

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

FORM APPROVED
OMB No. 1004-0137
Expires October 31, 2014

1a. Type of work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5. Lease Serial No. NMNM118119
1b. Type of Well: <input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other <input checked="" type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone		6. If Indian, Allottee or Tribe Name
2. Name of Operator ARMSTRONG ENERGY CORP (1092)		7. If Unit or CA Agreement, Name and No.
3a. Address 500 N. MAIN ST. ROSWELL NM 88202		8. Lease Name and Well No. (317732) LIZA JANE FEDERAL 1
3b. Phone No. (include area code) (575)625-2222		9. API Well No. 30-041-20972
4. Location of Well (Report location clearly and in accordance with any State requirements.) At surface NESE / 1630 FSL / 1220 FEL / LAT 33.855667 / LONG -103.409168 At proposed prod. zone NESE / 1630 FSL / 1220 FEL / LAT 33.855667 / LONG -103.409168		10. Field and Pool, or Exploratory Wildcat G-05 5053419N; FUSSELMAN
11. Sec., T. R. M. or Blk. and Survey or Area SEC 19 / T5S / R34E / NMP		12. County or Parish ROOSEVELT
13. State NM		14. Distance in miles and direction from nearest town or post office* 7 miles
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 1220 feet	16. No. of acres in lease 200.09	17. Spacing Unit dedicated to this well 40
18. Distance from proposed location* to nearest well, drilling, completed, 800 feet applied for, on this lease, ft.	19. Proposed Depth 8300 feet / 8300 feet	20. BLM/BIA Bond No. on file FED: NM1826
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 4331 feet	22. Approximate date work will start* 05/31/2017	23. Estimated duration 30 days

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No.1, must be attached to this form:

1. Well plat certified by a registered surveyor.
2. A Drilling Plan.
3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office).
4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
5. Operator certification
6. Such other site specific information and/or plans as may be required by the BLM.

25. Signature (Electronic Submission)	Name (Printed/Typed) Kyle Alpers / Ph: (575)625-2222	Date 04/24/2017
Title Operations Manager		
Approved by (Signature) (Electronic Submission)	Name (Printed/Typed) Ruben J Sanchez / Ph: (575)627-0250	Date 06/01/2017
Title Assistant Field Manager, Lands & Minerals ROSWELL		

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.
Conditions of approval, if any, are attached.

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Continued on page 2)

*(Instructions on page 2)



Kay
06/02/17
Requires NSL

INSTRUCTIONS

GENERAL: This form is designed for submitting proposals to perform certain well operations, as indicated on Federal and Indian lands and leases for action by appropriate Federal agencies, pursuant to applicable Federal laws and regulations. Any necessary special instructions concerning the use of this form and the number of copies to be submitted, particularly with regard to local, area, or regional procedures and practices, either are shown below or will be issued by, or may be obtained from local Federal offices.

ITEM 1: If the proposal is to redrill to the same reservoir at a different subsurface location or to a new reservoir, use this form with appropriate notations. Consult applicable Federal regulations concerning subsequent work proposals or reports on the well.

ITEM 4: Locations on Federal or Indian land should be described in accordance with Federal requirements. Consult local Federal offices for specific instructions.

ITEM 14: Needed only when location of well cannot readily be found by road from the land or lease description. A plat, or plats, separate or on the reverse side, showing the roads to, and the surveyed location of, the well, and any other required information, should be furnished when required by Federal agency offices.

ITEMS 15 AND 18: If well is to be, or has been directionally drilled, give distances for subsurface location of hole in any present or objective productive zone.

ITEM 22: Consult applicable Federal regulations, or appropriate officials, concerning approval of the proposal before operations are started.

NOTICES

The Privacy Act of 1974 and regulation in 43 CFR 2.48(d) provide that you be furnished the following information in connection with information required by this application.

AUTHORITY: 30 U.S.C. 181 et seq., 25 U.S.C. 396; 43 CFR 3160

PRINCIPAL PURPOSES: The information will be used to: (1) process and evaluate your application for a permit to drill a new oil, gas, or service well or to reenter a plugged and abandoned well; and (2) document, for administrative use, information for the management, disposal and use of National Resource Lands and resources including (a) analyzing your proposal to discover and extract the Federal or Indian resources encountered; (b) reviewing procedures and equipment and the projected impact on the land involved; and (c) evaluating the effects of the proposed operation on the surface and subsurface water and other environmental impacts.

ROUTINE USE: Information from the record and/or the record will be transferred to appropriate Federal, State, and local or foreign agencies, when relevant to civil, criminal or regulatory investigations or prosecution, in connection with congressional inquiries and for regulatory responsibilities.

EFFECT OF NOT PROVIDING INFORMATION: Filing of this application and disclosure of the information is mandatory only if you elect to initiate a drilling or reentry operation on an oil and gas lease.

The Paperwork Reduction Act of 1995 requires us to inform you that:

The BLM collects this information to allow evaluation of the technical, safety, and environmental factors involved with drilling for oil and/or gas on Federal and Indian oil and gas leases. This information will be used to analyze and approve applications. Response to this request is mandatory only if the operator elects to initiate drilling or reentry operations on an oil and gas lease. The BLM would like you to know that you do not have to respond to this or any other Federal agency-sponsored information collection unless it displays a currently valid OMB control number.

BURDEN HOURS STATEMENT: Public reporting burden for this form is estimated to average 8 hours per response, including the time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding the burden estimate or any other aspect of this form to U.S. Department of the Interior, Bureau of Land Management (1004-0137), Bureau Information Collection Clearance Officer (WO-630), 1849 C Street, N.W., Mail Stop 401 LS, Washington, D.C. 20240.

Additional Operator Remarks

Location of Well

1. SHL: NESE / 1630 FSL / 1220 FEL / TWSP: 5S / RANGE: 34E / SECTION: 19 / LAT: 33.855667 / LONG: -103.409168 (TVD: 8300 feet, MD: 8300 feet)
BHL: NESE / 1630 FSL / 1220 FEL / TWSP: 5S / RANGE: 34E / SECTION: 19 / LAT: 33.855667 / LONG: -103.409168 (TVD: 8300 feet, MD: 8300 feet)

BLM Point of Contact

Name: Ruben J Sanchez

Title: Assistant Field Manager, Lands & Minerals

Phone: 5756270250

Email: rjsanche@blm.gov

CONFIDENTIAL

Review and Appeal Rights

A person contesting a decision shall request a State Director review. This request must be filed within 20 working days of receipt of the Notice with the appropriate State Director (see 43 CFR 3165.3). The State Director review decision may be appealed to the Interior Board of Land Appeals, 801 North Quincy Street, Suite 300, Arlington, VA 22203 (see 43 CFR 3165.4). Contact the above listed Bureau of Land Management office for further information.

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U.S. Department of the Interior
BUREAU OF LAND MANAGEMENT

Operator Certification Data Report

06/01/2017

Operator Certification

I hereby certify that I, or someone under my direct supervision, have inspected the drill site and access route proposed herein; that I am familiar with the conditions which currently exist; that I have full knowledge of state and Federal laws applicable to this operation; that the statements made in this APD package are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed in conformity with this APD package and the terms and conditions under which it is approved. I also certify that I, or the company I represent, am responsible for the operations conducted under this application. These statements are subject to the provisions of 18 U.S.C. 1001 for the filing of false statements.

NAME: Kyle Alpers

Signed on: 04/24/2017

Title: Operations Manager

Street Address: 500 N. MAIN ST.

City: ROSWELL

State: NM

Zip: 88202

Phone: (575)625-2222

Email address: kalpers@aecnm.com

Field Representative

Representative Name: Rocky Ray

Street Address: PO Box 1973

City: Roswell

State: NM

Zip: 88202

Phone: (575)420-6371

Email address: rocky@aecnm.com



U.S. Department of the Interior
BUREAU OF LAND MANAGEMENT

Application Data Report

06/01/2017

APD ID: 10400013080

Submission Date: 04/24/2017

Operator Name: ARMSTRONG ENERGY CORP

Well Name: LIZA JANE FEDERAL

Well Number: 1

Well Type: OIL WELL

Well Work Type: Drill

Section 1 - General

APD ID: 10400013080

Tie to previous NOS? 10400012910

Submission Date: 04/24/2017

BLM Office: ROSWELL

User: Kyle Alpers

Title: Operations Manager

Federal/Indian APD: FED

Is the first lease penetrated for production Federal or Indian? FED

Lease number: NMNM118119

Lease Acres: 200.09

Surface access agreement in place?

Allotted?

Reservation:

Agreement in place? NO

Federal or Indian agreement:

Agreement number:

Agreement name:

Keep application confidential? YES

Permitting Agent? NO

APD Operator: ARMSTRONG ENERGY CORP

Operator letter of designation:

Keep application confidential? YES

Operator Info

Operator Organization Name: ARMSTRONG ENERGY CORP

Operator Address: 500 N. MAIN ST.

Zip: 88202

Operator PO Box: 1973

Operator City: ROSWELL

State: NM

Operator Phone: (575)625-2222

Operator Internet Address:

Section 2 - Well Information

Well in Master Development Plan? NO

Master Development Plan name:

Well in Master SUPO? NO

Master SUPO name:

Well in Master Drilling Plan? NO

Master Drilling Plan name:

Well Name: LIZA JANE FEDERAL

Well Number: 1

Well API Number:

Field/Pool or Exploratory? Exploratory

Field Name:

Pool Name:

Operator Name: ARMSTRONG ENERGY CORP

Well Name: LIZA JANE FEDERAL

Well Number: 1

Is the proposed well in an area containing other mineral resources? USEABLE WATER,NATURAL GAS,OIL

Describe other minerals:

Is the proposed well in a Helium production area? N **Use Existing Well Pad?** NO **New surface disturbance?**

Type of Well Pad: SINGLE WELL

Multiple Well Pad Name:

Number:

Well Class: VERTICAL

Number of Legs: 1

Well Work Type: Drill

Well Type: OIL WELL

Describe Well Type:

Well sub-Type: EXPLORATORY (WILDCAT)

Describe sub-type:

Distance to town: 7 Miles

Distance to nearest well: 800 FT

Distance to lease line: 1220 FT

Reservoir well spacing assigned acres Measurement: 40 Acres

Well plat: 17_368_600S_04-12-2017.pdf

30_041__ARMSTRONG_Liza_Jane_Federal__001_C_102_2017_05_03_05-08-2017.pdf

Well work start Date: 05/31/2017

Duration: 30 DAYS

Section 3 - Well Location Table

Survey Type: RECTANGULAR

Describe Survey Type:

Datum: NAD83

Vertical Datum: NAVD88

Survey number: NMPM

STATE: NEW MEXICO

Meridian: NEW MEXICO PRINCIPAL **County:** ROOSEVELT

Latitude: 33.855667

Longitude: -103.409168

SHL

Elevation: 4331

MD: 8300

TVD: 8300

Leg #: 1

Lease Type: FEDERAL

Lease #: NMNM118119

NS-Foot: 1630

NS Indicator: FSL

EW-Foot: 1220

EW Indicator: FEL

Twsp: 5S

Range: 34E

Section: 19

Aliquot: NESE

Lot:

Tract:

Operator Name: ARMSTRONG ENERGY CORP

Well Name: LIZA JANE FEDERAL

Well Number: 1

	STATE:	Meridian:	County:
	Latitude:	Longitude:	
KOP	Elevation: 4331	MD:	TVD:
Leg #: 1	Lease Type:	Lease #:	
	NS-Foot:	NS Indicator:	
	EW-Foot:	EW Indicator:	
	Twsp:	Range:	Section:
	Aliquot:	Lot:	Tract:
	STATE:	Meridian:	County:
	Latitude:	Longitude:	
PPP	Elevation: 4331	MD:	TVD:
Leg #: 1	Lease Type:	Lease #:	
	NS-Foot:	NS Indicator:	
	EW-Foot:	EW Indicator:	
	Twsp:	Range:	Section:
	Aliquot:	Lot:	Tract:
	STATE:	Meridian:	County:
	Latitude:	Longitude:	
EXIT	Elevation: 4331	MD:	TVD:
Leg #: 1	Lease Type:	Lease #:	
	NS-Foot:	NS Indicator:	
	EW-Foot:	EW Indicator:	
	Twsp:	Range:	Section:
	Aliquot:	Lot:	Tract:
	STATE: NEW MEXICO	Meridian: NEW MEXICO PRINCIPAL	County: ROOSEVELT
	Latitude: 33.855667	Longitude: -103.409168	
BHL	Elevation: -3969	MD: 8300	TVD: 8300
Leg #: 1	Lease Type: FEDERAL	Lease #: NMNM118119	
	NS-Foot: 1630	NS Indicator: FSL	
	EW-Foot: 1220	EW Indicator: FEL	

Operator Name: ARMSTRONG ENERGY CORP

Well Name: LIZA JANE FEDERAL

Well Number: 1

Twsp: 5S

Range: 34E

Section: 19

Aliquot: NESE

Lot:

Tract:



U.S. Department of the Interior
BUREAU OF LAND MANAGEMENT

Drilling Plan Data Report

06/01/2017

APD ID: 10400013080

Submission Date: 04/24/2017

Operator Name: ARMSTRONG ENERGY CORP

Well Name: LIZA JANE FEDERAL

Well Number: 1

Well Type: OIL WELL

Well Work Type: Drill

Section 1 - Geologic Formations

ID: Surface formation

Name: OGALLALA

Lithology(ies):

ALLUVIUM

Elevation: 4331

True Vertical Depth: 0

Measured Depth: 0

Mineral Resource(s):

NONE

Is this a producing formation? N

ID: Formation 1

Name: YATES

Lithology(ies):

SILTSTONE

Elevation: 2131

True Vertical Depth: 2200

Measured Depth: 2200

Mineral Resource(s):

NONE

Is this a producing formation? N

ID: Formation 2

Name: SEVEN RIVERS

Lithology(ies):

SILTSTONE

Elevation: 2031

True Vertical Depth: 2300

Measured Depth: 2300

Mineral Resource(s):

NONE

Is this a producing formation? N

Operator Name: ARMSTRONG ENERGY CORP

Well Name: LIZA JANE FEDERAL

Well Number: 1

ID: Formation 3

Name: QUEEN

Lithology(ies):

SILTSTONE

Elevation: 1631

True Vertical Depth: 2700

Measured Depth: 2700

Mineral Resource(s):

NONE

Is this a producing formation? N

ID: Formation 4

Name: SAN ANDRES

Lithology(ies):

LIMESTONE

DOLOMITE

Elevation: 1131

True Vertical Depth: 3200

Measured Depth: 3200

Mineral Resource(s):

NATURAL GAS

OIL

Is this a producing formation? N

ID: Formation 5

Name: GLORIETA

Lithology(ies):

SANDSTONE

Elevation: -269

True Vertical Depth: 4600

Measured Depth: 4600

Mineral Resource(s):

NONE

Is this a producing formation? N

ID: Formation 6

Name: ABO

Lithology(ies):

SANDSTONE

Elevation: -2269

True Vertical Depth: 6600

Measured Depth: 6600

Operator Name: ARMSTRONG ENERGY CORP

Well Name: LIZA JANE FEDERAL

Well Number: 1

Mineral Resource(s):

NONE

Is this a producing formation? N

ID: Formation 7

Name: WOLFCAMP

Lithology(ies):

LIMESTONE

Elevation: -3069

True Vertical Depth: 7400

Measured Depth: 7400

Mineral Resource(s):

NONE

Is this a producing formation? N

ID: Formation 8

Name: PENN

Lithology(ies):

OTHER - Carbonate

Elevation: -3369

True Vertical Depth: 7700

Measured Depth: 7700

Mineral Resource(s):

NATURAL GAS

OIL

Is this a producing formation? N

ID: Formation 9

Name: SILURIAN

Lithology(ies):

DOLOMITE

Elevation: -3569

True Vertical Depth: 7900

Measured Depth: 7900

Mineral Resource(s):

NATURAL GAS

OIL

Is this a producing formation? Y

Section 2 - Blowout Prevention

Operator Name: ARMSTRONG ENERGY CORP

Well Name: LIZA JANE FEDERAL

Well Number: 1

Pressure Rating (PSI): 3M

Rating Depth: 9000

Equipment: All required equipment per federal regulations to be in place prior to drilling out surface casing.

Requesting Variance? NO

Variance request: Frequency of testing from daily to weekly.

Testing Procedure: Ram type preventers and associated equipment shall be tested to approved stack working pressure if isolated by test plug or to 70% of internal yield pressure of casing if BOP stack is not isolated from casing. Pressure shall be maintained for at least 10 minutes or until requirements of test are met, whichever is longer. If a test plug is utilized, no bleed-off of pressure is acceptable. For a test not utilizing a test plug, if a decline in pressure of more than 10 percent in 30 minutes occurs, the test shall be considered to have failed. Valve on casing head below test plug shall be open during test of BOP stack. Annular type preventers shall be tested to 50 percent of rated working pressure. Pressure shall be maintained at least 10 minutes or until provisions of test are met, whichever is longer.

Choke Diagram Attachment:

3K_choke_Diagram_04-05-2017.pdf

BOP Diagram Attachment:

3K_BOP_Diagram_04-05-2017.pdf

Section 3 - Casing

Operator Name: ARMSTRONG ENERGY CORP

Well Name: LIZA JANE FEDERAL

Well Number: 1

String Type: PRODUCTION

Other String Type:

Hole Size: 7.875

Top setting depth MD: 0

Top setting depth TVD: 0

Top setting depth MSL: 4331

Bottom setting depth MD: 800

Bottom setting depth TVD: 800

Bottom setting depth MSL: 3531

Calculated casing length MD: 800

Casing Size: 5.5

Other Size

Grade: J-55

Other Grade:

Weight: 17

Joint Type: LTC

Other Joint Type:

Condition: NEW

Inspection Document:

Standard: API

Spec Document:

Tapered String?: N

Tapered String Spec:

Safety Factors

Collapse Design Safety Factor: 1.125

Burst Design Safety Factor: 1.25

Joint Tensile Design Safety Factor type: DRY

Joint Tensile Design Safety Factor: 1.8

Body Tensile Design Safety Factor type: DRY

Body Tensile Design Safety Factor: 1.8

Casing Design Assumptions and Worksheet(s):

Liza_Jane_Federal_1_casing_04-06-2017.pdf

Casing_details_submission_email_4_10_17_04-24-2017.pdf

Operator Name: ARMSTRONG ENERGY CORP

Well Name: LIZA JANE FEDERAL

Well Number: 1

String Type: INTERMEDIATE

Other String Type:

Hole Size: 12.25

Top setting depth MD: 0

Top setting depth TVD: 0

Top setting depth MSL: 4331

Bottom setting depth MD: 2465

Bottom setting depth TVD: 2465

Bottom setting depth MSL: 1866

Calculated casing length MD: 2465

Casing Size: 8.625

Other Size

Grade: J-55

Other Grade:

Weight: 24

Joint Type: STC

Other Joint Type:

Condition: NEW

Inspection Document:

Standard: API

Spec Document:

Tapered String?: N

Tapered String Spec:

Safety Factors

Collapse Design Safety Factor: 1.125

Burst Design Safety Factor: 1.25

Joint Tensile Design Safety Factor type: DRY

Joint Tensile Design Safety Factor: 1.8

Body Tensile Design Safety Factor type: DRY

Body Tensile Design Safety Factor: 1.8

Casing Design Assumptions and Worksheet(s):

Liza_Jane_Federal_1_casing_04-06-2017.pdf

Casing_details_submission_email_4_10_17_04-24-2017.pdf

Operator Name: ARMSTRONG ENERGY CORP

Well Name: LIZA JANE FEDERAL

Well Number: 1

String Type: CONDUCTOR

Other String Type:

Hole Size: 24

Top setting depth MD: 0

Top setting depth TVD: 0

Top setting depth MSL: 4331

Bottom setting depth MD: 40

Bottom setting depth TVD: 40

Bottom setting depth MSL: 4291

Calculated casing length MD: 40

Casing Size: 20.0

Other Size

Grade: H-40

Other Grade:

Weight: 94

Joint Type: STC

Other Joint Type:

Condition: NEW

Inspection Document:

Standard: API

Spec Document:

Tapered String?: N

Tapered String Spec:

Safety Factors

Collapse Design Safety Factor:

Burst Design Safety Factor:

Joint Tensile Design Safety Factor type:

Joint Tensile Design Safety Factor:

Body Tensile Design Safety Factor type:

Body Tensile Design Safety Factor:

Casing Design Assumptions and Worksheet(s):

Operator Name: ARMSTRONG ENERGY CORP

Well Name: LIZA JANE FEDERAL

Well Number: 1

String Type: PRODUCTION

Other String Type:

Hole Size: 7.875

Top setting depth MD: 800

Top setting depth TVD: 800

Top setting depth MSL: 3531

Bottom setting depth MD: 6750

Bottom setting depth TVD: 6750

Bottom setting depth MSL: -2419

Calculated casing length MD: 5950

Casing Size: 5.5

Other Size

Grade: J-55

Other Grade:

Weight: 15.5

Joint Type: LTC

Other Joint Type:

Condition: NEW

Inspection Document:

Standard: API

Spec Document:

Tapered String?: N

Tapered String Spec:

Safety Factors

Collapse Design Safety Factor: 1.125

Burst Design Safety Factor: 1.25

Joint Tensile Design Safety Factor type: DRY

Joint Tensile Design Safety Factor: 1.8

Body Tensile Design Safety Factor type: DRY

Body Tensile Design Safety Factor: 1.8

Casing Design Assumptions and Worksheet(s):

Liza_Jane_Federal_1_casing_04-06-2017.pdf

Casing_details_submission_email_4_10_17_04-24-2017.pdf

Operator Name: ARMSTRONG ENERGY CORP

Well Name: LIZA JANE FEDERAL

Well Number: 1

String Type: PRODUCTION

Other String Type:

Hole Size: 7.875

Top setting depth MD: 6750

Top setting depth TVD: 6750

Top setting depth MSL: -2419

Bottom setting depth MD: 8300

Bottom setting depth TVD: 8300

Bottom setting depth MSL: -3969

Calculated casing length MD: 1550

Casing Size: 5.5

Other Size

Grade: J-55

Other Grade:

Weight: 17

Joint Type: LTC

Other Joint Type:

Condition: NEW

Inspection Document:

Standard: API

Spec Document:

Tapered String?: N

Tapered String Spec:

Safety Factors

Collapse Design Safety Factor: 1.125

Burst Design Safety Factor: 1.25

Joint Tensile Design Safety Factor type: DRY

Joint Tensile Design Safety Factor: 1.8

Body Tensile Design Safety Factor type: DRY

Body Tensile Design Safety Factor: 1.8

Casing Design Assumptions and Worksheet(s):

Liza_Jane_Federal_1_casing_04-06-2017.pdf

Casing_details_submission_email_4_10_17_04-24-2017.pdf

Operator Name: ARMSTRONG ENERGY CORP

Well Name: LIZA JANE FEDERAL

Well Number: 1

String Type: SURFACE

Other String Type:

Hole Size: 17.5

Top setting depth MD: 0

Top setting depth TVD: 0

Top setting depth MSL: 4331

Bottom setting depth MD: 420

Bottom setting depth TVD: 420

Bottom setting depth MSL: 3911

Calculated casing length MD: 420

Casing Size: 13.375

Other Size

Grade: J-55

Other Grade:

Weight: 54.5

Joint Type: BUTT

Other Joint Type:

Condition: NEW

Inspection Document:

Standard: API

Spec Document:

Tapered String?: N

Tapered String Spec:

Safety Factors

Collapse Design Safety Factor: 1.125

Burst Design Safety Factor: 1.25

Joint Tensile Design Safety Factor type: DRY

Joint Tensile Design Safety Factor: 1.8

Body Tensile Design Safety Factor type: DRY

Body Tensile Design Safety Factor: 1.8

Casing Design Assumptions and Worksheet(s):

Liza_Jane_Federal_1_casing_04-06-2017.pdf

Section 4 - Cement

Casing String Type: CONDUCTOR

Operator Name: ARMSTRONG ENERGY CORP

Well Name: LIZA JANE FEDERAL

Well Number: 1

Stage Tool Depth:

Lead

Top MD of Segment: 0

Bottom MD Segment: 40

Cement Type: redi-mix

Additives: none

Quantity (sks): 30

Yield (cu.ff./sk): 1.36

Density: 14.8

Volume (cu.ft.): 40.8

Percent Excess: 5

Casing String Type: SURFACE

Stage Tool Depth:

Lead

Top MD of Segment: 0

Bottom MD Segment: 420

Cement Type: class C

Additives: 2% CaCl

Quantity (sks): 300

Yield (cu.ff./sk): 1.34

Density: 14.8

Volume (cu.ft.): 402

Percent Excess: 28

Casing String Type: INTERMEDIATE

Stage Tool Depth:

Lead

Top MD of Segment: 0

Bottom MD Segment: 2465

Cement Type: Class C

Additives: 4% Bentonite, 1% Calcium Chloride, 0.125#/sk Celloflake, 0.4#/sk Defoamer

Quantity (sks): 750

Yield (cu.ff./sk): 1.73

Density: 13.5

Volume (cu.ft.): 1298

Percent Excess: 60

Fall

Top MD of Segment: 0

Bottom MD Segment: 2465

Cement Type: Class C

Additives: 1% Calcium Chloride

Quantity (sks): 200

Yield (cu.ff./sk): 1.33

Density: 14.8

Volume (cu.ft.): 1.33

Percent Excess: 60

Casing String Type: PRODUCTION

Operator Name: ARMSTRONG ENERGY CORP

Well Name: LIZA JANE FEDERAL

Well Number: 1

Stage Tool Depth:

Lead

Top MD of Segment: 2465

Bottom MD Segment: 7000

Cement Type: PF49 TXI Lightweight

Additives: retarder, ,antisetling agent,
fluid loss, plexaid, defoamer, granulated
salt

Quantity (sks): 700

Yield (cu.ff./sk): 1.62

Volume (cu.ft.): 1134

Percent Excess: 45

~~Fail~~ Density: 12.6

Top MD of Segment: 7000

Bottom MD Segment: 8300

Cement Type: 12.6 PVL

Quantity (sks): 200

Yield (cu.ff./sk): 1.62

Additives:

Volume (cu.ft.): 324

Percent Excess: 45

Density: 12.6

Stage Tool Depth:

Lead

Top MD of Segment: 2465

Bottom MD Segment: 7000

Cement Type: PF49 TXI Lightweight

Additives: retarder, antisetling agent,
fluid loss, plexaid, defoamer, granulated
salt

Quantity (sks): 700

Yield (cu.ff./sk): 1.62

Volume (cu.ft.): 1134

Percent Excess: 45

~~Fail~~ Density: 12.6

Top MD of Segment: 7000

Bottom MD Segment: 8300

Cement Type: 12.6 PVL

Quantity (sks): 200

Yield (cu.ff./sk): 1.62

Additives:

Volume (cu.ft.): 324

Percent Excess: 45

Density: 12.6

Stage Tool Depth:

Lead

Top MD of Segment: 2465

Bottom MD Segment: 7000

Cement Type: TXI Lightweight

Additives: retarder, antisetling agent,
fluid loss, plexaid, defoamer, granulated
salt

Quantity (sks): 700

Yield (cu.ff./sk): 1.62

Volume (cu.ft.): 1134

Percent Excess: 45

~~Fail~~ Density: 12.6

Top MD of Segment: 7000

Bottom MD Segment: 8300

Cement Type: 12.6 PVL

Quantity (sks): 200

Yield (cu.ff./sk): 1.62

Additives:

Volume (cu.ft.): 324

Percent Excess: 45

Density: 12.6

Operator Name: ARMSTRONG ENERGY CORP

Well Name: LIZA JANE FEDERAL

Well Number: 1

Section 5 - Circulating Medium

Mud System Type: Closed

Will an air or gas system be Used? NO

Description of the equipment for the circulating system in accordance with Onshore Order #2:

Diagram of the equipment for the circulating system in accordance with Onshore Order #2:

Describe what will be on location to control well or mitigate other conditions: Mud system designed for drilling in this area based on past experience. Materials for 10.4lb mud on location for Abo @ ~ 6300'. Nut plug & fiber on location to control seepage and/or lost circulation as needed.

Describe the mud monitoring system utilized: standard gas measurement system with alarms

Circulating Medium Table

Top Depth: 420

Bottom Depth: 2465

Mud Type: WATER-BASED MUD

Min Weight (lbs./gal.): 9

Max Weight (lbs./gal.): 10.2

Density (lbs/cu.ft.):

Gel Strength (lbs/100 sq.ft.):

PH:

Viscosity (CP):

Filtration (cc):

Salinity (ppm):

Additional Characteristics: Attempted to input other mud properties here but system would not take the information and proceed forward. Instructed by Carol Harwood (AFMSS Support Specialist in Kemmerer, Wyoming) on 4/13/17 to proceed with only inputting the mud weight.

Top Depth: 0

Bottom Depth: 420

Mud Type: SPUD MUD

Min Weight (lbs./gal.): 8.4

Max Weight (lbs./gal.): 9.6

Density (lbs/cu.ft.):

Gel Strength (lbs/100 sq.ft.):

PH:

Viscosity (CP):

Filtration (cc):

Salinity (ppm):

Additional Characteristics: Attempted to input other mud properties here but system would not take the information and proceed forward. Instructed by Carol Harwood (AFMSS Support Specialist in Kemmerer, Wyoming) on 4/13/17 to proceed with only inputting the mud weight.

Operator Name: ARMSTRONG ENERGY CORP

Well Name: LIZA JANE FEDERAL

Well Number: 1

Top Depth: 2465

Bottom Depth: 8300

Mud Type: WATER-BASED MUD

Min Weight (lbs./gal.): 9

Max Weight (lbs./gal.): 10.3

Density (lbs/cu.ft.):

Gel Strength (lbs/100 sq.ft.):

PH:

Viscosity (CP):

Filtration (cc):

Salinity (ppm):

Additional Characteristics: Attempted to input other mud properties here but system would not take the information and proceed forward. Instructed by Carol Harwood (AFMSS Support Specialist in Kemmerer, Wyoming) on 4/13/17 to proceed with only inputting the mud weight.

Section 6 - Test, Logging, Coring

List of production tests including testing procedures, equipment and safety measures:

swab test

List of open and cased hole logs run in the well:

CALIPER,CBL,CNL,DLL,GR,MUDLOG,MICROLO

Coring operation description for the well:

Probable sidewall core through San Andres formation, and possibly in Penn interval.

Section 7 - Pressure

Anticipated Bottom Hole Pressure: 2000

Anticipated Surface Pressure: 174

Anticipated Bottom Hole Temperature(F): 126

Anticipated abnormal proessures, temperatures, or potential geologic hazards? NO

Describe:

Contingency Plans geoharzards description:

Contingency Plans geohazards attachment:

Hydrogen Sulfide drilling operations plan required? NO

Hydrogen sulfide drilling operations plan:

Operator Name: ARMSTRONG ENERGY CORP

Well Name: LIZA JANE FEDERAL

Well Number: 1

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

Other proposed operations facets description:

Acidization of formation for stimulation upon completion.

Waste Minimization Plan attached here, per Jennifer Sanchez

Other proposed operations facets attachment:

Waste_Minimization_Plan_05-08-2017.pdf

Other Variance attachment: