

Form 27-Supplemental NFA Request – Site Status Update

Introduction

This Site Status Update has been prepared to document site investigation activities that have been conducted subsequent to the submittal of the Form 27-Initial / No Further Action (NFA) Request (Initial Form 27) at the former Sam Funakoshi Gas Unit 62N67W36NWNNE production facility in Weld County, Colorado (Site). This Site Status Update is being submitted as an attachment to the Form 27-Supplemental NFA Request (Supplemental Form 27) to provide additional details regarding the justifications for an NFA determination.

The Initial Form 27 was submitted to the Colorado Oil and Gas Conservation Commission (COGCC) via email on February 19, 2016; the NFA request was denied, with a COA requesting additional analytical data and waste disposal information. This information was subsequently provided to the COGCC via email. The COGCC has issued Remediation Number 9523 for this project.

Site History and Background

On April 8, 2015, historical impacts were discovered during abandonment activities at the Site. The source of these impacts and the cause of the release was unknown. Excavation activities were completed by Kerr-McGee McGee Oil & Gas Onshore LP (Kerr-McGee) on April 8 and 9, 2015. A total of 220 cubic yards of impacted soil were removed from the Site and transported to the Buffalo Ridge Landfill in Erie, Colorado for disposal. Based on the results of confirmation soil sampling, impacted soils in the excavation area were remediated to be in full compliance with COGCC standards. A groundwater sample (GW01) was collected from the excavation on April 8, 2015, and laboratory analytical results indicated that hydrocarbon impacts to groundwater were present at the Site. The excavation soil and groundwater sample location figure, analytical results tables, and laboratory analytical reports are attached to the Supplemental Form 27.

Gas Chromatography Sampling

Due to the co-location of a third-party production facility at the Site, Kerr-McGee conducted a hydrocarbon forensic investigation, to determine the source of any remaining historical impacts. Five (5) soil samples (SB01 – SB05) were collected from temporary soil borings on March 20, 2015. A whole-oil sample (Product01) was collected from the Kerr-McGee separator on March 20, 2015. Three (3) groundwater samples (GW02 – GW04) were collected from temporary soil borings on May 7, 2015 and June 25, 2015. A whole-oil sample (F#2) was collected from the third-party production infrastructure on April 19, 2016. Samples SB02 – SB05, GW03, Product01 and F#2 were selected for gas chromatography (GC) analysis by Dolan Integration Group (DIG) using dichloromethane extraction and two-dimensional gas chromatograph / flame ionization detector (GCxGC-FID) analysis. The GC sample location figure is attached to the Supplemental Form 27. The results of GC analyses are detailed in the Initial Form 27 and associated Supplemental Report, which includes the DIG Report, and are summarized below.

GCxGC-FID analyses indicated that whole-oil sample Product01 (collected from Kerr-McGee infrastructure) exhibited a GC signature typical of the J-Sand Formation. Conversely, whole-oil sample F#2 (collected from third-party infrastructure) exhibited a GC signature typical of the Sussex Formation. The hydrocarbon extracts from soil samples SB02 – SB05 and groundwater

sample GW03 exhibited a strong similarity and were typical of the Sussex Formation. Based on these analyses, remaining hydrocarbon impacts at the Site are the result of a release from the third-party infrastructure, and not from the former Kerr-McGee production facility.

Produced Water Sump Investigation

Following separate facility abandonment activities by both Kerr-McGee and the third-party operator, a partially-buried produced water sump remained at the Site. The sump was not associated with the former Kerr-McGee production facility, and the owner/operator of the sump was unknown. As a result, additional investigative actions were performed, as described below, to determine the responsible party for this sump.

On June 19, 2018, a produced water sample (PW-061918) was collected from the remaining water in the sump, to determine the GC signature of this fluid and its potential correlation to either the J-Sand or Sussex Formation. However, produced water sample PW-061819 did not contain sufficient hydrocarbon concentrations to perform GC analysis. The produced water sample location figure, analytical results table, and laboratory analytical report are attached to the Supplemental Form 27.

In order to identify its owner/operator, the sump and associated dump lines were subsequently exposed via hydro-excavation activities, to determine their exact location, alignment, and termination. The location of the sump and exposed dump lines were surveyed on October 2, 2018. Based on the orientation of the dump lines, their termination at the former location of the third-party tanks, alignment with the locations of the former third-party above-ground valve sets and separator, and the location of the sump relative to the former Kerr-McGee and third-party infrastructure, the sump appears to be owned by the third-party operator and associated with their former production facility at the Site. A figure illustrating the surveyed location of the remaining sump and dump lines is attached to the Supplemental Form 27.

Conclusions

Based on the results of GC sampling and analysis, the remaining hydrocarbon impacts to groundwater at the Site are associated with the former third-party production facility (Sussex Formation production), and not the former Kerr-McGee production facility (J-Sand Formation production). Furthermore, survey data collected during October 2018 indicate that the produced water sump and associated dump lines remaining at the Site are also related to the former third-party infrastructure, and are not owned by Kerr-McGee.

Based on the data presented herein and in the Initial Form 27, the results of GCxGC-FID analyses by DIG, and third-party ownership of the remaining infrastructure at the Site, Kerr-McGee is requesting an NFA determination for this release.