

ABANDONMENT PROGRAM

OBJECTIVE

Suspended wellbore, OROGO Level II well bore. OROGO abandonment deadline April 1, 2026. Abandon the well as per approved ACW and OROGO guidelines. Cut and cap well. This is a revised program that will be conducted in accordance with approved OA/ACW that will mirror procedure and rationale of previously approved program and variances at MGM M-17 location.

REPORTING

- All rig calls and Daily Reports are to be directed to Corey Thomson (Superintendent/Engineer ARO)
 - Office: 403-261-1250
 - Cell: [REDACTED]
 - E-mail: corey.thomson@paramountres.com

PROGRAM SUMMARY

- Read & record SIP(s).
- Investigate status of SCVF/GM.
- MIRU Service Rig and associated equipment
- Remove wellhead and install BOP's.
- MIRU slick line unit. Pull A-3 tubing plug from 21mcf. Pressure test tubing to 7000 Kpa with water prior to pulling plug. Pull PX plug and prong from X profile at 1349.5m KB.
- Shift open sliding sleeve at 1363.6mKB
- Confirm tubing is open to bottom and POOH
- Pump away excess fluid to confirm injection
- Cut tubing above on/off connector at ~1350mKB
- Circulate well over to kill fluid
- Pull out of hole with tubing
- RIH with gauge ring/junk basket for 177.8mm casing to top of fish and POOH
- Set cement retainer at +/- 1349mKB and pressure test to 7MPa for 10 minutes. Displace well to fresh (non-saline) water
- RIH and sting into cement retainer, function test.
- Squeeze cement into perforations via sliding sleeve and tubing bottom – sting out and spot excess cement on top of retainer
- Tag cement plug and record depth (Minimum of 15 meters above top of retainer required). Pressure test to 7000 Kpa for 10 minutes. Bleed off pressure and pull tubing.
- Displace water from top 100m of wellbore to prevent freezing
- Pull out of hole and lay down tubing string.
- Winterize well bore.
- Cut and cap the casing strings as required by OROGO
- Install well marker

SAFETY

A safety meeting is to be held with all service company personnel prior to each job. Wellsite supervisor must notify Contractors of known hazards of which Contractor(s) may be unaware. Wellsite supervisor must ensure that workers are aware of their responsibilities and duties under OH&S regulations and that workers comply with



regulations. All service companies supplying materials will review Material Safety Data Sheets at this meeting for all products supplied and maintain these Material Safety Data Sheets available for worker's examination on location in compliance with WHIMIS regulations. All safety meetings will be recorded on the Paramount daily report and on the daily tour sheet.

Whenever possible, plan and conduct all workover procedures in a manner which will avoid the mixing of air & hydrocarbons in the well bore and connected surface piping. If mixing does occur, purge prior to pressurizing or exposing mixture to any other possible source of ignition.

REGULATIONS

All applicable regulations, including, but not limited to the specific approved OROGO ACW approval, OROGO Well Suspension and Abandonment Guidelines, Oil and Gas Occupational Safety and Health Regulations (NWT) and Occupational Health and Safety (OHS) Regulations (NWT) are to be strictly adhered to. Written instructions must be posted in doghouse or other conspicuous area prior to the wellsite supervisor leaving the lease. Wellsite supervisor must designate, in writing (see attached Form), a competent person to carry out principal contractor's responsibilities. All verbal notifications and approvals from government regulatory agencies will be recorded on Paramount's daily report tour sheet. The name of the individual contacted, and the subject matter of approval or notification should be recorded on same.

Paramount/MGM shall provide all staff and contractors for this program with the OROGO 24-hour incident reporting phone number (867-445-8551) prior to commencing any work or activity.

Paramount/MGM shall submit to OROGO an updated operator contact list for this program prior to any work or activity by email at orogo@gov.nt.ca.

Paramount/MGM shall submit to OROGO certificates and inspection documents for any service rig, well control and associated equipment (including boilers) at least 10 days prior to the rig commencing work by email at orogo@gov.nt.ca.

Paramount/MGM shall submit to OROGO all reports required under the Oil and Gas Drilling and Production Regulations in a timely manner to OROGO by email at orogo@gov.nt.ca.

Paramount/MGM shall submit to OROGO, completed Change of Well Status form 30 days after the service rig release date or when the abandonment operation has been finished.

WORK ORDERS/FIELD TICKETS

Delivery and field tickets for all work, services performed, or materials purchased must be signed by a Company wellsite supervisor. Record the AFE number and well location on all purchase and work tickets.

MATERIAL TRANSFERS

All materials shipped to this location that are not used must be transferred to an appropriate warehouse point. Transfers of any tubular materials must include complete tally. Company wellsite supervisor will complete such transfers in Wellview and forward copies to Calgary office for approval and further handling.



MGM WEST NOGHA K-14 ABANDONMENT

WELL DATA AND WELLBORE CONFIGURATION

WELL DATA:

Surface Location: LAT: 66°33'39.528" N LONG: 126°3'9.900" W NAD83
Bottom hole Location: LAT: 66°33'39.492" N LONG: 126°3'9.504" WNAD83
UWI: 300/K-14-6640-12600/1
Profile: Slight Deviation (Refer to survey)
BGWP: 600m GL (Default)
WID#: 2006
OPERATING LICENCE# **NWT-OL-2014-009**
OROGO OA# **TBD**
OROGO ACW# **TBD**
Spud Date: March 1, 2004
Rig Release Date: March 21, 2004
KB: 313.2m
GL: 308.0m
KB-GL: 5.2m
PBTD Original: 1386.8m KB
TD: 1404.2m KB

CONDUCTOR:

Hole size 445mm to 65m KB.

339.7mm, 101.71kg/m K-55 BT&C landed at 65m KB.
Cemented with 10Tonne (7.4m³) Arctic Set cement + 0.5% D065, + 0.2% D046,
+ 1.0% D013. 4.0m³ of cement returns.

SURFACE:

311 mm to 548mKB

39 Joints. 244.5 mm, 53.50 kg/m, J-55, LT&C set at 548m KB.
Cemented with 24tonnes 0-1-0 Class "G " at 1900kg/m³ and displaced with
21.2m³ of fresh water. The plug was down at 19:25 hours March 9,2004. There
were no returns. The casing annulus was cemented from surface through
25.4mm pipe with 8tonnes Arctic Set cement at 1880kg/m³. No returns were
obtained. The rig waited on cement for 4 hours. The annulus was topped-up
through 25.4mm pipe consisting of 12tonnes Arctic Set cement slurry
at 1880kg/m³. One m³ of good cement returns was obtained at surface.

PRODUCTION:

Hole Size 216 mm to 1404m KB.

113 Joints. 177.8 mm, 43.16kg/m, L-80, LT&C set at 1404mKB. Cemented with
30Tonnes (23.5m³) 0:1:0 Class G Cement. 4m³ of cement returns. Logged
cement top at 450m KB, past surface casing shoe.

PERFORATIONS:

1369.7-1372.5m Mount Clark C
1369.7-1379.0m Mount Clark B
1360.8 -1363.2.0m Mount Clark A



Formation Tops
geoSCOUT Ref Elev(m):

+312.4

Formation	TVD (m)	Elev (m)	
Csaln_rv	770.5	-458.1	
Csaln_sa	830.0	-517.6	
Csaln_cLL	931.0	-618.6	
Cmt_cap	1147.5	-835.1	
Cmt_clark	1360.7	-1048.3	
preCamb	1379.0	-1066.6	

GEOLOGICAL MARKERS KB ELEVATION 313.2m. FROM GEOLOGICAL REPORT

Formation	Sample Depth (m)	Log Depth (m)	Log Subsea (m)
Franklin Mtn - Cherty	-	-	-
Franklin Mtn - Rhythmic	250.00	-	-
Franklin Mtn - Cyclic	-	-	-
Saline River - Shale	775.00	770.50	-457.30
Saline River - Up salt	834.20	830.00	-516.80
Saline River - Lower Shale	932.00	931.00	-617.80
Saline River- Lower Salt	947.50	945.00	-631.80
Mt. Cap - Upper Shale	1135.00	1147.50	-834.30
Mt. Cap - Chert	1187.50	-	-
Mt. Cap - Lower Zone	1289.50	1291.00	-977.80
Mt. Cap - Clastic Zone	1323.00	1323.30	-1010.10
Mt. Cap - Basal	1339.50	1340.00	-1026.80
Mt. Clarke - A Zone	1362.50	1360.80	-1047.60
Mt. Clarke - B Zone	1367.20	1369.20	-1056.00
Mt. Clarke - C Zone	1372.00	1374.50	-1061.30
Proterozoic	1379.20	1379.10	-1065.90
Total Depth	1404.00	1404.00	-1090.80

SCVF: No vent flow present.



Tubing/Casing Data:

	Surface Casing	Prod. Casing	Production Tubing String	
Size O.D. (mm)	244.5	177.8	73	
Weight (kg/m)	53.57	43.16	9.67	
Grade	J-55	L-80	L-80	
Connection	LT&C	LT&C	EUE	
Drift I.D. (mm)	222.63	153.90	59.61	
I.D. (mm)	226.59	157.07	62.0	
Capacity (m ³ /m)	0.040326	0.019377	0.003019	
Collapse (MPa)	13.9	48.4	76.9	
Burst (MPa)	24.3	56.3	72.9	
Tension (daN)	175 300	261,100	64 500	
Annular Volume (m ³ /m)			0.015189	
Depth (mKB)	548	1404	1369.42	

Reservoir Data:

Formation	Mount Clark A	Mount Clark B&C	
Perforations	1360.8-1363.2 mKB	1369.7-1379.0 mKB	
Reservoir Pressure	13388 Kpa	13,493 Kpa	~10kPa/m
Reservoir Temperature	24.8°C	25°C	
H ₂ S %	0	0	



GENERAL REQUIREMENTS

- **Daily reports shall be synched to Wellview by 6:30am each day.**
- Before commencing operations, the Wellsite Supervisor will complete a list of nearest available emergency services. This list along with a detailed and accurate description of directions to the location is to be posted in a conspicuous and accessible location known to all personnel.
- Emergency contact list should be completed, posted and available to all on site.
- Ensure that all personnel receive a Paramount orientation, are briefed on the wellsite hazards, safety and first aid equipment locations, escape routes and muster points upon their arrival to the lease. All personnel must be signed in after receiving their briefing and all personnel must sign out when departing the work site.
- Safety and well plan meeting to be held with all service company personnel prior to each job and meetings must be recorded on the Paramount's daily report and on the daily tour sheet.
- All applicable regulations, including, but not limited to the specific approved OROGO ACW approval, OROGO Well Suspension and Abandonment Guidelines, Oil and Gas Occupational Safety and Health Regulations (NWT) and Occupational Health and Safety (OHS) Regulations (NWT) are to be strictly adhered to. Written instructions must be posted in doghouse or other commonly visited area prior to Wellsite Supervisor leaving lease.
- The Wellsite Supervisor is responsible for assessing all worker's competency and ability to perform work.
- All service companies supplying materials will provide Material Safety Data Sheets for all products supplied and maintain these Material Safety Data Sheets available for worker's examination on location in compliance with WHIMIS regulations.
- The Wellsite Supervisor will ensure that dangerous goods shipped or received are classified, packaged, marked, labelled and documented in compliance with the Transportation of Dangerous Goods Regulations. If required, placards must be attached to vehicles transporting dangerous goods. All shipping documents must be forwarded to the Calgary office for filing.
- All operations carried out on behalf of the Operator shall be conducted in a safe and efficient manner in compliance with the Operator's safety regulations and all applicable acts and regulations.
- The Operator expects that all operations conducted will be designed to protect and maintain the quality and integrity of the environment and comply with all environmental acts and regulations.
- BOP equipment will be tested at least once daily, and any equipment found defective should be made serviceable before operations are resumed. Blowout prevention and man-down drills are to be performed weekly and are to be recorded on both the morning reports and tour reports.
- Whenever possible, plan and conduct all completion / workover procedures in a manner which will avoid the mixing of air & hydrocarbons in the wellbore and connected surface piping. If mixing does occur, purge prior to pressurizing or exposing mixture to any other possible source of ignition.
- During the absence of the Wellsite Supervisor, a qualified and competent alternate shall be designated, in writing, to carry out the principal Contractor's responsibilities. Written instructions must be posted in a conspicuous and accessible location known to all personnel prior to the Wellsite Supervisor leaving the location.
- All verbal notifications and approvals received on location from any regulatory agency must be documented and recorded on both morning reports and tour reports and should include a contact name from the agency, phone number and details of the subject matter.
- All field tickets and other supporting documentation submitted for materials purchased and/or services rendered require a correct AFE#, G/L number and accurate identification of the well location along with the Wellsite Supervisor's signature indicating acceptance to the same.



MGM WEST NOGHA K-14 ABANDONMENT

ABANDONMENT PROGRAM

1. Submit certificates and inspection documents for any service rig, well control and associated equipment (including boilers) at least 10 days prior to the rig commencing work by e mail at orogo@gov.nt.ca.
2. **The Wellsite Supervisor is responsible to** notify (or verify notification has been completed) the OROGO, a **minimum of 24 hrs prior** to any well servicing abandonment operation.
3. **The Wellsite Supervisor is responsible to** notify (or verify notification has been completed) the OROGO, a **minimum of 24 hours prior to** any planned flaring operation. When a permit is applicable for sour gas flaring, a copy of such permit must be on site during any flaring operation and requirements of such permit must be strictly adhered to
4. **The Wellsite Supervisor is responsible to** verify notifications have been completed to all applicable residents, industrial operators, trappers & guiders within the categorized radius and/or within the emergency planning zone (EPZ) if applicable **a minimum of 24 hours prior** to any flaring operation.
5. Paramount/MGM shall provide all staff and contractors for this program with the OROGO 24-hour incident reporting phone number (867-445-8551) prior to commencing any work or activity.
6. Complete lease access and well handover process. Complete lease inspection. Note the condition of the lease, record any clean-up operations required to address any spills and record any other noteworthy findings on the first morning report. Discuss the transportation arrangements for the tanks and fluid with respect to other activity in the surrounding field area.
7. Prepare location for Slick Line unit and support equipment.
8. Perform SCVF bubble-test, **ensure SCV piping is exposed to determine if it is open and intact**, read and record SIP's. Fill-out the 'Surface Casing Vent Flow / Gas Migration Data Sheet' and examine surface casing vent for blow or suction. Check and monitor LEL and H₂S levels at wellhead and investigate for evidence of gas migration at surface.
9. Check for the presence of and confirm there is no H₂S.
10. Wellhead Pressure Test:
 - If a surface casing vent flow exists, then pressure test the primary and secondary seals.
 - Confirm & document the stamped working pressure of the wellhead on the morning report.
 - Conduct a pressure test on the primary and secondary wellhead seals, to the working pressure, for 15 minutes each.
 - Ensure the test pressure remains below the production casing collapse pressure rating.
 - Check, record and report the tubing and casing pressures.
 - Ensure the valves are not frozen and the gauges are accurate.
11. MIRU service rig complete with a 21 MPa Class III BOP stack. 73 mm rams, kill spool, rig pump, clean tank, and related auxiliary equipment to OROGO, OH&S and PRL regulations and guidelines. Ensure Corporate



Policies and Procedures are followed prior to commencing operations (see attached). Space out equipment in accordance with OROGO and OH&S requirements.

- Ensure all necessary safety equipment is strategically positioned, on site and tested to ensure proper operating condition prior to commencing with the workover operations.
 - All personnel must be familiar with the operation of all emergency equipment. Safety and BOP drills are to be conducted on a regular basis and recorded on the “Daily Completion / Workover Report”
 - Conduct a complete inspection of the service rig per requirements of AER Directive 37 and PRL guideline policy. Identify and remediate any deficiencies prior to initiating completion operations
 - Conduct an operational and safety meeting prior to installing BOPs onto the wellhead and pressure testing.
12. If necessary, install temporary rig anchors and conduct pull tests on each anchor to 20000 lbs. Install escape line anchor and pull test to 3000 lbs. Ensure PRL ground disturbance procedures are followed.
 13. Move in three 400bbl tanks for wellbore displacement. Haul in approximately 40m³ of 6% KCL water and 40 m³ of fresh water. Ensure bits, scrapers and pressure test packers for 177.8mm are available.
 14. Conduct daily pre-job safety meeting and equipment inspection.
 15. MIRU slickline unit with lubricator and BOP's. Purge and pressure test the lubricator to 1400kPa (low) and 14MPa (high) with Nitrogen gas. Purge the lubricator each time before running in the hole with tools. Hang the wireline sheave in the derrick.
 16. Rig in wellhead services. Remove back pressure valve.
 17. Ensure the well is dead. Install the working spool and BOPs 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 to 1.4 and 14MPa for 10 minutes each. Install a ported tubing pup and stabbing valve through the BOPs on the BOP test stump. Pressure test the pipe rams and stabbing valve to 1.4MPa and 14MPa for 10 minutes each. Pressure test annular preventer to 7000 Ka for 10 minutes.
 18. Conduct an accumulator function test. Recharge the accumulator, shut off the pump and record the accumulator pressure. Close each ram and record the start and end pressures and the time to close each ram. Recharge the accumulator and record the time for the accumulator to recharge to the original pressure. Ensure that hand wheels are available and are the correct type and size for all the BOP rams. Record the number of turns to close each ram manually.
 19. Remove wellhead top section and nipple up the rig BOPs.
 20. Install a 73mm landing pup with an open stabbing valve. Close the stabbing valve. Strip the BOPs 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 to 1.4MPa (low) and 14MPa (high) for 10 minutes each

NOTE: This well contains a shallow hook-wall tubing plug at 21mCF.

Follow procedures in OROGO Safety Bulletin SB01-2021 – Shallow Wellbore Plugs (copy attached at the end of this program).

Specifically a hazard analysis for the operation considering the specific surface equipment must be performed and documented. A copy is to be submitted to OROGO prior to operations and a summary of operations must be submitted to OROGO – note the timing requirements in the bulletin.

As this plug is retrieved with a slickline unit no snubbing unit is required.

21. Fill the tubing with water to 21mCF (about 65 liters) if needed and pressure up to 9,000kPa. This is to



confirm equalization below.

22. RIH with sinker bars and knockout rod to break Kobe sub at base of 'A' pack off. (Kobe sub is assumed to be in place – but not documented). Confirm required length and diameter of probe with slickline contractor. If Kobe sub is successfully broken, pressure above will drop indicated equalization, allow pressures to stabilize.
23. Pull slip stop, A-3 plug and collar stop located at 21mCF. (2.5" JUC pulling tool required).
NOTE: If unsuccessful in equalizing pressure below plug, maintain 9000kPa on plug until elements are released and pressures equalized. This will prevent the plug from being forced up hole.
24. Pull PX prong and plug that is set in X profile at 1349.5m KB.
25. Open sliding sleeve at 1363.6mKB (Halliburton XA sliding sleeve c/w 58.75mm 'X' profile – up to open). POOH with slickline
26. Run blind box and confirm tubing is open to bottom, POOH.
27. Commence injection of surface fluids as required to establish injection rates/volumes.
28. RIH with mechanical tubing cutter, pull tubing into tension and cut tubing at a depth of ~ 1350mKB above slick joint.
29. Forward circulate well to KCl water to kill well (use fresh water if SIP determines well to be below hydrostatic pressure). Returns are expected to be diesel/frac oil (approximately 25m³) Oil will be hauled to licensed disposal or to approved waste oil burners in Coleville Lake, Fort Good Hope, Norman Wells.
NOTE: Oil is not a substitute for diesel in many uses (Reid Vapor Pressure 9kPa)
30. Pull out of hole with the 73mm tubing while inspecting out of the hole for re use. Stand the tubing string.
31. RIH with gauge ring and junk basket for 177.8mm tubing to top of fish to confirm casing is clear to set cement retainer..
32. Set a 177.8mm cement retainer as close as practical to top of cut tubing at ~1350mKB ensuring clear 3m of casing collars and POOH.
33. Pressure test to 7MPa for 10 minutes then bleed off pressure.
34. RIH with 73mm work string and cement stinger. If required, forward circulate the well to fresh water to remove all brine from the annulus. Transfer brine to trucks for transfer to approved disposal site. Record in Wellview report "Displaced well to fresh (non-saline) water" – use this exact wording.
35. Sting into the cement retainer and function test retainer. Pressure test the annulus to 21MPa (wellhead pressure) for 10 minutes.
36. Move in and rig up cementers. Pressure test the surface lines to 21 Mpa. Make sure mix water is between 20 to 25 deg C. Mix water must be clean potable water.
37. Start pump at lowest rate possible and increase by 50lpm (or as limited by equipment on location). If injection rate exceeds 40lpm at 15MPa (surface treating pressure) or less, use hesitation squeeze method. If the injection rate is found to be less than 40lpm at 21MPa contact Calgary office to discuss go forward operation.
38. Pull out of cement retainer.



39. Mix cement for squeeze (4m³) – batch mix with Canadian Energy Services equipment on location. Cement blend to be prequalified to achieve 150cc/30 minute API fluid loss and minimum of 5 hours thickening time. Proceed to circulate cement to bottom using fresh water.
40. Sting into cement retainer. Squeeze cement into perforations via open sliding sleeve in existing bottom hole assembly. Slowly squeeze cement into perforations. Gradually increase squeeze pressure until formation will take cement. Frac pressure is estimated to be 11MPa STP. Do not exceed this pressure if formation has indicated it is taking the cement. Do not exceed 80% of wellhead pressure rating. Maintain squeeze pressure on cement to 80% of thickening time and record the final squeeze pressure in the Wellview daily report.

NOTE: Theoretical cement volume to fill tubing and annulus over the target is ~1m³. It is likely that the perforations will be squeezed off before this volume is pumped and the full volume of cement will not be squeezed. Any excess cement will be placed on top of cement retainer.
41. Sting out of cement retainer and spot remaining cement on top of retainer (minimum 0.5m³ cement = 25 vertical meters).
42. Pull up 50m above calculated cement top and back wash tubing clean. SDFN.
43. Pressure test plug to 7MPa for 10 minutes. RIH and tag cement top applying a minimum set down weight of 1800daN and record in Wellview daily report. Top of cement must a minimum of 15m above cement retainer – top up if required.
44. Pull out of hole and lay down the 73mm tubing minus 500m worth. Ensure thread protectors are used.
45. RIH with plugged 500m tubing string. This will displace 2m³ of water to lower final fluid level to 100m below surface to prevent freezing due to permafrost. POOH sideways and do not fill the hole.
46. Remove BOPs. Install wellhead. Rig out.
47. Cut and cap the casing strings with vented cap as per the attached procedure in the Appendix or using water Hydro jet vented cap system.



128-spill_report_for
m_e_fillable_1.pdf



NWT SPILL
REPORTABLE SPILL C



Cut Capping
procedure 2008.xls



CORPORATE CONTACTS

MGM Energy Corporation
4700, 888 – 3rd Street, SW
Calgary, AB
T2P 5C5

ARO (Calgary):

	<u>Business</u>	<u>Residence</u>	<u>Cellular</u>	<u>Fax</u>
Corey Thomson Engineer, Abandonments E-mail: corey.thomson@paramountres.com	(403) 261-1250		██████████	(403) 261-1349
Tim Wood Manager, ARO E-mail: Tim.Wood@paramountres.com	(403) 290-2919		██████████	(403) 261-1349

PRODUCTION (District Office):

	<u>Business</u>	<u>Residence</u>	<u>Cellular</u>	<u>Fax</u>
MORNING REPORTS (Calgary):				
Corey Thomson Abandonment Engineer E-mail: corey.thomson@paramountres.com	(403) 261-1250		██████████	(403) 261-1349
Tim Wood Abandonment Manager E-mail: tim.wood@paramountres.com	(403) 290-2919		██████████	(403) 261-1349
John Hawkins Director, ARO E-mail: john.hawkins@paramountres.com	(403) 303-1929		██████████	(403) 261-1349



CORPORATE POLICY & PROCEDURES

- All operations carried out on behalf of the Operator shall be conducted in a safe and efficient manner in compliance with the Operator's safety regulations and all applicable acts and regulations.
- The Operator expects that all operations conducted will be designed to protect and maintain the quality and integrity of the environment and comply with all environmental acts and regulations.
- All contractors on location must have as a minimum a valid H₂S ticket (if necessary), WHMIS, and be fully covered by the NWT Worker's Compensation Board (WCB) where applicable, carry a minimum of \$2,000,000 liability insurance.
- Before commencing operations, the Wellsite Supervisor will complete a list of nearest available emergency services. This list along with a detailed and accurate description of directions to the location is to be posted in a conspicuous and accessible location known to all personnel.
- Any excavation or installation of anchors (if required) on location shall follow MGM/Paramount's Ground Disturbance Requirements:
 - a. Contact 1st Call (Review Paramount's Grey book)
 - b. Prior to excavation – obtain Ground Disturbance Permit
 - i. If pipeline in area, arrange for Hydrovac and hand expose lines within 5 meters of excavation.
- Prior to commencing operations, the Wellsite Supervisor shall:
 - Read and record SIP(s). Examine surface casing vent for blow or suction, record and report findings. Check and monitor LEL and H₂S levels at wellhead and investigate for evidence of gas migration at surface.
 - Bleed off SISCVP. Shut in SCV, install chart recorder, monitor 24-hour build-ups, report same and complete AER's "Surface Casing Vent Flow/Gas Migration" form.
- Before commencing operations, the Wellsite Supervisor in conjunction with the Rig Manager will conduct an initial rig inspection using a CAODC or equivalent inspection form. A detailed rig inspection is to be completed weekly thereafter. Confirmation of these inspections is to be recorded on both the morning report and tour report.
- Have on-site a access to the AER Drilling/ Servicing Regulations - Directive 36, Workplace Health and Safety Regulations, NWT Oil and Gas Operations Act, NWT Drilling and Production Regulations, OROGO Well Suspension and Abandonment Guidelines.
- The Wellsite Supervisor and Rig Manager will conduct daily walk-around inspections and complete a daily rig inspection report in an effort to identify deficiencies regarding well control and safety related items.
- The Wellsite Supervisor must ensure that all pertinent data (tubulars, logs, tests etc.) are properly recorded on the tour sheets and that samples, where required are collected as required by well licence. Also, the Wellsite Supervisor must ensure that trip sheets are properly completed and maintained.
- During cold weather operations, the Wellsite Supervisor must ensure that the blowdown line from the BOP stack to the choke manifold to the degasser is filled with a water/antifreeze solution.
- The Wellsite Supervisor must ensure that all personnel are advised and instructed not to trespass off the demised property.
- Safety meetings are to be held every day with wellsite personnel and recorded on both the morning reports and tour reports. Pre-job safety/orientation meetings are to be held prior to commencing new or non-routine work at which time the Wellsite Supervisor shall advise all personnel of known hazards, special pre-cautions and procedures. Hazard assessments must be conducted in accordance to Workplace Health and Safety Regulations and documented accordingly.



- BOP equipment will be function tested at least once daily and any equipment found defective should be made serviceable before operations are resumed. Blowout prevention drills are to be performed weekly and are to be recorded on both the morning reports and tour reports. **All appropriate Certifications for equipment used will be on-site and available for review.** Communicate this information with the contracted services.
- The Wellsite Supervisor will ensure that service companies supplying products and/or materials that require Material Safety Data Sheets review and advise wellsite personnel with the potential hazards associated and the appropriate emergency response to be undertaken when handling the same. As well, in compliance with WHMIS regulations, all MSDS are to be posted in a conspicuous and accessible place know to all personnel for their information and emergency reference. Site Specific Orientation to all personnel on-site must be given for all chemicals and materials used.
- The Wellsite Supervisor will ensure that dangerous goods shipped or received are classified, packaged, marked, labeled and documented in compliance with the Transportation of Dangerous Goods Regulations. If required, placards must be attached to vehicles transporting dangerous goods. All shipping documents must be forwarded to the Calgary office for filing.
- The Operator expects full compliance with all conditions detailed on the Land Use Permit and Water Permit, OA and ACW.
- During the absence of the Wellsite Supervisor, a qualified and competent alternate shall be designated, in writing, to carry out the principal Contractor's responsibilities. Written instructions must be posted in a conspicuous and accessible location known to all personnel prior to the Wellsite Supervisor leaving the location.
- All verbal notifications and approvals received on location from any regulatory agency must be documented and recorded on both morning reports and tour reports and should include a contact name from the agency, phone number and details of the subject matter.
- Daily reports shall be synchronized to Wellview by 0630Hrs. every morning. Copy will be forwarded to Calgary. A daily operations report will be provided to the Wellsite Supervisor.
- All field tickets and other supporting documentation submitted for materials purchased and/or services rendered require a correct AFE# and accurate identification of the well location along with the Wellsite Supervisor's signature indicating acceptance to the same.
- All rental equipment must be accounted for and returned promptly upon conclusion of operations. Rental Sheets must be utilized.
- All surplus material and/or equipment must be accounted for and either returned for credit or material transferred to the appropriate warehouse point accordingly.
- All Accidents or Incidents shall be reported **immediately** to the Calgary Office - Attention: Corey Thomson/George Ferguson. Complete the Paramount Safe Incident Report and conduct the necessary Investigations immediately. E-mail copy to Calgary within 6 hours of incident.
- Upon conclusion of operations:
 - Fill out the following forms:
AER "Surface Casing Vent Flow/Gas Migration Data Sheet"
Paramount's Suspended /Abandonment Action form

Email / Fax a copy of the above completed form/s to the Calgary office.

 - Ensure that all garbage and debris has been removed from the location in accordance with AER Directive D-58 and that any environmental concern has been addressed. Contact the Construction foreman with any concerns.



- Ensure that all flange bolts are properly torqued in accordance with the manufacturer's specifications and that all valves are properly lubricated.
- Prepare a final wellbore diagram with all pertinent information recorded.
- Forward all paperwork including field logs and computer data files to the Calgary office including copies of all field logs. A paper and digital copy of all Paramount operation reports should be provided. All field tickets, Material Transfers, Incident Reports, well test reports, rig inspection reports and service reports shall be included with the operation report package.
- Notify the District Production Foreman of the well status.



APPENDIX 1

SURFACE CASING VENT FLOWS:

- If a SCVF issue exists, bleed off well and allow well to stand for a minimum of twenty-four (24) hours with the SCV left in the “open” position to allow well to stabilize prior to Noise-Temperature logging.
- Perform “bubble” test as per AEUB Directive 20 and complete the “Surface Casing Vent Flow / Gas Migration Data Sheet”.

NOISE-TEMPERATURE LOGGING:

- When Noise-Temperature Logging, RIH with Noise-Temperature Logging Tools and, correlated to a cased-hole log provided, run the Temperature Log while running in hole to PBTD. Note and record results.
- Pull the Noise Log to surface and obtain readings every five (5) meters. Over “high” noise level intervals and possible origin(s) of the vent flow, reduce increments to one (1) meter readings. Note and record results of same.
- Upon conclusion of logging operations, forward copy of log to Calgary office for inspection prior to proceeding with the balance of the program.

CEMENT-RETAINER CIRCULATIONS/SQUEEZES:

- Ensure a representative sample of make-up water has been forwarded to cementers for compatibility testing.
- Set retainer two (2.0) meters above perms avoiding a casing collar and pressure test to 7.0 MPa.
- RIH with stinger, sting into and perform pressure and function tests.
- Perform feed rate test to perms with fresh produced water.
- Tie in single-pumping unit cementer with squeeze manifold and chart recorder.
- Pressure test surface lines to 1,400kPa (low) and 14,000kPa (high).
- Pull stinger from retainer, mix, pump and circulate prescribed cement design to tubing bottom.
- Sting back into retainer and perform cement circulation/squeeze.

NOTE:

- Where circulation was not established and, after displacing the lead cement, monitor tubing to determine if plug is gravity feeding. If so and if cement setting times permit, allow well to gravity feed at a controlled rate of not more than 0.50 m³/min. as best possible with manifold valve or by pulling the stinger into the “neutral” position. When the well no longer gravity feeds, commence hesitation squeezes in 0.50 m³ increments/stage unless breakdown is observed while pumping a stage at which time pumping should be stopped immediately ending that particular stage. Wait thirty (30) minutes or as appropriate, depending on actual conditions between stages. Attempt to achieve a stabilized lock-up pressure to 7.0 MPa and hold for ten (10) minutes with chart recorder. Record and report same.
- Do not over displace cement squeeze.
- Be prepared to batch mix and pump an additional 1.50 m³ – 3.00 m³ cement, if necessary.
- Do not exceed a pump rate of 1.0 m³/min. or frac gradient (18.0 kPa/m) when feed rate testing or cementing.

Eg. Maximum allowable surface pump pressure when using 1030 kg/m³ fluid @ a depth of 300 m:

$$\begin{aligned} &= \text{Frac pressure} - \text{Hydrostatic pressure} \\ &= (300 \text{ m} \times 18.0 \text{ kPa/m}) - (300 \text{ m} \times 1030 \text{ kg/m}^3 \times 0.00981) \\ &= 5,400 \text{ kPa} - 3,031 \text{ kPa} \\ &= 2,369 \text{ kPa} \end{aligned}$$

- Pull stinger from retainer, displace an eight (15.0) meter balanced cement plug over the retainer, raise string out of balanced cement plug, backwash string clean with fresh water and POOH with stinger.
- Shut in casing valves and WOC as prescribed.



SUSPENSION & ABANDONMENT PLUGS:

- Bridge plugs and cement retainers used for zonal suspension or abandonment and set in compliance with OROGO Well Suspension and Abandonment Guidelines, must be pressure tested to 7000 Kpa prior to capping with fifteen (15) meters of circulated cement for Level II wells and thirty (30) meters of circulated cement for Level I wells.

PRL CUTTING & CAPPING PROCEDURES:

- Move in 'B'-ticket welder, backhoe, and steamer, if required. Hydovac unit may be required if flowlines are present.
- Read and record SIP(s). Check and monitor LEL and H2S levels at wellhead and investigate for evidence of gas migration at surface. Examine surface casing vent for blow or suction. Record and report findings. If present, stop work and hold a safety meeting to review working procedures. If required, contact the Calgary office for further direction. Proceed with work only when conditions are able to be managed safely.

NOTE:

- When ambient temperatures are below freezing, tarp in wellhead and steam wellhead to ensure that wellhead and piping are not frozen.
- Remove all plugs and function test all wellhead valves to confirm there is no pressure built up in the wellhead or casing. Disassemble the SCV piping assembly and visually inspect that the vent is not plugged with cement or ice.
- Review corporate ground disturbance package and policies with all on-site personnel prior to commencing excavation around the wellhead. Hydrovac expose all underground facilities (casing, flowlines etc.) within five (5.0) meters of area to be excavated and excavate a 6.0m x 2.5m bell hole around the wellhead ensuring that walls of the bell hole are properly sloped for safe entry and egress and to prevent sloughing in. Check and monitor LEL and H2S levels and investigate for evidence of gas migration.
- While exercising caution, weld cut a small hole 30 cm below the surface casing bowl and investigate for trapped gas and fluids. Check and monitor LEL and H2S levels. With closed hooks and shackles, connect backhoe bucket to wellhead and pull into tension slightly more than the weight of the wellhead. Weld cut three (3) windows in the surface casing to access the innermost casing string ensuring that 50% of the circumferential metal remains to prevent possible collapse of the surface casing from the weight of the wellhead. While exercising caution, weld cut the innermost string.

NOTE:

- Innermost string can be expected to suddenly drop once completely cut. Do not place pry bars, hands or fingers in the windows.
- Complete weld cut of the surface casing, lift and remove wellhead from bellhole with backhoe.
- Review the Capping Schematic in this Appendix. Cut off the casing strings so that the top of the Protective Cap will be a minimum of 1.5 meters below the surveyed ground elevation. The surface casing and production casing are to be cut off at the same depth.
- Fabricate the Protective Cap and slip on collar using the surplus surface casing material.
- Dress the casing stubs. Using compatible metallurgical material, install and seal weld a 12.7 mm steel plate "donut" and vent assembly over the surface casing and production casing annulus, and a 12.7 mm steel plate and vent assembly over the inner most casing string. Required vent assemblies are as shown on the Capping Schematic.

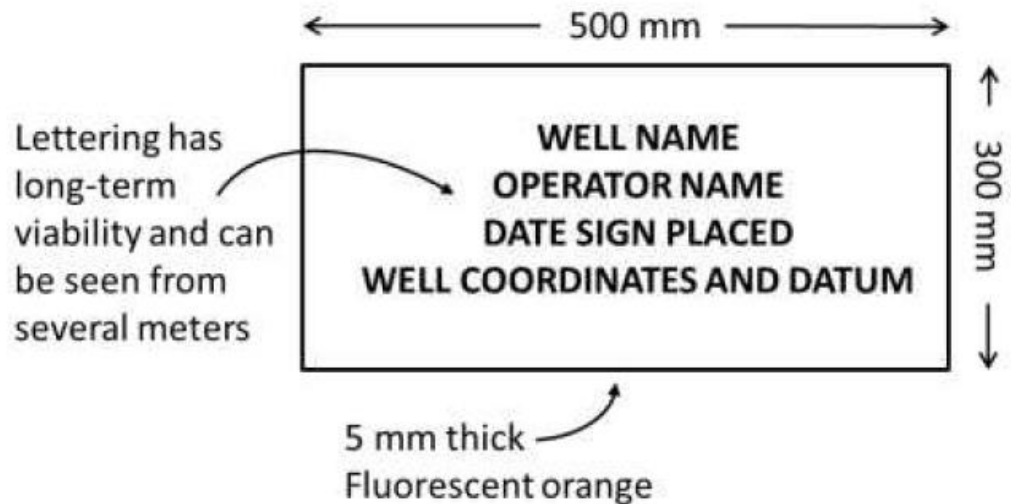


NOTE:

- All seal welds are to be pre & post-heated to 3000C.

- Install and weld the Protective Cap to the surface casing as shown on the Capping Schematic. Weld inscribe the LSD on top of the Protective Cap and document with a digital photograph.
- Backfill and compact the excavation, clean up lease and rig out and release all services.
- Complete material transfer(s) and forward equipment for servicing and/or storage.
- Note: OROGO guidelines state that 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 be submitted as part of the Well Operations Report.
- After surface abandonment is completed, all abandoned wells must be marked with a durable post and a sign as per below:

Sign Requirements



Well Suspension and Abandonment Guidelines and Interpretation Notes

Post Requirements

