Joel Denomy
Technical Manager,
Regulatory Applications
Regulatory Affairs

Tel 416 495 5499
Joel.denomy@enbridge.com

Enbridge Gas Distribution
500 Consumers Road
North York, Ontario M2J 1P8
Canada

VIA RESS, EMAIL AND COURIER

November 29, 2017

Ms. Kirsten Walli
Ontario Energy Board
P.O. Box 2319
2300 Yonge Street, 27th Floor
Toronto, ON M4P 1E4

Re: Enbridge Gas Distribution Inc. ("Enbridge")
Application to Drill Well
TD 26, Moore 8-23-XII (TD 26)
TD 28H (Horiz. # 1), Moore 2-21-XII (TD28H)
TD 29H (Horiz. # 1), Moore 3-21-XII (TD 29H)

On November 28, 2016, Enbridge Gas Distribution Inc. ("Enbridge") applied to the Ministry of Natural Resources ("MNR") for permission to drill three wells within the Dow Designated Storage Area. Pursuant to section 40 of the Ontario Energy Board Act, 1998, S.O. 1998 c.15, Schedule B, the Minister of Natural Resources is obligated to refer the application for the granting of a licence related to a well in a designated storage area to the Ontario Energy Board for a report.

The two horizontal gas storage wells are needed to replace deliverability lost due to the abandonment of five gas storage wells and one observation well. The observation well is required to monitor the gas content and pressure in the underground storage area. Details can be found in Enbridge's letter to the MNR.

Enclosed please find the drilling applications filed by Enbridge with the MNR.

For further information about the project, please visit the Other Regulatory Proceedings tab on the Enbridge website at: www.enbridgegas.com/ratecase.

Please contact the undersigned if you have any questions.

Sincerely,

(Original Signed)

Joel Denomy
Technical Manager, Regulatory Applications, Regulatory Affairs

Enbridge Gas Distribution Inc.
Gas Storage Operations
3501 Tecumseh Road
Mooretown, ON, N0N 1M0

November 28, 2017

Ministry of Natural Resources
Petroleum Operations Section
659 Exeter Road
London, Ontario
N6E 1L3

Attention: Ms. Sherry Pineo, Manager, Petroleum Operations Section

Subject: **Submittal of Drilling Application for:**
TD 26, Moore 8-23-XII (TD 26)
TD 28H (Horiz. # 1), Moore 2-21-XII (TD 28H)
TD 29H (Horiz. # 1), Moore 3-21-XII (TD 29H)

Enclosed, please find the drilling applications for the three proposed wells – one observation well (TD 26) and two gas storage wells (TD 28H and TD 29H) – to be located in the Dow Designated Storage Area. The application includes two copies of the Form 1, two copies of the Wellsite Survey, two copies of the Drilling Program and the well application fee. It is our hope to start the drilling of the wells by April 1st, 2018. We would be pleased to meet with you to review or clarify any portion of the applications.

The two horizontal gas storage wells are needed to replace 30% of the deliverability lost due to the abandonment of 5 gas storage wells and 1 observation well and the conversion of 1 gas storage well to an observation well[1] and will not result in an increase in storage capacity The observation well is required to monitor the gas content and pressure in the underground storage area which will assist with the continued safe and reliable delivery of natural gas to our existing and future customers.

The proposed drilling is scheduled to occur in the first half of 2018. The drilling will take place in previously disturbed lands. The landowner of the parcel of the land where the gas storage wells will be drilled is Enbridge and the owner of the land where the observation well will be drilled is Pembina Infrastructure and Logistics LP ("Pembina").

[1] Wells abandoned in 2017: TD 7 (Obs), TD 8, TD 9, TD 21 & TD 22 (Lot 21, Con. 12, Moore Twp.) and TD 12 (Lot 22, Con.12, Moore Twp.). Storage well converted to observation well in 2017 – TD 25 (Lot 21, Con. 12, Moore Twp.)

An Environmental Screening has also been initiated and will be submitted to the Ontario Energy Board (OEB) and the MNRF upon completion, targeted by the middle of December.

It is our understanding that the drilling application will be forwarded to the OEB by your office and we are requesting your earliest attention to this application. For your information, Enbridge has also submitted a package containing the drilling applications to the OEB.

If any further information is required please contact the undersigned at 519-862-6032.

Yours truly,

Kathy McConnell, P.Geo
Manager Reservoir Development
3501 Tecumseh Road
Mooretown, ON, N0N 1M0

Enclosures: TD 26 – 2 copies Form 1, 2 copies Well Survey, 2 copies Drilling Program
TD 27 – 2 copies Form 1, 2 copies Well Survey, 2 copies Drilling Program
TD 28 – 2 copies Form 1, 2 copies Well Survey, 2 copies Drilling Program

Oil, Gas and Salt Resources Act

Ontario

Application for a Well Licence

Form 1 — To the Minister of Natural Resources and Forestry — v.2015-12-15

The undersigned operator applies for a well licence under the Oil, Gas and Salt Resources Act and the Regulations thereunder and submits the following information, together with the application fee of $100. Make cheques payable to "Minister of Finance".

1. WELL NAME TD 26, Moore 8-23-XII — Target Formation: A-1 Carbonate

Purpose of Proposed Well (Well Type): Observation Well - Gas Storage

2. OPERATOR Enbridge Gas Distribution Inc. — Tel # 519-862-1473 — Fax # 519-862-1168

Street Address: 3501 Tecumseh Road — City: Mooretown — Prov.: ON — Postal Code: N0N 1M0

Mailing Address: 3501 Tecumseh Road — City: Mooretown — Prov.: ON — Postal Code: N0N 1M0

Contact Name: Kathy McConnell — Contact Tel.#: 519-862-6032

Email: kathy.mcconnell@enbridge.com

3. LOCATION County: Lambton — Township: Moore

Tract: 8 — Lot: 23 — Concession: 12 — Offshore: Block — Tract — Licence/Lease No.

Surface location, metres from Lot Boundaries: 190.8 m North [X] South [ ] — 59.3 m East [X] West [ ]

Latitude: 42° 54' 05.450" — Longitude: 82° 23' 59.902"

Bottom-hole Lat.: 42° 54' 05.450" — Bottom-hole Long.: 820 23' 59.902"

Within 1.6 km of Designated Storage Area? Yes [X] No [ ] — Off-target? Yes [ ] No [X]

4. WELL PARTICULARS Vertical [X] Horizontal [ ] Directional [ ] Deepening [ ] Re-entry [ ] Lateral [ ]

Rig Type: Rotary [X]* Cable [X]* — Well to be cored? Yes [ ] No [X] — Formation at TD: A-1 Evaporite

Ground Elevation: 189.4 — Proposed Depth: 780.0 — Proposed Depth TVD: 780.00 — Proposed Start Date: 1-Apr-18

5. POOLING

Pooling of the Spacing Unit or unitization of the Unit Area shown on the attached well location plan has been completed (see Ont. Reg. 245/97 definitions for "pooled spacing unit" and "unitize") Yes [X] No [ ]

6. DRILLING CONTRACTOR Unknown — Tel #

Address — City — Prov. — Postal Code

7. PROPOSED CASING AND CEMENTING PROGRAM

Hole Size (mm)	Casing O.D. (mm)	Weight (kg/m)	Grade	New Used or in-hole	Setting Depth TVD	Setting Depth Meas.	Setting Formation	CASING SETTING INFORMATION: How Set	Cement Type	Cement Top KB / RF
340*	340*	96.42*	LS*	New*	37*	37*	Kettle Point*	Driven*	Driven*	NA*
312**	244	48.06	J55	New	52	52	Kettle Point	Cement	Class 'G'	surface
222	178	29.76	J55	New	427	427	F Shale	Cement	Class 'G'	surface
159	114	15.62	J55	New	736.5	736.5	A-2 Anhydrite	Cement	Class 'G'	surface

8. BLOW-OUT PREVENTION EQUIPMENT 9" 2/3M Annular Preventor

7" 2/3M Annular Preventor and Double Gate (pipe and blind)

9. WELL SECURITY Name of Trustee: Harrison Pensa LLP — Total # Unplugged Wells: 145 — Current Balance: $70K

10. REMARKS Depending upon availability the well will be drilled using cable tool or rotary rig.

* If well is drilled by Rotary Rig, conductor casing will not be run ** If well is drilled by Rotary Rig, hole size for 244mm casing will be 270mm

11. ENCLOSURES Fee [X] Location Plan [X] (Land wells only) Drilling Program [X]

12. NOTICE OF COLLECTION

The Ministry of Natural Resources and Forestry is collecting your personal information under the authority of the *Oil, Gas and Salt Resources Act*. Any personal information provided on this application will be used for licensing and law enforcement purposes only and will be protected in accordance with the Freedom of Information and Protection of Privacy Act.

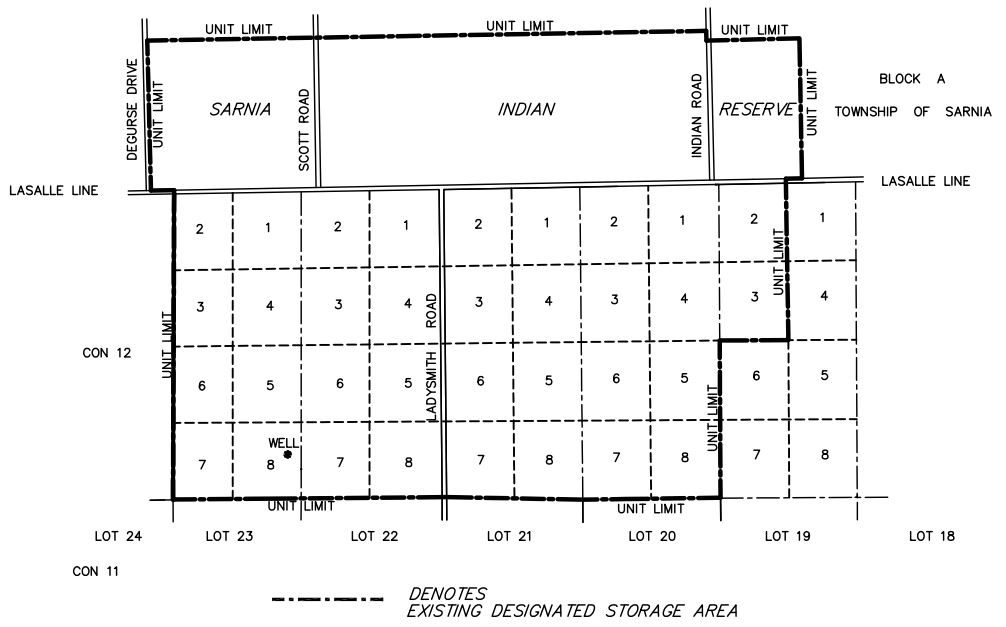
If you have questions about use of your personal information, please contact the Policy and Program Officer, Petroleum Operations Section, Ministry of Natural Resources and Forestry, 659 Exeter Road, London N6E1L3, 519-873-4638

13. AUTHORITY

The undersigned certifies that the information provided herein is complete and accurate, the operator has the right to drill or operate a well in the above location, and he/she has authority to bind the operator.

Date (d/m/y): 13.Nov.17 — Name: Kathy McConnell — Signature: K. McConnell

Company: Enbridge Gas Distribution Inc. — Title: Manager, Reservoir Development

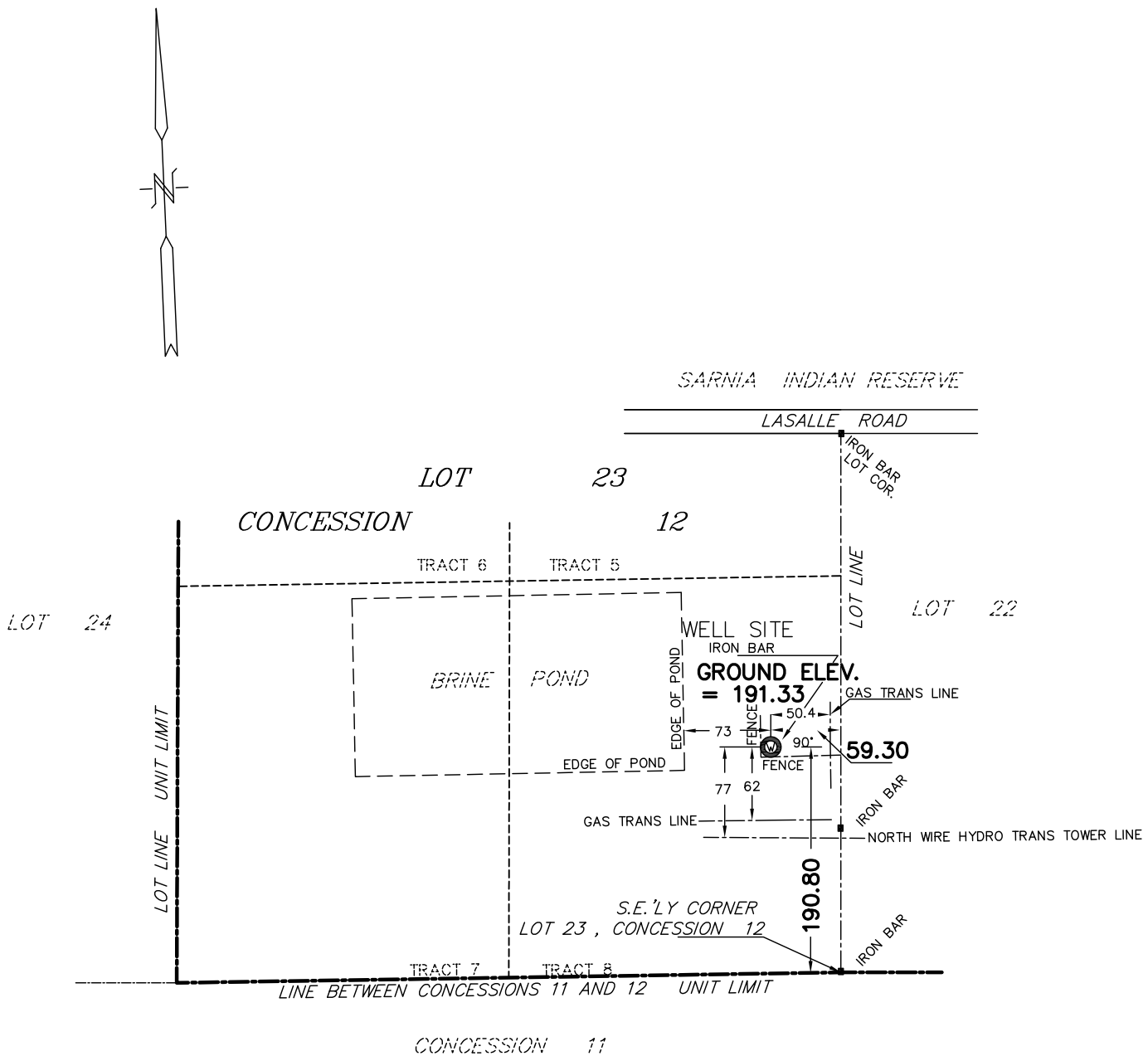


PLAN OF PROPOSED WELL
LOT 23
CONCESSION 12
GEOGRAPHIC TOWNSHIP OF MOORE
TOWNSHIP OF ST. CLAIR
COUNTY OF LAMBTON

SCALE 1:5000

NOTE (WELL SITE) CO-ORDINATES
LATITUDE N.42°54'05.450" LONGITUDE W.82°23'59.902"
U.T.M. N.4 750 828.8 E.385 707.6

WELL NAME
TD 26 – MOORE – 8 – 23 –12



NOTE GEODETIC HORIZONTAL CONTROL
U.T.M. CO-ORDINATES ARE GEODETIC (DATUM NAD 83 ORIGINAL) AND REFERRED TO MONUMENTS No.S 693749 AND 693767

NOTE METRIC
DISTANCES SHOWN ON THIS PLAN ARE IN METERS AND CAN BE CONVERTED TO FEET BY DIVEDING BY 0.3048

NOTE BENCH MARK
ELEVATIONS ARE REFERRED TO GEODETIC DATUM AND REFERENCE BENCH MARK BEING NO. 81U138 SARNIA
ELEVATION = 180.512

PREPARED BY
BRISCO AND O'ROURKE
SERVING THE PETROLEUM INDUSTRY
THROUGHOUT ONTARIO
WELLS,CONSTRUCTION AND TECHNICAL SURVEYING
DIGITAL MAPPING
LAND AND LEASE SURVEYS

OFFICE (519) 351-5073
CELL (519) 360-2134
FAX (519) 351-3119
P.O.BOX 327 - N7M-5K4
CHATHAM , ONTARIO

PREPARED FOR
ENBRIDGE GAS DISTRIBUTION INC.

FILE NO. 16-5097	PLAN NO. ENB6835.DWG

JULY 17 ,2016

TIMOTHY J. O'ROURKE C.S.T. A.C.E.T.

AUTHORIZED BY THE MINISTER OF NATURAL RESOURCES UNDER THE PETROLEUM RESOURCES ACT OF ONTARIO

TD 26, Moore 8-23-XII

DRILLING PROGRAM

TABLE OF CONTENTS

SECTION 1.0 - GENERAL DATA

Section 1.1 - Well Summary

Well Name:	TD 26 Moore 8-23-XII
Operator:	Enbridge Gas Distribution Inc.
Surface Location:	Tract 8, Lot 23, Con. 12, Moore Twp, Lambton County
Surface Coordinates:	190.8m North; 59.30m West
Ground Elevation:	191.33m
RF Elevation:	191.6m (Cable Tool Rig)
KB Elevation:	192.7m (Rotary Rig)
Total Depth:	780m
Target Formation:	A-1 Carbonate
Logging Program:	Gamma Ray / Neutron from TD to base of Surface Casing Porosity / Density Log A-2 Anhydrite to TD CBL-GR – 114mm casing Vertilog – 114mm casing
Spud Date:	April 1, 2018
Duration:	120 days (Cable Tool); 21 days (Rotary)

Section 1.2 – Special Notes

1. Depending upon the availability of equipment, the well will be drilled with cable tool or rotary rig. The drilling program has been designed to cover both potential drilling methods and where the instructions apply to only one method it has been so noted.

2. Safety of personnel and environment is our primary concern. Section 6.1 of this program, outlines Enbridge's general safety requirements which obliges all personnel on the wellsite to follow the Occupational Health and Safety Act and Regulations (Ministry of Labour (MOL)) and the Oil, Gas & Salt Resources Act and Regulations (Ministry of Natural Resources & Forestry (MNRF)). Safety and/or environmental ("tailgate") meetings shall be conducted as per Section 6. Wellsite Supervisor shall conduct daily 'walk around' inspections of the equipment on site and record the

results on the daily reports. Please refer to Section 5.2 for the procedure to be followed if a worker injury occurs.

3. The Wellsite Supervisor has authority over all activities conducted on the drilling location. The Wellsite Supervisor shall ensure that all applicable regulations and policies (MNRF, MOL, Ministry of the Environment & Climate Change (MOECC), and Enbridge) are followed and that all permits are kept on site and/or signed off as required.

4. All operations are to be to MNRF standards.

5. BOPs are to be installed, maintained and used as per MNRF requirements. Testing of the BOPs must be in accordance with Section 6.2 of this program.

6. Tower sheets must be completed daily and will include the information listed in Section 5.1 of this program. The Wellsite Supervisor will complete daily reports and forward the reports to Enbridge's office by 10am the following day.

7. The production casing will be set in the A-2 Anhydrite to allow for an effective cement job and successful pressure testing, prior to penetrating the A-1 Carbonate formation.

Section 1.3 - Contact Numbers

Emergency Numbers:

Police, Fire & Ambulance:* 911

911 Address: 795 Lasalle Line, Sarnia, Ontario

* For 911 Map and Map and Directions to Nearest Hospital see attached Map at end of Section 1.3

Enbridge Gas Distribution Inc.

Rob Carlson	Reservoir Field Supervisor	Office: 519-862-6036 Fax: 519-862-1168 Cell: 519-312-4863 robert.carlson@enbridge.com
Kathy McConnell	Manager Reservoir Development	Office: 519-862-6032 Fax: 519-862-1168 Cell: 519-312-2168 kathy.mcconnell@enbridge.com

Chris Pincombe	Land Administrator	Office: 519-862-6092 Fax: 519-862-1168 Cell: 519-381-1408 chris.pincombe@enbridge.com
Control Room		Office: 519-862-6012

Drilling Supervisor:

Steve Thompson	Omni Services Ltd. President	Cell: 519-383-5404 omniconsulting@rogers.com

Geologist:

Neil Hoey		Office: 519-472-4776 Fax: 519-472-4776 Cell: 519-649-6918 neil_hoey@hotmail.com

Cable Tool Rig:

Terry Marsh	Terry Marsh Well Drilling & Servicing Owner / Operator	Office: 519-695-6060 Fax: 519-695-6464 Mobile: 519-359-9804 twmarshca@yahoo.com

Rotary Rig:

Unknown – this section will be completed upon reward of the drilling contract

Cementing:

Ian Veen	Black Creek Well Service President	Office: 519-882-4732 Fax: 519-834-2466 Cell: 519-383-4645
Jeff Luckovitch	Integral Pumping Services Business Devel Manager	Office: 519-882-4732 Fax: 519-834-2466 Cell: 519-383-4645

Casing, Wellheads & Valves:

Brian DeJaegher	Wellmaster Pipe &Supply Sales Representative	Office: 519-688-0500 Fax: 519-688-0563 bdejaegher@wellmaster.ca

Graham Shone	DNow Manager	Office: 519-336-9797 Fax: 519-336-9733 graham.shone@dnow.com
Karen Derrick	Stream-Flo Ltd. Technical Sales Rep.	Office: 832-647-0710 Fax: 519-688-0563 kderrick@streamflo.com

Drill Bits:

Brad Takenaka	Varel Rock Bits Canada Sales Manager	Office: 403-968-9369 Cell: 403-303-2533 btakenaka@varelintl.com
Mike Kellar	Trendon Bit Service Ltd. Director, Sales	Office: 403-990-1299 mkellar@trendoninc.com

Wireline Services:

Gord Mackenzie	Baker Atlas Station Manager	Office: 519-332-8030 Fax: 519-332-4714 Cell: 519-339-6783 gord.mackenzie@bakerhughes.com
Dave Tipping	Weatherford Canada – Wireline & Logging Services Station Manager	Office: 519-683-2010 Fax: 519-683-2577 Cell: 519-436-3541 dave.tipping@canada.weatherford.com

Water Hauling:

Keith McKeegan	President McKeegan Trucking Limited	Office: 519-864-1037 Fax: 519-864-1036 Cell: 519-490-4042
Denis Marcus	President Harold Marcus Limited	Office: 519-695-3735 Fax: 519-695-2249 Cell: 519-380-5238 dmarcus@haroldmarcus.com

Rental Equipment:

Dale Holland	Wheatley Wireline Services Ltd.	Office: 519-825-3680 Fax: 519-825-9348 Cell: 519-322-8015
Keith Davis	Ecan Energy Services Inc.	Office: 519-627-3824 Fax: 519-627-5306 Cell: 519-437-7038 kmecanen@kent.net

Vern Anger	Canfish Services Inc. Fishing Supervisor	Office: 780-955-2600 Cell: 403-845-0012
Orval Beam	Orval L. Beam Limited Operations Manager Tank Rentals	Office: 519-436-0164 Fax: 519-436-0164 Cell: 519-436-4801

Welders:

John Dawson	St. Clair Mechanical President	Office: 519-864-0927 Fax: 519-864-0801 Cell: 519-330-9672

Government & Other Agencies

MNRF	Petroleum Resources Centre	Office: 519-873-4634 Fax: 519-873-4645 ogsr.mnr.gov.on.ca
MOECC	Spill Reporting	1-800-268-6060
MOL	Health & Safety	1-800-265-1676
Oil, Gas & Salt Resources Library		Office: 519-686-2772 Fax: 519-686-7225

911 Map & Directions to Nearest Hospital:

Google Maps

795 Lasalle Line, Sarnia, ON N7T 7H5 to Bluewater Health, Sarnia, ON

Drive 10.1 km, 13 min

Dow Map

795 Lasalle Line
Sarnia, ON N7T 7H5

1. Head west on Lasalle Line toward Degurse Rd

59 s (950 m)

Continue on ON-40 N. Take Vidal St S and Hwy 40B/Brock St S to London Rd/Route 16 in Sarnia

11 min (9.2 km)

2. Turn right onto ON-40 N

2.8 km

3. ON-40 N turns left and becomes Churchill Rd

450 m

4. Turn right onto Tashmoo Ave

1.0 km

5. Turn left onto Kenny St

39 m

6. Turn right onto Vidal St S

1.6 km

7. Vidal St S turns slightly right and becomes Hwy 40B/Brock St S

2.4 km

8. Turn right onto London Rd/Route 16
   Destination will be on the right

850 m

Blue Water Health

These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.

Google Maps

SECTION 2.0 - GEOLOGICAL PROGNOSIS

County: Lambton	Township: Moore						
Concession: XII	Lot: 23	Tract: 8					
Survey Co-ordinates:	***150.0 m North***	***150.0 m West***	***Estimated***				
Elevation: 189.4m	***Estimated***						
Formation	**Top**	**Elevation**	**Thickness**	**Gas**	**Oil**	**Water**	**Pressure**
K.B.	0.0	190.9	1.5				
Drift	1.5	189.4	35.5				
Kettle Point	37.0	153.9	47.0			fresh 37m	
Hamilton	84.0	106.9	87.0				
Dundee	171.0	19.9	32.0				
Lucas	203.0	-12.1	83.0			sulphur 203m	
Amherstburg	286.0	-95.1	47.0				
Bois Blanc	333.0	-142.1	22.0				
Bass Islands	355.0	-164.1	60.0				
G-Shale	415.0	-224.1	7.0				
F-Shale	422.0	-231.1	28.0				
F-Salt	450.0	-259.1	29.0				
E-Carbonate	479.0	-288.1	80.0				
D-Salt	559.0	-368.1	10.0				
C-Shale	569.0	-378.1	20.0				
B-Salt	589.0	-398.1	78.0				
A-2 Carbonate	667.0	-476.1	34.0				
A-2 Shale	701.0	-510.1	11.0				
A-2 Salt	712.0	-521.1	24.0				
A-2 Anhydrite	736.0	-545.1	1.0				
A-1 Carbonate	737.0	-546.1	40.0	XXX	XXX		7000 kPa (est)
A-1 Evaporite	777.0	-586.1	3.0				
TD	780.0	-590.6					
*****Note: Prognosis with TVD tops.**							
*****Note: used T005399 to build prog**							
*****Note: Prognosis KB built for Cable Tool**							

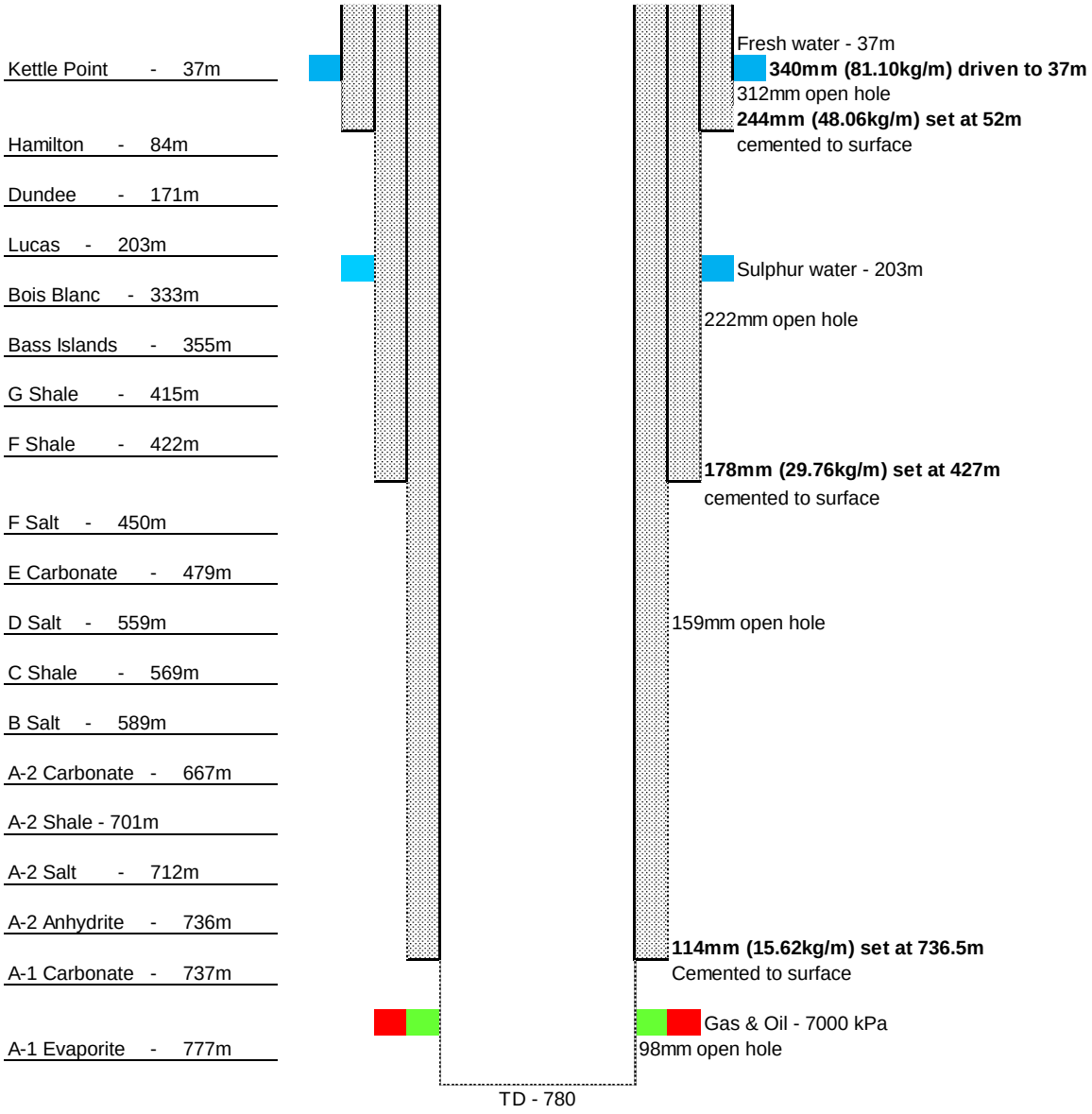
SECTION 3.0 - CASING AND CEMENTING SUMMARY

Section 3.1 - Summary

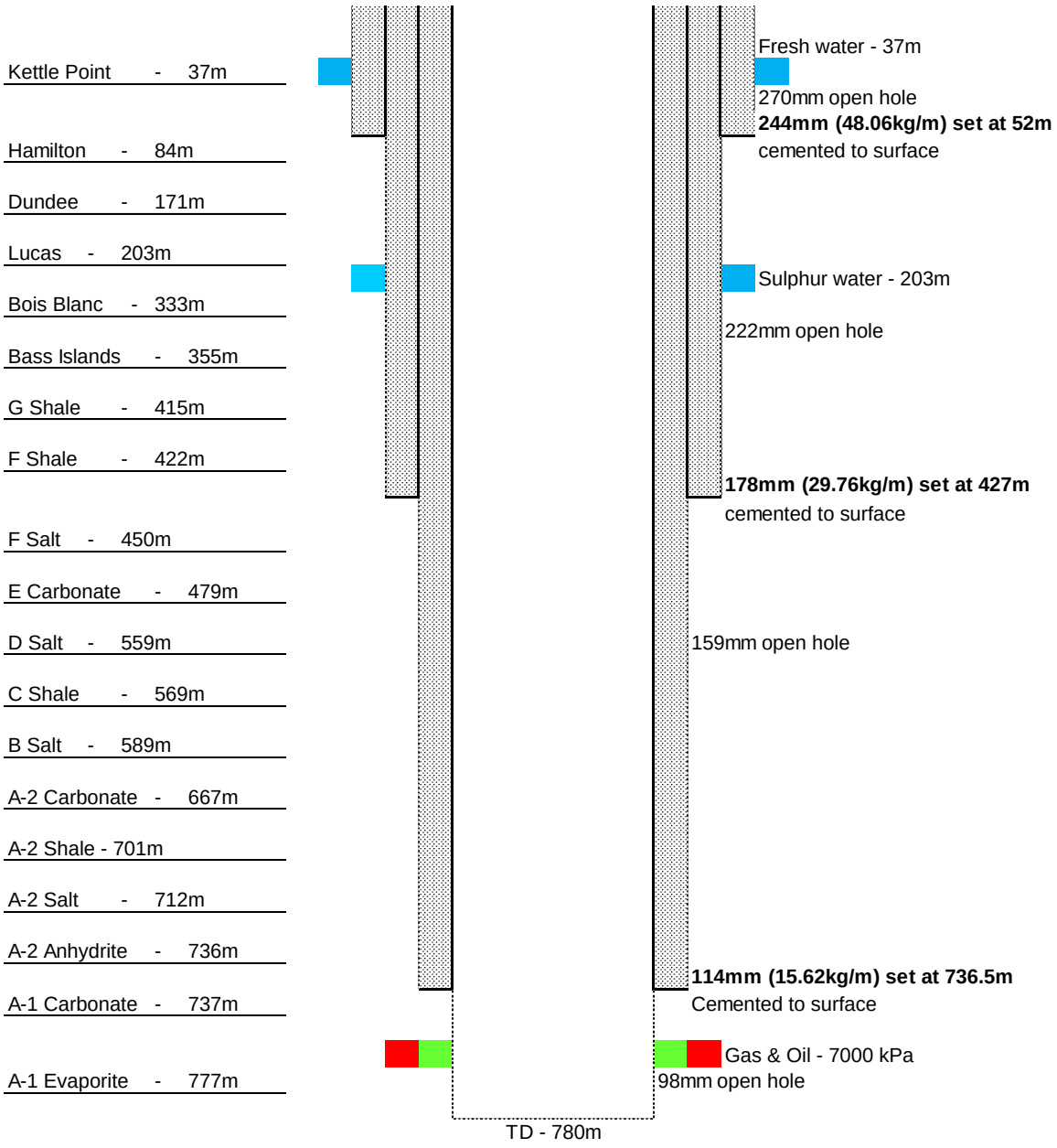
Hole Size (mm)	Casing Size (mm)	Casing Grade	Casing Weight (kg/m)	Setting Depth (mKB)	How Set
340	340	LS	81.10	37	Driven – cement squeeze if necessary. If a rotary rig is used for the drilling of the well, conductor casing will not be run.
312 (CT) 270 (Rot)	244	H40	48.06	52	Cemented to surface with 100% excess Class G 0-1-0 cement + 2 – 3% $CaCl_2$
222	178	J55	29.76	427	Cemented to surface with Class 'G' 0-1-8% plus 1 to 3% $CaCl_2$, followed by Class 'G' neat cement plus 1 to 3% $CaCl_2$. Cement volumes will be calculated with a 50% excess- gel cement and 30% excess – neat cement. Depending upon hole conditions, consideration may be given to running thixotropic cement plus additional loss circulation materials, across porous zone(s).
159	114	J55	15.62	736.5	Cemented to surface with Class 'G' 0-1-0% plus 1 to 2% $CaCl_2$ plus 10% NaCl. Cement volumes will be calculated with a 50% excess on the open hole section and 30% excess on the cased hole section.

Main Hole: 98mm open hole will be drilled from 736.5m to 780m

Section 3.2 - Wellbore Diagram – Cable Tool



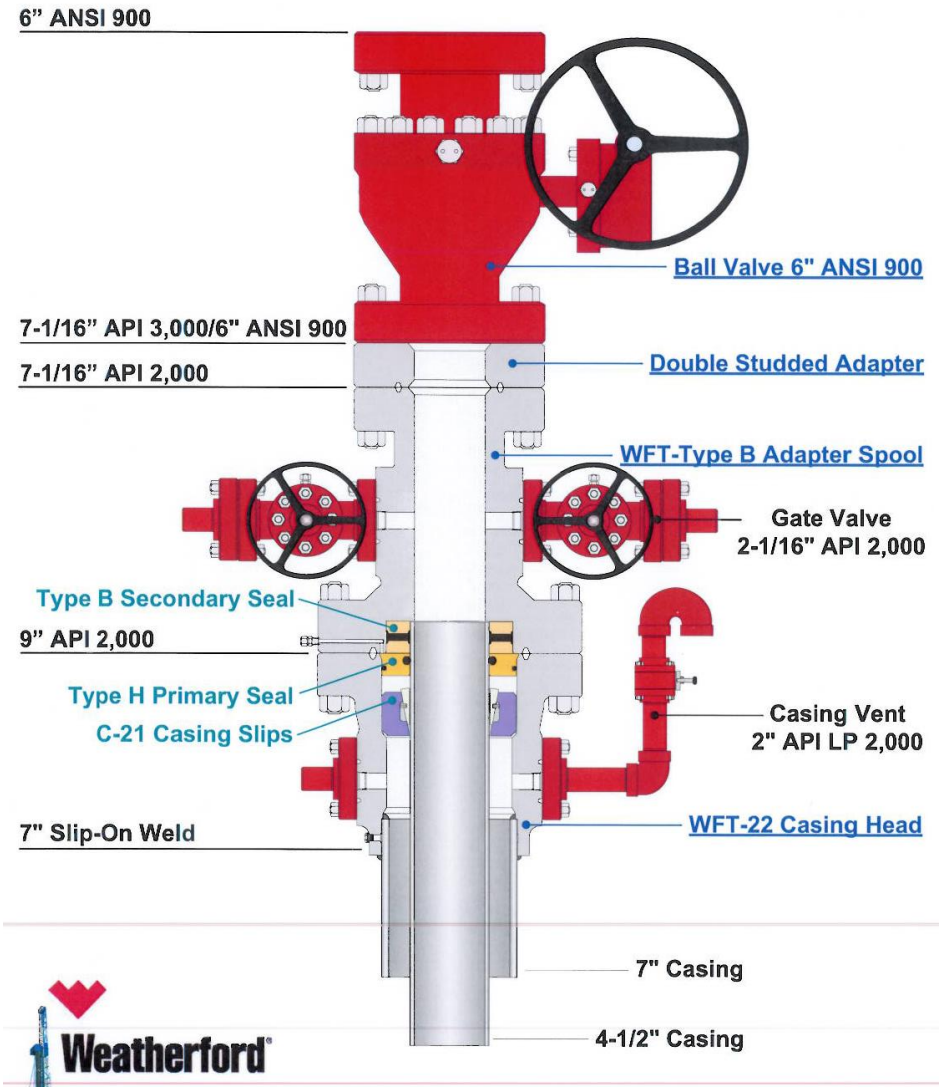
Section 3.2 - Wellbore Diagram – Rotary



Section 3.3 - Wellhead Summary

Weatherford 13.8 MPa Wellhead:

244mm x 279mm slip on weld on casing bowl for BOP installation
178mm x 229mm slip on weld on casing bowl
229mm x 179mm spool c/w 2 gate valves on side outlets
179mm 13.MPa x 179mm x 20.7 MPa double studded adapter
152mm ANSI 900 Cameron Grove full port ball valve



SECTION 4.0 - DRILLING PROCEDURES

Section 4.1 - Pre Spud

1. Fresh Water Well Samples

   Obtain samples from all fresh water wells located within a minimum radius of 750 metre of the proposed well. Have routine water analysis done on all water samples by an independent laboratory in Sarnia. Ensure that copies of these reports are placed in the well files in Enbridge's office

2. Site Preparation

   Prepare drilling location as follows:

   a. Locate all drainage tiles crossing lease area
   b. Strip and properly stock pile all soil from the lease
   c. Cut, block and divert drainage tiles as required
   d. Construct adequate berms around lease and access road as required

3. Government Notification of Spud

   48 hours prior to spud, notify the Ministry of Natural Resources & Forestry – Petroleum Resources Section by fax @ (519) 873 – 4645 of the date of commencement of drilling operations

4. Signs

   Install rig signs on access road to lease.

5. Safety Meeting

   Conduct a pre-spud safety meeting for all crews. Rig Manager and all crewmembers must be present. A similar meeting shall be conducted with the remaining crew(s) as they come on duty. Additional safety meetings shall be conducted at the Wellsite Supervisor's discretion.

Section 4.2 - Conductor Casing – Cable Tool

1. Drilling Method

   Move in and rig up Cable Tool Rig. Measure and record the distance from RF to ground and the RF elevation – include these measurements on the tower sheets and the daily report. Drill and drive 340mm casing to bedrock, to an approximate depth of 37m. Note any occurrence of water and record type of water, depth encountered, and static level of water and/or flow rate. If fresh water is encountered during

drilling, the well must be bail tested for at least 15 minutes, after the casing is landed, to ensure that the fresh water has been shut-off. If the fresh water has not been shut-off, contact Enbridge's office and be prepared to perform a cement squeeze as per Enbridge's requirements.

2. Cement Squeeze (if necessary)

   If fresh water is found in the drift and is not shut-off by the conductor casing, a flow rate will be established and a cement squeeze will be performed, using the cement volumes determined by Enbridge. Wait on cement 12 hours and bail the hole dry and monitor the well for at least 15 minutes to determine if the water has been shut-off. If necessary, the process will be repeated until the water is shut-off.

Section 4.3a - Surface Hole & Surface Casing

1. Drilling Method – Cable Tool

   Drill a 312mm hole 15 metres ± into the Kettle Point formation, to an approximate depth of 52m. Ensure that drill cutting samples are taken every 3 metres and placed in the sample bags provided by the Ministry of Natural Resources & Forestry. The sample bags must be labeled with the well name, Township, Lot, Concession and Enbridge's name. Record on daily drilling reports any influx of fluids and/or hydrocarbons, static levels, pressures and any unusual hole conditions.

2. Drilling Method – Rotary

   Move in and rig up Rotary rig. Measure and record the distance from KB to ground and the KB elevation – include these measurements on the tower sheets and the daily report. Drill a 270 hole using water based bentonite gel/mud, 15 ± metres into the Kettle Point formation, to an approximate depth of 52m. Ensure that drill cutting samples are taken when bedrock is encountered and then every 3 metres to casing depth and placed in the sample bags provided by the Ministry of Natural Resources and Forestry. The sample bags must be labeled with the well name, Township, Lot, Concession and Enbridge's name. Record on daily drilling reports any influx of fluids and/or hydrocarbons, static levels, pressures and any unusual hole conditions.

3. Casing Installation – Cable Tool and Rotary

   Depending upon hole conditions encountered, the 244mm casing will be run in the following manner:

   - Texas Shoe on bottom of first joint
   - Centralizers on the top and bottom of the first joint and for the cable tool rig - coincident with the shoe of the conductor casing and for the rotary rig – coincident with bedrock surface
   - 244mm casing to surface

4. Cementing Procedures

   Move in and rig up Cementers. Ensure pressure recorder is rigged in and serviceable. Pressure charts will be attached to the job ticket. Conduct a pre-job safety meeting to confirm volumes and procedures. Establish circulation using pump truck. The casing and the hole will be circulated with fresh water for 15 minutes to clean the borehole and to fill the casing and hole prior to cementing. Pressure test surface equipment to 14 MPa. Ensure that preflush and mix water are from a clean source and that the water trucks are uncontaminated. Pump 2.0m^3 citric preflush followed by 1.0m^3 of fresh water, with the addition of loss circulation material if necessary. Ensure that a minimum of 4 cement samples are taken and represent the cement at the beginning, middle and end of the cement job. Ensure that the cement samples are labelled with the wellname and time sample was taken – samples must be stored in a dry and clean location. Mix and pump sufficient Class 'G' 0-1-0% cement plus 2 to 3% $CaCl_2$ with a density of 1901 kg/m^3 to cement the casing to surface with 100% excess. Displace cement with fresh water – ensure that cement is under displaced and that the bottom joint of casing is full of cement. Shut-in cementing valve at surface and wait on cement at least 12 hours and if cement samples indicate the cement is competent then slack off casing.

5. Install 244mm x 279mm slip on weld on casing bowl for BOP installation. Arrange to have surface hole cuttings solidified and disposed in an approved manner.

Section 4.4 - Intermediate Hole & Intermediate Casing

1. BOP Installation and Pressure Testing

   Install Class A BOPs as per MNRF requirements. After BOPs are installed and the cement samples indicate that the cement is competent, the rig will proceed to pressure test the BOPs, casing and shoe. Pressure test casing and each component of the BOPs as per Section 6.2. After successfully pressure testing the BOPs and casing, drill out cement and 0.5m of new formation and conduct a PIT, with the hole full of fresh water, using a bottom hole pressure equivalent to 18 kPa/m.

2. Drilling Method

   Drill a 222mm hole with fresh water to 5m ± into the F Shale formation, to an approximate depth of 427m. Notify Geologist 12 hours in advance of reaching intermediate casing point, so that they can be on site to determine the proper casing setting depth.

   If the geology indicates full reefal development, the TD and target zone could be changed to the Guelph formation or consideration may be given to abandoning the well upon completion.

Ensure that drill cutting samples are taken every 3 metres and placed in the sample bags provided by the Ministry of Natural Resources & Forestry. Record on daily tower sheets any influx of fluids and static levels (water and/or hydrocarbons), gas and/or any unusual hole conditions.

3. Casing Installation

Ensure that the threads are protected while hoisting casing to the floor. Drift all casing prior to running the casing in the well and apply proper API make-up torque to each connection.

Depending upon hole conditions encountered, the 178mm casing will be run in the following manner:

- Guide shoe
- 178mm joint of casing
- 178mm Float Insert or Float Collar
- Tack weld guide shoe, float collar and bottom 2 joints and use API modified pipe dope on all connections
- Centralizers will be installed one metre above the guide shoe, over the bottom of the first 2 collars and every 5 joints to surface
- 178mm casing to surface

4. Cementing Procedures

Move in and rig up Cementers. Ensure pressure recorder is rigged in and serviceable. Pressure charts will be attached to the job ticket. Conduct a pre-job safety meeting to confirm volumes and procedures. Fill hole and establish circulation using pump truck. The casing and the hole will be circulated with fresh water for 15 minutes to clean the borehole and to fill the casing and hole prior to cementing. Pressure test surface equipment to 14MPa for 10 minutes. Preflush and mix water must be obtained from a clean source and the water trucks must be uncontaminated. Pump $2.0m^3$ citric preflush followed by $1.0m^3$ of fresh water, with the addition of loss circulation material if necessary. Ensure that a minimum of 4 cement samples are taken and represent the cement at the beginning, middle and end of the cement job. Ensure that the cement samples are labelled with the wellname and time sample was taken – samples must be stored in a dry and clean location. Mix and pump sufficient 0-1-8 Class 'G' cement plus 1 to 3% $CaCl_2$ (50% excess) followed by 0-1-0 Class 'G' cement plus 1 to 3% $CaCl_2$ (30% excess) to cement casing to surface. Depending upon the severity of the loss circulation zones, thixotropic cement with additional loss circulation materials may be used to cover the loss zone. If there are no cement returns to surface, a feed rate will be established and the annulus will be grouted to surface. Drop wiper plug and displace cement and bump plug to 3.5 Mpa over final pumping pressure – do not exceed 60% of internal yield pressure of casing. Once plug is bumped bleed off pressure to check if the float is holding. If the float is holding shut-in the well and wash out BOPs. If the float is not holding, re-bump the

plug, then bleed off the differential pressure and shut-in the well. Wait on cement 24 hours and if cement samples are competent slack off casing. Remove 244mm x 279mm casing bowl and install 178mm x 229mm casing bowl on the 178mm casing.

Section 4.5 - Production Hole & Production Casing

1. Pressure Testing

   Check cement samples for hardness – if cement samples are set to the satisfaction of the Wellsite Supervisor, proceed with installation of the BOPS. Install Class B BOPs as per MNR requirements on 178mm casing bowl. After BOPs are installed and the cement samples indicate that the cement is competent, the rig will proceed to pressure test the BOPs, casing and shoe. Pressure test casing and each component of the BOPs as per Section 6.2. After successfully pressure testing the BOPs and casing, drill out cement and 0.5m of new formation and conduct a PIT, with the hole full of fresh water, using a bottom hole pressure equivalent to 18 kPa/m.

2. Drilling Method

   Drill a 159mm hole 1 ± metres into the A-2 Anhydrite formation, to an approximate depth of 736.5m. Rotary rig will use brine to drill this section of the well. The final casing point will be determined by the Wellsite Geologist. Ensure that drill cutting samples are taken every 3 metres and placed in the sample bags provided by the Ministry of Natural Resources & Forestry. Record on daily tower sheets any influx of fluids and static levels (water and/or hydrocarbons), gas and any unusual hole conditions.

   Prior to penetrating the A-2 Carbonate, the Wellsite Geologist and Wellsite Supervisor must be on-site and a BOP drill shall be completed to familiarize all on-site personnel with the proper procedures.

   If the geology indicates full reefal development, the TD and target zone may be changed to the Guelph formation or the well may be abandoned upon completion. This decision will be made in consultation with the Wellsite Geologist and the Enbridge Reservoir Development Group.

   If the reef pressure is above 7000kPa, drilling will be suspended and the rig will be moved off location after the 114mm casing is installed and cemented. The rig will be brought back onto location to complete the drilling of the well when the reef pressure is below 7000kPa.

3. Casing Installation

Ensure that the threads are protected while hoisting casing to the floor. Drift all casing prior to running the casing in the well and apply proper API make-up torque to each connection.

Depending upon hole conditions encountered, the 114mm casing will be run in the following manner:

- Guide shoe
- 114mm joint of casing
- Float Insert or Float Collar
- Tack weld guide shoe, float collar and bottom 4 joints and use API modified pipe dope on all connections
- Centralizers will be installed on bottom 5 joints of casing – on every 5^{th} joint to surface
- 114mm casing to surface

4. Cementing Procedures

Move in and rig up Cementers. Ensure pressure recorder is rigged in and serviceable. Pressure charts will be attached to the job ticket. Conduct a pre-job safety meeting to confirm volumes and procedures.

Establish circulation using pump truck. The casing and the hole will be filled with brine and circulated for 15 minutes to clean the borehole and to fill the casing and hole prior to cementing. Pressure test surface equipment to 14 MPa for 10 minutes. Preflush and mix water must be obtained from a clean source and the water trucks must be uncontaminated. Pump $2.0m^3$ citric preflush, followed by $1.0m^3$ of clean brine, with the addition of loss circulation material if necessary. Ensure that a minimum of 4 cement samples are taken and represent the cement at the beginning, middle and end of the cement job. Ensure that the cement samples are labelled with the wellname and time sample was taken – samples must be stored in a dry and clean location. Mix and pump sufficient Class 'G' 0-1-0 cement plus 10% NaCl, to cement the 114mm casing to surface plus 50% excess over open hole and 30% excess in cased hole. Drop wiper plug and displace cement with fresh water and bump plug to 3500 kPa over final pumping pressure – do not exceed 60% of internal yield pressure of casing. Once plug is bumped bleed off pressure to check if the float is holding. If the float is holding shut-in the well and bleed down surface lines. If the float is not holding, re-bump the plug, then bleed off the differential pressure and shut-in the well. Wash out BOPs and split BOP stack at 229mm flange, install 114mm slips and set slips in casing bowl. Wait on cement 24 hours and cut casing and remove BOPs. Cut and bevel 114mm casing and install primary and secondary seals. Install 229mm x 179mm spool piece and test wellhead seals to 14 Mpa for 10 minutes. Install 179mm 14MPa x 21MPa double studded adapter and ANSI 900 Master Valve and shut-in well. 48 hours after cementing operations have been completed – pressure

test casing, wellhead and master valve to 12,410kPa for a minimum of 4 hours – ensure that a digital pressure gauge is installed. Report results to the Enbridge Office - do not proceed with BOP installation until the pressure test has been successfully completed.

If the Master Valve is too high above the drill floor, the BOPs will be installed on the top of the spool piece and when the well is completed, a WR-1 plug will be set in the base of the casing and successfully pressure tested to 8300 kPa. The BOPs will then be removed and the Master Valve installed. Once the Master Valve has been installed and successfully pressure tested to 12,410kPa, the plug will be retrieved with a Wireline Service company.

Section 4.6 - Main Hole

1. Installation of the BOPs

   Check cement samples for hardness – if cement samples are set to the satisfaction of the Wellsite Supervisor, proceed with installation of the BOPS. Install Class B BOPs as per MNR requirements. If a cable tool rig is being used, a lubricator must also be installed. After BOPs are installed and a minimum of 48 hours 'wait-on-cement-time' has passed and the cement samples indicate that the cement is competent, a cement bond log will be run on the 114mm casing.

2. Logging

   Move in and rig up Wireline Company. With hole full of fresh water, run a Cement Bond Log, both a non-pressure and pressure pass. Run a Gamma-Ray / Neutron Log from TD to the base of the surface casing. Rig out Wireline Company and release.

3. Drilling Method

   Each component of the BOPs, including the lubricator for the cable tool rig, plus the casing and the shoe will be pressure tested as per Section 6.2. Upon successful completion of the pressure testing of the BOPs, the cement, shoe and 0.5m of new formation will be drilled out and a PIT will be conducted, with the hole full of fresh water, using a bottom hole pressure equivalent to 18 kPa/m.

   Drill a 98mm hole through the A-1 Carbonate and 1 metre into the A-1 Evaporite Formation – final TD will be determined by the Wellsite Geologist. Rotary rig will use fresh water to drill this portion of the well. While drilling the main hole ensure that drill cutting samples are taken every 3 metres and placed in the sample bags provided by the Ministry of Natural Resources & Forestry. Record on daily tower sheets any influx of fluids and static levels (water and/or hydrocarbons), gas and any unusual hole conditions.

Drilling of the well may be suspended if sufficient permeability and porosity are encountered prior to reaching the proposed TD. If drilling is suspended, the rig will be moved off location and a variety of pressure tests will be performed on the well during withdrawal / injection operations. If the testing of the well shows that the porosity and permeability of the well are not suitable, a rig will be moved back onto location and the well will be drilled to the original TD – 1 metre into the A-1 Evaporite.

4. Logging

   Move in and rig up Wireline Company to run a Gamma-Ray/Neutron/Density Log over the open hole section of the well and run a Casing Inspection Log over the 114mm casing.

5. BOP Removal

   Close master valve and nipple down BOPs and install 152mm (6") blind flange. If the master valve was not used for the drilling of the well – move in and rig up Wireline and Tool Companies and install 2 WR-1 plugs at the base of the 114mm casing. Bleed down and fill the well with fresh water and pressure test the plug to 8300 kPa. Upon successful completion of the pressure test, remove BOPs and install master valve. Install a digital pressure recorder and pressure test casing, wellhead and master valve, with the hole full of fresh water to a surface pressure of 12,410kPa for a minimum of 4 hours. Report results to Enbridge Office. Do not rig down until well passes the pressure test. Move in Wireline Company to retrieve WR-1 plug.

6. Rig down cable tool or rotary rig and move off of location.

7. Restore wellsite to Enbridge's specifications.

SECTION 4.7 - LOSS CIRCULATION PROCEDURE

1. Before drilling out the casing shoe:

   a. Identify sources and location of fresh water and/or brine, loss circulation materials and weight materials
   b. Ensure BOPs and manifold are properly installed
   c. Ensure auxiliary tanks are connected to the pumping system and a standby mud pump is hooked up for annular injection in case of severe loss circulation (so that fluid can be pumped down both the drill pipe and annulus simultaneously)
   d. Pressure test BOPs prior to drill out

2. After drilling out shoe:

   a. Alert water suppliers and haulers
   b. Ensure adequate amounts of fresh water and/or brine are readily available prior to penetrating the Detroit River formation.

c. Mechanically test BOPs and perform BOP drill prior to penetrating the Detroit River formation.

3. Drilling Blind – Detroit River formations:

a. In an attempt to maintain or re-establish circulation, pump fluid down both the annulus and the drill pipe simultaneously
b. Should severe loss circulation occur while drilling, the thief zone may be plugged with cement and/or loss circulation material at Enbridge's discretion.

SECTION 5.0 - REPORTING PROCEDURES

Section 5.1 - Tower Sheets

Shall be completed daily and shall include:

1. Bit size, jars, depth at the beginning of the shift and end of each shift.

2. Casing size, grade, weight, and number of joints, centralizers, cement baskets, total length and setting depth.

3. Cementing information – Service Company, cement type, amount, slurry density, additives, annular fluid returns, volume of displacement fluid and plug down time.

4. Water, gas or oil – type, depth encountered depth of sample collected and the static level and/or rate of flow.

5. Pressure tests – individually, surface pressures, fluid density used in the tests, bleed-off rate and duration of test.

6. Logging Details – type and interval.

7. Abandonment details – intervals, amount and type of cement, top of plug and time felt.

8. Rig release – date and time.

Section 5.2 – Worker Injury

Immediately provide first aid to the injured party and ensure that all personnel are removed from harm's way. Secure the area and ensure that the site is preserved in case an investigation is required.

Every work related accident or injury shall be reported immediately to the Wellsite Supervisor. The Supervisor shall immediately contact the Enbridge Gas Distribution Inc. Office, specifically the Manager, Reservoir Development followed by the Reservoir Field Supervisor. The verbal report shall be followed with a written report, including but not limited to, the Contractor's Accident/Incident Investigation form. The affected Contractor is responsible to contact the proper authorities concerning the accident.

SECTION 6.0 - SAFETY AND PROCEDURES

Section 6.1 - General Safety

1. All works at the wellsite shall be in compliance with the Occupational Health and Safety Act and the Oil, Gas & Salt Resources Act and all associated legislation. In addition, all work at the wellsite shall be done in compliance with good oil field practices. All verbal notifications given to and approvals received from government agencies shall be recorded on the tower sheets.

2. The Enbridge 'Job Safety Analysis Form' (JSA) shall be thoroughly reviewed by the Wellsite Supervisor with all worker(s) that arrive on location that have not previously reviewed the JSA. Upon completion of the review, the worker(s) will sign the JSA as acknowledgement of their understanding of the hazards and the steps that will be taken to mitigate the hazards where possible.

3. Daily safety ('tailgate') meetings are to be conducted with each shift and recorded on a Task Analysis Safety Card (TASC). Additional safety meetings are to be held with each crew, at the start of the well and safety meetings shall also be held prior to cementing and upon arrival of the logging company and prior to penetrating the Detroit River formations and the A-2 Carbonate formation.

4. The Wellsite Supervisor shall ensure that the operations are in compliance with all applicable government regulations and shall complete daily walk around rig inspections.

Section 6.2 – Well Control

All blowout prevention systems are to be in strict compliance with MNR regulations. The function and pressure testing guidelines required by the regulatory bodies (such as daily function testing of the pipe rams) will be strictly adhered to.

1. All pressure tests of blowout prevention equipment will be conducted with fresh water and will be conducted in 2 stages – low and high pressure. It is essential that the low pressure test be done first, to prevent the high pressure test from healing leaks that would have been noted at low pressures.

2. The following pressure tests will be conducted with fresh water prior to drilling out each casing string and the results recorded on the tower sheets and daily reports:

    a. The blind rams, kill lines and casing will be tested individually for 10 minutes each to:
        i. Intermediate casing 2000 kPa low & 8000 kPa high
        ii. Production casing 2000 kPa low and 10000 kPa high

b. Function test the pipe rams / shear rams, safety valves, etc. individually for 10 minutes each to:
    i. Intermediate casing 2000kPa low & 8000 kPa high
    ii. Production casing 2000 kPa low and 10000 kPa high

c. The annular preventor will be tested for 10 minutes to
    i. Surface casing 1400 kPa low and 3500 kPa high
    ii. Intermediate casing 2000 kPa low & 8000 kPa high
    iii. Production casing 2000 kPa low and 10000 kPa high

d. The lubricator system will be tested for 10 minutes to
    i. Production casing 2000 kPa low and 8000 kPa high

3. If a cable tool rig is used, a full lubricator system will be required when:
    a. gas is encountered with H_2S content greater than 100ppm,
    b. when crude oil flows to surface or is capable of unloading during bailing operations, or
    c. when flows of natural gas exceed 7.0 10^3m^3/D (250Mcfd).

4. Upon drilling out the casing, drill 0.5m to 1.0m of new hole and test the formation, with the hole full of fresh water, to a minimum bottom hole pressure of 18 kPa per metre.

5. After one day of drilling below the casing shoe, check the entire blowout prevention system and tighten all bolts.

6. Crews should be kept alert and familiar with the blowout prevention equipment. At least one member of the crew who has been trained in blowout prevention and well control procedures must be on the floor at all times.

7. Conduct blowout prevention drills prior to drilling out casing and once per week thereafter. Ensure that the drills are recorded in the tour book.

8. The blowout preventors are to be function tested once per tour. Ensure that the function test is recorded on the tower sheets.

Oil, Gas and Salt Resources Act

Application for a Well Licence

Ontario

Form 1 — To the Minister of Natural Resources and Forestry — v.2015-12-15

The undersigned operator applies for a well licence under the Oil, Gas and Salt Resources Act and the Regulations thereunder and submits the following information, together with the application fee of $100. Make cheques payable to "Minister of Finance".

1. WELL NAME TD 28H (Horiz 1), Moore 2-21-XII — Target Formation: Guelph

Purpose of Proposed Well (Well Type): Natural Gas Storage Well

2. OPERATOR Enbridge Gas Distribution Inc. — Tel # 519-862-1473 — Fax # 519-862-1168

Street Address: 3501 Tecumseh Road — City: Mooretown — Prov.: ON — Postal Code: N0N 1M0

Mailing Address: 3501 Tecumseh Road — City: Mooretown — Prov.: ON — Postal Code: N0N 1M0

Contact Name: Kathy McConnell — Contact Tel #: 519-862-6032

Email: kathy.mcconnell@enbridge.com

3. LOCATION County: Lambton — Township: Moore

Tract: 2 — Lot: 21 — Concession: 12 — Offshore: Block / Tract / Licence/Lease No.

Surface location, metres from Lot Boundaries: 135.20 m North [ ] South [X] — 189.35 m East [X] West [ ]

Latitude: 42° 54' 37.876" — Longitude: 82° 23' 19.823"

Bottom-hole Lat.: 42° 54' 30.784" — Bottom-hole Long.: 82° 23' 51.196"

Within 1.6 km of Designated Storage Area? Yes [X] No [ ]

Off-target? Yes [ ] No [X]

4. WELL PARTICULARS Vertical [ ] Horizontal [X] Directional [ ] Deepening [ ] Re-entry [ ] Lateral [ ]

Rig Type: Rotary [X] Cable [ ] — Well to be cored? Yes [ ] No [X] — Formation at TD: Guelph

Ground Elevation: 189.67 — Proposed Depth: 1400.0 — Proposed Depth TVD: 733.00 — Proposed Start Date: 1-Apr-18

5. POOLING

Pooling of the Spacing Unit or unitization of the Unit Area shown on the attached well location plan has been completed (see Ont. Reg. 245/97 definitions for "pooled spacing unit" and "unitize") Yes [X] No [ ]

6. DRILLING CONTRACTOR Unknown — Tel #

Address — City — Prov. — Postal Code

7. PROPOSED CASING AND CEMENTING PROGRAM

Hole Size (mm)	Casing O.D. (mm)	Weight (kg/m)	Grade	New Used or in-hole	Setting Depth TVD	Setting Depth Meas.	Setting Formation	CASING SETTING INFORMATION		
								How Set	Cement Type	Cement Top KB / RF
508	406	96.42	LS	New	55	55	Kettle Point	Cement	Class 'G'	surface
375	298	69.94	J55	New	423	423	F Unit	Cement	Class 'G'	surface
270	219	47.62	J55	New	679	700	A-2 Anhydrite	Cement	Class 'G'	surface

8. BLOW-OUT PREVENTION EQUIPMENT 16" 2/3M Annular Preventor

11" 2/3M Annular Preventor and Double Gate (pipe and blind)

9. WELL SECURITY Name of Trustee: Harrison Pensa LLP — Total # Unplugged Wells: 145 — Current Balance: $70K

10. REMARKS Rotating Control Device 11" x 2/3000 psi will be used for drilling in the reef

11. ENCLOSURES Fee [X] — Location Plan [X] (Land wells only) — Drilling Program [X]

12. NOTICE OF COLLECTION

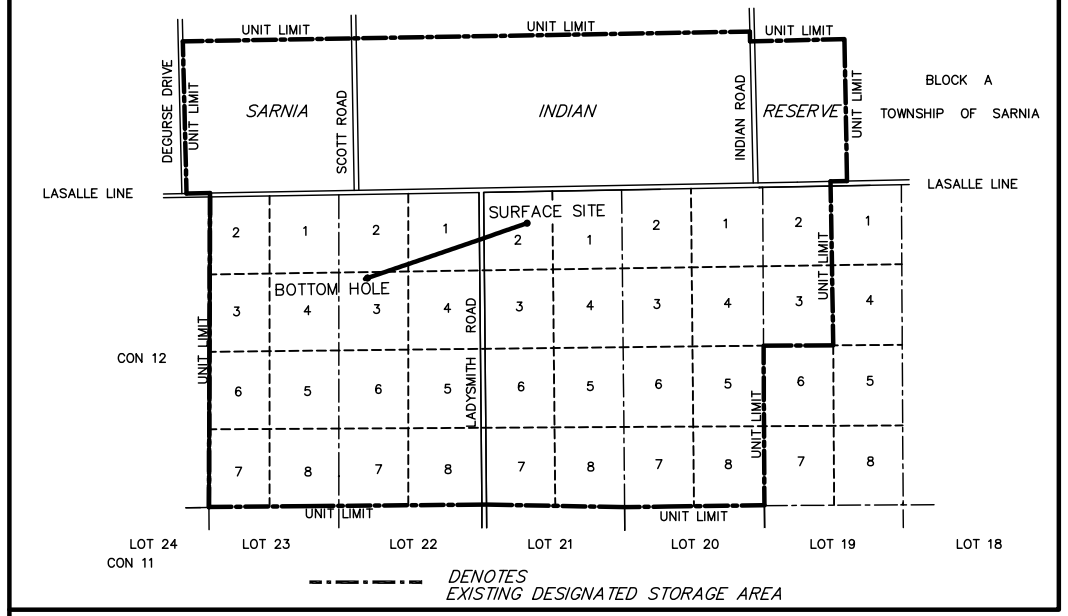
The Ministry of Natural Resources and Forestry is collecting your personal information under the authority of the *Oil, Gas and Salt Resources Act*. Any personal information provided on this application will be used for licensing and law enforcement purposes only and will be protected in accordance with the Freedom of Information and Protection of Privacy Act.

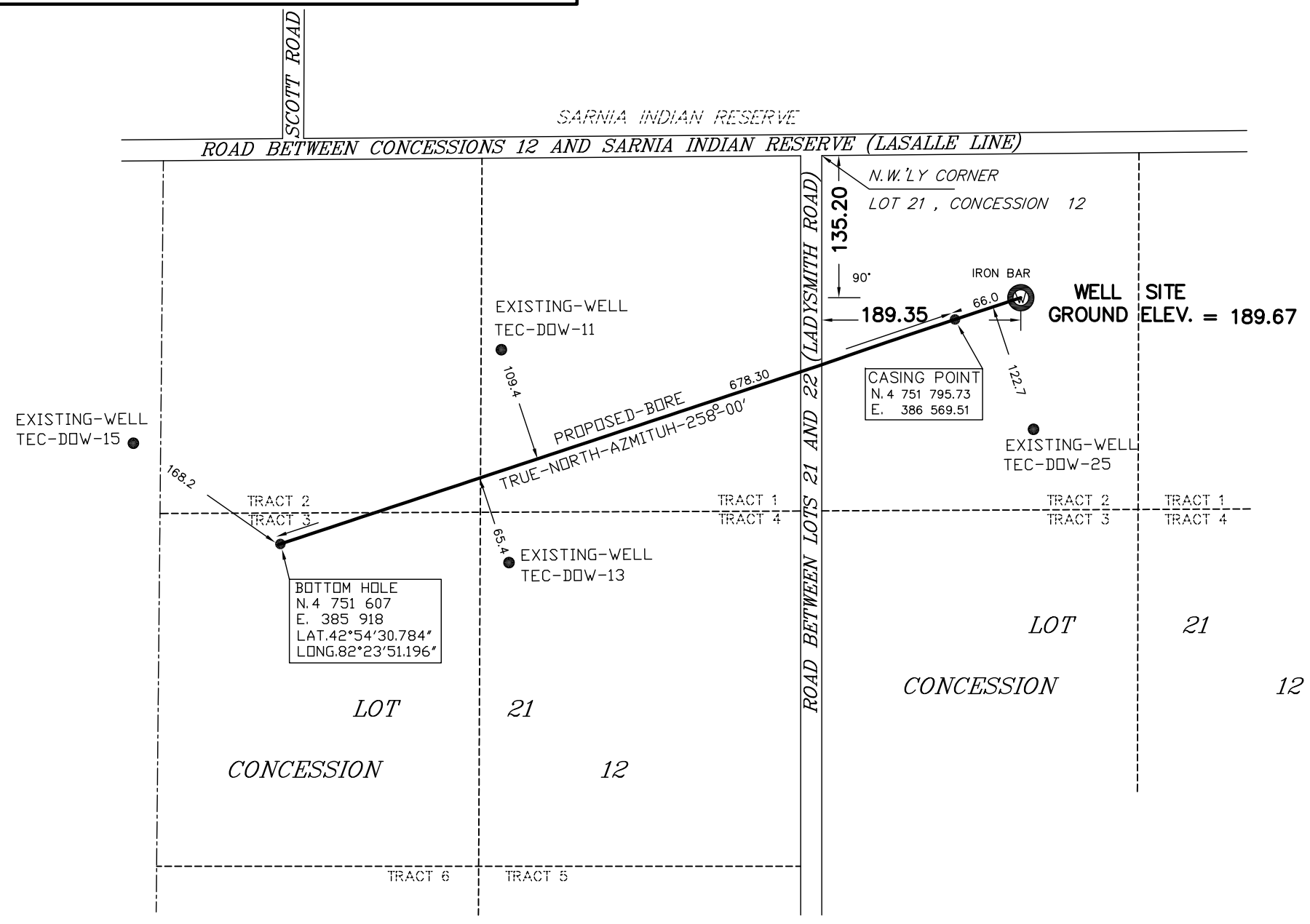
If you have questions about use of your personal information, please contact the Policy and Program Officer, Petroleum Operations Section, Ministry of Natural Resources and Forestry, 659 Exeter Road, London N6E1L3, 519-873-4638.

13. AUTHORITY

The undersigned certifies that the information provided herein is complete and accurate, the operator has the right to drill or operate a well in the above location, and he/she has authority to bind the operator.

Date (d/m/y)	21/11/17	Name	Kathy McConnell	Signature	
		Company	Enbridge Gas Distribution Inc.	Title	Manager, Reservoir Development





PLAN OF PROPOSED WELL
LOT 21
CONCESSION 12
GEOGRAPHIC TOWNSHIP OF MOORE
TOWNSHIP OF ST. CLAIR
COUNTY OF LAMBTON

SCALE 1:5000

NOTE (WELL SITE) CO-ORDINATES

LATITUDE N.42°54'37.876 LONGITUDE W.82°23'19.823"

U.T.M. N.4 751 814 E.386 633

WELL NAME

TD 28H (HORIZ. # 1) – MOORE – 2 – 21 – 12

NOTE BENCH MARK

ELEVATIONS ARE REFERRED TO GEODETIC DATUM AND REFERENCE BENCH MARK BEING
NO. 81U138 SARNIA
ELEVATION = 180.512

NOTE GEODETIC HORIZONTAL CONTROL

U.T.M. CO-ORDINATES ARE GEODETIC (DATUM NAD 83 ORIGINAL) AND REFERRED TO MONUMENTS No.S 693749 AND 693767

NOTE METRIC

DISTANCES SHOWN ON THIS PLAN ARE IN METERS AND CAN BE CONVERTED TO FEET BY DIVEDING BY 0.3048

PREPARED BY

BRISCO AND O'ROURKE

SERVING THE PETROLEUM INDUSTRY
THROUGHOUT ONTARIO
WELLS,CONSTRUCTION AND TECHNICAL SURVEYING
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FAX (519) 351-3119
PO.BOX 327 - N7M-5K4
CHATHAM , ONTARIO

PREPARED FOR

ENBRIDGE GAS DISTRIBUTION INC.

FILE NO. 17-5102	PLAN NO. ENB6850.DWG

NOV. 23 ,2017

TIMOTHY J. O'ROURKE C.S.T. A.C.E.T.

AUTHORIZED BY THE MINISTER OF NATURAL RESOURCES UNDER THE PETROLEUM RESOURCES ACT OF ONTARIO

TD 28H (HORIZ 1) MOORE 2-21-XII

DRILLING PROGRAM

TABLE OF CONTENTS

SECTION 1.0 - GENERAL DATA

Section 1.1 - Well Summary

Well Name:	TD 28H (Horiz 1) Moore 2-21-XII
Operator:	Enbridge Gas Distribution Inc.
Surface Hole Location:	Tract 2, Lot 21, Con. 12, Moore Twp., Lambton County
Surface Hole Coordinates:	N 4 751 814; E 386 633
Bottom Hole Location:	Tract 3, Lot 22, Con. 12, Moore Twp., Lambton County
Bottom Hole Coordinates:	N 4 751 607; E 385 918
Ground Elevation:	189.67 m
KB Elevation:	193.67 m
Total Depth:	733mTVD; 1400mMD
Target Formation:	Guelph
Logging Program:	CBL-GR – 219mm casing Vertilog – 219mm casing
Spud Date:	April 1, 2017
Duration:	21 days

Section 1.2 – Special Notes

1. Safety of personnel and environment is our primary concern. Section 6.1 of this program, outlines Enbridge's general safety requirements which obliges all personnel on the wellsite to follow the Occupational Health and Safety Act and Regulations (Ministry of Labour (MOL)) and the Oil, Gas & Salt Resources Act and Regulations (Ministry of Natural Resources and Forestry (MNRF)). Safety and/or environmental ("tailgate") meetings shall be conducted as per Section 6. Wellsite Supervisor shall conduct daily 'walk around' inspections of the equipment on site and record the results on the daily reports. Please refer to Section 5.2 for the procedure to be followed if a worker injury occurs.

2. The Wellsite Supervisor has authority over all activities conducted on the drilling location. The Wellsite Supervisor shall ensure that all applicable regulations and policies (MNRF, MOL, Ministry of the Environment and Climate Change (MOECC), and Enbridge) are followed and that all permits are kept on site and/or signed off as required.

3. All operations are to be to MNRF standards.

4. BOPs are to be installed, maintained and used as per MNRF requirements. Testing of the BOPs must be in accordance with Section 6.2 of this program.

5. Tower sheets must be completed daily and will include the information listed in Section 5.1 of this program. The Wellsite Supervisor will complete daily reports and forward the reports to Enbridge's office by 10am the following day.

6. The well will be drilled with fresh water or formation brine, hauled to location by an approved contractor. The fresh water will be obtained from local municipal water systems, located at Brigden, Corruna and other available water systems. The brine used will be Guelph formation brine obtained from Enbridge's existing operations.

7. The production casing will be set in the A-2 Anhydrite to allow for an effective cement job and successful pressure testing, prior to penetrating the Guelph formation

8. A minimum of two 500 barrel temporary storage tanks will be spotted on location prior to the drilling of the Detroit River formation. The tanks will be filled with fresh water / brine as reserve for the drilling of potential loss circulation zones. Potential loss circulation zones exist in the Detroit River formation (intermediate hole) and the Guelph formation (main hole).

Section 1.3 - Contact Numbers

Emergency Numbers:

Police, Fire & Ambulance:* 911

911 Address: 963 Lasalle Line, Sarnia, Ontario

* For 911 Map and Map and Directions to Nearest Hospital see attached Map at end of Section 1.3

Enbridge Gas Distribution Inc.

Rob Carlson	Reservoir Field Supervisor	Office: 519-862-6036 Fax: 519-862-1168 Cell: 519-312-4863 robert.carlson@enbridge.com
Kathy McConnell	Manager Reservoir Development	Office: 519-862-6032 Fax: 519-862-1168 Cell: 519-312-2168 kathy.mcconnell@enbridge.com
Chris Pincombe	Land Agent	Office: 519-862-6092 Fax: 519-862-1168 Cell: 519-381-1408 chris.pincombe@enbridge.com
Control Room		Office: 519-862-6012

Drilling Supervisor:

Steve Thompson	Omni Consulting Ltd. President	Cell: 519-383-5404 omniconsulting@rogers.com

Geologist:

Neil Hoey		Office: 519-472-4776 Fax: 519-472-4776 Cell: 519-649-6918 neil_hoey@hotmail.com

Rotary Rig:

Clayton Landry	Predator Drilling Inc. Rig Manager	Office: 403-346-0870 Fax: 403-346-0860 Mobile: 403-740-3765 kmecanen@kent.net

Directional Drillers:

Danny Brown	Account Manager - Weatherford	Office: 403-693-7831 Fax: 403-510-1995 daniel.brown@ca.weatherford.com
Craig Dalziel	Drilling Technologist - Weatherford	Office: 780-979-4539 Craig.dalziel@ca.weatherford.com

Cementing:

Ian Veen	Black Creek Well Service President	Office: 519-882-4732 Fax: 519-834-2466 Cell: 519-383-4645
Jeff Luckovitch	Integral Pumping Services	Office: 519-689-4692 Cell: 226-234-5362

Casing, Wellheads & ESDs:

Brian DeJaegher	Wellmaster Pipe &Supply Sales Representative	Office: 519-688-0500 Fax: 519-688-0563 bdejaegher@wellmaster.ca
Graham Shone	DNow Manager	Office: 519-336-9797 Fax: 519-336-9733 graham.shone@dnow.com
Karen Derrick	Stream-Flo Ltd. Technical Sales Rep.	Office: 832-647-0710 Fax: 519-688-0563 kderrick@streamflo.com

Drill Bits:

Brad Takenaka	Varel Rock Bits Canada Sales Manager	Office: 403-968-9369 Cell: 403-303-2533 btakenaka@varelintl.com
Mike Kellar	Trendon Bit Service Ltd. Director, Sales	Office: 403-990-1299 mkellar@trendoninc.com

Wireline Services:

Gord Mackenzie	Baker Atlas Station Manager	Office: 519-332-8030 Fax: 519-332-4714 Cell: 519-339-6783 gord.mackenzie@bakerhughes.com
Dave Tipping	Weatherford Canada – Wireline & Logging Services Station Manager	Office: 519-683-2010 Fax: 519-683-2577 Cell: 519-436-3541 dave.tipping@canada.weatherford.com

Water Hauling:

Keith McKeegan	President McKeegan Trucking Limited	Office: 519-864-1037 Fax: 519-864-1036 Cell: 519-490-4042
Denis Marcus	President Harold Marcus Limited	Office: 519-695-3735 Fax: 519-695-2249 Cell: 519-380-5238 dmarcus@haroldmarcus.com

Rental Equipment:

Dale Holland	Wheatley Wireline Services Ltd.	Office: 519-825-3680 Fax: 519-825-9348 Cell: 519-322-8015
Keith Davis	Ecan Energy Services Inc.	Office: 519-627-3824 Fax: 519-627-5306 Cell: 519-437-7038 kmecanen@kent.net

Vern Anger	Canfish Services Inc. Fishing Supervisor	Office: 780-955-2600 Cell: 403-845-0012
Orval Beam	Orval L. Beam Limited Operations Manager Tank Rentals	Office: 519-436-0164 Fax: 519-436-0164 Cell: 519-436-4801

Welders:

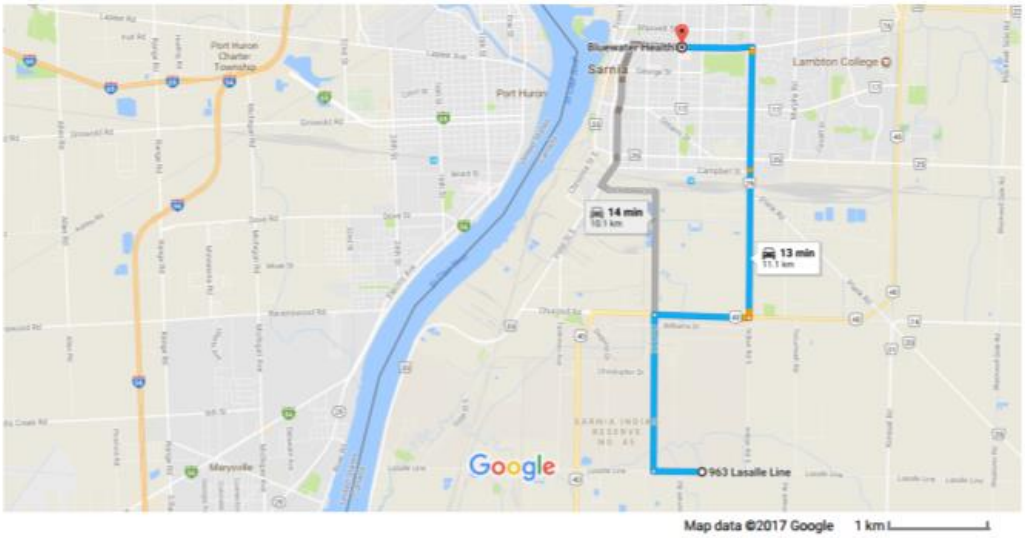
John Dawson	St. Clair Mechanical President	Office: 519-864-0927 Fax: 519-864-0801 Cell: 519-330-9672

Government & Other Agencies

MNRF	Petroleum Resources Centre	Office: 519-873-4634 Fax: 519-873-4645 ogsr.mnrf.gov.on.ca
MOECC	Spill Reporting	1-800-268-6060
MOL	Health & Safety	1-800-265-1676
Oil, Gas & Salt Resources Library		Office: 519-686-2772 Fax: 519-686-7225

911 Map & Directions to Nearest Hospital:

Google Maps **963 Lasalle Line to Bluewater Health, Sarnia, ON** Drive 11.1 km, 13 min



963 Lasalle Line
St. Clair Township, ON N0N

1. Head west on Lasalle Line toward Ladysmith Rd — 850 m
2. Turn right onto Scott Rd — 2.7 km
3. Turn right onto Churchill Rd/ON-40 N — 1.6 km
4. Use the left 2 lanes to turn left at the 1st cross street onto Indian Rd S/County Rd 29 (signs for Indian Road N) — 4.7 km
5. Turn left onto London Rd/Route 16 — 1.2 km
   Destination will be on the right

Bluewater Health
Sarnia, ON N7T 4W8

These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.

Section 2.0 - Geological Prognosis

County: Lambton Township: Moore
Concession: XII Lot: 21 Tract: 2

Elevation:
189.3m **Estimated**

Formation	Top	Elevation	Thickness	Gas	Oil	Water	Pressure
K.B.	0.0	193.3	4.0				
Drift	4.0	189.3	36.0			37m Fresh	
Kettle Point	40.0	153.3	31.5				
Hamilton	71.5	121.8	87.0				
Dundee	158.5	34.8	36.6				
Lucas	195.1	-1.8	92.0			197m Sulphur	
Amherstburg	287.1	-93.8	33.0				
Bois Blanc	320.1	-126.8	26.5				
Bass Islands	346.6	-153.3	64.0				
G-Shale	410.6	-217.3	7.0				
F-Shale	417.6	-224.3	24.0				
F-Salt	441.6	-248.3	90.0				
E-Carbonate	531.6	-338.3	25.0				
D-Salt	556.6	-363.3	8.7				
C-Shale	565.3	-372.0	20.0				
B-Salt	585.3	-392.0	60.8				
A-2 Carbonate	646.1	-452.8	25.2				
A-2 Shale	671.3	-478.0	6.0				
A-2 Anhydrite	677.3	-484.0	6.8				
Guelph (Reef)	684.1	-490.8	100.0+	**XXX**			**4200 Kpa+**

*****Note: Prognosis with TVD tops.**

Note: used "TEC DOW 7" Lic. T007292 to build prognosis

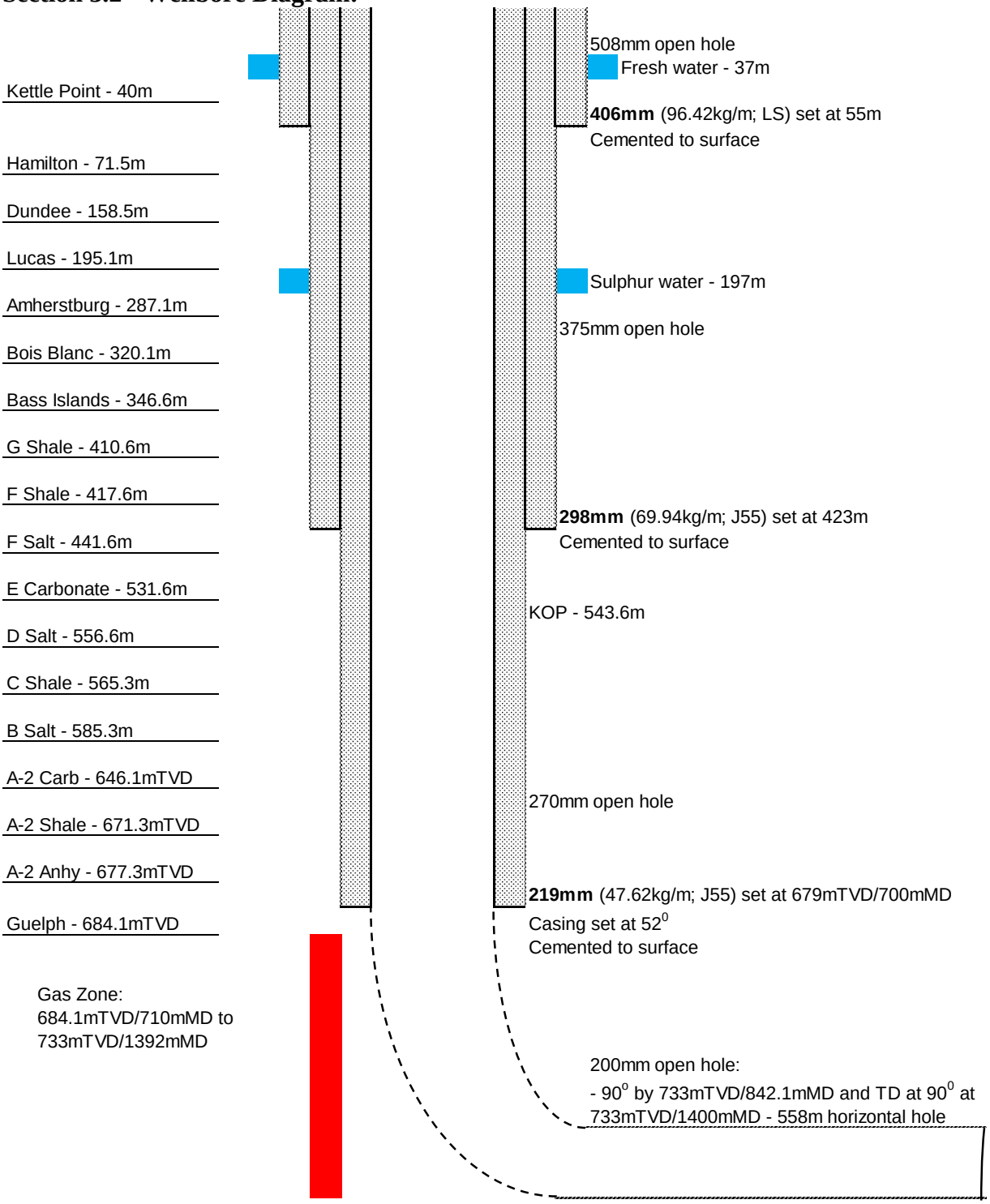
Section 3.0 - Casing and Cementing Summary

Section 3.1 - Summary

Hole Size (mm)	Casing Size (mm)	Casing Grade	Casing Weight (kg/m)	Setting Depth (mKB)	How Set
508	406	LS	96.42	55	Cemented to surface with 100% excess Class G 0-1-0 cement + 2 – 3% $CaCl_2$
375	298	J-55	69.94	423	Cemented to surface with Class 'G' 0-1-8% plus 1 to 3% $CaCl_2$, followed by Class 'G' neat cement plus 1 to 3% $CaCl_2$. Cement volumes will be calculated with 50% excess- gel cement and 30% excess – neat cement. Depending upon hole conditions, consideration may be given to running thixotropic cement plus additional loss circulation materials, across porous zone(s).
270	219	J-55	47.62	679m TVD / 700m MD	Cemented to surface with Class 'G' 0-1-0% plus 1 to 2% $CaCl_2$ plus 10% NaCl. Cement volumes will be calculated with a 50% excess on the open hole section and 30% excess on the cased hole section.

Main Hole: 200mm open hole will be drilled from 700mMD (679mTVD) at 52^0 and will reach 90^0 at 842mMD (733mTVD) and will be drilled horizontally for approximately 558m to a TD of 1400mMD (733mTVD) at 90^0.

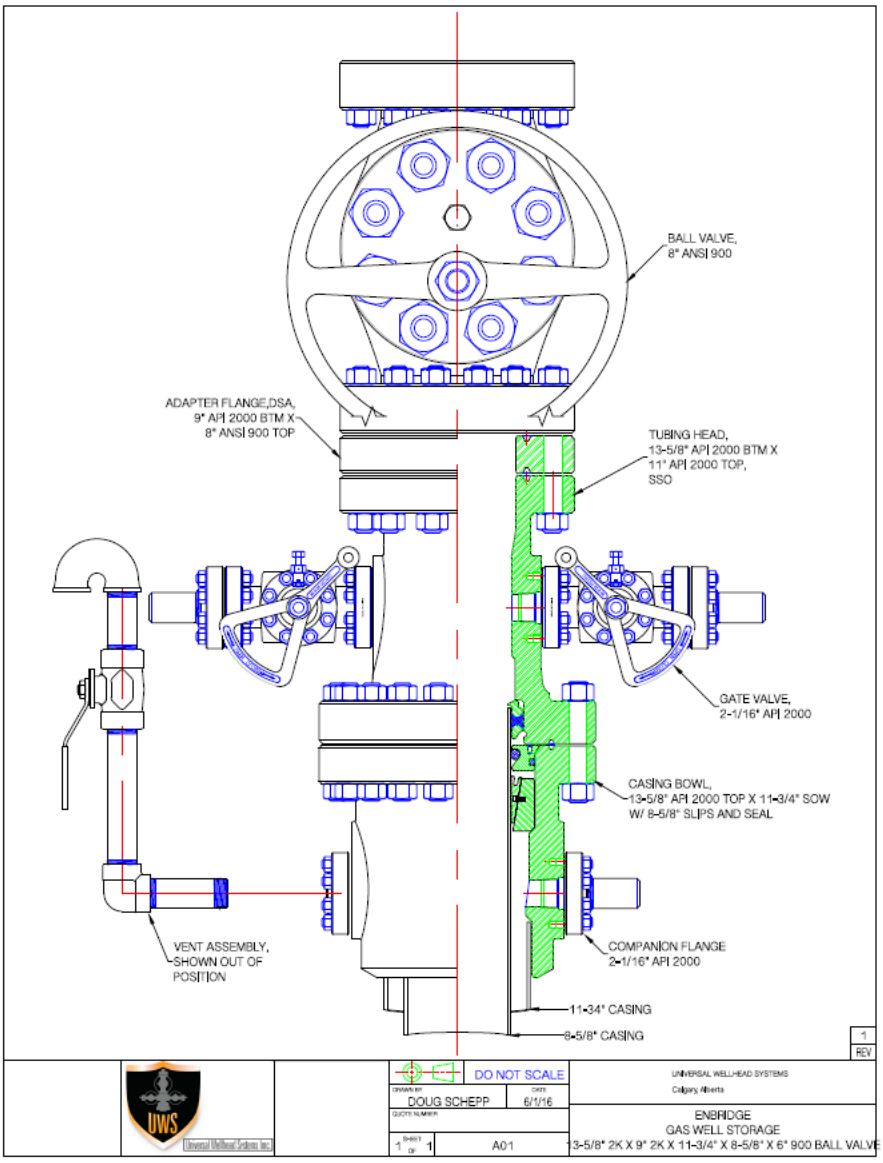
Section 3.2 - Wellbore Diagram:



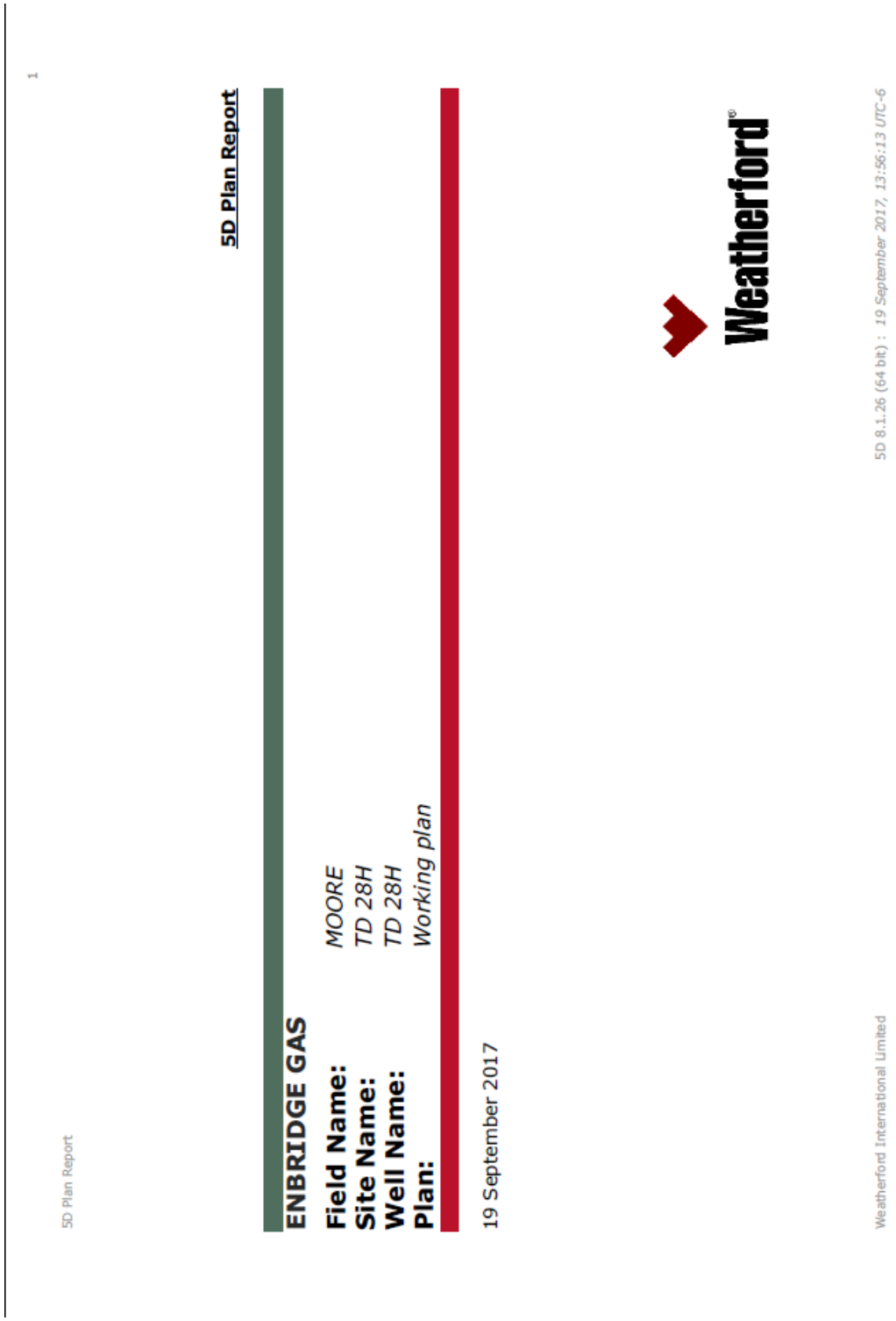
Section 3.3 - Wellhead Summary

Universal Wellhead Systems Inc. 13.8 MPa Wellhead:

406mm x 425.5mm slip on casing bowl (for BOP installation)
298mm x 340mm slip on casing bowl
340mm x 228.6mm spool c/w 2 gate valves on side outlets
203.2mm ANSI 900 master valve (full port)



Section 3.4 - Directional Planning Report



2

5D Plan Report

TD 28H

Company Name: ENBRIDGE GAS

Field Name: MOORE

Map Units: m
Vertical Reference Datum (VRD): Mean Sea Level
Projected Coordinate System: NAD83 / UTM zone 17N
Comment:

Site: TD 28H

Units: m
North Reference: True
Convergence Angle: -0.95
Position:
Northing: 4751814.00 m
Easting: 386633.00 m
Latitude: 42.910521244
Longitude: -82.388839825
Elevation above MSL: 193.00 m
Comment:

Slot: TD 28H

Position (Relative to Site Centre)
+N/-S: 0.00 m
+E/-W: 0.00 m
Slot TVD Reference: Ground Elevation
Elevation above MSL: 193.00 m
Comment:
Northing: 4751814.00 m
Easting: 386633.00 m
Latitude: 42.910521244
Longitude: -82.388839825

Well: TD 28H

Type: Main well
File Number:
Comment:
Closure Distance: 744.361 m
UWI:
Plan: Working Plan
Vertical Section: Position of Origin (Relative to Slot centre)
+N/-S: 0.00 m
+E/-W: 0.00 m
Closure Azimuth: 252.91°
Az: 252.91°
Magnetic Parameters:
Model: bggm2015
Field Strength: 54039.8nT
Declination: -8.38°
Dip: 69.62°
Date: 15/Sep/2015

Drill floor: Plan: Working Plan
Rig Height (Drill Floor): 5.00 m
Elevation above MSL: 198.00 m
Inclination: 0.00°
Azimuth: 0.00°

Plan Archive:

Plan Folder	Date	Comment	Plans		
			Plan	Date	Comment
P1	19/Sep/2017		P1:V1	19/Sep/2017	

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5D Plan Report

Wellpath created using minimum curvature.

Tie Point:
MD: 0.00m **Inclination:** 0.00° **Azimuth:** 0.00° **TVD:** 0.00m **North Offset:** 0.00m **East Offset:** 0.00m

Salient Points: (Relative to Slot centre)(TVD relative to Drill Floor)

Comment	MD (m)	Inc (°)	Az (°)	TVD (m)	SS Elevation (m)	N.Offset (m)	E.Offset (m)	Northing (m)	Easting (m)	VS (m)	DLS (°/30m)	T.Face (°)	B.Rate (°/30m)	T.Rate (°/30m)
	0.00	0.00	0.00	0.00	198.00	0.00	0.00	4751814.00	386633.00	-0.00	0.00	0.00	0.00	0.00
KOP	543.55	0.00	0.00	543.55	-345.55	0.00	0.00	4751814.00	386633.00	-0.00	0.00	0.00	0.00	0.00
219 mm CASING	699.55	52.00	253.00	679.00	-481.00	-19.31	-63.18	4751795.73	386569.51	66.06	10.00	253.00	10.00	0.00
START 2ND BUILD	728.07	52.00	253.00	696.56	-498.56	-25.89	-84.67	4751789.52	386547.92	88.54	0.00	0.00	0.00	0.00
HEEL	842.10	90.00	252.00	733.01	-535.01	-57.82	-185.59	4751759.25	386446.48	194.39	10.00	358.38	10.00	-0.26
	852.02	90.00	252.99	733.01	-535.01	-60.80	-195.05	4751756.42	386436.97	204.31	3.00	89.95	0.00	3.00
TD 28H TD	1392.08	90.00	252.99	733.00	-535.00	-218.77	-711.49	4751607.00	385918.00	744.36	0.00	0.00	0.00	0.00

Interpolated Points: (Relative to Slot centre)(TVD relative to Drill Floor)

Comment	MD (m)	Inc (°)	Az (°)	TVD (m)	SS Elevation (m)	N.Offset (m)	E.Offset (m)	Northing (m)	Easting (m)	VS (m)	DLS (°/30m)	T.Face (°)	B.Rate (°/30m)	T.Rate (°/30m)
	0.00	0.00	0.00	0.00	198.00	0.00	0.00	4751814.00	386633.00	-0.00	0.00	0.00	0.00	0.00
	10.00	0.00	0.00	10.00	188.00	0.00	0.00	4751814.00	386633.00	-0.00	0.00	0.00	0.00	0.00
	20.00	0.00	0.00	20.00	178.00	0.00	0.00	4751814.00	386633.00	-0.00	0.00	0.00	0.00	0.00
	30.00	0.00	0.00	30.00	168.00	0.00	0.00	4751814.00	386633.00	-0.00	0.00	0.00	0.00	0.00
	40.00	0.00	0.00	40.00	158.00	0.00	0.00	4751814.00	386633.00	-0.00	0.00	0.00	0.00	0.00
	50.00	0.00	0.00	50.00	148.00	0.00	0.00	4751814.00	386633.00	-0.00	0.00	0.00	0.00	0.00
	60.00	0.00	0.00	60.00	138.00	0.00	0.00	4751814.00	386633.00	-0.00	0.00	0.00	0.00	0.00
	70.00	0.00	0.00	70.00	128.00	0.00	0.00	4751814.00	386633.00	-0.00	0.00	0.00	0.00	0.00
	80.00	0.00	0.00	80.00	118.00	0.00	0.00	4751814.00	386633.00	-0.00	0.00	0.00	0.00	0.00
	90.00	0.00	0.00	90.00	108.00	0.00	0.00	4751814.00	386633.00	-0.00	0.00	0.00	0.00	0.00
	100.00	0.00	0.00	100.00	98.00	0.00	0.00	4751814.00	386633.00	-0.00	0.00	0.00	0.00	0.00
	110.00	0.00	0.00	110.00	88.00	0.00	0.00	4751814.00	386633.00	-0.00	0.00	0.00	0.00	0.00
	120.00	0.00	0.00	120.00	78.00	0.00	0.00	4751814.00	386633.00	-0.00	0.00	0.00	0.00	0.00
	130.00	0.00	0.00	130.00	68.00	0.00	0.00	4751814.00	386633.00	-0.00	0.00	0.00	0.00	0.00
	140.00	0.00	0.00	140.00	58.00	0.00	0.00	4751814.00	386633.00	-0.00	0.00	0.00	0.00	0.00
	150.00	0.00	0.00	150.00	48.00	0.00	0.00	4751814.00	386633.00	-0.00	0.00	0.00	0.00	0.00
	160.00	0.00	0.00	160.00	38.00	0.00	0.00	4751814.00	386633.00	-0.00	0.00	0.00	0.00	0.00
	170.00	0.00	0.00	170.00	28.00	0.00	0.00	4751814.00	386633.00	-0.00	0.00	0.00	0.00	0.00
	180.00	0.00	0.00	180.00	18.00	0.00	0.00	4751814.00	386633.00	-0.00	0.00	0.00	0.00	0.00
	190.00	0.00	0.00	190.00	8.00	0.00	0.00	4751814.00	386633.00	-0.00	0.00	0.00	0.00	0.00
	200.00	0.00	0.00	200.00	-2.00	0.00	0.00	4751814.00	386633.00	-0.00	0.00	0.00	0.00	0.00
	210.00	0.00	0.00	210.00	-12.00	0.00	0.00	4751814.00	386633.00	-0.00	0.00	0.00	0.00	0.00
	220.00	0.00	0.00	220.00	-22.00	0.00	0.00	4751814.00	386633.00	-0.00	0.00	0.00	0.00	0.00
	230.00	0.00	0.00	230.00	-32.00	0.00	0.00	4751814.00	386633.00	-0.00	0.00	0.00	0.00	0.00

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5D Plan Report

Interpolated Points: (Relative to Slot centre)(TVD relative to Drill Floor)																
Comment	MD (m)	Inc (°)	Az (°)	TVD (m)	SS Elevation (m)	N.Offset (m)	E.Offset (m)	Northing (m)	Easting (m)	VS (m)	DLS (°/30m)	T.Face (°)	B.Rate (°/30m)	T.Rate (°/30m)
	240.00	0.00	0.00	240.00	-42.00	0.00	0.00	475814.00	386633.00	-0.00	0.00	0.00	0.00	0.00
	250.00	0.00	0.00	250.00	-52.00	0.00	0.00	475814.00	386633.00	-0.00	0.00	0.00	0.00	0.00
	260.00	0.00	0.00	260.00	-62.00	0.00	0.00	475814.00	386633.00	-0.00	0.00	0.00	0.00	0.00
	270.00	0.00	0.00	270.00	-72.00	0.00	0.00	475814.00	386633.00	-0.00	0.00	0.00	0.00	0.00
	280.00	0.00	0.00	280.00	-82.00	0.00	0.00	475814.00	386633.00	-0.00	0.00	0.00	0.00	0.00
	290.00	0.00	0.00	290.00	-92.00	0.00	0.00	475814.00	386633.00	-0.00	0.00	0.00	0.00	0.00
	300.00	0.00	0.00	300.00	-102.00	0.00	0.00	475814.00	386633.00	-0.00	0.00	0.00	0.00	0.00
	310.00	0.00	0.00	310.00	-112.00	0.00	0.00	475814.00	386633.00	-0.00	0.00	0.00	0.00	0.00
	320.00	0.00	0.00	320.00	-122.00	0.00	0.00	475814.00	386633.00	-0.00	0.00	0.00	0.00	0.00
	330.00	0.00	0.00	330.00	-132.00	0.00	0.00	475814.00	386633.00	-0.00	0.00	0.00	0.00	0.00
	340.00	0.00	0.00	340.00	-142.00	0.00	0.00	475814.00	386633.00	-0.00	0.00	0.00	0.00	0.00
	350.00	0.00	0.00	350.00	-152.00	0.00	0.00	475814.00	386633.00	-0.00	0.00	0.00	0.00	0.00
	360.00	0.00	0.00	360.00	-162.00	0.00	0.00	475814.00	386633.00	-0.00	0.00	0.00	0.00	0.00
	370.00	0.00	0.00	370.00	-172.00	0.00	0.00	475814.00	386633.00	-0.00	0.00	0.00	0.00	0.00
	380.00	0.00	0.00	380.00	-182.00	0.00	0.00	475814.00	386633.00	-0.00	0.00	0.00	0.00	0.00
	390.00	0.00	0.00	390.00	-192.00	0.00	0.00	475814.00	386633.00	-0.00	0.00	0.00	0.00	0.00
	400.00	0.00	0.00	400.00	-202.00	0.00	0.00	475814.00	386633.00	-0.00	0.00	0.00	0.00	0.00
	410.00	0.00	0.00	410.00	-212.00	0.00	0.00	475814.00	386633.00	-0.00	0.00	0.00	0.00	0.00
	420.00	0.00	0.00	420.00	-222.00	0.00	0.00	475814.00	386633.00	-0.00	0.00	0.00	0.00	0.00
	430.00	0.00	0.00	430.00	-232.00	0.00	0.00	475814.00	386633.00	-0.00	0.00	0.00	0.00	0.00
	440.00	0.00	0.00	440.00	-242.00	0.00	0.00	475814.00	386633.00	-0.00	0.00	0.00	0.00	0.00
	450.00	0.00	0.00	450.00	-252.00	0.00	0.00	475814.00	386633.00	-0.00	0.00	0.00	0.00	0.00
	460.00	0.00	0.00	460.00	-262.00	0.00	0.00	475814.00	386633.00	-0.00	0.00	0.00	0.00	0.00
	470.00	0.00	0.00	470.00	-272.00	0.00	0.00	475814.00	386633.00	-0.00	0.00	0.00	0.00	0.00
	480.00	0.00	0.00	480.00	-282.00	0.00	0.00	475814.00	386633.00	-0.00	0.00	0.00	0.00	0.00
	490.00	0.00	0.00	490.00	-292.00	0.00	0.00	475814.00	386633.00	-0.00	0.00	0.00	0.00	0.00
	500.00	0.00	0.00	500.00	-302.00	0.00	0.00	475814.00	386633.00	-0.00	0.00	0.00	0.00	0.00
	510.00	0.00	0.00	510.00	-312.00	0.00	0.00	475814.00	386633.00	-0.00	0.00	0.00	0.00	0.00
	520.00	0.00	0.00	520.00	-322.00	0.00	0.00	475814.00	386633.00	-0.00	0.00	0.00	0.00	0.00
	530.00	0.00	0.00	530.00	-332.00	0.00	0.00	475814.00	386633.00	-0.00	0.00	0.00	0.00	0.00
	540.00	0.00	0.00	540.00	-342.00	0.00	0.00	475814.00	386633.00	-0.00	0.00	0.00	0.00	0.00
KOP	543.55	0.00	0.00	543.55	-345.55	0.00	0.00	475814.00	386633.00	-0.00	0.00	0.00	0.00	0.00
	550.00	2.15	253.00	550.00	-352.00	-0.04	-0.12	475813.97	386632.88	0.12	10.00	253.00	10.00	0.00
	560.00	5.48	253.00	559.97	-361.97	-0.23	-0.75	475813.78	386632.24	0.79	10.00	0.00	10.00	0.00
	570.00	8.82	253.00	569.90	-371.90	-0.59	-1.94	475813.44	386631.05	2.03	10.00	0.00	10.00	0.00
	580.00	12.15	253.00	579.73	-381.73	-1.13	-3.68	475812.94	386629.30	3.85	10.00	0.00	10.00	-0.00
	590.00	15.48	253.00	589.44	-391.44	-1.82	-5.97	475812.27	386627.01	6.24	10.00	0.00	10.00	0.00
	600.00	18.82	253.00	598.99	-400.99	-2.69	-8.79	475811.46	386624.17	9.19	10.00	0.00	10.00	-0.00
	610.00	22.15	253.00	608.36	-410.36	-3.71	-12.13	475810.49	386620.81	12.69	10.00	0.00	10.00	0.00
	620.00	25.48	253.00	617.50	-419.50	-4.89	-15.99	475809.38	386616.93	16.72	10.00	0.00	10.00	-0.00
	630.00	28.82	253.00	626.40	-428.40	-6.22	-20.36	475808.11	386612.54	21.29	10.00	0.00	10.00	-0.00

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5D Plan Report

Interpolated Points: (Relative to Slot centre)(TVD relative to Drill Floor)																
Comment	MD (m)	Inc (°)	Az (°)	TVD (m)	SS Elevation (m)	N.Offset (m)	E.Offset (m)	Northing (m)	Easting (m)	VS (m)	DLS (°/30m)	T.Face (°)	B.Rate (°/30m)	T.Rate (°/30m)
	1000.00	90.00	252.99	733.01	-535.01	-104.09	-336.56	4751715.48	386294.77	352.28	0.00	0.00	0.00	0.00
	1010.00	90.00	252.99	733.01	-535.01	-107.01	-346.12	4751712.71	386285.16	362.28	0.00	0.00	0.00	0.00
	1020.00	90.00	252.99	733.01	-535.01	-109.94	-355.68	4751709.95	386275.55	372.28	0.00	0.00	0.00	0.00
	1030.00	90.00	252.99	733.01	-535.01	-112.86	-365.24	4751707.18	386265.94	382.28	0.00	0.00	0.00	0.00
	1040.00	90.00	252.99	733.00	-535.00	-115.79	-374.81	4751704.41	386256.33	392.28	0.00	0.00	0.00	0.00
	1050.00	90.00	252.99	733.00	-535.00	-118.71	-384.37	4751701.65	386246.72	402.28	0.00	0.00	0.00	0.00
	1060.00	90.00	252.99	733.00	-535.00	-121.64	-393.93	4751698.88	386237.11	412.28	0.00	0.00	0.00	0.00
	1070.00	90.00	252.99	733.00	-535.00	-124.56	-403.49	4751696.11	386227.51	422.28	0.00	0.00	0.00	0.00
	1080.00	90.00	252.99	733.00	-535.00	-127.49	-413.06	4751693.35	386217.90	432.28	0.00	0.00	0.00	0.00
	1090.00	90.00	252.99	733.00	-535.00	-130.41	-422.62	4751690.58	386208.29	442.28	0.00	0.00	0.00	0.00
	1100.00	90.00	252.99	733.00	-535.00	-133.34	-432.18	4751687.81	386198.68	452.28	0.00	0.00	0.00	0.00
	1110.00	90.00	252.99	733.00	-535.00	-136.26	-441.74	4751685.05	386189.07	462.28	0.00	0.00	0.00	0.00
	1120.00	90.00	252.99	733.00	-535.00	-139.19	-451.31	4751682.28	386179.46	472.28	0.00	0.00	0.00	0.00
	1130.00	90.00	252.99	733.00	-535.00	-142.11	-460.87	4751679.51	386169.85	482.28	0.00	0.00	0.00	0.00
	1140.00	90.00	252.99	733.00	-535.00	-145.04	-470.43	4751676.75	386160.24	492.28	0.00	0.00	0.00	0.00
	1150.00	90.00	252.99	733.00	-535.00	-147.96	-479.99	4751673.98	386150.63	502.28	0.00	0.00	0.00	0.00
	1160.00	90.00	252.99	733.00	-535.00	-150.89	-489.56	4751671.21	386141.02	512.28	0.00	0.00	0.00	0.00
	1170.00	90.00	252.99	733.00	-535.00	-153.81	-499.12	4751668.44	386131.41	522.28	0.00	0.00	0.00	0.00
	1180.00	90.00	252.99	733.00	-535.00	-156.74	-508.68	4751665.68	386121.80	532.28	0.00	0.00	0.00	0.00
	1190.00	90.00	252.99	733.00	-535.00	-159.66	-518.25	4751662.91	386112.19	542.28	0.00	0.00	0.00	0.00
	1200.00	90.00	252.99	733.00	-535.00	-162.59	-527.81	4751660.14	386102.58	552.28	0.00	0.00	0.00	0.00
	1210.00	90.00	252.99	733.00	-535.00	-165.51	-537.37	4751657.38	386092.97	562.28	0.00	0.00	0.00	0.00
	1220.00	90.00	252.99	733.00	-535.00	-168.44	-546.93	4751654.61	386083.36	572.28	0.00	0.00	0.00	0.00
	1230.00	90.00	252.99	733.00	-535.00	-171.36	-556.50	4751651.84	386073.75	582.28	0.00	0.00	0.00	0.00
	1240.00	90.00	252.99	733.00	-535.00	-174.29	-566.06	4751649.08	386064.14	592.28	0.00	0.00	0.00	0.00
	1250.00	90.00	252.99	733.00	-535.00	-177.21	-575.62	4751646.31	386054.53	602.28	0.00	0.00	0.00	0.00
	1260.00	90.00	252.99	733.00	-535.00	-180.14	-585.18	4751643.54	386044.92	612.28	0.00	0.00	0.00	0.00
	1270.00	90.00	252.99	733.00	-535.00	-183.06	-594.75	4751640.78	386035.31	622.28	0.00	0.00	0.00	0.00
	1280.00	90.00	252.99	733.00	-535.00	-185.99	-604.31	4751638.01	386025.70	632.28	0.00	0.00	0.00	0.00
	1290.00	90.00	252.99	733.00	-535.00	-188.91	-613.87	4751635.24	386016.09	642.28	0.00	0.00	0.00	0.00
	1300.00	90.00	252.99	733.00	-535.00	-191.84	-623.43	4751632.48	386006.48	652.28	0.00	0.00	0.00	0.00
	1310.00	90.00	252.99	733.00	-535.00	-194.76	-633.00	4751629.71	385996.87	662.28	0.00	0.00	0.00	0.00
	1320.00	90.00	252.99	733.00	-535.00	-197.69	-642.56	4751626.94	385987.26	672.28	0.00	0.00	0.00	0.00
	1330.00	90.00	252.99	733.00	-535.00	-200.62	-652.12	4751624.18	385977.66	682.28	0.00	0.00	0.00	0.00
	1340.00	90.00	252.99	733.00	-535.00	-203.54	-661.68	4751621.41	385968.05	692.28	0.00	0.00	0.00	0.00
	1350.00	90.00	252.99	733.00	-535.00	-206.47	-671.25	4751618.64	385958.44	702.28	0.00	0.00	0.00	0.00
	1360.00	90.00	252.99	733.00	-535.00	-209.39	-680.81	4751615.88	385948.83	712.28	0.00	0.00	0.00	0.00
	1370.00	90.00	252.99	733.00	-535.00	-212.32	-690.37	4751613.11	385939.22	722.28	0.00	0.00	0.00	0.00
	1380.00	90.00	252.99	733.00	-535.00	-215.24	-699.94	4751610.34	385929.61	732.28	0.00	0.00	0.00	0.00
	1390.00	90.00	252.99	733.00	-535.00	-218.17	-709.50	4751607.58	385920.00	742.28	0.00	0.00	0.00	0.00
TD 28H TD	1392.08	90.00	252.99	733.00	-535.00	-218.77	-711.49	4751607.00	385918.00	744.36	0.00	0.00	0.00	0.00

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SECTION 4.0 - DRILLING PROCEDURES

Section 4.1 - Pre Spud

1. Fresh Water Well Samples

   Obtain samples from all fresh water wells located within a minimum 750 metre radius of the proposed well. Have routine water analysis done on all water samples by an independent laboratory in Sarnia. Ensure that copies of these reports are placed in the well files in Enbridge's office

2. Site Preparation

   Prepare drilling location as follows:

   a. Locate all drainage tiles crossing lease area
   b. Strip and properly stock pile all soil from the lease
   c. Cut, block and divert drainage tiles as required
   d. Construct adequate berms around lease and access road as required

3. Government Notification of Spud

   48 hours prior to spud, notify the Ministry of Natural Resources and Forestry – Petroleum Operations Section by fax @ (519) 873 – 4645 of the date of commencement of drilling operations

4. Signs

   Install rig signs on access road to lease.

5. Safety Meeting

   Conduct a pre-spud safety meeting for all crews. Rig Manager and all crewmembers must be present. A similar meeting shall be conducted with the remaining crew(s) as they come on duty. Additional safety meetings shall be conducted at the Wellsite Supervisor's discretion.

Section 4.2 - Surface Hole & Surface Casing

1. Drilling Method

   Drill a 508mm hole using water based bentonite gel/mud, 15 metres into the Kettle Point formation, to an approximate depth of 55m. Ensure that drill cutting samples are taken when bedrock is encountered and then every 3 metres to casing depth and placed in the sample bags provided by the Ministry of Natural Resources and Forestry. The sample bags must be labeled with the well name,

Township, Lot, Concession and Enbridge's name. Record on daily drilling reports any influx of fluids and/or hydrocarbons, static levels, pressures and any unusual hole conditions.

2. Casing Installation

   Depending upon hole conditions encountered, the 406mm casing will be run in the following manner:

   - Texas Shoe on bottom of first joint
   - Centralizers on the top and bottom of the first joint and at the bedrock contact point
   - 406mm casing to surface

3. Cementing Procedures

   Move in and rig up Cementers. Ensure pressure recorder is rigged in and serviceable. Pressure charts will be attached to the job ticket. Conduct a pre-job safety meeting to confirm volumes and procedures. Establish circulation using pump truck. The casing and the hole will be circulated with fresh water for a minimum of 15 minutes to clean the borehole and to fill the casing and hole prior to cementing. Pressure test surface equipment to 14 MPa. Ensure that preflush and mix water are from a clean source and that the water truck are also clean. Pump preflush of 2.0m^3 of fresh water, with the addition of loss circulation material if necessary. Ensure that a minimum of 4 cement samples are taken and represent the cement at the beginning, middle and end of the cement job. Mix and pump sufficient Class 'G' 0-1-0% cement plus 2 to 3% $CaCl_2$ with a density of 1901 kg/m^3 to cement the casing to surface with 100% excess. Displace cement with fresh water – under displace cement such that the bottom joint of 406mm casing is full of cement. Shut-in cementing valve at surface and set casing on bottom. Wait on cement a minimum of 24 hours before installing the BOPs.

4. Arrange to have surface hole cuttings solidified and then disposed in an approved manner.

Section 4.3 - Intermediate Hole & Intermediate Casing

1. BOP Installation and Pressure Testing

   Install 406mm x 425.5mm slip on weld on casing bowl. Install Class A (Rotary) BOPs as per MNRF requirements. After BOPs are installed and the cement samples indicate that the cement is competent, the rig will proceed to pressure test the BOPs, casing and shoe. Pressure test casing and each component of the BOPs as per Section 6.2. After successfully pressure testing the BOPs and casing, drill out cement and 0.5m of new formation and conduct a PIT, with the hole full of fresh water, using a bottom hole pressure equivalent to 18 kPa/m.

2. Drilling Method

Drill a 375mm hole with fresh water, 5m ± into the F Shale formation, to an approximate depth of 423m. Notify Geologist 12 hours in advance of reaching intermediate casing point, so that they can be on site to determine the proper casing setting depth. When casing setting depth has been determined, circulate the hole clean and run a deviation survey. Perform a flow check prior to tripping and strap out of the hole. Fast tripping of the drill string is to be avoided in order to eliminate high annular velocities, pressure surges and swabbing. Keeping hole full of fluid, trip out of hole with bottom hole assembly, drill collars and drill pipe.

The potential for loss circulation exists while drilling through the Detroit River formations (Lucas and Amherstburg formations). If loss circulation is encountered use the loss circulation contingency program located in Section 4.6. Note all lost circulation intervals and monitor and record fluid loss volumes. If fluid must be hauled to disposal, keep solid content to a minimum to reduce costs.

Ensure that drill cutting samples are taken every 3 metres and placed in the sample bags provided by the Ministry of Natural Resources and Forestry. Surveys are to be taken every 100 metres. Deviation shall not exceed 1 degree per 100 metres and shall not exceed 2 degrees at any point. Record on daily tower sheets any influx of fluids (water and/or hydrocarbons), loss circulation (rate and depth) and/or any unusual hole conditions.

3. Casing Installation

Ensure that the threads are protected while hoisting casing to the floor. Drift all casing prior to running the casing in the well and apply proper API make-up torque to each connection.

Depending upon hole conditions encountered, the 298mm casing will be run in the following manner:

- Guide shoe
- 298mm joint of casing
- 298mm Float Insert or Float Collar
- Tack weld guide shoe, float collar and bottom 2 joints and use API modified pipe dope on all connections
- Centralizers will be installed one metre above the guide shoe, over the bottom of the first 2 collars and every 5 joints to surface
- 298mm casing to surface

4. Cementing Procedures

Move in and rig up Cementers. Ensure pressure recorder is rigged in and serviceable. Pressure charts will be attached to the job ticket. Conduct a pre-job safety meeting to confirm volumes and

procedures. Establish circulation using pump truck. The casing and the hole will be circulated with fresh water for a minimum of 15 minutes to clean the borehole and to fill the casing and hole prior to cementing. Pressure test surface equipment to 14MPa for 10 minutes. Preflush and mix water must be obtained from a clean source and the water trucks must be uncontaminated. Pump 3.0m^3 citric preflush with a 1.0m^3 fresh water spacer, with the addition of loss circulation material if necessary. Ensure that a minimum of 4 cement samples is taken and represent the cement at the beginning, middle and end of the cement job. Mix and pump sufficient 0-1-8% Class 'G' plus 1 to 3% $CaCl_2$ (50% excess) followed by 0-1-0% Class 'G' cement plus 1 to 3% $CaCl_2$ (30% excess) to cement casing to surface. Depending upon the severity of the loss circulation zones, thixotropic cement with additional loss circulation materials may be used to cover the loss zone. If there are no cement returns to surface, a feed rate will be established and the annulus will be grouted to surface. Drop wiper plug and displace cement and bump plug to 3.5 Mpa over final pumping pressure – do not exceed 60% of internal yield pressure of casing. Once plug is bumped, bleed off casing pressure, close casing valves and bleed off surface line pressure and wash out BOPs. Wait on cement a minimum of 24 hours before slacking off casing. Remove 406mm x 425.5mm casing bowl and install the 298mm x 346.1mm casing bowl on the 298mm casing.

Section 4.4 - Production Hole & Production Casing

1. Pressure Testing

   Check cement samples for hardness – if cement samples are set to the satisfaction of the Wellsite Supervisor, proceed with installation of the BOPS. Install Class B (Rotary) BOPs as per MNRF requirements on 298mm casing bowl. Stump test BOPs prior to installation. After BOPs are installed and the cement samples indicate that the cement is competent, the rig will proceed to pressure test the BOPs, casing and shoe. Pressure test casing and each component of the BOPs as per Section 6.2. After successfully pressure testing the BOPs and casing, drill out cement and 0.5m of new formation and conduct a PIT, with the hole full of fresh water, using a bottom hole pressure equivalent to 18 kPa/m.

2. Drilling Method

   Drill a 270mm conventional hole to the kick-off point. Brine will be used to drill this portion of the well, to prevent the dissolution of the salt layers. Ensure that drill cutting samples are taken every 3 metres and placed in the sample bags provided by the Ministry of Natural Resources and Forestry. Record on daily tower sheets any influx of fluids (water and/or hydrocarbons), loss circulation (rate and depth) and any unusual hole conditions.

   At the kick-off point, circulate the hole clean, run a deviation survey and strap out of the hole. Pick up directional equipment and run in the hole with the directional bottom hole assembly. Prior to penetrating the A-2 Carbonate, the Wellsite Geologist and Wellsite Supervisor must be on-site and a BOP drill shall be completed to familiarize all on-site personnel with the proper procedures.

Drill a 270mm directional hole a minimum of 2 metres into the A-2 Anhydrite formation, at an approximate depth of 679mTVD at an angle of 52^0. The final casing point will be determined by the Wellsite Geologist. At casing total depth, circulate the hole clean and perform a flow check prior to tripping. Fast tripping of the drill string is to be avoided in order to eliminate high annular velocities, pressure surges and swabbing. Keeping hole full of brine, trip out of hole – laydown bottom hole assembly, drill pipe and drill collars.

3. Casing Installation

Ensure that the threads are protected while hoisting casing to the floor. Drift all casing prior to running the casing in the well and apply proper API make-up torque to each connection.

Depending upon hole conditions encountered, the 219mm casing will be run in the following manner:

- Guide shoe
- 219mm joint of casing
- Float Insert or Float Collar
- Bottom 150 metres of 219mm casing shall have solid stand-off centralizers run on every other joint – above and below the collar
- Tack weld guide shoe, float collar and bottom 4 joints and use API modified pipe dope on all connections
- Centralizers will be installed on remaining casing – on every 5^{th} joint to surface
- 219mm casing to surface

4. Cementing Procedures

Move in and rig up Cementers. Ensure pressure recorder is rigged in and serviceable. Pressure charts will be attached to the job ticket. Conduct a pre-job safety meeting to confirm volumes and procedures.

Establish circulation using pump truck. The casing and the hole will be circulated with brine for a minimum of 15 minutes to clean the borehole and to fill the casing and hole prior to cementing. Pressure test surface equipment to 14 MPa for 10 minutes. Preflush and mix water must be obtained from a clean source and the water trucks must be uncontaminated. Pump preflush of $3.0m^3$ of clean brine, with the addition of loss circulation material if necessary. Ensure that a minimum of 4 cement samples is taken and represent the cement at the beginning, middle and end of the cement job. Mix and pump sufficient Class ‘G’ 0-1-0% cement plus 10% NaCl, to cement the 219mm casing to surface plus 50% excess over open hole and 30% excess in cased hole. Drop wiper plug and displace cement with fresh water and bump plug to 3500 kPa over final pumping pressure – do not exceed 60% of internal yield pressure of casing. Once plug is bumped, bleed off casing pressure, close casing valves and bleed off surface line pressure. Wash out BOPs and split BOP stack at

346mm flange, install 219mm slips and set slips in casing bowl. Wait on cement a minimum of 48 hours and cut casing and remove BOPs.

Section 4.5 - Main Hole

1. Installation of the BOPs and Cement Bond Log

   Check cement samples for hardness – if cement samples are set to the satisfaction of the Wellsite Supervisor, proceed with installation of the BOPS. Install Class B (Rotary) BOPs as per MNRF requirements on 228.6mm flange. After BOPs are installed and the cement samples indicate that the cement is competent, move in and rig up the Wireline Company and run a cement bond log (both pressure (7000kPa) and non-pressure pass) over the 219mm casing. After the cement bond log is completed and the cement job is deemed successful, the rig will proceed to pressure test the BOPs, casing and shoe. Pressure test casing and each component of the BOPs as per Section 6.2. After successfully pressure testing the BOPs and casing, drill out cement and 0.5m of new formation and conduct a PIT, with the hole full of fresh water, using a bottom hole pressure equivalent to 18 kPa/m.

2. Logging

   Move in and rig up Wireline Company. With hole full of fresh water, run a casing inspection log over the 219mm casing. Rig out Wireline Company and release.

3. Drilling Method

   Drill a 200mm hole with fresh water system – ensure that the temporary storage tanks are full of fresh water and water trucks have been put on alert. After drilling each length of drill pipe, work the newly drilled hole to ensure that there will not be any issues running in and out of the open hole. A high vis sweep with floc will be added at each connection to assist with hole cleaning. Drill from 700mMD (679mTVD) at 52^0 to 90^0 at 842mMD (733mTVD) and continue drilling to a depth of 1400mMD (733mTVD) for a horizontal distance of approximately 558m.

   Ensure that Wellsite Geologist is on site to monitor cuttings and liaise with Directional Drillers concerning the path of the horizontal well. Drill to TD indicated by Wellsite Geologist. At TD pump a final sweep and if possible, circulate hole until clean returns are observed at surface.

   The potential for loss circulation exists while drilling through the Guelph formation. If loss circulation is encountered, use the loss circulation contingency program located in Section 4.6. Note all lost circulation intervals and monitor and record fluid loss volumes.

   Pull out of hole with drilling assembly and laydown drill pipe, drill collars and bottom hole assembly. Move in and rig up Wireline Company complete with full lubricators. Run in hole with gauge ring to ensure clear hole to bridge plug setting depth. Run in hole with wireline set,

retrievable 219mm bridge plug and place as deep as possible in the 219mm casing and pull out of hole with the setting tool. Fill hole with fresh water and pressure test plug to 7000 kPa for 10 minutes. If the plug does not hold pressure, be prepared to set another 219mm retrievable bridge plug. Release Wireline Company and release Directional Drilling Company.

Nipple down BOPs. Cut and bevel 219mm casing and install primary and secondary seals. Install 346mm x 228.6mm spool piece and install 315mm x 900 ANSI full port ball (master) valve and test wellhead seals to 14 Mpa for 10 minutes. Close master valve and install 315mm blind flange. Install pressure recorder, ensure that the well is full of fresh water and pressure test casing, wellhead and master valve to a surface pressure of 11,000 kPa for a minimum of 4 hours. Call Enbridge Office with the results.

4. Rig down rotary rig and move off of location.

5. Restore wellsite to Enbridge's specifications.

Section 4.6 - Loss Circulation Procedure

1. Before drilling out the casing shoe:
   a. Identify sources and location of fresh water and/or brine, loss circulation materials and weight materials
   b. Ensure BOPs and manifold are properly installed
   c. Ensure auxiliary tanks are connected to the pumping system and a standby mud pump is hooked up for annular injection in case of severe loss circulation (so that fluid can be pumped down both the drill pipe and annulus simultaneously)
   d. Pressure test BOPs prior to drill out

2. After drilling out shoe:
   a. Alert water suppliers and haulers
   b. Ensure adequate amounts of fresh water and/or brine are readily available prior to penetrating the Detroit River and Guelph formations
   c. Mechanically test BOPs and perform BOP drill prior to penetrating the Detroit River and Guelph formations.

3. Drilling Blind – Detroit River formations:
   a. In an attempt to maintain or re-establish circulation, pump fluid down both the annulus and the drill pipe simultaneously
   b. Should severe loss circulation occur while drilling, the thief zone may be plugged with cement and/or loss circulation material at Enbridge's discretion.

4. Drilling Blind – Guelph

a. In an attempt to maintain or re-establish circulation, pump fluid down both the annulus and the drill pipe simultaneously
b. Make wiper trips or reciprocate the drill pipe to maintain a clean hole every joint or two as directed by the Wellsite Supervisor
c. Sweep the hole every 1 to 3 joints
d. Use a. and b. in combination
e. At TD conduct a final sweep and then trip out BHA

SECTION 5.0 - REPORTING PROCEDURES

Section 5.1 - Tower Sheets

Shall be completed daily and shall include:

1. Bit size, fluid type and weight, weight on bit, deviation surveys, depth at the beginning of the shift and end of each shift.

2. Casing size, grade, weight, and number of joints, centralizers, other casing attachments, total length and setting depth.

3. Cementing information – Service Company, cement type, amount, slurry density, additives, annular fluid returns, volume of displacement fluid and plug down time.

4. Water, gas or oil – type, depth encountered depth of sample collected and the static level and/or rate of flow.

5. Pressure tests – individually, surface pressures, fluid density used in the tests, bleed-off rate and duration of test.

6. Logging Details – type and interval.

7. Abandonment details – intervals, amount and type of cement, top of plug and time felt.

8. Rig release – date and time.

Section 5.2 – Worker Injury

Immediately provide first aid to the injured party and ensure that all personnel are removed from harm's way. Secure the area and ensure that the site is preserved in case an investigation is required.

Every work related accident or injury shall be reported immediately to the Wellsite Supervisor. The Supervisor shall immediately contact the Enbridge Gas Distribution Inc. Office, specifically the Manager, Reservoir Development followed by the Reservoir Field Supervisor. The verbal report shall be followed with a written report, including but not limited to, the Contractor's Accident/Incident Investigation form. The affected Contractor is responsible to contact the proper authorities concerning the accident.

SECTION 6.0 - SAFETY AND PROCEDURES

Section 6.1 - General Safety

1. All works at the Wellsite shall be in compliance with the Occupational Health and Safety Act and the Oil, Gas & Salt Resources Act and all associated legislation. In addition, all work at the Wellsite shall be done in compliance with good oil field practices. All verbal notifications given to and approvals received from government agencies shall be recorded on the tower sheets.

2. Safety meetings are to be held with each crew, at the start of the well and periodically while drilling – meetings shall also be held prior to cementing and upon arrival of the logging company, prior to commencement of directional drilling operations and prior to penetrating the Detroit River formations and the A-2 Carbonate formation.

3. The Wellsite Supervisor shall ensure that the operations are in compliance with all applicable government regulations and shall complete daily walk around rig inspections.

Section 6.2 – Well Control

All blowout prevention systems are to be in strict compliance with MNRF regulations. The function and pressure testing guidelines required by the regulatory bodies (such as daily function testing of the pipe rams) will be strictly adhered to.

1. All pressure tests of blowout prevention equipment will be conducted with fresh water and will be conducted in 2 stages – low and high pressure. It is essential that the low pressure test be done first, to prevent the high pressure test from healing leaks that would have been noted at low pressures.

2. The following pressure test will be conducted with fresh water prior to drilling out each casing string and the results recorded on the tower sheets and daily reports:

    a. The blind rams, kill lines and choke manifold will be tested individually for 10 minutes each to:
        i. Intermediate casing 2000 kPa low & 9000 kPa high
        ii. Production casing 2000 kPa low and 10000 kPa high

    b. Run in hole with BHA, drill pipe and drill collars and pressure test the casing string, pipe rams, kelly cock, stand pipe, swivel, safety valves, etc. will be tested individually for 10 minutes each to:
        i. Surface casing 1400 kPa low and 3500 kPa high (using AP)
        ii. Intermediate casing 2000kPa low & 9000 kPa high
        iii. Production casing 2000 kPa low and 10000 kPa high

c. The annular preventer will be tested for 10 minutes to
    i. Surface casing 1400 kPa low and 3500 kPa high
    ii. Intermediate casing 2000 kPa low & 9000 kPa high
    iii. Production casing 2000 kPa low and 10000 kPa high

3. Upon drilling out the casing, drill 0.5m to 1.0m of new hole and test the formation, with the hole full of fluid, to a minimum bottom hole pressure of 18 kPa per metre.

4. After one day of drilling below the casing shoe, check the entire blowout prevention system and tighten all bolts.

5. Crews should be kept alert and familiar with the blowout prevention equipment. At least one member of the crew who has been trained in blowout prevention and well control procedures must be on the floor at all times.

6. Conduct blowout prevention drills prior to drilling out casing and once per week thereafter. Ensure that the drills are recorded in the tour book.

7. The blowout preventers are to be function tested once per tour. Ensure that the function test is recorded on the tower sheets.

Oil, Gas and Salt Resources Act

Application for a Well Licence

Ontario

Form 1 — To the Minister of Natural Resources and Forestry — v.2015-12-15

The undersigned operator applies for a well licence under the Oil, Gas and Salt Resources Act and the Regulations thereunder and submits the following information, together with the application fee of $100. Make cheques payable to "Minister of Finance".

1. WELL NAME TD 29H (Horiz.#1), Moore 3-21-XII — Target Formation: Guelph

Purpose of Proposed Well (Well Type): Natural Gas Storage Well

2. OPERATOR Enbridge Gas Distribution Inc. — Tel # 519-862-1473 — Fax # 519-862-1168

Street Address: 3501 Tecumseh Road — City: Mooretown — Prov.: ON — Postal Code: N0N 1M0

Mailing Address: 3501 Tecumseh Road — City: Mooretown — Prov.: ON — Postal Code: N0N 1M0

Contact Name: Kathy McConnell — Contact Tel #: 519-862-6032

Email: kathy.mcconnell@enbridge.com

3. LOCATION County: Lambton — Township: Moore

Tract: 3 — Lot: 21 — Concession: 12 — Offshore: Block / Tract / Licence/Lease No.

Surface location, metres from Lot Boundaries: 355.70 m North [ ] South [X] — 144.15 m East [X] West [ ]

Latitude: 42° 54' 30.750" — Longitude: 82° 23' 22.045"

Bottom-hole Lat.: 42° 54' 41.403" — Bottom-hole Long.: 82° 22' 58.998"

Within 1.6 km of Designated Storage Area? Yes [X] No [ ]

Off-target? Yes [ ] No [X]

4. WELL PARTICULARS Vertical [ ] Horizontal [X] Directional [ ] Deepening [ ] Re-entry [ ] Lateral [ ]

Rig Type: Rotary [X] Cable [ ] — Well to be cored? Yes [ ] No [X] — Formation at TD: Guelph

Ground Elevation: 189.67 — Proposed Depth: 1413.0 — Proposed Depth TVD: 758.00 — Proposed Start Date: 1-Apr-18

5. POOLING

Pooling of the Spacing Unit or unitization of the Unit Area shown on the attached well location plan has been completed (see Ont. Reg. 245/97 definitions for "pooled spacing unit" and "unitize") Yes [X] No [ ]

6. DRILLING CONTRACTOR Unknown — Tel #

Address — City — Prov. — Postal Code

7. PROPOSED CASING AND CEMENTING PROGRAM

Hole Size (mm)	Casing O.D. (mm)	Weight (kg/m)	Grade	New Used or in-hole	Setting Depth TVD	Setting Depth Meas.	Setting Formation	CASING SETTING INFORMATION		
								How Set	Cement Type	Cement Top KB / RF
508	406	96.42	LS	New	55	55	Kettle Point	Cement	Class 'G'	surface
375	298	69.94	J55	New	422	422	F Unit	Cement	Class 'G'	surface
270	219	47.62	J55	New	683	704	A-2 Anhydrite	Cement	Class 'G'	surface

8. BLOW-OUT PREVENTION EQUIPMENT 16" 2/3M Annular Preventor

11" 2/3M Annular Preventor and Double Gate (pipe and blind)

9. WELL SECURITY Name of Trustee: Harrison Pensa LLP — Total # Unplugged Wells: 145 — Current Balance: $70K

10. REMARKS Rotating Control Device 11" x 2/3000 psi will be used for drilling in the reef

11. ENCLOSURES Fee [X] — Location Plan [X] (Land wells only) — Drilling Program [X]

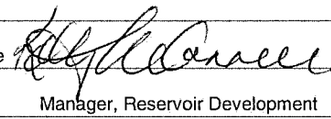
12. NOTICE OF COLLECTION

The Ministry of Natural Resources and Forestry is collecting your personal information under the authority of the *Oil, Gas and Salt Resources Act*. Any personal information provided on this application will be used for licensing and law enforcement purposes only and will be protected in accordance with the Freedom of Information and Protection of Privacy Act.

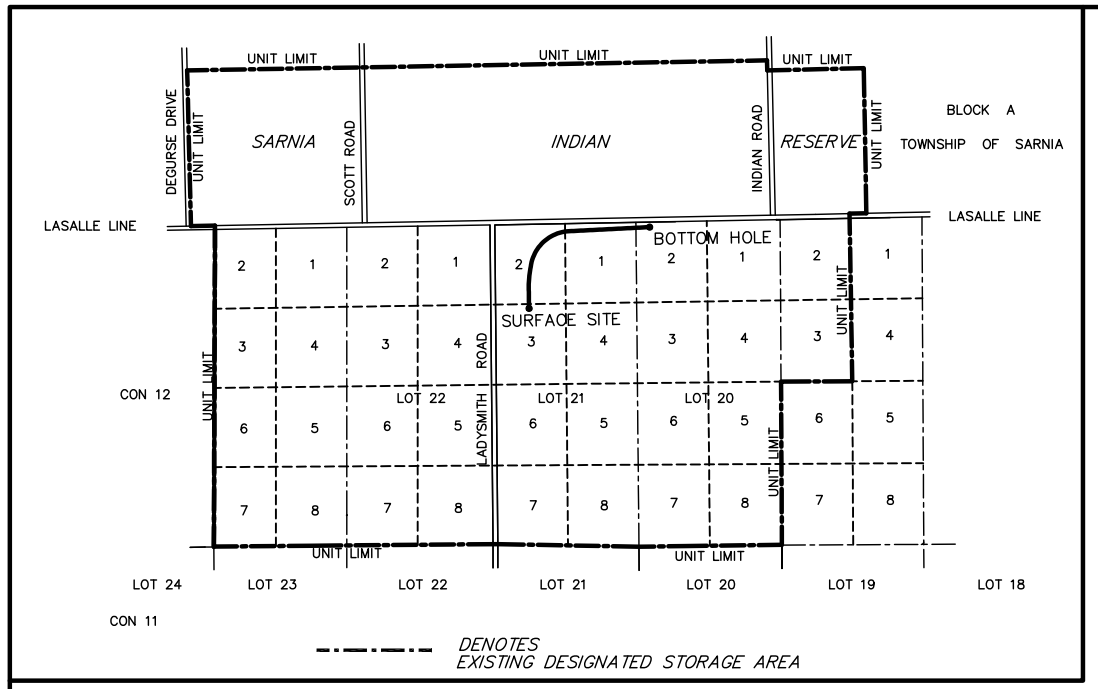
If you have questions about use of your personal information, please contact the Policy and Program Officer, Petroleum Operations Section, Ministry of Natural Resources and Forestry, 659 Exeter Road, London N6E1L3, 519-873-4638.

13. AUTHORITY

The undersigned certifies that the information provided herein is complete and accurate, the operator has the right to drill or operate a well in the above location, and he/she has authority to bind the operator.

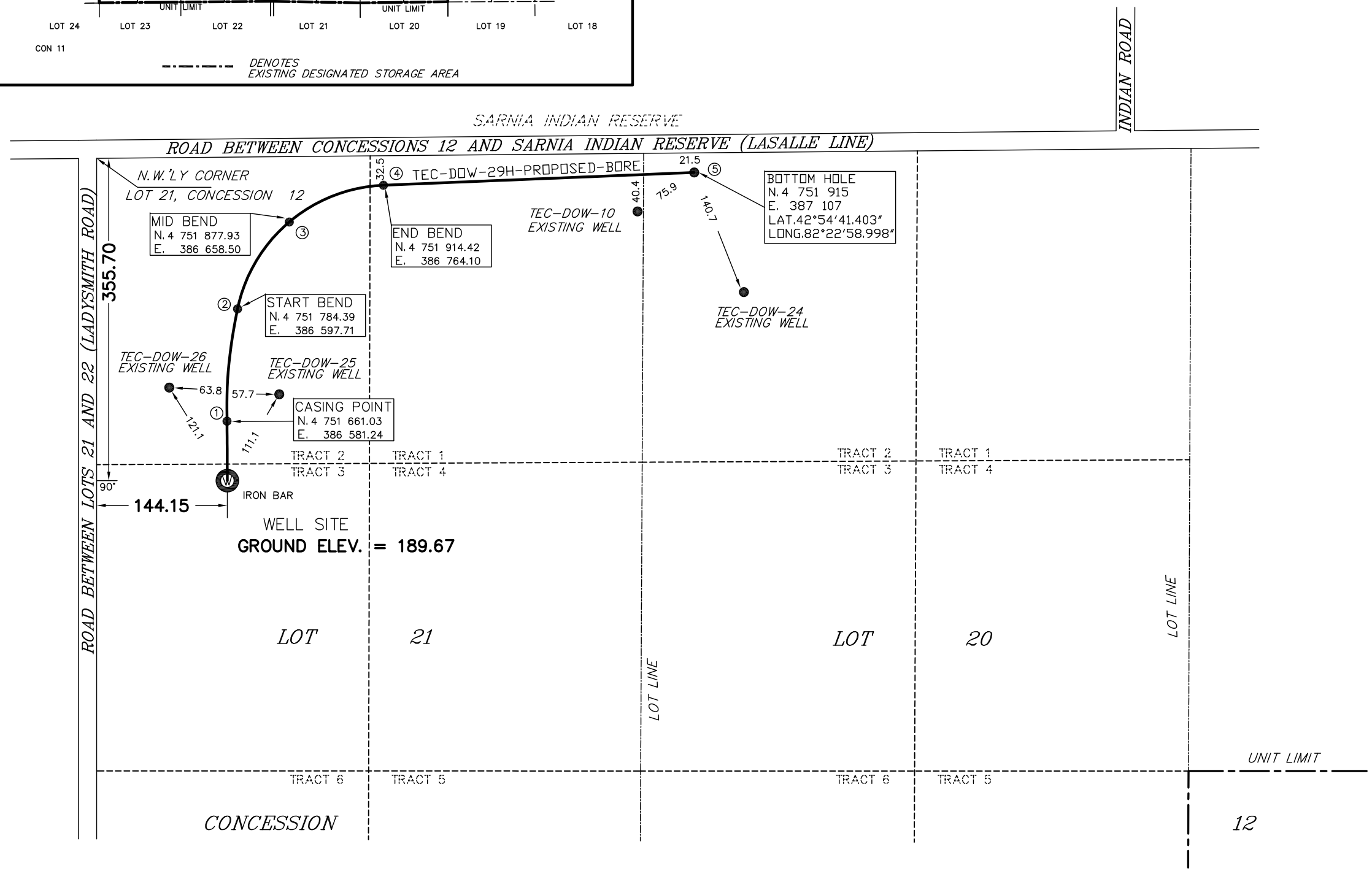
Date (d/m/y): 21/11/17 — Name: Kathy McConnell — Signature: 

Company: Enbridge Gas Distribution Inc. — Title: Manager, Reservoir Development



LEGEND FOR BORES
AZIMUTHS AND DISTANCES

	TRUE NORTH AZIMUTH	DIST.
1	1°00'00"	65.6 (CASING POINT)
2	6°40'00"	124.5 (START BEND)
3	32°05'00"	111.6 (MID BEND)
4	69°58'00"	111.6 (END BEND)
5	88°58'00"	343.1 (BOTTOM HOLE)



PLAN OF PROPOSED WELL
LOT 21
CONCESSION 12
GEOGRAPHIC TOWNSHIP OF MOORE
TOWNSHIP OF ST. CLAIR
COUNTY OF LAMBTON

SCALE 1:5000

NOTE (WELL SITE) CO-ORDINATES

LATITUDE N.42°54'30.750 LONGITUDE W.82°23'22.045"

U.T.M. N. 4 751 595 E. 386 579

WELL NAME

TD 29H (HORIZ. # 1) – MOORE – 3 – 21 – 12

NOTE BENCH MARK

ELEVATIONS ARE REFERRED TO GEODETIC DATUM AND REFERENCE BENCH MARK BEING NO. 81U138 SARNIA
ELEVATION = 180.512

NOTE GEODETIC HORIZONTAL CONTROL

U.T.M. CO-ORDINATES ARE GEODETIC (DATUM NAD 83 ORIGINAL) AND REFERRED TO MONUMENTS No. 693749 AND 693767

NOTE METRIC

DISTANCES SHOWN ON THIS PLAN ARE IN METERS AND CAN BE CONVERTED TO FEET BY DIVEDING BY 0.3048

PREPARED BY
BRISCO AND O'ROURKE
SERVING THE PETROLEUM INDUSTRY
THROUGHOUT ONTARIO
WELLS, CONSTRUCTION AND TECHNICAL SURVEYING
DIGITAL MAPPING
LAND AND LEASE SURVEYS

OFFICE (519) 351-5073
CELL (519) 360-2134
FAX (519) 351-3119
P.O. BOX 327 – N7M-5K4
CHATHAM, ONTARIO

PREPARED FOR
ENBRIDGE GAS DISTRIBUTION INC.

FILE NO. 17-5102	PLAN NO. ENB6852.DWG

NOV. 24, 2017

TIMOTHY J. O'ROURKE C.S.T. A.C.E.T.

AUTHORIZED BY THE MINISTER OF NATURAL RESOURCES UNDER THE PETROLEUM RESOURCES ACT OF ONTARIO

TD 29H (HORIZ 1) MOORE 3-21-XII

DRILLING PROGRAM

TABLE OF CONTENTS

SECTION 1.0 - GENERAL DATA

Section 1.1 - Well Summary

Well Name:	TD 29H (Horiz 1) Moore 3-21-XII
Operator:	Enbridge Gas Distribution Inc.
Surface Hole Location:	Tract 3, Lot 21, Con. 12, Moore Twp., Lambton County
Surface Hole Coordinates:	N 4 751 595; E 386 579
Bottom Hole Location:	Tract 2, Lot 20, Con. 12, Moore Twp., Lambton County
Bottom Hole Coordinates:	N 4 751 915; E 387 107
Ground Elevation:	189.67m
KB Elevation:	193.67 m
Total Depth:	758mTVD; 1413mMD
Target Formation:	Guelph
Logging Program:	CBL-GR – 219mm casing Vertilog – 219mm casing
Spud Date:	April 1, 2017
Duration:	21 days

Section 1.2 – Special Notes

1. Safety of personnel and environment is our primary concern. Section 6.1 of this program, outlines Enbridge's general safety requirements which obliges all personnel on the wellsite to follow the Occupational Health and Safety Act and Regulations (Ministry of Labour (MOL)) and the Oil, Gas & Salt Resources Act and Regulations (Ministry of Natural Resources and Forestry (MNRF)). Safety and/or environmental ("tailgate") meetings shall be conducted as per Section 6. Wellsite Supervisor shall conduct daily 'walk around' inspections of the equipment on site and record the results on the daily reports. Please refer to Section 5.2 for the procedure to be followed if a worker injury occurs.

2. The Wellsite Supervisor has authority over all activities conducted on the drilling location. The Wellsite Supervisor shall ensure that all applicable regulations and policies (MNRF, MOL, Ministry of the Environment and Climate Change (MOECC), and Enbridge) are followed and that all permits are kept on site and/or signed off as required.

3. All operations are to be to MNRF standards.

4. BOPs are to be installed, maintained and used as per MNRF requirements. Testing of the BOPs must be in accordance with Section 6.2 of this program.

5. Tower sheets must be completed daily and will include the information listed in Section 5.1 of this program. The Wellsite Supervisor will complete daily reports and forward the reports to Enbridge's office by 10am the following day.

6. During the well will be drilled with fresh water or formation brine, hauled to location by an approved contractor. The fresh water will be obtained from local municipal water systems, located at Brigden, Corruna and other available water systems. The brine used will be Guelph formation brine obtained from Enbridge's existing operations.

7. The production casing will be set in the A-2 Anhydrite to allow for an effective cement job and successful pressure testing, prior to penetrating the Guelph formation

8. A minimum of two 500 barrel temporary storage tanks will be spotted on location prior to the drilling of the Detroit River formation. The tanks will be filled with fresh water / brine as reserve for the drilling of potential loss circulation zones. Potential loss circulation zones exist in the Detroit River formation (intermediate hole) and the Guelph formation (main hole).

Section 1.3 - Contact Numbers

Emergency Numbers:

Police, Fire & Ambulance:* 911

911 Address: 963 LaSalle Line, Sarnia, Ontario

* For 911 Map and Map and Directions to Nearest Hospital see attached Map at end of Section 1.3

Enbridge Gas Distribution Inc.

Rob Carlson	Reservoir Field Supervisor	Office: 519-862-6036 Fax: 519-862-1168 Cell: 519-312-4863 robert.carlson@enbridge.com
Kathy McConnell	Manager Reservoir Development	Office: 519-862-6032 Fax: 519-862-1168 Cell: 519-312-2168 kathy.mcconnell@enbridge.com
Chris Pincombe	Land Agent	Office: 519-862-6092 Fax: 519-862-1168 Cell: 519-381-1408 chris.pincombe@enbridge.com
Control Room		Office: 519-862-6012

Drilling Supervisor:

Steve Thompson	Omni Consulting Ltd. President	Cell: 519-383-5404 omniconsulting@rogers.com

Geologist:

Neil Hoey		Office: 519-472-4776 Fax: 519-472-4776 Cell: 519-649-6918 neil_hoey@hotmail.com

Rotary Rig:

Clayton Landry	Predator Drilling Inc. Rig Manager	Office: 403-346-0870 Fax: 403-346-0860 Mobile: 403-740-3765 kmecanen@kent.net

Directional Drillers:

Danny Brown	Account Manager - Weatherford	Office: 403-693-7831 Fax: 403-510-1995 daniel.brown@ca.weatherford.com
Craig Dalziel	Drilling Technologist - Weatherford	Office: 780-979-4539 Craig.dalziel@ca.weatherford.com

Cementing:

Ian Veen	Black Creek Well Service President	Office: 519-882-4732 Fax: 519-834-2466 Cell: 519-383-4645
Jeff Luckovitch	Integral Pumping Services	Office: 519-689-4692 Cell: 226-234-5362

Casing, Wellheads & ESDs:

Brian DeJaegher	Wellmaster Pipe &Supply Sales Representative	Office: 519-688-0500 Fax: 519-688-0563 bdejaegher@wellmaster.ca
Graham Shone	DNow Manager	Office: 519-336-9797 Fax: 519-336-9733 graham.shone@dnow.com
Karen Derrick	Stream-Flo Ltd. Technical Sales Rep.	Office: 832-647-0710 Fax: 519-688-0563 kderrick@streamflo.com

Drill Bits:

Brad Takenaka	Varel Rock Bits Canada Sales Manager	Office: 403-968-9369 Cell: 403-303-2533 btakenaka@varelintl.com
Mike Kellar	Trendon Bit Service Ltd. Director, Sales	Office: 403-990-1299 mkellar@trendoninc.com

Wireline Services:

Gord Mackenzie	Baker Atlas Station Manager	Office: 519-332-8030 Fax: 519-332-4714 Cell: 519-339-6783 gord.mackenzie@bakerhughes.com
Dave Tipping	Weatherford Canada – Wireline & Logging Services Station Manager	Office: 519-683-2010 Fax: 519-683-2577 Cell: 519-436-3541 dave.tipping@canada.weatherford.com

Water Hauling:

Keith McKeegan	President McKeegan Trucking Limited	Office: 519-864-1037 Fax: 519-864-1036 Cell: 519-490-4042
Denis Marcus	President Harold Marcus Limited	Office: 519-695-3735 Fax: 519-695-2249 Cell: 519-380-5238 dmarcus@haroldmarcus.com

Rental Equipment:

Dale Holland	Wheatley Wireline Services Ltd.	Office: 519-825-3680 Fax: 519-825-9348 Cell: 519-322-8015
Keith Davis	Ecan Energy Services Inc.	Office: 519-627-3824 Fax: 519-627-5306 Cell: 519-437-7038 kmecanen@kent.net

Vern Anger	Canfish Services Inc. Fishing Supervisor	Office: 780-955-2600 Cell: 403-845-0012
Orval Beam	Orval L. Beam Limited Operations Manager Tank Rentals	Office: 519-436-0164 Fax: 519-436-0164 Cell: 519-436-4801

Welders:

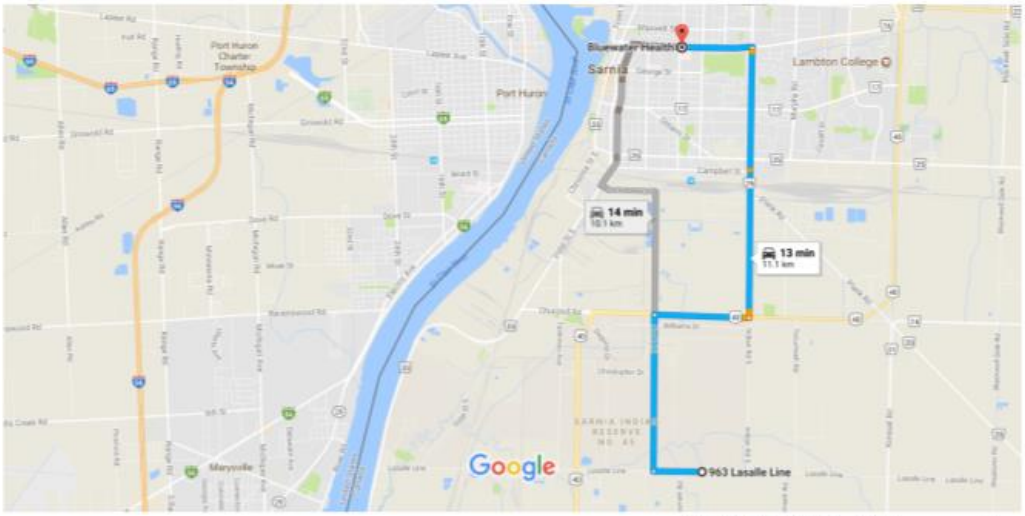
John Dawson	St. Clair Mechanical President	Office: 519-864-0927 Fax: 519-864-0801 Cell: 519-330-9672

Government & Other Agencies

MNRF	Petroleum Resources Centre	Office: 519-873-4634 Fax: 519-873-4645 ogsr.mnrf.gov.on.ca
MOECC	Spill Reporting	1-800-268-6060
MOL	Health & Safety	1-800-265-1676
Oil, Gas & Salt Resources Library		Office: 519-686-2772 Fax: 519-686-7225

911 Map & Directions to Nearest Hospital:

Google Maps **963 Lasalle Line to Bluewater Health, Sarnia, ON** Drive 11.1 km, 13 min



963 Lasalle Line
St. Clair Township, ON N0N

1. Head west on Lasalle Line toward Ladysmith Rd — 850 m
2. Turn right onto Scott Rd — 2.7 km
3. Turn right onto Churchill Rd/ON-40 N — 1.6 km
4. Use the left 2 lanes to turn left at the 1st cross street onto Indian Rd S/County Rd 29 (signs for Indian Road N) — 4.7 km
5. Turn left onto London Rd/Route 16
   Destination will be on the right — 1.2 km

Bluewater Health
Sarnia, ON N7T 4W8

These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.

Section 2.0 - Geological Prognosis

County: Lambton Township: Moore
Concession: XII Lot: 21 Tract: 3

Elevation: 189.3 Estimated

Formation	Top	Elevation	Thickness	Gas	Oil	Water	Pressure
K.B.	0.0	193.3	4.0				
Drift	4.0	189.3	36.0			37m Fresh	
Kettle Point	40.0	153.3	33.0				
Hamilton	73.0	120.3	87.0				
Dundee	160.0	33.3	34.0				
Lucas	194.0	-0.7	92.0			197m Sulphur	
Amherstburg	286.0	-92.7	33.0				
Bois Blanc	319.0	-125.7	26.5				
Bass Islands	345.5	-152.2	64.0				
G-Shale	409.5	-216.2	7.0				
F-Shale	416.5	-223.2	22.5				
F-Salt	439.0	-245.7	93.0				
E-Carbonate	532.0	-338.7	25.5				
D-Salt	557.5	-364.2	8.5				
C-Shale	566.0	-372.7	20.0				
B-Salt	586.0	-392.7	63.7				
A-2 Carbonate	649.7	-456.4	25.3				
A-2 Shale	675.0	-481.7	6.4				
A-2 Anhydrite	681.4	-488.1	10.0				
Guelph (Reef)	691.4	-498.1	100.0+	**XXX**			**6600 Kpa+**

*****Note: Prognosis with TVD tops.**

Note: used "Dow Moore 3-21-XII" Lic. T004335 to build prognosis

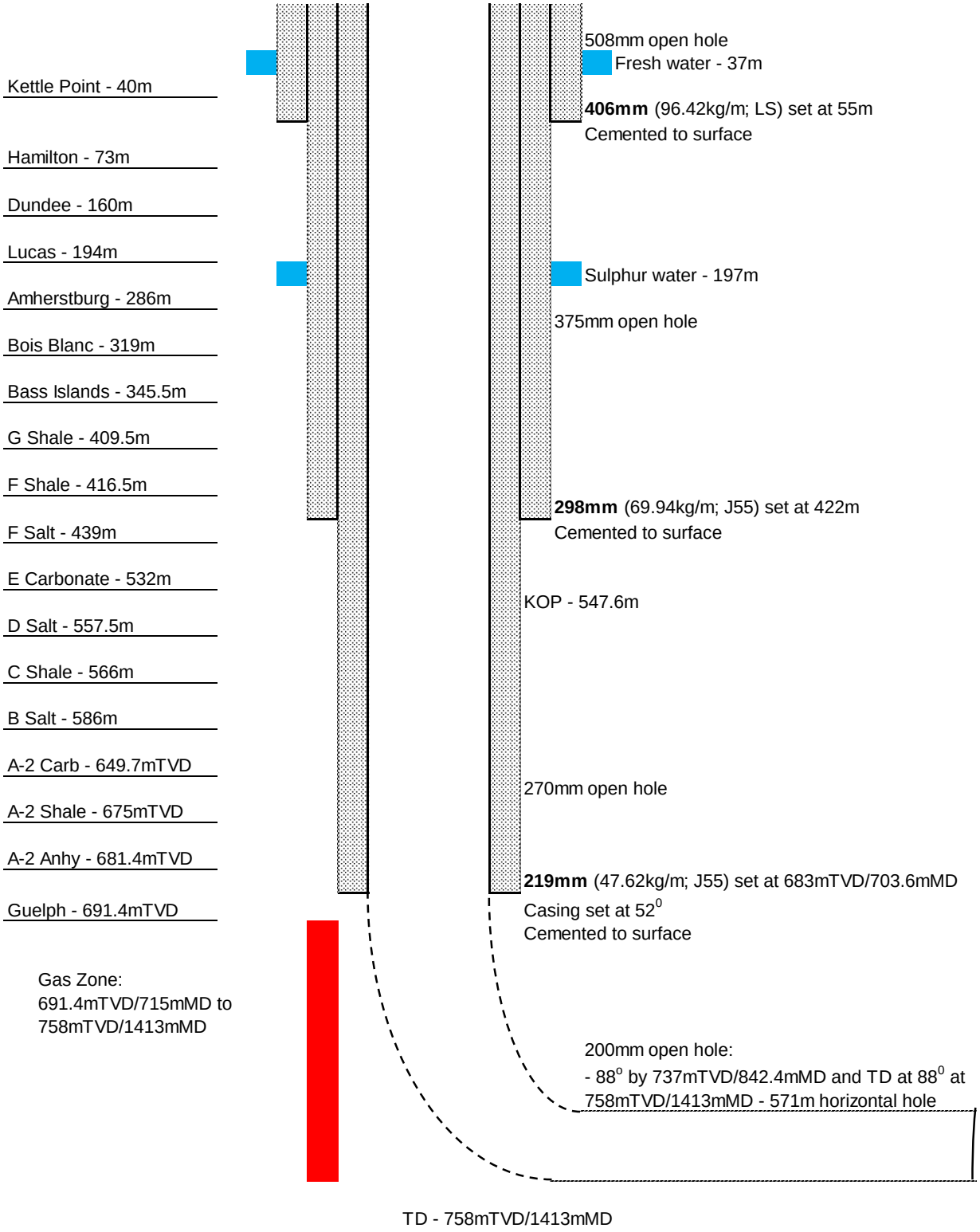
Section 3.0 - Casing and Cementing Summary

Section 3.1 - Summary

Hole Size (mm)	Casing Size (mm)	Casing Grade	Casing Weight (kg/m)	Setting Depth (mKB)	How Set
508	406	LS	96.42	55	Cemented to surface with 100% excess Class G 0-1-0 cement + 2 – 3% $CaCl_2$
375	298	J-55	69.94	422	Cemented to surface with Class 'G' 0-1-8% plus 1 to 3% $CaCl_2$, followed by Class 'G' neat cement plus 1 to 3% $CaCl_2$. Cement volumes will be calculated with 50% excess- gel cement and 30% excess – neat cement. Depending upon hole conditions, consideration may be given to running thixotropic cement plus additional loss circulation materials, across porous zone(s).
270	219	J-55	47.62	683m TVD / 704m MD	Cemented to surface with Class 'G' 0-1-0% plus 1 to 2% $CaCl_2$ plus 10% NaCl. Cement volumes will be calculated with a 50% excess on the open hole section and 30% excess on the cased hole section.

Main Hole: 200mm open hole will be drilled from 704mMD (683mTVD) at 52^0 and will reach 88^0 at 842mMD (737mTVD) and will be drilled horizontally at 88^0 for approximately 571m to a TD of 1413mMD (758mTVD) at 88^0.

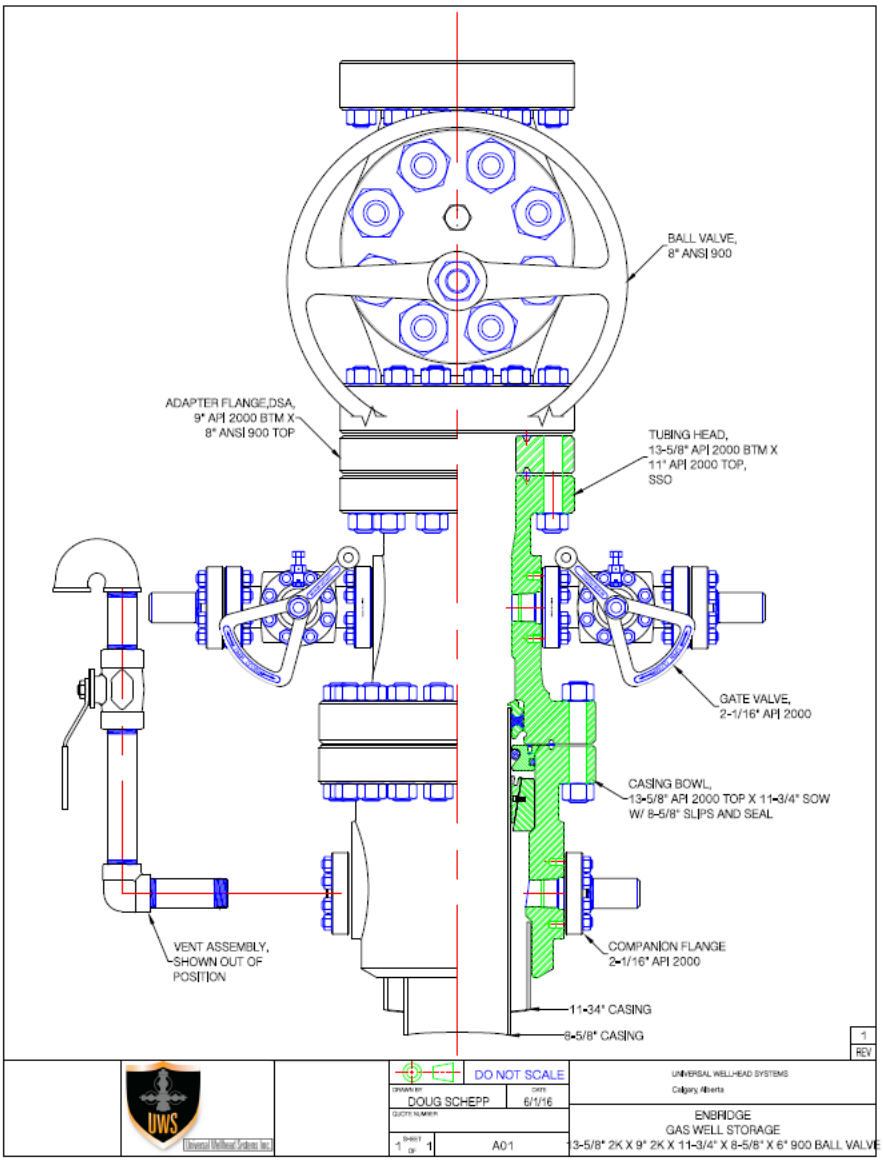
Section 3.2 - Wellbore Diagram



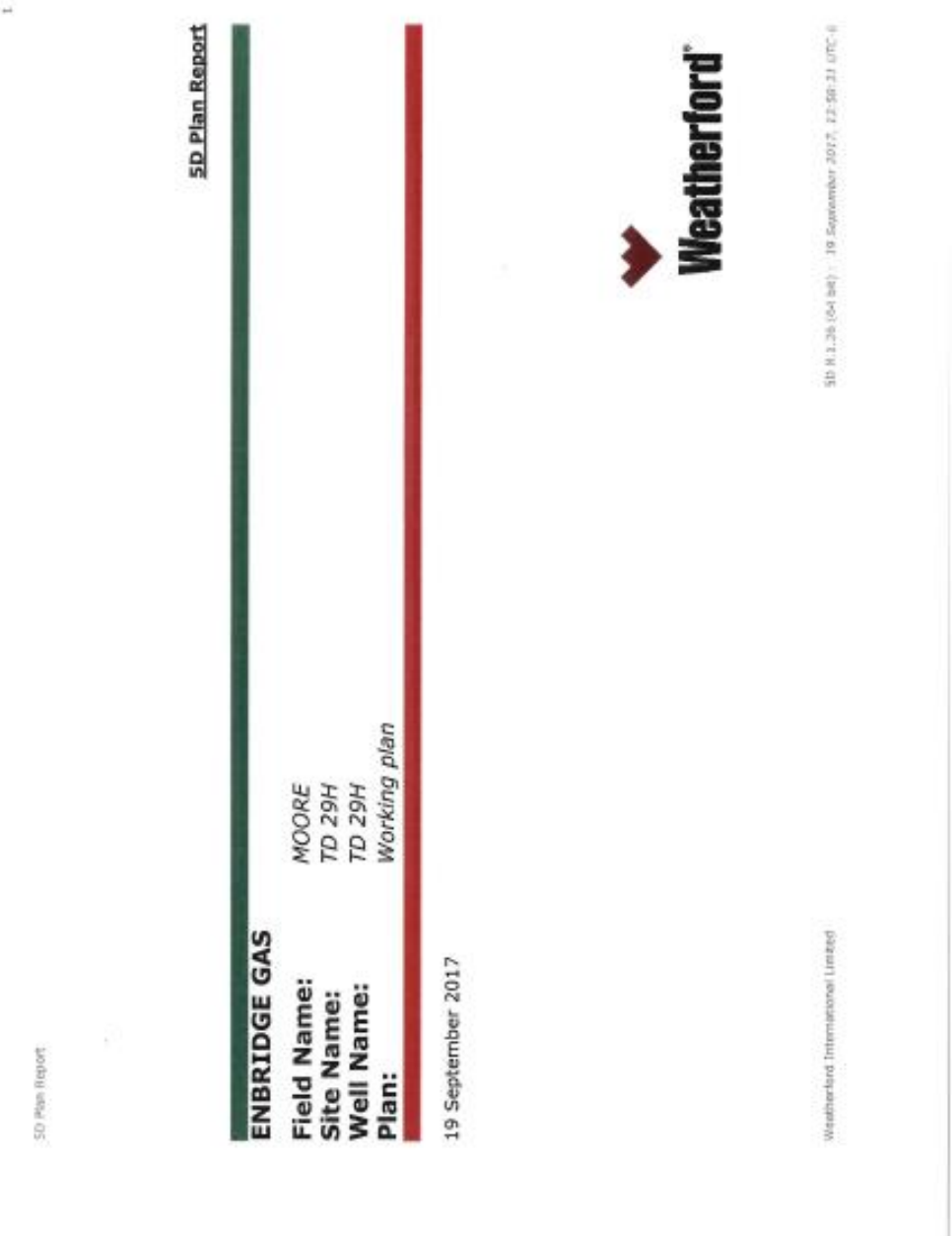
Section 3.3 - Wellhead Summary

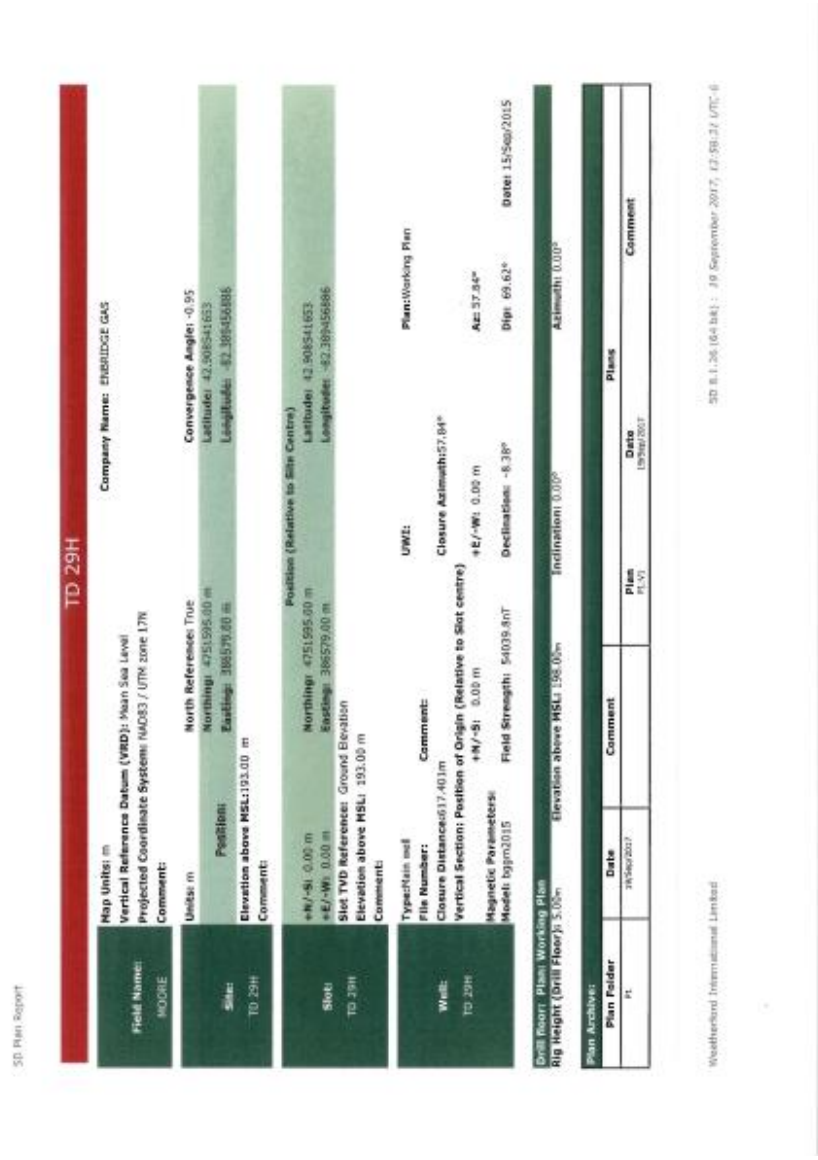
Universal Wellhead Systems Inc. 13.8 MPa Wellhead:

406mm x 425.5mm slip on casing bowl (for BOP installation)
298mm x 340mm slip on casing bowl
340mm x 228.6mm spool c/w 2 gate valves on side outlets
203.2mm ANSI 900 master valve (full port)



Section 3.4 - Directional Planning Report





SD Plan Report

TD 29H

Field Name: MOORE	**Map Units:** m **Vertical Reference Datum (VRD):** Mean Sea Level **Projected Coordinate System:** NAD83 / UTM zone 17N **Comment:**	**Company Name:** ENBRIDGE GAS
Site: TD 29H	**Units:** m **Position:** **Elevation above MSL:** 193.00 m **Comment:**	**North Reference:** True **Northing:** 4751595.00 m **Easting:** 386570.00 m
Slot: TD 29H	**+N/-S:** 0.00 m **+E/-W:** 0.00 m **Slot TVD Reference:** Ground Elevation **Elevation above MSL:** 193.00 m **Comment:**	**Position (Relative to Site Centre)** **Northing:** 4751595.00 m **Easting:** 386570.00 m
Well: TD 29H	**Type:** Main Well **File Number:** **Closure Distance:** 617.40 m **Vertical Section: Position of Origin (Relative to Slot centre)** **Magnetic Parameters:** **Model:** bggm2015	**Comment:** **+N/-S:** 0.00 m **Field Strength:** 54039.6nT
Wellbore: TD 29H	**UWI:** **Closure Azimuth:** 57.84° **+E/-W:** 0.00 m **Declination:** -6.38°	**Plan:** Working Plan **Latitude:** 42.908541653 **Longitude:** -82.389456886 **Az:** 57.84° **Dip:** 69.62°
Drill Floor: Plans Working Plan **Rig Height (Drill Floor):** 5.00m	**Elevation above MSL:** 198.00m	**Inclination:** 0.00°
		Azimuth: 0.00°

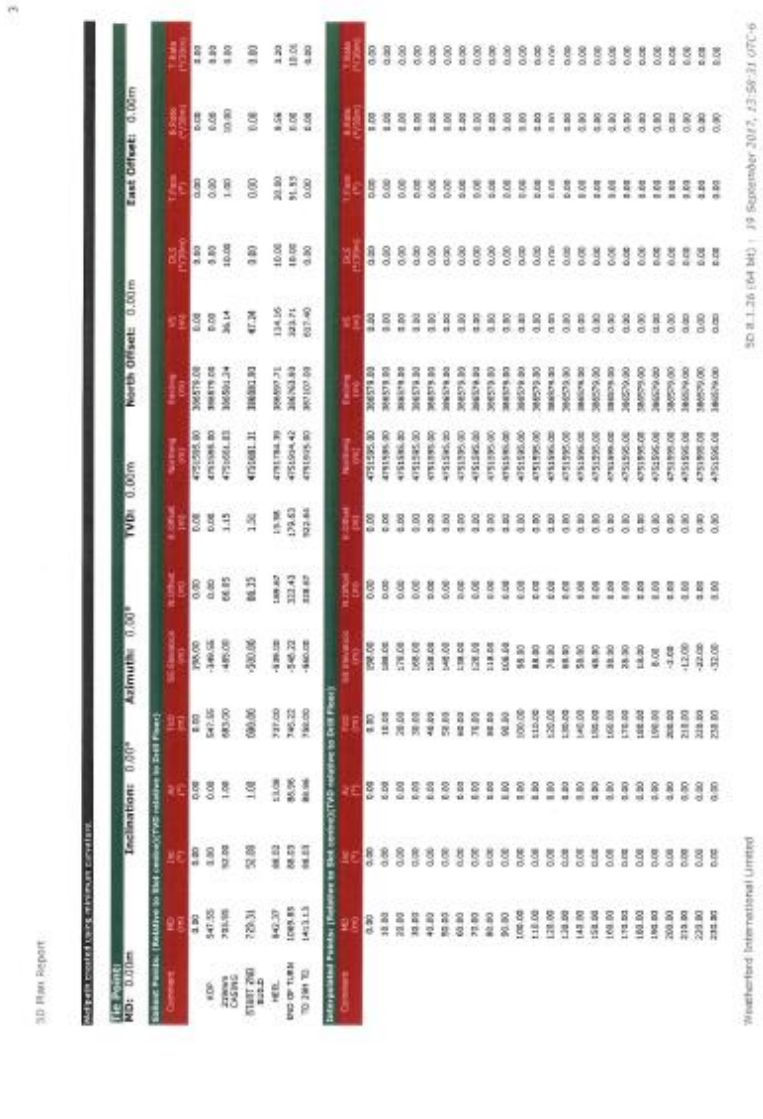
Date: 15/Sep/2015

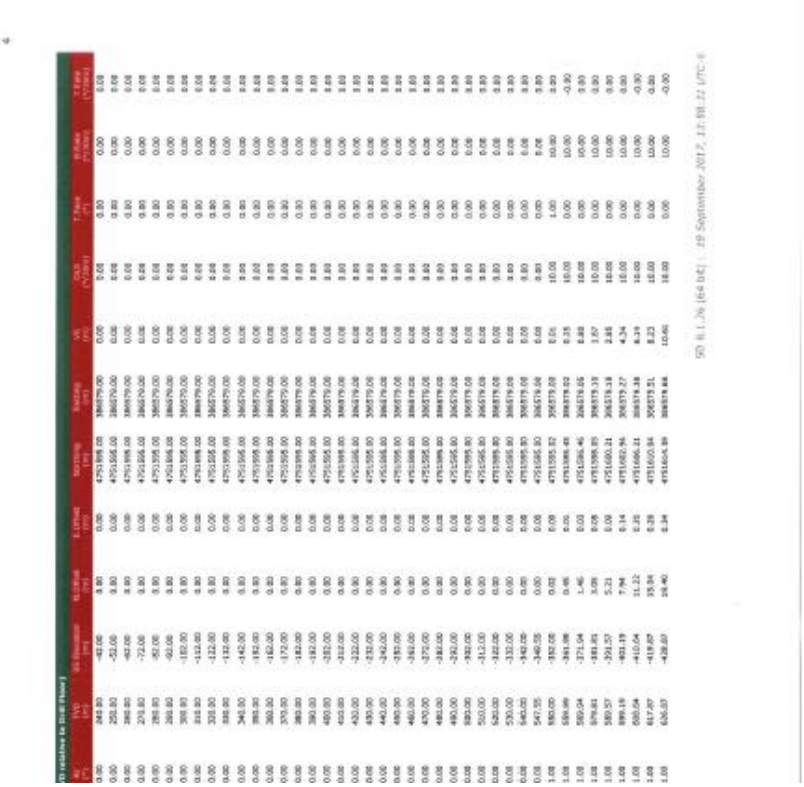
Plan Archive:

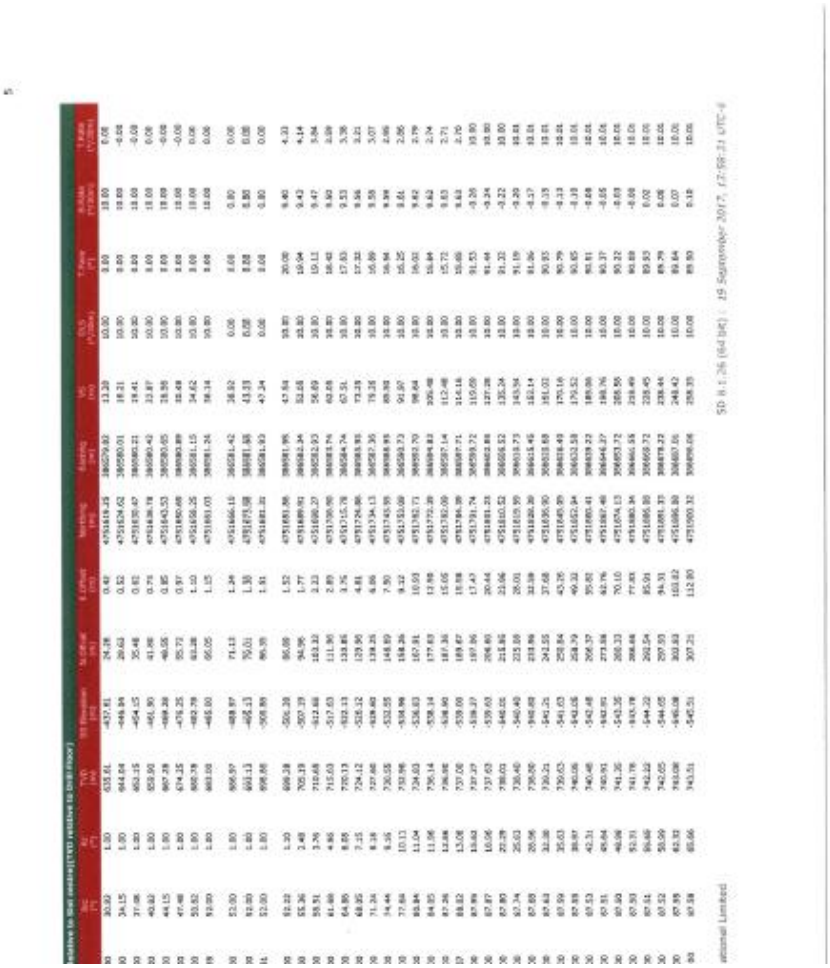
Plan Folder	Date	Comment	Plans		
			Plan	Date	Comment
PL	19/Sep/2017		PLV1	19/Sep/2017	

Weatherford International Limited

SD 8.1.36 (64 bit) : 19 September 2017, 12:59:32 UTC-6







SD Plan Report

Interpolated Points (Relative to Slot centre)(TVD relative to Drill Floor)																		
Comment	MD (m)	Inc (°)	Azi (°)	TVD (m)	SS Elevation (m)	N Offset (m)	E Offset (m)	Northing (m)	Easting (m)	VS (m)	DLS (°/30m)	Y Face (°)	B Face (°/30m)	Y Face (°/30m)				
	1810.00	87.42	69.08	742.93	-545.93	311.96	121.22	4751904.01	384705.34	266.21	10.80	89.36	0.12	10.81				
	1820.00	87.87	72.33	744.34	-546.34	314.36	130.64	4751907.16	384714.82	277.96	10.80	89.22	0.15	10.81				
	1830.00	87.73	75.67	744.74	-546.74	317.12	140.25	4751909.76	384724.46	287.54	10.80	89.08	0.17	10.81				
	1840.00	87.80	78.08	745.13	-547.13	319.31	150.00	4751911.79	384734.25	296.96	10.80	88.95	0.20	10.81				
	1850.00	87.87	81.34	745.53	-547.53	320.93	159.86	4751913.26	384744.13	306.17	10.80	88.82	0.22	10.80				
	1860.00	87.95	85.67	745.87	-547.87	321.97	169.79	4751914.13	384754.09	315.14	10.80	88.69	0.24	10.80				
END OF TURN	1869.85	88.03	88.96	746.12	-548.12	322.43	179.63	4751914.42	384763.93	323.71	10.80	88.57	0.24	10.80				
	1870.00	88.03	88.96	746.13	-548.13	322.44	179.77	4751914.42	384764.07	323.83	0.00	0.08	0.00	0.00				
	1880.00	88.03	88.96	746.37	-548.37	322.62	189.77	4751914.44	384774.07	332.39	0.00	0.08	0.00	0.00				
	1890.00	88.03	88.96	746.61	-548.61	322.80	199.76	4751914.46	384784.06	340.94	0.00	0.08	0.00	0.00				
	1900.00	88.03	88.96	746.85	-548.85	322.98	209.75	4751914.47	384794.06	349.50	0.00	0.08	0.00	0.00				
	1910.00	88.03	88.96	747.09	-549.09	323.16	219.74	4751914.48	384804.05	358.05	0.00	0.08	0.00	0.00				
	1920.00	88.03	88.96	747.34	-549.34	323.35	229.74	4751914.51	384814.04	366.61	0.00	0.08	0.00	0.00				
	1930.00	88.03	88.96	747.58	-549.58	323.53	239.73	4751914.52	384824.04	375.17	0.00	0.08	0.00	0.00				
	1940.00	88.03	88.96	747.82	-549.82	323.71	249.72	4751914.54	384834.03	383.72	0.00	0.08	0.00	0.00				
	1950.00	88.03	88.96	748.06	-550.06	323.89	259.71	4751914.56	384844.03	392.28	0.00	0.08	0.00	0.00				
	1960.00	88.03	88.96	748.31	-550.31	324.07	269.71	4751914.58	384854.02	400.83	0.00	0.08	0.00	0.00				
	1970.00	88.03	88.96	748.55	-550.55	324.25	279.70	4751914.59	384864.01	409.39	0.00	0.08	0.00	0.00				
	1980.00	88.03	88.96	748.79	-550.79	324.44	289.69	4751914.61	384874.01	417.94	0.00	0.08	0.00	0.00				
	1990.00	88.03	88.96	749.03	-551.03	324.62	299.68	4751914.63	384884.00	426.50	0.00	0.08	0.00	0.00				
	2000.00	88.03	88.96	749.28	-551.28	324.80	309.68	4751914.64	384894.00	435.06	0.00	0.08	0.00	0.00				
	2010.00	88.03	88.96	749.52	-551.52	324.98	319.67	4751914.66	384903.99	443.61	0.00	0.08	0.00	0.00				
	2020.00	88.03	88.96	749.76	-551.76	325.16	329.66	4751914.68	384913.98	452.17	0.00	0.08	0.00	0.00				
	2030.00	88.03	88.96	750.00	-552.00	325.35	339.65	4751914.69	384923.98	460.72	0.00	0.08	0.00	0.00				
	2040.00	88.03	88.96	750.24	-552.24	325.53	349.65	4751914.71	384933.97	469.28	0.00	0.08	0.00	0.00				
	2050.00	88.03	88.96	750.49	-552.49	325.71	359.64	4751914.73	384943.97	477.83	0.00	0.08	0.00	0.00				
	2060.00	88.03	88.96	750.73	-552.73	325.89	369.63	4751914.74	384953.96	486.39	0.00	0.08	0.00	0.00				
	2070.00	88.03	88.96	750.97	-552.97	326.07	379.62	4751914.76	384963.95	494.94	0.00	0.08	0.00	0.00				
	2080.00	88.03	88.96	751.21	-553.21	326.25	389.61	4751914.78	384973.95	503.50	0.00	0.08	0.00	0.00				
	2090.00	88.03	88.96	751.46	-553.46	326.44	399.61	4751914.79	384983.94	512.06	0.00	0.08	0.00	0.00				
	2100.00	88.03	88.96	751.70	-553.70	326.62	408.68	4751914.81	384992.94	520.44	0.00	0.08	0.00	0.00				
	2110.00	88.03	88.96	751.94	-553.94	326.80	415.59	4751914.83	385000.03	528.17	0.00	0.08	0.00	0.00				
	2120.00	88.03	88.96	752.18	-554.18	326.98	422.50	4751914.84	385007.13	535.90	0.00	0.08	0.00	0.00				
	2130.00	88.03	88.96	752.43	-554.43	327.16	429.41	4751914.86	385014.22	543.63	0.00	0.08	0.00	0.00				
	2140.00	88.03	88.96	752.67	-554.67	327.35	436.32	4751914.88	385021.31	551.36	0.00	0.08	0.00	0.00				
	2150.00	88.03	88.96	752.91	-554.91	327.53	443.24	4751914.89	385028.40	559.09	0.00	0.08	0.00	0.00				
	2160.00	88.03	88.96	753.15	-555.15	327.71	450.15	4751914.91	385035.50	566.82	0.00	0.08	0.00	0.00				
	2170.00	88.03	88.96	753.40	-555.40	327.89	457.06	4751914.93	385042.59	574.55	0.00	0.08	0.00	0.00				
	2180.00	88.03	88.96	753.64	-555.64	328.07	463.97	4751914.94	385049.68	582.28	0.00	0.08	0.00	0.00				
	2190.00	88.03	88.96	753.88	-555.88	328.25	470.88	4751914.96	385056.77	590.01	0.00	0.08	0.00	0.00				
	2200.00	88.03	88.96	754.12	-556.12	328.43	477.79	4751914.98	385063.87	597.74	0.00	0.08	0.00	0.00				

SD 8.1.26 (64 bit) : 19 September 2017, 12:58:33 UTC-6

Weatherford International Limited

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SD Plan Report

Interpolated Points: (Relative to Slot centre)(TVD relative to Drill Floor)

Comment	MD (m)	Inc (°)	Az (°)	TVD (m)	SS Elevation (m)	N.Offset (m)	E.Offset (m)	Northing (m)	Easting (m)	VS (m)	DLS (°/30m)	T.Face (°)	B.Rate (°/30m)	T.Rate (°/30m)
	1410.00	88.83	88.96	757.89	-559.89	328.62	519.52	4751904.99	387103.87	604.72	0.00	0.00	8.08	0.00
TD 29H TD	1415.13	88.83	88.96	758.00	-560.08	328.67	522.64	4751905.80	387107.88	607.40	0.00	0.00	8.08	0.00

SECTION 4.0 - DRILLING PROCEDURES

Section 4.1 - Pre Spud

1. Fresh Water Well Samples

   Obtain samples from all fresh water wells located within a minimum 750 metre radius of the proposed well. Have routine water analysis done on all water samples by an independent laboratory in Sarnia. Ensure that copies of these reports are placed in the well files in Enbridge's office

2. Site Preparation

   Prepare drilling location as follows:

   a. Locate all drainage tiles crossing lease area
   b. Strip and properly stock pile all soil from the lease
   c. Cut, block and divert drainage tiles as required
   d. Construct adequate berms around lease and access road as required

3. Government Notification of Spud

   48 hours prior to spud, notify the Ministry of Natural Resources and Forestry – Petroleum Operations Section by fax @ (519) 873 – 4645 of the date of commencement of drilling operations

4. Signs

   Install rig signs on access road to lease.

5. Safety Meeting

   Conduct a pre-spud safety meeting for all crews. Rig Manager and all crewmembers must be present. A similar meeting shall be conducted with the remaining crew(s) as they come on duty. Additional safety meetings shall be conducted at the Wellsite Supervisor's discretion.

Section 4.2 - Surface Hole & Surface Casing

1. Drilling Method

   Drill a 508mm hole using water based bentonite gel/mud, 15 metres into the Kettle Point formation, to an approximate depth of 55m. Ensure that drill cutting samples are taken when bedrock is encountered and then every 3 metres to casing depth and placed in the sample bags provided by the Ministry of Natural Resources and Forestry. The sample bags must be labeled with the well name,

Township, Lot, Concession and Enbridge's name. Record on daily drilling reports any influx of fluids and/or hydrocarbons, static levels, pressures and any unusual hole conditions.

2. Casing Installation

   Depending upon hole conditions encountered, the 406mm casing will be run in the following manner:

   - Texas Shoe on bottom of first joint
   - Centralizers on the top and bottom of the first joint and at the bedrock contact point
   - 406mm casing to surface

3. Cementing Procedures

   Move in and rig up Cementers. Ensure pressure recorder is rigged in and serviceable. Pressure charts will be attached to the job ticket. Conduct a pre-job safety meeting to confirm volumes and procedures. Establish circulation using pump truck. The casing and the hole will be circulated with fresh water for a minimum of 15 minutes to clean the borehole and to fill the casing and hole prior to cementing. Pressure test surface equipment to 14 MPa. Ensure that preflush and mix water are from a clean source and that the water truck are also clean. Pump preflush of 2.0m^3 of fresh water, with the addition of loss circulation material if necessary. Ensure that a minimum of 4 cement samples are taken and represent the cement at the beginning, middle and end of the cement job. Mix and pump sufficient Class 'G' 0-1-0% cement plus 2 to 3% $CaCl_2$ with a density of 1901 kg/m^3 to cement the casing to surface with 100% excess. Displace cement with fresh water – under displace cement such that the bottom joint of 406mm casing is full of cement. Shut-in cementing valve at surface and set casing on bottom. Wait on cement a minimum of 24 hours before installing the BOPs.

4. Arrange to have surface hole cuttings solidified and then disposed in an approved manner.

Section 4.3 - Intermediate Hole & Intermediate Casing

1. BOP Installation and Pressure Testing

   Install 406mm x 425.5mm slip on weld on casing bowl. Install Class A (Rotary) BOPs as per MNRF requirements. After BOPs are installed and the cement samples indicate that the cement is competent, the rig will proceed to pressure test the BOPs, casing and shoe. Pressure test casing and each component of the BOPs as per Section 6.2. After successfully pressure testing the BOPs and casing, drill out cement and 0.5m of new formation and conduct a PIT, with the hole full of fresh water, using a bottom hole pressure equivalent to 18 kPa/m.

2. Drilling Method

Drill a 375mm hole with fresh water, 5m ± into the F Shale formation, to an approximate depth of 422m. Notify Geologist 12 hours in advance of reaching intermediate casing point, so that they can be on site to determine the proper casing setting depth. When casing setting depth has been determined, circulate the hole clean and run a deviation survey. Perform a flow check prior to tripping and strap out of the hole. Fast tripping of the drill string is to be avoided in order to eliminate high annular velocities, pressure surges and swabbing (maximum rate of 27 metres per minute). Keeping hole full of fluid, trip out of hole and laydown bottom hole assembly and stand back drill collars and drill pipe,

The potential for loss circulation exists while drilling through the Detroit River formations (Lucas and Amherstburg formations). If loss circulation is encountered use the loss circulation contingency program located in Section 4.6. Note all lost circulation intervals and monitor and record fluid loss volumes. If pit fluid must be hauled to disposal, keep solid content to a minimum to reduce costs.

Ensure that drill cutting samples are taken every 3 metres and placed in the sample bags provided by the Ministry of Natural Resources and Forestry. Surveys are to be taken every 100 metres. Deviation shall not exceed 1 degree per 100 metres and shall not exceed 2 degrees at any point. Record on daily tower sheets any influx of fluids (water and/or hydrocarbons), loss circulation (rate and depth) and/or any unusual hole conditions.

3. Casing Installation

Ensure that the threads are protected while hoisting casing to the floor. Drift all casing prior to running the casing in the well and apply proper API make-up torque to each connection.

Depending upon hole conditions encountered, the 298mm casing will be run in the following manner:

- Guide shoe
- 298mm joint of casing
- 298mm Float Insert or Float Collar
- Tack weld guide shoe, float collar and bottom 2 joints and use API modified pipe dope on all connections
- Centralizers will be installed one metre above the guide shoe, over the bottom of the first 2 collars and every 5 joints to surface
- 298mm casing to surface

4. Cementing Procedures

Move in and rig up Cementers. Ensure pressure recorder is rigged in and serviceable. Pressure charts will be attached to the job ticket. Conduct a pre-job safety meeting to confirm volumes and procedures. Establish circulation using pump truck. The casing and the hole will be circulated with fresh water for a minimum of 15 minutes to clean the borehole and to fill the casing and hole prior to cementing. Pressure test surface equipment to 14MPa for 10 minutes. Preflush and mix water must be obtained from a clean source and the water trucks must be uncontaminated. Pump $3.0m^3$ citric preflush with a $1.0m^3$ fresh water spacer, with the addition of loss circulation material if necessary. Ensure that a minimum of 4 cement samples is taken and represent the cement at the beginning, middle and end of the cement job. Mix and pump sufficient 0-1-8% Class 'G' plus 1 to 3% $CaCl_2$ (50% excess) followed by 0-1-0% Class 'G' cement plus 1 to 3% $CaCl_2$ (30% excess) to cement casing to surface. Depending upon the severity of the loss circulation zones, thixotropic cement with additional loss circulation materials may be used to cover the loss zone. If there are no cement returns to surface, a feed rate will be established and the annulus will be grouted to surface. Drop wiper plug and displace cement and bump plug to 3.5 Mpa over final pumping pressure – do not exceed 60% of internal yield pressure of casing. Once plug is bumped bleed off casing pressure, close casing valves and bleed off surface line pressure and wash out BOPs. Wait on cement a minimum of 24 hours before slacking off casing. Remove 406mm x 425.5mm casing bowl and install the 298mm x 346.1mm casing bowl on the 298mm casing.

Section 4.4 - Production Hole & Production Casing

1. Pressure Testing

Check cement samples for hardness – if cement samples are set to the satisfaction of the Wellsite Supervisor, proceed with installation of the BOPS. Install Class B (Rotary) BOPs as per MNRF requirements on 298mm casing bowl. Stump test BOPs prior to installation. After BOPs are installed and the cement samples indicate that the cement is competent, the rig will proceed to pressure test the BOPs, casing and shoe. Pressure test casing and each component of the BOPs as per Section 6.2. After successfully pressure testing the BOPs and casing, drill out cement and 0.5m of new formation and conduct a PIT, with the hole full of fresh water, using a bottom hole pressure equivalent to 18 kPa/m.

2. Drilling Method

Drill a 270mm conventional hole to the kick-off point. Brine will be used to drill this portion of the well, to prevent the dissolution of the salt layers. Ensure that drill cutting samples are taken every 3 metres and placed in the sample bags provided by the Ministry of Natural Resources and Forestry. Record on daily tower sheets any influx of fluids (water and/or hydrocarbons), loss circulation (rate and depth) and any unusual hole conditions.

At the kick-off point, circulate the hole clean, run a deviation survey and strap out of the hole. Pick up directional equipment and run in the hole with the directional bottom hole assembly. Prior to penetrating the A-2 Carbonate, the Wellsite Geologist and Wellsite Supervisor must be on-site and a BOP drill shall be completed to familiarize all on-site personnel with the proper procedures.

Drill a 270mm directional hole a minimum of 2 metres into the A-2 Anhydrite formation, at an approximate depth of 683mTVD (704mMD) at an angle of 52^0. The final casing point will be determined by the Wellsite Geologist. At casing total depth, circulate the hole clean and perform a flow check prior to tripping. Fast tripping of the drill string is to be avoided in order to eliminate high annular velocities, pressure surges and swabbing (maximum rate of 27 metres per minute). Keeping hole full of brine, trip out of hole – laydown bottom hole assembly, drill pipe and drill collars.

3. Casing Installation

Ensure that the threads are protected while hoisting casing to the floor. Drift all casing prior to running the casing in the well and apply proper API make-up torque to each connection.

Depending upon hole conditions encountered, the 219mm casing will be run in the following manner:

- Guide shoe
- 219mm joint of casing
- Float Insert or Float Collar
- Bottom 150 metres of 219mm casing shall have solid stand-off centralizers run on every other joint – above and below the collar
- Tack weld guide shoe, float collar and bottom 4 joints and use API modified pipe dope on all connections
- Centralizers will be installed on remaining casing – on every 5^{th} joint to surface
- 219mm casing to surface

4. Cementing Procedures

Move in and rig up Cementers. Ensure pressure recorder is rigged in and serviceable. Pressure charts will be attached to the job ticket. Conduct a pre-job safety meeting to confirm volumes and procedures.

Establish circulation using pump truck. The casing and the hole will be circulated with brine for 15 minutes to clean the borehole and to fill the casing and hole prior to cementing. Pressure test surface equipment to 14 MPa for 10 minutes. Preflush and mix water must be obtained from a clean source and the water trucks must be uncontaminated. Pump preflush of $3.0m^3$ of clean brine, with the addition of loss circulation material if necessary. Ensure that a minimum of 4 cement samples is taken and represent the cement at the beginning, middle and end of the cement job. Mix and pump

sufficient Class 'G' 0-1-0% cement plus 10% NaCl, to cement the 219mm casing to surface plus 50% excess over open hole and 30% excess in cased hole. Drop wiper plug and displace cement with fresh water and bump plug to 3500 kPa over final pumping pressure – do not exceed 60% of internal yield pressure of casing. Once plug is bumped bleed off casing pressure, close casing valves and bleed off surface line pressure. Wash out BOPs and split BOP stack at 346mm flange, install 219mm slips and set slips in casing bowl. Wait on cement a minimum of 48 hours and cut casing and remove BOPs.

Section 4.5 - Main Hole

1. Installation of the BOPs and Cement Bond Log

   Check cement samples for hardness – if cement samples are set to the satisfaction of the Wellsite Supervisor, proceed with installation of the BOPS. Install Class B (Rotary) BOPs as per MNRF requirements on 228.6mm flange. After BOPs are installed and the cement samples indicate that the cement is competent, move in and rig up the Wireline Company and run a cement bond log (both pressure (7000kPa) and non-pressure pass) over the 219mm casing. After the cement bond log is completed and the cement job is deemed successful, the rig will proceed to pressure test the BOPs, casing and shoe. Pressure test casing and each component of the BOPs as per Section 6.2. After successfully pressure testing the BOPs and casing, drill out cement and 0.5m of new formation and conduct a PIT, with the hole full of fresh water, using a bottom hole pressure equivalent to 18 kPa/m.

2. Logging

   Move in and rig up Wireline Company. With hole full of fresh water, run a casing inspection log over the 219mm casing. Rig out Wireline Company and release.

3. Drilling Method

   Drill a 200mm hole with fresh water system – ensure that the temporary storage tanks are full of fresh water and water trucks have been put on alert. After drilling each length of drill pipe, work the newly drilled hole to ensure that there will not be any issues running in and out of the open hole. A high viscosity sweep with floc will be added at each connection to assist with hole cleaning. Drill from 704mMD (683mTVD) at 52^0 to 88^0 at 842mMD (737mTVD) and continue drilling to a depth of 1413mMD (758mTVD) for a horizontal distance of approximately 180m.

   Ensure that Wellsite Geologist is on site to monitor cuttings and liaise with Directional Drillers concerning the path of the horizontal well. Drill to TD indicated by Wellsite Geologist. At TD pump a final sweep and if possible, circulate hole until clean returns are observed at surface.

The potential for loss circulation exists while drilling through the Guelph formation. If loss circulation is encountered, use the loss circulation contingency program located in Section 4.6. Note all lost circulation intervals and monitor and record fluid loss volumes.

Pull out of hole with drilling assembly and laydown drill pipe, drill collars and bottom hole assembly. Move in and rig up Wireline Company complete with full lubricators. Run in hole with gauge ring to ensure clear hole to bridge plug setting depth. Run in hole with wireline set, retrievable 219mm bridge plug and place as deep as possible in the 219mm casing and pull out of hole with the setting tool. Fill hole with fresh water and pressure test plug to 7000 kPa for 10 minutes. If the plug does not hold pressure, be prepared to set another 219mm retrievable bridge plug. Release Wireline Company and release Directional Drilling Company.

Nipple down BOPs. Cut and bevel 219mm casing and install primary and secondary seals. Install 346mm x 228.6mm spool piece and install 315mm x 900 ANSI full port ball (master) valve and test wellhead seals to 14 mPa for 10 minutes. Close master valve and install 315mm blind flange. Install pressure recorder, ensure that the well is full of fresh water and pressure test casing, wellhead and master valve to a surface pressure of 11,000 kPa for a minimum of 4 hours. Call Enbridge Office with the results.

4. Rig down rotary rig and move off of location.

5. Restore wellsite to Enbridge's specifications.

Section 4.6 - Loss Circulation Procedure

1. Before drilling out the casing shoe:
   a. Identify sources and location of fresh water and/or brine, loss circulation materials and weight materials
   b. Ensure BOPs and manifold are properly installed
   c. Ensure auxiliary tanks are connected to the pumping system and a standby mud pump is hooked up for annular injection in case of severe loss circulation (so that fluid can be pumped down both the drill pipe and annulus simultaneously)
   d. Pressure test BOPs prior to drill out

2. After drilling out shoe:
   a. Alert water suppliers and haulers
   b. Ensure adequate amounts of fresh water and/or brine are readily available prior to penetrating the Detroit River and Guelph formations
   c. Mechanically test BOPs and perform BOP drill prior to penetrating the Detroit River and Guelph formations.

3. Drilling Blind – Detroit River formations:
   a. In an attempt to maintain or re-establish circulation, pump fluid down both the annulus and the drill pipe simultaneously
   b. Should severe loss circulation occur while drilling, the thief zone may be plugged with cement and/or loss circulation material at Enbridge's discretion.

4. Drilling Blind – Guelph
   a. In an attempt to maintain or re-establish circulation, pump fluid down both the annulus and the drill pipe simultaneously
   b. Make wiper trips or reciprocate the drill pipe to maintain a clean hole every joint or two as directed by the Wellsite Supervisor
   c. Sweep the hole every 1 to 3 joints
   d. Use a. and b. in combination
   e. At TD conduct a final sweep and then trip out BHA

SECTION 5.0 - REPORTING PROCEDURES

Section 5.1 - Tower Sheets

Shall be completed daily and shall include:

1. Bit size, fluid type and weight, weight on bit, deviation surveys, depth at the beginning of the shift and end of each shift.

2. Casing size, grade, weight, and number of joints, centralizers, other casing attachments, total length and setting depth.

3. Cementing information – Service Company, cement type, amount, slurry density, additives, annular fluid returns, volume of displacement fluid and plug down time.

4. Water, gas or oil – type, depth encountered depth of sample collected and the static level and/or rate of flow.

5. Pressure tests – individually, surface pressures, fluid density used in the tests, bleed-off rate and duration of test.

6. Logging Details – type and interval.

7. Abandonment details – intervals, amount and type of cement, top of plug and time felt.

8. Rig release – date and time.

Section 5.2 – Worker Injury

Immediately provide first aid to the injured party and ensure that all personnel are removed from harm's way. Secure the area and ensure that the site is preserved in case an investigation is required.

Every work related accident or injury shall be reported immediately to the Wellsite Supervisor. The Supervisor shall immediately contact the Enbridge Gas Distribution Inc. Office, specifically the Manager, Reservoir Development followed by the Reservoir Field Supervisor. The verbal report shall be followed with a written report, including but not limited to, the Contractor's Accident/Incident Investigation form. The affected Contractor is responsible to contact the proper authorities concerning the accident.

SECTION 6.0 - SAFETY AND PROCEDURES

Section 6.1 - General Safety

1. All works at the Wellsite shall be in compliance with the Occupational Health and Safety Act and the Oil, Gas & Salt Resources Act and all associated legislation. In addition, all work at the Wellsite shall be done in compliance with good oil field practices. All verbal notifications given to and approvals received from government agencies shall be recorded on the tower sheets.

2. Safety meetings are to be held with each crew, at the start of the well and periodically while drilling – meetings shall also be held prior to cementing and upon arrival of the logging company, prior to commencement of directional drilling operations and prior to penetrating the Detroit River formations and the A-2 Carbonate formation.

3. The Wellsite Supervisor shall ensure that the operations are in compliance with all applicable government regulations and shall complete daily walk around rig inspections.

Section 6.2 – Well Control

All blowout prevention systems are to be in strict compliance with MNR regulations. The function and pressure testing guidelines required by the regulatory bodies (such as daily function testing of the pipe rams) will be strictly adhered to.

1. All pressure tests of blowout prevention equipment will be conducted with fresh water and will be conducted in 2 stages – low and high pressure. It is essential that the low pressure test be done first, to prevent the high pressure test from healing leaks that would have been noted at low pressures.

2. The following pressure test will be conducted with fresh water prior to drilling out each casing string and the results recorded on the tower sheets and daily reports:

    a. The blind rams, kill lines and choke manifold will be tested individually for 10 minutes each to:
        i. Intermediate casing 2000 kPa low & 9000 kPa high
        ii. Production casing 2000 kPa low and 10000 kPa high

    b. Run in hole with BHA, drill pipe and drill collars and pressure test the casing string, pipe rams, kelly cock, stand pipe, swivel, safety valves, etc. will be tested individually for 10 minutes each to:
        i. Surface casing 1400 kPa low and 3500 kPa high (using AP)
        ii. Intermediate casing 2000kPa low & 9000 kPa high
        iii. Production casing 2000 kPa low and 10000 kPa high

c. The annular preventer will be tested for 10 minutes to
    i. Surface casing 1400 kPa low and 3500 kPa high
    ii. Intermediate casing 2000 kPa low & 9000 kPa high
    iii. Production casing 2000 kPa low and 10000 kPa high

3. Upon drilling out the casing, drill 0.5m to 1.0m of new hole and test the formation, with the hole full of fluid, to a minimum bottom hole pressure of 18 kPa per metre.

4. After one day of drilling below the casing shoe, check the entire blowout prevention system and tighten all bolts.

5. Crews should be kept alert and familiar with the blowout prevention equipment. At least one member of the crew who has been trained in blowout prevention and well control procedures must be on the floor at all times.

6. Conduct blowout prevention drills prior to drilling out casing and once per week thereafter. Ensure that the drills are recorded in the tour book.

7. The blowout preventers are to be function tested once per tour. Ensure that the function test is recorded on the tower sheets.