

STATE OF
COLORADO

Fw: FW: Lazy D 3-15HZ Drill Cuttings Remediation

jevans@nobleenergyinc.com <jevans@nobleenergyinc.com>

Thu, Aug 28, 2014 at 8:22 AM

To: rick.allison@state.co.us

Hey Rick,

See the info below about the cuttings on the Lazy D 3-15HZ location. The cuttings were left on location post transaction.

Thanks

Jacob



----- Forwarded by Jacob Evans/Denver/NobleEnergy/Samedan on 08/28/2014 08:19 AM -----

From: Steve Kahn <skahn@ltenv.com>
To: "jevans@nobleenergyinc.com" <jevans@nobleenergyinc.com>
Date: 08/27/2014 01:19 PM
Subject: EXTERNAL: FW: Lazy D 3-15HZ Drill Cuttings Remediation

Steve Kahn, P.E.
Principal
(303) 962-5506 direct

From: Brett Forkner [mailto:bforkner@ltenv.com]
Sent: Monday, April 23, 2012 4:13 PM
To: RBruner@nobleenergyinc.com
Cc: Steve Kahn
Subject: Lazy D 3-15HZ Drill Cuttings Remediation

Ryan,

As discussed, this email provides data regarding the remediation activities at the Lazy D 3-15HZ. This site is located in the NWNW qtr/qtr of section 3, Township 11 North, Range 66 West. The scope of work consisted of background soil sampling, drill cuttings sampling, cuttings treatment/remediation, confirmation sampling, laboratory analysis, documentation of field activities, and presentation of analytical results. Drill cuttings are contained in an earthen berm on top of the production well pad and is approximately 230 ft X 56 ft X 3 ft yielding approximately 1,431 cubic yards.

On **November 17, 2010**, an LTE representative, under the direction of Noble Energy, Inc. (Noble), collected background samples to determine baseline arsenic levels at the Lazy D 3-15HZ. Samples were collected from native soils located 5-10 feet from the construction perimeter fence on all four cardinal directive sides of the pad. Samples were sent to Origins Laboratory in Denver, Colorado and analyzed for arsenic. Laboratory analytical results indicate all soil samples exceed the COGCC soil standard for arsenic of 0.39 milligrams per kilogram (mg/kg), but are within the range of naturally occurring arsenic levels in the region. Laboratory analytical results are presented in Table 1 (attached), and the laboratory analytical report is included (attached). Background arsenic concentrations ranged from 3.38 milligrams per kilogram (mg/kg) to 6.92 mg/kg.

On **February 2, 2011** an LT representative collected an additional background sample of native soils. One sample was collected from a three point composite from 5 to ten feet on the outside of the construction boundary fence on the north, east, and south sides of the pad. Samples were sent to Accutest Laboratories in Wheat Ridge, Colorado and analyzed for arsenic. Laboratory analytical results did not exceed laboratory detection limits. Laboratory analytical results are presented in Table 1 (attached), and the laboratory analytical report is included (attached).

On **August 30, 2011** an LTE representative conducted sampling activities of the stockpiled drill cutting and analyzed the samples at Summit Scientific Laboratories in Golden, Colorado, for analysis of Total Extractable Petroleum Hydrocarbons (TEPH), Volatile Organic Compounds (VOC), Chromium +3, Total Metals (arsenic, barium, cadmium, chromium, copper, Lead, nickel, selenium, silver, zinc, mercury, calcium, magnesium, and sodium), Hexavalent Chromium, Specific Conductance (EC), pH, and Sodium Absorption Ratio (SAR). Three composite samples were collected (A, B, C). The drill cutting samples were collected using decontaminated hand tools. Samples consisted of five point composites ranging from 0 to 12 inches below the top of the cuttings stockpile. Laboratory analytical results indicate area B and C soil samples exceed the COGCC soil standard for TPH. Laboratory analytical results indicate all soil samples exceed the COGCC soil standard arsenic of 0.39 mg/kg, but are within the range of naturally occurring arsenic levels in the region. All other analytes are in compliance with Table 910-1 concentration levels in all drill cutting samples. Laboratory analytical results are presented in Table 1 (attached), and the laboratory analytical report is included (attached).

On **October 11, 2011**, LTE representatives applied a petroleum degrading amendment to the drill cuttings to reduce the TPH concentration to achieve compliance with COGCC standards. 110 gallons of Micro-Blaze was mixed with 3,000 gallons of fresh water in a vacuum truck provide by Northern Plains Trucking. The Micro-Blaze slurry was applied to the drill cuttings and mixed using a backhoe. The drill cuttings pit was left unattended to let the Micro-Blaze amendment reduce TPH concentrations via biodegradation.

On **March 26, 2012**, three performance monitoring drill cutting samples were collected at the Lazy D 3-15HZ and submitted for laboratory analysis. Laboratory analytical results indicate all soil samples exceed the COGCC soil standard for arsenic of 0.39 milligrams per kilogram (mg/kg), but are within the range of naturally occurring arsenic levels in the region. All other analytes are in compliance with Table 910-1 concentration levels in all drill cutting samples. Laboratory analytical results are presented in Table 1 (attached), and the laboratory analytical report is included (attached).

In conclusion, the Micro-Blaze application was successful in remediating the impact in the drill cuttings and to becoming compliant with COGCC Standards under rule 907.d.3. LTE and Noble were able to treat the 1,431 cubic yards of drill cuttings for a cost of \$7,698.78, yielding a treatment cost of \$5.38 per yard.

Best Regards,

Brett M. Forkner, CISEC
Staff Environmental Scientist

LT Environmental, Inc.
4600 West 60th Avenue
Arvada, Colorado 80003

(303) 433-9788 office
(303) 962-5538 direct
(303) 253-0169 cell
(303) 433-1432 fax

www.ltenv.com

bforkner@ltenv.com



Compliance • Engineering • Remediation

This message is privileged, confidential and intended solely for the use of the addressee. Any review, retransmission, dissemination or other use of or taking of any action in reliance upon this information by persons or entities other than the intended recipient is prohibited. The comments and opinions expressed

herein are those of the author of this message. If you are not the intended recipient you have received this in error. Please contact the sender by reply email and destroy all copies of the original message from your computer, and any network to which your computer is connected. Thank you.

The information contained in this e-mail and any attachments may be confidential. If you are not the intended recipient, please understand that dissemination, copying, or using such information is prohibited. If you have received this e-mail in error, please immediately advise the sender by reply e-mail and delete this e-mail and its attachments from your system.

5 attachments

Table 1.pdf
220K



x011114 - lazy D03-15Hz.pdf
237K



D20984.PDF
341K



r108196 - nep - lazy d3-15hz.pdf
739K



r203185 - nep - lazy d3-15hz final revised.pdf
272K