

MAY 16 2011



KOCH NITROGEN COMPANY LLC

May 13, 2011

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**RE Response to EPA Comments and Revised Shallow Well Depth – Preliminary
Information
Koch Nitrogen Company, LLC
Dodge City, Kansas
EPA RCRA ID No. KSD044625010**

Dear Ms. Stone:

Pursuant to our 2 May 2011 phone conversation and the Environmental Protection Agency (EPA) letter dated 26 April 2011, Koch Nitrogen Company, LLC (KNC) is pleased to provide this response to comments and revised Shallow Well Depth- Preliminary Information Summary related to the screening of shallow monitoring well installations associated with the Phase II Work Plan Addendum: Groundwater Characterization (herein referred to as the Work Plan Addendum). The purpose of this

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RCRA

letter is to address EPA comments (26 April 2011) and provide a revised plan for shallow well installation to the EPA and Kansas Department of Health and Environment (KDHE) based on previously performed assessment work. EPA's comments and KNC's responses are summarized below. The summary of March 2011 activities and proposed path forward are provided in Attachment A.

EPA Specific Comment: "Table 2: This table provides historical water level measurements and recent water level measurements, as well as other valuable information. However, information in the last column of the table, "Anticipated Top of Screen for Shallow Wells" is contradictory to the process KNC outlined in the bulleted items on pages 2 and 3 of this submittal. This information is confusing and should not have been included in this table. Please delete this column from Table 2."

KNC Response: *The last column of Table 2 has been deleted in the attached Shallow Well Depth-Preliminary Information summary.*

EPA Geologist Comment 1: "A methodology for determining the depth interval to be screened in the shallow well is described in the bulleted list on pages 2 and 3, which outline a field procedure for palcing the shallow well screen using the criteria presented in Section 3.1 of the approved "Phase II RFI Work Plan Addendum: Groundwater Characterization," dated June 11, 2010. The EPA would like to point out that if this procedure is allowed as written, the deep well with the five-foot well screen will already be installed should it be determined that the saturated thickness of the Ogallala Formation is less than thirty (30) feet. According to KNC's proposal this would result in a single well being installed with a ten-foot well screen. One other issue that is unclear is where the top of the shallow well screen will be placed relative to the water table.

The EPA would like to present an alternative proposal for consideration, which would avoid these issues. First, while it is essential to have a geologic log of the boring, it can be very difficult to rely totally on visual observations of the lithologic materials for the purpose of assessing permeability as proposed in the first bullet. Therefore the thickness of the saturated zone should be determined based only on the elevations of the top of the Granerous Shale and the elevation of the water level in the newly installed deep well, after is it assured that the water level has equilibrated in the boring. Because the deep well screen is five (5) feet in length, the EPA would propose the following criteria for determining whether to install one or two wells based upon saturated thickness:

If after the deep well is installed and it is determined that the saturated thickness is less than 30 feet, then only the deep well with the five-foot screen would be installed. If the saturated thickness is 30 feet or more, then

the second shallow well would be installed with a five-foot screen set such than the *top* of the screen is set at *one foot lower than the water level*.

While on the subject of well screen placement, the EPA would like to recommend that the deep well screen be set so that the *bottom* of the well screen is placed within *three* feet of the top of the Granerous Shale.

The EPA would like to emphasize that the purpose of these monitoring wells are to (1) assess the distribution and concentration of groundwater contaminants, and (2) to assess the horizontal and vertical components of groundwater flow. This information is necessary in order to maximize the effectiveness and efficiency of the groundwater pump and treat system and to ensure that the groundwater contaminants are contained. To perform these functions, it is not necessary for these monitoring wells to produce large amounts of water, so it is not crucial that they are screened with highly productive/permeable zones.”

KNC Response: *Comment noted. KNC has modified the attached Shallow Well Depth-Preliminary Information summary to only provide the information requested and identify the process outlined by the EPA above for selection of well screens.*

EPA Geologist Comment 2: “Figures 1 and 2 are potentiometric surface maps prepared from groundwater elevation data collected while the recovery system was pumping and also when the system was shut down. The EPA is concerned about the strong influence on the local groundwater flow regime resulting from operation of the Dodge City Services production well near the southeast corner of the facility. Although, the Dodge City Services well is being pumped from the Dakota Formation, the filter pack extends from the Dakota Formation through the Ogallala Formation. Therefore the well withdraws water from the Ogallala as well as the Dakota (see Table PW-01 in the in the “Quarterly Progress Report for Fourth Quarter 2009”, dated 1-27-10).

The EPA understands that the Dodge City Services well is monitored quarterly (Phase II RFI Work Plan Addendum: Groundwater Characterization, 6-11-10, Figure 2) with the results transmitted in the Annual Groundwater Corrective Action Reports, and that there have not been any detections of contaminants exceeding drinking water standards. However, the EPA is concerned that as the corrective action process approaches the point where a careful evaluation of the performance of the current groundwater extraction system is performed, the impact that the Dodge City Services well has on the groundwater flow in the Ogallala may be problematic during optimization of the recovery system. At this point, the EPA just wants to raise this as a possible issue of concern for the future.

KNC Response: *Comment noted. Please note that KNC did not have access to the Dodge City Services facility during the 2010 third and fourth quarter and 2011 first quarter sampling events. Due to this restricted access, the well has not been sampled since April 2010. KNC is aware of concerns with the filter pack for this well and is evaluating whether it is possible to plug and abandon the well to address these concerns.*

CLOSING

We appreciate your time in this matter. EPA's 26 April 2011 letter indicated that KNC should proceed with placement of the new well screens in accordance with EPA's comments, and we are therefore preparing to begin the off-site well cluster drilling the week of May 16th. We appreciate your time and approach with regards to the selection of shallow well screening during this field mobilization. If there are any concerns with the attached and/or responses provided above, please call Elise Stucky-Gregg (620) 227-8631 Ext. 350 to discuss.

In accordance with Section B.22 of the Part II permit, I certify under penalty of law that this document and all attachments were prepared under my direction or supervision according to a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or other persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,



Gary J. LeRock
Plant Manager

Enclosure: Attachment A: Revised Shallow Well Depth - Preliminary Information

cc w/Attachments: Elise Stucky-Gregg, KNC, Dodge City, Kansas
Tom Siegrist, KF, Wichita, Kansas (electronic)

ATTACHMENT A
REVISED SHALLOW WELL DEPTH – PRELIMINARY INFORMATION

WORK SUMMARY

Prior to performing the water level characterization, KNC requested and received KDHE approval to temporarily shut down the groundwater recovery system. In accordance with EPA's request, water levels were collected by KNC personnel from the routine monitoring network for the site on 14 March 2011. At this time the groundwater recovery system was operational and these measurements were utilized to characterize baseline water levels with the groundwater recovery system operational. After completion of water level measurements on the evening of 14 March 2011, the groundwater recovery well system was shut down.

KNC personnel collected water level measurements from the ten wells identified in the Work Plan Addendum twice daily on 15 and 16 March 2011 to document static (non-pumping) water level changes. Table 1 provides a summary of water level gauging collected during this study. All water-level measurements were made using a water-level meter that was decontaminated between wells. The groundwater recovery system was placed back in operation on 18 March 2011 after the water level measurements for the extended well set (T4 on 16 March 2011 on Table 1) were collected and routine repairs to the distribution header were completed.

RESULTS

Figure 1 provides a potentiometric surface map for 14 March 2011 prior to system shut down. A cone of depression is visible in the area of TW-71. Outside this area the water levels generally follow the regional groundwater flow path toward the southeast. Figure 2 provides a summary of the potentiometric surface on the last sampling date prior to turning the system back. Groundwater follows the general flow path to the southeast during this gauging event as well.

Figure 3 provides a hydrograph of water levels in the 10 wells routinely monitored over the period of system shut-down. In wells where a large response (greater than 1 foot change in elevation) was noted, the water level equilibrated in a relatively short time period (less than approximately 18 hours). The largest response was noted for wells TW-10, TW-57, TW-71, TW-72, and TW-85. For the other wells, water levels were within a few tenths of a foot during and after pumping shut down.

DISCUSSION

The majority of proposed new monitoring wells are located in areas (west and south) where little response was noted with the pumping system operational or in static/non-pumping conditions. Consequently, the effect of pumping in these areas is not anticipated to have a bearing on the selection of screen depths for new shallow monitoring wells. Proposed well clusters MW-01, MW-02, MW-03 and MW-22, which are located in active pumping areas, are proposed in areas where a water level response was noted after recovery system shut down.

Table 2 provides a summary of water level decline for monitoring wells and recovery wells adjacent to and/or in the vicinity of the proposed perimeter well clusters. Based on these data an approximate 1 foot per year decline in water table is anticipated, with higher decline anticipated near recovery wells. Table 3 provides an estimate of the saturated thickness of the Ogallala based on rotosonic borings completed in 2006 in the vicinity of proposed wells to the west, south, and east, and recent water level data. The estimated saturated thicknesses vary between locations and compared to water level measurements. In all cases, the estimated saturated thicknesses appear to be larger during boring log completion than compared to recent water level measurements.

Pursuant to the EPA's alternative proposal, the methodology for shallow and deep wells installation will be as follows:

- The deep well boring at each location will be advanced to the top of the Granerous Shale;
- The screen bottom for the deep well at each cluster will be set approximately three feet from the top of the Granerous Shale and the screen length will be five feet;
- The sand pack for the deep well will be developed and the deep well will be constructed to surface;
- The water level elevation in the new deep well will be gauged until stable and the water column will be calculated as the difference between the water level elevation in the deep well versus the elevation of the top of the Granerous Shale;
 - If the saturated thickness is less than 30 feet, a shallow well will not be installed;
 - If the saturated thickness is greater than 30 feet, a second shallow well will be installed with a five-foot screen set such that the top of the screen is set at one foot lower than the water level in the deep well.

TABLES

Table 1
Shallow Screen Determination Monitoring Well Gauge Record
Koch Nitrogen Company, LLC - Dodge City, Kansas

Well Number	Pumping System Operational		Pumping System Shut-Down							
	T0 - 3/14/11		T1: 3/15/11		T2: 3/15/11		T3: 3/16/11		T4: 3/16/11	
	Time	Depth To Water	Time	Depth To Water (feet)	Time	Depth To Water (feet)	Time	Depth To Water (feet)	Time	Depth To Water (feet)
TW. 80	1320	140.41	1040	140.45	1535	140.38	945	140.41	1240	140.36
SIT-RG03	1327	127.30							1244	127.2
SIT-RG04	1334	145.41							1249	145.29
SIT-RG05	1337	141.11							1254	141.03
SIT-RG06	1345	115.49							1300	115.35
TW. 79	1350	111.12							1317	110.98
TW. 85	1400	117.40	1050	100.74	1545	100.58	950	100.27	1325	100.21
B-1	1405	87.26							1338	87.11
TW. 12	1415	78.02	1105	78.14	1552	78.08	1005	78.2	1345	78.06
TW. 11	1410	81.25							1348	81.22
TW. 22	1420	68.83							1354	68.31
TW. 15	1427	100.19							1357	99.64
TW. 25	1433	71.36							1403	71.29
TW. 24	1440	75.09	1112	75.1	1600	75.07	1012	75.07	1410	75.05
TW. 59	1447	87.65							1415	87.62
TW. 60	1450	94.27	1117	94.42	1605	94.38	1015	94.39	1417	94.34
TW. 61	1455	99.13							1422	99.21
A-3B	1507	106.02							1427	105.99
TW. 57	1512	111.00	1125	107.66	1612	107.47	1020	107.3	1432	107.31
TW. 62	1523	109.23	1132	109.4	1621	109.38	1028	109.34	1440	109.29
TW. 63	1527	115.99							1443	116.09
TW. 47	1537	101.06							1450	101.23
TW. 10	1552	125.98	1142	119.45	1633	119.02	1037	118.63	1500	118.49
SIT-RG08	1610	113.13							1515	113.1
C-3B	1615	112.82							1520	112.73
TW. 72	1625	114.75	1155	108.34	1640	108.18	1044	107.95	1524	107.82
TW. 71	1635	132.35	1150	115.24	1637	115.17	1041	115.04	1527	114.94
TW. 5	1645	113.32							1532	113.25
SIT-RG01	1700	112.00							1528	112.04
SIT-RG02	1705	119.80							1543	119.89

Tier II Wells Identified in the Phase II Work Plan Addendum: Groundwater Characterization

Tier I Wells Identified in the Phase II Work Plan Addendum: Groundwater Characterization

Table 2
Average Aquifer Decline Analysis in Area of Proposed Perimeter Wells
Koch Nitrogen Company, LLC - Dodge City, Kansas

Proposed Perimeter Wells in the Area	Well ID	Well Use	Earliest Water Level Measurement		Recent Water Level Measurement		Difference (FT)	Time (YRS)	Rate of Change (FT/YR)
			Date	Elevation (FT MSL)	Date	Elevation (FT MSL)			
MW-18 and MW-19	SIT-RG-01	Monitoring	7/7/2006	2422.70	3/14/2011	2422.00	0.70	4.69	0.15
	SIT-RG-02	Monitoring	7/7/2006	2426.80	3/14/2011	2424.20	2.60	4.69	0.55
	TW-19	Recovery	9/20/1982	2484.50	2/22/2011	2417.35	67.15	28.44	2.36
	TW-37	Recovery	1/7/1993	2473.58	2/22/2011	2415.32	58.26	18.14	3.21
	TW-38	Recovery	2/16/1983	2492.73	2/22/2011	2423.03	69.70	28.04	2.49
								Average	1.75
MW-23, MW-17, and MW-24	SIT-RG-03	Monitoring	7/5/2006	2415.90	3/14/2011	2414.70	1.20	4.69	0.26
	SIT-RG-04	Monitoring	7/5/2006	2411.20	3/14/2011	2409.59	1.61	4.69	0.34
	SIT-RG-05	Monitoring	7/5/2006	2411.50	3/14/2011	2411.89	-0.39	4.69	-0.08
	TW-80	Monitoring	1/7/1993	2447.22	3/14/2011	2414.60	32.62	18.19	1.79
								Average	0.58
MW-22	TW-86	Recovery	4/6/1994	2465.01	2/22/2011	2424.15	40.86	16.89	2.42
	TW-76	Recovery	1/7/1993	2442.07	2/22/2011	2400.31	41.76	18.14	2.30
	TW-11	Monitoring	9/20/1982	2462.73	3/16/2011	2427.02	35.71	28.50	1.25
	TW-85	Recovery	4/6/1994	2443.16	3/16/2011	2398.49	44.67	16.95	2.63
								Average	2.15
MW-01, MW-02 and MW-03	A-3B	Monitoring	5/1/2001	2431.00	3/14/2011	2420.38	10.62	9.87	1.08
	TW-50	Recovery	1/7/1993	2450.10	10/1/2001	2434.33	15.77	8.74	1.80
	TW-53	Recovery	1/7/1993	2451.60	2/22/2011	2443.00	8.60	18.14	0.47
	TW-54	Recovery	1/7/1993	2453.74	2/22/2011	2433.67	20.07	18.14	1.11
								Average	1.12

Table 3
Summary of Rotosonic Boring Logs and Estimated Saturated Thickness
 Koch Nitrogen Company, LLC - Dodge City, Kansas

Rotosonic Boring/Well Location	Reference Elevation (FT MSL)	Water Level (3/14/11)	¹ Depth to Saturated Top of Ogallala	Depth to top of Dry Clay overlying the Granerous	Elevation			Estimated Saturated Thickness		Proposed Perimeter Well(s) in the Vicinity
					Top of Saturated Ogallala Based on Boring Logs	Top of Saturated Ogallala Based on Water Levels	Base of Ogallala	Boring Logs	Water Level - Base of Ogallala	
					FEET MSL			Feet		
FT BLS										
SIT-RG-01	2534.00	112.00	110	152	2422.00	2424.00	2382.00	42.00	40.00	MW-18 and MW-19
SIT-RG-02	2544.00	119.80	115	162	2424.20	2429.00	2382.00	47.00	42.20	MW-18 and MW-19
SIT-RG-03	2542.00	127.30	126	150	2414.70	2416.00	2392.00	24.00	22.70	MW-23 and MW-17
SIT-RG-04	2555.00	145.41	126	158	2409.59	2429.00	2397.00	32.00	12.59	MW-17 and MW-24
SIT-RG-05	2553.00	141.11	140	152	2411.89	2413.00	2401.00	12.00	10.89	MW-24 and MW-25
SIT-RG-06	2510.00	115.49	110	125	2394.51	2400.00	2385.00	15.00	9.51	MW-22
SIT-RG-08	2526.00	113.13	105	124	2412.87	2421.00	2402.00	19.00	10.87	MW-22

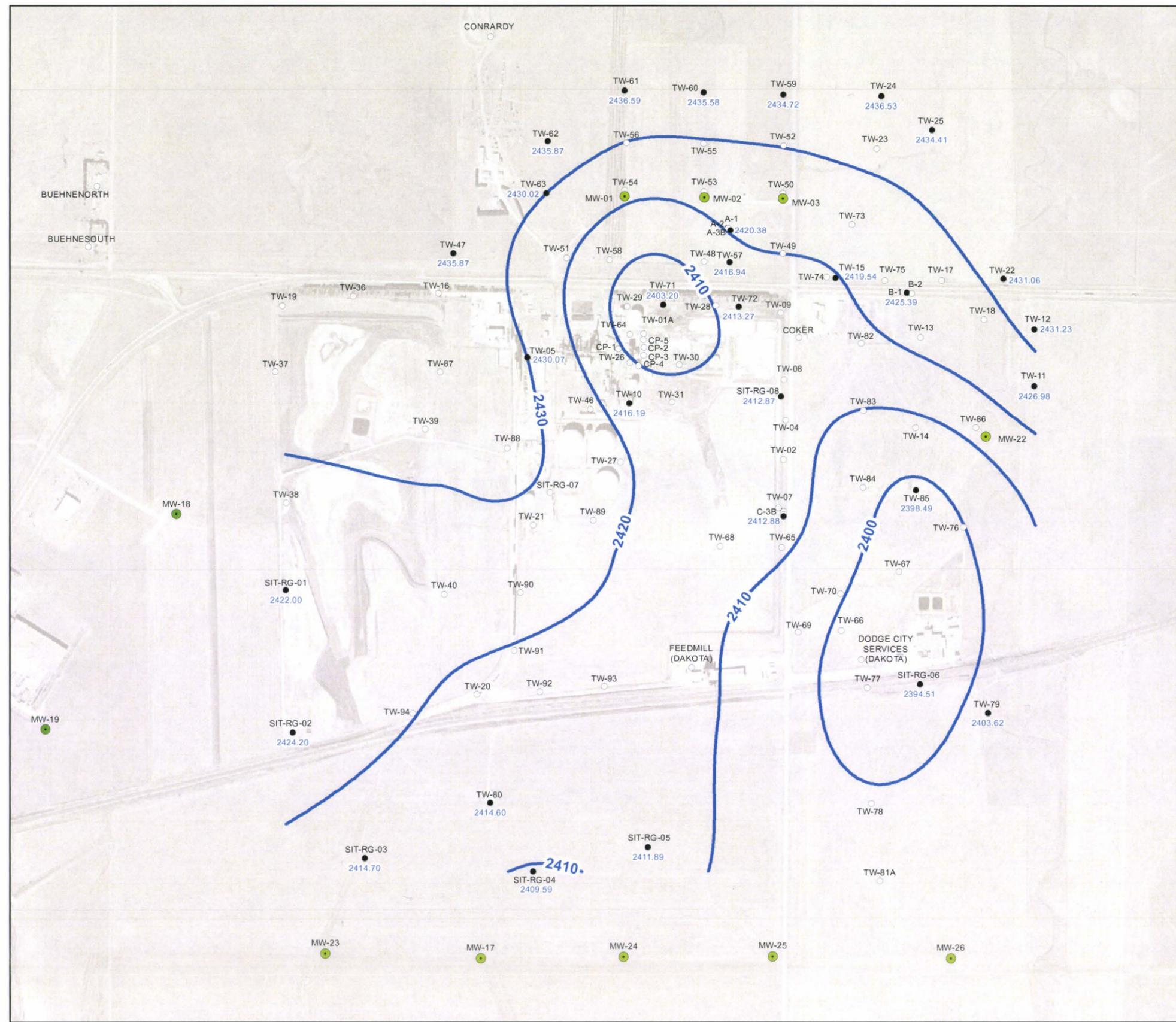
Notes:

FT BLS - feet below land surface

FT MSL - Feet median Sea Level

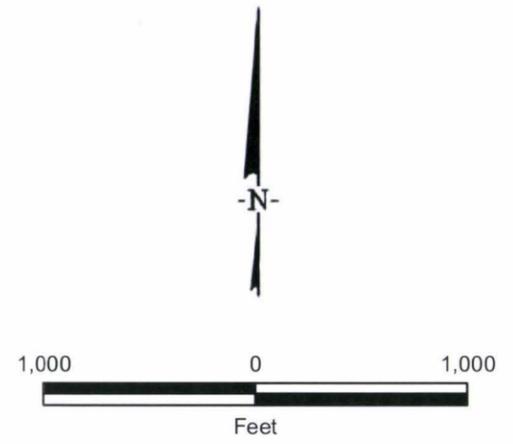
¹Estimated based on the lithologic description provided in site boring logs.

FIGURES



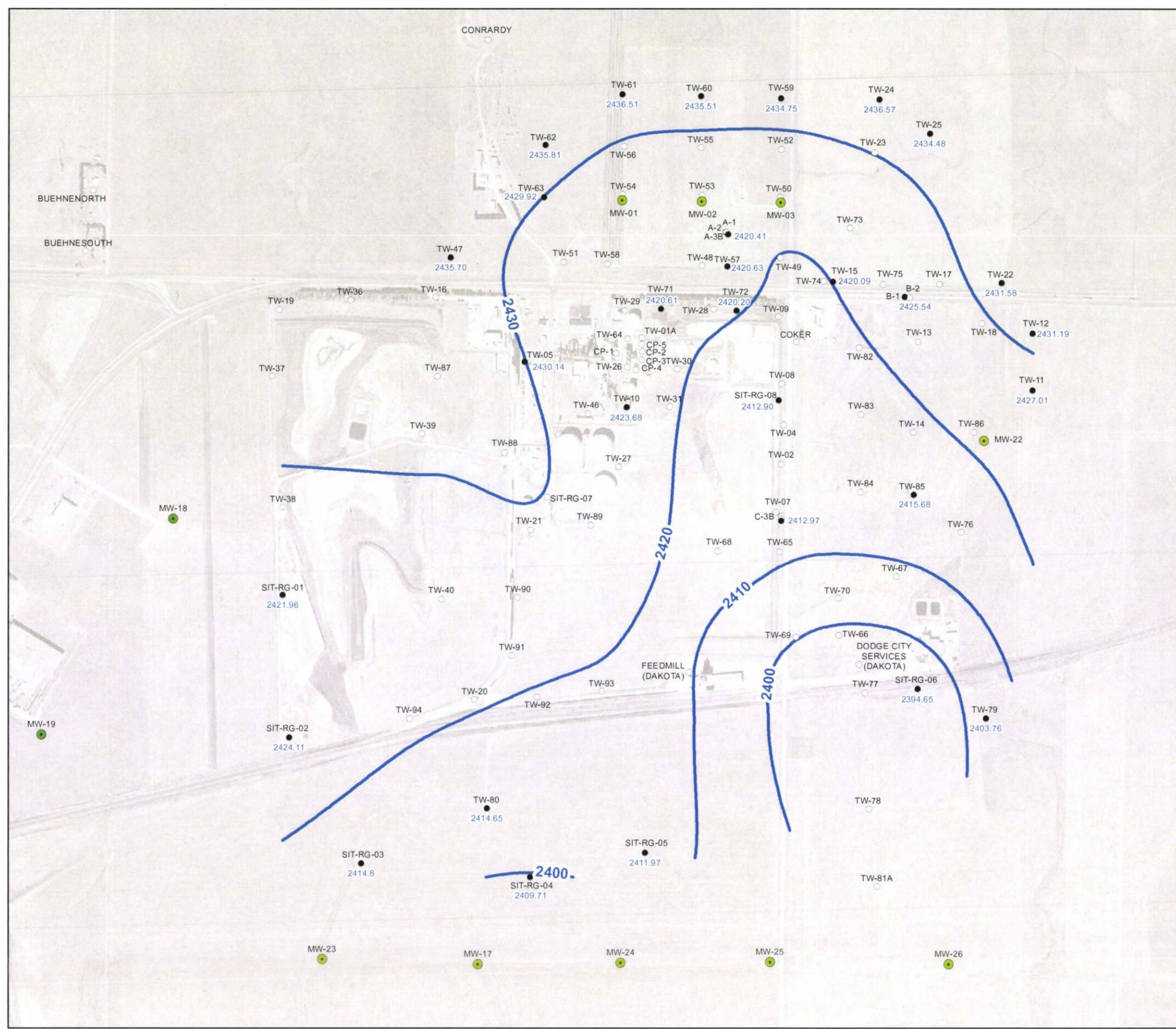
LEGEND

- MONITORING WELL GAUGED 3/14/2011
- OTHER WELL WITHIN STUDY AREA NOT GAUGED 3/14/2011
- PROPOSED NEW MONITORING WELL LOCATION
- POTENTIOMETRIC SURFACE CONTOUR (FT AMSL) - 3/14/2011



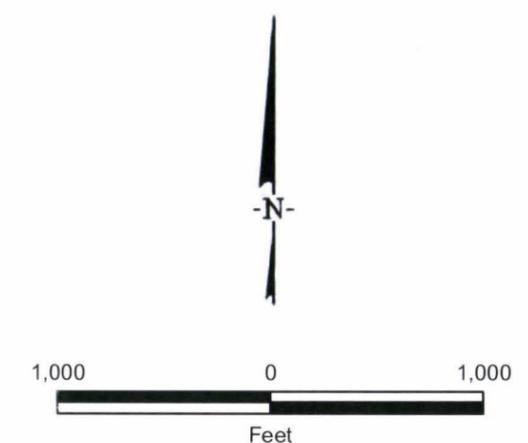
**POTENTIOMETRIC SURFACE
MARCH 14, 2011**

PREPARED BY:		 KOCH KOCH NITROGEN COMPANY 11559 US HIGHWAY 50 - P.O. BOX 1337 DODGE CITY, KS 67801	
PROJECT.	FIGURE NO.	1	
DATE.	MAR 2011	REVISION NO.	



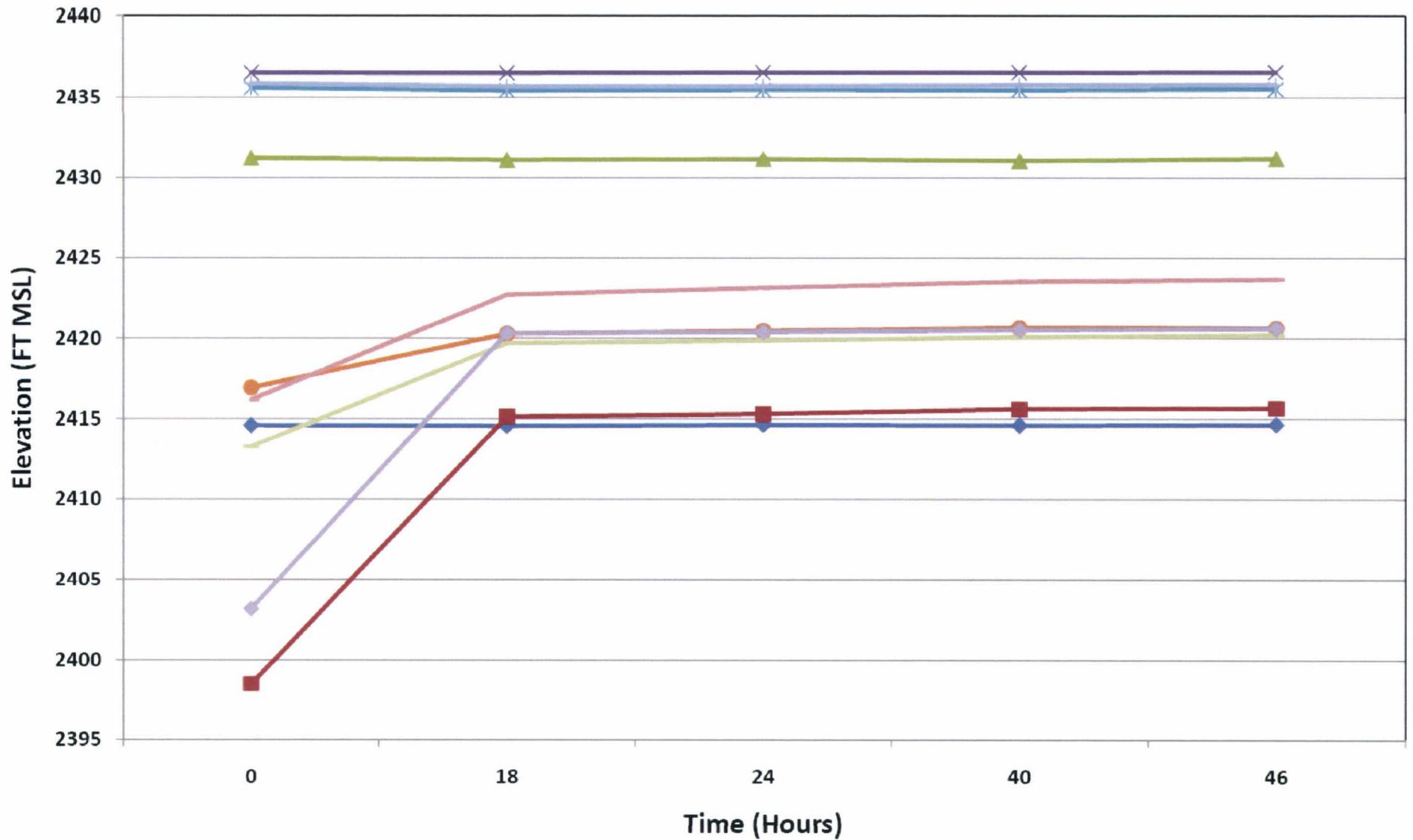
LEGEND

- MONITORING WELL GAUGED 3/16/2011
- OTHER WELL WITHIN STUDY AREA NOT GAUGED 3/16/2011
- PROPOSED NEW MONITORING WELL LOCATION
- POTENTIOMETRIC SURFACE CONTOUR (FT AMSL) - 3/16/2011



**POTENTIOMETRIC SURFACE
MARCH 16, 2011**

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PROJECT.	FIGURE NO.	2	
DATE.	REVISION NO.	MAR 2011	



LEGEND

- TW-80 TW-85 TW-12 TW-24
- TW-60 TW-57 TW-62 TW-10
- TW-72 TW-71

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PROJECT.	FIGURE NO. 3
DATE. MAR 2011	REVISION NO.