



KOCH NITROGEN COMPANY LLC

January 28, 2014

UPS Tracking #

1Z 693 661 03 9154 3082

Chief - RCRA Corrective Action & Permits Branch  
Air, RCRA and Toxic Division  
U.S. Environmental Protection Agency - Region VII  
11201 Renner Blvd  
Lenexa, Kansas 66219

**RE: Koch Nitrogen Company, LLC – Dodge City, Kansas  
EPA ID No. KSD044625010  
Quarterly Progress Report for Fourth Quarter 2013**

Ladies/Gentlemen:

In accordance with Section C.13 of the above referenced Permit, Koch Nitrogen Company, LLC (KNC) hereby submits the enclosed Quarterly Progress Report for the Fourth Quarter of 2013.

If you have any questions about the attachments, please contact Cory Zellers at (620) 371-7914.

Sincerely,

  
Michael J. Sherbak II  
Plant Manager

cc w/ encl:

UPS Tracking #:

1Z 693 661 03 9483 1872

Andrea Stone, U.S. Environmental Protection Agency (CD-electronic copy)  
Region VII, Lenexa, KS

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1Z 693 661 03 9480 9496

Chief, Hazardous Waste Permits Section, Bureau of Waste Management  
Kansas Department of Health and Environment, Topeka, KS

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P.O. Box 1337  
Dodge City, Kansas 67801-1337

RCRA



529379

**QUARTERLY PROGRESS REPORT  
4th QUARTER 2013**

**DODGE CITY NITROGEN PLANT  
KOCH NITROGEN COMPANY, LLC**

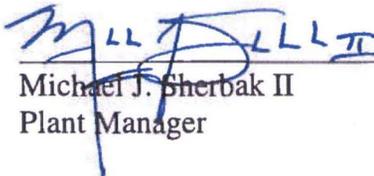
**EPA ID NO. KSD044625010**

**January 28, 2014**

## CERTIFICATION STATEMENT

In accordance with Sections B.2.b and 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 those 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.

By:

  
\_\_\_\_\_  
Michael J. Sherbak II  
Plant Manager

**A description of the work completed (Part II Permit Section C.13.a):** This Quarterly Report covers activities in the fourth quarter of 2013, during which KNC accomplished the following work:

- Although not a part of the Part II permit requirements, the fourth quarter groundwater sampling event was completed on October 22, 2013. As requested by EPA, KNC has supplemented our approved SAP methods to include differentiation between trivalent chromium (Cr+3) and the hexavalent form (Cr+6), and between nitrate (NO3) and nitrite (NO2).
- Following the August 30, 2010 inspection and repair of the liner of the Recovery RO Equalization Basin, KNC continued to monitor the leak detection system of the basin. Based on discussions with KDHE, KNC intends to submit a permit modification request. These modifications include replacing the Basin with an aboveground tank.
- On December 17, 2013 KNC met with KDHE and EPA to discuss several topics relating to the RFI and the Permit Renewal. At the request of KDHE, KNC presented a proposal for revisions of the groundwater monitoring system for consideration with the new permit. This revised system includes relocating some of the monitoring well locations from the approved Phase II RFI Work Plan Addendum: Groundwater Characterization, as well as new monitoring well installations. This revised system would allow for better evaluation of the effectiveness of the recovery system.

**Summaries of all findings, including summaries of laboratory data (Part II Permit Section C.13.b):** Fourth quarter findings include the following:

- Laboratory results from the fourth quarter 2013 groundwater sampling event were evaluated during the quarter. The results were consistent with those of the previous quarter. Only small changes in chromium and nitrate concentrations were observed. KNC has sampled the new perimeter wells during each quarter since the 3<sup>rd</sup> quarter 2011. Results from the new wells are displayed on the attached figure, "Groundwater Analytical Results for New Monitoring Wells." Section 3.6 of the approved Phase II RFI Work Plan Addendum: Groundwater Characterization states, "KNC will continue to sample the wells quarterly for one year." Sampling results have now been collected for one year. KNC is continuing to sample the new wells during the quarterly groundwater sampling events for now and as data become available, KNC will evaluate them and make recommendations to EPA and KDHE to finalize a sampling schedule for the wells.
- KNC will continue evaluating the analytical results of the Phase II Tier II sampling program completed in June 2013 and will summarize the findings in a future submittal.

**Summaries of all problems or potential problems encountered during the reporting period and actions taken to rectify problems (Part II Permit Section C.13.c):**

- During the 4<sup>th</sup> Quarter Groundwater Sampling event, 4 of the new perimeter wells (MW-22S, MW-24, MW-25, and MW-26) were observed to be dry. MW-24 and MW-26 have been dry since they were installed in 2011. MW-25 has been dry since the 3<sup>rd</sup> quarter 2012. MW-22S has been dry since the 3<sup>rd</sup> quarter 2013.
- By letter dated October 29, 2013, KNC notified EPA and KDHE of a release of recovered groundwater that occurred in the parking lot of the KNC facility on October 14, 2013. On October 14, 2013, KNC personnel performing the 4<sup>th</sup> quarter groundwater sampling event discovered that water was being released from the purge water tank in the back of a truck onto the paved parking area. KNC personnel immediately shut in the valve on the tank. Approximately 15 gallons of purge water from wells TW-05, TW-63, and C-3b were released.
- By letter dated December 20, 2013, KNC notified EPA and KDHE of a release of recovered groundwater that occurred at recovery well TW-70. On December 16, 2013, KNC personnel discovered saturated soil near recovery well TW-70. KNC immediately shut in the sample point at the well. Calculations based on the observed extent of wet soil indicate approximately 75 gallons of recovered groundwater were released to the soil.

**Projected work for the next quarter (Part II Permit Section C.13.d):** In the next quarter (First Quarter 2014); KNC expects to conduct the following work under Part II of the permit:

- Although not a part of the Part II permit requirements, KNC intends to complete the First Quarter 2014 Groundwater Sampling.
- KNC continues to monitor the leak detection system of the Recovery RO Equalization Basin. During the first quarter, KNC intends to recommend system modifications to replace the basin with an above ground tank and expects to submit a permit modification request.
- KNC will continue evaluating the analytical results of the Phase II Tier II sampling program completed in June 2013.

**Any instances of noncompliance with Part II of this permit not otherwise required to be reported pursuant to Part II Permit Conditions B.18 (Part II Permit Section C.13.e):**

To the extent that the Part II Permit includes requirements to continue implementation of the existing groundwater monitoring, recovery, and treatment system, supplemental information regarding potential instances of noncompliance is described in the attached document.

**SUPPLEMENTAL INFORMATION  
SUBMITTED WITH THE  
FOURTH QUARTER REPORT 2013  
Koch Nitrogen Company, LLC  
Dodge City, Kansas  
EPA ID No. KSD044625010  
January 28, 2014**

Pursuant to Section I.E. 14 of the Hazardous Waste Management Facility Permit, Part I (Part I Permit), Koch Nitrogen Company, LLC (KNC) is required to "report all other instances of noncompliance not otherwise required to be reported above in Sections Permit Conditions I.E.10 through I.E.13, at the time monitoring reports are submitted."

The following items have previously been discussed with the Agencies, who have indicated that they do not consider these to be deviations. However, because there are inconsistencies between certain permit documents, or between the language in these documents and best practices (e. g., use of most recent and accurate analytical methods), KNC is listing these items to meet the intent of Section I.E. 14 of the Part I permit.

KDHE and KNC have previously discussed and revised a request for modifications to the Part I Permit to ensure consistency of wording and to clarify the acceptable use of alternate methods. KDHE and EPA have recently suggested in informal discussions that there may be more effective approaches to managing the permit; for example, EPA indicates that they prefer to consolidate the two parts of the Permit. KNC looks forward to further discussions of these approaches to management of the Permit at the anticipated meeting with the Agencies. Based on the Agencies' input, KNC will then prepare the appropriate documents and submit them for approval.

1. **Private Wells.** Attachment D of the Part I Permit and the September 7, 2001 RCRA Groundwater Sampling and Analysis Plan (SAP) (page 4) identify ten private wells that are to be sampled quarterly.
  - Plumbing at the Coker well was disconnected in 2005, and the well has not been sampled since that time. The Cokers have been connected to the City of Dodge City water system since the fall of 2004.
  - The Bogners have been connected to the City of Dodge City water system since the fall of 2005. KNC continues to sample their well, where the analyte of concern is nitrogen species above the MCL.
  - It has not been possible to sample the Chaffin well since 2007, as previously noticed to KDHE. The current owner still had electrical power to the site turned off during this quarterly sampling event. KNC will continue to monitor the Chaffin Well status, and, if conditions permit, the well will be sampled.
  - It has not been possible to sample the Dodge City Services well since 4<sup>th</sup> Quarter 2010. The current owner has closed the facility and KNC was unable to obtain access to the facility to collect a sample from this well. KNC will continue to

monitor the Dodge City Services status, and, if conditions permit, the well will be sampled.

2. **Nitrogen Laboratory Method.** Section I.E.9.a of the Part I Permit specifies that chemical analyses must be those specified in the U.S. Environmental Protection Agency (EPA) Publication SW-846. The SAP indicates that the method to be used for nitrate plus nitrite analysis will be EPA Method 353.2. Based on direction from the Agencies, KNC is using the latest approved method. In addition, at the direction of EPA, KNC began nitrate-nitrite speciation on these compounds. KNC anticipates that the small inconsistency among the permit conditions, the SAP requirement, and the Agencies' preference for most recent methods, and perhaps expanded methods, will be resolved by the selection of the agreed-upon permit management option.
3. **Nitrogen Species Measured.** Section I.E.9.a, and Attachment D of the Part I Permit state that the Permittee shall determine the concentrations of "nitrate" throughout the compliance period and any extension due to corrective action implementation according to the schedule set out in the SAP. There is no reference to testing for "nitrite" in the Part I Permit. However, Attachment C of the Part I Permit specifies that the Ground Water Protection Standard (GWPS) will be nitrate plus nitrite as N (See Part I Permit Attachment C). Table 2.3 of the SAP specifies that the groundwater sampling parameters should include nitrate plus nitrite. KNC has analyzed for nitrate plus nitrite as N since 2004. As noted above, KNC is currently speciating nitrate and nitrite at the direction of EPA in addition to the analysis previously agreed on.
4. **Field/Laboratory Forms.** Section IV.C.3.b of the Part I Permit provides that the Permittee will comply with the Ground Water Monitoring Plan set out in the Part B Permit Application. The Ground Water Monitoring Plan in the Part B Permit Application states that the data will be reported on Field Sampling and Laboratory Results Data Sheets (see Section E, p. E-2). KDHE has clarified that any format that includes all required data is acceptable. KNC anticipates that this issue will be resolved by the selection of the permit management option referenced above.
5. **Recovery Well Operation.** Wells TW-2, 4 and 8, and TW-79 have been identified in the Part I Permit as recovery wells (Part I Table 1 IV.C.1.a and Attachment D). KNC has noted previously, and KDHE and EPA have acknowledged, that TW-2 and TW-79 are not used for recovery, due to insufficient water level and the original well design, respectively. As previously noted, the regional drop in water level has caused the level in several of the monitoring/recovery wells to fall below the well pump, making it impossible to continue to utilize these wells for recovery and sampling. KNC has noted previously that the regional drop had impacted wells TW-4, TW-8, TW-36, and the "CP" wells. KNC will continue to document any wells that are affected by the regional water table changes.
6. **Alternate Field Meters.** The SAP in Section E, Appendix F of the Part B Permit Application provides that a multi-parameter water quality meter (MP20 Flow Cell) will be used during low-flow groundwater purging (See page 15 of SAP). The Agencies have previously acknowledged that nonfunctional equipment should be replaced with newer

equipment that offers a higher degree of accuracy and reliability.

KDHE provided an O&M Inspection Report to KNC, dated September 3, 2009, which contained some items described as deficiencies and identified by KDHE relating to the groundwater monitoring system. It is not clear whether those items are required to be disclosed in this report, but in the interest of completeness, KNC includes below the one remaining item on which work is continuing.

- #3. **Recommendation to propose static water level monitoring network separate from the existing recovery well network.** – KNC believes that the design and operation of the monitoring and recovery systems could be improved and upgraded, and proposed changes to the monitoring or recovery well network in the Permit renewal application submitted in October 2012 and the supplement to the application, dated February 28, 2013

| MW-01            |                     |                |                |                          |                |
|------------------|---------------------|----------------|----------------|--------------------------|----------------|
| Sampling Quarter | Hexavalent Chromium | Total Chromium | Nitrate (as N) | Nitrate + Nitrite (as N) | Nitrite (as N) |
| 3rd Qtr 2011     | ND(0.040)           | 0.009          | ND(0.1)        | 0.2                      | 0.2            |
| 4th Qtr 2011     | ND(0.010)           | ND(0.005)      | 1.0            | 1.0                      | ND(0.1)        |
| 1st Qtr 2012     | ND(0.010)           | ND(0.005)      | 0.5            | 1.0                      | 0.5            |
| 2nd Qtr 2012     | ND(0.010)           | 0.005          | 0.9            | 1.4                      | 0.5            |
| 3rd Qtr 2012     | ND(0.010)           | 0.008          | 0.3            | 0.6                      | 0.3            |
| 4th Qtr 2012     | ND(0.010)           | 0.045          | 0.5            | 0.5                      | ND(0.1)        |
| 1st Qtr 2013     | ND(0.010)           | 0.018          | ND(0.1)        | ND(0.1)                  | ND(0.1)        |
| 2nd Qtr 2013     | ND(0.010)           | 0.007          | 0.2            | 0.2                      | ND(0.1)        |
| 3rd Qtr 2013     | ND(0.010)           | 0.008          | 0.6            | 0.6                      | ND(0.1)        |
| 4th Qtr 2013     | ND(0.010)           | 0.010          | ND(0.1)        | ND(0.1)                  | ND(0.1)        |

| MW-02            |                     |                |                |                          |                |
|------------------|---------------------|----------------|----------------|--------------------------|----------------|
| Sampling Quarter | Hexavalent Chromium | Total Chromium | Nitrate (as N) | Nitrate + Nitrite (as N) | Nitrite (as N) |
| 3rd Qtr 2011     | ND(0.010)           | ND(0.005)      | 0.9            | 1.0                      | 0.1            |
| 4th Qtr 2011     | ND(0.010)           | 0.025          | 1.6            | 1.8                      | 0.2            |
| 1st Qtr 2012     | ND(0.010)           | 0.011          | 1.3            | 1.3                      | ND(0.1)        |
| 2nd Qtr 2012     | ND(0.010)           | 0.013          | 1.5            | 1.6                      | 0.1            |
| 3rd Qtr 2012     | ND(0.010)           | 0.006          | 1.3            | 1.4                      | 0.1            |
| 4th Qtr 2012     | ND(0.010)           | 0.008          | 1.5            | 1.5                      | ND(0.1)        |
| 1st Qtr 2013     | ND(0.010)           | 0.013          | 1.3            | 1.3                      | ND(0.1)        |
| 2nd Qtr 2013     | ND(0.010)           | 0.017          | 1.3            | 1.3                      | ND(0.1)        |
| 3rd Qtr 2013     | ND(0.010)           | 0.009          | 1.2            | 1.2                      | ND(0.1)        |
| 4th Qtr 2013     | ND(0.010)           | 0.007          | 1.3            | 1.3                      | ND(0.1)        |

| MW-03            |                     |                |                |                          |                |
|------------------|---------------------|----------------|----------------|--------------------------|----------------|
| Sampling Quarter | Hexavalent Chromium | Total Chromium | Nitrate (as N) | Nitrate + Nitrite (as N) | Nitrite (as N) |
| 3rd Qtr 2011     | ND(0.020)           | 0.045          | ND(0.1)        | 0.1                      | 0.1            |
| 4th Qtr 2011     | 0.025               | 0.007          | ND(0.1)        | 0.1                      | 0.1            |
| 1st Qtr 2012     | ND(0.010)           | ND(0.005)      | ND(0.1)        | 0.5                      | 0.5            |
| 2nd Qtr 2012     | ND(0.010)           | 0.005          | ND(0.1)        | 0.4                      | 0.4            |
| 3rd Qtr 2012     | 0.011               | 0.006          | 0.8            | 1.0                      | 0.2            |
| 4th Qtr 2012     | ND(0.010)           | 0.018          | 0.7            | 0.7                      | ND(0.1)        |
| 1st Qtr 2013     | ND(0.010)           | 0.006          | ND(0.1)        | ND(0.1)                  | ND(0.1)        |
| 2nd Qtr 2013     | ND(0.010)           | ND(0.005)      | ND(0.1)        | ND(0.1)                  | ND(0.1)        |
| 3rd Qtr 2013     | ND(0.010)           | ND(0.005)      | ND(0.1)        | ND(0.1)                  | ND(0.1)        |
| 4th Qtr 2013     | ND(0.010)           | ND(0.005)      | 0.1            | 0.1                      | ND(0.1)        |

| MW-18S           |                     |                |                |                          |                |
|------------------|---------------------|----------------|----------------|--------------------------|----------------|
| Sampling Quarter | Hexavalent Chromium | Total Chromium | Nitrate (as N) | Nitrate + Nitrite (as N) | Nitrite (as N) |
| 3rd Qtr 2011     | ND(0.010)           | 0.023          | 32             | 35.8                     | 3.8            |
| 4th Qtr 2011     | ND(0.010)           | 0.008          | 27             | 33.4                     | 6.4            |
| 1st Qtr 2012     | ND(0.010)           | 0.008          | 44             | 45                       | 1.0            |
| 2nd Qtr 2012     | ND(0.010)           | 0.036          | 46             | 47.6                     | 1.6            |
| 3rd Qtr 2012     | ND(0.010)           | ND(0.005)      | 51             | 52.1                     | 1.1            |
| 4th Qtr 2012     | ND(0.010)           | 0.024          | 53             | 55.5                     | 2.5            |
| 1st Qtr 2013     | ND(0.010)           | 0.005          | 52             | 52                       | ND(0.1)        |
| 2nd Qtr 2013     | ND(0.010)           | 0.005          | 58             | 58                       | ND(1)          |
| 3rd Qtr 2013     | ND(0.010)           | 0.005          | 51             | 51                       | ND(0.1)        |
| 4th Qtr 2013     | ND(0.010)           | 0.005          | 58             | 58                       | ND(1)          |

| MW-18D           |                     |                |                |                          |                |
|------------------|---------------------|----------------|----------------|--------------------------|----------------|
| Sampling Quarter | Hexavalent Chromium | Total Chromium | Nitrate (as N) | Nitrate + Nitrite (as N) | Nitrite (as N) |
| 3rd Qtr 2011     | ND(0.010)           | ND(0.005)      | 6.1            | 6.6                      | 0.5            |
| 4th Qtr 2011     | ND(0.010)           | ND(0.005)      | 3.1            | 4.1                      | 1.0            |
| 1st Qtr 2012     | ND(0.010)           | ND(0.005)      | 2.3            | 4.8                      | 2.5            |
| 2nd Qtr 2012     | ND(0.010)           | ND(0.005)      | 6.7            | 7.2                      | 0.5            |
| 3rd Qtr 2012     | ND(0.010)           | ND(0.005)      | 6.6            | 7.5                      | 0.9            |
| 4th Qtr 2012     | ND(0.010)           | ND(0.005)      | 6.8            | 6.8                      | 0.1            |
| 1st Qtr 2013     | ND(0.010)           | ND(0.005)      | 8.8            | 9.0                      | 0.2            |
| 2nd Qtr 2013     | ND(0.010)           | ND(0.005)      | 10.5           | 10.5                     | ND(0.1)        |
| 3rd Qtr 2013     | ND(0.010)           | ND(0.005)      | 10.3           | 10.4                     | 0.1            |
| 4th Qtr 2013     | ND(0.010)           | ND(0.005)      | 11.3           | 11.4                     | 0.1            |

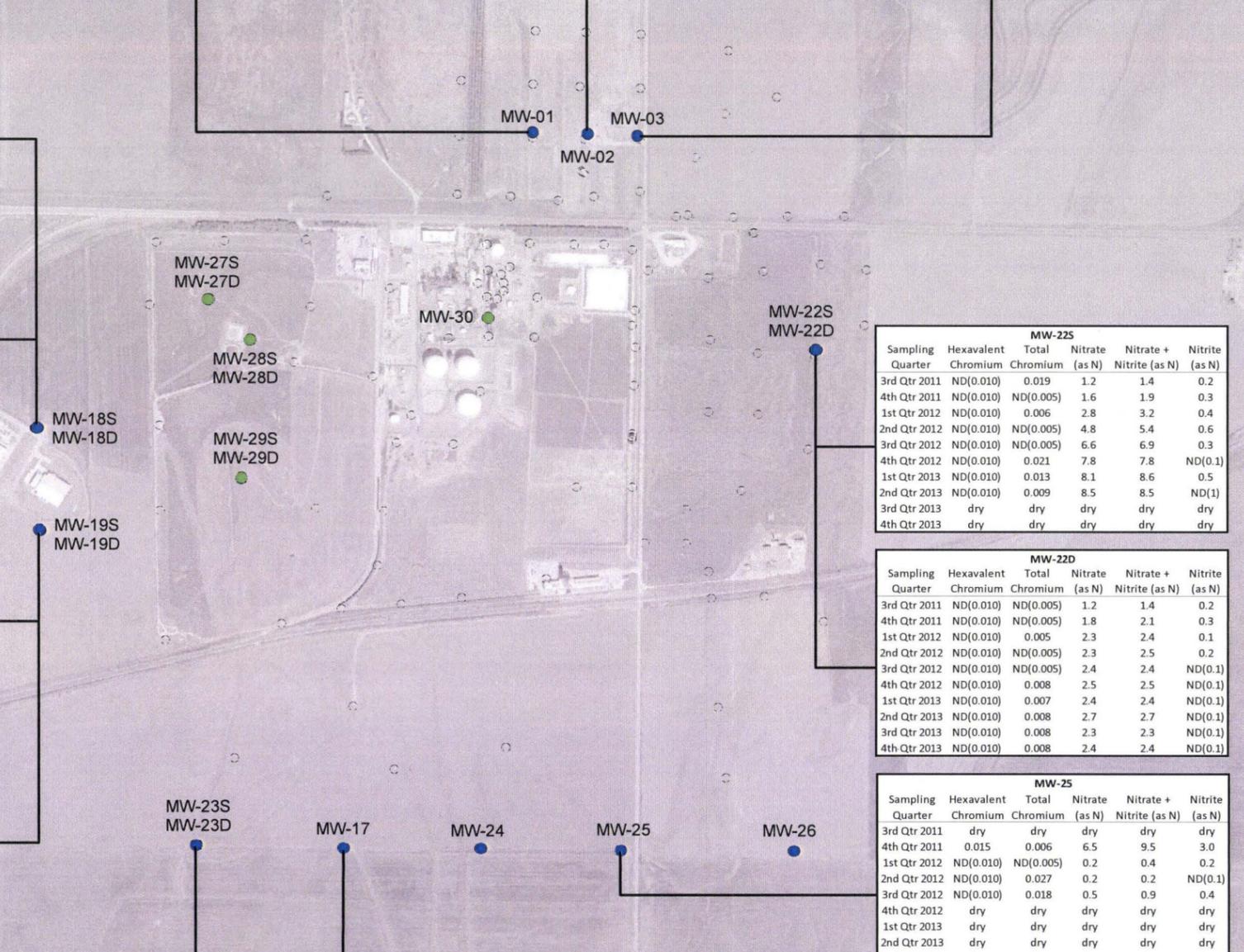
| MW-19S           |                     |                |                |                          |                |
|------------------|---------------------|----------------|----------------|--------------------------|----------------|
| Sampling Quarter | Hexavalent Chromium | Total Chromium | Nitrate (as N) | Nitrate + Nitrite (as N) | Nitrite (as N) |
| 3rd Qtr 2011     | ND(0.010)           | ND(0.005)      | 7.1            | 7.5                      | 0.4            |
| 4th Qtr 2011     | ND(0.010)           | 0.008          | 33             | 35.5                     | 2.5            |
| 1st Qtr 2012     | ND(0.010)           | ND(0.005)      | 69             | 71.3                     | 2.3            |
| 2nd Qtr 2012     | ND(0.010)           | 0.019          | 73             | 80.2                     | 7.2            |
| 3rd Qtr 2012     | ND(0.010)           | 0.013          | 91             | 92.5                     | 1.5            |
| 4th Qtr 2012     | ND(0.010)           | 0.032          | 98             | 99.7                     | 3.6            |
| 1st Qtr 2013     | ND(0.010)           | 0.005          | 97             | 97                       | ND(0.1)        |
| 2nd Qtr 2013     | ND(0.010)           | ND(0.005)      | 103            | 103                      | ND(1)          |
| 3rd Qtr 2013     | ND(0.010)           | ND(0.005)      | 107            | 107                      | ND(0.1)        |
| 4th Qtr 2013     | ND(0.010)           | 0.006          | 101            | 101                      | ND(1)          |

| MW-19D           |                     |                |                |                          |                |
|------------------|---------------------|----------------|----------------|--------------------------|----------------|
| Sampling Quarter | Hexavalent Chromium | Total Chromium | Nitrate (as N) | Nitrate + Nitrite (as N) | Nitrite (as N) |
| 3rd Qtr 2011     | ND(0.010)           | ND(0.005)      | 27             | 30.4                     | 3.4            |
| 4th Qtr 2011     | ND(0.010)           | ND(0.005)      | 38             | 42.2                     | 4.2            |
| 1st Qtr 2012     | ND(0.010)           | ND(0.005)      | 48             | 51.1                     | 3.1            |
| 2nd Qtr 2012     | ND(0.010)           | ND(0.005)      | 50             | 52.2                     | 2.2            |
| 3rd Qtr 2012     | ND(0.010)           | ND(0.005)      | 57             | 59.2                     | 2.2            |
| 4th Qtr 2012     | ND(0.010)           | ND(0.005)      | 67             | 68.8                     | 1.8            |
| 1st Qtr 2013     | ND(0.010)           | ND(0.005)      | 18             | 18.4                     | 0.4            |
| 2nd Qtr 2013     | ND(0.010)           | ND(0.005)      | 70             | 70.6                     | 0.6            |
| 3rd Qtr 2013     | ND(0.010)           | ND(0.005)      | 24             | 24                       | ND(0.1)        |
| 4th Qtr 2013     | ND(0.010)           | ND(0.005)      | 68             | 68.4                     | 0.4            |

| MW-23S           |                     |                |                |                          |                |
|------------------|---------------------|----------------|----------------|--------------------------|----------------|
| Sampling Quarter | Hexavalent Chromium | Total Chromium | Nitrate (as N) | Nitrate + Nitrite (as N) | Nitrite (as N) |
| 3rd Qtr 2011     | 0.012               | 0.016          | 1.3            | 1.6                      | 0.3            |
| 4th Qtr 2011     | ND(0.010)           | 0.021          | 1.1            | 1.1                      | ND(1)          |
| 1st Qtr 2012     | ND(0.010)           | ND(0.005)      | 0.7            | 0.8                      | 0.1            |
| 2nd Qtr 2012     | ND(0.010)           | ND(0.005)      | 0.7            | 0.8                      | 0.1            |
| 3rd Qtr 2012     | ND(0.010)           | ND(0.005)      | 0.8            | 1.0                      | 0.2            |
| 4th Qtr 2012     | ND(0.010)           | ND(0.005)      | 1.0            | 1.0                      | ND(0.1)        |
| 1st Qtr 2013     | ND(0.010)           | 0              | 0.3            | 0.3                      | ND(0.1)        |
| 2nd Qtr 2013     | ND(0.010)           | ND(0.005)      | ND(0.1)        | ND(0.1)                  | ND(0.1)        |
| 3rd Qtr 2013     | ND(0.010)           | ND(0.005)      | ND(0.1)        | ND(0.1)                  | ND(0.1)        |
| 4th Qtr 2013     | ND(0.010)           | ND(0.005)      | ND(0.1)        | ND(0.1)                  | ND(0.1)        |

| MW-23D           |                     |                |                |                          |                |
|------------------|---------------------|----------------|----------------|--------------------------|----------------|
| Sampling Quarter | Hexavalent Chromium | Total Chromium | Nitrate (as N) | Nitrate + Nitrite (as N) | Nitrite (as N) |
| 3rd Qtr 2011     | ND(0.010)           | 0.006          | ND(0.1)        | 0.2                      | 0.2            |
| 4th Qtr 2011     | ND(0.50)            | 0.012          | 0.1            | 0.1                      | ND(0.1)        |
| 1st Qtr 2012     | ND(0.010)           | ND(0.005)      | ND(0.1)        | ND(0.1)                  | ND(0.1)        |
| 2nd Qtr 2012     | ND(0.010)           | ND(0.005)      | 0.3            | 0.3                      | ND(0.1)        |
| 3rd Qtr 2012     | ND(0.010)           | ND(0.005)      | 0.4            | 0.5                      | 0.1            |
| 4th Qtr 2012     | ND(0.010)           | 0.01           | ND(0.1)        | ND(0.1)                  | ND(0.1)        |
| 1st Qtr 2013     | ND(0.010)           | ND(0.005)      | ND(0.1)        | ND(0.1)                  | ND(0.1)        |
| 2nd Qtr 2013     | ND(0.010)           | ND(0.005)      | ND(0.1)        | ND(0.1)                  | ND(0.1)        |
| 3rd Qtr 2013     | ND(0.010)           | ND(0.005)      | ND(0.1)        | ND(0.1)                  | ND(0.1)        |
| 4th Qtr 2013     | ND(0.010)           | ND(0.005)      | ND(0.1)        | ND(0.1)                  | ND(0.1)        |

| MW-17            |                     |                |                |                          |                |
|------------------|---------------------|----------------|----------------|--------------------------|----------------|
| Sampling Quarter | Hexavalent Chromium | Total Chromium | Nitrate (as N) | Nitrate + Nitrite (as N) | Nitrite (as N) |
| 3rd Qtr 2011     | ND(0.010)           | 0.007          | ND(0.1)        | 0.1                      | 0.1            |
| 4th Qtr 2011     | ND(0.010)           | ND(0.005)      | 0.9            | 1.1                      | 0.2            |
| 1st Qtr 2012     | ND(0.010)           | 0.007          | 0.9            | 1.0                      | 0.1            |
| 2nd Qtr 2012     | ND(0.010)           | ND(0.005)      | 1.0            | 1.5                      | 0.5            |
| 3rd Qtr 2012     | ND(0.010)           | ND(0.005)      | 0.6            | 1.1                      | 0.5            |
| 4th Qtr 2012     | ND(0.010)           | ND(0.005)      | 1.3            | 1.3                      | ND(0.1)        |
| 1st Qtr 2013     | ND(0.010)           | ND(0.005)      | 0.7            | 0.7                      | ND(0.1)        |
| 2nd Qtr 2013     | ND(0.010)           | ND(0.005)      | ND(0.1)        | ND(0.1)                  | ND(1)          |
| 3rd Qtr 2013     | ND(0.010)           | ND(0.005)      | ND(0.1)        | ND(0.1)                  | ND(1)          |
| 4th Qtr 2013     | ND(0.010)           | ND(0.005)      | ND(0.1)        | ND(0.1)                  | ND(1)          |



**LEGEND**

- NEW MONITORING WELL INSTALLED IN 2011
- NEW MONITORING WELL INSTALLED IN 2013
- OTHER WELL WITHIN STUDY AREA

**NOTES:**

1. ALL RESULTS ARE mg/L.
2. WELL MW-25 WAS DRY IN THIRD QUARTER 2011, AND SINCE FOURTH QUARTER 2012.
3. WELL MW-22S WAS DRY IN THIRD AND FOURTH QUARTERS 2013.
4. WELLS MW-24 AND MW-26 WERE DRY IN ALL TEN QUARTERS.
5. WELLS MW-27S, MW-27D, MW-28S, MW-28D, MW-29S, MW-29D, AND MW-30 WERE INSTALLED IN 2013 BUT HAVE NOT YET BEEN SAMPLED.
6. ND = NOT DETECTED AT RESPECTIVE DETECTION LIMIT.

**GROUNDWATER ANALYTICAL RESULTS FOR NEW MONITORING WELLS**

|                    |            |   |  |
|--------------------|------------|---|--|
| PREPARED BY:       |            | <b>KOCH</b><br>KOCH NITROGEN COMPANY, LLC |  |
| PROJECT:           | FIGURE NO. |   |  |
| DATE: JANUARY 2014 | FILE NO.   |   |  |