GW - ___028____

THREE MILE DITCH

SUSANA MARTINEZ
Governor

JOHN A. SANCHEZ
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NEW MEXICO ENVIRONMENT DEPARTMENT

Hazardous Waste Bureau

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DAVE MARTIN
Secretary

BUTCH TONGATE
Deputy Secretary

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

November 8, 2011

Mr. Darrell Moore
Navajo Refining Company
P.O. Box 159
Artesia, New Mexico 88211-0159

RE: APPROVAL FOR EXTENSION REQUEST
INTERIM MEASURES WORK PLAN FOR THREE-MILE DITCH
NAVAJO REFINING COMPANY, ARTESIA REFINERY
EPA ID NO. NMD048918817
HWB-NRC-08-004

Dear Mr. Moore:

The New Mexico Environment Department (NMED) has received Navajo Refining Company, Artesia Refinery's (the Permittee) *Request for Extension for Interim Measures Work Plan for Three-Mile Ditch* extension request dated November 4, 2011. The stated reason for the request is that the Interim Measures Work Plan, submittal deadline of November 30, 2011, and the requested risk assessment, submittal deadline of March 31, 2012, from the Approval with Modifications letter for the report titled *Revised Three-Mile Ditch Additional Corrective Action Investigation Report, Revision 3* (June 13, 2011) dated July 14, 2011, cannot be completed until the updated risk assessment guidance has been released and reviewed by the Permittee. The Permittee is correct in stating that NMED's risk assessment guidance is in the process of being updated. The updates will not significantly affect the general approach outlined in the current guidance. NMED hereby approves the submittal extension for the Interim Measures Work Plan to be submitted by **April 30, 2012** and the risk assessment to be submitted by **August 31, 2012**.

If you have any questions regarding this letter, please contact Leona Tsinnajinnie of my staff at (505) 476-6057.

Sincerely,

for

John E. Kieling
Acting Chief
Hazardous Waste Bureau

cc: D. Cobrain, NMED HWB
L. Tsinnajinnie, NMED HWB
C. Chavez, OCD
J. Lackey, NRC
P. Krueger, Arcadis
K. Schnebele, Arcardis

File: Reading File and NRC 2011, HWB-NRC-08-004

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SUSANA MARTINEZ
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RAJ SOLOMON, P.E.
Deputy Secretary

JAMES H. DAVIS, Ph D
Division Director

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

July 14, 2011

Darrell Moore
Navajo Refining Company
P.O. Box 159
Artesia, New Mexico 88211-0159

RE: APPROVAL WITH MODIFICATIONS
REVISED THREE-MILE DITCH ADDITIONAL CORRECTIVE ACTION INVESTIGATION REPORT, REVISION 3 - JUNE 13, 2011
NAVAJO REFINING COMPANY, ARTESIA REFINERY
EPA ID #: NMD048918817
HWB-NRC-08-004

Dear Mr. Moore:

The New Mexico Environment Department (NMED) has received Navajo Refining Company's (Permittee) submittal of the third revision *Revised Three-Mile Ditch Additional Corrective Action Investigation Report* (Report), dated June 13, 2011. NMED hereby issues this Approval with Modifications. The Permittee must address the following modifications.

1. General Comment:

NMED Comment: Errors and oversights occurred during this investigation that resulted in data gaps. NMED does not require the Permittee to repeat work unless an alternative was not available. In future investigations the Permittee must implement the field activities proposed in approved work plans and employ the methods and procedures outlined in Appendix C of the Permit. Deviations from approved work plans or the methods and procedures required by the Permit must be justified in the associated submittals. No response is necessary.

2. Work Performed, page vii:

Permittee's Statement: [t]he total volume of impacted soil shipped off-site for disposal was 9,588 cubic yards."

NMED Comment: In Section 3.2.1 (Excavations), the Permittee described each area excavated along Three Mile Ditch (TMD) and included the approximate volume of soil removed from each location (i.e., TMD-1 = ~110 cubic yards (cy), TMD-7 = 55 cy, TMD-10 = 15 cy, TMD-13 to TMD-20 initial excavation = 4,500 cy, TMD-13 to TMD-14 additional excavation = 2,960, TMD-11 to TMD-12 additional excavation = 5,360, West of TMD-11 = 600 cy). The reported total volume of soil removed is approximately 13,600 cy. In a response letter, provide an explanation for the approximate 4,000 cy difference in the reported volume of soil excavated (13,600 cy) and the volume shipped offsite for disposal (9,588 cy). Describe the ultimate disposition of the remaining 4,000 cy of excavated soil.

3. Section 3.4 (Quality Control Samples), page 20:

Permittee's Statement: "[f]ield duplicates, field blanks, equipment rinsate blanks and trip blanks were obtained at the following rates for groundwater samples submitted to the laboratory for analysis:"

NMED Comment: Quality control samples were collected for groundwater samples but not for soil samples. In the response letter explain why quality control samples were not collected in conjunction with soil sampling. In the future, quality control samples must be collected in accordance with Appendix D.3 of the Post Closure Care Permit or as otherwise proposed in an approved work plan.

4. Section 4.1 (Surface Conditions), page 23:

Permittee's Statement: "[t]he pipeline Navajo installed to convey waste water to the injection wells when the ponds were taken out of service parallels the historic location of TMD."

NMED Comment: In the response letter indicate if the pipeline used to convey wastewater to the injection wells is remains in place or has been removed.

5. Section 4.2.2.3 (Decontamination Procedures), page 26:

Permittee's Statement: "[e]quipment was washed in soap and water then rinsed with distilled water."

NMED Comment: In addition to the statement above, other sections of the Report reference the use of soap for decontaminating equipment. Future documents must indicate what type of soap was used (e.g., alconox, non phosphate soap). No response is necessary.

6. Section 4.6 (Surface Water Conditions), page 29:

Permittee's Statement: "[i]n the 1990, RFI Phase I Study, Table 1, Reference 2, results of the analysis of sediment samples obtained from five locations in Eagle Creek reveal no evidence of contamination. No volatiles were detected in any samples. Two semi volatiles, bis (2-ethylhexyl) phthalate and di-n-butylphthalate, were detected at 0.81 milligrams per kilogram (mg/kg) and 1.7 mg/kg respectively in one sample. The report concluded they were most likely laboratory contaminants. Metal concentrations were typically within background range although one sample had a lead concentration of 69 mg/kg."

NMED Comment: The last sentence states that" metals concentrations were typically within background range". In the response letter, identify the source for the reference to a background range for metals concentrations in soils.

7. Section 4.6 (Surface Water Conditions), page 29:

Permittee's Statement: "East of Haldeman Road where TMD turns away from Eagle Creek, a dry ravine parallels TMD to the south for a short distance, to a point about a half-mile west of the EPs. Based on aerial photos this ravine runs east to the Pecos River. Although not directly observed, it is reasonable to assume that over this length, some runoff from the TMD area may flow to the ravine."

NMED Comment: It may be necessary to implement storm water control measures to prevent residual contamination in the TMD from migrating to the ravine. In the response letter, either provide documentation that residual contamination at TMD cannot become suspended in storm water and migrate to the ravine or propose to submit a work plan proposing measures to control TMD storm water run-on/runoff at locations where the potential for migration of contamination to the ravine exists. The work plan, if submitted, must describe the proposed control measures in detail and how such measures will be installed and also include a schedule for implementation.

8. Section 5.2 (New Mexico Soil Screening Levels), page 32:

Permittee's Statement: "[t]he NMED SSL table lists specific values for chromium VI and chromium III; however, the analysis performed is for total chromium. Chromium VI reduces in the environment over time to chromium III, particularly in neutral to basic environments such as the soils in the Artesia area. For the purposes of data screening in this report, the total chromium is assumed to be all in the form of chromium III."

NMED Comment: If samples are analyzed for total chromium, the more conservative chromium VI standard must be used for comparison. In the future , if the chromium III screening level is applied, a justification that includes site-specific data supporting the use of this value must be included in the associated report. Absent such site-specific data, future documents must apply the chromium VI value. For tracking purposes, revise all tables that cite the chromium III standard to include the chromium VI screening level and submit replacement tables with the response letter.

9. Section 5.2 (New Mexico Soil Screening Levels), page 32 and Response to Comments, Comment 41:

Permittee's Statement: "NMED has published specific guidance regarding the selection of appropriate screening values for TPH (*New Mexico Environment Department TPH Screening Guidelines, October 2006*). The Corrective Action Investigation Report incorporated the screening value for TPH for "unknown oil" for an Industrial Direct Exposure route, as published in the 2003 version of the TPH guidance document, which was 2,000 mg/kg. When NMED updated the TPH guidance document, the screening level for unknown oil was reduced to 200 mg/kg for both Residential and Industrial Direct Exposure routes. However, Table 1 of the TPH guidance document, which provides the underlying assumptions for composition of TPH in the soil used to develop the screening values, indicates that unknown oil is assumed to contain 100% C11 to C22 range aromatic hydrocarbons. Analytical results presented in the Corrective Action Investigation Report and later in this Additional Corrective Action Investigation Report indicate that the majority of the TPH present in soils is in the diesel range and **does not meet the assumed composition for unknown oil**. Furthermore, the source of hydrocarbons in the sediment and soil underlying TMD is not "unknown". The discharge that was conveyed through TMD included wastewater that contained varying amounts of gasoline, diesel fuel, jet fuel and crude oils that may not have been adequately separated prior to discharge. The assumed distribution for kerosene and jet fuel shown in Table 1 of the TPH guidance document, with 30% C11 to C22 range aromatic hydrocarbons and 70% C9 to C18 range aliphatic hydrocarbons, is more representative of the material present in TMD. Therefore, the corresponding screening values for Residential Direct Exposure (760 mg/kg) and Industrial Direct Exposure, (1,810 mg/kg) are used in the data screening described later in this report and are included in the data summary tables."

NMED Comment: The description provided above and the discussion in the Permittee's response to Comment 41 indicates the majority of the TPH present in soils is diesel range but does not meet the assumed composition for unknown oil. It is agreed that the TPH present is soil is diesel range which does meet the assumed composition for unknown oil. The discharge conveyed through TMD contained a mixture of various hydrocarbons including those identified above; therefore, the Permittee cannot specifically identify which hydrocarbons are present at

each sampling location (e.g., kerosene and jet fuel or diesel #2/new crankcase oil) without a fuel fingerprint. The unknown oil value of 200 mg/kg is appropriate absent fuel fingerprint data. For tracking purposes, revise all tables to cite the screening level of 200 mg/kg for unknown oil for residential and industrial direct exposure scenarios and submit replacement tables with the response letter.

10. Section 6.5.4 (Stockpile Soil Samples), page 45:

Permittee's Statement: "[t]he purpose of the stockpile soil samples was to characterize the soil for disposal. Because one sample collected from the initial stockpile from TMD-1 contained TCLP lead above the TCLP limit, a statistical evaluation of TCLP lead results was performed. Since all of the material in TMD came from a single source (historic discharge from the refinery), a statistical evaluation of the stockpile sample results is allowable under the EPA guidance for waste characterization (*RCRA Waste Sampling Draft Technical Guidance*, EPA530-D-02-002, August 2002). The upper confidence limit of the analytical results from all of the stockpiled soil samples analyzed for TCLP lead was calculated to be 1.86 mg/L, which is below the TCLP limit for hazardous waste. Therefore, it was determined that the waste was not characteristically hazardous due to the lead content."

NMED Comment: In the response letter, provide the statistical method (*e.g.*, t-test) and all calculations used to conduct the statistical evaluation of soil stockpile TCLP lead results. Also include the data set used for the statistical evaluation. In addition, cite the relevant section(s) and page numbers from the referenced guidance.

11. Section 7.2 (Conclusions; TMD-11 to TMD-20), pages 54:

Permittee's Statement: "[n]o further action for soils is warranted. However, continued monitoring of groundwater is recommended for a period of three years."

NMED Comment: Address groundwater monitoring for TMD in an Interim Measures Work Plan (IM Plan). The IM Plan must specifically identify which existing wells will be utilized for monitoring groundwater in the vicinity of TMD, propose both the frequency of sampling, and field water quality and laboratory analytical methods.

In addition, confirmation sample locations W-1, W-2, W-3, and W-5 contain lead concentrations of 925 mg/kg, 669 mg/kg, 18,900 mg/kg, and 546 mg/kg, respectively. These lead concentrations most likely exceed risk-based cleanup levels. NMED understands that it may be impracticable to conduct additional soil removal in these areas due to their locations relative to the water table, utility poles, and nearby roadways. In order to evaluate and monitor lead concentrations in groundwater at sample location W-3, a monitoring well must be installed in the vicinity of this location. The Interim Measures Work Plan must also propose the installation of a

monitoring well at the W-3 location. The Permittee may propose additional soil removal rather than the installation of a monitoring well at this location; however, if the additional excavation does not result in complete removal of soils containing residual lead concentrations greater than the applicable cleanup levels, then a well must be installed regardless.

12. Risk Assessment:

NMED Comment: Residual contamination at concentrations greater than applicable cleanup levels is present along the TMD. Conduct a risk assessment to determine whether further remediation is necessary at selected locations along the TMD. Prior to conducting the risk assessment, the Permittee must contact NMED for updated guidance on NMED's risk assessment procedures.

13. TMD-1 and TMD-7:

NMED Comment: Confirmation samples collected from TMD-1 and TMD-7 were analyzed for TCLP lead. TCLP results cannot be used in a risk assessment. Therefore, additional confirmation samples must be collected from TMD-1 and TMD-7 and analyzed for total metals. The soil samples must be collected from native soil at the limits of the excavation at depths corresponding to the previous sample depths. The collection of additional soil samples and the sample collection methods and procedures must be described in the IM Work Plan required by Comment 11 above.

14. Table 6 (Depth to Groundwater Measurements):

NMED Comment: Revise Table 6 to include MW-89 and include the well diameter, total well depth, and top of casing elevation measurements and submit a replacement table.

15. Appendix E (Field Methodology), Soil Sampling Methodology:

NMED Comment: This section of the appendix does not describe split spoon sampling. Although this was addressed earlier in the Report, this sampling methodology should have also been described in this Appendix. No revision is necessary; a description of all sampling methods used must be included in the corresponding appendix in all future documents.

The Permittee must submit a response letter addressing all comments requiring a response and the required replacement pages to NMED on or before **September 30, 2011**. The Interim Measures Work Plan must be submitted on or before **November 30, 2011**. The Risk Assessment must be submitted on or before **March 31, 2012**.

Please contact Dave Cobrain of my staff at (505) 476-6055 if you have questions regarding this letter.

Sincerely,

John E. Kieling
Acting Chief
Hazardous Waste Bureau

cc: D. Cobrain, NMED HWB
L. Tsinnajinnie, NMED HWB
C. Chavez, OCD
J. Lackey, NRC
P. Krueger, ARCADIS
L. King, EPA-6PD-N

File: NRC 08-004, Reading and NRC 2011

SUSANA MARTINEZ
Governor

JOHN A. SANCHEZ
Lieutenant Governor

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DAVE MARTIN
Cabinet Secretary

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

January 19, 2011

Darrell Moore
Navajo Refining Company
P. O. Box 159
Artesia, New Mexico 88211-0159

RE: APPROVAL OF THE EXTENSION REQUEST
NOTICE OF DISAPPROVAL REVISED THREE MILE DITCH
ADDITIONAL CORRECTIVE ACTION INVESTIGATION REPORT
(REVSISION 2 JANUARY 30, 2009)
NAVAJO REFINING COMPANY, ARTESIA REFINERY
EPA ID # NMD048918817
HWB-NRC-08-004

Dear Mr. Moore:

The New Mexico Environment Department (NMED) has received Navajo Refining Company's (Permittee) letter titled *Request for Extension to Respond to Notice of Disapproval Regarding the Revised Three-Mile Ditch Additional Corrective Action Investigation Report (Revision 2 January 30, 2009)* dated January 12, 2011. The Permittee requests an extension for this submittal from January 21, 2011 to May 21, 2011 due to the extensive revisions and number of comments in the NOD. NMED hereby approves the extension. The response to the NOD must be submitted to NMED no later than May 21, 2011.

Please contact Hope Monzeglio of my staff at 505-476-6045 if you have questions regarding this letter.

Sincerely,

John E. Kieling
Program Manager
Permits Management Program
Hazardous Waste Bureau

cc: D. Cobrain, NMED HWB
H. Monzeglio NMED HWB
C. Chavez, OCD
J. Lackey, Navajo
P. Krueger, ARCADIS
File: Reading and NRC 2011
HWB-NRC-08-004