

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

FORM APPROVED  
OMB NO. 1004-0137  
Expires: January 31, 2018

**SUNDRY NOTICES AND REPORTS ON WELLS**  
*Do not use this form for proposals to drill or to re-enter an abandoned well. Use form 3160-3 (APD) for such proposals.*

**SUBMIT IN TRIPLICATE - Other instructions on page 2**

1. Type of Well <input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other		5. Lease Serial No. NMNM008005
2. Name of Operator ENCANA OIL & GAS (USA) INCORP Contact: JEVIN CROTEAU E-Mail: jevin.croteau@encana.com		6. If Indian, Allottee or Tribe Name EASTERN NAVAJO
3a. Address 370 17TH STREET, SUITE 1700 DENVER, CO 80202	3b. Phone No. (include area code) Ph: 720-876-5339	7. If Unit or CA/Agreement, Name and/or No. NMNM132981A
4. Location of Well (Footage, Sec., T., R., M., or Survey Description) Sec 3 T23N R9W SWNE 2544FNL 1510FEL 36.256241 N Lat, 107.772491 W Lon		8. Well Name and No. NAGEEZI UNIT 501H
		9. API Well No. 30-045-35860-00-X1
		10. Field and Pool or Exploratory Area BASIN MANCOS
		11. County or Parish, State SAN JUAN COUNTY, NM

12. CHECK THE APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION
<input checked="" type="checkbox"/> Notice of Intent	<input type="checkbox"/> Acidize <input type="checkbox"/> Deepen <input type="checkbox"/> Production (Start/Resume) <input type="checkbox"/> Water Shut-Off
<input type="checkbox"/> Subsequent Report	<input type="checkbox"/> Alter Casing <input type="checkbox"/> Hydraulic Fracturing <input type="checkbox"/> Reclamation <input type="checkbox"/> Well Integrity
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Casing Repair <input type="checkbox"/> New Construction <input type="checkbox"/> Recomplete <input checked="" type="checkbox"/> Other
	<input type="checkbox"/> Change Plans <input type="checkbox"/> Plug and Abandon <input type="checkbox"/> Temporarily Abandon
	<input type="checkbox"/> Convert to Injection <input type="checkbox"/> Plug Back <input type="checkbox"/> Water Disposal

13. Describe Proposed or Completed Operation: Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recompleat horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports must be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompleat in a new interval, a Form 3160-4 must be filed once testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has determined that the site is ready for final inspection.

Encana is requesting authorization to install gas lift on the subject well. Please find attached the gas lift install procedure and gas lift design for the subject well.

NMOC  
NOV 15 2018  
DISTRICT 111

14. I hereby certify that the foregoing is true and correct.

**Electronic Submission #440111 verified by the BLM Well Information System  
For ENCANA OIL & GAS (USA) INCORPO, sent to the Farmington  
Committed to AFMSS for processing by JACK SAVAGE on 11/06/2018 (19JWS0036SE)**

Name (Printed/Typed) JEVIN CROTEAU	Title AUTHORIZED REPRESENTATIVE
Signature (Electronic Submission)	Date 10/17/2018

**THIS SPACE FOR FEDERAL OR STATE OFFICE USE**

Approved By JACK SAVAGE	Title PETROLEUM ENGINEER	Date 11/06/2018
Conditions of approval, if any, are attached. Approval of this notice 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.		Office Farmington

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.

(Instructions on page 2)

**\*\* BLM REVISED \*\* BLM REVISED \*\* BLM REVISED \*\* BLM REVISED \*\* BLM REVISED \*\***

NMOCDA

**NU A09-2309 501H**

Tubing – Gas Lift Install Procedure – 10/11/18

**Scope**

Install a tapered tubing string, 2-7/8" x 2-3/8", with 2-7/8" gas lift valves. Gas lift valves will be installed in the 2-7/8" tubing above the liner top. A tubing anchor catcher will be set at approx. 20° and tubing set in tension. A 2-7/8" X nipple will be set at approximately 50° in the 2-7/8". The 2-3/8" string will start at approx. 50° (above the liner top) and land at 80°.

**Current Wellbore Details:**

All depths from KB (14')  
7" Int csg set at 5,244' MD (~70°)  
4 1/2" liner – top at 5,057' MD (~56°)  
Perfs (20 stages) 5,444' – 10,013' MD

**Proposed Tubing Details:**

All depths from KB (14')  
2-7/8" tbg to 5,000' MD (TOL @ 5,057' & 56°)  
2-7/8" Gas Lift Valves – 2,018', 2,858', 3,538', 4,111', 4,633'  
2-7/8" x 7" TAC set @ 4,500'  
2-7/8" Profile Nipple @ 5,000' MD (~50°)  
2-7/8" x 2-3/8" x-over @ 5,030' MD  
2-3/8" tbg to 5,450' MD (80°)

**Procedure:**

1. Complete drillout and circulate hole clean.
2. PU and TIH w/ approx. 420' of J55 2-3/8" 4.7# tbg.
3. X-over to 2-7/8". Liner top is @ 5,057'. Run one joint of 2-7/8" J55 6.4# tubing.
4. Make up 2-7/8" X Nipple. Run approx. 500' of 2-7/8" J55. Make up 7" tubing anchor.
5. Run approx. 4,500' of 2-7/8" J55 tbg with gas lift valves installed per Superior design (depths noted above).
6. Install tubing hanger and tree. Land tubing in 15,000 lb tension.
7. Turn over to Production for gas lift operations.

**Contact Information:**

Casey Morse	Production Engineer	720-876-3753 (o) 603-205-3780 (c)
Tony Ferrari	Production Coordinator	505-599-2412 (o) 505-258-3875 (c)
James Jmieff	Production Manager	720-876-5343 (o) 720-412-0339 (c)

## SUPERIOR ENERGY SERVICES

### Encana Oil and Gas - Nageezi Unit # 501H

DESIGN DATE: 10/11/2018

DESIGNED BY: Pat Drake

#### Well Data:

The well to be completed with 2.875" TBG.  
The production CSG is 7.0" 26.0# w/ 6.276" ID 6.151" drift.

#### Design Criteria:

KO/OP pressure = 800 psi / 800 psi  
Gas specific gravity = 0.830  
Kill fluid gradient = 0.465 psi/ft  
Static surface temperature = 74° F.  
Flowing surface temperature = 86° F.  
Bottom hole temperature = 135° F.  
Datum Depth = 4967 feet TVD | Geothermal grad. = 1.228°F/100 ft  
Oil gravity = 41° API / 0.820 sg  
Water specific gravity = 1.030  
Static bottom hole pressure = 1900 psi  
Flowing well head pressure = 200 psi / 200 psi / 200 psi  
Design rates = 500 blpd / 400 blpd / 300 blpd  
Design injection rates = 500 mcf / 500 mcf / 500 mcf

#### Recommendations:

GLV's @ 2018', 2858', 3538', 4111' and 4633' MD  
2.31" X-nipple @ 5002' MD / 4790' TVD  
2-3/8" x 2-7/8" tubing X-over @ 5025' MD / 4804' TVD  
TOL @ 5057' MD / 4823' TVD  
EOT @ 5440' MD / 4967' TVD  
Perfs @ ~ 5,444' to 10,013' / 4,967' to 4,907' (MD/TVD)

## SUPERIOR ENERGY SERVICES

Company: Encana Oil and Gas  
 Field: Lybrook Gallup  
 Well: Nageezi Unit # 501H  
 Lease: Nageezi Unit  
 State: NM

Design Date: 10/11/2018  
 Designed By: Pat Drake  
 Design For: Casey Morse  
 Phone Number: 505-320-7002  
 County: San Juan

### Design Parameters

#### Comments

GLV's @ 2018', 2858', 3538', 4111' and 4633' MD  
 2.31" X-nipple @ 5002' MD / 4790' TVD  
 2-3/8" x 2-7/8" tubing X-over @ 5025' MD / 4804' TVD  
 TOL @ 5057' MD / 4823' TVD  
 EOT @ 5440' MD / 4967' TVD  
 Perfs @ 5444' - 10013' MD / 4967' - 4907' TVD

#### Lift gas Data

Kick off pressure	800 psig	Operating pressure	800 psig
Lift gas gravity	0.830	Kill fluid gradient	0.465 psi/ft

#### Temperature Data

Static Surface	74 °F	Flowing Surface	86 °F
Bottom Hole	135 °F	Temperature model	Straight line

#### PVT Data

Oil specific gravity	0.820	Water specific gravity	1.030
Oil API gravity	41.	Gas specific gravity	0.830

#### Depths

Max Vlv depth	4500 feet	Perforations	5444 / 4967 (MD/TVD) feet
Fluid level	0 feet		

#### Reservoir

Formation GLR	0 scf/bbl	Static bottom hole pressure	1900 psig
Productivity Index	0.0 bbl/dy/psi		

#### Flowing Gradients

	Inj Rate	WHP	RATE	GLR	% WATER	CORRELATION
1	500 mcf/d	200 psig	500 blpd	1000 scf/bbl	20.00	Hagendorn-Brown
2	500 mcf/d	200 psig	400 blpd	1250 scf/bbl	20.00	Hagendorn-Brown
3	500 mcf/d	200 psig	300 blpd	1667 scf/bbl	20.00	Hagendorn-Brown

#### Well Geometry

Tubing #	TVD	MD	Casing I.D.	Tubing O.D.	Tubing I.D.	Tubing Threads
1	1997	2015	6.276	2.875	2.441	EUE 8RD
2	2461	2503	6.276	2.875	2.441	EUE 8RD
3	2981	3048	6.276	2.875	2.441	EUE 8RD
4	3504	3594	6.276	2.875	2.441	EUE 8RD
5	4014	4126	6.276	2.875	2.441	EUE 8RD
6	4490	4622	6.276	2.875	2.441	EUE 8RD
7	4518	4653	6.276	2.875	2.441	EUE 8RD
8	4804	5025	6.276	2.875	2.441	EUE 8RD
9	4823	5057	6.276	2.875	2.441	EUE 8RD
10	4967	5444	4.000	2.375	1.995	EUE 8RD

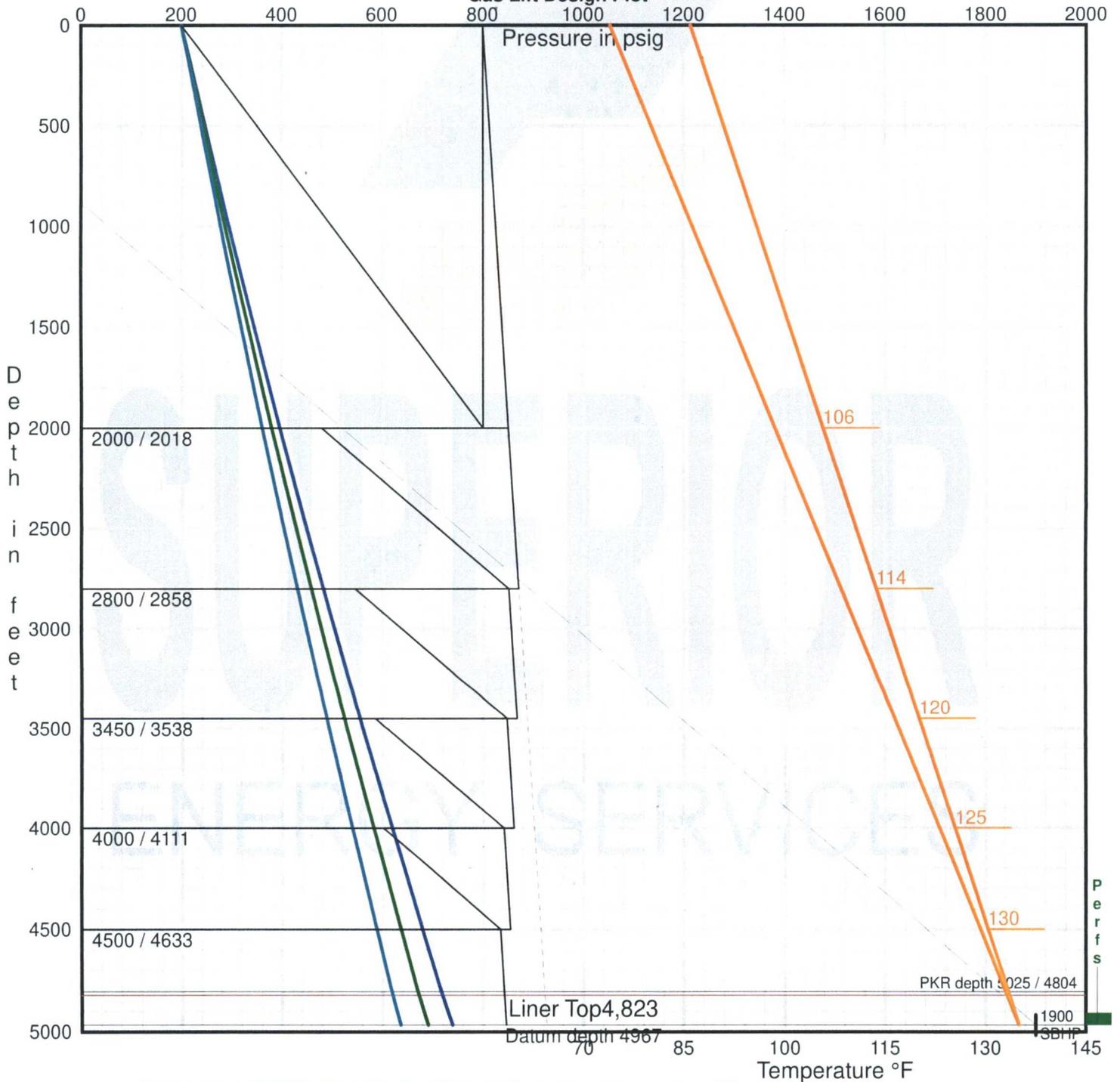
# SUPERIOR ENERGY SERVICES

Company: Encana Oil and Gas  
 Field: Lybrook Gallup  
 Well: Nageezi Unit # 501H  
 Lease: Nageezi Unit  
 State: NM

Design Date:  
 Designed By:  
 Design For:  
 Phone Number:  
 County:

10/11/2018  
 Pat Drake  
 Casey Morse  
 505-320-7002  
 San Juan

## Gas Lift Design Plot



- PWH=200 RATE=500 GLR=1000 WC=0.20 - Hagendorn-Brown
- PWH=200 RATE=400 GLR=1250 WC=0.20 - Hagendorn-Brown
- PWH=200 RATE=300 GLR=1667 WC=0.20 - Hagendorn-Brown



## SUPERIOR ENERGY SERVICES

Company: Encana Oil and Gas  
 Field: Lybrook Gallup  
 Well: Nageezi Unit # 501H  
 Lease: Nageezi Unit  
 State: NM

Design Date:  
 Designed By:  
 Design For:  
 Phone Number:  
 County:

10/11/2018  
 Pat Drake  
 Casey Morse  
 505-320-7002  
 San Juan

### Shop Order

#### Valves

Qty	New	Rec.	Exc.
5	0	5	0

#### Checks

Qty	New	Rec.	Exc.
5	0	5	0

#### Latches

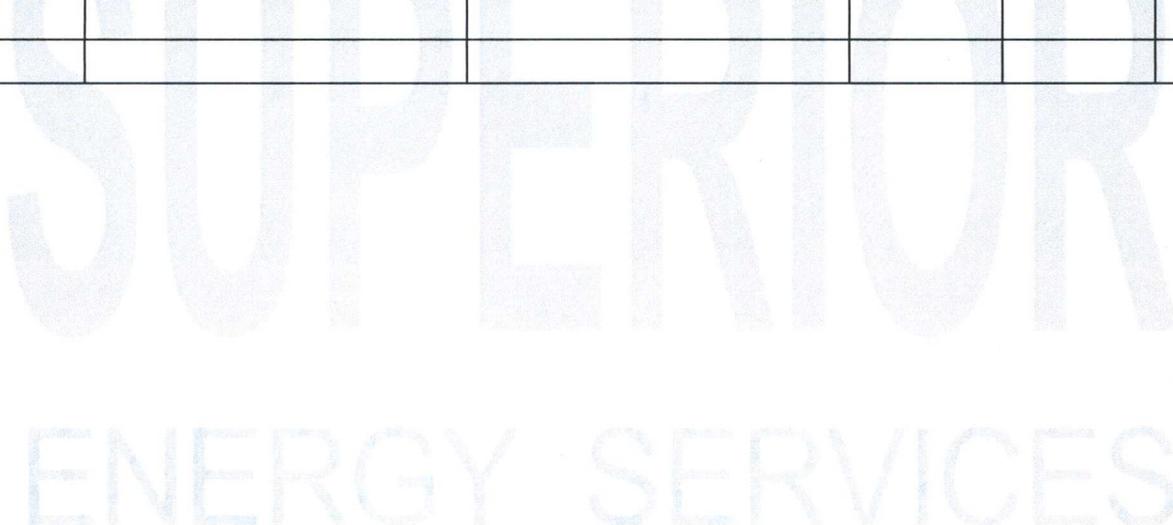
Qty	New	Rec.	Exc.
0	0	0	0

#### Valve details

Valve #	Valve Model	Test Rack Opening	Set	Port Size	Depth TVD	Depth MD	Special Instructions
5	GJ-20	795		12	2000	2018	W/ TC Trim
4	GJ-20	785		12	2800	2858	W/ TC Trim
3	GJ-20	770		12	3450	3538	W/ TC Trim
2	GJ-20	755		12	4000	4111	W/ TC Trim
1	GJ-20	745		12	4500	4633	W/ TC Trim

#### Mandrel Specifications

Qty	Type & Size	Thread	Grade	New/Rec.	Coating
5	2-7/8" x 1-1/2"	8RD EUE	J55	Rec	Yes



Equipment prepared by:	Loaded/Tested by:
Comments:	
Verified by:	