ATTACHMENT L - CLOSURE PLAN AND POST-CLOSURE PLAN

APPENDICES

1.0 FINAL CLOSURE ACTIVITIES – NMAC 19.15.36.8.C.(9) and 19.15.36.18

In accordance with NMAC 19.15.36.8.C(9) and 19.15.36.18, a copy of the Closure Plan will be placed in the site operating record. The Closure and Post-Closure Plan will include procedures to take for sequential closure of cells following final acceptance of waste. The oilfield waste processing and disposal infrastructure is anticipated to be developed and operated over time. An outline is provided of the projected phase development; however, the order in which these improvements are constructed may change. The Plan may be modified. Changes must be submitted and approved thirty (30) days prior to the implementation of the change. This plan may also be amended at the request of the OCD per NMAC 19.15.36.18.a(5). The operator shall notify the divisional environmental bureau at least sixty (60) days prior to cessation of operations at the surface waste management facility and provide a proposed schedule for closure. If the division does not provide comments or changes, the C.K. Facility will proceed with closure activities.

1.1 Closure Procedures

A. Processing Area

i. Treatment Plant

After removal of all liquids and solids from the system, the treatment plant will be dismantled. Piping will be removed, cleaned, and recycled for reuse, if possible. If piping is not recoverable, it will be disposed of at an OCD-approved waste facility. After the removal and disposal of all treatment plant equipment, the site will be inspected for contamination. If contamination is present in soil, the soil will be excavated and disposed of at OCD-approved waste facilities. When this is completed, testing for contamination will occur until soil meets requirements listed in NMAC 19.15.36.

ii. Jet Wash Facility

The above-grade installations are to be removed or recycled (if possible), or disposed. The liner and gravel will be dried, removed, and disposed of onsite. The tanks will be cleaned for re-use or disposed of. If the waste capacity has been reached at the C.K. Facility, materials will be disposed of at an OCD-approved waste management facility.

iii. Liquids Removal

Any remaining liquid (including oil and water) in the tanks will be transferred to the evaporation ponds or disposed of at an OCD-approved facility. A mechanical evaporation system will be used in the aid of evaporation for produced water taken to the ponds. To expedite solidification, soils may be introduced by C.K. Facility. Once liquids have completed the solidification process, the solidified material will be transferred to the landfill or to an OCD-approved waste facility.

iv. Evaporation Pond Liner Removal

The C.K. Facility staff will remove all liquids and sludge from the evaporation ponds. Once solidified and passed the paint filter test, the solids will be disposed of at an OCD-approved waste facility.

The evaporation pond liner system will be dried and cleaned per NMAC 19.15.35. After cleaning, the evaporation pond liner system will be removed and disposed of at an OCD-approved facility. If geomembrane liner component of the liner is still in good condition, it may be recycled and reused.

The leak detection pipe will be removed and disposed of at an OCD-approved waste facility.

v. Tank Removal

Liquids will be disposed of in evaporation ponds and sludge will be transferred to the solidification area. Tanks will either be reused, recycled, or disposed of at an OCD-approved waste facility within ninety (90) days of the C.K. Facility closure.

vi. Site Sampling

The site will be sampled in accordance with Chapter 9 of United States Environmental Protection Agency (EPA) publication SW-846 - Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, once processing area tanks, equipment, and liners are removed. Sampling must occur before completing any earthwork to ensure accurate test results. Soil samples will be taken along the 150-foot sampling grid provided in Figure A.15. The soil samples will be taken at a depth of 1-foot and another sample at depths ranging between 36 to 42-inches below existing grade. Samples will be evaluated for:

- BTEX.
- TPH.
- Metals and organics listed in Water Quality Control Commission (WQCC) 20.6.2.3103. A&B.

Sample results will be submitted to OCD. Closure activities will not commence until samples indicate no contamination onsite. If contamination above allowable levels is found in the samples taken 36- to 42-inches below ground, staff will excavate to the sampled depth and proceed with sampling procedures.

vii. Final Site Closure – Processing Area

At site sampling completion and indication of no contamination onsite, the C.K. Facility can proceed with closure activities. The evaporation ponds and stabilization and solidification area will be filled with existing berm material and onsite soil, to match top of pond elevations. Once determined no contamination is

present at the C.K. Facility at allowable levels, the processing area will be re-graded to the intended final use. Activities conducted during this period include:

- Site grading and re-contouring;
- Site revegetation Submittal of Notice of Intent (NOI) to the EPA for a Construction General Permit;
- CGP and Stormwater Pollution Prevention Plan (SWPPP) implementation; and
- Evaporation and sedimentation pond berm removal and backfilling.

Site seeding will occur per techniques listed in the Final Closure Quality Control Plan (FCQCP). The FCQCP provides soil preparation, seed mix, and seeding techniques. The facility must acquire a minimum of 70% of the natural site coverage.

B. Solid Waste Disposal Area

The final cover system will be a combination of two (2) performance-based liner systems. One (1) design is for the cap and the other for the side slopes. The cap design will follow the design outlined in the NMAC but will replace the drainage layer with a geocomposite liner. The design for the cap is as follows (bottom to top):

- 12-inch foundation layer;
- 60-mil HDPE GML;
- Geocomposite liner;
- 24-inch infiltration layer; and
- 12-inch soil erosion layer.

The side slope design will be a performance-based water balance cover. With the assistance of 4:1 slopes, the majority of water will run off the side slopes and infiltrate cap. The design of the final side slope final cover is as follows (bottom to top):

- 12-inch foundation layer;
- 24-inch infiltration layer; and
- 12-inch soil erosion layer.

Final cover will be installed within one (1) year of achieving the final waste elevations. The overall final grading contours can be found in Attachment B, on sheet C-102. Site seeding will occur per techniques listed in the FCQCP. The FCQCP provides soil preparation, seed mix, and seeding techniques. The facility must acquire a minimum of 70% of the natural site coverage.

C. Building and Structure Removal

All structures onsite will be removed, reused, or disposed of at either a New Mexico Environmental Department municipal solid waste facility or if contaminated, an OCD-approved waste facility.

1.2 POST-CLOSURE PLAN

The post-closure care maintenance will begin upon the completion of final closure requirements set forth in the Closure Plan. Post-closure care will continue for thirty (30) years unless the division approves decreased time. Post-closure care maintenance will consist, at a minimum, of the following requirements:

- Conduct maintenance and/or remediation activities, as needed, to maintain the integrity and effectiveness of the final cover, site vegetation, and drainage control system. Activities may include regrading, placement of additional soil, seeding, and repair of erosion control features. (70% of vegetative natural cover must be achieved).
- Conduct quarterly site inspections.
- Correct any effects of settlement, subsidence, ponded water, erosion, and other events or failures that are detrimental to the integrity of the closed landfill. Corrective measures may include regrading, placement of additional soil, and seeding.
- Control surface run-on and run-off to minimize the erosion of the final cover system. Maintenance may include cleaning of channels and inspection after any storm larger than 24-hour, 25-year.
- Maintain and operate a leachate collection system. The site must demonstrate that leachate no longer poses a threat to fresh water, public health, safety, or the environment.
- Maintain and operate the vadose monitoring system and monitor the vadose zone per Attachment H.

A. Decreasing Post-Closure Care Period

The length of the post-closure care may be decreased by the division if the owner/operator of the C.K. Facility submits to the executive director for review and approval. Submittals must include a document certification, signed by an independent licensed professional engineer, and all applicable documentation necessary to support the certification. This documentation should demonstrate the reduced period is sufficient to protect fresh water, public health, safety, or the environment.

1.3 FINANCIAL ASSURANCE

A. Closure/Post Closure Cost Estimate

As required by NMAC 19.15.36.8.C(9), the cost estimate for closure and post-closure activities described above is presented in current dollars and assumes a third party will perform closure and post closure activities at the site. Preparation of the Cost Estimate also assumes no contamination or remedial activities are required due to releases into the environment. The current estimate for Phase I of C.K. Facility closure construction and post-closure operations is provided in Appendix A. The estimate will also be revised annually upon receiving waste. C.K. Disposal, LLC will choose a financial assurance mechanism according to NMAC 19.15.36.11.E and provide proper documentation to the OCD based on estimates provided.

B. Release of Financial Assurance

Upon completion of the closure activities for the entire site and approval of the division, the owner/operator will request release of the closure portion of the financial assurance. After the post-closure care period, three (3) years for ponds/pits and thirty (30) years for landfill, and the establishment of vegetation onsite, the owner will request the release of the remainder of the financial assurance.

APPENDIX A

COST ESTIMATES

Lea County
C.K. Diposal E&P
Landfill and Processing
Facility

Closure Cost Estimate (assume 23.6 Acres to be closed) **11/6/2015**

ITEM	UNITS	QUANTITY	UNIT COST	TOTAL COST
Landfill Closure				
Engineering				
Topographic Survey	HR	75	$ 115.00	$ 8,700.00
Site Evaluation and Plans	LS	1	$ 30,000.00	$ 30,000.00
Construction Observation	LS	1	$ 56,500.00	$ 56,500.00
Subtotal Engineering Cost				$ 95,200.00
Contingency (10%)	SY	12,000	$ 35.00	$ 9,520.00
Total Engineering	LF	6,900	$ 85.00	$ 104,720.00
Construction				
Cap				
Geomembrane Liner	SF	202,990	$ 0.51	$ 103,600.00
Geocomposite Drainage Layer	SF	202,990	$ 0.55	$ 111,700.00
Infiltration Layer (24-inch)	CY	15,036	$ 2.00	$ 30,100.00
Soil Erosion Layer (12-inch)	CY	7,518	$ 2.00	$ 15,100.00
Articulated Block Channel	SF	28,000	$ 7.00	$ 196,000.00
Side Slopes				
Infiltration Layer (24-inch)	CY	61,307	$ 2.00	$ 122,700.00
Soil Erosion Layer (12-inch)	CY	30,653	$ 2.00	$ 61,400.00
Subtotal Construction				$ 640,600.00
Contingency (10% of Subtotal)				$ 64,060.00
Total Construction				$ 704,660.00
Evaporation Pond				
Liquids Transport/Disposal				
Transport Liquid	BBL	286	$1.75	$500
Disposal Liquids	BBL	286	$0.95	$271
Remove/Transport Sludge	TON	4444	$6.50	$28,889
Disposal Sludge	TON	4444	$15.00	$66,667
Liner Removal/Transport	CY	2966	$4.00	$11,862
Disposal Liner	CY	2966	$4.25	$12,603
Pond Backfill and Contouring				
Soil On-site	CY	0	$1.00	$0.00
Place and Compact Soil	CY	11,853	$3.00	$35,557.87
Subtotal Ponds				$156,350.44
Sampling	EACH	360	$200.00	$72,000.00
Seeding acres	AC	22	$1,200.00	$26,412.00
Subtotal				$98,412.00
Site Work				
Tank Removal	LS	1	$25,000	$25,000
Building Removal	LS	1	$25,000	$25,000
Process Equipment Removal	LS	1	$25,000	$25,000
Earthwork	LS	1	$10,000	$10,000
Site Work Subtotal:				$85,000
Total Closure Cost				**$1,149,142**

Lea County
C.K. Diposal E&P
Landfill and Processing
Facility

Post Closure Cost Estimate (Based on 126 Acres Landfill area and a total of 312 Acres for the Entire Site)

11/6/2015

ITEM	UNITS	QUANTITY	UNIT COST	TOTAL COST
Engineering Costs				
Site Inspection and Record Keeping	40	HR	$75	$3,000
Vadose Monitoring/Lab and Report (11 monitoring wells semi-annually)	2	EA	$4,500	$9,000
Subtotal Engineering Costs				$12,000
Construction and Maintenance Costs				
Cap and Sideslope Repairs and Revegetation	40	HR	$75	$3,000
Mowing (final cover twice per year)[1]	126	AC	$50	$6,300
Vadose Monitoring System Maintenance	1	LS	$1,000	$1,000
Perimeter Fence and Gates Maintenance	1	LS	$1,000	$1,000
Access and Rights of Way Maintenance	40	HR	$75	$3,000
Drainage System Cleanout /Repairs	40	HR	$75	$3,000
Subtotal Construction and Maintenance Costs				$17,300
Leachate Management				
Inspection	1	LS	$1,000	$1,000
Leachate Disposal	4	EA	$1,000	$4,000
Subtotal Leachate Management Cost				$5,000
Subtotal Post-Closure Costs				$34,300
Contingency (10% of Subtotal)				$3,430
Third Party Administration & Project Management Costs (3% of Subtotal)				$1,029
Annual Post-Closure Costs				$38,759
30-Year Post Closure Costs				**$1,162,770**

Note: Year 2015 dollars

[1] Based on final cap area of 126-acres at $25 per acre per mow