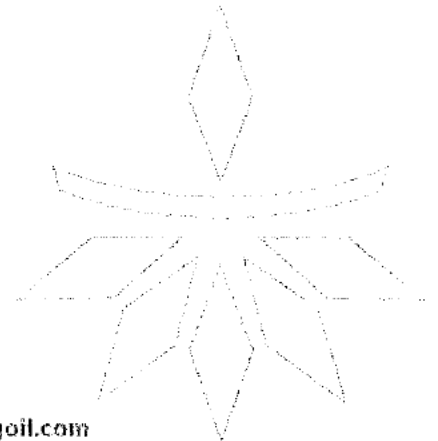


**Strategic et al Cameron F-73**

**Approval to Alter Condition of a Well**

**August 2, 2022**



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

Approval to Alter the Condition of a Well – Strategic et al Cameron F-73

August 2, 2022

- 1) Application to alter the condition of a well – F-73 60-10N 117-15W
- 2) Signed Declaration by Applicant
- 3) Well Abandonment Program
- 4) Well history
- 5) Cement bond log evaluation
- 6) Existing wellbore schematic dated January 27, 2010
- 7) Proposed wellbore schematic
- 8) AWS test dated April 28, 2005
- 9) Gas migration test to be performed and submitted to OROGO in Q3 2022
- 10) Well inspection report – October 4, 2019
- 11) WSBOP – accumulator function test procedure
- 12) NuWave cut and cap procedure
- 13) OROGO abandoned wellbore sign requirements
- 14) Service rig and boiler – inspection reports – to be supplied in Q4 2021 prior to mobilization
- 15) P-tank – inspection reports – to be supplied in Q4 2021 prior to mobilization
- 16) If a relief well is required, Savanna 424 is currently racked in the Steen River area of Alberta and will be utilized
- 17) 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](mailto: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](http://www.orogo.gov.nt.ca).

### WELL INFORMATION

Well Name	Strategic et al Cameron F-73	Operator	Strategic Oil & Gas Ltd.
Well Type	Development 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.	Production Licence 04	Station Keeping	Not Applicable
		Land Structure	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	781.7 m
Approximate Start Date	Q1 2023	Ground Level / Seafloor	777.0 m
Est. Days on Location	5 days	Anticipated Total Depth	1459.0 m KB

### WELL OPERATION PROGRAM

Activity Type	Top to Bottom Interval (m KB)	Comments
Abandonment	1383.0-1413.0	Permanent bridge plug with 30 meters cement on top
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	Aug 2, 2022

**DECLARATION BY APPLICANT**

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

Title of Application ACW – Strategic et al Cameron F-73 – 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 2 day of August 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

F-73 60-10N 117-15W

Wellbore Abandonment

August 2, 2022

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## CONTACTS:

Engineering:	Ken Nikiforuk	Cell	██████████
Field Consultant:	To be determined	Cell	
Production Foreman:	To be determined	Cell	
Construction:	To be determined	Cell	
Facilities :	Kurt Hewitt	Cell	██████████
Director, A&M:	Duncan MacRae	Cell	██████████
	403 538-7514		

## ATTACHMENTS:

## OBJECTIVES:

To perform operations on the previously abandoned Sulphur Point 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.

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

STRATEGIC ET AL CAMERON

F-73 60-10N 117-15W

Wellbore Abandonment

August 2, 2022

UWI: 300F736010117150

OROGO Well ID: 1992

AFE: to be determined

WORKING INTEREST: 88%

ELEVATIONS: KB: 781.7 m  
GL: 777.0 m

TD: 1461.0 mKB TVD: 1461.0 mKB PBTD: 1383.0 mKB ( BP and cement )

DEVIATION: Vertical wellbore

**SURFACE CASING:** 219.1 mm, 35.72 kg/m, K-55, ST&C. Landed @ 429.0 m KB. Cemented with 33.0 tonnes 0:1:0 'G' + 2.0% CaCl<sub>2</sub>. 6 m<sup>3</sup> of good cement returns to surface.

**PRODUCTION CASING:** 139.7 mm, 20.83 ( 0 to 466.3 mKB ) & 23.07 kg/m ( 466.3 to 1448.1 mKB ), J-55, ST&C & LT&C. Landed at 1448.1 mKB. Cemented with 27.0 tonnes Fill-Lite 2-125 + 0.6% R-3 + 3.0% A-9 followed by 8.0 tonnes 0:1:0 'G' + 0.4% FL-77 + 0.1% R-3. 15 m<sup>3</sup> good cement returns to surface.

## TUBULAR DATA:

	<u>Casing</u>	<u>Casing</u>	<u>Tubing</u>
Size (mm)	139.7	139.7	73.0
Weight (kg/m)	20.83	23.07	9.67
Grade	J-55	J-55	J-55
Connections	ST&C	ST&C	EUE
Drift I.D. (mm)	124.13	122.56	59.61
Collapse (kPa)	21510	27860	52950
Burst (kPa)	29440	33160	50060
Capacity (m <sup>3</sup> /m)	0.012729	0.012416	0.003019

PRODUCTION TUBING: none

PERFORATIONS: Sulphur Point : 1424.0 to 1426.5 mKB  
Sulphur Point : 1422.0 to 1424.0 mKB  
BP and Cement : 1383.0 to 1413.0 mKB

H<sub>2</sub>S: No analysis available ( assume 2% )

RESERVOIR PRESSURE: 10233 kPa – from AWS survey dated Apr 25, 2005 ( assume 10 MPa )

MAX FLARE VOLUME: 1.5 times wellbore volume at 10 MPa = 2.5 e3m<sup>3</sup>  
Note that any significant flare volume in this operation is unexpected

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

STRATEGIC ET AL CAMERON

F-73 60-10N 117-15W

Wellbore Abandonment

August 2, 2022

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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. 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.**
6. MIRU combination electric line / slickline truck and picker.
7. Perform guage ring run to PBSD.
8. Perform cement bond log from PBSD 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.
9. Casing swab wellbore to PBSD ( hole volume is 17.2 m3 ).
10. Rig out and release all equipment and services.
11. 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 41 ) or to perform remedial cementing operations ( proceed to step 13 ).
12. 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.
13. 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.
14. Pressure test the casing to 7000 kPa for ten minutes.
15. Bleed off casing to P-tank.

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

**STRATEGIC ET AL CAMERON**

**F-73 60-10N 117-15W**

**Wellbore Abandonment**

**August 2, 2022**

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16. 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.
17. Conduct an accumulator function test as per the attached procedure from the WSBOP manual.
18. Ensure the well is dead and remove the orbit valve.
19. 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.
20. 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.
21. 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.
22. Correlate all perforating operations to the recently performed cement bond log. Pick up and RIH with 101.6 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.
23. Rig out electric line.
24. Pick up and RIH with 139.7 mm cement retainer on 73.0 mm tubing.
25. Set cement retainer at a depth to be determined.
26. Sting out of retainer and pressure test to 7000 kPa for fifteen minutes.
27. Sting back in to retainer and establish feed rate.
28. Based on the feed rate, the cement blend and volumes will be determined.
29. Sting out of retainer.
30. 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.

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

**STRATEGIC ET AL CAMERON**

**F-73 60-10N 117-15W**

**Wellbore Abandonment**

**August 2, 2022**

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31. Establish circulation between tubing and casing.
32. Batch mix a to be determined volume of a to be determined cement blend.
33. Circulate a to be determined volume of cement down the tubing and sting back in to retainer.
34. Squeeze a to be determined volume of cement into the formation and sting out of retainer.
35. Slowly pull and lay down two joints of the 73.0 mm tubing while rotating and ensure 15 lineal meters of cement has been circulated on top of the cement retainer.
36. Reverse circulate fresh water at least two tubing volumes or until returns are clean.
37. Pull and lay down tubing. Prior to pulling the last joint out of the hole, circulate over to fresh water.
38. Ensure the well is dead and remove BOP's.
39. Rig out service rig. Ensure lease is clean and free of debris.
40. MIRU NuWave Industries and cut and cap wellbore as per attached procedure. Ensure pictures are taken.
41. Install abandoned well sign as per attached OROGO specifications.
42. Ensure lease is clean and free of debris.

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

**STRATEGIC ET AL CAMERON**

**F-73 60-10N 117-15W**

**Wellbore Abandonment**

**August 2, 2022**

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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](mailto:kanikiforuk@icloud.com)

Kurt Hewitt at [kurtw.hewitt@gmail.com](mailto:kurtw.hewitt@gmail.com)

Duncan MacRae at [dmacrae@alvarezandmarsal.com](mailto:dmacrae@alvarezandmarsal.com)

OROGO at [orogo@gov.nt.ca](mailto: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:

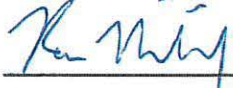
**STRATEGIC OIL & GAS LTD. C/O ALVAREZ & MARSAL CANADA ULC**


**#1110, 250 – 6th Avenue SW**

**Calgary, AB**

**T2P 3H7**

**ATTENTION: KEN NIKIFORUK**

**Prepared By:** Ken Nikiforuk  
Operations Consultant:  Date Aug 3/22

**Approved By:** Duncan MacRae  
Director, Alvarez & Marsal:  Date August 3, 2022

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

### Well History

Well name : Strategic et al Cameron F-73

Licence Number : 1992

07-Mar-03 spud

Surface hole is 311 mm to 429 mKB

Surface casing is 219.1 mm x 35.72 kg/m x K-55 x ST&C landed at 429.0 mKB

Surface cemented with 33.0 tonnes 0:1:0 G + 2.0% CaCl<sub>2</sub>. 8.0 m<sup>3</sup> cement returns to surface

Main hole is 200 mm to 1461.0 mKB

Drilled to 434 mKB. Performed leak off test to 29.3 kPa/m.

Total lost circulation at 630 mKB. Regained circulation with thick mud / sawdust sweeps.

Losses continued.

Lost circulation cement plug #1 from 723 to 630 mKB.

Production casing is tapered - 139.7 mm x 20.83 kg/m x J-55 x ST&C ( 0 to 465 mKB and 1324 to 1459 mKB ) landed at 1459.0 mKB

139.7 mm x 23.07 kg/m x K-55 x LT&C ( 465 to 1324 mKB )

Production cemented with 27.7 tonnes FillLite 2-125 followed by 8.0 tonnes 0:1:0 G. 15 m<sup>3</sup> cement returns to surface.

15-Mar-03 Rig release

22-Mar-03 Tag PBTD ( 1448.8 mKB ) with bit and scraper

Perform CBL from PBTD to surface.

Perf Sulphur Point from 1424.0 to 1426.5 mKB

25-Mar-03 Performed acid squeeze with 2.5 m<sup>3</sup> 15% HCL.

27-Mar-03 Perf Sulphur Point from 1422.0 to 1424.0 mKB

25-Mar-03 Performed acid squeeze with 4.5 m<sup>3</sup> 15% HCL.

30-Mar-03 Run pump and rods

20-Mar-04 Pump change

28-Apr-05	Perform AWS - bottom hole pressure calculated to be 10223 kPa with 100% water column
30-Jan-07	Pull pump and rods
01-Apr-09	Wellsite inspection. No concerns.
26-Sep-09	Wellsite inspection. No concerns.
27-Jan-10	Set permanent BP at 1413.0 mKB. Pressure test to 17000 kPa for 15 minutes. Dump bail 30 meters cement on top of bridge plug Wellbore full of inhibited water
02-Nov-10	Wellsite inspection. No concerns.
25-Sep-11	Wellsite inspection. No concerns.
24-Sep-16	Wellsite inspection. No concerns
24-Sep-17	Wellsite inspection. No concerns
27-Sep-18	Wellsite inspection. No concerns
04-Oct-19	Wellsite inspection. No concerns

Strategic et al Cameron F-73 60-10N 117-15W

Well ID 1992

Cement Bond Log Evaluation – Run Date March 22, 2003

A cement bond log was performed by Plains Perforating on Mar 22, 2003 during initial completion operations for the wellbore.

The data recorded during the cement bond log operation is not complete over the length of the wellbore.

395 to 464 mKB

- 395 to 429 mKB – cement is present above the surface casing shoe
- 429 to 464 mKB – cement is present but bond is questionable

1230 to 1445 mKB

- 1230 to 1345 mKB – good cement bond
- 1345 to 1445 mKB – cement is present but bond is questionable

The cement bond log to be run in Q1 2023 will be over the entire length of the wellbore and will be used to determine any remedial cementing operations that will be required.

**PARAMOUNT ET AL CAMERON F-73**

60° 10' N, 117° 15' W      WID: 1992

As suspended 20100127

KB: 781.70 m  
GL: 777.03 m

429

219.1 mm, 35.7 kg/m, J-55 ST&C casing set at 429 mKB. Cemented with 33 t class 'G' cement + 2% CaCl<sub>2</sub>. 8.0 m<sup>3</sup> cement returns to surface.

139.7 mm, 20.83 kg/m, J-55/ ST&C from surface - 465 mKB.  
139.7 mm, 23.07 kg/m, K-55/ LT&C from 465 - 1324 mKB.  
139.7 mm, 20.83 kg/m, J-55/ LT&C from 1324 - 1459 mKB.  
Cemented with 20.7 t Fill Lite 2-125 + 3% A 9 + 0.6% R-3 and 8 t 'G' cement + 0.1% R-3 + 0.4% FL-77. 15.0 m<sup>3</sup> cement returns to surface.

Inhibited water  
BJ Techni-Hib 606W @ 5000ppm

30 m cement (top @ 1383 mKB)

Drillable bridge plug @ 1413 mKB

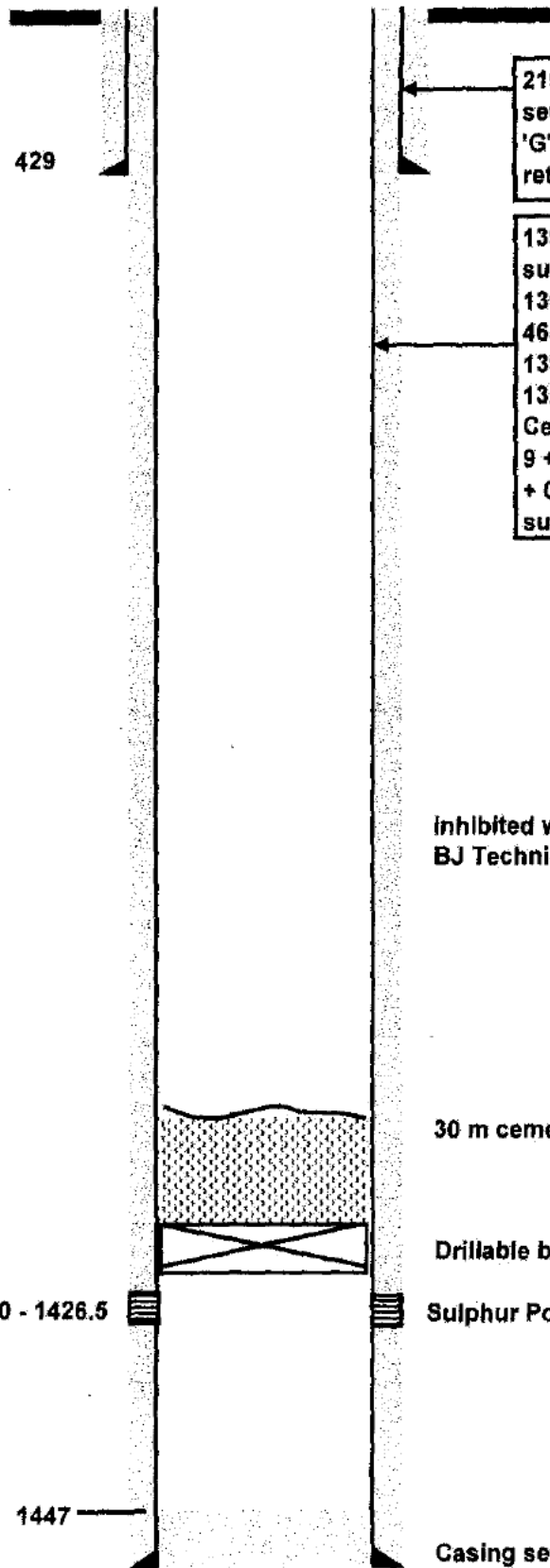
1422.0 - 1426.5

Sulphur Point Perforations

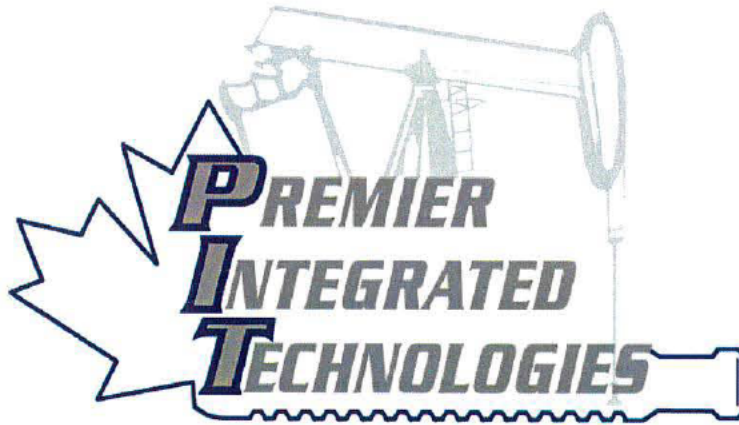
1447

Casing set at 1459 mKB

Total Depth = 1459







***ACOUSTIC PRESSURE SURVEY (STATIC CALCULATION)***

***Paramount Resources Ltd.  
Paramount et al Cameron F-73  
F-73 60 10' N, 117 15' W  
FIELD: Cameron Hills  
FORMATION: Sulphur Point***

***TEST DATE: April 28, 2005  
(Data Supplied By: P.I.T. Optimization)***

***DISTRIBUTION: David Duncan, Calgary***

***PREPARED BY: Teresa Rispler***

***DATE: 2005-05-16***

**Calgary Sales and Engineering Office**  
1100, 840 - 7th Avenue S.W. Calgary, Alberta T2P 3G2 Tel: (866) 443-5656 Fax: (403) 269-4136  
Website: [www.premiertech.ca](http://www.premiertech.ca)

**PARAMOUNT RESOURCES LTD.**

**ACOUSTIC PRESSURE SURVEY (STATIC CALCULATION)  
PARAMOUNT ET AL CAMERON F-73  
F-73 60 10' N, 117 15' W  
FIELD: CAMERON HILLS  
April 28, 2005**

**TEST SUMMARY:**

- ◆ A surface pressure and a fluid level were obtained on 2005-04-28 at 15:00 hours to calculate a shut-in bottomhole pressure at the mid-point of the producing interval.
- ◆ The subject well had been shut-in for 75 days (since 12:00am on 2005-02-13).
- ◆ Since the fluid level was unknown at the time of shut-in, the initial fluid level was assumed to be on bottom and any influx was assumed to be an emulsion. This results in a calculated bottomhole pressure of 9963 kPa (absolute) at the mid-point of the producing interval.
- ◆ Assuming the annular influx is 100% oil results in a pressure of 9069 kPa (absolute) and assuming the annular influx is 100% water results in a pressure of 10223 kPa (absolute).

**PRESSURE DATA CALCULATIONS:**

- ◆ The bottomhole pressures were calculated using the following information:

Atmospheric Pressure	93.0 kPa
Formation Depth	1424.25 m KB
Oil Gravity	40.00° API
Water Gravity	1.071
Gas Gravity	0.610
Oil Production	0.20 m <sup>3</sup> /d
Water Production	0.78 m <sup>3</sup> /d
Bottomhole Temperature	55.0° C

**ATTACHMENTS:**

ACOUSTIC WELLSOUNDER PRESSURE SURVEY DATA



**PREMIER INTEGRATED TECHNOLOGIES**  
**ACOUSTIC WELLSOUNDER PRESSURE SURVEY**

COMPANY: **Paramount Resources Ltd.**  
 FIELD: **Cameron Hills**  
 POOL NAME: **N/A**

WELL NAME: **Paramount et al Cameron F-73**  
 LOCATION: **F-73 60 10' N, 117 15' W**  
 STATUS: **Oil**

**TUBING**

TOTAL JOINTS = **148.000**  
 TUBING BOTTOM = **1429.77** m KB  
 AVG. JOINT LENGTH = **9.629** m

**ELEVATIONS**

KELLY BUSHING (K.B.) = **781.70** m  
 GROUND LEVEL (G.L.) = **777.03** m  
 K.B. TO G.L. = **4.67** m

**PRODUCTION**

OIL RATE = **0.20** m<sup>3</sup>/d  
 WATER RATE = **0.78** m<sup>3</sup>/d  
 GAS RATE = **6.70** E<sup>3</sup>m<sup>3</sup>/d

**TEMPERATURES**

SURFACE TEMP. = **1.10** °C  
 RESERVOIR TEMP. = **55.00** °C

**FLUID PROPERTIES**

GAS GRAVITY = **0.610**  
 OIL GRAVITY = **40.000** °API  
 WATER GRAVITY = **1.071**

**PRODUCING INTERVAL**

TOP OF INTERVAL = **1422.00** m KB  
 BOTTOM OF INTERVAL = **1426.50** m KB  
 MID-POINT = **1424.25** m KB

WELL WAS SHUT-IN ON 2005-FEB-13 AT 00:00:00

SHOT #	SHOT DATE AND TIME	TEST TIME (hours)	JOINTS TO FLUID	GAS	COL HT. (m) OIL	EMUL.	GAS	GRADIENT (kPa/m) OIL	EMUL.	CSG. (kPaa)	GAS (kPa)	PRESSURE OIL (kPa)	EMUL. (kPa)	MPP (kPaa)
1	05-04-28 15:00:00	1791.000	109.00	1049.6	-	370.0	0.504	-	9.705	5843.0	529.0	-	3591.1	9963.1

## 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 <a href="mailto:orogo@gov.nt.ca">orogo@gov.nt.ca</a>.</p> | <p>3. Send one signed hard copy of this form and supporting technical documentation by courier to:<br/>                 Chief Conservation Officer<br/>                 Office of the Regulator of Oil and Gas Operations<br/>                 4th floor Northwest Tower<br/>                 5201 50th Avenue<br/>                 Yellowknife NT X1A 3S9</p> |
|--------------------------------|--|--|

**WELL INFORMATION**

Well Name: Strategic et al Cameron F-73

Coordinates: <i>(verify onsite)</i>	Lat: 60° 2' 23 "	Long: 117° 29' 29 "
	Datum: NAD83	

Well Operator:	Strategic Oil & Gas Ltd.	Status: Suspended
Current Inspection Date:	October 4, 2019	WID: 1992
Previous Inspection Date:	September 27, 2018	Completed in H <sub>2</sub> S zone? Yes; % of H <sub>2</sub> S: 0

**EVALUATION**

**Site**

Accessible for inspection and monitoring?	No; Heli Access
Equipment or debris on site?	Yes; Production Equipment for 2F-73
Additional clean up required?	No;
Any environmental or safety concerns? (see Note 1)	No;
Number of photos attached? (required)	5 (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 N/A
Wellhead valves operate freely?	Yes;
Surface casing vent open?	Yes;
Pressure test well head seal assembly?	No;
Pressure rating of all components:	21,000 kPa
Wellhead schematic attached? (required)	Yes; Wellhead data attached

**SCVF / Gas Migration**

Evidence of SCVF? Note 1 No;

SCVF test conducted? Yes;

Signs of gas migration outside surface casing? Note 1 Yes;

Gas migration test conducted? Yes; GMT results to be submitted separately

**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

Are tapped bull plugs in place? Yes;

Shut in production casing pressure: 0 kPa Note 2 Shut in intermediate casing pressure: 0 kPa Note 2

Shut in production tubing pressure: kPa Note 2

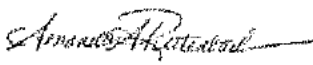
Include any other readings taken:  
 (Use separate page(s) if needed) \_\_\_\_\_

**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.

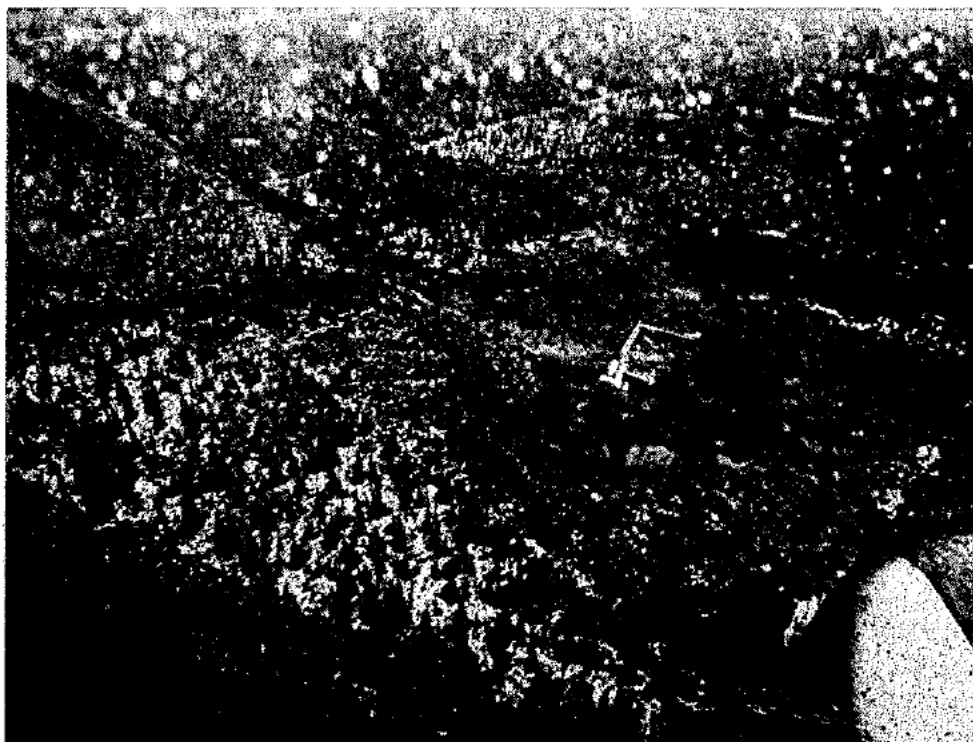
**Note 2:** Indicate any change in pressure since last inspection.

**COMMENTS:**

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

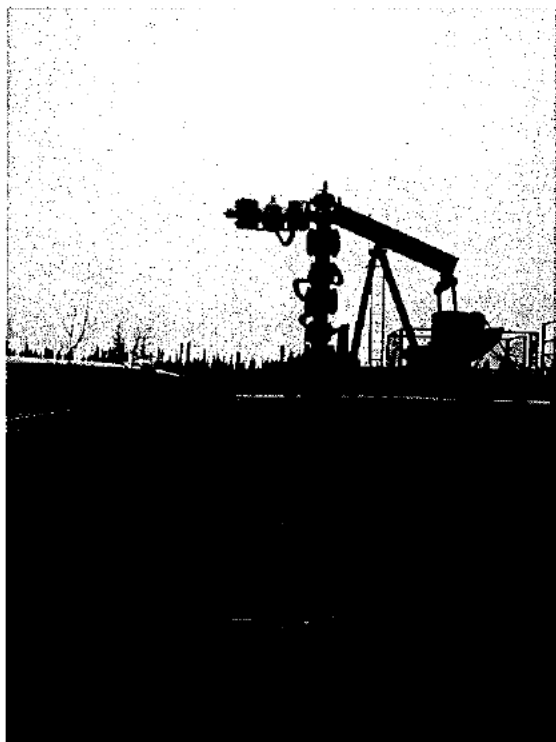
Name	<u>Amanda Reitenbach</u>	Phone	<u>(403) 781-2970 Ext</u>
Title	<u>Chief Operating Officer</u>	E-Mail	<u>areitenbach@sogoil.com</u>
Operator	<u>Strategic Oil &amp; Gas Ltd.</u>	Inspected by	<u>Tony Hunley</u>
Signature	<u></u>	Date	<u>November 22, 2109</u>
	<u>Responsible Officer of Company</u>		





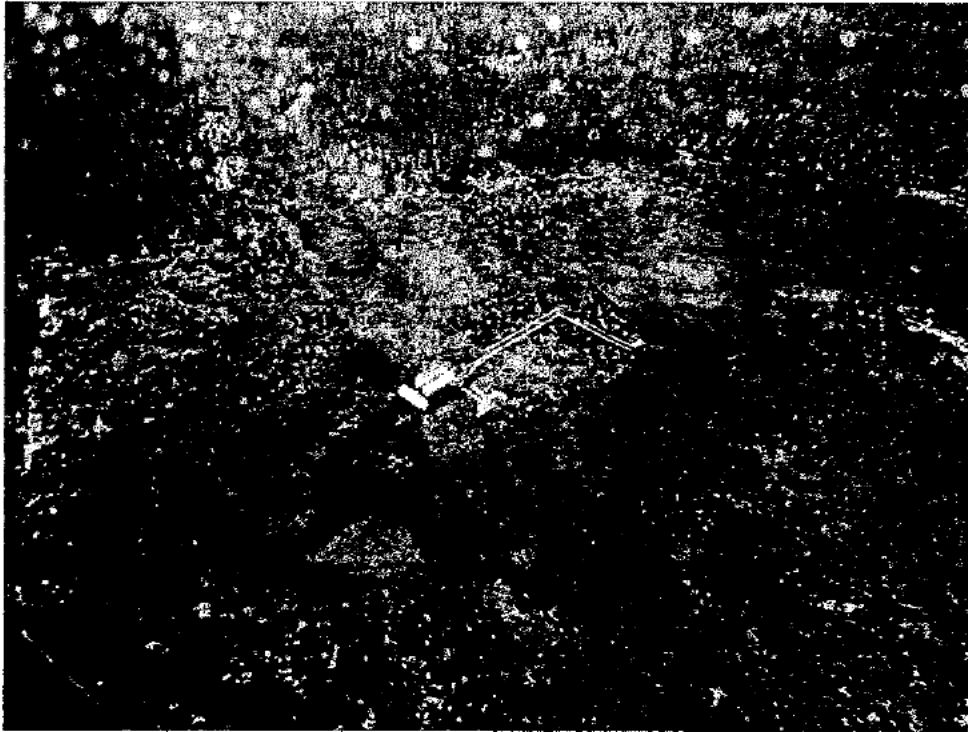
Comments:

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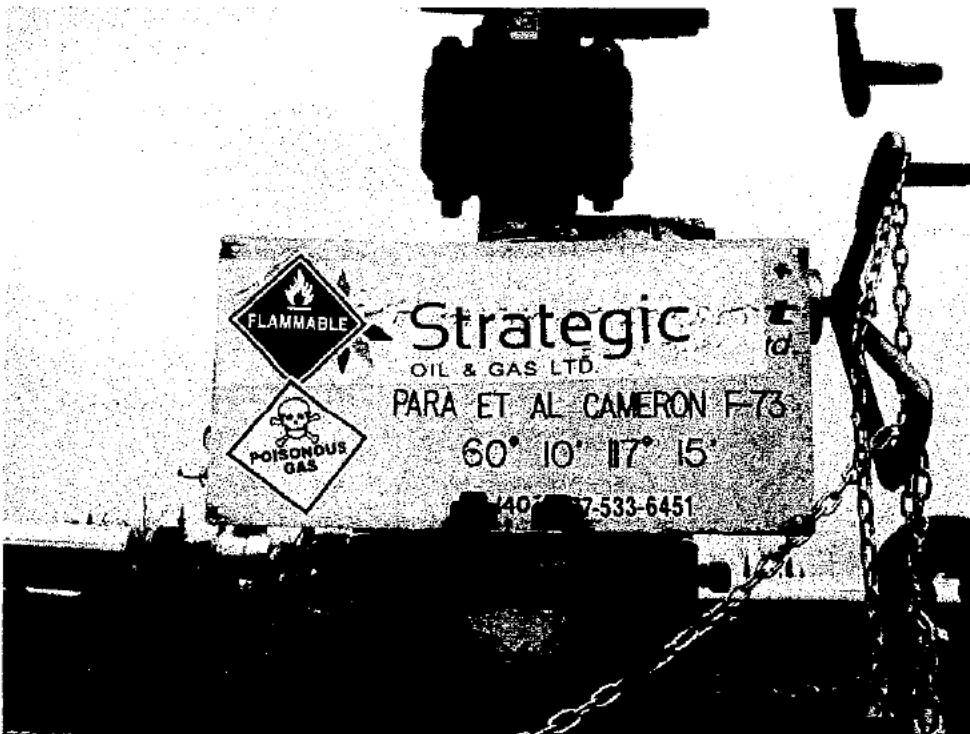


Comments:

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Comments:



Comments:

## Course Information

### Test Supervisor's Information

Name of person supervising the function test: \_\_\_\_\_

Supervisor's Position: \_\_\_\_\_

Supervisor's WSBOP Ticket #: \_\_\_\_\_

Expiry Date: \_\_\_\_\_

Supervisor's Signature: \_\_\_\_\_

Date: \_\_\_\_\_

### Function Test Supervisor's Guide

Discuss the following function test procedures with the individual. Then supervise the function test of the BOP and accumulator.

1. Determine the accumulator precharge pressure.
2. Check the closing unit rated working pressure.
3. Check the fluid volume in the reservoir.
4. Start the recharge pump and inspect for leaks.
5. Record the actual working pressure when the pump has stopped.
6. Shut off the recharge pump.
7. Close blind rams if there is no pipe in the stack.
8. Close the pipe rams, check the closing time (if the stack contains pipe, reopen pipe rams instead of closing the blind rams).
9. Close the annular preventer on pipe. Check the closing time.
10. Record the remaining pressure.
11. Start the recharge pump and record the recovery time.
12. Determine the nitrogen volume.

If the rig is not equipped with a full BOP stack, the form can be completed using whatever BOP equipment the rig normally use

Course Information

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Service Rig Company: \_\_\_\_\_

Rig #: \_\_\_\_\_

Rig Location: \_\_\_\_\_

WELL SERVICE BLOWOUT PREVENTION			
BOP and Closing Unit Inspection Sheet			
	Yes	No	N/A
* 1. Rams are properly sized			
* 2. BOP's have proper pressure rating			
* 3. BOP stack arrangement satisfactory			
* 4. Pressure rating of spool is satisfactory			
5. BOP pressure rating detectable			
* 6. Stabbing valve available and functional			
* 7. Stabbing valve handle readily available			
* 8. Crossover sub for stabbing valve readily available			
* 9. Stabbing valve in the open position			
* 10. Stabbing valve is full opening			
* 11. Blowout preventers are ice free			
* 12. Accumulator has sufficient useable fluid available above 8400 kPa to close all preventers			
* 13. Accumulator is properly connected to the hydraulic system			
* 14. Accumulator gauge accurate			
* 15. Full BOP controls provided at driller's station			
* 16. Adequate remote controls provided			
* 17. Nitrogen back-up provided			
* 18. Nitrogen bottles properly connected			
* 19. Gauges and fittings available to obtain nitrogen pressure			
* 20. Nitrogen bottle gauge accurate			

WELL SERVICE BLOWOUT PREVENTION			
BOP and Closing Unit Inspection Sheet			
	Yes	No	N/A
* 21. Nitrogen bottle volume adequate			
* 22. Accumulator recharge pump functional			
* 23. Preventer seals free of leaks			
* 24. Hydraulic lines proper pressure rating			
* 25. BOP controls clearly marked			
* 26. Hydraulic lines free of leaks (BOP's function)			
* 27. BOP controls leak free (BOP's function)			
* 28. Closing device available for rod preventer			
* 29. BOP's operate from remote position			
* 30. BOP's operate from Driller's position			
31. Manual BOP locking device readily available			
32. Fittings available to obtain accumulator precharge			
33. Preventers close within regulation time			
34. Accumulator pump recharged accumulator 5 minutes			

\* Denotes important items. If any one of these items is found to be deficient by the ERCB, the inspector will order operations suspended immediately.

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/m<sup>3</sup> 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 m<sup>3</sup>/t, Yield = 0.76 m<sup>3</sup>/t, 1901 kg/m<sup>3</sup>

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/m<sup>3</sup>) and fresh water (1000 kg/m<sup>3</sup>) 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 be 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 fresh water.



## **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. Hydrovacing 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.



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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:

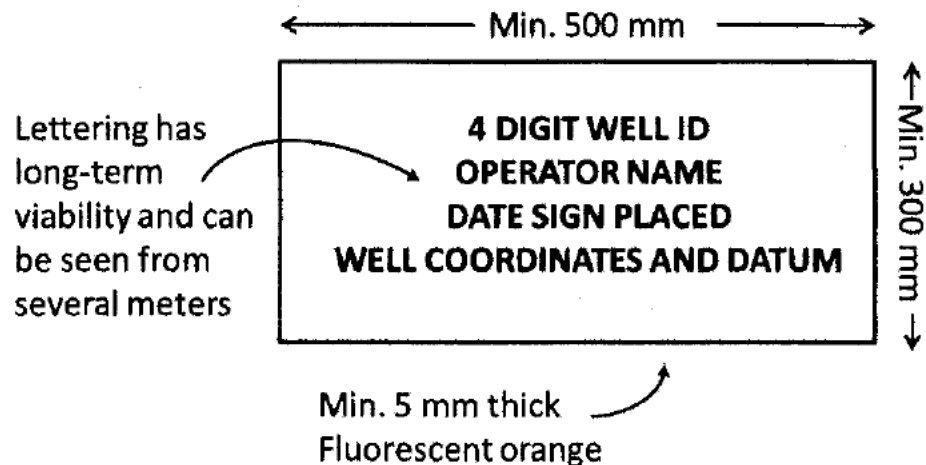
- The geodetic datum must be specified (NAD83 is recommended); and
- Coordinates must be provided:
  - In decimal degrees to 4 decimal places or more, or
  - In degrees, minutes and seconds to 2 decimal places if decimal coordinates are not possible.

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

