

December 17, 2018

Colorado Oil and Gas Conservation Commission

1120 Lincoln Street, Suite 801
Denver, CO 80203

Attn: Mr. Alex Fischer, P.G.
Environmental Supervisor – Western Colorado

Re: **WPM EPCC Estimate Number – 1105-148 – Revision 2**
Review of Form 28 and supporting documentation for Centralized E&P Waste Management Facility Permit Application prepared by Kerr-McGee Oil and Gas Onshore LP (Kerr-McGee) – Denver, Colorado.

Facility ID: **#456644** – Kerr-McGee Oil and Gas Onshore LP - Proposed Aggregate State Centralized E&P Facility – Weld County, Colorado.

Dear Mr. Fischer,

Western Project Management (WPM) is pleased to provide the following review narrative and attached Estimate of Probable Closure Costs (EPCC) for the above referenced impoundment facility. Per your request, we have reviewed the Form 28 and other available project documentation which was prepared by Kerr-McGee and their consultants.

The Operator's estimated cost for site reclamation, as proposed, totals \$58,500. The WPM total cost estimate for the scope of work is **\$107,777** for the full closure and reclamation of the site. Noted differences between the WPM estimate and the Operator's submitted basis are as follows:

1. The Kerr-McGee estimate was limited in detail. The estimate included two sections which included \$46,500 for reclamation of the site and \$12,000 for soil sampling and analysis.
2. In addition to the above sections included in the Kerr-McGee estimate, WPM carried costs for; mobilization, water sampling, monitoring well abandonment, disposal of fluids and solids, decommissioning of equipment, removal of equipment, as well as engineering and construction management costs.

The general basis for this estimate includes the following assumptions:

1. Takeoff quantities, labor rates, manhours, and markups are all detailed in the attached estimate tabs.
2. The proposed operating life of the referenced facility is anticipated to be twenty years therefore, we cannot assume that any waste disposal or municipal water treatment plant will be available at their current locations when closure is initiated.

3. Due to the fact that it is difficult to accurately plan for escalation for this reclamation project over the next twenty years, WPM has not included escalation or an inflation factor within this estimate.
4. WPM suggests that this estimate be updated every five years to capture inflation or escalation impacts to probable costs.
5. The scope of this estimate includes the decommissioning and demolition of all existing equipment shown on the project drawings.
6. The planned site grading and restoration work includes the removal of miscellaneous piping, fence, and erosion control measures as well as re-seeding of disturbed areas.

The following includes summary descriptions of the estimate by section:

1. Mobilization and demobilization
 - a. For the purposes of this estimate, WPM assumed using the services of a local contractor will be used and have included rates and costs for mobilization and demobilization consistent with that market.
 - b. WPM anticipated that it will take one day to accomplish the mobilization efforts.
 - c. WPM has included costs for contractor demobilization as well.
2. Soils sampling
 - b. WPM has included additional cost for soils sampling on site for an estimated three (3) locations (hand auger).
 - c. Surface to 2 feet below will be sampled.
 - d. The focus will be near where load in/load out activities have taken place.
 - e. The shallow soils testing will occur prior to the reclamation efforts initiating.
 - f. Any visibly stained or impacted soils will be noted for removal.
3. Storage / surface water sampling
 - a. WPM assumed that all existing stored water and wells will be sampled and tested for evaluation and are a part of this estimate.
 - b. Three (3) domestic wells within a one mile radius of the site are included for sampling.
 - c. WPM has assumed that three (3) existing 2" diameter monitoring wells will be sampled.
4. Monitoring well abandonment
 - a. The three (3) assumed 2" inch monitoring wells are estimated to be drilled to 30 ft in depth. The wells will be abandoned in accordance with the State of Colorado State Engineers Monitoring Well Abandonment Requirements.
5. Pre-job decommissioning and removal of equipment
 - a. Pre-job decommissioning is included in this estimate.
 - b. Equipment will be disconnected from electrical source, fluids removed and piping cleaned, blind flanges placed on open end connections, loaded on trucks and hauled off site for sale, recycle or disposal.
 - c. Most of the equipment appears to be portable or on skids.

6. Fluids disposal
 - a. The onsite ponds are for stormwater collection. No fluids requiring disposal are anticipated in these ponds.
 - b. An estimated 500 barrels of fluids has been included to account for fluids in the tanks and onsite equipment and piping.
 - c. Most of the fluids (97%) will be disposed of at local injection wells. A small percentage (3%) of fluids and sludge will be loaded and hauled to an approved and licensed fluids process and disposal site.

7. Pre-job decommissioning and removal of equipment
 - a. All utilities will be locked out and placed in a safe condition prior to demolition activities.
 - b. Equipment to be decommissioned and removed from the site as shown on the site drawing.
 - c. Equipment will be disconnected from electrical source, fluids removed and piping cleaned, blind flanges placed on open end connections, loaded on trucks and hauled off site for sale, recycle or disposal.

8. Demolition of site improvements and other equipment.
 - a. Demolished metal / waste will be trucked to a recycle center, scrap yard or landfill location.
 - b. Steel / metal waste will be recycled, sold for scrap metal or disposed as waste.
 - c. All onsite culverts, fence and gates will be removed and disposed as a part of the closure work.
 - d. Any additional equipment not shown or detailed in the Pre-job Decommissioning section is assumed to have been removed by the operator prior to the closure work.
 - e. All sheds, portable and permanent structures will be removed and any such costs are included in the basis for this estimate per the reviewed project documentation.

9. Liner removal
 - a. The stormwater ponds are assumed to have no liner system.

10. Treated soils and solids disposal
 - a. WPM assumes that the soils and materials to be treated on site will be in accordance with the air quality permitting requirements at the time of closure.

11. Earthwork
 - a. All soils will be used onsite in the existing condition. No import of off site soils is required for the closure.
 - b. It is assumed that no soil is classified as hazardous. No cost provisions for removal or treatment of hazardous soils have been included.
 - c. Assume that the class 5/6 road base will be tilled into fill material and wasted on site.
 - d. Final earthwork grade is assumed to be +/- 3 /10ths of a foot therefore, bluetop grading is not included in the scope of this work.

- e. Seeding consistent with a typical reclamation project is included.
- f. For the purposes of this estimate the following classes of heavy equipment performance data per the Caterpillar Performance Handbook was utilized:
 - i. Caterpillar 140H motor grader
 - ii. Caterpillar 815F vibratory compactor
 - iii. Water truck

12. Site Management

- a. Site personnel and contractor general conditions are included for the scope.
- b. Storm water management is included in this section of the estimate.

13. Labor Rates

- a. Labor classifications and burden is detailed in the estimate tabs. Most of the labor rates have been taken from the recent and local county, Colorado Davis Bacon Wage Determination. RS Means rates are quoted where current market rates are not available.

Additional estimate backup and assumptions are detailed on the corresponding estimate tabs.

This concludes WPM's efforts for a third party review and estimate for the above referenced project. Thank you for the opportunity to provide this service to the State of Colorado. Please contact me via email at jag@western-pm.com or by phone at 970.674.1618 for further clarification or with questions.

Best regards,

via email

John Goad, Jr.
Senior Project Manager
Western Project Management

Attachments - (1) WPM Estimate of Probable Closure Costs #1105-148_Revision 1