District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S St Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources
Department
Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

HOBBS OCD
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OCT 13 2009
HOBBSOCD
AUG 03 2011
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Form C-144 CLEZ
July 21, 2008

For closed-loop systems that only use above ground steel tanks or haul-off bins and propose to implement waste removal for closure, submit to the appropriate NMOCD District Office

Closed-Loop System Permit or Closure Plan Application

(that only use above ground steel tanks or haul-off bins and propose to implement waste removal for closure)

Type of action: ☒ Permit ☒ Closure

***Instructions:** Please submit one application (Form C-144 CLEZ) per individual closed-loop system request. For any application request other than for a closed-loop system that only use above ground steel tanks or haul-off bins and propose to implement waste removal for closure, please submit a Form C-144.*

Please be advised that approval of this request does not relieve the operator of liability should operations result in pollution of surface water, ground water or the environment. Nor does approval relieve the operator of its responsibility to comply with any other applicable governmental authority's rules, regulations or ordinances.

1.

Operator: Chesapeake Operating, Inc. OGRID #: 147179

Address: P.O. Box 18496 Oklahoma City, OK 73154-0496

Facility or well name: Shell State # 1

API Number: 30-025-04878 OCD Permit Number: P1-1403

U/L or Qtr/Qtr N Section 32 Township 21 South Range 36 East County: Lea

Center of Proposed Design: Latitude 32.429800 Longitude -103.28794 NAD. ☒ 1927 ☐ 1983

Surface Owner: ☐ Federal ☒ State ☐ Private ☐ Tribal Trust or Indian Allotment

2.

☒ **Closed-loop System:** Subsection H of 19.15.17.11 NMAC

Operation: ☐ Drilling a new well ☐ Workover or Drilling (Applies to activities which require prior approval of a permit or notice of intent) ☒ P&A

☒ Above Ground Steel Tanks or ☐ Haul-off Bins

HOBBS OCD

3.

Signs: Subsection C of 19.15.17.11 NMAC

AUG 03 2011

☐ 12"x 24", 2" lettering, providing Operator's name, site location, and emergency telephone numbers

☒ Signed in compliance with 19.15.3.103 NMAC

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4.

Closed-loop Systems Permit Application Attachment Checklist: Subsection B of 19.15.17.9 NMAC

***Instructions:** Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the documents are attached.*

☒ Design Plan - based upon the appropriate requirements of 19.15.17.11 NMAC

☒ Operating and Maintenance Plan - based upon the appropriate requirements of 19.15.17.12 NMAC

☒ Closure Plan (Please complete Box 5) - based upon the appropriate requirements of Subsection C of 19.15.17.9 NMAC and 19.15.17.13 NMAC

☐ Previously Approved Design (attach copy of design) API Number: _____

☐ Previously Approved Operating and Maintenance Plan API Number: _____

5.

Waste Removal Closure For Closed-loop Systems That Utilize Above Ground Steel Tanks or Haul-off Bins Only: (19.15.17.13.D NMAC)

***Instructions:** Please indentify the facility or facilities for the disposal of liquids, drilling fluids and drill cuttings. Use attachment if more than two facilities are required.*

Disposal Facility Name: Controlled Recovery, Inc. Disposal Facility Permit Number: NM-01-0006

Disposal Facility Name: Sundance Disposal Disposal Facility Permit Number: NM-01-0003

Will any of the proposed closed-loop system operations and associated activities occur on or in areas that *will not* be used for future service and operations?

☐ Yes (If yes, please provide the information below) ☒ No

Required for impacted areas which will not be used for future service and operations.

☐ Soil Backfill and Cover Design Specifications - - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC

☐ Re-vegetation Plan - based upon the appropriate requirements of Subsection I of 19.15.17.13 NMAC

☐ Site Reclamation Plan - based upon the appropriate requirements of Subsection G of 19.15.17.13 NMAC

6.

Operator Application Certification:

I hereby certify that the information submitted with this application is true, accurate and complete to the best of my knowledge and belief.

Name (Print): Bryan Arrant Title: Sr. Regulatory Compl. Sp.

Signature: Bryan Arrant Date: 10/12/2009

e-mail address: bryan.arrant@chk.com Telephone: (405)935-3782

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7.
OCD Approval: ☐ Permit Application (including closure plan) ☐ Closure Plan (only)

OCD Representative Signature: Geolo [illegible] **Approval Date:** 10/14/09

Title: Geologist **OCD Permit Number:** P1-D1403

8.
Closure Report (required within 60 days of closure completion): Subsection K of 19.15.17.13 NMAC

Instructions: *Operators are required to obtain an approved closure plan prior to implementing any closure activities and submitting the closure report. The closure report is required to be submitted to the division within 60 days of the completion of the closure activities. Please do not complete this section of the form until an approved closure plan has been obtained and the closure activities have been completed.*

☒ **Closure Completion Date:** 10-27-09

9.
Closure Report Regarding Waste Removal Closure For Closed-loop Systems That Utilize Above Ground Steel Tanks or Haul-off Bins Only:

Instructions: *Please indentify the facility or facilities for where the liquids, drilling fluids and drill cuttings were disposed. Use attachment if more than two facilities were utilized.*

Disposal Facility Name: _____ Disposal Facility Permit Number: _____

Disposal Facility Name: _____ Disposal Facility Permit Number: _____

Were the closed-loop system operations and associated activities performed on or in areas that *will not* be used for future service and operations?

☐ Yes (If yes, please demonstrate compliance to the items below) ☒ No

Required for impacted areas which will not be used for future service and operations

☐ Site Reclamation (Photo Documentation)
☐ Soil Backfilling and Cover Installation
☐ Re-vegetation Application Rates and Seeding Technique

10.
Operator Closure Certification:

I hereby certify that the information and attachments submitted with this closure report is true, accurate and complete to the best of my knowledge and belief. I also certify that the closure complies with all applicable closure requirements and conditions specified in the approved closure plan.

Name (Print): Pat Richards Title: Production Assistant

Signature: Pat Richards Date: 6-28-11

e-mail address: pat.richards@chk.com Telephone: 575-391-1462

* No fluids or solids to surface - Therefore nothing to haul

ECG 8-4-2011

Chesapeake Operating, Inc.'s Closed Loop System
Shell State # 1
Unit N, Sec. 32, T-21-S R-36-E
Lea Co., NM
API #: 30-025-04878

Equipment & Design:

Chesapeake Operating, Inc. is to use a closed loop system in the plug and abandonment of this well.
(1) 500 bbl "frac" tank"

Operations & Maintenance:

During each and every tour, the rig's crew will inspect and monitor closely the fluids contained within the steel pits and visually monitor any spill which may occur.
Within 48 hours should a spill, release or leak occur, the NMOCD District I office in Hobbs (575-393-6161) will be notified. Please note that notifications may be made earlier to the district office should a greater release occur.

Closure:

After plugging operations, fluids will be hauled and disposed to Controlled Recovery, Inc.'s location.
The permit number for Controlled Recovery, Inc. is: NM-01-0006
The alternative disposal facility will be Sundance Disposal.
Their permit # is: NM-01-0003.

Company Name: **Chesapeake Energy** Permit No.:

Facility Name: **San Simon 21 State #2** Date: **14-Oct-09**

891106

Volatile Organic Compound Emission Calculation for Flashing

Vasquez - Beggs Solution Gas/Oil Ratio Correlation Method

(For Estimating VOC Flashing Emissions, Using Stock Tank Gas-Oil Ratios For Crude Oil Facilities)

INPUTS:

Stock Tank API Gravity	0	API
Separator Pressure (psig)	40	P
Separator Temperature (°F)	85	Ti
Separator Gas Gravity at Initail Condition	0.9	SGi
Stock Tank Barrels of Oil per day (BOPD	0	Q
Stock Tank Gas Molecular Weight	49	MW
Fraction VOC (C3+) of Stock Tank Gas	0.8	VOC
Atmospheric Pressure (psia)	14.7	Patm

CONSTRAINTS:

16	>API>	58	°API	WARNING .....
50	>P+Patm>	5250	(psia)	WARNING .....
70	> Ti >	295	(°F)	ok
0.56	>SGi>	1.18	MW/28.9	ok
None	> Q >	None	(BOPD)	ok
18	>MW>	125	lb/lb-mol	ok
0.5	>Voc>	1.00	Fraction	ok
20	> Rs >	2070	(scf/STB)	WARNING .....

SGx = Dissolved gas gravity at 100 psig = SGi [1.0+0.00005912*API*Ti*Log(Pi/114.7)]

SGx = 0.90

Document Notes:

Rs = (C1 * SGx * Pi^C2) exp ((C3 * API) / (Ti + 460))

Where:

Rs	Gas/Oil Ratio of liquid at pressure of interest
SGx	Dissolved gas gravity at 100 psig
Pi	Pressure of initial condition (psia)
API	API Gravity of liquid hydrocarbon at final condition
Ti	Temperature of initial condition (F)

Constants

	°API Gravity		
°APTI →	**< 30**	**>= 30**	Given °API
C1	0.0362	~~0.0178~~	**0.0362**
C2	1.0937	~~1.187~~	**1.0937**
C3	25.724	~~23.931~~	**25.724**

Rs = 2.59 scf/bbl *for P + Patm = 54.7*

THC = Rs * Q * MW * 1/385 scf/lb-mole * 365 D/Yr * 1 ton/2000 lb.s

THC	Total Hydrocarbon (tons/year)
Rs	Solution Gas/Oil Ratio (scf/STB)
Q	Oil Production Rate (bbl/day)
MW	Molecular Weight of Stock Tank Gas (lb/lb-mole)
385	Volume of 1 lb-mole of gas at 14.7 psia and 68 F (WAQS&R Std Cond)

THC = 0.0 TPY

VOC = THC * Frac. of C3+ in the Stock Tank Vapor

VOC = 0.0 TPY *from "FLASHING" of oil from separator to tank press*