



December 5, 2018

OROGO
Department of Industry, Tourism and Investment
Government of the Northwest Territories
P.O. Box 1320
Yellowknife NT
X1A 2L9
Canada

**Attn: Mr. J. Fulford,
Chief Conservation Officer**

**Re: Application to Alter the Condition of a Well (AACW)
Celibeta No.2 H-78 (WID 156)**

Paramount Resources Ltd. (Paramount) plans to abandon the following two wells:

- Paramount Anadarko Bovie J-76 (WID 1931)
- Celibeta No.2 H-78 (WID 156)

An application for Operations Authorization for this project has been submitted previously and is currently being reviewed by OROGO.

Please find the following attachments in support of this application:

- A signed original Application to Alter the Condition of a Well (AACW) for Paramount Anadarko Celibeta No.2 H-78 (WID 156)
- A signed original Information Disclosure Consent Form
- Two hard copies of the Application to Alter the Condition of a Well for an Operations Authorization, including supporting documentation (these versions contain contact information and other non-public information and are intended for internal use)

A PDF version of the Application, including scanned copies of the above attachments will be provide to OROGO. This copy has had the personal contact information redacted to facilitate public disclosure of the Application without compromising the personal contact information of the participants.

Paramount has applied for a Land Use Permit and Water Licence for access to and operations on the Celibeta No.2 H-78 location. This application has been "deemed complete" but at the time of writing has not been approved. Paramount understands that in addition to the approval of the Application for Operations Authorization and the Approval to Alter the Condition of a Well, an approved Land Use Permit and Water Licence is required before operations can commence on the Celibeta No.2 H-78 well.

Should you require additional information regarding this application and project please contact me.

Furthermore, please accept this letter as permission to discuss this application and associated communications and operations with Paramount team members or Mr. Richard (Dick) Heenan of Heenan Energy Services Ltd. at (403) 818-4408 or dickheenan@shaw.ca if required.

Regards,

A handwritten signature in blue ink, appearing to read 'John Hawkins', with a long horizontal flourish extending to the right.

John Hawkins, P. Eng.
Director Asset Management
Paramount Resources Ltd.



**Application for Approval to
Alter the Condition of a Well
Bovie J-76 Abandonment**

November 2018

General Requirements for a Well Approval

Obligation to Consult with Existing/Asserted Aboriginal Rights Holders

Paramount has consulted with the Aboriginal rights holders affected or potentially affected by these operations.

No concerns were raised by any of the parties involved.

The Bovie J-76 well is 29 km by winter road from the community of Fort Liard

The Engagement Plans and Engagement Records were supplied as part of the supporting information for the application for Operations Authorization for this project

Well Approval Application Form (AACW)

The original of this form is attached to the covering letter and a copy included as Appendix 1

Requirements of the Oil and Gas Drilling and Production Regulations (OGDPR)

Requirement for a Well Approval – OGDPR S.10

The operations contemplated under this program (well abandonment) require a Well Approval. This document is provided in support of Paramount's application for a Well Approval for the abandonment of Bovie J-76

Application to Drill - OGDPR S.11

This application does not include any new drilling and thus this section of the OGDPR does not apply.

Application to Abandon a Well - OGDPR S.12

The following is a summary of the abandonment program for Bovie J-76

1. Drill out existing bridge plug set at 50 mKB.
2. Pressure test casing & existing bridge plug/cement cap
Displace to fresh water
3. Perforate @ +/-300 mKB and circulate out diesel in annulus
4. Set cement retainer just above perforations
Circulate cement to surface via intermediate casing annulus (if possible)
Cap cement retainer with 15m of cement
5. Cut & cap per OROGO requirements

A detailed program is provided in Appendix 2

Current plans are to start construction of a winter road in December (subject to weather conditions). Downhole abandonment operations are planned to start January 15 and are estimated to take about 7 days. Extension of the winter road to Celibita No.2 H-78 will occur at approximately the same time and the abandonment of J-76. Cut and cap operations for both Bovie J-76 and Celibita No.2 H-78 will occur when downhole operations on Celibita No.2 H-78 are completed, likely mid-February.

Operations are subject to weather and site conditions, and to the availability of equipment and suitable personnel. For this reason the timing, duration, and even order of the operations may change from those below.

Conditions for Abandonment- OGDPR S.56

The abandonment of this well, as described above and in the program in Appendix 2 will comply with the requirements of OGDPR section 56.

Monitoring of Suspended Well - OGDPR S.57

Prior to and during abandonment operations, the well and immediately surrounding area will be checked for surface casing vent flows and gas migration outside of the casing. Neither event was observed during recent shut-in well inspections. If any indication of gas migration or surface casing vent flow is observed, operations will be suspended, the program will be modified to address the issue, and OROGO will be notified.

Once the well has been cut and capped and reported as permanently abandoned no further monitoring is anticipated at this time.

Offshore Well- OGDPR S.58

As this is not an offshore well, this section of the OGDPR does not apply.

Other Requirements

The Well Suspension and Abandonment Guidelines and Interpretation Notes

The abandonment of this well, as described above and in the program in Appendix 2 will comply with the *Well Suspension and Abandonment Guidelines and Interpretation Notes* provided by OROGO.

Information Disclosure Consent

The original of this form for the Bovie J-76 operations is attached to the covering letter and a copy included as Appendix 1. The form for the information associated with the Operations Authorization is included with that application.

Appendix 1

**Copy of Application for Approval to Alter the Condition of a Well Form
Information Disclosure Consent Form**

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:

- | | | |
|--------------------------------|--|--|
| <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 two signed hard copies 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	PARAMOUNT ANADARKO BOVIE J-76	Operator	Paramount Resources Ltd.
Well Type	Exploratory Well (if Other, specify)	Contractor	TBD

RELATED LICENCES, PERMITS, AND AUTHORIZATIONS

Operating Licence No.	NWT-OL-2014-014	Operations Authorization	TBD
PRA Licence No.	Exploration Licence 381	Station Keeping Land Structure	Not Applicable Conventional Land
Land Use Permit No.	MV2013A0013	Issued by:	Mackenzie Valley Land and Water Board
Water Licence No.	MV2013L1-0003	Issued by:	Mackenzie Valley Land and Water Board

ACTIVITY INFORMATION


Current Well Status	Shut in	Anticipated Well Status	Well abandonment
Well Path	Vertical	Elevation KB/RT	417 m
Approximate Start Date	January 2019	Ground Level / Seafloor	412 m
Est. Days on Location	30 days	Anticipated Total Depth	3350 m KB

WELL OPERATION PROGRAM

Activity Type	Top to Bottom Interval (m KB)	Comments
Abandonment	2709-0	Lower zones abandoned in 2009 w/ BP & cement
Select	-	Drill out BP at 50m
Select	-	Cut & cap per OROGO
Select	-	

Additional Information

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

Name	<u>John Hawkins</u>	Phone	<u>(403) 817-5074 Ext</u>
Title	<u>Director Asset Management</u>	E-Mail	<u>john.hawkins@paramountres.com</u>
Operator	<u>Paramount Resources Ltd</u>		
Signature	 <u>Responsible Officer of Company</u>	Date	<u>November 14, 2018</u>

OROGO use Only

ACW _____ - _____

OA _____ - _____

INFORMATION DISCLOSURE CONSENT FORM

Pursuant to subsection 91(3) of the *Petroleum Resources Act* (PRA)

Subject to its obligations under section 91 of the PRA and the objectives expressed by the Government of the Northwest Territories Oil and Gas Regulator (Regulator) in its *Information Disclosure Guidelines*, issued under section 18 of the *Oil and Gas Operations Act* (OGOA) on May 10, 2016, the Regulator wishes to facilitate public access to information about the regulation of oil and gas works and activities under OGOA, while protecting an applicant's right to maintain privilege over certain information.

Paramount Resources Ltd. (the Applicant), requires authorizations, approvals, orders, or other consents from the Regulator in respect of the following works or activities: East Liard Well Abandonment.

The Applicant (please mark box or boxes):

- Does not consent** to the public disclosure of any information with respect to the above-noted works or activities, other than information or documentation that the Regulator is already permitted to disclose under section 91 of the PRA, and has provided a rationale for non-disclosure in the space provided on the reverse of this form.

or

Consents to the public disclosure of all the information indicated by the Applicant below with respect to the above-noted works or activities, with the exception of any information noted in the space provided on the reverse of this form where accompanied by a rationale for non-disclosure:

- This completed *Information Disclosure Consent* form
- A brief project description (approximately 1-5 pages) that includes the name of the applicant, the scope, purpose, location, timing and nature of the proposed work or activity. This project description may be used for the purposes of a preliminary screening under Part V of the *Mackenzie Valley Resource Management Act*.
- ⊗ The contents of an application for an Authorization under section 10(1)(b) of OGOA, including but not limited to the following but excluding Financial Information as noted below:
- The completed application for the Authorization;
 - All required documentation supporting the application, including the safety plan and environmental protection plan where applicable;
 - Correspondence and Information Requests between the Regulator and the Applicant;

- The approved Authorization, including any conditions imposed by the Regulator;
- The completed application for any associated approvals (such as well approvals);
- Any associated approvals issued, including any conditions imposed by the Regulator;
- Subsequent amendments to any authorizations or approvals issued by the Regulator; and
- Any requests to vary or seek exemption from a regulatory requirement under section 54 of OGOA.

Classes of information or documentation obtained by the Regulator as a result of carrying on a work or activity that is authorized under OGOA, as described in subsection 91(8) of PRA, remain privileged for the periods of time described in that subsection.

By providing its consent to the disclosure of the above information, the Applicant hereby releases OROGO, its officers, agents or employees from any claims, demands, losses or liability arising out of or related to the disclosure of the information.

This consent remains in effect until it is revoked or amended by written notice to OROGO, in which case the amended consent would apply to information provided to the Regulator after the date of the written notice.


The Applicant hereby affirms that it has read and fully understands this Information Disclosure Consent Form and release of liability.

Paramount Resources Ltd.

Name of Applicant Company

November 14, 2018

Date


Signature of Officer, on behalf of Applicant

John Hawkins, Director Asset Management
Name of Officer (print)

Information the Applicant Does Not Consent to Disclose:
Proof of Financial Responsibility

Rationale for Non-Disclosure (use additional paper if necessary):
Confidential financial information

Appendix 2

Proposed Abandonment Program and Downhole Diagrams



ABANDONMENT PROGRAM
OROGO Compliant Suspended Well
OROGO LEVEL II WELLBORE
PARAMOUNT ANDARKO BOVIE J-76
WID # 1931
POTENTIAL H₂S: 0.0%

PROCEDURE APPROVAL & DISTRIBUTION

DATE: November 14, 2018
WELL NAME: PARAMOUNT ANADARKO BOVIE J-76
UWID: 300/J-76-6020-12245/0
OPERATIONS AREA: Liard East **PROVINCE:** NWT
OBJECTIVE: Abandon wellbore in accordance with OROGO guidelines and approved ACW.

PRL Supplier Coding: PR210-9231-xxx (Abandonment program)

REGULATORY APPROVALS:

REQUIRED: YES

TYPE: OROGO Operations Authorization and ACW.

AUTHORIZATION RECEIVED by:

DATE:

PROCEDURE COMPLIES WITH CONDITIONS OF AUTHORIZATION: YES NO

TYPE OF WORK: Abandonment

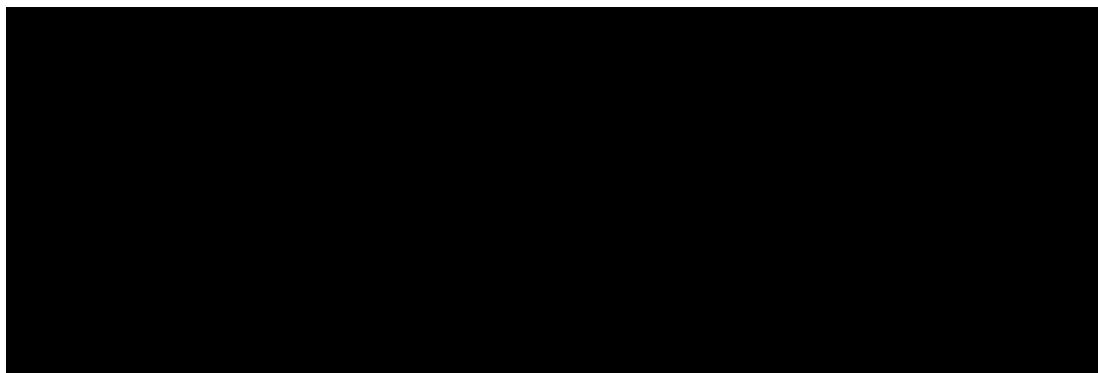
PROCEDURE COMPLIES WITH PARAMOUNT RESOURCES LTD. POLICIES ON:

- 1) Paramount Well Control Manual
- 2) AER Servicing BOP Class III well.

DISTRIBUTION:

PREPARED BY:

**REVIEWED AND
APPROVED BY:**

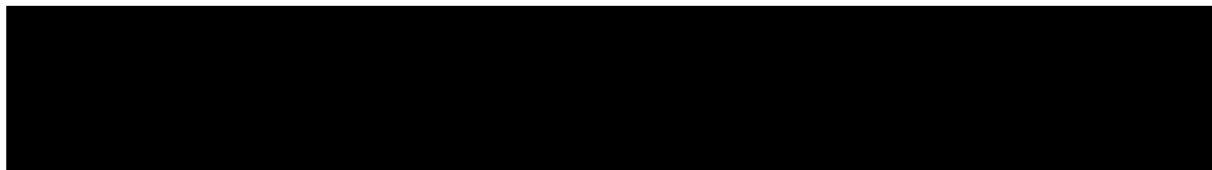


ABANDONMENT PROGRAM

OBJECTIVE

Suspended Level II well bore. OROGO deadline January 31, 2023. Abandon well, as access to H-78 abandonment will go past this location. Drill out plug at 50m. Run to PBTD. Displace well to fresh water and pressure test well bore. Pull tubing. Perforate at 300mKB and circulate 177.8mm/244.5mm annular space clean with fresh water. Set cement retainer and cement to surface. Circulate 15 meters of cement on top of retainer with fresh water. Pull tubing. Cut and cap well.

REPORTING



PROGRAM SUMMARY

- Read & record SIP(s).
- Investigate status of SCVF/GM.
- MIRU Service Rig, P-tank and associated equipment. Read and record pressures. Bleed off pressure and pressure test casings. Remove wellhead and install Class III BOP's.
- RIH with mill for 177.8mm casing and drill collars on 73mm tubing.
- Mill out plug at 50m KB. Pressure test casing to 7000 Kpa for 10 minutes.
- Continue in hole with 73mm tubing to PBTD and record depth. Circulate well to fresh water.
- Perforate 300 to 300.6m KB with circulation charges. Establish circulation to surface between 177.8mm/244.5mm annular space. Circulate clean with fresh water.
- Set a cement retainer within 15meters of the top perforation. Cement 177.8mm/244.5mm annular space to surface.
- Pull out of retainer and circulate 15-meter cement plug on top of cement retainer.
- Pull out of hole and lay down tubing string.
- Winterize well bore. Rig out rig and equipment.
- Cut and cap the casing strings with vented cap.

WELL HISTORY

The well was drilled on Exploration License No.369 Operating License:

Paramount Anadarko Bovie J-76

WID: 1931

File: 9211-P033-17-1

UWI: 300J766020122450

was issued to Paramount Resources Ltd. on December 20, 2001.

The well which is located approximately 30 km east of Fort Liard, lies structurally up dip of the C-76 gas discovery towards the east. The well was planned to test the same structural closure of the C-76 well. The exact co-ordinates of the well are as follows: Latitude: 60° 15' 44.439" N, Longitude: 122° 59' 04.953" W

A Cancor Rathole Inc. rathole rig was moved onto the location on December 11, 2001. The 610-mm conductor hole was drilled to a depth of 10m. While drilling the conductor hole, encountered clay to a depth of 10 m. The



508-mm heavy walled conductor pipe was set at 10m and cemented in place.

Shehtah Drilling Rig #4E was moved onto the location starting on December 16, 2001. The diverter was nipped up and function tested with the HCR. The well spudded on December 22, 2001, at 08:00 hours. The 444.5 mm surface hole was drilled to 511 mKB by first drilling 311 mm then opening up to 444.5 mm. Mud ring problems were encountered at approximately 250 mKB. There were no losses to the formation during the drilling of the surface hole. Surface casing of 339.7 mm, 81.1 kg/m, K-55 LT&C casing was run and set at 511 mKB. The surface casing was cemented with 61 tonnes 0:1:0 'G' cement plus 1% CaCl₂ with good cement returns throughout the job.

The 13 5/8' BOP's were installed, function tested, and pressure tested to 1400 kPa and 14000 kPa for 10 minutes each. The float collar and shoe were drilled out on January 05, 2002. A formation leak off test was done and the gradient was taken to 27.5kPa/m with formation breakdown. The 311 mm 1st intermediate hole was drilled with an Invert Oil Mud system to a depth of 1028 meters. No problems were encountered. The Mud weight was 905 kg/m³. Mud motors were utilized to control deviation and enhance penetration. After reaching total depth the open hole density, induction, and sonic logs were run from TD to the surface casing shoe. No DST's were run on this section of the hole. A 244.5 mm, 53.57 kg/m, J-55, LT&C intermediate casing was run and set at 1028 mKB. The casing was cemented with 42 tonnes 0:1:0 'G' cement plus 0.4% FL-77. The plug was bumped with 8000 kPa over pump pressure and the pressure held. The plug was down at 11:48 hours on January 10, 2002. There were full returns during cementing. The cement top is surface.

The BOP's were re-installed, function tested, and pressure tested to 1400 kPa and 14000 kPa for 10 minutes each. The float collar and shoe were drilled out on January 11, 2002. A formation leak off test was done. The 222 mm 2nd Intermediate hole was drilled with an Invert Oil Mud system to total depth of 2808m. Mud motors were utilized to control deviation problems and enhance penetration. After reaching total depth the open hole density, induction, and sonic logs were run from TD to the 1st intermediate casing shoe. No DST's were run on this section of the hole. A 177.8 mm, 38.69 kg/m, L-80, LT&C intermediate casing was run and set at 2808 mKB. The casing was cemented with 44 tonnes Thermal 40 cement plus 0.10% R-6N + 0.30% FL-63 + 0.5% CD-31 and 1.00% Sepiolite. The plug was bumped with 28000 kPa and the pressure held. The plug was down at 5:15 hours on January 26, 2002. Calculated cement top to be 1000 mKB.

The BOP's were re-installed, function tested, and pressure tested to 1500 kPa and 35000 kPa for 10 minutes each. The float collar and shoe were drilled out on January 28, 2002 at 24:00 hours. A formation leak off test was done with no leak off detected. The 152mm hole was drilled with a water/polymer gel chem. system to total depth of 3350m. Mud motors were utilized to control deviation problems and enhance penetration. After reaching total depth the open hole density, induction, micro and sonic logs were run from TD to the 2nd intermediate casing shoe. One DST was run on this section of the hole from 2868 – 2885m (misrun). A 114.3 mm, 17.26 kg/m, L-80, LT&C production casing was run and set at 3349mKB. The casing was cemented with 9.35 tonnes Thermal 40 cement plus 0.10% R-6N + 0.30% FL-63 + 0.5% CD-31 and 1.00% Sepiolite. The plug was bumped with 24000 kPa and the pressure held. The plug was down on February 08, 2002. Reverse circulated out excess cement from top of liner hanger.

The drilling rig was released February 10, 2002 at 12:00 hours.

WELL COMPLETION:

February 25, 2002 to April 8, 2002. The following intervals were perforated, and swab tested and subsequently abandoned with very little inflow.

- Arnica. 3125.0-3135.0 & 3095.0-3115.0m KB
- Nahanni. 3017.0-3024.0 & 3001.0-3012.0m KB.



- Lower Sulphur Point. 2968.0-2917.0m KB.

The Upper Sulphur Point 2910.0-2936.0m KB and the Slave Point 2885.0-2894.0 & 2872.0-2880.0m KB were perforated and then a packer was run to test them separately.

On February 14, 2009 Paramount Resources Ltd. moved Concord Well Servicing rig # 84 onto Paramount Anadarko Bovie J-76 to perform a workover operation to suspend the well as per section 218 of the Canada Oil and Gas Drilling Regulations. Service rig operations were completed on February 22, 2009. A chronological summary of the operations follows.

WELL SUSPENSION:

- 14/2/2009:** Moved on and rigged up service rig.
- 15/2/2009:** Removed the wellhead and installed the BOP's. Pulled prong from plug at 2854 mKB. Attempted to pull plug body but lost pulling tools downhole. Attempted to recover tools without success.
- 16/2/2009:** Recover pulling tools. Pulled plug body from well. Attempted to pull plug from 2872 mKB without success.
- 17/2/2009:** Unset packer. Attempt to kill well without success. Wait on heavier kill fluid.
- 18/2/2009:** Attempting to kill well with 5% KCl water, unsuccessful.
- 19/2/2009:** Attempting to kill well with 5% KCl water, unsuccessful. Wait on heavier kill fluid.
- 20/2/2009:** Kill well with 10% KCl water. Pulled tubing and recovered all downhole equipment. Ran and set a bridge plug at 2851 mKB. Pressure tested the bridge plug to 14MPa for 15 minutes.
- 21/2/2009:** Re-ran tubing. Displaced well to inhibited fluid. Laid down tubing.
- 22/2/2009:** Dump bailed 6 linear meters of cement onto the plug. Ran and set a bridge plug at 2715 mKB. Pressure tested the bridge plug to 14 MPa for 15 minutes. Dump bailed 6 linear meters of cement onto the bridge plug. Ran and set a bridge plug at 50 mKB. Rigged out the service rig.

Note: this well is now OROGO jurisdiction.

July 12, 2018. Lease Inspection. SICP = 4 Kpa. SITP = 0 Kpa. SCV passed bubble test. No signs of gas migration. Gas migration test was not conducted.

The well remains shut in.

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.

Rig anchor locations if required will be approved by Paramount Wellsite Supervisor prior to installation.

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 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 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 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 e mail at orogo@gov.nt.ca.

Paramount 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 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 and forward both copies to Calgary office for approval and further handling.



PARAMOUNT ANADARKO BOVIE J-76 ABANDONMENT

WELL DATA AND WELLBORE CONFIGURATION

WELL DATA:

Surface Location:	LAT: 60.26233, LONG: 122.98319 (NAD 83)
Bottomhole Location:	LAT: 60.26226, LONG: 122.98312 (NAD 83)
UWI:	300/J-76-6020-12245/0
Profile:	Slight Deviation
BGWP:	600m GL (Default)
WID#:	1931
OPERATING LICENCE#	NWT-OL-2014-014
LAND USE PERMIT#	MV2013A0013
WATER LICENCE #	MV2013L1-0003
OROGO OA#	TBD
OROGO ACW#	TBD
Spud Date:	December 22, 2001
Rig Release Date:	March 27, 2002
KB:	417.0m
GL:	412.0m
KB-GL:	5.0m
PBDT Original:	3307.78m KB
TD:	3350.0m KB MD
TD:	3349.17m KB TVD

CONDUCTOR:

Hole size 610mm to 10m.

508mm heavy wall conductor pipe set at 10m and cemented in place with 40 sacks of construction cement.

SURFACE:

Hole size 444.5mm to 511m

8 Jts. 339.7mm 81.1kg/m J-55 Range 3, ST&C landed at 511m KB. Cemented with 61 Tonnes (47m³) 0:1:0 G cement plus 1% CaCl₂. 10.3m³ of cement returns.

INTERMEDIATE#1:

Hole size 311mm 1028m.

34 Jts. 244.5mm 53.57kg/m J-55 Range 2, STC landed at 1028.0m KB. Cemented with 42 Tonnes 0:1:0 G cement plus 0.4% FL-77. 1.0m³ of cement returns.

INTERMEDIATE#2:

Hole Size 222mm to 2808m

177.8mm 38.69kg/m L-80, LT&C landed at 2808.0m KB. Cemented with 44 Tonnes (33.44m³) Thermal 40F cement plus 0.10% R-6N + 0.30% FL-63 + 0.5% CD-31 and 1.0% Sepiolite. Calculated cement top at 1000m KB. Bond log Ran March 3, 2002. Note: pre-flush included 3.0m³ diesel then 3.0m³ of Nowflush and 3.0m³ of scavenger cement.

LINER:

Hole size 152mm to 3350m

114.3mm 17.26kg/m L-80, LT&C landed at 3349 m KB. Liner top at 2731m KB. Cemented with 9.35 Tonnes Thermal 40F cement plus 0.1% R-6N + 0.3% FL-63 + 0.5% CD-31 and 1.0% Sepiolite. Recovered all scavenger cement and 0.8m³



of good slurry.

PERFORATIONS:

3125.0 – 3135.0 & 3095.0-3115.0m KB Arnica (Abandoned)
 3017.0 – 3024.0 & 3001.0-3012.0m KB Nahanni (Abandoned)
 2968.0 – 2971.0m KB Lower Sulphur Point (Abandoned)
 2910.0 – 2936.0m KB Upper Sulphur Point (Abandoned)
 2885.0.0 – 2894.0 & 2872.0-2880.0m KB Slave Point (Abandoned)

Formation Tops

geoSCOUT Ref Elev(m): **+417.0**

Formation	TVD (m)	Elev (m)	
Kchinkeh	484.0	-67.0	
Mflett	522.9	-105.9	
Mbesa_r_U	1055.9	-638.9	
Mclausen	1056.6	-639.6	
Mpekisko	1087.9	-670.9	
Mbanff	1124.5	-707.5	
Mexshaw	1626.4	-1209.4	
Dkotcho	1666.2	-1249.2	
Dtetcho	2046.2	-1629.2	
Dtrout_rv	2103.5	-1686.5	
Dkakisa	2119.5	-1702.5	
Dft_smpsn	2172.9	-1755.9	
Dmuskwa	2799.2	-2382.2	
Dslave_pt	2809.2	-2392.2	
Dwatt_mtn	2934.2	-2517.2	
Dsulp_pt	2935.7	-2518.7	
Dmuskeg	2983.7	-2566.7	
Dnahanni	3000.7	-2583.7	
Dheadless	3084.2	-2667.2	
Dlandry	3098.7	-2681.7	
Darnica	3153.2	-2736.2	
Ddelorme	3242.2	-2825.2	

Capacities:

Capacity of 177.8 mm 38.69 kg/m casing: 54.07m³ (2709m PBTD)
 Annular Capacity of 177.8mm Csg./244.5mm, 53.57kg/m Csg. = 0.015497m³/m

SCVF:

2018 test passed bubble test. Will confirm during abandonment operations.

Tubing/Casing Data:

	Surface Casing	Int. Casing #1	Int. Casing #2	Liner	Work String
Size O.D. (mm)	339.7	244.5	177.8	114.3	73
Weight (kg/m)	81.10	53.57	38.69	17.26	9.67
Grade	K-55	J-55	L-80	L-80	J-55
Connection	LT&C	ST&C	LT&C	LT&C	EUE
Drift I.D. (mm)	316.46	222.63	156.24	98.43	59.61



I.D. (mm)	320.42	226.59	159.41	101.60	62.0
Capacity (m ³ /m)	0.080637	0.040326	0.019958	0.008107	0.003019
Collapse (MPa)	7.8	13.9	37.3	43.8	53.0
Burst (MPa)	18.8	24.3	49.9	53.6	49.6
Tension (daN)	228 600	175 300	227 300	94 300	44 300
Annular Volume (m ³ /m)					
Depth (mKB)	511	1028	2808	3353	2706m (To reach PBSD).

Reservoir Data:

Formation	Slave Point Abandoned	
Perforations	2872.0-2880.0 and 2885.0-2894.0m KB	
Reservoir Pressure	28,989 Kpa**	
Reservoir Temperature	136 °C	
H ₂ S	2000ppm	

** BHP from April 7, 2002 recorder data.



GENERAL REQUIREMENTS

- **Daily reports shall be e-mailed to the Operator's office by 7:00am 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.



PARAMOUNT ANDARKO BOVIE J-76 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. Ensure application to alter well has been submitted and approved prior to commencing work. Ensure a copy of the approved application to alter is on site and available.
3. **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.
4. **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.
5. **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.
6. Paramount 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.
7. Complete lease inspection. Note the condition of the lease, record any clean-up operations required 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.
8. Locate well center with GPS and record coordinates. If possible use NAD83.
9. Prepare location for Service Rig, P-Tank and flare stack & support equipment. Source 2750m of 73mm, 9.67 kg/m J-55 eue tubing for abandonment operations.
10. 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.
11. Check for the presence of and confirm there is no H₂S.
12. Note: this well is not tied in to a flowline.
13. 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.



14. 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.
15. 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.
16. Haul in approximately 60 m³ of fresh water. Haul in tubing work string, 73mm, 9.67kg/m J-55 eue tubing string. Ensure bits, scrapers and pressure test packer for 177.8mm casing is available.
17. Conduct daily pre-job safety meeting and equipment inspection.
18. Tie in circulating lines with a return line tied into 'P' tank or rig tank as required. Properly stake surface lines and pressure test lines and manifold to 1,400kPa (low) and 14,000kPa (high) and hold each for ten (10) minutes.
19. **Note: all zones have been previously abandoned and there is a permanent bridge plug at 50m KB.**
20. Stump/function test BOP's and related accessories.
21. Ensure well is dead. Pressure test the pump lines and connections to 1400 kPa and 14 MPa high. Pressure test the casing to 7 MPa for ten minutes. Bleed off the wellbore to the rig tank.
22. 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 21MPa 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 21MPa for 10 minutes each. Pressure test the annular preventers to low of 1400 Kpa and a high of 10,000 Kpa.
23. 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.
24. Remove wellhead top section and nipple up the rig BOPs.
25. 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 21MPa (high) for 10 minutes each.



26. Pick up tally and RIH with mill or bit for 177.8mm casing, on 79mm drill collars and 73mm, 9.67 kg/m J-55 eue tubing and tag permanent bridge plug at 50m KB. Install pack off head. Rig in power swivel and drill out permanent bridge plug with fresh water.
27. Once bridge plug is drilled out remove pack off head and power swivel. Pressure test casing to 7000 Kpa for 10 minutes. Bleed off pressure.
28. Add 73mm, 9.67kg/m J-55 eue tubing and run to PBTD (Cement top at 2709m KB). Circulate well to fresh water.
29. Pull out of hole and stand 325m of 73mm tubing and lay down the rest of the tubing string.
30. The purpose of the next steps is to perforate and cement the 177.8mm/244.5mm annular space to remove diesel that may be in this annular space.
31. MIRU E-line unit with lubricator and BOPs. 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.
32. Run a RBL/VDL/GR/CCL from 550m to surface. If required run a pressure pass to 7000 Kpa and run repeat log. POOH. Correlate to the Open Hole CNL/LDT/GR/CALIPER log run by Baker Atlas January 9, 2002. Rig off e-line. This log will be run to confirm circulation is possible from the proposed perforations at 300m KB.
33. Makeup and RIH with 127mm x 0.6m UZI **circulation** gun with 6 gm charges at 118 spm (Owen HSC-2500-302S Circulation charges penetration = 0.375 inches and EH diameter = 0.19 inch). Note the gun comes in 0.3m lengths. Correlate to the RBL/VDL/GR/CCL log from the previous step and ensuring gun is not positioned across a collar (lower or raise gun above casing collar if required) position gun and perforate, overbalanced from 300.0-300.6m KB. (Note: ensure spare guns are on lease for use if required). **Ensure circulation charges are used.**
34. POOH with perf assembly and inspect same for performance.
35. Fill casing with fresh water and perform a feed rate test and establish circulation to surface. Circulate the 177.8mm/244.5mm annular space with fresh water until returns are clean. 177.8mm/244.5mm annular volume at 525m is 4.65m3.
36. RIH on wireline with cement retainer for 177.8mm casing and, correlated to the RBL/VDL/GR/CCL log from the previous step and ensuring retainer is not positioned across a casing collar, position and set retainer within ~2.0m above the perforations. Fill casing with fresh water and pressure test casing and retainer to 7.0MPa and hold for 10.0mins. Rig out and release wireline unit.
37. Pick up and RIH with stinger on tallied and drifted 73mm work string equipped with a PSN one joint from bottom, sting into retainer and perform function and pressure tests.
38. Fill tubing with fresh water and attempt to break circulation to surface; otherwise perform a feed rate test. Note and record results of same. Contact Calgary Superintendent with results.
39. Move in and tie in cementers with single pumping unit, squeeze manifold and chart recorder. Conduct a pre-job treatment safety/orientation meeting with all personnel on location detailing the program, pressure limitations, personnel responsibilities and safety precautions. Pressure test surface lines and equipment to 1,400kPa (low) and 14,000kPa (high) and hold each for 10 mins.



- 40. Fill tubing with fresh water and re-establish circulation/feed rate and check to ensure string is free of debris. Note and record same.
- 41. Pull stinger from retainer, mix, pump and circulate the prescribed cement design to tubing bottom. Sting back into the retainer and perform remedial cement treatment. Catch and retain a minimum of 3 samples (beginning, middle & end of mixing) to monitor surface samples for "setting" conditions. Record and report same.

Pull stinger from retainer, circulate a 15.0m balanced cement plug over the retainer and backwash string with clean with fres water. Pull out of the hole and lay down 73 mm tubing and stinger.
- 42. Ensure the fluid level is down at least 3 m to prevent freezing and to facilitate the cut and cap.
- 43. Remove BOPs. Install wellhead. Rig out.
- 44. Cut and cap the casing strings with vented cap as per the attached procedure in the Appendix or with Hydro jet vented cap system.



J-76 Current
WELLBORE - Feb 09.



J-76 WELLBORE
Proposed.xls



Cut Capping
procedure 2008.xls



(20) J-76 Deviation
Surveys.pdf

CORPORATE CONTACTS

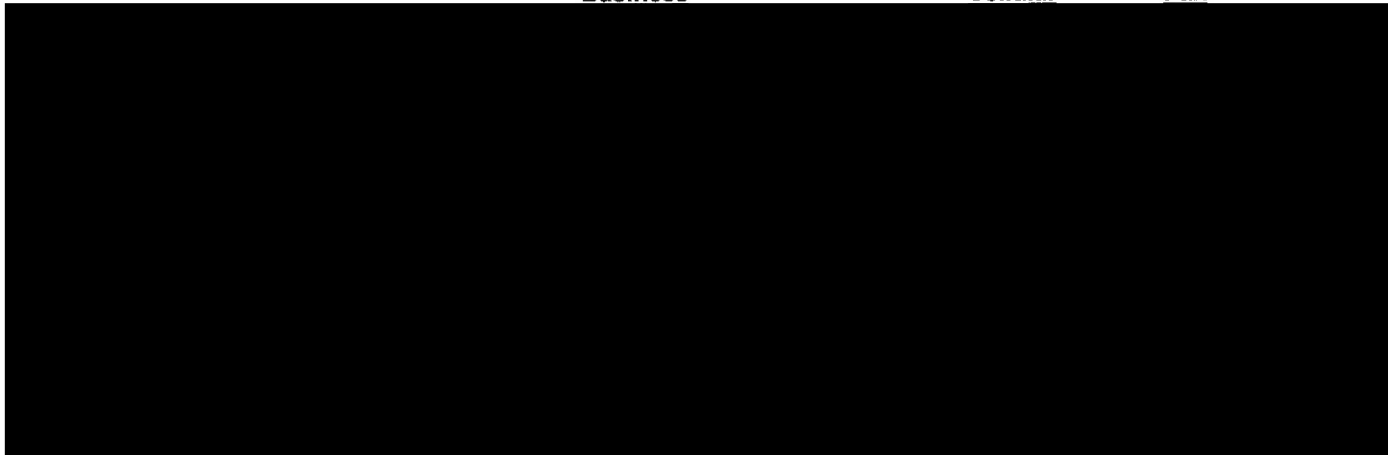
Paramount Resources Ltd.
2800, 421 - 7th Avenue, SW
Calgary, AB
T2P 4KP

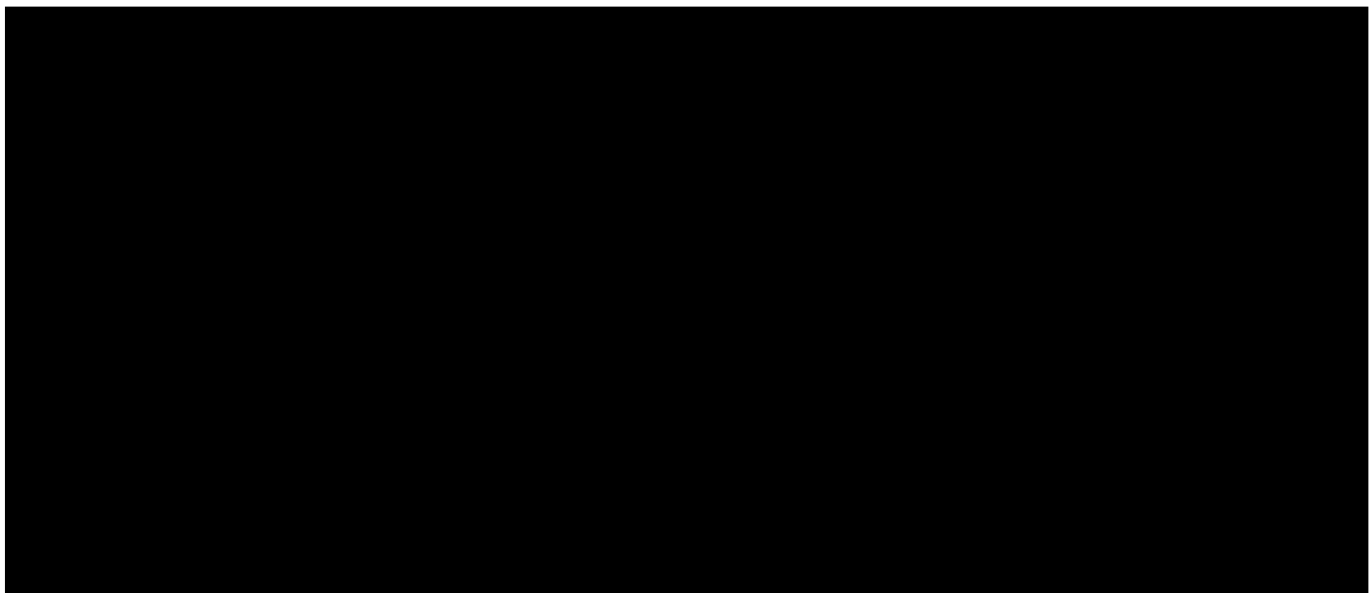
IWT (Calgary):

Business

Cellular

Fax





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 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 SISCV. 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 known 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 e-mailed (faxed) to the Operator's office by 07:00Hrs. 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 - [REDACTED] Complete the Paramount Safe Incident Report, and conduct the necessary investigations immediately. Fax 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 Guide G-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 OROGO Well Suspension Guidelines 4B 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 perfs 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 perfs 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, unit and steamer, if required. If flowlines are present hydrovac may be required.
- 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. 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



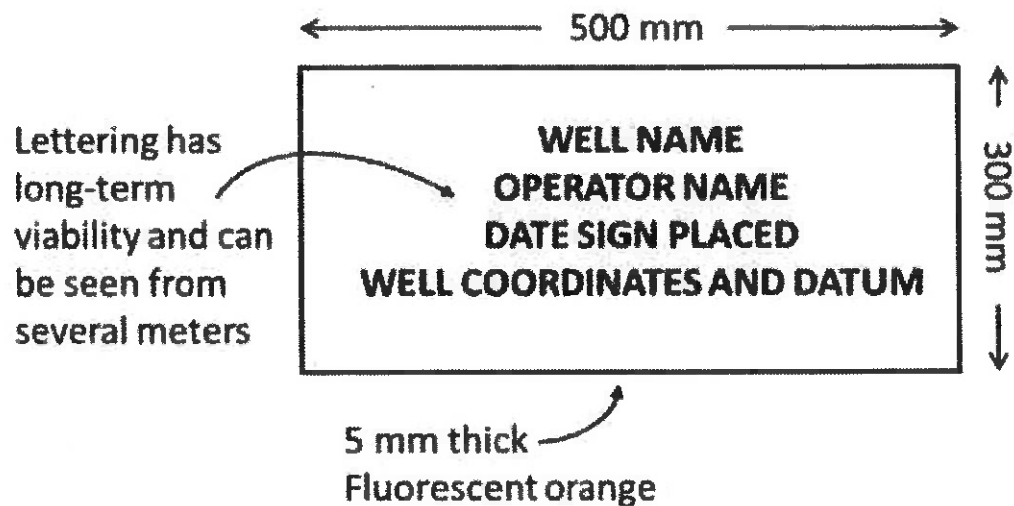
and vent assembly over the inner most casing string. Required vent assemblies are as shown on the Capping Schematic.

NOTE:

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

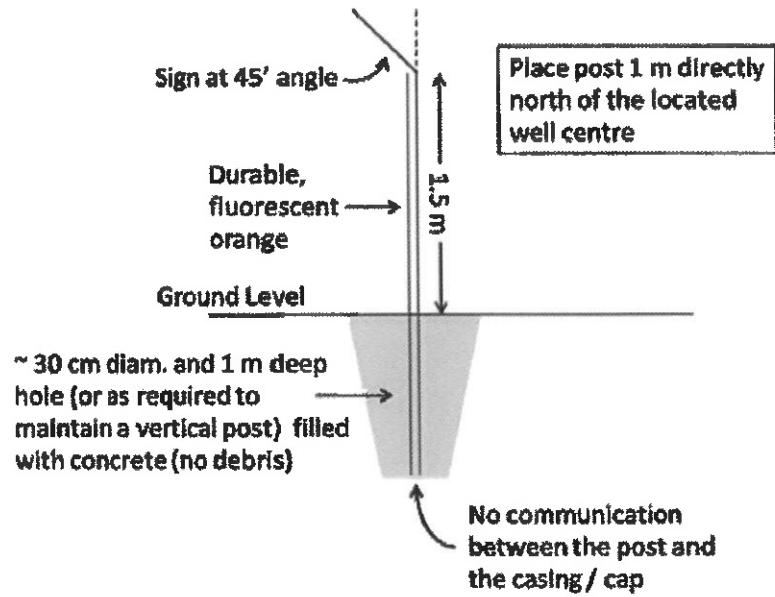
- Install and weld the Protective Cap to the surface casing as shown on the Capping Schematic. Weld inscribe the LSD on top of the Protective Cap and document with a digital photograph.
- Backfill and compact the excavation, clean up lease and rig out and release all services.
- Complete material transfer(s) 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 also 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

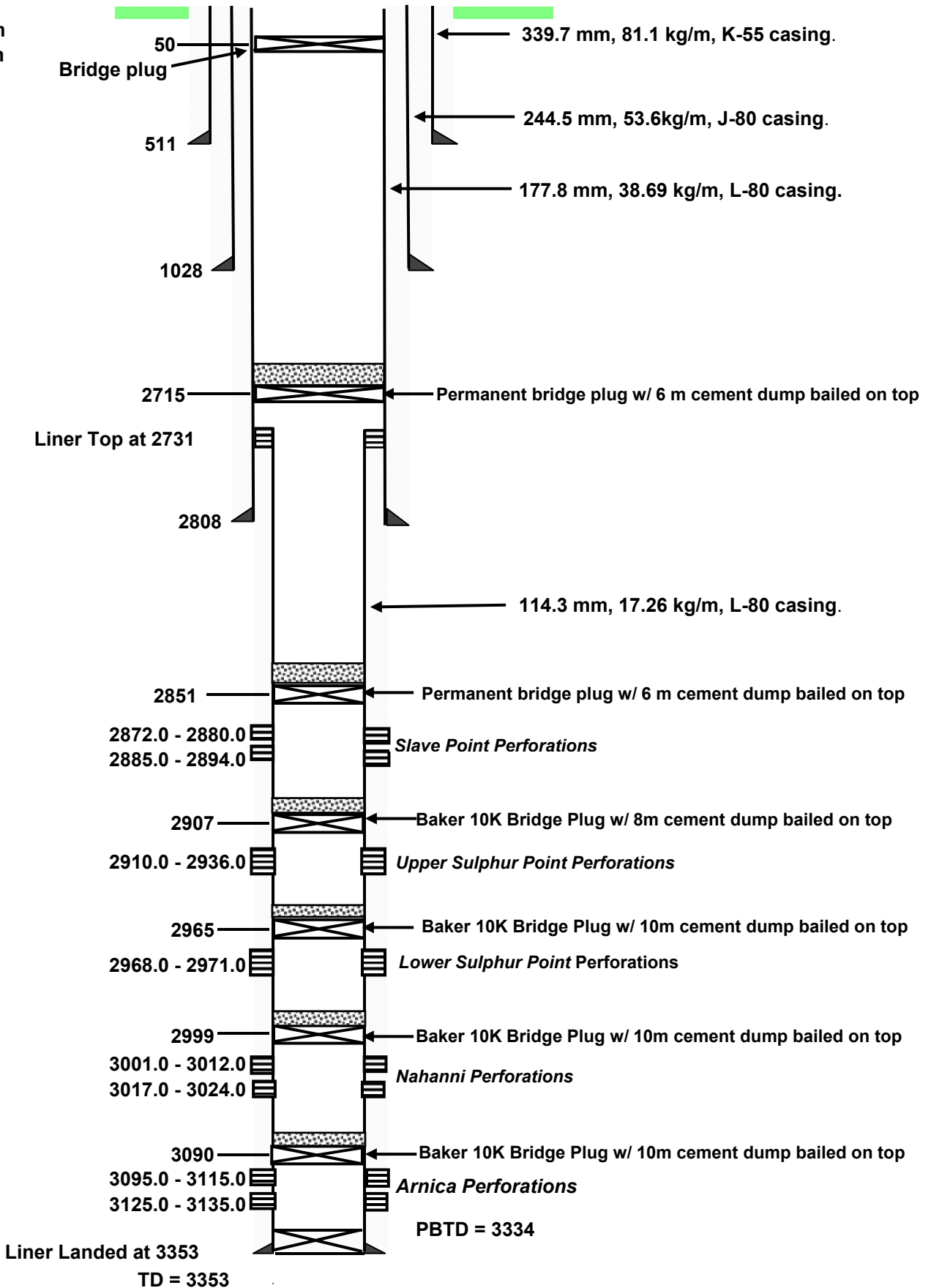
Post Requirements



PARAMOUNT ANADARKO BOVIE J-76

Wellbore Configuration (as of Feb 22, 2009)

KB: 417.0 m
GL: 411.0 m



PARAMOUNT ANADARKO BOVIE J-76

Proposed Wellbore Configuration

Cut & Cap 1.5m below GL

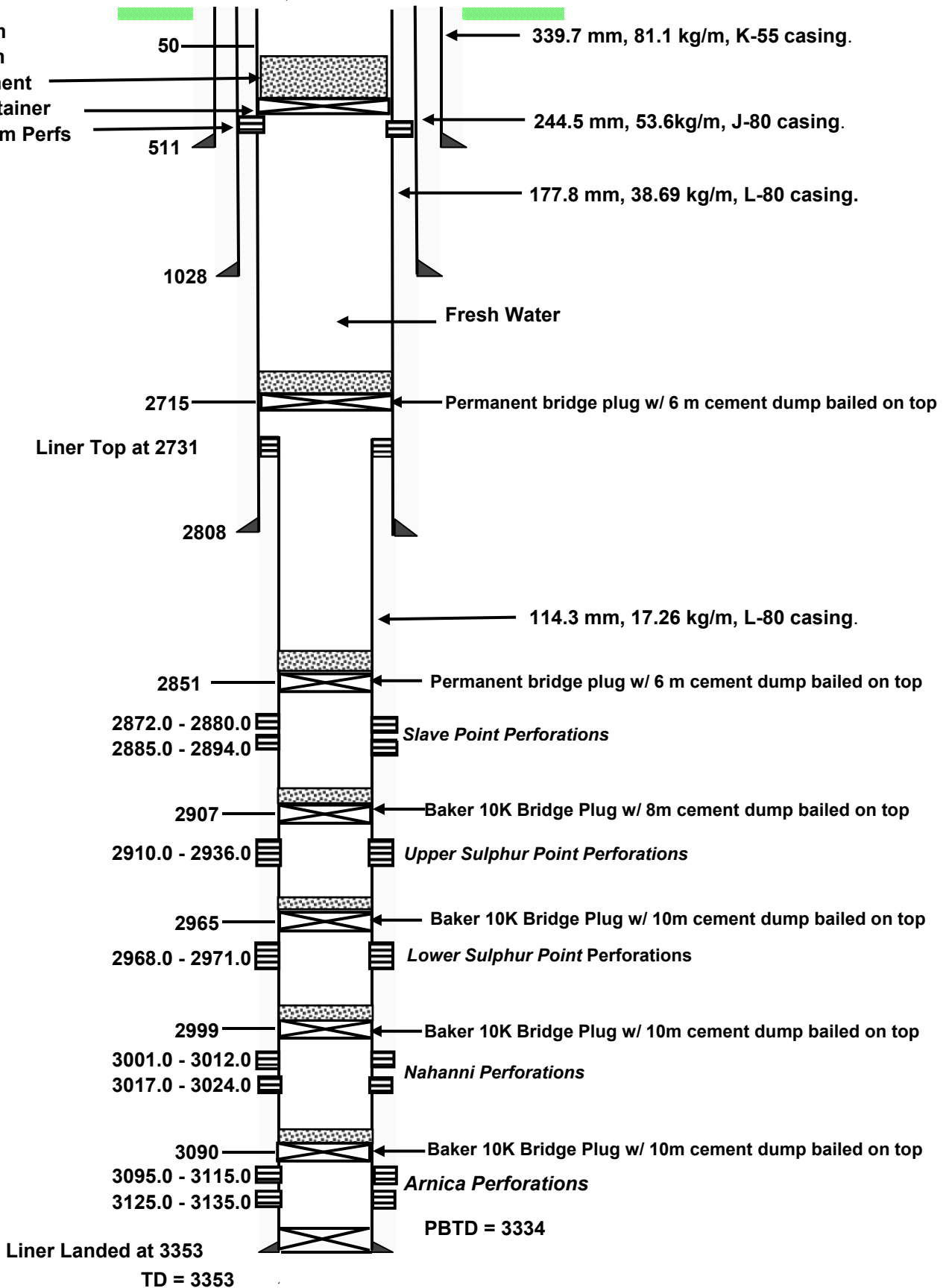
KB: 417.0 m

GL: 411.0 m

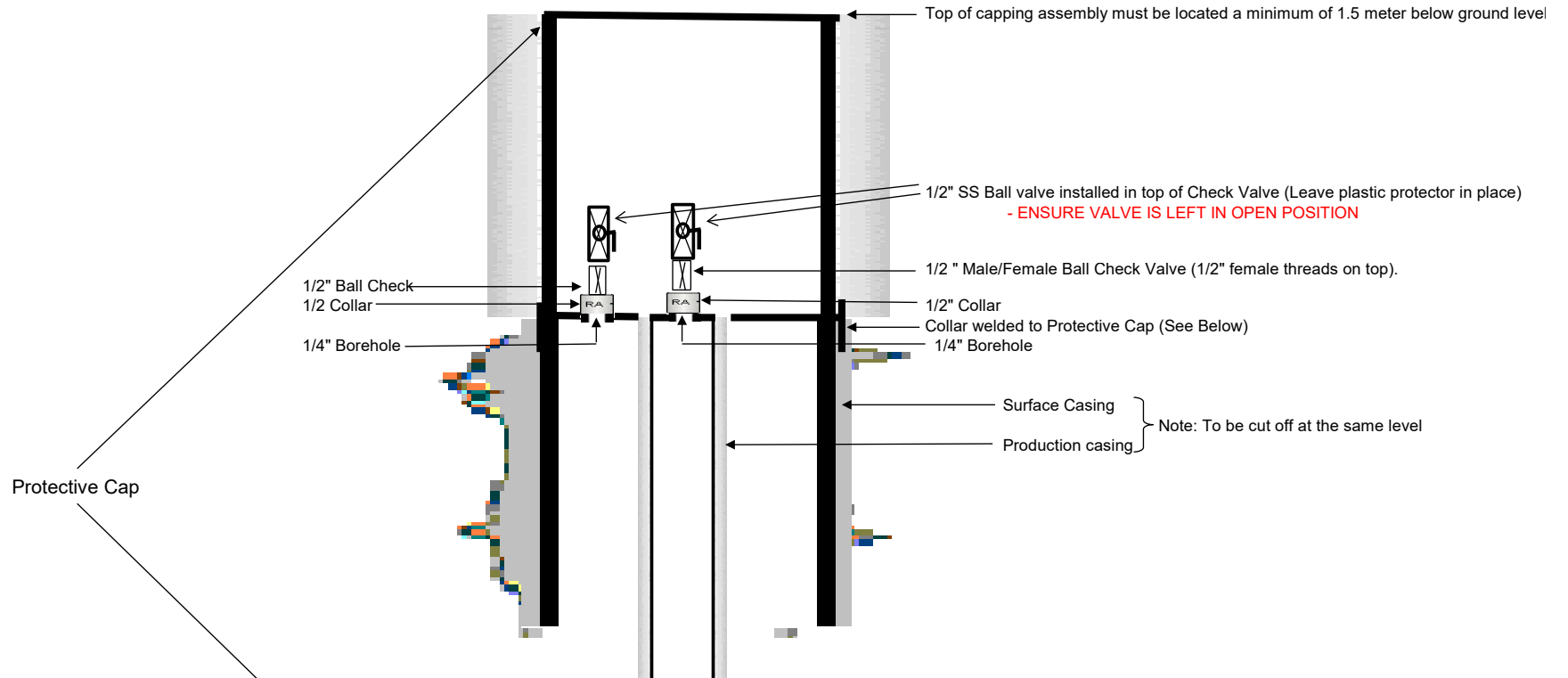
15m of cement

Cement Retainer

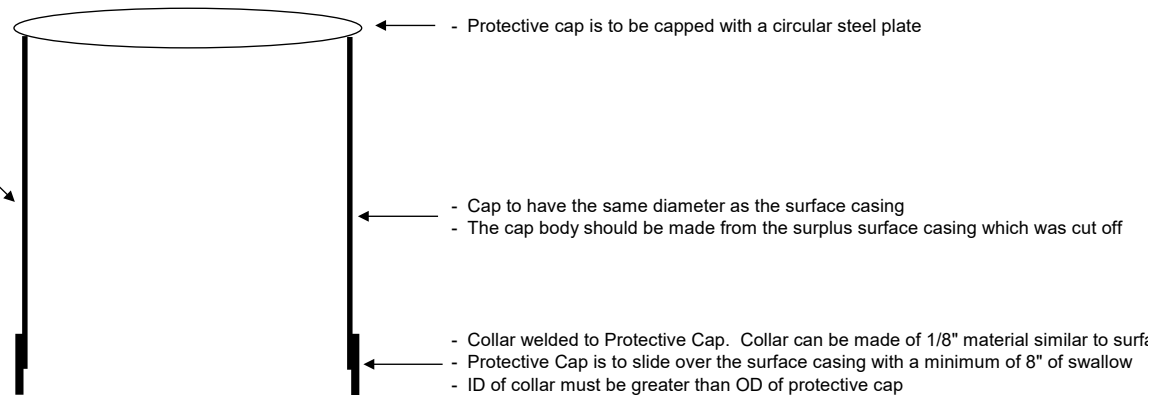
300.0-300.6m Perfs



CAPPING SCHEMATIC



PROTECTIVE CAP



Paramount Anadarko Bovie J-76

Depth Meters	Inc Degree	Azimuth Degree	TVD Meters	North Meters	East Meters
0	0	0	0	0	0
46.9	0.02	242.5	46.9	0	-0.01
69.6	0.3	250	69.6	-0.03	-0.07
97.3	0.2	260	97.3	-0.06	-0.18
134.4	0.3	246.2	134.4	-0.11	-0.34
162.8	0.7	239.9	162.8	-0.23	-0.55
190.9	0.7	236.2	190.9	-0.41	-0.84
219.3	0.9	242.7	219.29	-0.61	-1.19
266	1	246.3	265.99	-0.94	-1.89
295.1	1	247.7	295.08	-1.14	-2.35
323.6	1	259.8	323.58	-1.28	-2.83
351.5	1	260.6	351.47	-1.36	-3.31
380.7	1.2	266.7	380.67	-1.42	-3.86
399.4	1.3	253.5	399.36	-1.49	-4.26
427.7	0.8	243.5	427.66	-1.67	-4.75
455.9	0.8	230.9	455.86	-1.88	-5.08
484	0.8	236.7	483.95	-2.11	-5.39
521.6	0.8	246.1	521.55	-2.36	-5.85
549.6	0.7	252.9	549.55	-2.49	-6.19
578.1	0.5	260.3	578.05	-2.56	-6.48
606.2	0.4	263.8	606.15	-2.6	-6.7
652.5	0.4	236.8	652.44	-2.7	-7
699.9	0.2	230.8	699.84	-2.84	-7.2
746.9	0.4	217	746.84	-3.03	-7.36
785.4	0.3	205.1	785.43	-3.23	-7.49
832.2	0.4	247.7	832.14	-3.4	-7.69
879.7	0.5	244.6	879.64	-3.55	-8.03
925.9	0.3	254	925.84	-3.67	-8.33
962.9	0.5	247.7	962.84	-3.76	-8.57
1009	0.7	239.7	1008.94	-3.98	-9
1037.3	0.5	221	1037.23	-4.16	-9.23
1075.4	0.5	238.6	1075.33	-4.37	-9.48
1113	0.8	252.5	1112.93	-4.53	-9.87
1140.8	0.1	279.8	1140.73	-4.59	-10.08
1188.1	1	295.3	1188.03	-4.4	-10.49
1216.9	0.4	238.7	1216.82	-4.35	-10.81
1246.1	0.4	146.4	1246.02	-4.49	-10.84
1275.1	0.6	164.7	1275.02	-4.72	-10.74
1312.4	0.6	203.3	1312.32	-5.09	-10.77
1340.4	0.9	226.4	1340.32	-5.37	-10.99
1349.7	1.2	229.2	1349.62	-5.49	-11.11
1368.5	1.8	206.6	1368.41	-5.88	-11.39
1377.7	2.1	219.8	1377.6	-6.14	-11.57
1387.4	2.3	238.2	1387.3	-6.38	-11.84
1406.3	1.1	234	1406.19	-6.68	-12.31
1415.5	1	149	-6.8	-12.34	58.1
1434.5	3	106	1434.38	-7.08	-11.78
1443.7	3.2	100.6	1443.56	-7.2	-11.3

1453.4	2.9	95	1453.25	-7.27	-10.79
1463	2.7	92.6	1462.84	-7.3	-10.32
1472.31	2.7	91.9	1472.14	-7.32	-9.88
1491.2	2.5	90.5	1491.01	-7.33	-9.02
1519.8	2.2	102.8	1519.58	-7.46	-7.86
1529.1	2.2	101.4	1528.88	-7.54	-7.52
1547.6	2.1	95.2	1547.36	-7.64	-6.83
1576.1	2.2	84.4	1575.84	-7.63	-5.77
1604.3	2	69.6	1604.03	-7.41	-4.77
1623.1	2	65.6	1622.81	-7.16	-4.16
1641.8	2	67.6	1641.5	-6.9	-3.56
1670.3	2.1	61	1669.98	-6.46	-2.64
1698.1	2	54.7	1697.77	-5.93	-1.8
1726.2	1.6	63.3	1725.85	-5.47	-1.05
1754.3	1.9	52.4	1753.94	-5.01	-0.33
1782.5	1.9	56.2	1782.12	-4.46	0.43
1810.6	1.7	72	1810.21	-4.07	1.21
1829	1.7	73.6	1828.6	-3.91	1.73
1856.8	2.2	67.3	1856.39	-3.59	2.62
1866.5	2.7	61.8	1866.08	-3.41	2.99
1875.9	3.5	56.4	1875.46	-3.15	3.43
1885	3.6	50.2	1884.55	-2.81	3.88
1913	1.7	343.8	1912.52	-1.85	4.44
1922.7	1.6	347.3	1922.22	-1.58	4.37
1941.2	1.5	2.2	1940.71	-1.09	4.32
1959.6	1.4	5.4	1959.1	-0.62	4.35
1987.8	1.5	4.3	1987.29	0.09	4.41
2007.1	1.5	7.4	2006.59	0.59	4.46
2026.2	1.4	9.9	2025.68	1.07	4.53
2045.5	1.3	10.6	2044.98	1.52	4.61
2073.2	1.2	27.3	2072.67	2.08	4.81
2110.7	1	54.4	2110.16	2.62	5.25
2138.9	1	54.2	2138.36	2.91	5.65
2167.4	1.2	64	2166.85	3.19	6.12
2196	0.5	115	2195.45	3.27	6.5
2224	0.7	104.6	2223.45	3.17	6.78
2251.6	0.8	111.9	2251.05	3.06	7.12
2279.8	0.5	111.9	2279.25	2.94	7.42
2308.1	0.6	100.6	2307.54	2.86	7.68
2336.3	1.1	101.1	2335.74	2.78	8.09
2364.6	1.5	64.9	2364.03	2.89	8.69
2374.1	1.7	67.3	2373.53	3	8.93
2383	1.3	74.3	2382.43	3.08	9.15
2411.6	0.9	239.3	2411.03	3.05	9.27
2430.5	0.6	232.8	2429.92	2.91	9.07
2458.3	0.7	216.2	2457.72	2.69	8.85
2486.4	1.1	210.5	2485.82	2.32	8.61
2505.5	1.2	227.6	2504.91	2.02	8.37
2524	1.3	232.3	2423.41	1.76	8.06
2552	2.1	244.8	2551.4	1.35	7.35
2580.5	2.7	243.5	2579.87	0.83	6.27
2599.6	3	235.9	2598.95	0.35	5.46

2609.1	2.8	242.5	2608.44	0.1	5.04
2618.8	2.2	242.8	2618.13	-0.09	4.67
2638.3	2.1	232.5	2637.61	-0.48	4.05
2648	2.4	228.9	2647.31	-0.72	3.76
2657.8	2.3	230.4	2657.1	-0.98	3.45
2676.2	1.9	196.9	2675.49	-1.51	3.08
2702	1.7	203.2	2701.27	-2.27	2.8
2790	1.5	201.1	2789.24	-4.54	1.88
2816.2	1.4	202.5	2815.43	-5.16	1.62
2854.6	1.4	198.8	2853.82	-6.04	1.3
2868	1.6	203.3	2867.21	-6.36	1.17
2883.1	1.1	210.7	2882.31	-6.68	1.01
2940.7	0.8	202.7	2939.9	-7.53	0.58
2969.4	0.5	211.7	2968.6	-7.82	0.43
2998.4	0.5	350	2997.6	-7.8	0.35
3055.9	0.3	356	3055.1	-7.41	0.29
3085.1	0.1	108.8	3084.3	-7.34	0.31
3113.4	0.4	101.1	3112.6	-7.37	0.43
3142.3	0.7	86.2	3141.5	-7.37	0.71
3169.9	1.2	94.2	3169.09	-7.38	1.16
3189.7	0.8	105.9	3188.89	-7.44	1.5
3218.6	1	113.7	3217.79	-7.59	1.93
3255.7	0.8	94.7	3254.88	-7.74	2.48
3333	0.7	65.1	3332.18	-7.59	3.45
*3350	0.7	65.1	3349.17	-7.5	3.64

*at bit