

Nov 30, 2023

Manitoba Science, Technology, Energy & Mines, Petroleum Branch Box 1359 – 227 King Street, Virden, Manitoba R0M 2C0

Re: Application for Single Well Oil Battery (Sinclair 103.8C/08-07-009-28 W1M Battery)

On behalf of Corex Resources, Transworld Automation & Power Ltd. is submitting an application to obtain a permit for construction and operation for a single well oil battery located at LSD 08-07-009-28 W1M.

Please find attached the relevant documentation outlined in Section 75 (1) – "Application for Battery Operating Permit" of the Manitoba Drilling and Production regulation. Please feel free to contact Steve Pfister (403-999-8374) at Transworld Automation & Power Ltd or Nick Fanai (403-710-3363) if you have any questions or concerns.

Sincerely,

Steve Pfister,
President,
Transworld Automation & Power Ltd.

Cc: Nick Fanai, P.Eng, Corex Resources

## MANITOBA BATTERY PERMIT APPLICATION - Drilling and Production Regulations Section 75(1)

- a) The application fee of \$1,000 will be submitted via EFT. I will forward the email to Scott Westbrook, Eric Bjornsson and Whitney Baker.
- (b) Performance deposit for Corex is currently up to date.
- (c) A survey plan of the well site and battery has been included in Appendix A.
- (c.1) The description of landowner consultation is attached in Appendix B. This appendix also includes the names and addresses for all landowners and occupants within 1.5 km of the proposed battery.
- (d) Well 103/08-08-009-28W1M, license 11854, will be the only well that will produce to this battery
- (e) This well is currently producing 17.5 m3/day oil, 5.84 m3/day water, and 0.472 e3m3/day gas. The well has an assumed GOR of 29.36 m3/m3. Gas testing is currently being done to confirm the GOR. It is estimated that 95% of the gas will separate out in the separator and go to the incinerator before being vented to atmosphere. The incinerator will significantly reduce H2S and greenhouse gas emissions.
- (e.1) A gas analysis has been included in Appendix C for the 103/08-08-009-28W1M well and was used for the gas dispersion modeling.
- (f) Equipment specification.
  - There will be a test separator, two (2) 400bbl production tanks, a 100bbl POP tank, a waste gas incinerator and a propane bullet on site. The well is electrified.
  - The equipment will be from Corex's surplus equipment.
  - Test Separator:
    - 8 x10' building on a skid
    - The vessel is 2286mm (90") high x 610mm (24") OD. MAWP 1440 PSI, 2 Phase separator.
    - Operating pressure range of 103-138kPa (15-20PSI)
    - 33mm (1") Taylor PSV "E" orifice set at 1960kPa (284PSI)
    - MB CRN # V7840.213 4, SN# 6287.1588
    - 3-way divert valve actuated on high level and high pressure
    - Scanner 2000 gas meter run with bypass
    - Air compressor

- Gas scrubber with drain pot
- Building heater
- Production Tanks:
  - 3658mm (12') dia. X 6096mm (20') high
  - 64m3 (400bbl)
- Incinerator:
  - Black Gold Industries, Model #BGR-CUBE-1500
  - SN# 260723-01
  - 1537mm (5'-1/2") wide X 3156mm (10'-4") high X 1537mm (5'-1/2" deep, freestanding, mounted on concrete base supported by piles, surrounded by concrete 'Jersey' barriers.
  - 12-24VDC, ACL-CSC400, B149.3 compliant valve train and control system.
- O POP Tank:
  - 2743mm (9') dia. X 2743mm (9') high
  - 15.9m3 (100bbl)
- o Propane bullet:
  - Will provide fuel gas for the incinerator pilot.
- (g) 103/8-8-9-28 is the only well producing into this facility. The well will continuously be on test as it is producing through a test separator to separate the gas. Gas will be measured by Smart cone meter with a Scanner 2000 displaying the volume.
- (g.1) This battery will collect all gas from the separator, and it will go directly to the incinerator. The incinerator is a high efficiency enclosed vapor combustor designed for low pressure vent gas with 99.96% total hydrocarbon destruction. Gas is automatically ignited within the incinerator with a B149.3 compliant burner controller. When the incinerator is operating, there will be no flame or smoke from the exhaust stack.
- (g.2) The two (2) 400bbl production tanks will be vented to the atmosphere. The amount of gas in the storage tanks will be minimal as production from the well will have been processed first by the Test Separator.
- (g.3) All gas from the test separator will be directed to the incinerator. As per the Dispersion Modeling Guidelines for Oil Batteries in the Province of Manitoba, it is assumed that the combustion conversion of H2S to SO2 is 100%. It has been determined that 95% of the gas is collected and will pass through the incinerator, and therefore this location will be compliant with the ambient air quality for H2S.

The results of the gas dispersion modelling for SO2 at the proposed battery are included within Appendix D.

Air dispersion modeling for SO2 was completed at various production rates and show results of 55  $\mu$ g/m3 for the one-hour average and 35  $\mu$ g/m3 for the 24-hour average. These results are in compliance with Schedule G of the regulation.

(h) A proposed plot plan is included in the application package in Appendix E. Corex will complete an as-built survey of the site and forward it to the branch. For well site

planning, we will ensure the tanks are 25 meters away from the wellhead and the incinerator is 10 meters away from the tanks and the wellhead.

- (i) A process flow diagram is included in Appendix F.
- (k) The oil from this location will be hauled to the 15-25-009-29W1M Daly West battery where it will be processed. The water from this location will be hauled to the 12-33-8-28W1M Sinclair battery where it will be disposed of in the disposal well at this location.

If you have any additional questions, comments, or concerns please contact myself, at 403-999-8374 or Nick Fanai 403-710-3363.



Plan Showing Survey of

## **COREX DALY SINCLAIR PROV HZNTL B8-8-9-28**

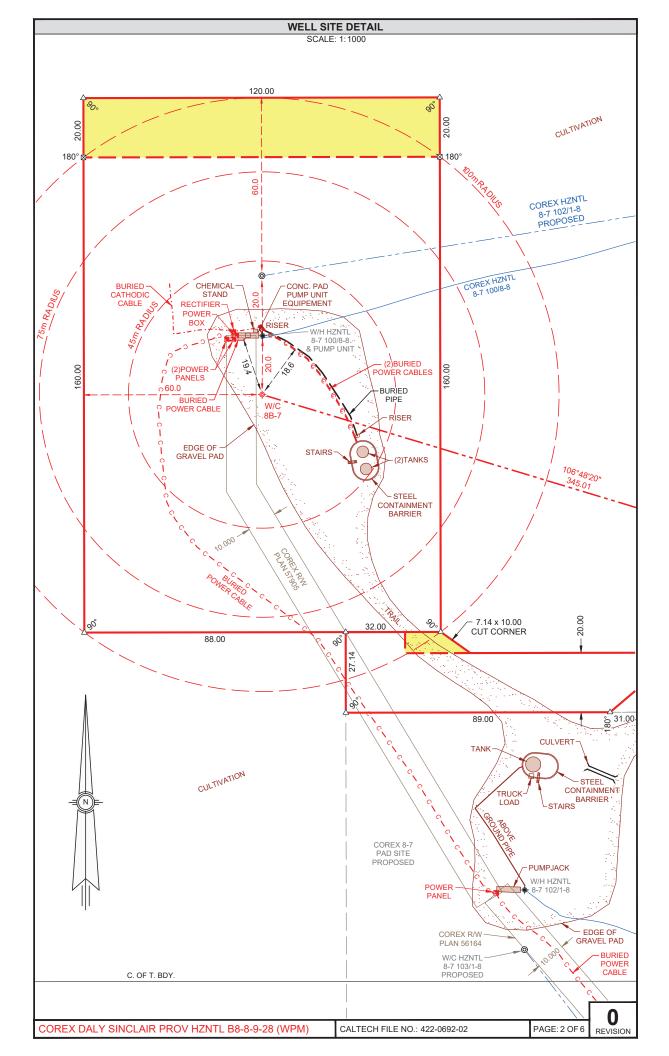
Well Site and Access Road

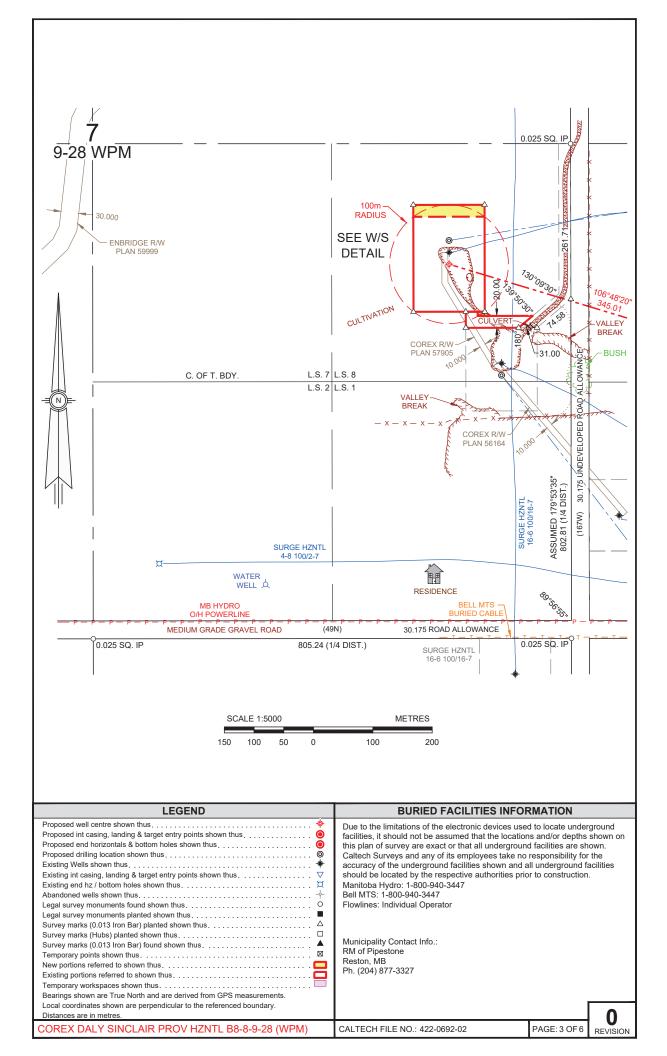
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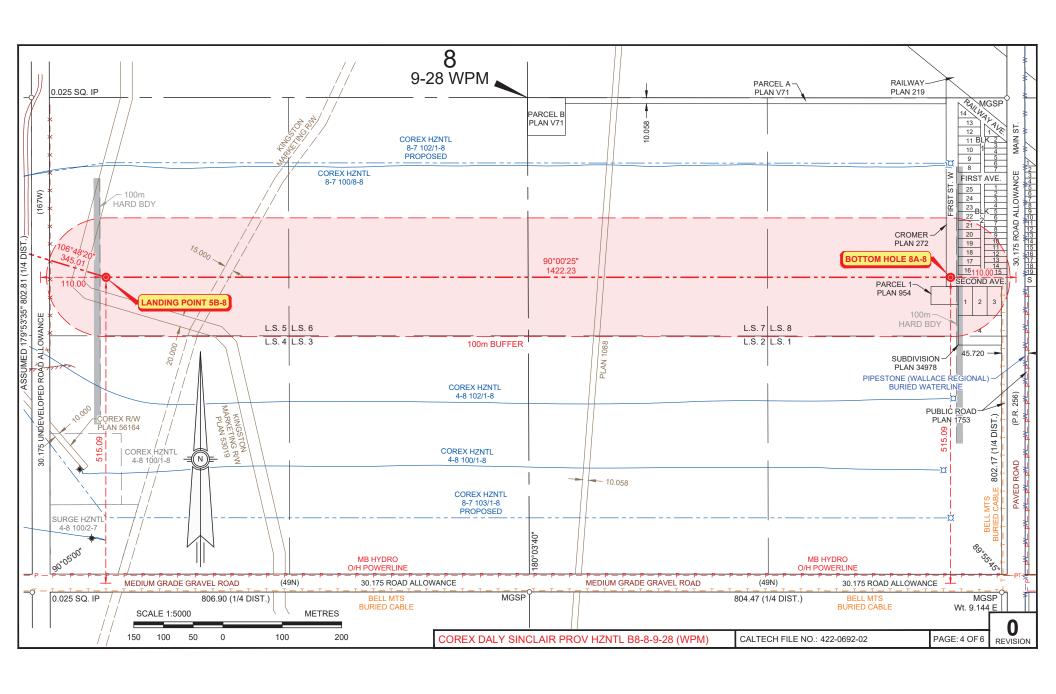
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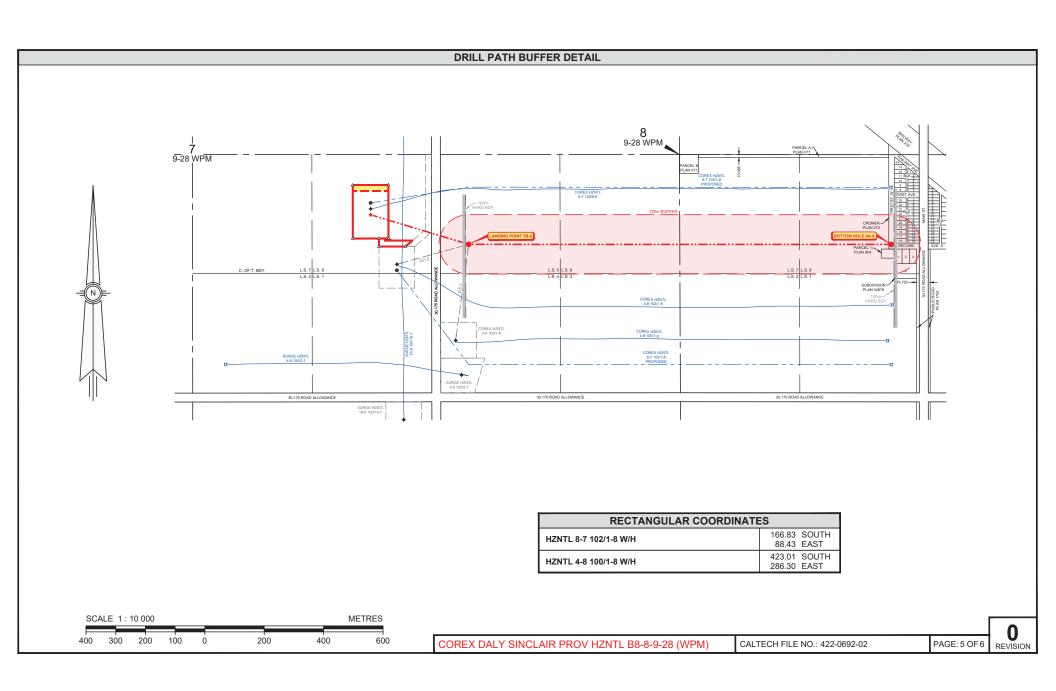
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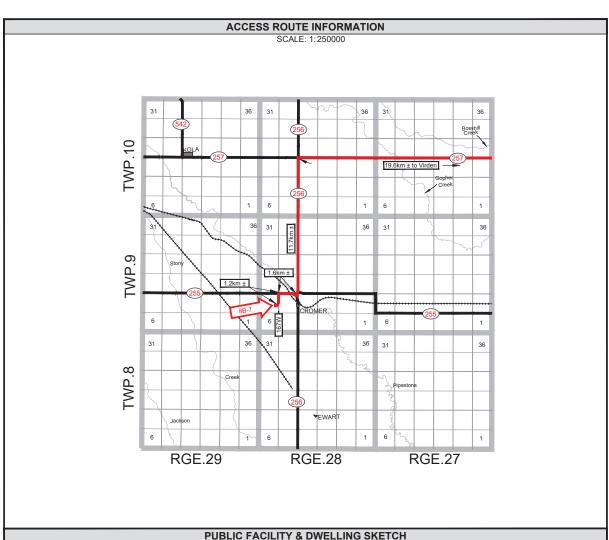
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this document and the original document, the signed, sealed original shall govern.  Manitoba Land Surveying Inc.  No. 2017-9					REVISION TABLE							
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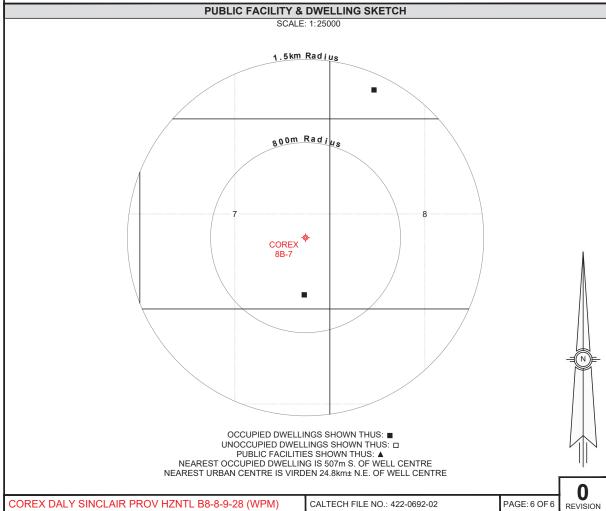
















**GAS ANALYSIS** TB2A 23GS986397A AGAT WDMS Number Container Identification Sample Point Code Meter Code Previous Number Laboratory Number COREX RESOURCES WELLHEAD CASING 103/08-08-009-28W1/00 Operator Name Sampling Point Unique Well Identifier COREX DALY SINCLAIR HZNTL 8-8-9-28 11854 Well Name Well License Well Status Well Fluid Status LSD **SINCLAIR NOT AVAILABLE** AGAT/ESTEVAN KJ Field or Area Pool or Zone Sampler's Company Name of Sampler Test Interval (mKB) Elevation (m) Pressure (kPa) Temperature (°C) 30 507.40 503.20 1 21 Test Type KB GRD Received Received From: To: Test No. Source Source Jan 10, 2023 Jan 12, 2023 Jan 17, 2023 Jan 17, 2023 Calgary - Gerry Ecker - Reporter Date Received Location - Approved By - Title Date/Time Sampled Date Analyzed Date Reported Other Information: **PROPERTIES** COMPOSITION Calculated Heating Value @15 °C & 101.325 kPa (MJ/m³) **Mole Fraction** Gross Mole Fraction Liauid Air & Acid Gas 0.31 79.95 80.67 72.74 73.40 Air Free Volume Volume of Previous Component Free As As Received mL / m<sup>3</sup> Analysis Air Free as Moisture & C<sub>2</sub>+ Moisture Air Free as Moisture & Received Acid Gas Free Received Acid Gas Free Free Received  $H_2$ 0.0016 0.0016 Calculated Density He TRACE TRACE Absolute Relative  $N_2$ 0.0764 0.0771 3.524 690.7 1.364 1.362 1.670 CO<sub>2</sub> 0.0091 0.0000 Total Sample Moisture Free Moisture & Acid C<sub>7</sub>+ Moisture C<sub>7</sub>+ Density H<sub>2</sub>S 0.0000 0.0000 As Received Gas Free Free (kg/m³) Density (kg/m³)  $C_1$ 0.0763 0.0770 Calculated Pseudo Critical Properties  $C_2$ 0.2902 0.2929 1031.3 As Sampled Acid Gas Free 0.3791 C<sub>3</sub> 0.3827 1393.1 4316.5 327.8 4288.5 328.0 iC₄ 0.0439 0.0443 191.7 pPc (kPa) pTc (K) pPc (kPa) pTc (K) nC<sub>4</sub> 0.0906 0.0914 381.2 Hydrogen Sulfide (H₂S) (ppm) iC<sub>5</sub> 0.0151 0.0152 73.7 nC<sub>5</sub> 0.0119 0.0120 57.6 Field Value Laboratory Value q/m<sup>3</sup>  $C_6$ 0.0043 0.0043 23.6 0.00 n

WDMS Data Verification Check

0.0015

1.0000

9.4

3161.6

Exceeds normal limits: IC5, NC5, N2

0.0015

1.0000

C<sub>7</sub>+

**TOTAL** 

Calculated Vapour Pressure

Gas Compressibility

0.9832

Cs+ (kPa)

015 °C & 101.325 kPa

Other

Calculated Molecular Weight (Moisture Free as Received) (g/mol)

GC-SCD

102.1

C<sub>7</sub>+ Fraction

Stain Tube

39.5

Total Sample

Tutweiler



## Daly Sinclair 08-07 Single Well Battery LSD 08-07-09-28 W1M November 19, 2023

 $SO_2$  air quality assessment was completed at the Daly Sinclair 08-07 Single Battery and its neighboring site to compare the predicted  $SO_2$  ground level concentrations (GLC) with the Manitoba Oil and Gas Act – Schedule G.

Dispersion modeling was used to predict the SO<sub>2</sub> GLC results from the emissions of the Incinerators operating at their design capacity described in Table 1 below.

Table 1. Incinerator Parameters

Scenario	Incinerator	Stack Height above grade (m)	Stack Inside Diameter (m)	SO2 Emission Rate (g/s)	Pseudo Velocity (m/s)	Exit Temp. (°C)
1	FS-800	3.05	1.7	0.0418	0.914	390
_	FS-900	7.01	0.438	0.0007	5.8	600
2	FS-800	3.05	1.7	0.0418	0.914	390
	FS-900	7.01	0.438	0.0007	4.7	1000

For the purpose of this assessment, the United States Environmental Protection Agency (U.S. EPA) regulatory model - AERMOD (Version 22112) was used to predict the maximum ground level concentrations of SO<sub>2</sub>.

The results are very low SO<sub>2</sub> ground level concentrations as compared to the Oil and Gas Act – Schedule G and are detailed in Table 2.

Table 2. Modeling Results

Air Quality Parameter SO <sub>2</sub>	Case 1	Case 2	Oil and Gas Act - Schedule G Limit
1-hour average (9 <sup>th</sup> max.)	55 μg/m³	55 μg/m³	900 μg/m³
24-hour average	35 μg/m³	35 μg/m³	300 μg/m³
Annual average	2 μg/m³	2 μg/m³	60 μg/m³

Based on the AERMOD models the predicted SO<sub>2</sub> ground level concentrations are in compliance with the MAAQC.



