District L 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

For temporary pits, closed-loop systems, and **below-grade tanks**, submit to the appropriate NMOCD District Office.

For permanent pits and exceptions submit to the Santa Fe Environmental Bureau office and provide a copy to the appropriate NMOCD District Office.

9805
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# Pit, Closed-Loop System, Below-Grade Tank, or

Proposed Alternative Method Permit or Closure Pl	an Application				
Type of action:    X   Permit of a pit, closed-loop system, below-grade tank, or proposed alternative method   Closure of a pit, closed-loop system, below-grade tank, or proposed alternative method   Modification to an existing permit   Closure plan only submitted for an existing permitted or non-permitted pit, closed-loop system, below-grade tank, or proposed alternative method					
Instructions: Please submit one application (Form C-144) per individual pit, closed-loop system, below-grade tank or alternative request					
Please be advised that approval of this request does not relieve the operator of liability should operations result in penvironment. Nor does approval relieve the operator of its responsibility to comply with any other applicable gove	ollution of surface water, ground water or the rimental authority's rules, regulations or ordinances.				
Operator: Energen Resources Corporation OGRID	#: 162928				
Address: 2010 Afton Place, Farmington, NM 87401					
Facility or well name: Carracas 27B #16H					
API Number: 30-039-31056 OCD Permit Number:	3525				
U/L or Qtr/Qtr M Section 26 Township 32N Range 04W	County: Rio Arriba				
Center of Proposed Design: Latitude36.95346 Longitude107.2	NAD: □1927 🗵 1983				
Surface Owner: X Federal  State  Private  Tribal Trust or Indian Allotment					
2					
Pit: Subsection F or G of 19.15.17.11 NMAC	RCVD MAR 20'12				
Temporary: Drilling Workover	OIL CONS. DIV.				
Permanent    Emergency    Cavitation    P&A	DIST. 3				
Lined Unlined Liner type: Thicknessmil LLDPE HDPE PVC	Other				
☐ String-Reinforced	i				
Liner Seams: Welded Factory Other Volume:	bbl Dimensions: L x Wx D				
3					
Subsection H of 19.15.17.11 NMAC  Type of Operation: □ P&A ☑ Drilling a new well □ Workover or Drilling (Applies to activities which require prior approval of a permit or notice of intent)					
☐ Drying Pad ☐ Above Ground Steel Tanks 🗷 Haul-off Bins ☐ Other					
Lined Unlined Liner type: Thickness mil LLDPE HDPE PVC Other					
Liner Seams: Welded Factory Other					
4					
Below-grade tank: Subsection I of 19.15.17.11 NMAC					
Volume: bbl Type of fluid:					
Tank Construction material:					
Secondary containment with leak detection Visible sidewalls, liner, 6-inch lift and automatic	overflow shut-off				
☐ Visible sidewalls and liner ☐ Visible sidewalls only ☐ Other					
Liner type: Thicknessmil _ LLDPE _ HDPE _ PVC _ Other					
\$					
	i				

☐ Alternative Method:

Submittal of an exception request is required. Exceptions must be submitted to the Santa Fe Environmental Bureau office for consideration of approval.

Fencing: Subsection D of 19.15.17.11 NMAC (Applies to permanent pits, temporary pits, and below-grade tanks)  Chain link, six feet in height, two strands of barbed wire at top (Required if located within 1000 feet of a permanent residence, school, hospital,			
institution or church)			
Four foot height, four strands of barbed wire evenly spaced between one and four feet  Alternate. Please specify			
Netting: Subsection E of 19.15.17.11 NMAC (Applies to permanent pits and permanent open top tanks)			
☐ Screen ☐ Netting ☐ Other ☐ Monthly inspections (If netting or screening is not physically feasible)			
8			
Signs: Subsection C of 19.15.17.11 NMAC			
12"x 24", 2" lettering, providing Operator's name, site location, and emergency telephone numbers			
Signed in compliance with 19.15.3.103 NMAC			
9 Administrative Approvals and Exceptions: Justifications and/or demonstrations of equivalency are required. Please refer to 19.15.17 NMAC for guidance.			
Administrative approval(s): Requests must be submitted to the appropriate division district or the Santa Fe Environmental Bureau office for consideration of approval.			
Exception(s): Requests must be submitted to the Santa Fe Environmental Bureau office for consideration of approval.			
Siting Criteria (regarding permitting): 19.15.17.10 NMAC Instructions: The applicant must demonstrate compliance for each siting criteria below in the application. Recommendations of acceptable source material are provided below. Requests regarding changes to certain siting criteria may require administrative approval from the appropriate district office or may be considered an exception which must be submitted to the Santa Fe Environmental Bureau office for consideration of approval. Applicant must attach justification for request. Please refer to 19.15.17.10 NMAC for guidance. Siting criteria does not apply to drying pads or above-grade tanks associated with a closed-loop system.			
Ground water is less than 50 feet below the bottom of the temporary pit, permanent pit, or below-grade tank.  - NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells	Yes No		
Within 300 feet of a continuously flowing watercourse, or 200 feet of any other significant watercourse or lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark).  - Topographic map; Visual inspection (certification) of the proposed site	☐ Yes ☐ No		
Within 300 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application.  (Applies to temporary, emergency, or cavitation pits and below-grade tanks)  - Visual inspection (certification) of the proposed site; Aerial photo; Satellite image	Yes No		
Within 1000 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application.  (Applies to permanent pits)  - Visual inspection (certification) of the proposed site; Aerial photo; Satellite image	☐ Yes ☐No		
Within 500 horizontal feet of a private, domestic fresh water well or spring that less than five households use for domestic or stock watering purposes, or within 1000 horizontal feet of any other fresh water well or spring, in existence at the time of initial application.  - NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site	Yes No		
Within incorporated municipal boundaries or within a defined municipal fresh water well field covered under a municipal ordinance adopted pursuant to NMSA 1978, Section 3-27-3, as amended.  - Written confirmation or verification from the municipality; Written approval obtained from the municipality	☐ Yes ☐No		
Within 500 feet of a wetland.  - US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site	Yes No		
Within the area overlying a subsurface mine.  - Written confirmation or verification or map from the NM EMNRD-Mining and Mineral Division	☐ Yes ☐ No		
Within an unstable area.  - Engineering measures incorporated into the design; NM Bureau of Geology & Mineral Resources; USGS; NM Geological Society; Topographic map	☐ Yes ☐ No		
Within a 100-year floodplain FEMA map	☐ Yes ☐No		

Temporary Pits, Emergency Pits, and Below-grade Tanks 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.  Hydrogeologic Report (Below-grade Tanks) - based upon the requirements of Paragraph (4) of Subsection B of 19.15.17.9 NMAC Hydrogeologic Data (Temporary and Emergency Pits) - based upon the requirements of Paragraph (2) of Subsection B of 19.15.17.9 NMAC Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC Design Plan - based upon the appropriate requirements of 19.15.17.11 NMAC Closure Plan (Please complete Boxes 14 through 18, if applicable) - 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:  or Permit Number:				
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.  Geologic and Hydrogeologic Data (only for on-site closure) - based upon the requirements of Paragraph (3) of Subsection B of 19.15.17.9  Siting Criteria Compliance Demonstrations (only for on-site closure) - based upon the appropriate requirements of 19.15.17.10 NMAC  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 Boxes 14 through 18, if applicable) - 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: 30-045-34812				
Previously Approved Operating and Maintenance Plan API Number:				
Permanent Pits Permit Application 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.  Hydrogeologic Report - based upon the requirements of Paragraph (1) of Subsection B of 19.15.17.9 NMAC  Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC  Cilmatological Factors Assessment  Certified Engineering Design Plans - based upon the appropriate requirements of 19.15.17.11 NMAC  Dike Protection and Structural Integrity Design - based upon the appropriate requirements of 19.15.17.11 NMAC  Leak Detection Design - based upon the appropriate requirements of 19.15.17.11 NMAC  Liner Specifications and Compatibility Assessment - based upon  Quality Control/Quality Assurance Construction and Installation Plan the appropriate requirements of 19.15.17.11 NMAC  Operating and Maintenance Plan - based upon the appropriate requirements of 19.15.17.12 NMAC  Freeboard and Overtopping Prevention Plan - based upon the appropriate requirements of 19.15.17.11 NMAC  Nuisance or Hazardous Odors, including H2S, Prevention Plan  Emergency Response Plan  Oil Field Waste Stream Characterization  Monitoring and Inspection Plan  Erosion Control Plan  Closure Plan - based upon the appropriate requirements of Subsection C of 19.15.17.9 NMAC and 19.15.17.13 NMAC				
Proposed Closure: 19.15.17.13 NMAC Instructions: Please complete the applicable boxes, Boxes 14 through 18, in regards to the proposed closure plan.  Type: Drilling Workover Emergency Cavitation P&A Permanent Pit Below-grade Tank Closed-loop System Alternative  Proposed Closure Method: Waste Excavation and Removal  Waste Removal (Closed-loop systems only) On-site Closure Method (Only for temporary pits and closed-loop systems) In-place Burial On-site Trench Burial Alternative Closure Method (Exceptions must be submitted to the Santa Fe Environmental Bureau for consideration)				
Waste Excavation and Removal Closure Plan Checklist: (19.15.17.13 NMAC) Instructions: Each of the following items must be attached to the closure plan. Please indicate, by a check mark in the box, that the documents are attached.  ✓ Protocols and Procedures - based upon the appropriate requirements of 19.15.17.13 NMAC  Confirmation Sampling Plan (if applicable) - based upon the appropriate requirements of Subsection F of 19.15.17.13 NMAC  ✓ Disposal Facility Name and Permit Number (for liquids, drilling fluids and drill cuttings)  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 G of 19.15.17.13 NMAC				

Waste Removal Closure For Closed-loop Systems That Utilize Above Ground Instructions: Please indentify the facility or facilities for the disposal of liquids,	nd Steel Tanks or Haul-off Bins Only: (19.15.17.13.1 drilling fluids and drill cuttings. Use attachment if mo	O NMAC) re than two
actilities are required. Disposal Facility Name: IEI/JFJ Landfarm Disposal Facility Permit Number: NM-01-0010B		
Disposal Facility Name:	Disposal Facility Permit Number:	
Will any of the proposed closed-loop system operations and associated activities operations?  Yes (If yes, please provide the information below)  No	occur on or in areas that will not be used for future ser	rvice and
Required for impacted areas which will not be used for future service and opera  Soil Backfill and Cover Design Specifications based upon the approp  Re-vegetation Plan - based upon the appropriate requirements of Subsec  Site Reclamation Plan - based upon the appropriate requirements of Subsection	riate requirements of Subsection H of 19.15.17.13 NM. tion I of 19.15.17.13 NMAC	AC
Siting Criteria (regarding on-site closure methods only: 19.15.17.10 NMAC Instructions: Each siting criteria requires a demonstration of compliance in the provided below. Requests regarding changes to certain siting criteria may require be considered an exception which must be submitted to the Santa Fe Environment and/or demonstrations of equivalency are required. Please refer to 19.15.17.10	he closure plan. Recommendations of acceptable sou uire administrative approval from the appropriate dist nental Bureau office for consideration of approval. J	rict office or may
Ground water is less than 50 feet below the bottom of the buried waste - NM Office of the State Engineer - iWATERS database search; USGS;	Data obtained from nearby wells	☐ Yes ☐ No ☐ NA
Ground water is between 50 and 100 feet below the bottom of the buried waste - NM Office of the State Engineer - iWATERS database search; USGS;	Data obtained from nearby wells	☐ Yes ☐ No ☐ NA
Ground water is more than 100 feet below the bottom of the buried waste.  - NM Office of the State Engineer - iWATERS database search; USGS;	Data obtained from nearby wells	☐ Yes ☐ No ☐ NA
Within 300 feet of a continuously flowing watercourse, or 200 feet of any other lake (measured from the ordinary high-water mark).  - Topographic map; Visual inspection (certification) of the proposed site		Yes No
Within 300 feet from a permanent residence, school, hospital, institution, or chur - Visual inspection (certification) of the proposed site; Aerial photo; Sate		☐ Yes ☐ No
Within 500 horizontal feet of a private, domestic fresh water well or spring that I watering purposes, or within 1000 horizontal feet of any other fresh water well or NM Office of the State Engineer - iWATERS database; Visual inspecti	r spring, in existence at the time of initial application.	Yes No
Within incorporated municipal boundaries or within a defined municipal fresh w adopted pursuant to NMSA 1978, Section 3-27-3, as amended.  - Written confirmation or verification from the municipality; Written app		☐ Yes ☐ No
Within 500 feet of a wetland.  - US Fish and Wildlife Wetland Identification map; Topographic map; V	isual inspection (certification) of the proposed site	☐ Yes ☐ No
Within the area overlying a subsurface mine.  - Written confirmation or verification or map from the NM EMNRD-Min	ning and Mineral Division	☐ Yes ☐No
Within an unstable area.  - Engineering measures incorporated into the design; NM Bureau of Geo Society; Topographic map	logy & Mineral Resources; USGS; NM Geological	☐ Yes ☐ No
Within a 100-year floodplain FEMA map		Yes No
On-Site Closure Plan Checklist: (19.15.17.13 NMAC) Instructions: Each of the following items must be attached to the closure plan. Please indicate, by a check mark in the box, that the documents are attached.  Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC Proof of Surface Owner Notice - based upon the appropriate requirements of Subsection F of 19.15.17.13 NMAC Construction/Design Plan of Burial Trench (if applicable) based upon the appropriate requirements of 19.15.17.11 NMAC Construction/Design Plan of Temporary Pit (for in-place burial of a drying pad) - based upon the appropriate requirements of 19.15.17.11 NMAC Protocols and Procedures - based upon the appropriate requirements of 19.15 17.13 NMAC Confirmation Sampling Plan (if applicable) - based upon the appropriate requirements of Subsection F of 19.15.17.13 NMAC Waste Material Sampling Plan - based upon the appropriate requirements of Subsection F of 19.15.17.13 NMAC		
waste Material Sampling Plan - based upon the appropriate requirements of Disposal Facility Name and Permit Number (for liquids, drilling fluids and c Soil Cover Design - based upon the appropriate requirements of Subsection Re-vegetation Plan - based upon the appropriate requirements of Subsection Site Reclamation Plan - based upon the appropriate requirements of Subsection	Irill cuttings or in case on-site closure standards cannot H of 19.15.17.13 NMAC I of 19.15.17.13 NMAC	be achieved)

Operator Application Certification: I hereby certify that the information submitted with this application is true, accurate	te and complete to the best of my knowledge and belief.		
Name (Print): Anna Stotts	Title: Regulatory Analyst		
Signature:	Date:3/13/12		
e-mail address: _astotts@energen.com	Telephone: 505-324-4154		
OCD Representative Signature:	osure Plan (only) OCD Conditions (see attachment)  Approval Date: 3/20/2012  CD Permit Number:		
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:			
Closure Method:  Waste Excavation and Removal On-Site Closure Method Alternative Closure Method Waste Removal (Closed-loop systems only)  If different from approved plan, please explain.			
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: Dis	sposal 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)			
Required for impacted areas which will not be used for future service and operatio  Site Reclamation (Photo Documentation)  Soil Backfilling and Cover Installation  Re-vegetation Application Rates and Seeding Technique	ns:		
Closure Report Attachment Checklist: Instructions. Each of the following items must be attached to the closure report. Please indicate, by a check mark in the box, that the documents are attached.  Proof of Closure Notice (surface owner and division)  Proof of Deed Notice (required for on-site closure)  Plot Plan (for on-site closures and temporary pits)  Confirmation Sampling Analytical Results (if applicable)  Waste Material Sampling Analytical Results (required for on-site closure)  Disposal Facility Name and Permit Number  Soil Backfilling and Cover Installation  Re-vegetation Application Rates and Seeding Technique  Site Reclamation (Photo Documentation)  On-site Closure Location: Latitude			
25			
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).	Title:		
Signature:	Date:		
e-mail address:	Telephone:		



## **CLOSED-LOOP SYSTEM**

### Design Plan

The closed loop system will include a haul off bin and sump to facilitate the collection of liquids derived from drill cuttings and an above ground steel holding tank suitable for generated cuttings and fluids during rig operations. The tank will be of sufficient volume to maintain a safe free board between disposal of the liquids and solids from rig operations.

- 1) Fencing is not required for an above ground closed-loop system.
- 2) It will be signed in compliance with 19.15.3.103 NMAC.
- 3) A frac tank will be on location in order to store fresh water.

#### **Operating and Maintenance Plan**

A modified steel tank will be operated and maintained; to contain liquids and drill cuttings, to aid in the prevention of contamination of fresh water sources, in order to protect public health and the environment. To attain this goal the following steps will be followed:

- 1) The liquids in the closed-loop tank will be re-circulated through the mud system or vacuumed and disposed of at Envirotech (Permit Number NM-01-0011) or IEI/JFJ Landfarm (#NM-01-0010B) on a periodic basis to prevent over topping.
- As drill solids are generated, a front-end loader removes the waste and will begindumping it inside a haul-off bin.
- 3) Small amounts of dirt or lime my added to aid in drying.
- 4) No hazardous waste, miscellaneous solid waste or debris will be discharged into or stored in the tank. Only fluids or cuttings used or generated by rig operations will be placed or stored in the tank.
- 5) The division district office will be notified within 48 hours of the discovery of compromised integrity of the closed-loop tank. Upon the discovery of the compromised tank, repairs will be enacted immediately.
- 6) All of the above operations will be inspected and a log will be signed and dated. During rig operations the inspection will be daily.

## Closure Plan

The closed loop holding tank will be closed in accordance with 19.15.17.13. To accomplish this, all cuttings in the haul-off bin and any remaining fluids in the holding tank will be hauled to **Envirotech** (Permit # NM-01-0011) or **IEI/JFL Landfarm** (# NM-01-0010B) immediately following rig operations. The tanks will be removed from location as part of the rig move, and stacked cuttings to a commercial disposal site mentioned above. The APD Conditions of Approval will be followed for cite reclamation.

#### Completion Plan

A closed-loop tank will be set on location once drilling operations have ceased. The closed-loop tank will measure 20 ft height by 12 ft diameter (400 BBL) or 20 ft height by 10 ft 6 in diameter (300 BLL). It will be designed, operated, maintained and closed according to the attached Closed-loop Design Plan, Closed-loop Operating and Maintenance Plan, and Closed-loop Closure Plan.



RCVD MAR 20'12 OIL CONS. DIV.

DIST. 3

March 14, 2012

Mr. Kelly,

For well Carracas 27B #16H, please find the attached permit application for a closed loop system. This well was originally permitted for a pit which was built and utilized to dispose of some of the cuttings. However, we also had a closed loop system in place. Additional cuttings were removed from the closed loop system and transferred to Industrial Ecosystems for disposal.

The closed-loop permit was inadvertently missed during the permitting process. As you may realize Energen Resources has made a concerted effort to utilize closed loop systems on many of our drilling projects. Permitting was done so far in advance that it was not realized that the closed loop system would be available for utilization on this drill.

Energen has initiated several methods to track the pit/closed loop system permitting so that this oversight does not occur again in the future.

If you have any questions, please contact me at 505-324-4152.

Respectfully submitted,

Kellie J. Campbell

Safety & Environmental Coordinator Energen Resources Corporation