MARATHON OIL COMPANY
NOTICE OF COMPLETION REPORT FOR
INTERIM RECLAMATION OF
696-5C

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INTRODUCTION

This report covers the activities associated with the closure of the on-site reserve pit at Marathon Oil Company's 696-5C well pad. At the time of the initial site visit, the pit contained what appeared to be drill cuttings in an unlined pit (Photo 1, Appendix A).

Marathon retained InterTech Environmental & Engineering, L.L.C. (InterTech), to manage the reclamation of this pit. Pit closure activities began on June 21, 2011, and included mixing the pit's contents with clean soil such that the resulting mixture complied with constituent concentration limits as specified in Table 910-1 of the 900-Series E&P Waste Management section of the Colorado Department of Natural Resources Oil and Gas Conservation Commission (COGCC) Rules (Table 910-1).

696-5C SITE ACTIVITIES

Daily Tailgate Health & Safety Meetings

All personnel attended a daily Tailgate Health & Safety Meeting (Tailgate) and evaluated the site as an excavation utilizing Marathon's excavation safety checklist. These meetings were conducted to refresh all personnel on safety and potential environmental issues relevant to the day's activities. The excavation safety checklist was used to ensure safety and evaluate the need for safe work permits as conditions and tasks changed. A record of each document was kept and all participants were required to sign the Tailgate attendance roster.

Background Sampling

In 2010, field-wide background sampling occurred to provide baselines for each representative gulch. The Marathon Oil Company 2011-2012 Closure Plan for Piceance Asset Pits, Garfield County, Colorado (2011 Pit Closure Plan), depicts the background grab soil sample locations. The soil samples were submitted to Accutest Laboratories under chain-of-custody protocols and were analyzed for the constituents listed in COGCC's Table 910-1. The 2011 Pit Closure Plan summarizes the analytical results for the background samples.

According to the 2011 Pit Closure Plan, Form 4 Sundry Notices will be submitted for arsenic and PAH concentrations. These concentrations are attributed to naturally-occurring background concentrations of arsenic in the region and the PAH concentrations of the Green River Formation's Mahogany Zone. Please refer to the 2011 Pit Closure Plan for additional information.

Equipment Mobilization and Start-up

Prior to commencement of closure activities, Moody Construction arranged for the location and marking of all underground utility lines at the facility. Following utility marking, a vacuum truck was used to remove the standing fluids from the pit surface. Equipment consisting of a track hoe, a front-end loader, and a D8 bulldozer were transported to the 696-5C well pad on June 20, 2011, by Moody. A grader was also used during part of the project to assist in material management activities.

Pit Entry Management

The pit fence was maintained throughout the mixing process. Sections were taken down as needed to facilitate mixing, but were set-up again at the end of each day. This occurred until all of the pit material was mixed and bailed from the pit. After all of the pit material had been removed, a berm approximately three feet in height was maintained around the pit to prevent accidental entry by vehicles. Additionally, the entry ramp was blocked each night by a piece of heavy equipment to prevent unauthorized vehicle entry.

Pit Contents Sampling

Prior to pit closure and interim pad reclamation, a pit characterization sample was collected and sent to Accutest Laboratories under chain-of-custody protocols where it was analyzed for the constituents listed in COGCC's Table 910-1. Based on the results from the characterization sample, only the parameters that exceeded Table 910-1 limits were analyzed during mix ratio composite sampling.

Mixing Calculations

Based on the closed-loop drilling system that was utilized, it was determined that mixing clean soil with the pit contents at a ratio of 1:1 should result in a soil mixture with constituent concentrations below COGCC Table 910-1 limits. Once the 1:1 ratio had been achieved, soil was collected from two distinct locations (which were documented on field forms) within the mixed materials and composited into one sample. This process was then repeated in order to obtain a total of two composite samples. The analytical results for the 1:1 ratio mixture indicated that the 1:1 mixture did not meet the pH limits identified in Table 910-1. In order to meet COGCC Table 910-1 limits for pH, additional clean soil was added to the mixture to achieve a 2:1 mix ratio; after which, two composite samples were again collected and analyzed for pH. The results demonstrated that the pH of the 2:1 mixture was within the permissible limits as identified in Table 910-1; as such, the final mix ratio was 2:1. Table 1 summarizes the analytical results for 696-5C 2:1 mix ratio composite samples.

Mixing of the Cuttings with Native Soil

The mixing of pit contents with clean soil occurred inside of the pit. Native soil was obtained from portions of the pad slated for removal during re-contouring activities necessary for interim reclamation. A bulldozer and front-end loader were used to push and carry the soil from the pad's southwest corner onto its interior surface where it could be used as clean material for mixing with the pit's contents (Photo 2). After a pile of clean soil had been established on the pad, the clean soil was systematically added to the cuttings inside of the pit using an excavator to turn and mix the materials (Photos 3 and 4).

The mixing was performed within the pit in order to dry and solidify the pit material, as well as to dilute the concentrations of its COGCC Table 910-1 constituents. The mixed material was then placed on the drilling pad where a bulldozer and a front-end loader continued the mixing process by combining additional clean soil with the extracted material and rolling the two together to reach a dry, homogenous mixture (Photo 5). Samples of the mixed soil were collected for laboratory analysis. These samples were tested only for the constituents that previously exceeded COGCC Table 910-1 limits. The final mixing ratio of clean soil to pit material was 2:1. The resulting analytical data indicated that the constituent concentrations of

the mixture were below COGCC Table 910-1 limits. The results further demonstrated that constituent concentrations were below CDPHE agricultural standards.

As per the 2011 Pit Closure Plan, three feet of clean fill was not required within the pit, so topsoil was placed over the mixed material upon completion of backfilling operations.

Backfilling of the Excavation

Backfilling of the excavation was achieved by placing the 2:1 mixture of clean soil and cuttings back into the excavation (Photos 6 and 7). The mixed material was placed load-by-load into the excavation with each load being thoroughly compacted using the tracks of a dozer. This process continued until the excavation was completely filled.

Once the excavation had been backfilled, areas of the well pad no longer required for production were roughly graded to their original contour (Photo 8). These re-contoured areas were then top-soiled, thereby mitigating the potential effects of physical parameters on reclamation success. Backfilling and re-contouring operations concluded on July 14, 2011.

Seeding and Stabilization

The disturbed areas will be seeded in the spring of 2012. Western States Reclamation (WSR) has evaluated the well pad and has developed a site-specific plan for seeding. Seed, fertilizer, hydro-mulch, and additional amendments have been ordered and are being stored at Marathon's Latham Yard for use next spring. After sufficient snowmelt, all areas disturbed during interim reclamation activities will be seeded by drilling, hydro-seeding, or a combination of techniques in order to achieve slope stabilization.

TABLE 1

Table 1: Analytical Data Summary for Marathon 696-5C		
Parameter Name	Final Concentrations of Remediated Material	Units of Measure
Organic Compounds		
Acenaphthene	ND	mg/kg
Anthracene	ND	mg/kg
Benzene	ND	mg/kg
Benzo(A)anthracene	0.45	mg/kg
Benzo(A)pyrene	0.34	mg/kg
Benzo(B)fluoranthene	1.90	mg/kg
Benzo(K)fluoranthene	ND	mg/kg
Chrysene	ND	mg/kg
Dibenzo(A,H)anthracene	ND	mg/kg
Ethylbenzene	0.08	mg/kg
Fluoranthene	0.75	mg/kg
Fluorene	ND	mg/kg
Indeno(1,2,3-CD)pyrene	1.50	mg/kg
Naphthalene	ND	mg/kg
Pyrene	0.67	mg/kg
Toluene	0.06	mg/kg
TPH	257.00	mg/kg
Xylenes	0.67	mg/kg
Metals		
Arsenic	9.10	mg/kg
Barium	6810.00	mg/kg
Boron	1.10	mg/kg
Cadmium	ND	mg/kg
Calcium	29.25	mg/l
Chromium, Total	16.00	mg/kg
Chromium, Hexavalent	-	mg/kg
Chromium, Trivalent	-	mg/kg
Copper	22.00	mg/kg
Lead	11.00	mg/kg
Magnesium	3.88	mg/l
Mercury	ND	mg/kg
Nickel	13.00	mg/kg
Selenium	ND	mg/kg
Silver	ND	mg/kg
Sodium	162.15	mg/l
Zinc	43.00	mg/kg
Liquid Hydrocarbons		
Diesel Range Organics (DRO)	242.00	mg/kg
Gasoline Range Organics (GRO)	15.00	mg/kg
General Chemistry		
Electrical Conductivity (EC)	827.00	umhos/cm
pH	9	su
Sodium Adsorption Ratio (SAR)	7.35	ratio

APPENDIX A - Photographs

Photo 1 – 696-5C reserve pit containing drill cuttings.

Photo 2 – Loader providing clean fill material from SW corner to track hoe for mixing.

Photo 3 – Track hoe mixing pit contents with clean material within pit.

Photo 4 – Track hoe mixing pit contents with clean material within pit.

Photo 5 – Front end loader rolling material to achieve homogenous mixture.

Photo 6 – Pit during backfilling operations.

Photo 7 – Pit during backfilling operations.

Photo 8 – Well pad after pit closure and reclamation.