

Moon-Hines-Tigrett Flowline Spill

Prepared by: FC&E Engineering, LLC

Site Excavation Work Plan Unified Command Signatures

Name/Signature:

Organization:

Date:

Leo Fink

USEPA OSC

1/15/14

Emily G.

N/O E G

1/15/14

Greg Mueller

Moon Hines Tigrett

1/15/14

Moon – Hines – Tigrett Operating Company Eucutta Flowline Release Incident

Wayne County

Excavation Plan

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January 15, 2014

1.0 Introduction

This plan was prepared at the request of the OSC for the Moon-Hines Flowline Spill as part of the response. The purpose of this excavation plan is to describe the process by which guidance on priorities, methods and constraints will be generated and used to ensure the effective cleanup of oil from the grossly impacted area at the source of the incident under the management of the Unified Command. The Moon – Hines – Tigrett incident is currently ongoing. Therefore, this excavation plan is subject to an adaptive management strategy so that as oiling conditions change and resource protection priorities are revised, modification to this plan will be made accordingly. Complete Environmental will be the contractor for the excavation activities. The plan consists of three (3) stages:

Stage I: Management of Vegetation

Stage II: Excavation/Disposal

Stage III: Site Restoration

2.0 Stage I – Management of Vegetation

Standing, unoiled vegetation within the activity zone identified in Figure 1 will be cut and staged at a dedicated storage area which will be field identified. Upon completion of the excavation, the land clearing debris with no oil residue will either be open burned utilizing a forced-draft air system in accordance with the State of Mississippi Air Regulation: Title 11; Part 2; Chapter 1; Rule 1.3 (G) (Open Burning) or transported to a State of Mississippi permitted Class I or Class II Rubbish Site for disposal. If the debris is open burned, it will be located at a minimum of one hundred (100) feet from the nearest well head in accordance with Mississippi Oil and Gas Board Statewide Rules and Regulations: Rule 45; III; E; 5(a). In addition, Wayne County EMA will be notified prior to an open burn.

The oiled vegetation generated from within the activity zone will be removed with the impacted soil and disposed at the Pine Ridge (Subtitle D) Landfill in Lauderdale County under the approved debris profile as described in Section 3.3.

3.0 Stage II – Excavation/Disposal

The flowline will be flushed of product prior to being removed. Trackhoes will be used to remove the grossly impacted soil near the source of the release with the excavation commencing at the source and continuing downstream. A representative of Moon –

Hines - Tigrett will provide oversight of the excavation activities to ensure the grossly impacted soil is removed while minimizing over excavation. If feasible, all visible oil from the source to the well pad road will be removed. Field determinations will be made regarding the feasibility of removal of impacted soil. In some cases, it may be appropriate to leave trace amounts of oil in place and bioremediate or monitor. If conditions warrant, the trackhoes may be used to remove and stockpile clean overburden, remove and dispose of the impacted soil and replace the clean overburden.

3.1 Safety/Air Monitoring

Complete Environmental will meet the requirements of applicable federal regulations, which include but are not limited to the following:

- 29 Code of Federal Regulations (CFR) 1910.120; and
- 29 CFR 1926.

On-site personnel shall meet 40-hour Occupational Safety and Health Administration (OSHA) training and medical surveillance requirements.

The US Coast Guard will provide air monitoring of the work zone during excavation activities. No excavation activities are to occur without the Coast Guard monitoring. The Coast Guard will provide trigger points for increased worker personal protective equipment and work stoppage/evacuation prior to beginning the excavation.

Complete Environmental will place yellow caution barricade tape around the excavation areas any time the work area is left unattended and until the excavation is backfilled and final graded.

3.2 Site Security

Site security is of the utmost importance to protect the public, protect the impacted property, secure equipment and materials left on site, eliminate the chance of spreading contamination, and assure worker safety.

Complete Environmental will maintain a list of excavation workers and will prohibit other personnel from entering the activity zone.

3.3 Excavation, Handling and Disposal of Impacted Materials

Excavation will begin at the source and continue down gradient and terminate at the well pad road. Figure 1 is an estimate of the impacted area based on the known location of the source and the results of soil borings. Excavated soil will be loaded

directly into trucks and transported to the disposal facility. The truck driver shall complete the manifests prior to leaving the site. The impacted soil and vegetation will be direct hauled to the Pine Ridge Landfill located in Lauderdale County for disposal under the approved profile for this project.

In the event that impacted soil will need to be stockpiled on site prior to transport to the disposal facility, Complete Environmental will designate an area to temporarily store excavated soil. Complete Environmental will line the area with a minimum of 20-millimeter (mm) polyethylene plastic sheeting or another material approved by EPA. The area will be bermed such that any runoff will not be able to leave or enter the bermed area.

Complete Environmental will take appropriate precautions to contain any product remaining in the existing flow line.

The existing underflow dam shall remain operational until the excavation is substantially complete to manage groundwater or other liquids (such as rainwater, or pipe leaks) encountered during the removal actions.

The endpoint for excavation will be the removal of all visible oil from the source to the well pad road if feasible. The limits of excavation will generally be those defined in Figure 1 but may be field adjusted as conditions warrant. Field determinations will be made regarding the feasibility of removal of impacted soil. In some cases, it may be appropriate to leave trace amounts of oil in place and bioremediate or monitor. Moon – Hines intends to collect confirmatory samples from the bottom and sidewalls of the excavation prior to backfilling, in order to demonstrate clean closure in accordance with MDEQ guidelines.

4.0 Stage III – Site Restoration

Upon completion of excavation activities, the excavated area will either be graded to drain or backfilled and graded to drain as directed by Moon - Hines. As needed, the excavations will be backfilled with clean suitable Sand Clay or Lean Clay Material with a Plasticity Index (PI) range of 3-15 from an off-site source. The fill will be placed in 6-inch lifts and compacted with equipment suitable for the soil type. Six (6) inches of topsoil will be placed as the final grade.

Upon completion of final grading, the disturbed area will be re-vegetated with an appropriate winter grass mix. Complete Environmental will ensure that adequate vegetation (70% coverage) is established prior to vacating the site.

After all field activities are completed and all analytical results, transport manifests, weight tickets, and waste disposal forms have been received, a final removal action report summarizing all activities and the results of these activities will be prepared by Moon-Hines. The final report will include:

- A summary of all field activities completed including excavation, loading, transportation, disposal and confirmatory sampling analytical results, backfill and compaction, and site restoration.
- A summary of the volumes of impacted material excavated and disposed.
- Copies of the chain-of-custody forms, laboratory reports, waste transportation manifests, waste disposal forms, and weight tickets.
- Any variations to the approved Excavation Plan.
- A summary of confirmatory sampling and health and safety monitoring.

The final report will also present the depths and areas excavated in a graphical form, site photographs, field notes and appropriate figures.

