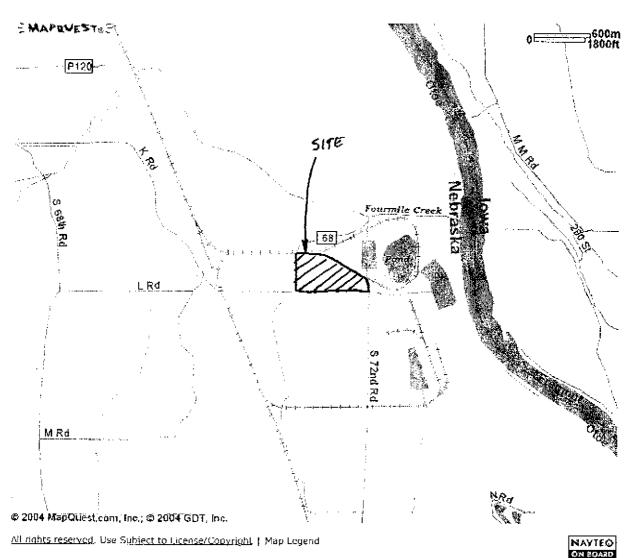
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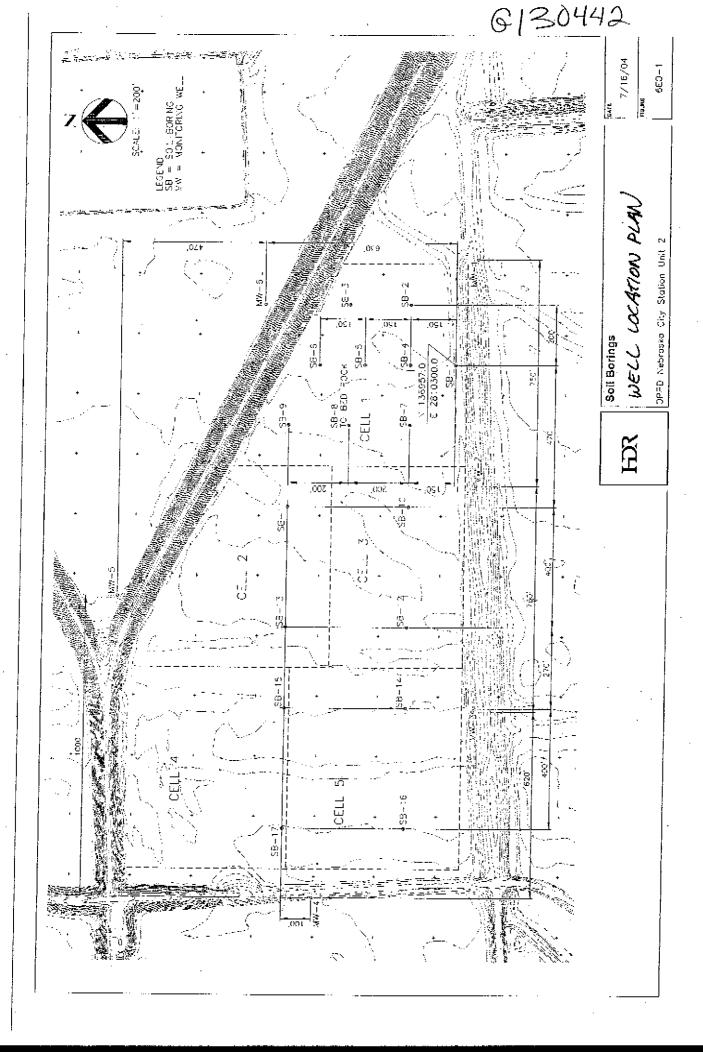
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SITE LOCATION PLAN





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Mail to DNR PO Box 94676 Lincoln, NE 68509-4676 Phone (402)471-2363

102620H-162829-WWRF Department of Natural Resources (3) October 2001 DNR Form 145

STATE OF NEBRASKA DEPARTMENT OF NATURAL RESOURCES

WATER WELL REGISTRATION

	FOR DEPARTMENT USE ONLY
	Registration Date 10-26-2004 Sequence No. 167829 Registration No. 11-130442 F Owner Code No. 40224 Receipt No. 816991 Lamaka NRI
]	a. Well Owner's First NameLast Name
_	City Omaha State NE Zip 68102 Telephone (402) 636-2309
2	a. Contractor's License No
	Drilling Firm's Email Address bhavens@kleinfelder.com
3	 a. Well location <u>SE</u> ¼ of the SE ¼ of Section 25_, Township 8 North, Range 14_East/West, Otoe County. b. Natural Resources District Nemaha NRD c. The well is feet from the (North/ South) section line and feet from the (East/West) section line
	or Latitude Degree 40 Minute 37 Second 36 Longitude Degree 95 Minute 47 Second 07 d. Street address and subdivision, if applicable Block Lot e. Location of water use, if applicable (give legal descriptions) f. If for irrigation, the land to be irrigated is acres, g. Well reference letter(s), if applicableMW-6
4.	Permits Management Area Permit Number Geothermal Permit Number Transfer Out-Of-State Permit Number Municipal Permit Number Conduct Permit Number Well Spacing Permit Number Other Permit Number
5.	Purpose of well (indicate one)Aquaculture
	Wells in a Scries. a. Is this well a part of a series?yesYes go to part b of this sectionNo go to part 7 of this application b. If one or more of the wells in the series is currently registered, give the well registration numberNA c. How many wells in the series are you registering at this time?6
7.	Replacement and abandoned well information. a. Is this well a replacement well?Yes X No b. Registration number of abandoned well If not registered, date abandoned well was constructed /_(d///

G130442F

8. Pump I	nformation.							
a. Is p	oump installed	at this time	Yes X	No				-
ls pump	installed by v	vell owner in sec	tion 1?Y	es No	Is pump installe	d by contractor i	n section 2?	Yes No
If pump	installed by p	ump installer, pl	ease fill out Jic	ense number l	below	,		
Pur	np Installer's I	Email Address		Ŷ.				
Pur	np Installer's I	Firm Name						·
Pur	np Installer's I	Firm Address						
Cit	y		State	Zip		Te	lephone	
Pur	up Installer's I	irm Email Addr	ess					
e. Pur	nping rate	gallo	ns per minute_	M	easured	Estimated		
d. Dro	p pipe diamet	ет	inches			rop pipe	fee	1
f. Pun	nping equipme	nt installed (m)	_/(a/(v)	<u>}</u>		đ		
h. Thi	s well will be u	ised to pump les	s than 50 gpm	Yes				_
	struction Infor				· -			
		:- 12	feet.		b Static wate	er level~ 6	5 feet	
c. Pum	ping water leve	ol NA	feet		d. Well Const	truction began _{(m}		7 / 2004
e. Well	Construction	completed _(month)	$9 /_{(dav)} $	$3/_{\text{(vear)}} = 2004$	f. Bore b	nole diameter in i	nches Top 6.5	Bottom 6.5
g. Casii	ng and Screen	Joints are Weld	ed Glu	ed ,	Threaded	XOth	ст	
	a a	mg & Screen)- e				s to three decima		r ·
	-	 	С	<u>d</u>	е	f	g	h
	ement	Casing or	Inside	Outside	Wali	Type of	Screen Slot	Trade Name
Depth	in Feet	Screen	Diameter	Diameter	Thickness	Material	Size	
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0.5	11	Screen	2.000	2,560	0.560	PVC	0,010	Johnson Screens
 -			2.000		0.500		0.010	JOHNSON SCIECUS
		 						
	<u> </u>	L						
11. Grout and	Gravel Pack							•
Place	ement Depth is	ı Feet	Gre	out or		Mater	rial Description	
l ⁱ rom	То		Grav	el Pack			ŕ	
		0.5	Benton			3/8" Bentonite	Holenbig	
0.5	<u> </u>	12	Gravel				. moreprag	
	·· ·-		Oravei	rack		12-20 Sand		
12. Geol	ogic Materials	Logged		1				
Depth in Feet		Description Se	e Attached Bori	ing Log	Depth in Feet	Dε	scription	
rom To		-			From T		•	
		_						
								
							and the second second	*****
			(Additi	onal sheets m	ay be submitted	l)		
			-					
5. I am fam	mar with the i	ntormation subn	titted on this re	gistration, an	d to the best of i	my knowledge it	is true.	
1 //	`							

16-13.04 Date

Water Well Contractor's Signature

G130442F

								LOG	OF	во	RING NO. 1	MW-6		Page 1	of 1
во	REHOL	E LOC.	ATION					DATUN	ı		DRILLER		LOGGER		
15			Locat	tion I	Plan		ISGS				Abel Monna	rez	Bruce Birge		
JI .	RING S		D					MPLETE	.D		DRILL RIG		DRILLING METHOD		
⊩	9-7-0 	14 	T:		₇	1)-7-() ₁	4	1	1	CME-75 SURFACE TYPE		4.25" HSA		Г.
			E.S.	يد	Ì						Unpaved Ro	and	TOTAL DEPTH (FT.) 12		
				TS	- 1SF		. PCF								
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PLE	P.E.	NE.	STA	FE	N SE	TOIL	自	贸		Ī	▼ 6.5 AD				27.7
SAMPLE NO.	SAMPLE TYPE	RECOVERY, in.	PENETRATION RESISTANCE - BLOWS/FT	POCKET PENETROMETER - TSP	UNCONFINED	MOISTURE CONTENT	DRY DENSITY	OTHER	GRAPHIC 1.0G	DEPTH, FT.	DESCRIPTION	ı Su	rface Elevation:	916.0	WELL LOG
											9_5_Very Stiff	, Moist, Light B	rown, Low	915.5	
	28	22				-				-	Plastic : Veneer	Silty Clay with S (CL) (Roadbed)	Slag Gravel Fill)		
	<u> </u>									-	Medium Γ	Dense, Slightly N	Aoist, Dark to		
2	25	24									l Mediun Sand wi	n Grayish Browi ith Some Silt (Sl	n, Poorly Graded P-SM/SP)		
										_	(Alluvir				
3	28	18								5 -	Becomes I	Loose and Wet	\checkmark		7000
ļ							İ						y		
4	25	22								-	With Love	ers of Soft, Sandy	_		
										-	$\frac{8.0}{1}$ Sand (N	/IL/SMD		908.0	
5	2S	24		<0.2					<u> </u>	- -	Very Soft,	Wet, Grayish B	rown to Dark		
										10-	High Pla	astic Clay with S	Silt Layers	- - -	
6	25	21					}				11.0	./ML) (Alluvium	•	905.0	
											Loose, We	et, Dark Gray, Si ery Fine Grained	lty Clayey 1 (SM) —	904.0	
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'		-										PPD Flyash Mo	nofill		
ŀ	4	K		EIN	٧F	EL	. D	E R			LOCATION	shwarles (724 - N	Johnson		
											PROJECT NUMBER	ebraska City, <i>N</i>	NEDFASKA		

47962

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Nebraska City NE

US.

Notes:			
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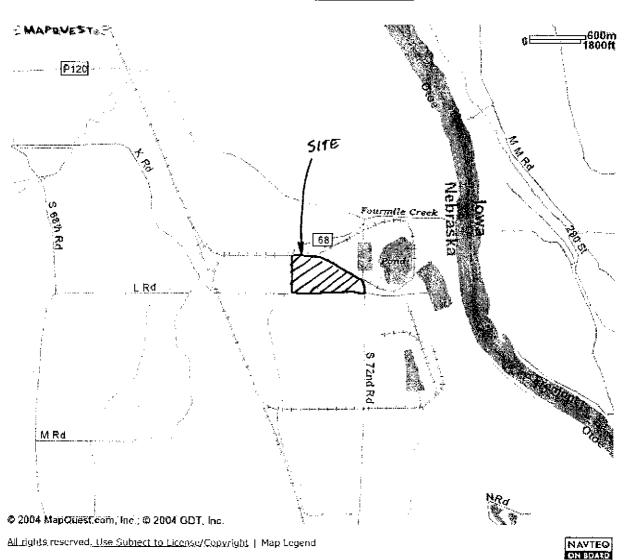
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SITE LOCATION PLAN

6130442 · 6E0--1 WELL LOCATION PLAY CPPD Nebrosko City, Stotion Unit 2 (/) () (/) (/) Soil Borings E CELL



DRAFT The standard of the sta	SITE: 7264 L RD Nebraska City, NE Location Site Map				G NO. MW-7			Pa	ge 1	of 1
DEPTH MATERIAL DESCRIPTION LEAN CLAY (CL), yellowish-brown DRAFT TOC - 917.97 Concrete Seal Bentonite Slight or only a state of the	LOCATION Site Map Listitude: 40.624142* Longitude: 95.764575* Mel Completion: MATERIAL DESCRIPTION LEAN CLAY (CL), yellowish-brown DRAFT Job MEDIUM TO FINE SAND (SM), light brown Fine Sand (SM) Fine Sand (SM) Fine Sand (SM) Fine Sand (SM) Job Fine Sand (SM) Job Job Job Job Job Job Job Jo		Unit 2 7264 L RD	1			ict			
DEPTH MATERIAL DESCRIPTION ELEVATION (F) LEAN CLAY (CL), yellowish-brown TOC - 917.97—Concrote Seal Bentonite 3/8" chips TOC - 917.97—Concrote Seal Bentonite 3/8" chips TOC - 917.97—Concrote Seal Bentonite 3/8" chips TOC - 917.97—Concrote Seal Bentonite 3/8" chips TOC - 917.97—Concrote Seal Bentonite 3/8" chips TOC - 917.97—Concrote Seal Bentonite 3/8" chips	Latitude: 40.624142* Longitude: 95.784576* Mel Completion: Surface Elav: 914.8 (FL) Surface Elav: 914.8 (FL) Surface Elav: 914.8 (FL) Surface Elav: 914.8 (FL) FINE SAND (SM), light brown TO Streen TO Streen TO Streen TO Streen TO Streen TO Streen To S	(D. LOCATIO				INSTALLATION DETAIL	<u>. 1</u>	1		.
LEAN CLAY (CL), yellowish-brown TOC - 917.97 Concrete Seal Bentonite 3/8" chips 7.0 MEDIUM TO FINE SAND (SM), light brown	DRAFT Toc. 917.9 Controls Sall Bentonitis 3/8" chips Toc. 917.9	의 Latitude: 40 명5.784575° 95.784575°	.624142° Longitude:	20017701	·	Well Completion:		WATER LEVEL DBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)
	20-	7.0 MEDI	CLAY (CL), yellowish-brown		ELEVATION (Et	-TOC - 917.97 Concrete Seal Bentonite 3/8" chips	5	M BO	18	28 S
The stratification lines represent the approximate transition between differing soil types and/or rock types; in-situ these transitions may be gradual or may occur at different depths than shown. Advancement Method: 4%-inch hollow stem (8%-inch hole diameter) Notes: Three concrete filled 3-inch steel bollards installed.		N/A - monitoring v	vell installed	procedures and additional See Appendices for expla abbreviations.	iption of laboratory data (If any). nation of symbols and	STATE STATE OF THE PARTY OF THE	Johnida	iJælie		
types; in-situ these transitions may be gradual or may occur at different depths than shown. Advancement Method: 4%-inch hollow stem (8%-inch hole diameter) See Appendices for description of laboratory procedures and additional data (if any). See Appendices for explanation of symbols and abbreviations. Notes: Three concrete filled 3-inch steel bollards installed.	Abandonment Method: N/A - monitoring well installed See Appendices for description of laboratory procedures and data (if any). See Appendices for explanation of symbols and abbreviations.		LEVEL UDGERVATIONS		Mall Ct			~~l~t~~	. 44701	2042
types; in-situ these transitions may be gradual or may occur at different depths than shown. Advancement Method: 4¼-inch hollow stem (8¼-Inch hole diameter) See Appendices for description of laboratory procedures and additional data (if any). See Appendices for explanation of symbols and	Abandonment Method: N/A - monitoring well installed See Appendices for description of laboratory procedures and additional data (if any). See Appendices for explanation of symbols and abbreviations.			pr:						4013



138679632229200

DRAFT

January 2011 DNR Form 145

Mail to Department of Natural Resources PO Box 94676 Lincoln, NE 68509-4676 Phone (402)471-2363

STATE OF NEBRASKA DEPARTMENT OF NATURAL RESOURCES

WATER WELL REGISTRATION

Please indicate NA for items unknown

			FOR DEPARTA	MENT USE O	NLY	
D	ate I	FiledOwner Code	e No	Re	gistration No.	
						NRD
		Well ID				
1.	a.	Well Owner's First Name		Last Name _		
	OF	R Company Name OMAHA PUBLIC P				
	ь.	Attention Name]	PATRICK FIN	IGAN	
	c.	Street Address				
		Address 2/PO Address				
		CityOMAHA	State NE	Zip <u>68102</u>	:-0000 Telepho	one <u>402 636 2521</u>
2.	a.	Contractor's License No 39325 (Contractor's Name Da	AVID M SVING	GEN	
		Contractor's Email Address <u>LEBAZE</u>	R@TERRACON.COM			
	b.	Drilling Firm Name <u>TERRACON CC</u>	NSULTANTS, INC.			*****
		Address 15080 A CIR				
		City OMAHA			44 Telepho	one 402 330 2202
		Drilling Firm's Email Address <u>DMSV</u>				
3.	a.	Well location <u>NE</u> ¼ of the <u>NE</u> ¼ o			Range <u>14</u> I EAST	OTOE County
		Latitude Degree 40 Mini			GPS	Location of well for a pit is
	L	Longitude Degree95 Min				the location of the pump
	b. a	Natural Resources District				
	с.		(circle one)			(circle one)
	d.	Street address and subdivision, if applied	cable	(]	BLOCK: LOT:)	
	e. f.	Location of water use (give legal descr If for irrigation, the land to be irrigated				
	g.	Well reference letter(s), if applicable	. MW-7	HHSS PW	SID	use is required on an wens
4.	Pen					
	Mai	nagement Area Permit Number		Industrial Permit	Number	
		othermal Permit Number		Franster Out-Of- Conduct Permit N	State Permit Number	
	We	Il Spacing Permit Number	(Other Permit Nur	nber	
_		SS		NDEQ		
э.	Pur	pose of well (indicate one)Aq Domestic Ground Heat Excl		ommercial/Indust water Source Hea		ratering (over 90 days) Injection Injection
		Livestock X Monitoring	_Observation	Pit (for irrigation	• —	ter Supply (with spacing (46-638))
		Public Water Supply (without spacing)	RecoveryOth			
			(lurther description	on of use can be prov	ided under other)	(indicate use)
6.		lls in a Series.				II de de de de de de de de de de de de de
	a. b.	Is this well a part of a series?Yes If one or more of the wells in the series			go to part 7 of this ap	pplication (Y/N required)
	c.	How many wells in the series are your		-	How many total well	s in the series?

7. Replacement and decommissioned/modified well information. a. Is this well a replacement well?YesXNo go to part 8 of this application b. Registration number of original well If not registered, date original well was constructed (m)/(d/(y) c. Original well last operated (m)/(d)/(y) d. Replacement well is feet from original well. e. Location of water use of original well
e. Location of water use of original well Please Select One:
f.1. Criginal water well decommissioned on (m) /(d /(y) OR
2. I hereby certify that the original water well will be decommissioned within 180 days after such construction of the replacement water well. OR
3. I hereby certify that the original water well will be modified and equipped to pump 50 gallons per minute or less within 180 days after such construction of the replacement water well. It will be used for one of the following: a. Livestock b. Monitoring c. Observation d. nonconsumptive or de minimus use approved by the applicable natural resources district. State use:
If 3d is chosen. NRD signature is required. (Signature can be submitted on NRD Approval form to DNR prior to registration)
NRD signature Date OR
4. Decommission/Modification Certification form is submitted by landowner. (Must be submitted before registering well)
8. Pump Information. (Pump information is required if registering a pit) a. Is pump installed at this timeYesX_No Is pump installed by well owner in section 1?YesNo Is pump installed by contractor in section 2?YesNo Is this a free flowing wellYes(no pump to be installed)X_No If pump installed by pump installer, please fill out license number below b. Pump Installer's License No Pump Installer's Name Pump Installer's Firm Name Pump Installer's Firm Name Pump Installer's Firm Address City State Zip0000Telephone Pump Installer's Firm Email Address c. Measured Pumping rate gallons per minute d. Pumping water level feet e. Drop pipe diameter inches f. Length of drop pipe feet g. Pumping equipment installed /(d/(y)
9. Well Construction Information.
a. Total well depth 21 feet. b. Static water level 15 feet. (required)
c. Well Construction Began (m) 11/106/201/3 d Well Construction Completed (m) 11/106/2013
Wells drilled prior to stays or NRD signature Date Organization NRD signature Organization NRD signature Organization NRD signature Organization NRD signature Organization NRD signature Organization NRD signature Organization NRD signature Organization
e. Bore hole diameter in inches Top_8.25_Bottom_8.25_
f. Casing and Screen Joints are Welded Glued Threaded x Other
g. Capacity of Well gallons per minute (to be used to determine sustainability of aquifer)
h. Pumping water level at this capacity feet
n. I uniping water tover at this capacity feet

	а	b	С	d	e	${f f}$	g	h
	cement h in Feet	Casing or Screen or	Inside Diameter	Outside Diameter	Wall Thickness	Screen Slot Size	Type of Material	Trade Name
From	То	Open Hole						
	· · · · · · · · · · · · · · · · · · ·							
						-18-4 M		

Additional information for Double cased or Nested wells:

	a	b	c	d	e	f	g	h
l	acement th in Feet	Casing or Screen or	Inside Diameter	Outside Diameter	Wall Thickness	Screen Slot Size	Type of Material	Trade Name
From	To	Open Hole						
						10.0		
•								
					··-			-
					~		***	110

11. Grout and Gravel Pack (must start at zero)

Placement Depth in Feet		Grout/Gravel/	Material Description	Quantity gravel	Volume & Type Grout
		Open Hole	*See Desc for gravel	*See Desc	*See Desc
From	To				
		<u> </u>			

Desc: Description of gravel pack i.e. engineered gravel pack, or gravel pit description (1/4 down), or brand name (Best Sand), natural formation, drilling cuttings, soil backfill

Quantity #cubic yards, #tons, #sacks, - (for drilling cuttings and soil backfill estimate quantity) Calculation assistance available on web Volume & Type: #gallons of a slurry, #barrels of a slurry, #sacks used in the slurry, #bags of non-slurry bentonite (chip-pellet –granular) Additional information for Double cased or Nested wells:

Placement Depth in Feet		Grout/Gravel/ Open Hole	Material Description *See Desc for gravel	Quantity gravel *See Desc	Volume & Type Grout *See Desc		
From	То						
					E-31-14-2		

····							

WELL CONSTRUCTION LOG - 138679632229200

To -	From	Case/Screen	I.D.	O.D.	Thk.	Mat.	Slot Trade Name
0.0 -	11.0	Casing	2.07	2.38	0.15400	PVC	0.000 Titan
11.0 -	21.0	Screen	2.07	2.38	0.15400	PVC	0.010 Titan

GROUT AND GRAVEL PACK - 138679632229200

From -	To	Grout/Gravel	Material Desc.	Qty Gravel	Volume/Type Grout
00.0 -	00.5	Grout	Concrete	0	O, NA
00.5 -	09.0	Grout	Bentonite grout	3 bags	3 bags, 3/8" chips
09.0 ~	21.0	Gravel	#20-40 Sand	8 bags	8 bags, NA

GEOLOGICAL LOGS - 138679632229200

From -	To	Туре	Hardness	Color	Other/Drilling Action
00.0 -	07.0	Clay		${\tt Brown}$	•
07.0 -	13.0	Sand fine-med		${\tt Brown}$	
13.0 -	21.0	Fine Sand		${\tt Brown}$	

rom	То	Туре	Hardness	Color	Other/Drilling A	etion	
							•••
							UNE ART I
	i						
					— ••••	**************************************	
		,,	- Lessenbare L				
			7.0				
••	:		<u> </u>				
				-			
						· ·	

		t		402		71	
							
	Ty	ype	Hardness	1	C	olor	
У		Sand fine-med	Cemented	Í	Black	Pepper	
y Stone obles		Sand med-coarse Sand with grave	Consolida Dense/Sti		Blue Brown	Red Tan	
e Sand		Sandstone	Hard		Gray	White	
vel restone		Shale Silt	Soft Unconsol	idated	Green Orange	Yellow	
s Circul		Siltstone	Very Hard		Orango		
hre (wea idy Clay	thered shale)	Top Soil Other					
nd with C		omor	•	1			
			(Additional s	sheets may be su	ibmitted)		
Ibos	eby certifo 41	nat the information prov	ided on this regist-	ration is true as	aggregate to the heart	of my lengual at	
I her	edy certify th	at the information prov	raea on this registi	anon is true and	accurate to the desi	or my knowiedge	3.
	<u>L</u> K/						
Wate		ractor's Signature	Date		Well Owner's Sign		Date
	(not require	ed for pits)		(if Contractor is unknown or Deceased or for pits) (Not required if signed by Contractor)			s)
				(1101	rodunien it signen o	Contractor)	
ase not	e this docum	aent contains four pag	es.				

Owner Registering well drilled prior to 2002: Minimum Required Sections - 1, 3(a,b,c,e,f), 5, 6, 7, 8(a,f,h), 9e

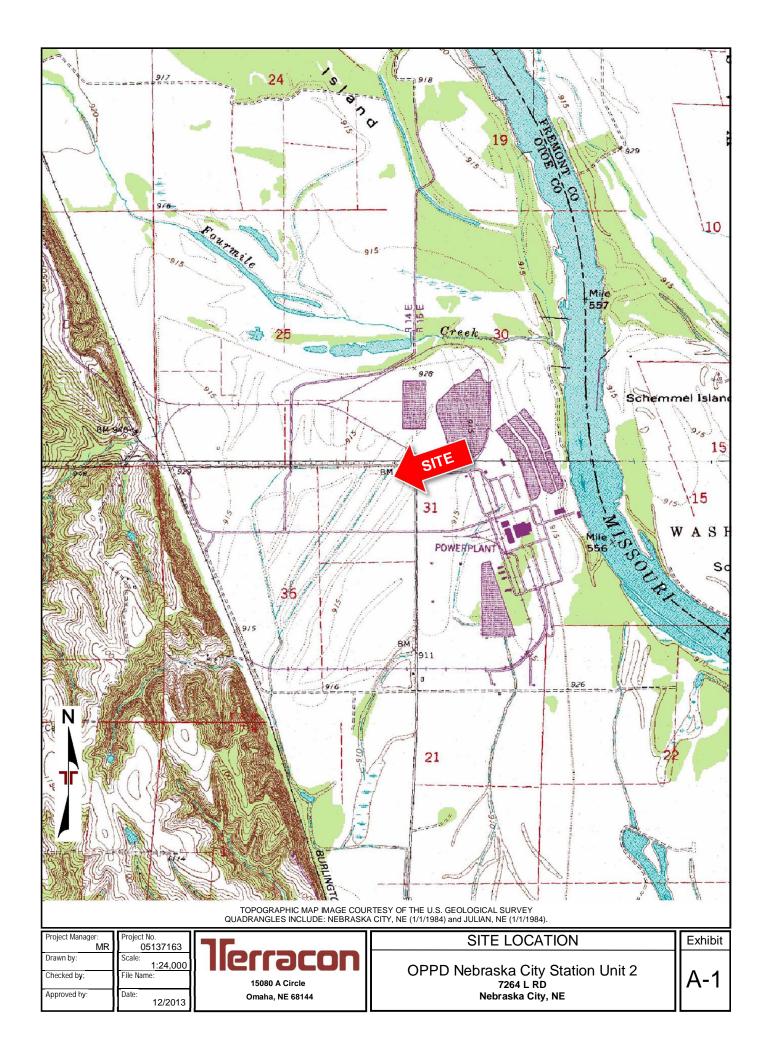




DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

AERIAL PHOTOGRAPHY PROVIDED BY MICROSOFT BING MAPS

 Project Manager:
 MR
 Project No.
 05137163

 Drawn by:
 Scale:
 AS SHOWN

 Checked by:
 File Name:
 Date:
 12/2013



AERIAL PHOTOGRAPH

OPPD Nebraska City Station Unit 2 7264 L RD Nebraska City, NE Exhibit

A-2

		WELL LOG NO. MW-	-13	Р	age 1 of 1				
Р	ROJECT: OPPD Nebraska City Station	CLIENT: Omah	a Public Power Distr	ict					
S	TE: 7264 L RD Nebraska City, Nebraska								
GRAPHIC LOG	LOCATION - Latitude: 40.6286073° Longitude: -95.7921889° DEPTH MATERIAL DESCRIP		INSTALLATION DETAILS Top Casing Elev: 917.69 Well Completion: Aboveground	WATER LEVEL OBSERVATIONS SAMPLE TYPE	RECOVERY (In.) SPT N-VALUE				
	LEAN CLAY (CL), with organics, brown, Grass a		-Concrete → Seal hydrated → chip bentonite		10 2-2-2-3 N=4				
	LEAN CLAY (CL), light brown	3.55	-Riser Pipe 2" diameter schedule 40		12 3-4-4-4 N=8				
16	5.0 SILTY CLAY WITH SAND (CL-ML), fine	910.5	5		18 2-2-2-2 N=4				
V2012.GDT 2/4/16	7.0 SILTY SAND (SM), fine	908.5	Filter Material silica sand. 16/30 grade		20 1-2-2-5 N=4				
SMART LOG 05157663 LOGS.GPJ TERRACON2012.GDT			-Screen 2"		18 2-5-7-5 N=12				
5157663 LOGS.			diameter schedule 40 PVC slotted screen, 0.010" slot 10		20 2-1-2-2 N=3				
10G 0	13.0	902.5							
THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. ENVIRONMENTAL SMAR	The stratification lines represent the approximate transition types; in-situ these transitions may be gradual or may occur		Hammer Type: Automatic						
SEPAI Adva	incement Method:	at amoretic depute than offewn.	Notes:						
Abai NOT VALID IF	ollow Stem Auger, 8.25-inch diameter borehole adonment Method: A - Well installed	See Appendices for explanation of symbols and abbreviations.	Soil descriptions are based on field crew. Actual conditions m		tions made by the				
S C C C C C C C C C C C C C C C C C C C	WATER LEVEL OBSERVATIONS	75	Well Started: 1/26/2016	Well Comple	eted: 1/26/2016				
BORIN T	5 ft while sampling 1 ft bgs on 2/4/16	llerracon	Drill Rig: 770	Driller: JM					
ᇎ	-	15080 A Circle Omaha, Nebraska	e e						



Fee Paid: \$70.00 HHSS Fee: \$31 Well Registration or Area Permit DNR Cash Fund: \$18.50 WWDF: 21 Billing ID: 53:											
Source:	Nebraska On Line	Import Status:	Accepted	Use:	Monitoring (Ground Water Quality)	Owner ID:	<u>49927</u>				
Import ID:	14551191495806	Status:	Active Registered Well	Decommission Date:	_	Registration Number:	<u>G-178697</u>				
Well ID:	<u>241806</u>	NRD:	<u>Nemaha</u>			Registration Date:	2/19/2016				
Last Change User:	hmcpherson	Call Up Code:	_	Call Up Date:	_	Last Change Date:	2/19/2016				

Owner:

Well In A Series

Well Part of a Series with Site Plan: Yes

	Contact	וט iype s	eqivum Begin L	Pate End Date	e Name		
Display	49927	Owner 1	2/19/201	16	Omaha Public Pow	er District,	
Contractor:	Certifica 39570		tName LastNam ael B Reif	e	_		
Orilling Firm:		Employe 159781	rID Employer Terracon Co	nsultants, Inc	2.		
A. Well Location	on: <u>NW</u>	1/4SE1/4	of Section 25				
Township 8	8 North,	Range <u>14</u>	(<u>East</u> E/W), <u>Ot</u>	oe County			
B. Natural Re	source D	District: <u>Ne</u>	maha				
			Latitude	Longi	tude		
Well GPS C	Coordinat	tes:	40° 37' 42.99	<u>-095°</u>	47' 31.88''	000 5	
Lat/Long D	DD		40.62861	<u>-95.7</u>	<u>9219</u>	GPS Required	
C. The well is	: fee	t from the	Section line	and feet	from the sec	ction line.	
D. Street addr	ress or b	lock, lot a	nd subdivision:	Addr/Sub Di	v <u>7264 L Road</u> B	Block No Lo	ot
E. Location of	water u	se, if appli	cable (give lega	I description): <u>NWSE S25 T8</u>	R14E	
G. Well refere	nce lette	er(s) if app	licable: MW-13				

						EndDate Comment		Num (External Source)			Wells in the Ser	
<u>244881</u>	1	2	No	No	1/26/2016		G-126717		DEQ	Part of a DEQ site		StartDate EndDate
										plan for	158167 G- 126717	2/19/2016
										spill or	241806 G-	1/26/2016
										underground storage	178697	
Permits						·				storage		
				Aprvd E	ate(s)			Aprvd Date(s)				
Area Pe	ermit .			_		SWater App Code						
GeoPer	mit .			_		Industrial						
MWF		<u> </u>		_		Transfer						
WSP				_		Swater Conduct (Code .					
HHSS		_				Other						
HHSS F	PWS ID	_				ITN						
NDEQ		NE0054712, N	NE0204421									
5. Purp	ose of Well	Monitoring (Grour	nd Water Quali	ty)								
		Other Use										
		Notes	_									
7. Repl	acement we	ell information.				Well Considered a	a replaceme	nt by NRD(WellID,				
A. Is th	nis well a Re	placement well? <u>N</u>	No Repl No	NRD Appro	val Date _	_ Well Replacemen	t Reg CD					
B. Regi	istration nun	mber of abandone	d well:	If not regis	tered, date	abandoned well w	as construc	ed				
C. Abaı	ndoned well	last operated		D. Replace	ment well i	s feet from aba	ndoned well					
E. Orig	inal well pur	mp column size: _	inches.									
[] the	I hereby ce replaceme	ent water well.	iginal water w				,	such construction of				
		ertify that the ori ys after such cor					ump 50 gal	lons per minute or les	SS			
	Livestoc	•	isti detion or t	no replace	none wate	. vv (11.						
-] Monitori											

	ved by the applicable natural resources district is submitted by landowner (Must be submitted before registering
G. Location of water use of original well:	
Decommission Information	
Decommission Date: By	
3. Pump Information.	
A. Is Pump installed at this time? No Pu	mp present but Well Inactive: No
Free Flowing Well: No We	ell active, no pump installed: <u>Yes</u>
B. License No.	
C. Pumping Rate gallons per minute. D.	Pumping water level feet.
E. Drop pipe diameter inches. F.	Length of pipe in feet.
G. Pump equipment installed: H.	Pump Brand/Type
I. Will this well be used to pump 50 gpm or less? Yes	
9. Well Construction Information	
A. Total well depth: 13 feet.	B. Static water level 1 feet.
C. Well Construction began: 1/26/2016	D. Well Construction Completed: <u>1/26/2016</u>
E. Bore hole diameter in inches. Top 8.25 Bottom 8.2	<u>5</u>
F. Casing and Screen Joints are: <u>Threaded</u>	Other Joints description:
H. Total Estimate Capacity of Well gallons per minute	e. I. Pumping water level at capacity: feet.

10. Well Construction (Casing & Screen) - c, d, e & f measurements should be in inches to three decimal places

Record Count = 2

WellID FromDepth*	ToDepth*	Case/Screen	InsideDiam	OutsideDiam	CaseThickness	ScrnSlotSize	Material	ScreenTname
241806 0	3	casing	2.07	2.38	0.154		PVC	EMI
241806 3	13	screen	2.07	2.38	0.154	0.01	PVC	EMI

^{*} are in Feet, all else is in inches

11. Grout and Gravel Pack

Record Count = 3

WellID	FromDepth	ToDepth	Grout/Gravel	Material Description ¹	Quantity Gravel ²	Volume &Type Grout ³
241806	0	0.5	grout	Concrete and well vault	_	Concrete and well vault
241806	0.5	2	grout	non-slurry bentonite		1.5 bags
241806	2	13	gravel	#16-30 Silica sand	5 bags	

^{*} are in Feet, all else is in inches

12. Well Geologic Materials Logged

	. coologio ilia					
WellID	FromDepth*	ToDepth*	Туре	Hardness	Color	Other/Drilling Action
241806	0	5	Other		Brown	Lean Clay
241806	5	7	Other		Brown	Sily Clay w/sand
241806	7	13	Other		Brown	Silty Sand

^{*} are in Feet.

¹Description of gravel pack, i.e. engineered gravel pack, or gravel pit description (1/4 down) or brand name (best sand) natural formation, drilling cuttings, soil backfill

²Quantity #cubic yards, #Tons, #Sacks - (for drilling cuttings and soil backfill estimate quantity) Calculation assistance available on web

³Volume & Type: #gallons of a slurry, #Barrels of a slurry, #sacks used in the slurry, #Bags of non-slurry bentonite (chip-pellet-granular)

DRILLING LOG

		DRILL	-1146	LUG					
Project N Omaha	iame 3 Public Power District — Nebraska C	ity Nebras	- k =			sject Num		Boring Number.	MW-7
Boring Lo	cation Description Fly ash disposal area	Borin	a Location	1'/4 Sec 3				Page 10f	
Ground Si	urface Elevation Top of Well Casing Elevat	ion Borin	g Location	Coordinates			<u> </u>	Total Footage	
14	above NGVD (surv.) 918-9 (Labove NGVD) Orilling Method (s) Borehole Size	Overburden Foot		h 6694.9 ock Footage	1	t Of Sampi	a . N	o. Core Boxes	42.0 ft.
	6 I/4" ID HSA 8	42.0 feet		0 feet	;	None	-	None	Depth to Water See Remarks
Drilling Co	. Layne, Inc. Omaha, Nebraska			Oriller (s)	<u>!</u>		Rick K		occ nemerka
Drilling Rig	Acker Soilmax 80 Truck Mounted			Type of Sampler					
Date Star	ted 01/20/99 Date Completed	01/20/0	79	- 1				CUCKLEY	
Depth in		HECE	01-		Depth				- <u>-</u>
Feet	Description	USCS Class.	Blow Count	Recovery	in Feet	Sample No.	PID (ppm)	Re	emarks
1 1 2	SANDY SILT, brownish grey loose, well graded, fine Sand and silt, moist	ML			1 2		Δ.		
3	SILTY SAND, brownish				3		· ·		
4- 1 5-	grey, well graded, medium density quartz and rock grains. moist.	SM			4 T				
6	SAME AS ABOVE	SM			6				
7-					7-				
8-					8				
9-					9			AVGER C WET AT	
10 11 12 13 13 13	SAND. dark grey, med to fine grained, well graded, medium density, wet, mostly quartz with rock grains	SW			10 11 12 13 13 13				

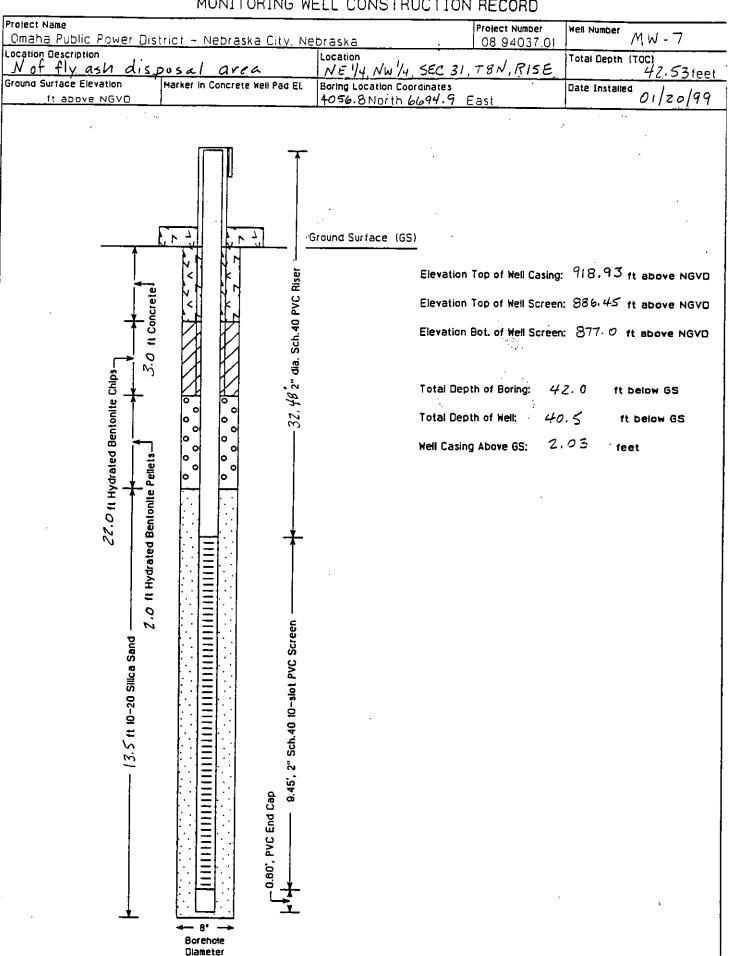
Drilling Log, continued

foring Locati	ublic Power District - Nebraska City on Description ly ash disposal area	Borin	o Location	1/4 , SEC	<u> </u>	ject No. 8 940.	37.01	Boring Number MW-7 Page 2 of 3
Depth in Feet	Description	USCS Class.	Blow Count	Recovery	Depth	Sample No.		Remarks
15	SAME AS AROVE				15	,,,,,	(ppin)	remarks.
16 -					16			
18 -					18			
19-					19		•	
21-	SAME AS ABOVE				20-			
22-					22-			
23-					23			
25					24-			
26-	SAND. light grey, medium to coarse grained, well graded, medium to		·		26			
27-	well graded, medium to loose, wet, quartz and rock grains with oval				27			
.8- 1 	shaped, rounded pebble site rock grains				28-			
0 1					30-			
31 -	SAME AS ABOYE				3! -			

Drilling Log, continued

Project Name Omaha Po	<u>ublic Power District - North Omaha,</u>	Borlo	a Location		: 0	ect No. 8 940		Boring Page	Number MW -	7
N o	ion Description Pfly as n disposal area	NE	1/4, NW 14	SEC 31			5 E	raye	3 of 3	
Depth in Feet	Description	USCS Class.	Blow Count	Recovery		Sample No.	PID (ppm)		Remarks	
32	SAME AS ABUVE	sw			32-					
33-					33-					
34		,			34-			•		
35					35					
36-	SAME AS ABOVE	S₩			36-					
37-					37					
38-					38 -					
39-					39-					
40					40					
41-	SAME AS ABOVE	5W			41					
42	BOTTOM OF BORING				42-					
43	William C. Soleman				43-					
44-					44-					
45					45					
46					46	'				
47-					47		1			
48 -					48					

MONITORING WELL CONSTRUCTION RECORD



STATE OF NEBRASKA DEPARTMENT OF WATER RESOURCES WATER WELL REGISTRATION

		. <u>7-1-99</u> . <u>4022</u> (Sequence No. Reciept I	11872 No. 10203) کیج	egistration No		III A
1. Well Add City		Omaha Pr 444 South Omaha	ublic Power District 16th Street Mail		one Number NE Zip Code		636-2304	2247
Add	ling Firm_ tress	20450 Highwa	n Company y 275, P.O. Box 59 Str	7Contra	actor's Licens	68064	(402) 359-3 39266 + 059	
3. Perr	mit Numbe	er(s)						
G	Pround Water	r Source Heat Pump	Dewatering (over 90 c industrial in Supply (wan spang (48-83)	Jection Impa	tion Liv Water Supply (v		Ground Hee Monitoring Recovery	Aquiculture
A. C. E.	is this well a Replacement Original well	end ebandoned y a replacement well? nt well is I pump column size; water use of abando	Yes X N feet from abandoned w inches.	oll. D. Abando	qo test ilow benc	abandoned well: erated vell abandonment	0n	19
D. Loc E. If fo	cation of w	r block, lot and aubo rater use, if appli n, the land to be i	1/4 of Section 3/ North of South) section Melon, if applicable: cable (give legal de migated is licable: Monito	Omaha Pu Nebraski scriptions): N/A		ct	Otoe Count	у.
Is pur If You If No. A. Act B. Pum D. Pum	es, complet o, complet bal pumping p column d	d at this time? ete items A through the items A and D g rate, if applicable ismeter: ment installed:	gh F. with estimated info :inches.	X No Primation for the gallons pe , 19 Pump ins	r minute, C. Length o E. Brand/Ty	Measured f pump column:	Estmete	

	Construction of the constr		etion. 40	foot D	Ct-sti	c water !	laceate							mi	A
		····		_1001. 2	. State	c water	16A61;	r	ieet.		mping w		vel;		feet.
D. V	Vell Construc	tion be	oan:	20-	-Jan	,1999		MAN Co			Estimate				asured
F. B	lore hole dian	neter:		8		ches.	<u> </u>	AARII CO	ustu	uction c	completed	: <u> </u>	20	Jan 19	99
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M. W	/eli developm	ent tec	hnique	(total tim	e and	method)):	Š	um	a bail	pump	1 hou	113		
N. W	/ill chemicals,	, fortiliza	er or ar	ntifreeze l	be injec	ted or u	itilized i	n the svs	tem	?			N	3	
it.	yes, what wil	l be use	ed:							-	*****		. 144	•	
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I am fa	amiliar with ti	ne infor	mation	submitte	ed on th	is regist	tration, a	and to th	e be	est of m	y knowlec	lge it	is trua		~~~
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<u>ــــــــ</u> Wa	iter well Cont	ractor's	4 Signat) UZA	<u> ک</u>	-1-87	7 -4	Sh.	Visi	un	Owners	X	ser!	Lon	56-1

JULIAN QUADRANGLE NEBRASKA-MISSOURI-10WA G-101111 A-D 7.5 MINUTE SERIES (TOPOGRAPHIC) R 43 W. 3040 000 FEET (NEBR)] 1 370 000 FEET (IOWA) WASHINGTON (NEBR) POWEFPLA! Schemmel 530 000 EEEJ NWOIJ 21 28 27 VZÄTÄGLÖÄ FREMONT CO ATCHISON CO 35 D 10

JULIAN QUADRANGLE NEBRASKA-MISSOURI-IOWA G-101111A-D 7.5 MINUTE SERIES (TOPOGRAPH 47'30"-764 R 43 W 3040 000 FEET (NEBR.): 31 WASHINGTA 21 28 WASHINGTO:

34 FREMONT CO
ATCHISON CO

STATE OF NEBRASKA

G-101111 A-D





Mike Johanns Governor

June 10, 1999

IN REPLY REFER TO:

Omaha Public Power District 444 South 16th St. Mall Omaha, NE 68102-2247

LOCATION OF THE WELLS:

Otoe County

The following items were submitted to register the four wells but are being returned to you:

Water Well Registration Forms

• \$120.00 Fee (State Auditors require that checks be returned for all unregistered wells.)

· Quadrangle map

The four wells have not been registered for the following reasons:

- · The Water Well Registration form is incomplete. Please complete items 6A and 6B.
- · Township 67 is not in Nebraska. The wells are either in Township 7 North or Township 8 North.
- · Please mark the location of the wells on the map.
- · The fee should be \$240.00. Please refer to the enclosed instruction sheet.

Please resubmit the enclosures along with the items requested by July 12, 1999. As required by law, we are obligated to inform you that failure to register the well is a Class IV misdemeanor. If not promptly resolved, matters involving unregistered wells may be sent to the county attorney for possible prosecution. If you have any questions, please call me.

Sincerely,

Stacey Evans

Accounting Clerk, Ground Water

(402) 471-4084

pjb

clrshare\ground water\returns

VOIDED RECEIPT NO.: 101750

301 Centennial Mail South, 4th Floor • P.O. Box 94676 • Lincoln, Nebraska 68509-4676 • Phone (402) 471-2363 • Telefax (402) 471-2900



June 29, 1999 99-EA-143

State of Nebraska Department of Water Resources P.O. Box 94676 Lincoln, NE 68509-4676

Please find enclosed Water Well Registration forms for four groundwater monitoring wells installed at our Nebraska City Station. Also enclosed are two checks, each for \$120 for the registration fees.

If you have any questions regarding the enclosed material, please contact John Buckley at (402)636-2318 or me directly at (402)636-2313.

Sincerely,

D. C. Hutchens

Manager - Environmental Affairs

Environmental & Governmental Affairs

JEB:dn

Encl.

WATER WELL REGISTRATION CORRECTION

FOR DEPARTMENT USE ONLY

Registration Number

G-101111A

Sequence Number

118729

Correction Date

September 13, 1999

Person Processing Correction

Wendy Evans

information regarding the water well referenced above has been changed in the Department's water well registration records. Please note the following changes and the reason changes were made:

Well Location (Item 6A) and Footage (Item 6B); According to the marking on the quadrangle map, the well is estimated to be located in Range 14E, Section 36 in the NE¼ of the NE¼, 475 feet from the North section line, and 10 feet from the East section line (475S 10W).

This correction has modified section(s) 6A and 6B of DWR Registration Form #145. If these changes are inaccurate, please contact the Department of Water Resources at P.O. Box 94676, Lincoln, NE, 68509-4676. Phone (402)471-3458.

I certify that this Correction Form has been forwarded to the owner of the referenced water well and is now a part of the registration records.

Department of Water Resources



DRILLING LOG

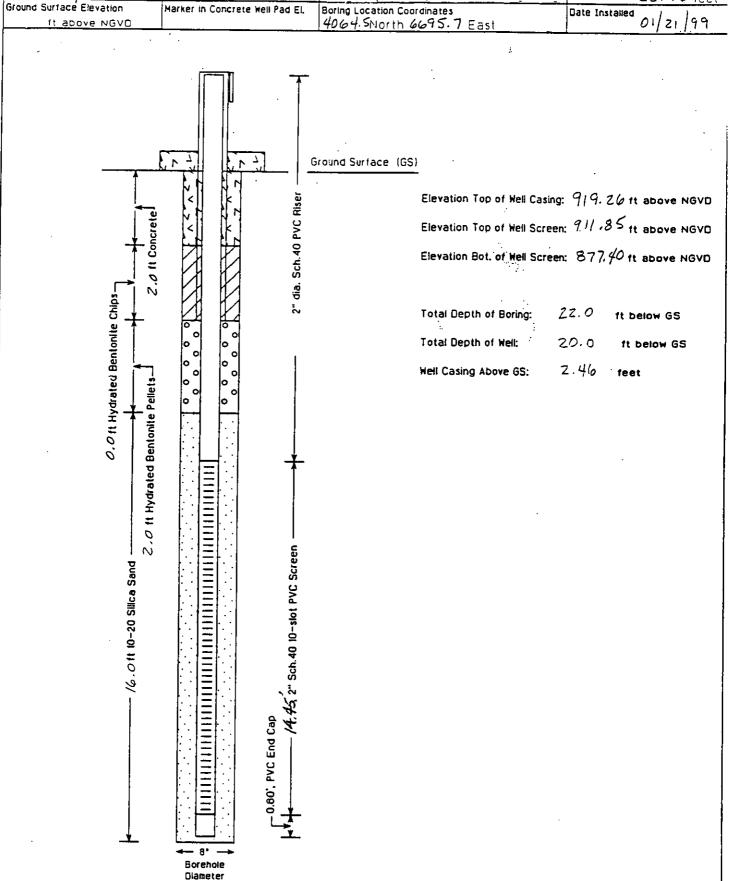
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Project N Omaha	Name a Public Power District	- Nebraska C	ity Nobra	ck =			oject Nun		Boring Number	MW-8
Borina La	ocation Description of fly ash dispos		Borir	ng Location	n /w//4, SE		18 940		Page C	of Z
Ground S	iurtace Élevation Top	of Well Casing Elevat	ion Borin	no Location	n Coordinates			KIZE	Total Footage	
716.81	t above NGVD (surv.) 919 Drilling Method (s)	3 It above NGVD		94.5Nor	th 6695.	7 Eas				22.0 +1.
	6 1/4" ID HSA	8	Overburden Foo 22.0 fee		O took	No.	Of Sampl	es N	o. Core Boxes	Depth to Water
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	g Acker Soilmax 80 Truc			 ·			Porter. n tin u		eith	· · · · · · · · · · · · · · · · · · ·
	rted 01/21/99	Date Completed	01/21/0	79	Type o Samplei				BUCK LEY	<u> </u>
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in Feet	Descrip	tion	USCS Class.	Blow Count	Recovery	in	Sample	PID (ppm)	R	emarks
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Drilling Log, continued

Project Name Omaha Pu Boring Locatio	<u> Dlic Power District – Nebraska City</u> n Description	/. Nebra	ska a Location		. 10	ject No. 8 940	37.01	Boring Number MW - 8
N of 1	n Description Fly ash disposal area	NE	1/4, NW	1/4 , SEC			15E	Zof Z
in Feet	Oescription	USCS Class.	Blow Count	Recovery	Depth in Feet	Sample No.	PIO (ppm)	Remarks
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23	BOTTOM OF BORING				23			
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31 -					31 -			

MONITORING WELL CONSTRUCTION RECORD

Project Name Omaha Public Power Di	strict – Nebraska City, Ni	ebraska .	Project Number 08 94037.01	Well Number NW-8
	iposal area	Location NE 14, NW 14, SEC 3.	I, TON, RISE	Total Depth (TOC) 22.46 feet
Ground Surface Elevation ft above NGVD	Marker in Concrete Well Pad El.	Boring Location Coordinates 4064. SNorth 6695.7		Date Installed 01/21/99
	· .			*





STATE OF NEBRASKA DEPARTMENT OF WATER RESOURCES WATER WELL REGISTRATION

	egistration Date 7-1-99 Sequence No. 1187:30 Registration No. G-101111B Nwner Code No. 40236 Reciept No. 102038 Nema ha NRD
1.	Well Owner Omaha Public Power District Telephone Number (402) 636-2304 Address 444 South 16th Street Mall City Omaha State NE Zip Code 68102 + 2247
2.	Drilling Firm Layne-Western Company Telephone Number (402) 359-2042 Address 25450 Highway 275, P.O. Box 597 Contractor's License No. 39268 City Valley State NE Zip Code 68064 + 0597
3.	Permit Number(s)
4.	Purpose of well(indicate one):
5.	Replacement and ebandoned well information. A. Is this well a replacement well? Yes X No B. Registration number of abandoned well: C. Replacement well is feet from abandoned well. D. Abandoned well last operated 19 E. Original well pump column size: inches. F. Completion of original well abandonment on 19 G. Location of water use of abandoned well:
E	Well location: NE 1/4 of the NE 1/4 of Section 3/ . Township 8 North, Range 1/5 (ast West, Otoe County. The well is 5/4.5 feet from the (North or South) section line and 1/9.50 feet from the (East or (Net)) section line. Street address or block, lot and subdivision, if applicable: Onsaha Public Power District Nebraska City Station Location of water use, if applicable (give legal descriptions): N/A If for irrigation, the land to be irrigated is N/A acres. Well reference letter(s), if applicable: Monitoring Well 2
B	Pump Information. s pump installed at this time? If Yes, complete items A through F. If No, complete items A and D with estimated information for those wells in which pump will be installed. Actual pumping rate, if applicable: Pump column diameter: Pump installed: Pump installed by: Contractor Owner Pump installed License No.

ĮO,	V/ε	ell Constru	uction	Inform	ation.						- (G-10	1111	ヒ	
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	D.	Well Co	nstruc	tion be	aan:	21-	Jan ,	1999	E Wall	Consta		Estimated completed:		24 15	Measured
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				_	_							(typ	e)		
				from _	_3	feet	to	4:	feet	with		Bentonite			
										•			ype)		
	K.	Drilling n	nethod	;		Hollow	Stem Au	ger	L. Dril	lina fluid	1 :	None	,,,		
	М.	Well dev	/elopm	ent tec	hnique	(total tim	e and me	thod);		Sura	e. bail	, pump 1	hour	•	
	N.	Will cher	nicals,	fertiliz	er or a	ntifreeze t	be injected	or utili	zed in the	system	?	Yes	X	No	
		If yes, w	hat wil	l be us										- '40	
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	10 I an	n	To 5 10 20 with the	Fine —	soil y bro s Sand	(Add	litional st	registra	From	brnitted	o 		ge it is	true.	6-1-94

JULIAN QUADRANGLE NEBRASKA-MISSOURI-10WA G-101111 A-D 7.5 MINUTE SERIES (TOPOGRAPHIC) R 43 W. 3040 000 FEET (NEBR)] 1 370 000 FEET (IOWA) WASHINGTON (NEBR) POWEFPLA! Schemmel 530 000 EEEJ NWOIJ 21 28 27 VZÄTÄGLÖÄ FREMONT CO ATCHISON CO 35 D 10

JULIAN QUADRANGLE NEBRASKA-MISSOURI-IOWA G-101111A-D 7.5 MINUTE SERIES (TOPOGRAPH 47'30"-764 R 43 W 3040 000 FEET (NEBR.): 31 WASHINGTA 21 28 WASHINGTO:

34 FREMONT CO
ATCHISON CO



June 29, 1999 99-EA-143

State of Nebraska Department of Water Resources P.O. Box 94676 Lincoln, NE 68509-4676

Please find enclosed Water Well Registration forms for four groundwater monitoring wells installed at our Nebraska City Station. Also enclosed are two checks, each for \$120 for the registration fees.

If you have any questions regarding the enclosed material, please contact John Buckley at (402)636-2318 or me directly at (402)636-2313.

Sincerely,

D. C. Hutchens

Manager - Environmental Affairs

Environmental & Governmental Affairs

JEB:dn

Encl.

STATE OF NEBRASKA

G-101111 A-D





Mike Johanns Governor

June 10, 1999

IN REPLY REFER TO:

Omaha Public Power District 444 South 16th St. Mall Omaha, NE 68102-2247

LOCATION OF THE WELLS:

Otoe County

The following items were submitted to register the four wells but are being returned to you:

Water Well Registration Forms

• \$120.00 Fee (State Auditors require that checks be returned for all unregistered wells.)

· Quadrangle map

The four wells have not been registered for the following reasons:

- · The Water Well Registration form is incomplete. Please complete items 6A and 6B.
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Sincerely,

Stacey Evans

Accounting Clerk, Ground Water

(402) 471-4084

pjb

clrshare\ground water\returns

VOIDED RECEIPT NO.: 101750

301 Centennial Mail South, 4th Floor • P.O. Box 94676 • Lincoln, Nebraska 68509-4676 • Phone (402) 471-2363 • Telefax (402) 471-2900

WATER WELL REGISTRATION CORRECTION FOR DEPARTMENT USE ONLY

Registration Number

G-101111B

Sequence Number

118730

Correction Date

September 13, 1999

Person Processing Correction

Wendy Evans

information regarding the water well referenced above has been changed in the Department's water well registration records. Please note the following changes and the reason changes were made:

Well Location (Item 6A) and Footage (Item 6B): According to the marking on the quadrangle map, the well is estimated to be located in Range 14E, Section 36 in the NE¼ of the NE¼, 600 feet from the North section line, and 10 feet from the East section line (600S 10W).

Casing Length & Placement Depth (Item 8G): Based on the total well depth and the length and placement depth of the screen, the length and placement depth of the casing is estimated to be 0 feet to 15 feet,

This correction has modified section(s) 6A, 6B and 8G of DWR Registration Form #145. If these changes are inaccurate, please contact the Department of Water Resources at P.O. Box 94676, Lincoln, NE, 68509-4676, Phone (402)471-3458,

I certify that this Correction Form has been forwarded to the owner of the referenced water well and is now a part of the registration records.

Department of Water Resources

