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**GENERAL
CORRESPONDENCE
YEAR(S):**

_____ 2011 - 2012 _____



New Mexico Energy, Minerals and Natural Resources Department

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Division Director
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June 30, 2011

Mike Diamond
Benson-Montin-Greer Drilling Corp.
4900 College Blvd.
Farmington, New Mexico 87402

RE: Compliance with the Transitional Provisions of the Surface Waste Management Facilities rule (Rule 36) and Treatment and Vadose Monitoring Requirements at Existing Landfarms Benson-Montin-Greer Drilling Corp.
BMG Evap. Pond/Landfarm: Permit NM-2-004
Location: Unit D of Section 20, Township 25 North, Range 1 East, NMPM
Rio Arriba County, New Mexico

Dear Owner/Operator:

The Oil Conservation Division (OCD) has received several landfarm monitoring reports which indicate Owner/Operators are not conducting the required sampling and assessment of the monitoring data required by existing permit conditions and the applicable requirements of the Surface Waste Management Facilities rule 19.15.36 NMAC (Rule 36). OCD wishes to remind such Owner/Operators that the requirements of Rule 36 have been in effect since February 14, 2007 and compliance is required. This letter is provided to help Owner/Operators understand the most common deficiencies regarding compliance in general operations, sampling of landfarms at existing surface waste management facilities, and the reporting of such results.

I. Transitional Provisions, Existing Surface Waste Management Facilities:

The transitional provision of Rule 36.20.A states that existing surface waste management facilities *shall comply with the operational, waste acceptance, and closure requirements* provided in the new rule, unless specifically addressed in the current permit, order, waiver, exception, or agreement granted in writing from OCD. Where the language in the existing permit is silent (i.e., where a specified requirement of Rule 36 is not addressed within the existing permit or in writing from OCD), the operational, waste acceptance, and closure provisions of Rule 36 apply and



supplement the conditions of the existing permit. Examples of how this transitional provision would be applied to Owner/Operators of existing landfarms are as follows:

A. Treatment Zone Monitoring (contaminated soils being remediated):

Most Owner/Operators of existing landfarms have common language or conditions specified within their permits. For this example, two of the following common permit conditions demonstrate how an Owner/Operator would request the necessary modification of their existing permit.

In an existing landfarm permit:

1. Soils will be spread on the surface in six-inch lifts or less.
2. Successive lifts of contaminated soils may not be spread until a laboratory measurement of:
 - a. total petroleum hydrocarbons (TPH) in the previous lift is less than 100 parts per million (ppm);
 - b. the sum of all aromatic hydrocarbons (BTEX) is less than 50 ppm; and
 - c. benzene is less than 10 ppm.
 - d. Comprehensive records of the laboratory analyses and the sampling locations must be maintained at the facility. Authorization from the OCD must be obtained prior to application of successive lifts and/or removal of the remediated soils.

In addition to the above permit conditions, an Owner/Operator also has to implement the following additional requirements of Rule 36:

- Chloride testing and limits (See 19.15.36.15.D NMAC)

If ground water is between 50' and 100' below the bottom of the oil field waste:	If ground water is more than 100' below the bottom of the oil field waste:
Chloride concentration cannot exceed 500 mg/kg	Chloride concentration cannot exceed 1000 mg/kg

- The following test methods would have to be utilized: TPH concentration of each lift determined by EPA SW-846 method 8015M or EPA method 418.1 or other EPA method approved by the division, and chloride concentration, determined by EPA method 300.1. (See 19.15.36.15.D NMAC)
- The sampling protocol and frequency: *“The operator shall collect and analyze at least one composite soil sample, consisting of four discrete samples, from the treatment zone at least semi-annually using the methods specified below for TPH and chlorides.”* (See 19.15.36.15.D NMAC)
- The maximum thickness of remediated soils for closure: *“The maximum thickness of treated soils in a landfarm cell shall not exceed two feet or approximately 3000 cubic yards per acre. When that thickness is reached, the operator shall not place additional oil field waste in the*

landfarm cell until it has demonstrated by monitoring the treatment zone at least semi-annually that the contaminated soil has been treated to the standards specified in Subsection F of 19.15.36.15 NMAC or the contaminated soils have been removed to a division-approved surface waste management facility.” (See 19.15.36.15.D NMAC)

Therefore, in order to remain in compliance with existing permit conditions and Rule 36 the Owner/Operator shall ensure that:

1. Soils will be spread on the surface in **six-inch** lifts or less, and the addition of any remediated soils is not allowed until:
 - a. TPH concentration of each lift, as determined by EPA SW-846 method 8015M or EPA method 418.1 or other EPA method approved by the division, does not exceed **100 mg/kg (ppm)**,
 - b. the sum of all aromatic hydrocarbons (BTEX) is less than **50 ppm**,
 - c. benzene is less than **10 ppm**, and
 - d. the chloride concentration, as determined by EPA method 300.1, does not exceed **500 mg/kg or 1000 mg/kg**. (See depth to ground water restrictions above.)
2. The Owner/Operator shall collect and analyze at least **one** composite soil sample, consisting of **four** discrete samples, from the treatment zone at least **semi-annually** using the methods specified above for TPH and chlorides.
3. The maximum thickness of treated soils in a landfarm cell shall not exceed **two feet** or approximately **3000 cubic yards per acre**. When that thickness is reached, the Owner/Operator shall not place additional oil field waste in the landfarm cell until it has demonstrated by monitoring the treatment zone at least semi-annually that the contaminated soil has been treated to the standards specified in Rule 36.15.F or the contaminated soils have been removed to a division-approved surface waste management facility. Owner/Operators **must** obtain authorization from the OCD prior to application of successive lifts and/or removal of the remediated soils.

The requirements of Rule 36 that would require an Owner/Operator to submit a modification request regarding treatment zone monitoring to an existing landfarm are as follows:

- “The operator shall spread contaminated soils on the surface in **eight-inch or less lifts or approximately 1000 cubic yards per acre per eight-inch lift**.” (See 19.15.36.15.D NMAC)
- “**TPH concentration of each lift, as determined by EPA SW-846 method 8015M or EPA method 418.1 or other EPA method approved by the division, does not exceed 2500 mg/kg**.” (See 19.15.36.15.D NMAC)

B. Vadose Zone Monitoring (native soils beneath the contaminated soils being remediated):

In regards to vadose zone monitoring (commonly referred to by the misnomer of “Treatment Zone Monitoring” within existing landfarm permits), most Owner/Operators of existing surface waste management facilities that operate landfarms have common language or conditions specified within their permits. For this example two of the most common permit conditions regarding the

vadose zone will be used to demonstrate how an Owner/Operator would comply with the transitional provision of Rule 36.20.A, and what requirements of the rule would require an Owner/Operator to submit a request to modify an existing permit.

Two of the most common conditions in an existing landfarm permit are as follows:

1. A treatment zone not to exceed **three (3) feet** beneath the landfarm native ground surface must be monitored. A minimum of one random soil sample must be taken from each individual cell, with no cell being larger than five (5) acres, **six (6) months** after the first contaminated soils are received in the cell and then **quarterly** thereafter. The sample must be taken at two (2) to three (3) feet below the native ground surface.
2. The soil samples must be analyzed using EPA-approved methods for total petroleum hydrocarbons (TPH) and volatile aromatic organics (BTEX) **quarterly** and for major cations/anions and Water Quality Control Commission (WQCC) metals **annually**.

Based upon the transitional provision of Rule 36.20.A, an Owner/Operator would have to implement and integrate the following **additional requirements** while complying with the conditions specified above.

- The testing for chlorides and the comparison of the results to background: *“The operator shall collect and analyze a minimum... using the methods specified below for TPH, BTEX and chlorides and shall compare each result to the higher of the POL or the background soil concentrations to determine whether a release has occurred.”* (See 19.15.36.15.E(2) NMAC).
 - i. *Note:* The “methods specified below for TPH, BTEX and chlorides” are those identified in Subsection F of 19.15.36.15 NMAC: “Total BTEX, as determined by EPA SW-846 method 8021B or 8260B...” (See 19.15.36.15.F(2) NMAC); “TPH, as determined by EPA method 418.1 or other EPA method approved by the division...” (See 19.15.36.15.F(3) NMAC); and “Chlorides, as determined by EPA method 300.1...” (See 19.15.36.15.F(3) NMAC).
- The five year monitoring program: *“The operator shall collect and analyze a minimum of four randomly selected, independent samples from the vadose zone, using the methods specified below for the constituents listed in Subsections A and B of 20.6.2.3103 NMAC at least every five years and shall compare each result to the higher of the POL or the background soil concentrations to determine whether a release has occurred.”* (See 19.15.36.15.E(3) NMAC).
 - ii. *Note:* The “methods specified below for the constituents listed in Subsections A and B of 20.6.2.3103 NMAC” are those identified in Subsection F of 19.15.36.15 NMAC: “The concentration of constituents listed in Subsections A and B of 20.6.2.3103

NMAC shall be determined by *EPA SW-846 methods 6010B or 6020* or other methods approved by the division.” (See 19.15.36.15.F(5) NMAC)

- The release response: *“If vadose zone sampling results show that the concentrations of TPH, BTEX or chlorides exceed the higher of the PQL or the background soil concentrations, then the operator shall notify the division’s environmental bureau of the exceedance, and shall **immediately collect and analyze** a minimum of **four** randomly selected, independent samples for TPH, BTEX, chlorides and the constituents listed in Subsections A and B of 20.6.2.3103 NMAC. The operator shall submit the results of the re-sampling event and a response action plan for the division’s approval within 45 days of the initial notification. The response action plan shall address changes in the landfarm’s operation to prevent further contamination and, if necessary, a plan for remediating existing contamination.”* (See 19.15.36.15.E(5) NMAC)

The requirements of Rule 36 that would require an Owner/Operator to submit a modification request regarding vadose zone monitoring to an existing landfarm are as follows:

- *“The operator shall take the vadose zone samples from soils between three and four feet below the cell’s original ground surface.”* (See 19.15.36.15.E(1) NMAC)
- *“The operator shall collect and analyze a minimum of four randomly selected, independent samples from the vadose zone at least **semi-annually**...”* (See 19.15.36.15.E(2) NMAC)

C. Transitional Provisions, New Landfarm Cells Constructed at an Existing Surface Waste Management Facility:

The transitional provision, Rule 36.20.B, states “Major modification of an existing surface waste management facility and new landfarm cells constructed at an existing surface waste management facility shall comply with the requirements provided in 19.15.36 NMAC.” In this case, an Owner/Operator is required to consider the siting criteria and operational requirements regarding landfarms specified in Rule 36.13; the specific requirements applicable to landfarms specified in Rule 36.15; and the closure and post closure requirements regarding landfarms of Rule 36.18. The existing permit conditions would not be applicable to new landfarm cells at the existing facility, but would continue to apply to landfarm cells that were constructed prior to the February 14, 2007 effective date of Rule 36.

II. Compliance with Additional Operational Requirements:

Other regulatory requirements that Owner/Operators of existing surface waste management facilities that operate landfarms should be aware of and consider when operating its facility are as follows:

A. Reuse of remediated soils:

Most existing surface waste management facility permits regarding landfarming do not specify the constituents and concentrations that must be achieved for reuse of treated or remediated soils. Rule 36 has a provision that specifically addresses the conditions of approval for reuse of treated

soils. Rule 36.15.G(1), disposition of treated soils, states *"If the operator achieves the closure performance standards specified in Subsection F of 19.15.36 NMAC, then the operator may either leave the treated soils in place, or, with prior division approval, dispose or reuse of the treated soils in an alternative manner."*

In accordance with the treatment zone closure performance standards of Rule 36.15.F, *"the operator shall continue treatment until the contaminated soil has been remediated to the higher of the background concentrations or the following closure performance standards. The operator shall demonstrate compliance with the closure performance standards by collecting and analyzing a minimum of one composite soil sample, consisting of four discrete samples.*

(1) Benzene, as determined by EPA SW-846 method 8021B or 8260B, shall not exceed **0.2 mg/kg**.

(2) Total BTEX, as determined by EPA SW-846 method 8021B or 8260B, shall not exceed **50 mg/kg**.

(3) The gasoline range organics (GRO) and diesel range organics (DRO) combined fractions, as determined by EPA SW-846 method 8015M, shall not exceed **500 mg/kg**. TPH, as determined by EPA method 418.1 or other EPA method approved by the division, shall not exceed **2500 mg/kg**.

(4) Chlorides, as determined by EPA method 300.1, shall not exceed **500 mg/kg** if the landfarm is located where ground water is less than **100 feet** but at least **50 feet** below the lowest elevation at which the operator will place oil field waste or **1000 mg/kg** if the landfarm is located where ground water is **100 feet** or more below the lowest elevation at which the operator will place oil field waste.

(5) The concentration of constituents listed in Subsections A and B of 20.6.2.3103 NMAC shall be determined by EPA SW-846 methods 6010B or 6020 or other methods approved by the division. If the concentration of those constituents exceed the PQL or background concentration, the operator shall **either** perform a site specific risk assessment using EPA approved methods and shall propose closure standards based upon individual site conditions that protect fresh water, public health, safety and the environment, which shall be subject to division approval **or** remove pursuant to Paragraph (2) of Subsection G of 19.15.36.15 NMAC."

B. Waste Acceptance:

Based upon conversations with several landfarm Owner/Operators, it has come to OCD's attention that the proper waste acceptance protocol is not being implemented at all applicable facilities. In accordance with Rule 36.15.A, *"Only soils and drill cuttings predominantly contaminated by petroleum hydrocarbons shall be placed in a landfarm. The division may approve placement of tank bottoms in a landfarm if the operator demonstrates that the tank bottoms do not contain economically recoverable petroleum hydrocarbons. Soils and drill cuttings placed in a landfarm shall be sufficiently free of liquid content to pass the paint filter test, and shall not have a chloride concentration exceeding **500 mg/kg** if the landfarm is located where ground water is less than **100 feet** but at least **50 feet** below the lowest elevation at which the operator will place oil field waste or exceeding **1000 mg/kg** if the landfarm is located where ground water is **100 feet** or more below the lowest elevation at which the operator will place oil field waste. The person tendering oil field waste for treatment at a landfarm shall **certify**, on form C-138, that representative samples of the*

oil field waste have been subjected to the paint filter test and tested for chloride content, and that the samples have been found to conform to these requirements. The landfarm's operator shall not accept oil field waste for landfarm treatment unless accompanied by this certification.

All landfarm Owner/Operators should be implementing the above referenced requirements in order to ensure compliance to the transitional and waste acceptance provisions of Rule 36. Please note that pursuant to Rule 36.7.A(3), a landfarm "means a discrete area of land designated and used for the remediation of petroleum hydrocarbon-contaminated soils and drill cuttings." Landfarm Owner/Operators should ensure that the waste material accepted for remediation at their facilities contains petroleum hydrocarbons. Acceptance of any other waste material could be considered disposal.

Please note that if you are currently implementing the protocols identified above, OCD appreciates your efforts to continually remain in compliance with the regulations. As for Owner/Operators that are not currently in compliance, the goal of OCD is to get you back on track and in compliance. OCD anticipates observing the changes identified above in the submittal of the results of the next sampling event. If there are any questions regarding this matter, please do not hesitate to contact Mr. Brad A. Jones of my staff at (505) 476-3487 or brad.a.jones@state.nm.us.

Sincerely,



Jami Bailey
Division Director
Oil Conservation Division

JB/baj

cc: OCD District III Office, Aztec
Animas Environmental Services, Inc., Farmington, NM 87401