

Strategic HB et al Cameron M-31

Approval to Alter Condition of a Well

June 10, 2022

Strategic Oil & Gas Ltd. c/o Alvarez & Marsal Canada ULC

Approval to Alter the Condition of a Well – Strategic HB et al Cameron M-31

June 10, 2022

- 1) Application to alter the condition of a well – M-31 60-00N 117-30W
- 2) Signed Declaration by Applicant
- 3) Well Abandonment Program
- 4) Well history
- 5) Existing wellbore schematic dated February 8, 1996
- 6) Cement bond log evaluation – Jan 23, 1996
- 7) Proposed wellbore schematic
- 8) OROGO guidelines regarding previously abandoned zones
- 9) Slave Point gas analysis – March 14, 1980 – 0.19% H₂S
- 10) BOP configuration – Class III – 21000 kPa
- 11) Wellsite inspection – Sept 26, 2018
- 12) Gas migration test to be performed and submitted to OROGO in Q3 2022
- 13) NuWave cut and cap procedure
- 14) OROGO abandoned wellbore sign requirements
- 15) If a relief well is required, Savanna 424 is currently racked in the Steen River area of Alberta and will be utilized
- 16) The corporate ERP has site specific documentation for the Cameron Hills area of the NWT. OROGO has the most recent copy of this document attached to OA-2018-003-SOG

APPROVAL TO ALTER THE CONDITION OF A WELL

This form is an application for a Well Approval under Section 10 of the *Oil and Gas Drilling and Production Regulations*.

INSTRUCTIONS:

1. Complete both pages.
2. Send one electronic copy of this form and supporting technical documentation by email to orogo@gov.nt.ca. If you wish to communicate with OROGO in hard copy, please do so using the courier address found at www.orogo.gov.nt.ca.

WELL INFORMATION

Well Name	Strategic et al Cameron M-31	Operator	Strategic Oil & Gas Ltd.
Well Type	Exploratory Well (if Other, specify _____)	Contractor	to be determined

RELATED LICENCES, PERMITS, AND AUTHORIZATIONS

Operating Licence No.	NWT-OL-2014-007	Operations Authorization	OA-2018-003-SOG
PRA Licence No.	Significant Discovery Licence 008	Station Keeping Land Structure	Not Applicable Conventional Land
Land Use Permit No.	MV2013A0010	Issued by:	Mackenzie Valley Land and Water Board
Water Licence No.	MV2010L-0001	Issued by:	Mackenzie Valley Land and Water Board

ACTIVITY INFORMATION

Current Well Status	Suspended	Anticipated Well Status	Abandoned
Well Path	Vertical	Elevation KB/RT	358.3 m
Approximate Start Date	Q1 2023	Ground Level / Seafloor	354.7 m
Est. Days on Location	5 days	Anticipated Total Depth	1060 m KB

WELL OPERATION PROGRAM

Activity Type	Top to Bottom Interval (m KB)	Comments
Abandonment	730.0-745.2	Cement retainer capped with cement
Abandonment	0-1.5	Cut and cap
Select	-	
Select	-	
Additional Information		

"I certify that the information provided on this form is true and correct"

Name	Ken Nikiforuk	Phone	(403) 804-2510 Ext
Title	Operations Consultant	E-Mail	kanikiforuk@icloud.com
Operator	Strategic Oil & Gas Ltd.		
Signature	 Responsible Officer of Company	Date	June 10, 2022

DECLARATION BY APPLICANT

Applicant Strategic Oil & Gas Ltd. c/o Alvarez & Marsal Canada ULC

Title of Application ACW – Strategic et al Cameron M-31 – Abandon Wellbore

Pursuant to subsection 15(1) of the *Oil and Gas Operations Act*, the Applicant declares that in respect of the above-referenced Application:

- a) the equipment and installations that are to be used in the work or activity to be authorized are fit for the purposes for which they are to be used, the operating procedures relating to them are appropriate for those uses, and the personnel who are to be employed in connection with them are qualified and competent for their employment; and,
- b) the Applicant shall ensure, so long as the work or activity that is authorized continues, that the equipment and installations continue to be fit for the purposes for which they are used, the operating procedures continue to be appropriate for those uses, and the personnel continue to be so qualified and competent.

Dated this 10 day of June 2022.

Signature of Responsible Officer 

Name and Title of Officer Ken Nikiforuk Operations Consultant

Please complete this declaration and enclose with the application to the Office of the Regulator of Oil and Gas Operations for an authorization under paragraph 10(1)(b) of the *Oil and Gas Operations Act*.

STRATEGIC OIL & GAS LTD. c/o ALVAREZ & MARSAL CANADA ULC

STRATEGIC ET AL CAMERON

M-31 60-110N 117-00W

Wellbore Abandonment

June 10, 2022

CONTACTS:

Engineering:	Ken Nikiforuk	Cell 403 804-2510
Field Consultant:	To be determined	Cell
Production Foreman:	To be determined	Cell
Construction:	To be determined	Cell
Facilities :	Kurt Hewitt	Cell 780 830-8303
Director, A&M:	Duncan MacRae	403 538-7514 Cell 403 815-0297

ATTACHMENTS:

OBJECTIVES:

To perform operations on the previously abandoned Slave Point, Sulphur Point and Keg River wellbore and cut and cap

SAFETY:

SOG Completions safety guidelines given in the "Employee Safety Manual", the "Contractor's HSE Pamphlet" and the "SOG Cameron Hills HSE Assurance plan" will be followed during all completion activities. Discuss the contents of the Contractor's HSE Pamphlet with the rig crew plus all service company personnel prior to the commencing work. Conduct a service rig safety inspection. Fill out the "Service Rig Safety Inspection" sheets; discuss and remedy all unsatisfactory comments and document when follow-up is completed on the daily reports. **Safety meetings are to be held with all on site personnel prior to each event. The wellsite supervisor must notify all personnel of potential hazards and ensure workers are aware of the responsibilities and duties in accordance with the SOG and OROGO regulations and that all workers comply with these regulations. A record of all safety meeting minutes and hazard assessments should be kept on site and submitted along with the daily reports to the Calgary Office at the end of the job. All service companies supplying materials will review Material Safety Data Sheets at the safety meetings and keep the MSDS papers posted on site.**

Contact the lead operator 48 hours prior to moving on to the lease. If this is an existing lease with production equipment, one of the operators should provide site-specific safety concerns and isolate the production equipment as required.

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**STRATEGIC ET AL CAMERON
M-31 60-110N 117-00W
Wellbore Abandonment**

June 10, 2022

UWI: 300M316010117000

OROGO Well ID: 1122

AFE: to be determined

WORKING INTEREST: 100%

ELEVATIONS: KB: 358.3 m
GL: 354.7 m

TD: 1061.4 mKB

TVD: 1061.4 mKB

PBTD: 730.0 mKB (retainer with 15.2 m cement)

DEVIATION: Vertical wellbore.

SURFACE CASING: 244.5 mm, 48.1 kg/m, H-40, ST&C. Landed @ 199.0 m KB. Cemented with 13.5 tonnes 0:1:0 'G' + 3.0% CaCl₂. 1 m³ of good cement returns to surface.

INTERMEDIATE CASING: 177.8 mm, 25.3 kg/m, H-40, ST&C. Landed @ 796.0 m KB. Cemented with 20.3 tonnes 0:1:0 'G'. 1.5 m³ of good cement returns to surface.

PRODUCTION CASING: 114.3 mm, 14.1 kg/m, J-55, ST&C. Landed at 1061.4 mKB. Cemented with 6.6 tonnes OWG neat. No returns to surface. Logged cement top at 760 mKB

TUBULAR DATA:

Casing

Size (mm)	114.3
Weight (kg/m)	14.1
Grade	J-55
Connections	ST&C
I.D. (mm)	103.89
Drift (mm)	100.71
Collapse (kPa)	22820
Burst (kPa)	30200
Capacity (m ³ /m)	0.008476

PRODUCTION TUBING: none in the hole

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STRATEGIC ET AL CAMERON

M-31 60-110N 117-00W

Wellbore Abandonment

June 10, 2022

PERFORATIONS:

Keg River	1009.0 to 1013.0 mKB (abandoned)
Keg River	1002.5 to 1005.0 mKB (abandoned)
Keg River	998.0 to 1001.0 mKB (abandoned)
Lokset c/w PIP	990 mKB
Sulphur Point	886.0 to 887.5mKB (abandoned)
Sulphur Point	884.0 to 885.0 mKB (abandoned)
Sulphur Point	879.5 to 881.5 mKB (abandoned)
PBP and cement	860.4 to 870.0 mKB
Slave Point	826.0 to 828.5 mKB (abandoned)
Slave Point	819.0 to 822.5 mKB (abandoned)
Packer (fish)	coe at 810.0 mKB
PBP and cement	787.0 to 797.0 mKB
Remedial perfs	756.0 to 757.0 mKB
Cement retainer	745.2 mKB
15.2 m cement cap	730.0 mKB

H2S: 0.19% - Slave Point – March 14, 1980

RESERVOIR PRESSURE: no data available

MAX FLARE VOLUME: 1.5 times wellbore volume at 10 MPa = 2.8 e3m3
Note that any significant flare volume in this operation is unexpected

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STRATEGIC ET AL CAMERON
M-31 60-110N 117-00W
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- 1 Contact the on shift Area Foreman – to be determined - 48 hours prior to moving rig to location.
- 2 Hold and record a safety and procedural meeting with all personnel on location. Review and confirm safety certificates of all workers. Job hazard analysis is to be performed on all critical tasks. Complete a site specific ERP form and review it at the safety meeting if required.
- 3 A sweep of the wellsite shall be performed to confirm the presence or absence of LEL and H2S.
- 4 Read and record SICP.
- 5 MIRU pressure truck and steamer. Rig up all equipment to SOG and OROGO requirements. RU P-tank, safety services and an air trailer. Conduct a walk around lease inspection and hazard assessment. Ensure all necessary safety equipment is strategically positioned on site and tested to ensure proper operating condition prior to commencing the zonal abandonment operations. Document all controls initiated to mitigate identified hazards.
- 6 Conduct a 10 minute bubble test on the surface casing vent using the procedure found in OROGO's Well Suspension and Abandonment Guidelines section 4B. Ensure that the wellhead and SCV piping is not in a frozen state. Check and monitor LEL and H2S levels at wellhead and investigate for evidence of gas migration at surface. Report the results on the daily report and the AER form "Surface Casing Vent Flow FAC-38". Ensure that the vent stays open and clear of obstructions throughout all operations and note any subsequent flows on the daily report. **Contact Ken Nikiforuk with the results of the bubble test.**
- 7 Tie in circulating lines with a return line tied into P-tank. Properly stake surface lines and pressure test lines and manifold to 1,400 kPa (low) and 14,000 kPa (high) and hold each for 10 minutes.
- 8 Pressure test casing to 7000 kPa for fifteen minutes with fresh water.
- 9 Bleed off casing to P-tank.
- 10 Remove wellhead top section and install a shop bench tested orbit valve.
- 11 MIRU combination electric line / slickline truck and picker.
- 12 Perform guage ring run to PBTD.
- 13 Perform cement bond log from PBTD to surface. Ensure data is transferred for evaluation communications allow. Evaluation results to be forwarded to Ken Nikiforuk and OROGO as soon as they are available.
- 14 Casing swab wellbore to PBTD (hole volume is 6.2 m3).
- 15 Fill the hole with 6.2 m3 fresh water.
- 16 Rig out and release all equipment and services.

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STRATEGIC ET AL CAMERON
M-31 60-110N 117-00W
Wellbore Abandonment

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- 17 Depending on the results of the cement bond log evaluation, the decision will be made to go forward with cut and cap operations (proceed to step 47) or to perform remedial cementing operations (proceed to step 18).
- 18 MIRU service rig complete with pump, tank and Class III BOP's. Rig up all equipment to SOG and OROGO requirements. RU P-tank, safety services and an air trailer. Conduct a walk around lease inspection and hazard assessment. Ensure all necessary safety equipment is strategically positioned on site and tested to ensure proper operating condition prior to commencing the zonal abandonment operations. Document all controls initiated to mitigate identified hazards.
- 19 The reservoir is underpressured (less than 10 kPa/m) so fresh water will suffice to kill the well. Ensure there is at least 1.5 times hole volume on location prior to commencing kill operations.
- 20 Pressure test the casing to 7000 kPa for ten minutes.
- 21 Bleed off casing to P-tank.
- 22 Install the working spool and BOP's onto the BOP test stump. If required, warm up the BOP stack with steam. Function test the blind rams and pipe rams on the test stump. Close the blind rams and pressure test the working spool, the blind rams and BOP flange 1400 kPa and 21 MPa for 10 minutes each. Install a ported tubing pup and stabbing valve through the BOP's on the BOP test stump. Pressure test the pipe rams and stabbing valve to 1400 kPa and 21 MPa for 10 minutes each. Pressure test the annular preventer to low of 1400 kPa and high of 7000 kPa.
- 23 Conduct an accumulator function test as per the attached procedure from the WSBOP manual.
- 24 Ensure the well is dead and remove the orbit valve.
- 25 Install a 73.0 mm landing pup with an open stabbing valve. Strip the BOP's over the landing pup and nipple up the stack. Close the pipe rams on the landing pup and pressure test the BOP connection to the wellhead for 1400 kPa and 21 MPa for 10 minutes each.
- 26 BOP drills will be performed at the start of wellbore operations and then weekly if required and are to be recorded on the daily reports. BOP equipment will be function tested at least once daily and any equipment found defective will be made serviceable before operations are resumed.
- 27 MIRU electric line truck. Conduct walk around lease inspection and hazard assessment. Document all controls initiated to mitigate identified hazards. Hold and record safety meeting with all personnel on location.
- 28 Correlate all perforating operations to the recently performed cement bond log. Pick up and RIH with 86.0 mm ERHSC perf guns loaded with 39 gram charges spaced at 17 spm and 60 degree phasing. Position and perforate 1.0 meters at a depth to be determined. POOH and inspect guns to ensure all shots fired.
- 29 Rig out electric line.

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- 30 Pick up and RIH with 114.3 mm cement retainer on 60.3 mm tubing.
- 31 Set cement retainer at a depth to be determined.
- 32 Sting out of retainer and pressure test to 7000 kPa for fifteen minutes.
- 33 Sting back in to retainer and establish feed rate.
- 34 Based on the feed rate, the cement blend and volumes will be determined.
- 35 Sting out of retainer.
- 36 MIRU cement pumper. Rig up all equipment to SOG and OROGO requirements. RU P-tank, safety services and an air trailer. Conduct a walk around lease inspection and hazard assessment. Document all controls initiated to mitigate identified hazards.
- 37 Establish circulation between tubing and casing.
- 38 Batch mix a to be determined volume of a to be determined cement blend.
- 39 Circulate a to be determined volume of cement down the tubing and sting back in to retainer.
- 40 Squeeze a to be determined volume of cement into the formation and sting out of retainer.
- 41 Slowly pull and lay down two joints of the 60.3 mm tubing while rotating and ensure 15 lineal meters of cement has been circulated on top of the cement retainer. See attached procedure dated March 5, 2019.
- 42 Reverse circulate fresh water at least two tubing volumes or until returns are clean.
- 43 Pull and lay down tubing. Prior to pulling the last joint out of the hole, circulate over to fresh water.
- 44 Ensure the well is dead and remove BOP's.
- 45 Install orbit valve.
- 46 Rig out service rig. Ensure lease is clean and free of debris.
- 47 MIRU NuWave Industries and cut and cap wellbore as per attached procedure. Ensure pictures are taken.
- 48 Install abandoned well sign as per attached OROGO specifications.
- 49 Ensure lease is clean and free of debris.

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Upon completion of field work the Wellsite Supervisor shall complete the following:

- Prepare a complete set of downhole and wellhead diagrams showing all serial numbers, pressure ratings, sizes, setting depths, etc.
- A complete lease clean-up shall be conducted. All garbage shall be picked up from the lease, all surplus material shall be transferred to proper storage locations and all rental equipment shall be returned.
- Ensure a sign has been installed.
- Ensure that all field-generated PO.'s MT's etc. are filled out vendor's name and address, a brief description of the work performed and a rough estimate of the final expected costs involved.

MORNING REPORTS: All morning reports are to be e-mailed to the following:

Ken Nikiforuk at kanikiforuk@icloud.com
Kurt Hewitt at kurtw.hewitt@gmail.com
Duncan MacRae at dmacrae@alvarezandmarsal.com
OROGO at orogo@gov.nt.ca

FIELD TICKETS/INVOICES:

Field tickets are to be completed in detail with the **Well Location, AFE Number, Codes** and details of the service work. **Tickets are to be signed by the on site representative. These tickets and all invoices must be made out to Strategic Oil & Gas Ltd. c/o Alvarez & Marsal Canada ULC**

Invoices are to be mailed to:

**STRATEGIC OIL & GAS LTD. C/O ALVAREZ & MARSAL CANADA ULC
#1110, 250 – 6th Avenue SW
Calgary, AB
T2P 3H7**

ATTENTION: KEN NIKIFORUK

Prepared By: Ken Nikiforuk
Operations Consultant:

Ken Nikiforuk Date June 10/22

Approved By: Cassie Riglin
Managing Director,
Alvarez & Marsal:

CR Date June 10/22

Strategic Oil & Gas Ltd. c/o Alvarez & Marsal Canada ULC

Well History

Well name : Strategic HB et al Cameron M-31

Licence Number : 1122

08-Mar-79 spud

Surface hole is 311 mm to 200.0 mKB
Surface casing is 244.5 mm x 48.1 kg/m x H-40 x ST&C landed at 199.0 mKB
Surface cemented with 13.5 tonnes 0:1:0 G + 3.0% CaCl₂. 1 m³ cement returns to surface
Intermediate hole is 222 mm to 796.0 mKB
Intermediate casing is 177.8 mm x 25.3 kg/m x H-40 x ST&C landed at 796.0 mKB
Intermediate cemented with 20.3 tonnes 0:1:0 G. 1.5 m³ good cement returns.
Main hole is 159 mm. Stuck in hole with drilling BHA at 1613 mKB. Fished for 18 days and had to shut down for the season.
Gas kick at 875 mKB. Raised mud weight to 1160 kg/m³
Fluid gain at 1058 mKB. Raised mud weight to 1210 kg/m³
DST #1 - 997.0 to 1015.0 mKB
DST #2 - 879.0 to 897.0 mKB
DST #3 - 855.0 to 873.0 mKB
DST #4 - 879.0 to 900.0 mKB
DST #5 - 854.0 to 875.0 mKB
DST #6 - 813.0 to 834.0 mKB
DST #7 - 793.0 to 814.0 mKB
DST #8 - 793.0 to 814.0 mKB
DST #9 - hole bridged - unable to perform
Production casing is 114.3 mm x 14.1 kg/m x J-55 x ST&C landed at 1061.4 mKB
Production casing cemented with 6.6 tonnes OWC neat. Good returns throughout. No comments regarding cement returns.

02-Apr-79 Rig Released

22-Feb-80 Perf Keg River - 1009.0 to 1013.0 mKB

23-Feb-80 Baker Lok-set packer set at 990 mKB

Perf Sulphur Point - 879.5 to 881.5 mKB, 884.0 to 885.0 mKB and 886.0 to 887.5 mKB

- 25-Feb-80 Acidize Keg River with 2000 gallons HCL
- 29-Feb-80 Thru tubing perf Keg River 1002.5 to 1005.0 mKB and 998.0 to 1001.0 mKB
2000. gallon acid job
- 29-Feb-80 2000 gallon acid job
- 06-Mar-80 Set Plug in Baker Lok-set packer at 990 mKB.
- 07-Mar-80 Set Baker Lok-set packer at 877.2 mKB
Perf Slave Point 826.0 to 828.5 mKB and 819.0 to 822.5 mKB
42 bbl 28% HCL acid squeeze on Slave Point
- Packer set at 803 mKB - unknown date - no available reports!!! - POOH Feb 4, 1981
- 04-Feb-80 Set PBP at 870.0 mKB
No record of p-test
Dump bail 9.4 mKB cement (new PBDT at 860.4 mKB
Baker FTB-1 packer set at 810.0 mKB
- 23-Jan-96 Set permanent tubing bridge plug at 813.3 mKB
Set permanent tubing bridge plug at 808.4 mKB
Pressure test plug to 10000 kPa for 15 minutes.
- 24-Jan-96 Cut tubing above packer at 804.5 mKB
PBP set at 797.0 mKB
P-test to 10000 kPa for 15 minutes. Good test
Dump bail 10 meters cement
Run cement bond log
- 25-Jan-96 Remedial perf at 756.0 to 757.0 mKB
Set cement retainer at 745.2 mKB
Circulation squeeze of 12.5 tonnes 0:1) G + 1.1% NFL-3. 0.5 m3 cement returns to surface
Cement top above retainer at 730 mKB
- 26-Jan-96 Hole filled with inhibited fresh water (0.5% Nowcor 500)

07-Sep-95 Well inspection - no issues

04-Jul-98 Well inspection - no issues

27-May-07 Well inspection - no issues

01-Apr-09 Well inspection - no issues

27-Nov-09 Well inspection - no issues

10-Nov-11 Well inspection - no issues

24-Sep-16 Well inspection - no issues

23-Sep-17 Well inspection - no issues

26-Sep-18 Well inspection - no issues



PARAMOUNT RESOURCES LTD.

PARAMOUNT et al CAMERON M - 31 60° 10' 117° 0' WELL COMPLETION SCHEMATIC

1996-02-08
Rev. 2.0

KBE : 358.3 m
GLE : 354.7 m

Tbg. "h" : ? m TFE : ? m
Csg. "H" : ? m CFE : ? m

Set 244.5 mm, 48.1 kg/m,
H-40, ST&C ERW casing
@ 200 mKB.
Cemented to surface with
13.5 t Class G + 3% CaCl₂.

311.2 mm hole to 200 m.

Set 177.8 mm, 25.3 kg/m, H-40,
ST&C, ERW casing @ 796 m.
Cemented to surface? with 20.3 t
0:1:0 'G'

222.2 mm hole to 796 mKB.

Set 114.3 mm, 14.14 kg/m, J-55,
ST&C, ERW casing @ 1060 m.
Cemented with 6.6 t 0:1:0 'G'. (Top at
621 m calculated.

158.7 mm hole to 1060 mKB.

Tubing as follows from bottom:

- | | | |
|--------|---|---|
| 0.13 m | 1 | - 60.3 mm reentry guide, bottom @ 816.04 mKB |
| 0.24 m | 1 | - 60.3 mm "R" nipple with 45.24 mm profile and 43.89 mm no-go, set @ 815.67 mKB |
| 1.88 m | 1 | - 60.3 mm, 6.99 kg/m, J-55, 8 rd EUE perforated pup joint |
| 0.24 m | 1 | - 60.3 mm "F" nipple with 45.44 mm profile, set at 813.55 mKB |
| 2.71 m | 1 | - 114.3 mm x 60.3 mm Baker Model FB-1 Retainer Production packer, Size 24-23 c/w 1.83 m mill out extension, 60.3 mm 8 rd EUE pin down, set @ 809.68 mKB elements at 810.0 mKB |
| 0.98 m | 1 | - 60.3 mm Baker Model E-22 Anchor Seal assembly, Size 21-23 c/w 2 premium seals and 60.3 mm box up, 1/2 mule shoe down |
| 1.87 m | 1 | - 60.3 mm tubing pup, |
| 0.80 m | 1 | - 60.3 mm Baker Model "L" sliding sleeve @ 806.78 m |
| | | - 60.3 mm tubing, cut off at 804.5 mKB |

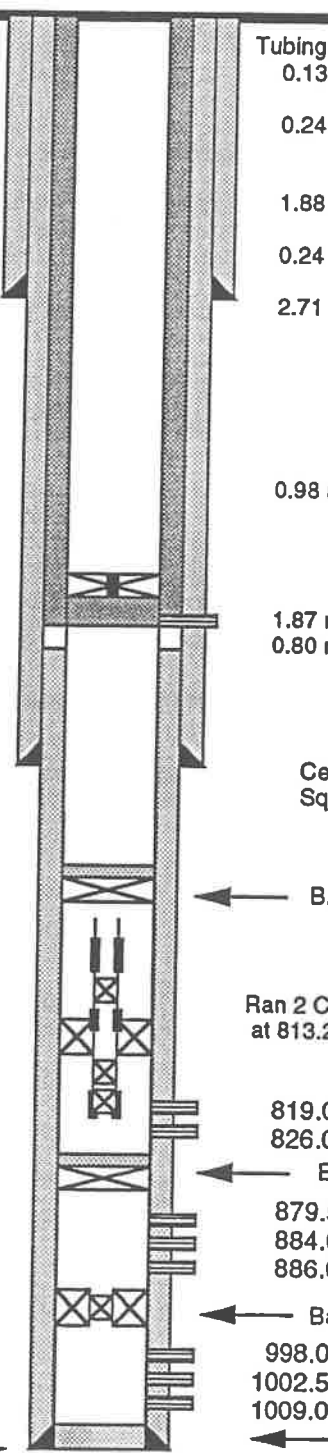
Cement retainer @ ~~707 m~~ 745 m
Squeeze perforations @ 756 - 757 mKB

B. P. @ 797 m PBD 787 mKB mKB

Ran 2 Cardium 60.3 mm RNT tubing bridge plugs at 813.25 mKB and 808.4 mKB. inside tubing.

819.0 -822.5 mKB
826.0 -828.5 mKB Slave Point perforations
B. P. @ 870 m PBD 861.0 mKB
879.5 -881.5 mKB Sulphur Point perforations
884.0 -885.0 mKB
886.0 -887.5 mKB

Baker LOK-SET @ 990 mKB with blanking plug
998.0 -1001.0 mKB
1002.5 -1005.0 mKB Keg River perforations
1009.0 -1013.0 mKB
PBD ? mKB



Strategic et al Cameron M-31 60-10N 117-00W

Well ID 1122

Cement Bond Log Evaluation – Run Date January 23, 1996

A cement bond log was performed by Norjet on January 23, 1996 during abandonment operations for the wellbore.

The data recorded during the cement bond log operation is 645 to 795 mKB in the 114.3 mm casing string.

645 to 760 mKB

- no cement

760 to 795 mKB

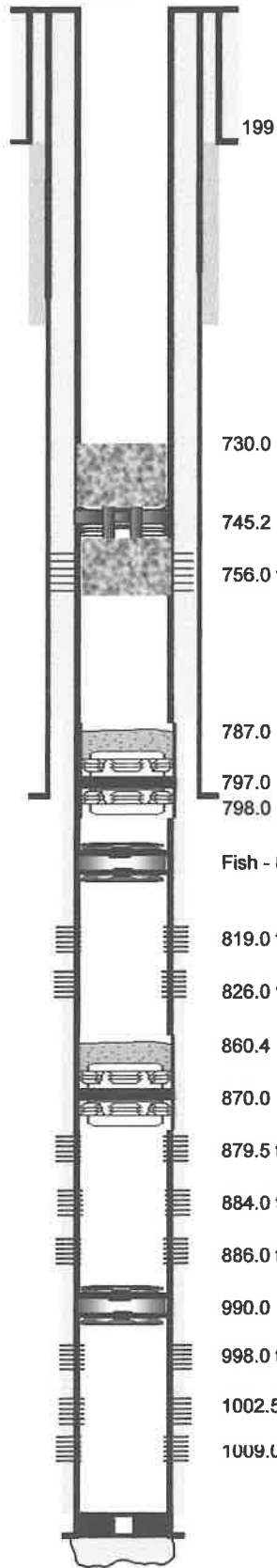
- good cement bond

The 177.8 mm casing is landed at 796 mKB so there is good cement 35 meters above the 177.8 mm intermediate casing shoe.

The 177.8 mm intermediate casing had 1.5 m³ of goo cement returns.

PROPOSED WELL DIAGRAM

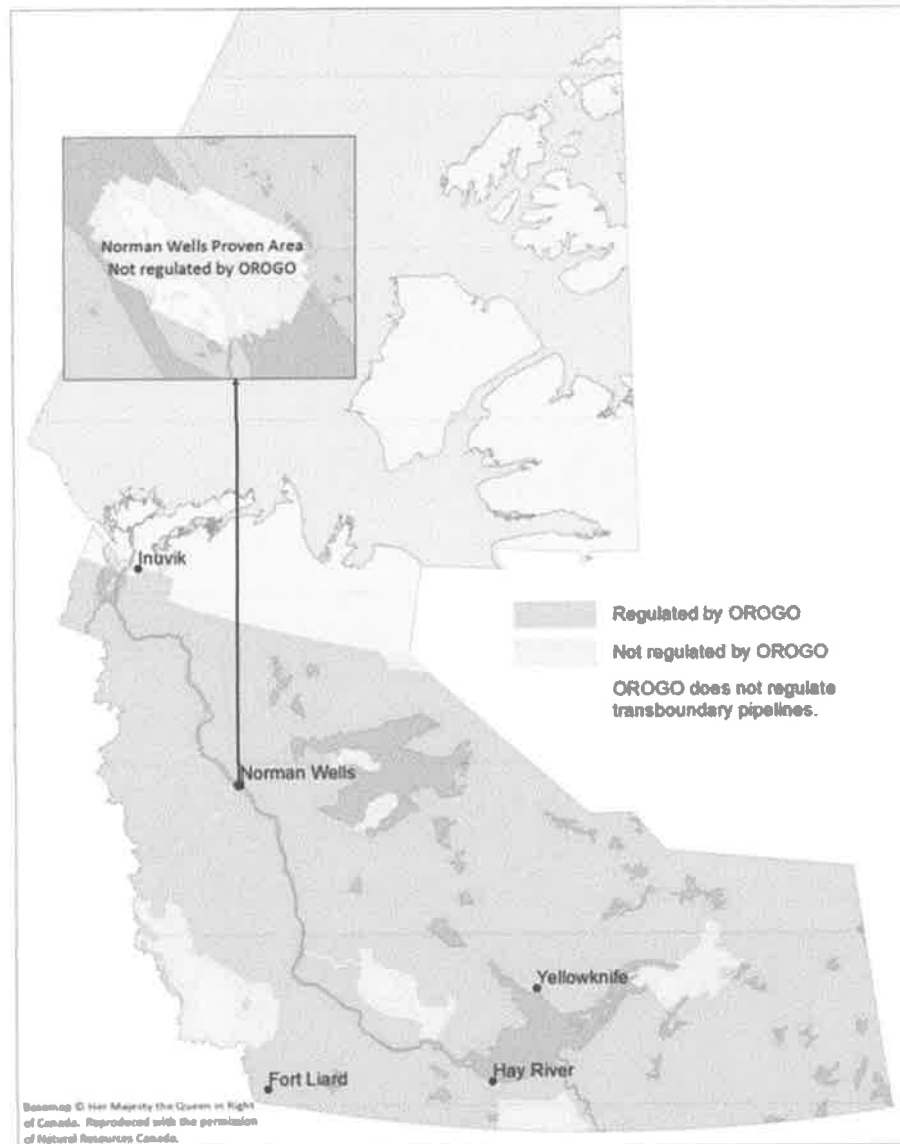
ALL DEPTHS ARE mKB



WELL NAME:			Strategic et al Cameron M-31	
PREPARED BY:		Ken Nikiforuk	DATE: June 10, 202	
ELEVATIONS (meters):			Licence #: 1122	
TD	1,060.00	KB Elev.	358.30	KB to CF
PBTD	1,382.00	Ground Elev.	354.70	KB to Ground
				3.60
CASING/TUBING	SIZE (mm)	WEIGHT (Kg/m)	GRADE	DEPTHS (m)
Surface	244.50	48.10	H-40	199.00
Intermediate	177.80	25.30	H-40	798.00
Production	114.30	14.10	J-55	1,061.40
BOTTOM HOLE ASSEMBLY:				
ITEM	DESCRIPTION		LENGTH (m)	Top at (m KB)
	TALLY			
	KB TO TUBING HEAD			
	TUBING BOTTOM			
PUMP AND ROD ASSEMBLY				
PERFORATION INTERVALS				
		Keg River - 1009.0 to 1013.0 mKB - abandoned		
		Keg River - 1002.5 to 1005.0 mKB - abandoned		
		Keg River - 998.0 to 1001.0 mKB - abandoned		
		Lokset Packer c/w PIP - 990.0 mKB		
		Sulphur Point - 886.0 to 887.5 mKB - abandoned		
		Sulphur Point - 884.0 to 885.0 mKB - abandoned		
		Sulphur Point - 879.5 to 881.5 mKB - abandoned		
		PBP and cement - 860.4 to 870.0 mKB		
		Slave Point - 826.0 to 828.5 mKB - abandoned		
		Slave Point - 819.0 to 822.5 mKB - abandoned		
		Slave Point - 1395.5 to 1397.0 mKB - abandoned		
		Packer (fish) - coe at 810.0 mKB		
		PBP and cement - 787.0 to 797.0 mKB		
		Remedial Perfs - 756.0 to 757.0		
		Cement retainer and cement - 730.0 to 745.2 mKB		

Well Suspension and Abandonment Guidelines and Interpretation Notes

Jurisdiction



Previously Suspended Wells

The suspended well testing and inspection requirements in section 5D apply to wells suspended prior to the coming into force of the Guidelines in February 2017.

Wells suspended prior to February 2017 must be brought back into production or abandoned in compliance with the Guidelines by January 31, 2023, unless otherwise directed by the Regulator.

Previously Abandoned Wells and Zones

Wells and zones that were abandoned prior to February 2017 are not required to be re-abandoned to the standards contained in these Guidelines.

PARAMOUNT RESOURCES LTD.

PARAMOUNT M-31 N.W.T.

ELEVATIONS
K.B. (metres) GRD.

CP NUMBER

WELL NAME

FIELD OR AREA

POOL OR ZONE

NAME OF SAMPLER

COMPANY

TEST TYPE

NO

TEST RECOVERY

NORWARD ENERGY
RESOURCES LIMIT

PRODUCTION FROM WELL

MULTIPLE
RECOVERY

Y N

SAMPLING POINT

AMT. & TYPE OF CUSHION

MUD RESISTIVITY

WELLHEAD

TYPE OF PRODUCTION

PUMPING

FLOWING

GAS LIFT

SWAB

PRODUCTION RATES

Perforations (metres)

819 - 822.5
826 - 828.5

WATER	OIL	GAS	SEPARATOR	TREATER	RESERVOIR	SOURCE	SAMPLED	CONTAINER	RECEIVED
	m ³ d	m ³ d							
						4410			4500
						8			21

DATE SAMPLED (Y-M-D)

DATE RECEIVED (Y-M-D)

DATE REPORTED (Y-M-D)

ANALYST

OTHER INFORMATION

80/03/14

80/03/21

J.C.

COMP	MOLE FRACTION		PETROLEUM LIQUID CONTENT	GROSS HEATING VALUE MJ M ⁻³ 15°C AND 101.325 kPa		DETERMINED DEW POINT	VAPOUR PRESSURE PENTANES PLUS
	AIR FREE AS RECEIVED	AIR FREE ACID GAS FREE		MEASURED	CALCULATED		
H ₂	0.0009	0.0009	$\frac{F}{m^3}$				
He	0.0002	0.0002			38.90		79 kPa
N ₂	0.0372	0.0379					
CO ₂	0.0154	0.0000		MEASURED	0.632		0.617
H ₂ S	0.0019	0.0000					
C ₁	0.9012	0.9172		MEASURED	4625	198.3 k	4573 kPa
C ₂	0.0182	0.0185					
C ₃	0.0109	0.0111	40.0		2.74		
IC ₄	0.0027	0.0027	11.8				18.3 C ₇
NC ₄	0.0047	0.0048	19.8		0.435		102.4
IC ₅	0.0017	0.0017	8.4				
NC ₅	0.0017	0.0017	8.2				
C ₆	0.0020	0.0020	10.8				
C ₇	0.0011	0.0011	6.3				
C ₈	0.0002	0.0002	1.1				
C ₉	TRACE	TRACE	0.2				
C ₁₀₊	0.0000	0.0000	0.0				
TOTAL	1.0000	1.0000	106.6				

GROSS HEATING VALUE AS PER AGA REPORT #5

38.37 MAJ/M3 @ 15C AND 101.325 KPA

Chapter 3: Blowout Preventers & Related Equipment

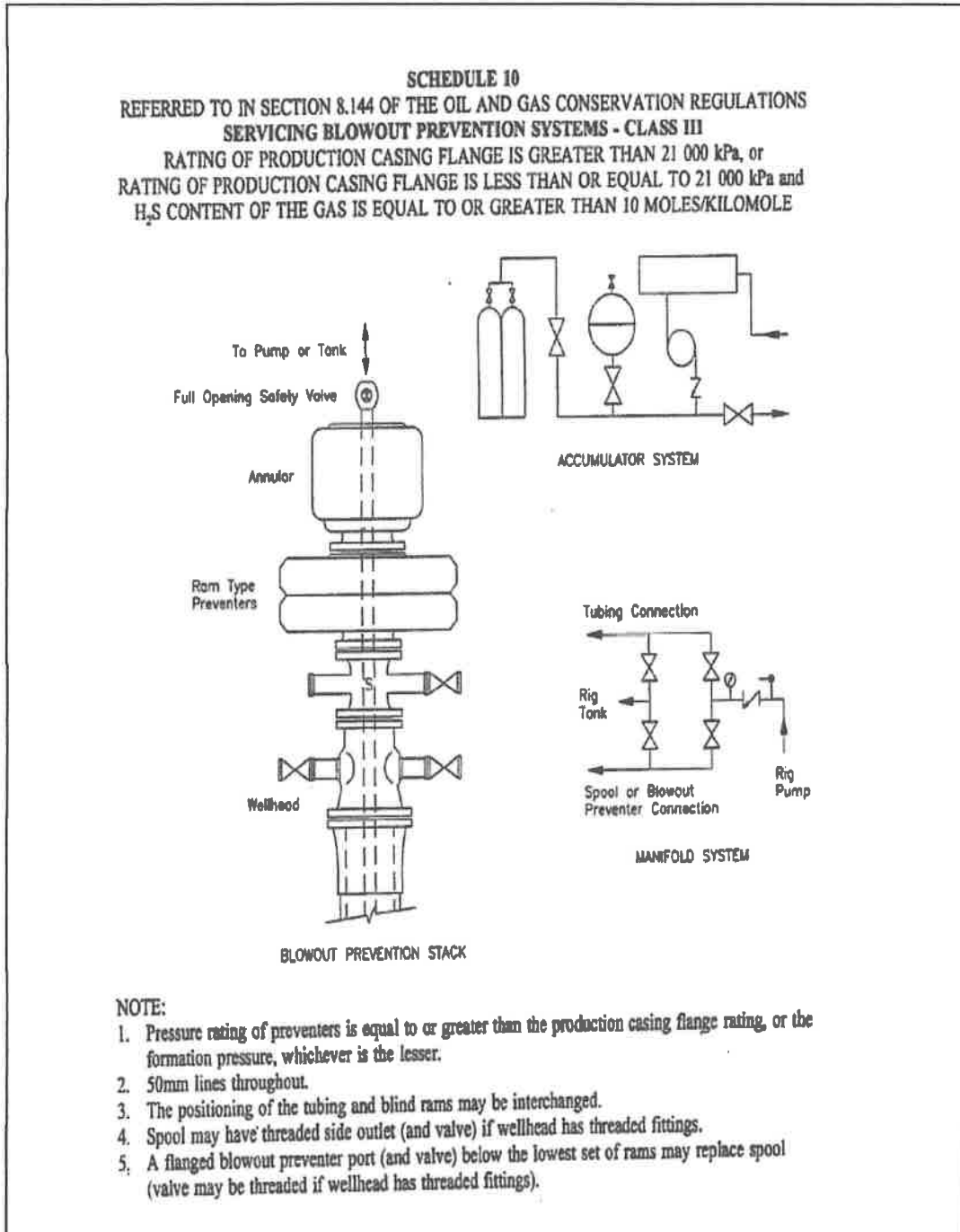


Figure 3-3 SCHEDULE 10, CLASS III

Abandonment Cement Plug Procedure – March 5, 2019

- 1) Mix 33 – 20 kg bags of 0:1:0 Class “G” cement with 300 liters of fresh water in a mixing barrel, mixture equals 500 liters of 1901 kg/m³ slurry, 0.20% retarder added to cement gives you 2 hrs working time, we use 1.5 hrs to be safe, weigh cement with scale. Water = 0.44 m³/t, Yield = 0.76 m³/t, 1901 kg/m³
- 2) Suck on casing with rig pump, fluid level in tubing will drop approximately 3.0 meters from top of tubing to level of work spool valve
- 3) Pick up the mixing barrel with the winch line, position above tubing and open valve emptying the barrel into the tubing. When cement is being poured in tubing, stop the pump on the casing side, cement weight will naturally u-tube water down tubing and up casing
- 4) Once cement is in tubing, tie the pump line onto the tubing
- 5) Close the casing valve and start pumping fresh water down the tubing. Once 1500 kPa is seen on casing, open the casing valve and hold 1500 kPa back pressure on the casing throughout the job. Returns will go to the rig tank (it is usually 200 liters to establish circulation with 1500 kPa back pressure). The 1500 kPa back pressure is a calculated number. 500 L of volume in 73.0 mm tubing is 165.6 meters. The difference in density between Class G cement (1901 kg/m³) and fresh water (1000 kg/m³) is 901 kg/m. That hydrostatic difference is 1464 kPa.
- 6) Under displace tubing by 250 liters. For 73.0 mm tubing inside 177.8 mm (34.23 kg/m) casing this puts 82.8 meters of cement in the tubing and 15.3 meters of cement in the annulus. For 73.0 mm tubing inside 139.7 mm (20.83 kg/m) casing this puts 82.8 meters of cement in the tubing and 29.3 meters of cement in the annulus. In both cases, the hydrostatic pressure is greater on the tubing side versus the casing side.
- 7) Shut down pump, tubing will on a slight vacuum due to the u-tube effect of the greater height of the cement column in the tubing
- 8a) For 177.8 mm (34.23 kg/m) casing, pull 3 joints tubing (28.5 meters), calculated cement top is 24.3 meters above bridge plug
- 8b) For 139.7 mm (20.83 kg/m) casing, pull 5 joints tubing (47.5 meters), calculated cement top is 40.3 meters above the bridge plug
- 9) Reverse circulate with one complete hole volume of inhibited fresh water.

WELL INSPECTION REPORT

INSTRUCTIONS:

- | | | |
|--------------------------------|--|--|
| <p>1. Complete both pages.</p> | <p>2. Send one electronic copy of this form and supporting technical documentation by email to orogo@gov.nt.ca.</p> | <p>3. Send one signed hard copy of this form and supporting technical documentation by courier to:
 Chief Conservation Officer
 Office of the Regulator of Oil and Gas Operations
 4th floor Northwest Tower
 5201 50th Avenue
 Yellowknife NT X1A 3S9</p> |
|--------------------------------|--|--|

WELL INFORMATION

Well Name:	Strategic HB et al Cameron M-31		
Coordinates: <i>(verify onsite)</i>	Lat: 60° 0' 56"	Long: 117° 7' 22"	
	Datum: NAD83		
Well Operator:	Strategic Oil & Gas Ltd.	Status:	Suspended
Current Inspection Date:	Sept, 26, 2018	WID:	1122
Previous Inspection Date:	Sept. 23, 2017	Completed in H ₂ S zone?	Yes; % of H ₂ S: 0.19

EVALUATION

Site

Accessible for inspection and monitoring?	No; Heli access
Equipment or debris on site?	No;
Additional clean up required?	No;
Any environmental or safety concerns? (see Note 1)	No;
Number of photos attached? (required)	4 (wellhead, valves, signage and site area, other)

Wellhead

Wellhead accessible for inspection and monitoring?	Yes;
Brush cleared 10m around wellhead?	Yes;
Visible well marker in place?	Yes;
Wellhead chained and locked?	Yes;
Pumpjack secure?	Select
Wellhead valves operate freely?	Yes;
Surface casing vent open?	Yes;
Pressure test well head seal assembly?	No;
Pressure rating of all components:	14000 kPa
Wellhead schematic attached? (required)	Yes;

SCVF / Gas Migration

Evidence of SCVF? ^{Note 1} No;

SCVF test conducted? Yes;

Signs of gas migration outside surface casing? ^{Note 1} No;

Gas migration test conducted? No;

Well

Does well contain tubing? No;

Does well contain pump and rods? No;

Is there a packer/plug above the perms? Yes; BP and cement plus cement retainer

Are tapped bull plugs in place? Yes;

Shut in production casing pressure: 0 kPa ^{Note 2} Shut in intermediate casing pressure: kPa ^{Note 2}

Shut in production tubing pressure: kPa ^{Note 2}

Include any other readings taken:
(Use separate page(s) if needed)

Note 1: As per Section 75 of the Oil and Gas Drilling and Production Regulations, it is the responsibility of the operator to notify OROGO of any pollution incident as soon as possible.

Note 2: Indicate any change in pressure since last inspection.

COMMENTS:

"I certify on the basis of personal knowledge of operations undertaken at the above named well that the above information is accurate."

Name	<u>Ken Nikiforuk</u>	Phone	<u>(403) 767-2944 Ext</u>
Title	<u>Manager, Completions</u>	E-Mail	<u>knikiforuk@sogoil.com</u>
Operator	<u>Strategic Oil & Gas Ltd.</u>	Inspected by	<u>Tony Hunley</u>
Signature	 <u>Responsible Officer of Company</u>	Date	<u>Oct 22/18</u>

OROGO use only

The details of this document have been examined and verified by:

Job Designation _____

Well Identifier _____

Signature _____

Approval Authority

Unique Well Identifier 30 / _____ - _____ / _____

Date _____



Comments:



Comments:



Comments:



Comments:



Travelling to Location

- Receive location information from dispatch. Follow Journey Management Plan if Required
- Check maps to obtain directions to lease.
- Ensure equipment is in good working order and all necessary supplies are in the truck. (Water, Garnet, cutting accessories, etc.)
- Conduct Pre-Use Inspection of Vehicle
- Drive to location, Ensure compliance with National safety Code and applicable legislation
- Put on all required safety apparel and PPE before entering lease.
- Park the vehicle a safe distance from all possible hazards.

Pre Job Meeting

- Meet with consultant to discuss the job procedure.
- Perform the necessary hazard assessments.
- Conduct a tailgate meeting to discuss the duties and all of the known hazards associated with the procedure.
- After the safety meeting, set up the equipment, following all safety precautions.
- Park the vehicle near the well in accordance with local safety practice and procedures. Adhere to the highest standard
- Place warning signs and marker cones to cordon off the area around the job site.
- Insure that the well to be abandoned has been depressurized, cleaned, and properly prepped for abandonment.
- if an underground facility (pipeline, well,) is within 1.5m of well to be cut, hydro vac down to depth of cut and install shield plate to protect pipeline / well while cutting
- If the consultant has checked the well to be sure that there is no gas or other dangers present and has deemed it safe work can then be started. DO NOT start until the consultant has given permission to do so.



Ultra High Pressure Jet Cutter Setup

-If a hydrovac is used to excavate around the well, stay clear of the area until its work is complete. Hydrovac-ing is sometimes done for easy extraction of the wellhead.

-place working platforms around wellhead

-Take the necessary measurements at the well to determine the size of cutter set-up needed to do the job. Set up the cutting head as required. This set-up should be completed inside the truck to keep the cutter head as clean as possible.

-Unload the NuWave equipment from the truck, being sure to place it in an area that is suitable for working and does not create tripping hazards, etc. If the weather is cold, the hydraulic pump should be started so that the fluid can circulate to warm up the system. Do not connect to the cutting system at this time.

-While the equipment is being set up, the pump system should be idling to warm up the engine and circulating water through the pump and hoses back to the tank. BEFORE STARTING ENGINE, be sure that the shut off valve on the water hose leading to the lift pump from the tank is fully open.

-Conduct pressurization test of the cutting system before installing in the well, to ensure that there are no leaks.

-Check to be sure that the depth of the cutting head has been set correctly to reach the desired distance below ground level as requested by the consultant.

-When ready to do the cut, lower the cutting unit into the well using the assistance of the backhoe and lifting rope system. Be careful not to damage the cutting head. If resistance is encountered, remove the cutting system and determine the cause of the blockage. DO NOT attempt to force the cutting system inside the wellhead.

-Center the unit inside the well and lock the unit in position. Gently, try lifting the unit by hand to ensure that it is locked in position.

-Shut down the pump so that there is no water flow and connect the water line to the top of the cutting unit. Be sure to place a small amount of anti-seize paste on the threads.

-Attach the safety harness to the high pressure water line.

-Connect the abrasive line from the cutting unit to the hopper unit. Be sure that the connection is free of debris to prevent blockage. Ensure that the hopper has enough material for the procedure and be sure to check periodically for sand flow and levels.

-Once all connections have been made, the water pumping unit may be restarted.



Ultra High Pressure Jet Cutter Operation

- Remove all unnecessary people from the vicinity of the cutting procedure.
- The unit can now be pressured up by using the bypass key switch on the hydraulic tripod.
- The operator should now have the helper check that the unit has reached correct operating pressure, (43,600 psi) and engine rpm, (1460 approx.). If either of these measurements is not within reason, the unit should be shut down to determine the cause.
- If all is correct, slowly open the abrasive feed line to the cutting system; check to be sure that the abrasive is flowing to the cutting unit. (Lift lid to see that the abrasive level is dropping, check the back of the feed "T" for suction on the line) If the abrasive is not flowing, shut the unit down and determine the cause of the blockage before continuing as the unit will not cut without the abrasive.
- If all is well, begin the cut, being sure to indicate the starting point of the cut so that you can determine when the complete cut has been made. Be sure to cut slightly past the starting point to ensure a complete revolution of the cutter.
- During the cutting process, the helper should be monitoring engine rpm, pump pressures, abrasive feed and levels, etc. If possible, the helper could also prepare the Cap assembly.
- Operator is to monitor well and check for buildup of water around the wellhead and test water with heat gun.

Ultra High Pressure Jet Cutter Demobilization

- Once the cut is complete, shut down the abrasive feed from the hopper. Be sure that the water system is still pressurized for several seconds after the abrasive has stopped, to be certain that all of the abrasive has been pulled through the system.
- Shut down the high pressure system using the bypass key switch.
- Once the unit has pressured down, shut down the water pump system.
- if water is around wellhead have it removed with the onsite vac truck
- Remove the water line from the cutting unit, being sure that it has no pressure before doing so.
- Return the lines to the truck and place on the hangers provided. Make sure that both lines have been cleaned before being returned to the truck.



NuWave Industries Document # NWPRO-2015-01 Revision # 3
Ultra High Pressure Jet Cutter Procedure
Well Abandonment

- Place the tripod for the hydraulics back in its location in the truck, being careful to coil the hoses properly and not damage the switch on the tripod.
- Remove the abrasive feed line from the hopper and place the plug back in the end. This line can be hung from the cutting unit by the safety line for the water hose.
- Return the hopper to the truck and secure it in location.
- Remove the tension from the centralizer on the cutting system. Again using the backhoe and lifting ropes, remove the cutting unit from the well and clean the unit as much as possible while removing it from the well.
- Gently lower the cutting system on to the stands and remove the lifting equipment. Return the cutting system to the truck and be sure the necessary cleaning is completed. After cleaning, secure the unit in position for transport to the next location.
- Pack up all equipment that is not needed. Do a walk around the truck, when deemed safe move the truck a safe distance away from the well to be removed.
- At this point, the backhoe or other approved equipment should remove the wellhead from the ground using a sling or other method that has been deemed safe. Once this is done, the consultant will usually take pictures to confirm the cut.

Cap Installation

- if cap assembly has been built it can now be inserted into the wellhead.
- if not assembled, determine the correct size of centralizer and cap needed, as well as cap position.
- select pre-built cap assembly or proceed to designated area to weld together.
- install well info on top of cap
- tack weld insertion rod or weld insertion rod collar onto the cap and screw in rod
- insert cap assembly into the below ground casing
- break tack weld or unscrew insertion rod when required depth has been reached
- At this point, if the consultant has all of the necessary pictures, etc., the excavation may be backfilled using the backhoe and gravel/soil from around the wellhead and or lease.
- Complete loading of all materials into the truck, including signs, pylons, etc.



NuWave Industries Document # NWPRO-2015-01 Revision # 3
Ultra High Pressure Jet Cutter Procedure
Well Abandonment

-Be sure that all debris is picked up and removed from your area before leaving. Prepare all necessary paperwork such as invoicing. Proceed to next location or return to base as required.

Well Suspension and Abandonment Guidelines and Interpretation Notes

- Surface, intermediate and production casing strings must be capped at surface with a vented capping system: a steel plate that is fastened and installed in a manner as to prevent any potential for pressure to build up within the casings from the shallowest zonal abandonment to the surface, while restricting access to the casing strings at surface.

Reporting

Field-verified coordinates for the well center must be provided as part of the Well Operations Report as follows:

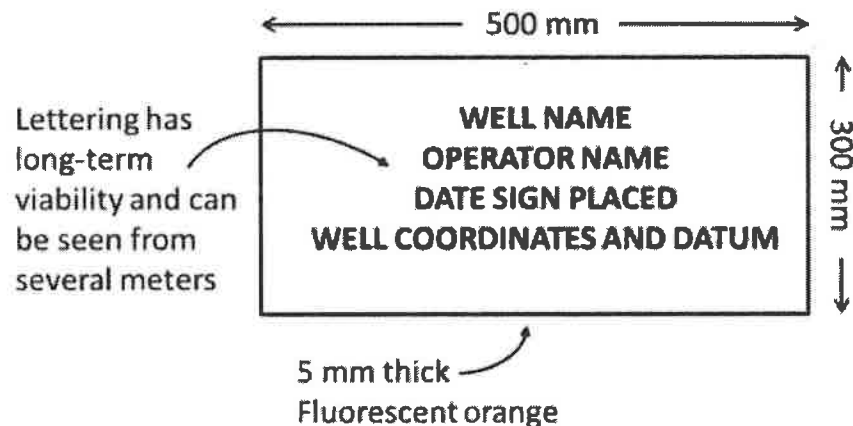
- The geodetic datum must be specified (NAD83 is recommended); and
- Coordinates must be provided:
 - In decimal degrees to 4 decimal places or more, or
 - In degrees, minutes and seconds to 2 decimal places, if decimal coordinates are not possible.

A field sketch of the area must also be submitted as part of the Well Operations Report.

Signage

After surface abandonment is completed, all abandoned wells must be marked with a durable post and a sign as shown below.

Sign Requirements



Well Suspension and Abandonment Guidelines and Interpretation Notes

Post Requirements

