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KOCH NITROGEN COMPANY

August 1, 2006

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RE: Koch Nitrogen Company – Dodge City, Kansas
EPA ID No. KSD044625010
Quarterly Progress Report for Second Quarter 2006 (revised)

Ladies/Gentlemen:

In the copy submitted to you last week, part of a sentence at the bottom of the third page of the report did not appear. The attached version contains that sentence in its entirety.

If you have any questions about the attachments, please contact me at (620) 227-8631, ext. 350.

Sincerely,

Annie Laurie Burke

AnnieLaurie Burke
Environmental Compliance Leader

469371
RCRA RECORDS

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A description of the work completed (Part II Permit Section C.13.a): This Quarterly Report covers activities in the second quarter of 2006, during which KNC accomplished the following work:

The access agreement for the Crane property (east and southeast of the Plant) was finalized.

The Revised RFI WorkPlan and responses to the comments received from the Agencies (letter of March 24, 2006) were submitted via electronic and hard copy to KDHE and EPA on May 26.

In accordance with the RCRA SAP, KNC conducted additional sampling and analysis during the first quarter groundwater monitoring event in early April to supplement the data gathered during the investigation.

The bulk of the sonic rig sampling was completed during May, and the direct push program was started, with completion of the latter in June. As discussed in greater detail below, it has been necessary to modify the original SAP to accommodate field conditions and to ensure that adequate delineation could be accomplished.

It was recommended by KDHE that the project team issue a weekly status report during periods of field activity. This recommendation was implemented by KNC in early May.

KNC completed the geophysical survey of SWMU 5, SWMU 6, SWMU 7, SWMU 17, SWMU 21, and SWMU 22. The survey was conducted by Terracon of Wichita, KS. The findings are summarized in the following section.

The field team did additional soil sampling at SWMU 2 and completed the planned soil sampling at the remaining sites to the extent allowed by aboveground and subsurface obstructions. As noted below, modifications to sampling locations and methods were made to accomplish the delineation at these sites. This delineation will continue until completed, as noted below.

Agency representatives and KNC project team members met after the day's field operations on May 18 to review the progress of the project, to discuss upcoming work, and to optimize methodologies for the field investigation and operation of the recovery system.

During May and early June, the field sampling program was adjusted due to unseasonably wet weather so that sampling activities could continue. Some locations required the use of a crane mat or other special accommodations to support the rig, or a change in sampling method, as noted below.

The sonic drilling program included the installation of eight new groundwater monitoring wells. These include:

- SIT-RG01 (west of SWMU 1);
- SIT-RG02 (near SWMU 6/southwest of SWMU 1);
- SIT-RG03 (westernmost Maxwell well);
- SIT-RG04 (center Maxwell well):

- SIT -RG05 (easternmost Maxwell well).
- SIT -RG06 (Crane well, see below)
- SIT-RG07 at SWMU 4 (KNC completed this boring as a monitoring well. See SWMU 4 below)
- SIT-RG08 (adjacent to recovery/monitoring well TW-8 east of Lime Pond)

Due to the lithologic limitations, KNC installed bladder (low-flow) pumps on these wells to maximize the quality of the groundwater samples. The presence of extremely fine silts in the subsurface soils made it necessary to use a Wattera unit to develop these wells in order to minimize turbidity. The development was completed and the wells were sampled.

Even with these modifications, it was not possible to eliminate the silts entirely. Knowing that the background levels of chromium in the soils are in the range of 20 mg/kg, after consultation with Continental Analytical Services, samples from these wells were analyzed for both total Cr and dissolved Cr.

Following discussions with the Agencies onsite in May, and at the suggestion of KDHE, KNC prepared and submitted for review a test program for optimization of the existing recovery well and treatment system. On July 14, KDHE issued a temporary authorization under the Part I Permit for this work. KNC will implement the program, which involves an evaluation of three configurations of the system, and system-wide pumping test, as soon as the third quarter sampling event is completed.

Although not a part or the corrective action program, KNC received approval from KDHE for the replacement of the current electrochemical treatment unit with a new reverse-osmosis (RO) system, which, along with optimization of the recovery system, will allow for better removal of chromium and nitrates from the groundwater.

On the Crane property southeast of the facility, the team drilled the planned boring with the sonic rig down into the Graneros, but no groundwater was encountered. Nonetheless, the dry hole was completed as a monitoring well in accordance with the guidelines discussed with EPA and KDHE on May 18 and 19. The team screened this well in the zone where groundwater has been found in the other wells. The project team believes that this completion is advisable since, even though the boring is currently dry, the lack of ground water may be due to the effects of the pumping system. It is possible that the water level may come back up during the optimization of the recovery system, when some of the recovery pumps are taken off-line.

Field work completed at specific AOCs and SWMUs this quarter included:

- AOC 1: Completed planned borings (A01-SB-01, 02, 03, 04, 05, 06, 07, 08, 09, 10 and 11). Borings 5, 6, 7, and 9 north of the UAN Cooling Tower; and boreholes 10 and 11 west of the Ammonia Cooling Tower were drilled to refusal (a minimum of 50 feet) with the DPT rig, 9 of original borings cannot be completed due to underground utilities.

A01-SB12 (west of the ammonia cooling tower) cannot be completed due to overhead obstructions; no alternative location is accessible with the sonic rig, but an alternative location is

possible with the direct-push rig, As noted below, this will is planned for the third quarter, depending on the availability of the DPT rig.

- AOC 5 (former UAN tank): Borings AO5-SB09, 10, and 11. Groundwater at AOC 5 was encountered at 116 feet bls. Direct push borings were directionally drilled, and locations adjusted to instability of dike wall.

- SWMU 4 - because of the limited extent of certain soil layers, the field team drilled past the Graneros, and encountered only one saturated zone, from 121 to 136 feet bls. After discussing these results with the Agencies on May 18, KNC completed this boring as a monitoring well into the unconsolidated deposits aquifer in association with the deeper well that KNC will drill into the Dakota formation.

- SWMU 7 Initial sampling did not locate the former general trash landfill. The project team did further research on old aerial photographs and additional interviews with senior operations personnel and were able to site four borings within the probable area of the landfill. Two of these yielded evidence of the presence of the landfill.

- SWMU 8 - nine of 13 borings were cleared for underground utilities and completed. S08-SB01, S08-SB02, SB08-12, and S08-SB13 were not completed during the second 2rd quarter activities and are now planned for third quarter completion. The remaining two borings originally planned cannot be safely cleared in the same area, even with relocation.

- SWMU 10 - KNC found only 3 inches to 1 ft of lime in the borings at the sample locations. Where the thickness was less than 3 inches, borings were relocated to obtain adequate sample volume. Due to minimal lime thickness, the field team had to eliminate one sample level from each boring. As planned, the team took samples of the native soil beneath the lime fill. Due to the shallow lime thickness, and the steep slopes of the pond which created an access hazard for the DPT rig, the field team sampled using a hand auger.

- SWMU 11 - six sample locations were completed throughout the lime pond. Three samples were collected per boring - a sample at various shallow depths, a sample in the middle of the lime, and a sample beneath the lime in the native soil. Crane mats were used to move the DPT rig onto the lime.

- SWMU 17 - DPT was unable to collect cores on SWMU 17 with dual tube coring due to the consistency of the subsurface material. The drilling and sampling were completed with the standard Macro Core.

- SWMU 19- the field team was able to delineate the boundaries of the buried lime trenches. The field team completed 10 borings. Due to the actual boundaries of the landfill, it was necessary to relocate all of the borings slightly. Also at SWMU 19, as was the case at SWMU 17, the consistency of the material did not allow dual tube coring and

sampling, and Macro Core sampling had to be used. The field team completed two borings in the open trench of SWMU 19.

Based on field conditions and further discussions with Andrea Stone and Randy Rohrman of EPA Region 7 and Everett Spellman of KDHE during the site visit of May 18 and 19, KNC developed the following guidelines for well installation, which it has begun implementing:

- Extend all sonic borings to the top of the Graneros to ensure that all saturated zones in the unconsolidated deposits are identified for sampling, whether or not the boring will be converted into a well. (The original FSP called for terminating some borings at groundwater or within 30 feet of groundwater);
- Where silts would preclude vertical sampling and where the saturated zone extends for 30 feet or more install multiple discrete wells (clusters), rather than multiple screened sections in a single well or multiple casings in one borehole. Generally, the cluster wells will be screened in the uppermost part of the saturated zone, and just above the Graneros (or in the last saturated zone above the Graneros).
- Where feasible, if the information will support proper design of new recovery wells, samples will be submitted for geotechnical analysis.
- Monitoring wells will be constructed as follows:
    - 20/40 sand filter pack
    - 0.010" slot screen spacing
    - Minimal screen interval (5-10 feet where possible)
    - Grout with side-discharge tremie pipe to minimize direct grout impact and prevent erosion of the seal.

Summaries of all findings, including summaries of laboratory data (Part II Permit Section C.13.b): The drilling operations have provided more detailed information on the lithology of the site. There are numerous interbedded sand and clay layers, with limited saturated, possibly perched, water zones. The silts present in some of the offsite areas are extremely fine, and appear to form an almost colloidal suspension in the groundwater. The silt remains suspended for several days to three weeks in groundwater samples allowed to sit undisturbed. In several cases, the solids in the ground water have reacted with the required preservative in the sample containers.

There is little sand in the subsurface. Most of the saturated zones consist of silts with some clay. The borings completed to date have shown tight zones (interbedded silts, clays and caliche) and a saturated zone with an extent of only 10 to 20 feet. No saturated zone has been found on top of the Graneros. In places, the Graneros does not appear as a consolidated layer, but rather is weathered, reworked or decomposed.

This lithology may explain the problems observed at certain recovery wells at the site, as well as data that might be interpreted to indicate a vertical concentration gradient. KNC has noted that three recovery wells on the pipeline that runs north-south along the east boundary of the site have gone successively dry, progressing north. The water table in TW-2 had dropped in 2004 to a level where it could not be sampled or operated. TW-4 experienced the same problem in April of 2006. TW-8 recently required repair/replacement of the pump for the third time in 18 months

due to dropping water levels. Samples that are taken from different perched water levels might also give the appearance of a vertical concentration gradient.

The layering of silts and sands, along with the small volumes in some of the perched zones, has precluded taking the samples at first groundwater and at subsequent 15-foot intervals that WP Table I-2-2 had originally indicated. Several elements of the investigation were based on an average depth to water of 80 feet and an assumption that there is an essentially continuous saturated zone from first groundwater to the Graneros. This does not reflect the actual lithology. These observations likely reflect the rapid drop in the regional level of the Ogallala aquifer.

During onsite discussions between Agency personnel and the KNC field team, it was agreed that the nature of the formation precluded obtaining representative and valid vertical profiling samples. It has not been possible to obtain clear vertical profile samples due to the extremely fine silts present in the subsurface. However, this will be attempted again during the Dakota drilling (see below).

Terracon Consulting Engineers and Scientists of Wichita, KS completed a geophysical survey using electromagnetic (EM) and ground penetrating radar (GPR) methods at several SWMUs, locating areas with a GPS capable of +/- 3 foot accuracy. The results are noted under the specific locations below. The findings of this survey will continue to guide the selection of locations for sampling

The attached figure shows results above background for chromium and nitrate/nitrite. The only results indicating the presence of volatiles were low concentrations in isolated samples at SWMUs 1, 2 and 12 identified as motor oils. Some low levels of metals other than Cr were found. The attached table presents all the soil metals analytical results received to date for the RFI SAP. None of these samples showed levels that would suggest the need for a TCLP or further testing.[

Results and findings associated with specific sites include:

- SWMUs 5, 6, 13, 19, 21 – The geophysical survey identified features that may be associated with the landfarm, washout area and trenches.
- SWMU 7 – The geophysical survey showed an anomaly that may be an abandoned recovery well between and slightly south of the active wells TW-21 and TW-89. This area will be excavated during further investigations. Near the SE corner of the tank area, the team encountered about 2 ft of cover soil and 3 ft of landfill materials (rusted metal and asphalt debris). A third boring straight east 30 ft found nothing. Moving to the final location 30 ft straight north, the team again encountered landfill materials consisting of 2 ft of cover soil; and about 6 inches of landfill material. Below this was what appeared to be a concrete vault (3 inches of concrete, 3 ft. of void space and another 3 inches of concrete), followed by one foot of landfill material, then the native soil.
- SWMU 19 –In the more northerly boring completed in the open trench, the field team found asphalt, resin, and catalyst, as documented in the previous owner's disposal records for the area. The depth of the lime and landfill material varied up to approximately 20 feet.

- SWMU 22 – The geophysical survey identified the suspected area of cuttings disposal for Disposal Well #3, a rectangular area located approximately where it had been tentatively identified on previous maps of the location.

As noted above, the sonic boring SIT-RG06 on the Crane property, dry at the time of drilling, was completed as a well. After sitting for approximately a week, the well exhibited a measurable water level. However, it was not possible to collect a clear sample from this well.

All four wells on private property south of the Plant showed no soluble Cr above the limit of detection. The plume boundary is thus assumed to lie to the north of these wells. Nitrate levels in these wells ranged from 4.3 to 114 mg/l, with no apparent distribution pattern.

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): No significant problems were encountered during this period, as noted in the weekly status updates. As discussed with the Agency representatives throughout the quarter and as described above, procedures described in the SAP have required revision due to field conditions and other factors in order to implement the RFI program, consistent with the project objectives: As noted in the attached "Supplemental Information", KNC intends to issue an addendum to the workplan to summarize the changes to the SAP.

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

KNC has contracted with Pratt Well Services for the completion of the Dakota boring at SWMU 4. Construction will accommodate the findings from the earlier phase of the investigation, and the well will have a terminal depth of 500 feet bls as originally planned. During the installation of the Dakota well, the field team will attempt to obtain water samples within the intervals that the abandonment report indicates as obstruction locations (possible loss of casing integrity). At a minimum, KNC will attempt to obtain ground water samples at the two depths where obstructions were observed during abandonment of Disposal Well #1.

After completion of the Dakota well, all sonic borings and new wells will be located by a licensed land surveyor.

The field team will continue delineation sampling. S08-SB01, S08-SB02 will be completed at SWMU 8 during the 3rd quarter.

The magnetic anomaly at SWMU 7 will be further investigated.

Although not a part of the corrective action investigation, based on the most recent comments from KDHE on the requested permit modifications, KNC will finalize the formal request. (See below and attached supplemental information.)

Once the formal approval of the temporary authorization is received, KNC will begin evaluating the three configurations described in the Optimization Plan.

Third quarter Groundwater Sampling will be completed in July.

Additional DPT and sonic borings may be completed, depending on the availability of the drilling rigs. If it is not possible to schedule the rigs in the third quarter, they will be scheduled as soon as practical.

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 are described in the attached document.

SUPPLEMENTAL INFORMATION
SUBMITTED WITH THE
SECOND QUARTER REPORT 2006
Koch Nitrogen Company
Dodge City, Kansas
EPA ID No. KSD044625010
July xx, 2006

Pursuant to Section I.E. 14 of the Hazardous Waste Management Facility Permit, Part I (Part I Permit), Koch Nitrogen Company (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 are reported as deviations noted during the second quarter 2006, as requested by Section I.E. 14 of the Part I permit. All of these issues have been noted in previous reports, and, at the meeting of September 16, 2004, EPA and KDHE accepted the changes alternatives being currently used. KNC submitted to KDHE a request for modifications to the Permit to clarify the acceptable use of these alternate methods. KNC appreciates the input and comments from KDHE concerning this submittal. Based on that input, KNC will finalize this request and submit it as soon as possible.

In this document, KNC also provides a description of planned changes in operating and maintenance procedures to resolve any such issues, and schedule resolution dates. Our review continues and KNC may add to the information in this document.

1. **Private Wells**. Attachment D of the Part I Permit and the September 7, 2001 RCRA Groundwater Sampling and Analysis Plan (SAP) (page 4) identifies ten private wells that are to be sampled quarterly. As noted in the second quarter report, the plumbing at the Coker well has been disconnected and has not been sampled during 2006. KNC will coordinate with the owner to discuss the plugging and abandonment of the Coker well, since the Cokers have been connected to the City of Dodge City water system since the fall of 2004.

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. Although this method is not incorporated into SW-846, it is KNC's understanding that this method was preferred by EPA and KDHE for measurement of these analytes. It is also KNC's understanding that the <u>current</u> preferred method is Standard Methods 4500-NO3 F (most recent edition). The conflict among the permit condition, the SAP requirement, and the preference for most recent methods is being resolved by the referenced permit modification.

3. **Nitrogen Species Measured**. Section I.E.9.a and Attachment D of the Part I Permit states 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.

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). In some cases alternate forms containing the same information were used. The requested permit modifications allow for format flexibility.

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). As agreed during the September 16, 2004 meeting with KDHE and EPA, TW-2 and TW-79 are not used for recovery. Well TW-2 has insufficient water to pump and therefore cannot be operated as a recovery well. Well TW-79 was listed as a recovery well in error. It is located on private property and has never been part of the recovery system. Wells TW-4 and TW-8, which had fed the same north-south pipeline along which TW-2 is located, also currently have insufficient water levels for recovery. The inability to operate TW-2, -4, and -8 appears due to dropping water levels in the general area of the Plant. The conflict between the permit conditions and the use of these wells will be resolved by the above-referenced permit modification.

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). Since that meter is no longer functional, KNC has substituted newer equipment that offer a higher degree of accuracy and reliability.

7. **Changes to Approved SAP**. KNC will prepare and addendum to the SAP to summarize the changes to the original procedures and sampling programs. Based on discussions with the Agencies, KNC understands that they do not consider the programs contractual, but that KNC will be expected to its best collective professional judgment on methods that will ensure that it meets the project's objectives:
   - Determination of nature and extent of the contamination;
   - Collection of contaminant migration data; and
   - Characterization of contaminant fate and transport.