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Requirements for Pilot Project Testing of Chemical Soil Remediation Technologies

Introduction

The Oil Conservation Division (OCD) is committed to ensuring the effective remediation of contaminated environmental sites. In response to recent requests to utilize new products for chemical remediation, the OCD has developed this guidance document to outline the parameters for conducting a pilot test at selected sites.

Purpose

The primary purpose of these test projects is to rigorously evaluate the efficacy and safety of the proposed products in real-world conditions. By implementing a controlled pilot test, we aim to gather empirical data on the proposed product's performance, environmental impact, and overall suitability for widespread use. This initiative aligns with our commitment to advancing innovative solutions while maintaining stringent environmental protection standards. The outcomes of these pilot tests will inform our decision-making process regarding the potential approval and integration of remediation technologies into our regulatory framework. A **limited** number of test sites will be considered in an effort to assess the proposed technology.

Location Requirements

- Depth to groundwater shall be greater than 50 feet. Depth to groundwater shall be determined using OCD approved methods.
- Sites that include site receptors identified in 19.15.29.12.C.4 NMAC shall not be considered (karst, flood plain, significant watercourse/playa, etc.).
- Site soil types will need to be identified by a qualified geologist. Sites composed of sand shall not be considered.
- The deepest contamination should be no less than 20 feet above the determined depth to groundwater.
- Surface owner must approve the use of the ex-situ treatment prior to implementation.
- Pilot studies will not be considered for the upper four feet of areas not reasonably needed for production or subsequent drilling activities as the upper four feet of the area must be non-waste containing and meet the requirements of 19.15.29.13 NMAC as early as practical.
- Remediated soils used in the upper four feet of areas reasonably needed for production are required to be conducive to vegetation regrowth pursuant to 19.15.29.13 NMAC.

Release Requirements

- Hydrocarbons must be below Table 1 closure criteria standards for individual sites.
- Chlorides must be on average no more than 200% of the Closure Standard.
- Site must be fully delineated and excavated. Confirmation samples must meet Table I requirements for 19.15.29.12 NMAC for all contaminants of concern.
- Chemical treatments will be limited to ex-situ treatments at this time.

Proposal Requirements

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- Application methods and rates including volume of water and chemical to be used during each treatment
- **Analytical data for the source water to ensure contaminated water is not being introduced into the environment.**
- **A site schematic needs to be provided showing the location of the treatment cells, treatment equipment, etc.**
- Number of proposed treatments
- Safety Data Sheets (SDS) sheets
- Include any case studies that have been completed with the product, including any sampling data
- Drone Aerial view of release footprint prior to excavation
- Drone Aerial view of excavation prior to backfill
- Manufacturer's Instructions for Use/Product Data Sheets
- Proposed excavation, sampling methods, remediation and sampling schedule timeline
- Table showing analytical data pre-treatment
- Contingency Plan, including an OCD approved alternative remediation plan

OCD Requirements

- Any deviations from proposed sampling schedule will require prior OCD approval and should be reported to the OCD via OCD.Enviro@emnrd.nm.gov
- Excavated soils must be kept within a lined bermed area that has sufficient volume to hold the water necessary to perform the ex-situ treatment plus any precipitation that is equal to a 25-year, 24-hour storm event.
- The treatment of the soil must take place on the active production pad
- Excavated soils to be treated ex-situ cannot include clean material by over excavating or by any other means. If OCD determines clean soil is being blended with impacted soil, the test will be terminated, and the alternative remedial plan will be implemented within 30 days.
- The maximum amount of time to allow for reducing chlorides in treated material below Table I standards is 30 days unless an alternative timeframe has been approved by OCD.
- Treatment cells need to be sloped to ensure easy collection of treatment fluid. Treatment fluid and any rainfall collected within the containment must be disposed of at an OCD approved facility.
- The chemical application rate should be such that when the treatment is added to the soil in the cell, there are no free fluids.
- In addition to any manufacturer requirements, OCD will require that the soil type and saturation percentage of the soil be determined. Addition of the chemical treatment shall not exceed the soil type's saturation percentage as that will push the pilot study out of evaluating the effectiveness of chemical treatment into remediation via soil washing/soil flushing.

Sampling Requirements

- Table showing analytical data pre and post-treatment. Table will also have to calculate percent change to show that remediation is progressing.

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- Water used during treatments must have a sample tested for all major cations/anions, pH, TDS submitted to a certified laboratory. Additional testing will be required if an alternative water source is utilized.
- Soil beneath the floor of the excavation must be sampled in 1 ft increments down to 4 feet below bottom of excavation to obtain a baseline prior to returning treated soil to excavation.
- Sampling of treated excavated soil: one 5-point composite sample to be collected every 20 yd^3.
- At least two business day notice must be given to the OCD before each sampling event.
- Once remediated soil is returned to the excavation, samples must be collected semi-annually for 3 years. For each sampling event, samples must be collected at same depth intervals. Frequency and placement of samples to be determined on a site-by-site basis . OCD may require 3rd party sampling at any time.
- If any contamination is found in the four feet of soil below the treated soil, indicating the contamination is leaching, the entirety of the treated soil must be removed, and the OCD approved alternative remediation plan must be implemented. Sample results are to be submitted to OCD once obtained via OCD.Enviro@emnrd.nm.gov.

Incident Closure

The incident will remain under OCD review until OCD determines that the site meets applicable 19.15.29 NMAC regulatory standards.