A1360 49

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY - OFFICE OF OIL, GAS, AND MINERALS

APPLICATION FOR PERMIT TO: ☒ DRILL ☐ DEEPEN ☐ CONVERT AND OPERATE A WELL

By authority of Part 615 or Part 625 of Act 451 PA 1994, as amended. Non-submission and/or falsification of this information may result in fines and/or imprisonment.

1a. Part 615 Supervisor of Wells	1b. Part 625 Mineral Wells	1c. Fee enclosed
☒ Oil and Gas	☐ Waste Disposal	☒ Yes
☐ Brine Disposal	☐ Brine Production	☐ No, revision of application
☐ Hydrocarbon Storage	☐ Processed brine disposal	☐ No, leg of horz drainhole
☐ Injection for Secondary Recovery	☐ Storage	
	☐ Test, fee sched. on rev.	

2. List all previous permit numbers

3. Fed. ID. No. (do not use SSN) 98-0087558

Locate well and outline drilling unit on section plat

Please see attached survey plat.

4. Conformance bond	5.	6. Bond number	7. Bond amount
☒ Blanket ☐ Single well	☐ Attached ☒ On file	105375520	$250,000

8. Applicant (name of permittee as bonded)
Encana Oil & Gas (USA) Inc.

9. Address
370 17th Street
Suite 1700
Denver, CO 80202

Phone **720-876-3989**

I authorize DEQ 4 additional days to process this application. ☒ Yes ☐ No

10. Lease or well name (be as brief as possible) **State Excelsior** Well number **1-25 HD-2**

11. Surface owner **State of Michigan**

12. Surface location **NE** 1/4 of **NW** 1/4 of **NE** 1/4 of Sec **1** **T 26 N** **R 6 W** Township **Oliver** County **Kalkaska**

13. If directional, bottom hole location **NE** 1/4 of **NE** 1/4 of **SW** 1/4 of Sec **25** **T 27 N** **R 6 W** Township **Excelsior** County **Kalkaska**

14. The surface location for this well is **459** feet from **nearest** (N/S) **N** section line AND **1737** feet from **nearest** (E/W) **E** section line

15. Is this a directional well? ☐ No ☒ Yes If yes, complete line15. The bottom hole location for this well is **2179** feet from **nearest** (N/S) **S** section line AND **2534** feet from **nearest** (E/W) **W** section line

16. The bottom hole location (whether straight or directional) of this well is **460** feet from **nearest** (N/S) **N** drilling unit line AND **2534** feet from **nearest** (E/W) **W** drilling unit line

17. Kind of tools	18. Is sour oil or gas expected?	19. Base of lowest known fresh water aquifer
☒ Rotary ☐ Cable ☐ Combination	☒ No ☐ Yes ☒ H_2S Cont. plan enclosed	Formation **Glacial Drift** Depth **600'**

20. Intended total depth	21. Formation at total depth	22. Producing/injection formation(s)	23. Objective pool, field, or project
MD **17018** TVD **8994**	**Collingwood**	**Utica-Collingwood**	**Exploratory**

24. PROPOSED DRILLING, CASING AND CEMENTING AND SEALING PROGRAM

HOLE			CASING			CEMENT			MUD	
Depth (MD)	Geol. Formation	Bit Dia.	O.D. Size	Wt/Ft Grade Condition	Depth (MD)	Sacks	T.O.C.	W.O.C	Wt.	Vis.
100'	Glacial Drift	N/A	20"	Driven Conductor	100'	N/A	N/A	N/A	N/A	N/A
1026'	Coldwater	17 1/2"	13 3/8'	68# J55 New	1026'	1020	Surf.	12+	9.3	50+
4942'	Bass Island	12 1/4"	9 5/8"	40# N80 New	4942'	1090	500'	12+	10.2	28
8907'	Utica Sonic	8 1/2"	7"	26# Liner New	4740'-9100'	412	6580	12+	10.8	30
17018'	Collingwood	6 1/8"	5 1/2" 4 1/2"	20# P110 Tieback New 13.5# P110 New	0'-4500' 4500'-17018'	1096	7700	12+	10.8	30

25. DETAIL CEMENTING PROGRAM IDENTIFY ALL CEMENT CLASSES, ADDITIVES, AND VOLUMES (IN CU. FT.) FOR EACH CASING STRING

Surface **75% OH Excess: Lead 790 SX Howco Lite w/3% CaCl (1335 cu ft) + tail 230sx Cl A w/ 3% CaCl (276 cu ft)**

Intermediate **50 % OH Excess: Lead 877 Sx 65/35 Poz w/12% Salt (1804 cu ft) + tail 215sx Cl A w/ 12% Salt (262 cu ft)**

Intermediate Liner **50 % OH Excess: Lead 412 Sx Cl H w/ 0.9% gas stop, 0.4% fluid loss, .2% de-air CaCl2(489 cu ft)**

Production/Injection **50 % OH Excess: Lead 1096 Sx Cl H w/ 0.9% gas stop, 0.4% fluid loss, .2% de-air CaCl2(1250 cu ft)**

26. Send correspondence and permit to
Name Brenda R. Linster c/o Encana Oil & Gas (USA) Inc. E-mail brenda.linster@encana.com
Address 370 17th Street, Suite 1700, Denver, CO 80202 Phone 720-876-3989

CERTIFICATION "I state that I am authorized by said applicant. This application was prepared under my supervision and direction. The facts stated herein are true, accurate and complete to the best of my knowledge."

Enclose permit fee of $300 for all Part 615 wells; $2,500 for a Part 625 waste disposal well; or $500 for a brine production, processed brine disposal, or storage well. Make checks payable to State of Michigan.

27. Application prepared by (print or type) Brenda R. Linster Phone 720-876-3989

DEQ Cashier use only.

28. Signature Brenda R. Linster Date 03.31.12

Office of Oil, Gas, and Minerals Use Only

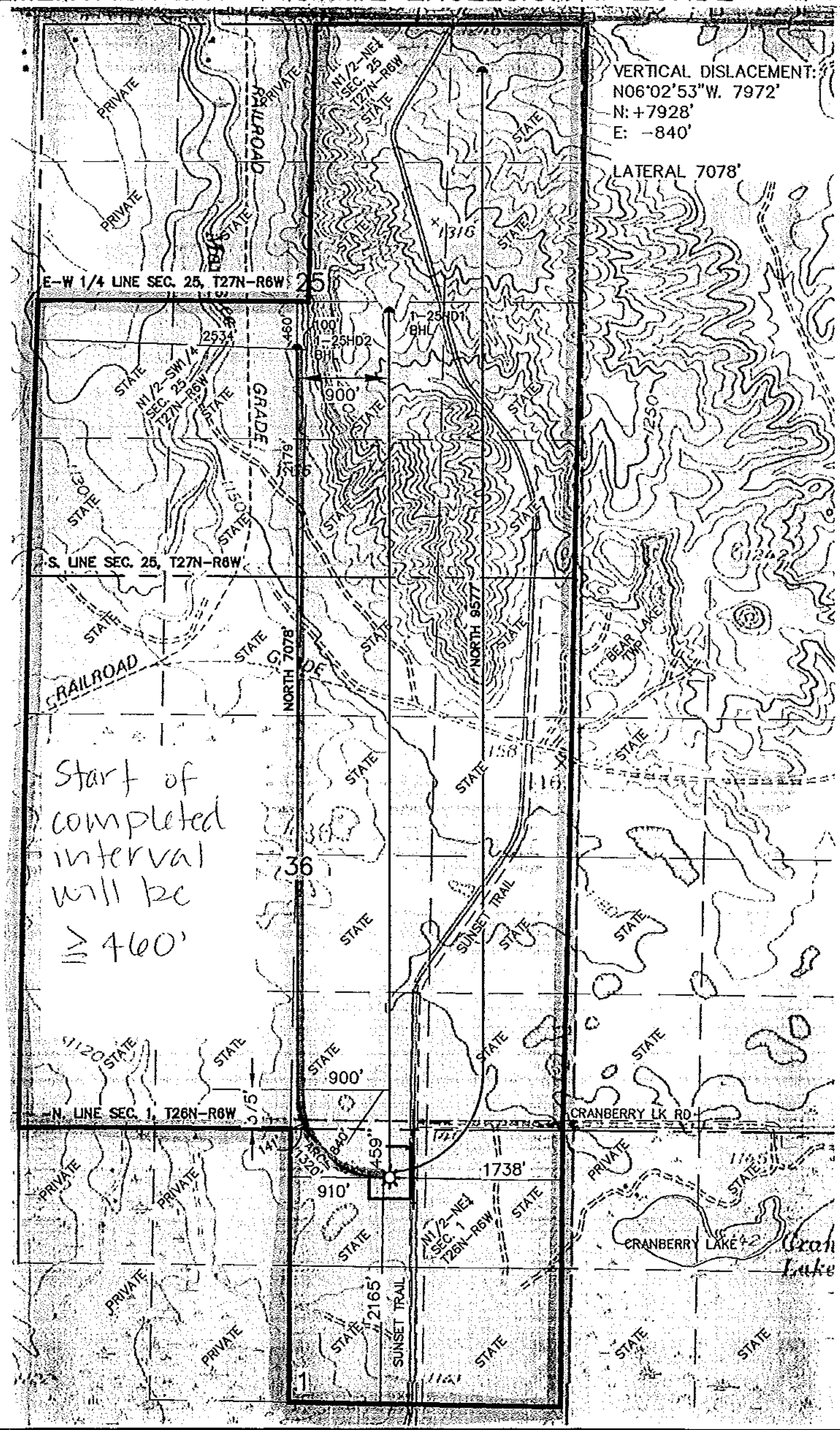
Permit number	API number	Date issued	Owner number

EQP 7200-1 (rev. 1/2012) SEE INSTRUCTIONS FOR MAILING ON REVERSE

SUPPLEMENTAL PLAT – STATE EXCELSIOR 1-25HD2

encana.
natural gas

0' 660' 1320'
SCALE: 1" = 1320'



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FARRIER SURVEYING INC.
P.O. BOX 998
244 S.CEDAR STREET
KALKASKA, MI 49646
TEL(231)258-8162 FAX(231)258-3249
office@farriersurveying.com

CLIENT ENCANA OIL & GAS (USA) INC.
DESCRIPTION STATE EXCELSIOR 1-25HD2
UNIT: SEC. 1: NE 1/4 T26N-R6W, OLIVER TOWNSHIP, SEC. 25: S 1/2, NE 1/4; SEC. 36 ALL; T27N-R6W EXCELSIOR TWP.,KALKASKA COUNTY, MI

DRAWN: DVS	CHECK: DRF	REVISED:
FILE No. 0311	Fd. Bk. 222 Pg. 44	DATE: 3/30/12
		SHEET: 1 of 2

SHL FOOTAGES:

2165' FSL UNIT	459' FNL SECTION
910' FWL UNIT	1738' FEL SECTION

BHL FOOTAGES:

460' FNL UNIT	2179' FSL SECTION
2534' FWL UNIT	2534' FWL SECTION

SURVEYED ELEV. @ WELL: 1148.65'

DEQ MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY - OFFICE OF GEOLOGICAL SURVEY

SURVEY RECORD OF WELL LOCATION

This information is required by authority of Part 615 Supervisor of Wells, or Part 625 Mineral Wells, of Act 451 PA 1994, as amended, in order to obtain a drilling permit.

Applicant: ENCANA OIL & GAS (USA) INC.

Well name and number: STATE EXCELSIOR 1-25HD2

1a. Surface location: NE 1/4 of NW 1/4 of NE 1/4 of section 1 T 26N R 6W — Township: OLIVER — County: KALKASKA

1b. If this is a directional well, bottom hole location will be: NE 1/4 of NE 1/4 of SW 1/4 of section 25 T 27N R 6W — Township: EXCELSIOR — County: KALKASKA

Instructions: Outline drilling unit for oil/gas wells (Part 615) or property boundary for mineral wells (Part 625) and spot well location on plat shown. Locate the well in two directions from the nearest section, quarter section, and unit (or property, Part 625) lines.

2. The surface location is

459 ft. from nearest (N/S) N section line

1737 ft. from nearest (E/W) E section line

and

459 ft. from nearest (N/S) N quarter section line

910 ft. from nearest (E/W) W quarter section line

3. Bottom hole will be (if directional)

2179 ft. from nearest (N/S) S section line

2534 ft. from nearest (E/W) W

and

460 ft. from nearest (N/S) N quarter section line

100 ft. from nearest (E/W) E quarter section line

4. Bottom hole will be (directional or straight)

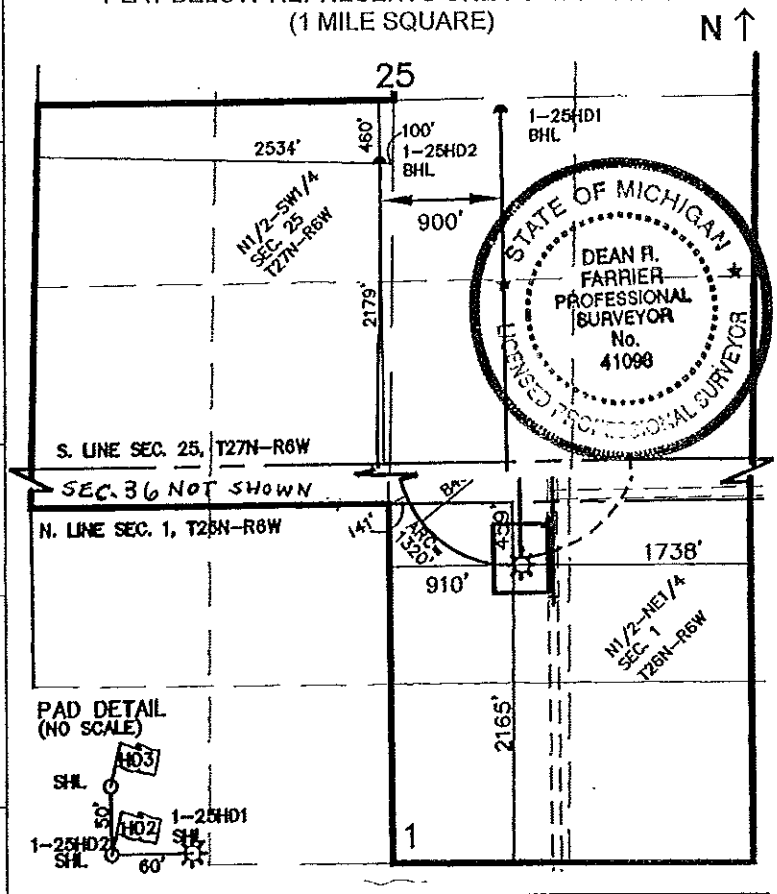
460 ft. from nearest (N/S) N drilling unit line

2534 ft. from nearest (E/W) W

5. Show access to stake on plat and describe if it is not readily accessible. FROM THE INTERSECTION OF HWY. M-72 AND US -131, GO EAST ON M-72 10.5 MILES. TURN RIGHT, GO SOUTH ON SUNSET TRAIL, 2.3 MILES TO POINTER. GO WEST 200' TO STAKE IN FOREST.

6. Zoning ☐ Residential, effective date _____
Initial date of residential zoning _____
☒ Other STATE OWNED

PLAT BELOW REPRESENTS ONE FULL SECTION (1 MILE SQUARE)



ON SEPARATE PLAT OR PLOT PLAN, LOCATE, IDENTIFY AND SHOW DISTANCES TO:

A. All roads, power lines, buildings, residences, fresh water wells, and other man-made features, within 600 feet of the stake.

B. All lakes, streams, wetlands, drainage-ways, floodplains, environmentally sensitive areas, natural rivers, critical dune areas, and threatened or endangered species within 1320 feet of the stake.

C. All type I and IIa public water supply wells within 2000 feet and all type IIb and III public water supply wells within 800 feet of the well stake.

Name of individual who surveyed site: DEAN FARRIER

Company: FARRIER SURVEY INC (B222\P44)

Date of survey: 3-29-12

Address: PO BOX 998, KALKASKA, MI, 49646

Phone: 231-258-8162

I CERTIFY THE ABOVE INFORMATION IS COMPLETE AND ACCURATE TO THE BEST OF MY KNOWLEDGE AND BELIEF.

Signature of licensed surveyor (affix seal)

Date

EQP 7200-2 (rev. 18/2004) ENCLOSE WITH APPLICATION TO DRILL OR DEEPEN

SUPPLEMENTAL PLAT – STATE EXCELSIOR 1–25HD2

encana natural gas

0' 660' 1320'
SCALE: 1" = 1320'

VERTICAL DISLACEMENT:
N06°02'53"W. 7972'
N: +7928'
E: -840'

LATERAL 7078'

E–W 1/4 LINE SEC. 25, T27N–R6W

S. LINE SEC. 25, T27N–R6W

N. LINE SEC. 1, T26N–R6W

1–25HD1 BHL

1–25HD2 BHL

RAILROAD

GRADE

NORTH 7078'

NORTH 9577'

SUNSET TRAIL

CRANBERRY LK RD

CRANBERRY LAKE

Cran Lake

BEAR LAKE TWP.

SURVEYED ELEV. @ WELL: 1148.65'

SHL FOOTAGES:
2165' FSL UNIT 459' FNL SECTION
910' FWL UNIT 1738' FEL SECTION

BHL FOOTAGES:
460' FNL UNIT 2179' FSL SECTION
2534' FWL UNIT 2534' FWL SECTION

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DRAWN: DVS	FILE No. 0311	CLIENT ENCANA OIL & GAS (USA) INC.	
CHECK: DRF	Fd. Bk. 222 Pg. 44	DESCRIPTION STATE EXCELSIOR 1–25HD2	UNIT: SEC. 1: NE 1/4 T26N–R6W, OLIVER TOWNSHIP, SEC. 25: S 1/2, NE 1/4; SEC. 36 ALL; T27N–R6W EXCELSIOR TWP.,KALKASKA COUNTY, MI
REVISED:	DATE: 3/30/12		
	SHEET: 1 of 2		

FARRIER SURVEYING INC.
P.O. BOX 998
244 S.CEDAR STREET
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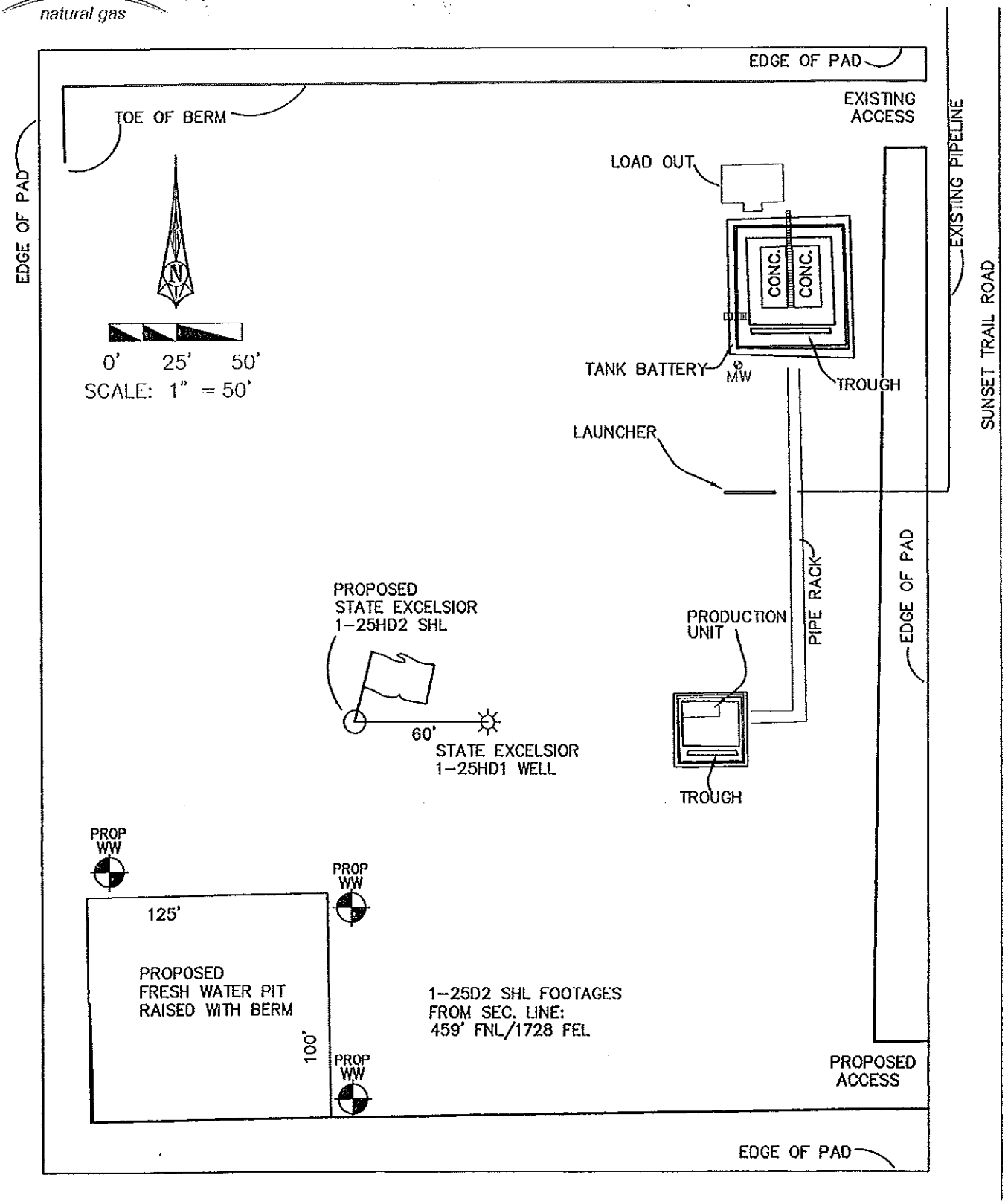
TEL(231)258-8162 FAX(231)258-3249
office@farriersurveying.com

encana natural gas

SUPPLEMENTAL PLAT EXCELSIOR 1-25HD2



FARRIER SURVEYING INC.
P.O. BOX 998
244 S.CEDAR STREET
KALKASKA, MI 49646
TEL(231)258-8162 FAX(231)258-3249
office@farriersurveying.com

CLIENT ENCANA OIL & GAS (USA) INC		DRAWN: MPS	FILE No. 0311-12
DESCRIPTION STATE EXCELSIOR 1-25 HD2		CHECK: DRF	Fd. Bk. ELECTRONIC
VPA: NE 1/4 SEC. 1, T26N-R6W, OLIVER TWP., SOUTH 1/2 & NE 1/4 SEC. 25 AND ALL SEC. 36, EXCELSIOR TWP., KALKASKA COUNTY, MICHIGAN		REVISED:	DATE: 3/30/12
			SHEET: 2 of 2

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DEQ MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY - OFFICE OF GEOLOGICAL SURVEY

ENVIRONMENTAL IMPACT ASSESSMENT

Required for issuance of well permit pursuant to Part 615, 1994 PA 451, as amended. Falsification of this information may result in fines and/or imprisonment. Check all boxes and fill in all blanks which apply to this drilling application. Attach additional pages as necessary.

A. DESCRIPTION OF PROJECT

1. Applicant's name	Well name and number	Intended use of well
ENCANA OIL & GAS (USA), INC.	STATE EXCELSIOR 1-25HD2	EXPLORATORY

2. Mineral ownership, check each category of mineral owners in drilling unit or Antrim Uniform Spacing Plan

☐ Private ☒ State ☐ Federal ☐ Other, identify

3. Applicable spacing order and drilling unit size

☐ S.O. 14-9-94 N. Mich. Antrim, 80 acres
☐ S.O. 1-73 Niagaran, 80 acres
☐ R 324.301 General rule, 40 acres
☐ Field Spacing or Unitization Order (identify below)
☐ S.O. 3-3-95 S. Mich. Antrim, 40 acres
☐ S.O. 2-81 Oakland Co. Niagaran, 40 acres
☐ S.O. 1-86 P.D.C., 640 acres

☐ Antrim USP (identify name, number of acres, and number of drilled and permitted wells)

☒ Administrative exception requested per R324.303 (2). See instructions for applying for an administrative spacing exception
☐ Exception to spacing requested, petition for hearing filed
☐ Non-producing well, no drilling unit

4. Applicant's right to drill and produce

☒ Yes ☐ No Are all mineral interests in the drilling unit under lease and controlled by the applicant/permittee?
If no, ☐ petition filed for compulsory pooling OR ☐ certified efforts to obtain leases are attached (if allowed by spacing order).
☐ Not applicable, no drilling unit.
☒ Yes ☐ No Has applicant obtained all contractual rights needed to locate the well where it is proposed?
If no, ☐ what additional approvals are needed?

5. Special considerations

☐ Replacement well for permit no. _____ or ☐ Existing well pad
☒ Yes ☐ No Is well expected to encounter H_2S?
☐ Yes ☒ No Is well located in a city, township, or village with a population greater than 70,000?
☒ Other (describe) THE TARGET IS NOT EXPECTED TO HAVE H2S, BUT THE DRILL PATH PASSES THRU SOUR HORIZONS.

B. IMPACTS AS A RESULT OF DRILLING

1. Access route dimensions

-0- feet x -0- feet / 43,560 = -0- acres.

Provide a detailed description of topography, drainage, soil type(s), direction and percentage of slopes, land cover and present land use for the access route while drilling. Identify route on attached plat. THE EAST EDGE OF THE PAD IS ALONG THE WEST RIGHT-OF-WAY FOR SUNSET TRAIL, NO NEW CORRIDOR WIL BE BUILT.

2. Well site dimensions

400 feet x 500 feet / 43,560 = -0- acres.

Provide a detailed description of topography, drainage, soil types(s), direction and percentage of slopes, land cover and present land use for the well site. Identify well site on attached plat THE PAD WAS DEVELOPED FOR THE EXCELSIOR 1-25HD1 AND READY FOR A RIG.

3. Is well site located in residentially zoned area? ☐ Yes ☒ No If yes, R324.407(3) and R324.505 apply.

4. Are drain tiles present? ☐ Yes ☒ No If yes, identify where they exist on attached plat or project map. How will they be handled if they are encountered? .

5. Identify the distance and direction to all of the following, also identify on attached plat

a. All buildings, fresh water wells, public roads, power lines and other man-made features within 600' of the well site.
FROM THE STAKE THERE ARE: EAST 290' SUNSET TRAIL; EAST 60,' THE EXCELSIOR 1-25HD1 WELL HEAD; EAST 150', A PRODUCTION UNIT; N45E 240,' MONITORING WELL; N45E 280', BATTERY OF 4 TANKS.

b. All Type I and Type IIa public water supply wells within 2000' of the well site and all Type IIb and Type III public water wells within 800' of the well site NONE.

(Type I is a community water supply with year-round service ≥ 15 living units or ≥ 25 residents. Type II is a non-community water supply with ≥ 15 service connections or ≥ 25 individuals for not less than 60 days per year. Average daily water production: IIA ≥ 20,000 GPD IIB <20,000 GPD Type III is a public water supply which is neither type I or II.)

(Part B-5 continued)
c. Surface waters, floodplains, wetlands, natural rivers, critical dune areas, threatened or endangered species within 1320' and Great Lake shorelines within 1500' of the well site NONE.

d. Describe the actions to be taken to mitigate impacts to any of the items identified in Part B-5 a-c above. NONE NECESSARY.

6. Identify the source of fresh water used to drill this well

☐ "Permanent" water well, to be retained after final completion OR used for drinking water
(shall be drilled and installed pursuant to Part 127 of 1979 PA 368, as amended)
☒ "Temporary" water well, will be plugged upon final completion and not used for drinking water
(consult R 324.403 (2) for minimum construction requirements)
☐ Fresh water will be hauled from existing water well or municipal source (identify) _____
☐ No fresh water will be used in drilling this well

7. Pit location and handling and disposal of drill cuttings, muds and fluids

Anticipated depth to groundwater 10.5' Method determined by SOIL BORING 110' NORTH OF STAKE
☐ On site in-ground pit, anticipated dimensions: L _____ W _____ D _____
☐ Remote in-ground pit, anticipated dimensions: L _____ W _____ D _____
Attach approval of landowner and attach survey of remote pit location
☒ Well drilled below base of Detroit River Anhydrite. Describe how mud and cuttings pursuant to R324.407(7)(iv) will be handled.
Pit fluids below DRA disposed by TEAM SERVICES licensed liquid waste hauler OR
Pit fluids below DRA disposed at the _____ disposal well.
If drill cuttings & mud don't pass paint filter test, they will be disposed at _____ landfill.
☐ No salt cuttings OR
☒ Salt cuttings dissolved and disposed by TEAM SERVICES licensed liquid waste hauler OR
☐ Salt cuttings hauled to _____ landfill
☐ Temporary pit, cuttings and muds disposed at (identify) _____
☒ No in-ground pit, cuttings and muds disposed at (identify) WATERS LANDFILL
☐ Pit will be solidified.

C. IMPACTS AS A RESULT OF PRODUCTION

1. Kind of well ☐ exploratory ☒ development ☐ Other (describe) _____
☐ Antrim project **(submit separate project EIA, form EQP 7200-21, for access roads, flow lines, and surface facilities)**
where is project EIA found? _____ and complete C-2, omit C-3 and C-4

2. Location of surface facilities (Prior to construction, the District Geologist, pursuant to R324.1002, must also approve all surface facility secondary containment plans.)

☐ Greater than 300' from wellhead. Identify facility location on attached plat and complete C-3 and C-4.
☐ Less than 300' from wellhead. Identify facility location on attached plat, complete C-3, omit C-4
☒ Surface facility exists or was previously approved for construction and is known as _____
_____ complete C-3, omit C-4.
☒ Surface facility location was not determined for this **exploratory** well (omit C-3 and C-4). Submit a separate request for **Surface Facility Location Approval (form 7200-22)**, which includes a Facility Plan, Environmental Impact Assessment, and Soil Erosion and Sedimentation Control Plan, to District Geologist prior to construction pursuant to R324.504.

3. Flow Line Environmental Impact Assessment

☒ Identify flow line location and course from well to the surface facility on attached plat.
Flow line route dimensions _____feet x _____feet / 43,560 = _____ acres.
Describe the topography, drainage, soil type(s), direction and percentage of slopes, land cover and present land use along the flow line route SOUTH SUNSET TRAIL PIPELINE IS INSTALLED TO THE EXCELSIOR 1-25HD1 WELL.

4. Surface Facility Environmental Impact Assessment

a. Dimensions of surface facility _____feet x _____feet / 43,560 = _____ acres.
b. Describe the topography, drainage, soil type(s), direction and percentage of slopes, land cover, and present land use
1. Along access route to surface facility

Part C-4, continued

2. At surface facility site

c. Are surface facilities likely to receive oil or gas with H_2S concentration greater than 300 ppm? ☐ Yes ☐ No, if yes, R324.1106(2) applies.

d. Will surface facilities be located in residentially zoned area? ☐ Yes ☐ No, If yes, R324.506 may apply

e. Identify the distance and direction to all of the following, and identify on attached plat

1. Distance and direction to all buildings, fresh water wells, public roads, power lines and other man-made features within 600' of surface facility

2. Distance and direction to any surface waters, floodplains, wetlands, natural rivers, critical dune areas, and threatened or endangered species within 1320' and Great Lakes shorelines within 1500' of the surface facility site

3. Describe the actions to be taken to mitigate impacts to any of the items identified in Part C-4e 1 and 2 above.

4. Distance and direction to all Type I and Type IIa public water supply wells within 2000' of the surface facility site and all Type IIb and Type III wells within 800' of the surface facility

Type I is a community water supply with year-round service ≥ 15 living units or ≥ 25 residents. Type II is a non-community water supply with ≥ 15 service connections or ≥ 25 individuals for not less than 60 days per year. Average daily water production: IIA ≥ 20,000 GPD IIB <20,000 GPD Type III is a public water supply which is neither type I or II.

5. Method of brine disposal

☐ Dedicated flow line to disposal well _____, permit number _____

☒ Transported by tanker. ☐ Other _____

6. Method of transporting hydrocarbons past the point of sale

☐ Oil sold through transmission line ☒ Gas sold through transmission line

☐ Oil transported by tanker for sale ☐ Gas flared on site (production restrictions may apply)

☒ Other TO BE DETERMINED AFTER TESTING

D. MITIGATION OF IMPACTS FROM DRILLING AND/OR PRODUCTION

Describe additional measures to be taken to protect environmental and/or land use values THIS LOCATION WAS CHOSEN TO MAXIMIZE HYDROCARBON PRODUCTION WHILE MINIMIZING ENVIRONMENTAL DISTURBANCE. THE PAD AND PIPELINE ARE CONSTRUCTED.

E. ADDITIONAL PERMITS

Identify additional permits to be sought NONE

F. SOIL EROSION AND SEDIMENTATION PLAN

Submit a soil erosion and sedimentation plan (form 7200-18) which addresses **each** well site, surface facility, and flow line route identified in this application. (Refer to requirements under Part 91, 1994 PA 451)

G. ALTERNATE WELL AND SURFACE FACILITY LOCATIONS

Were alternate surface locations considered for this well or surface facility?

☒ No, alternate sites did not seem necessary or more desirable

☐ Yes, the following locations were considered _____

Why were they rejected in favor of the proposed location?

T

H. CERTIFICATION

"I state that I am authorized by said applicant to prepare this document. It was prepared under my supervision and direction. The facts stated herein are true, accurate and complete to the best of my knowledge."

DEAN R. FARRIER, PROF. SURVEYOR #41098	Dean Farrier	3-30-12
Name and title (printed or typed)	Authorized Signature	Date

Enclose with *Application For Permit To Drill*

STATE OF MICHIGAN

JENNIFER M. GRANHOLM
GOVERNOR

DEPARTMENT OF NATURAL RESOURCES
LANSING

REBECCA A. HUMPHRIES
DIRECTOR

March 2, 2011

Miss Khem Suthiwan
Encana Oil & Gas (USA) Inc.
370 17th Street Suite 1700
Denver CO 80202

RE: **State Oliver 1-1** (vertical well, the State Excelsior 1-25 HD1, HD2, and HD3 are the horizontal wells off of this pad)

Dear Miss Khem Suthiwan:

Thank you for using the Michigan DNR Endangered Species Assessment website. Based on the information you have provided, project activities may proceed. It has been determined that federal and state endangered, threatened, special concern species, exemplary natural plant communities, or unique natural features are **not known to occur** at or near the location specified:

Kalkaska County, T26N R06W Section 01.

The location of the request was checked against known localities for rare species and unique natural features, which are recorded in a statewide database. This continuously updated database is a comprehensive source of information on Michigan's endangered, threatened and special concern species, exemplary natural communities and other unique natural features. Records in the database indicate that a qualified observer has documented the presence of special natural features at a site. The absence of records may mean that a site has not been surveyed. Records may not always be up-to-date. In some cases, the only way to obtain a definitive statement on the presence of rare species is to have a competent biologist perform a field survey.

Michigan's endangered and threatened species are protected under Part 365 of the Natural Resources and Environmental Protection Act, Act 451 of the Michigan Public Acts of 1994. Federally listed species are protected under the United States Endangered Species Act of 1973. Special concern species, exemplary natural communities and other unique natural features are not legally protected by state or federal endangered species legislation, but they are considered to be rare and should be protected to prevent future listing.

Thank you for your advance coordination in addressing the protection of Michigan's natural resource heritage. Responses and correspondence can be sent to: Endangered Species Review, Michigan Department of Natural Resources, Wildlife Division - Natural Heritage Program, PO Box 30180, Lansing, MI 48909. If you have further questions, please call 517-373-1263 or e-mail DNR-EndangeredSpecies@michigan.gov.

STEVENS T. MASON BUILDING * P.O. BOX 30028 * LANSING, MICHIGAN 48909-7528
www.michigan.gov * (517)373-2329

DEQ MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY – OFFICE OF GEOLOGICAL SURVEY

SOIL EROSION & SEDIMENTATION CONTROL PLAN

By authority of Part 91, and Part 615 or Part 625 of Act 451 PA 1994, as amended. Non-submission and/or falsification of this information may result in fines and/or imprisonment.

☒ Part 615 Oil/Gas Well ☐ Part 625 Mineral Well

1. Name and address of applicant
ENCANA OIL & GAS (USA) INC.
370 17TH STREET SUITE 1700
DENVER CO 80202
Phone: (720)876-3172 Fax: (720) 876-4172

2. Well or project name:
STATE EXCELSIOR 1-25HD2

3. Well or project location:
Section(s) 1 T26N R6W

4. Name and address of County or local Enforcement Agent (CEA)
KAREN VANHORN
KALKASKA PLANNING AND ZONING
890 ISLAND LAKE ROAD
KALKASKA, MI 49646
Phone: (231)258-3367 Fax: (231) 258-2828

5. Township
OLIVER

6. County
KALKASKA

7. Date earth changes expected to start
SPRING 2012

8. Date of expected completion
WITHIN 3 MONTHS OF COMMENCEMENT

9. Name and address of person responsible for earth change:
JOEL FOX, PETROLEUM ENGINEER
ENCANA OIL & GAS (USA) INC
370 17TH ST, STE 1700
DENVER CO 80202
Phone: (720)876-3597 Fax: (720) 876-4597

10. Name and address of person responsible for maintenance:
JOEL FOX, PETROLEUM ENGINEER
ENCANA OIL & GAS (USA) INC.
370 17TH STREET SUITE 1700
DENVER CO 80202
Phone: (720)876-3597 Fax: (720) 876-4597

11. Send copies of supplemental plat required by Part 615, R 324.201(2)(b) or R 324.504(4), and this form and all attachments, to CEA.

Date sent to CEA 03-31-12 BH

EARTH CHANGE ACTIVITIES

12. Project description: (Project activities may be permitted sequentially.)

a. Number of well sites 1, EXISTING acres
b. Number of surface facility sites ____, ____ acres
c. New access roads -0- feet, -0- acres
d. Flow line(s) trenched in off well site* ____ feet, EXISTING acres
e. Flow line(s) plowed in off well site* ____ feet, ____ acres
*Contact CEA for fee schedule

13. Describe sites for which permits are being sought under Part 301 (Inland Lakes & Streams) NONE
Describe sites for which permits are being sought under Part 303 (Wetlands) NONE
List file numbers if known ____

14 Areas requiring control structures

Will earth changes occur in areas with slopes of 10% or greater; areas where runoff water is likely, such as runs greater than 500' of moderate slope (5% to 10%), narrow valley bottoms, etc.; areas within 500' of a lake or stream; or other areas where sedimentation to a wetland or drainage way may occur?

☐ Yes Attach detail map at scale of 1"=200' or larger, with contour lines at a minimum of 20' intervals OR percent slope descriptions.
Also indicate any of the following erosion control structures that will be utilized. Identify location on map and attach detail plan.
Indicate on plan whether erosion control structures are temporary or permanent.
☐ Diversions ☐ Culverts ☐ Sediment basins ☐ Silt fences ☐ Rip-rap ☐ Berms ☐ Check dams ☐ Other ____

☒ No

15. Site restoration

☒ Topsoil will be segregated from subsoil and stockpiled OR ☐ No topsoil on site
☒ Recontour and revegetate as soon as weather permits. Seed mix PER AREA LAND MANAGER SPECIFICATION
☐ Describe other proposed methods of restoration ____

16. Application prepared by (name) DEAN FARRIER PS#41098 Signature Dean Farrier Date 3-29-12

FOR USE OF COUNTY OR LOCAL ENFORCING AGENT

INSTRUCTIONS TO COUNTY OR LOCAL ENFORCMENT AGENT: Return this form to the applicable field or district office of the Office of Geological Survey within 30 days of receipt. Explain reasons for recommendation or disapproval and conditions required for approval. Include copies of any revisions to the plan.

17. Comments

☐ Conducted on site inspection Date ____
☐ Inspected site with representative of applicant Date ____

18. ☐ Approved ☐ Disapproved

CEA signature ____ Date ____

EQP 7200-18 (rev. 8/2004) ENCLOSE WITH APPLICATION FOR PERMIT TO DRILL

DEQ MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY - OFFICE OF OIL, GAS, AND MINERALS

WELLHEAD BLOWOUT CONTROL SYSTEM

Worksheet supplement for "Application for Permit to Drill or Deepen a Well

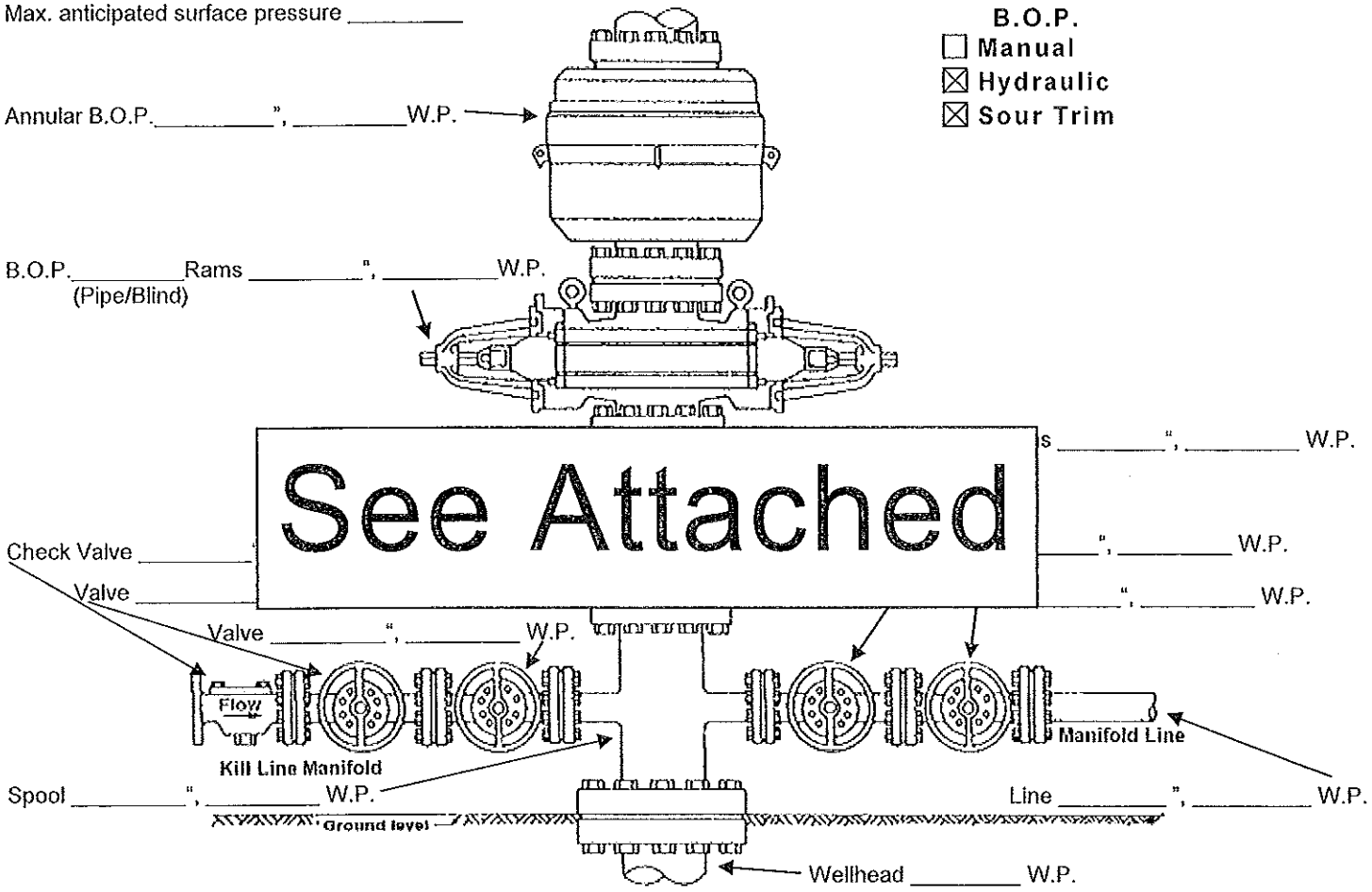
This information is required by authority of Part 615 Supervisor of Wells or Part 625 Mineral Wells, Act 451 PA 1994, as amended, in order to obtain a permit.

Applicant
Encana Oil & Gas (USA) Inc.

Well name and number
State Excelsior 1-25 HD-2

Max. anticipated surface pressure _____

B.O.P.
- ☐ **Manual**
- ☒ **Hydraulic**
- ☒ **Sour Trim**



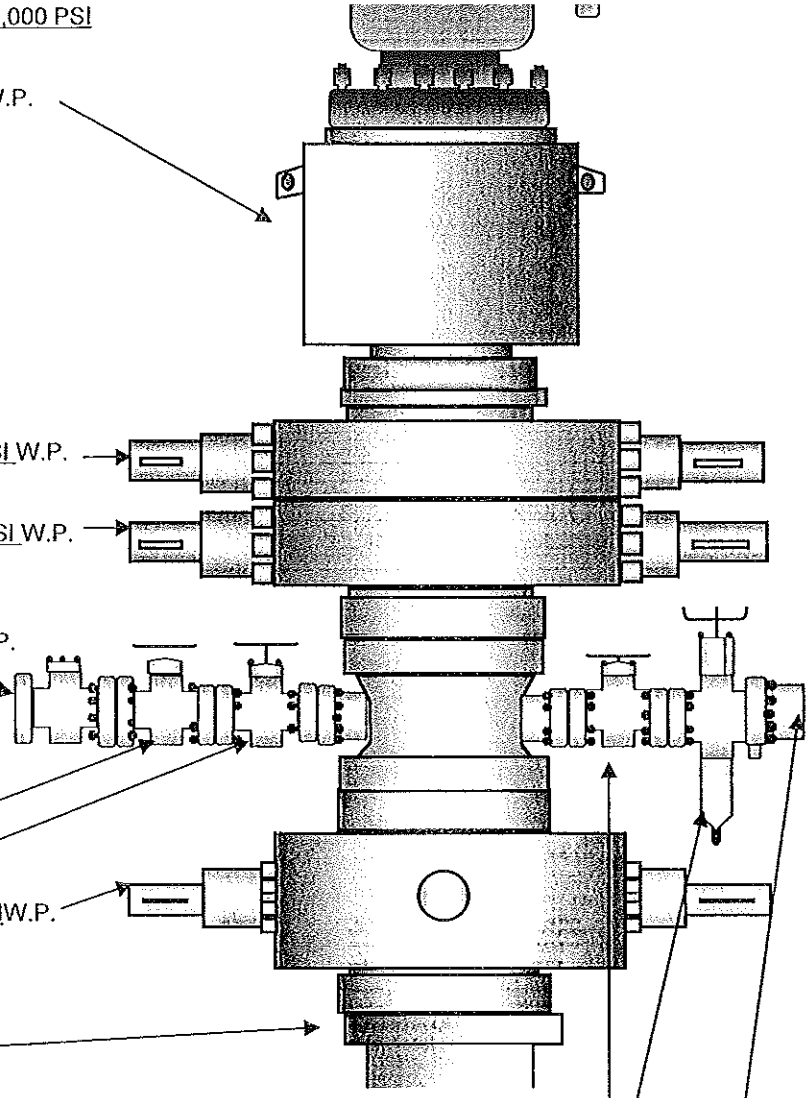
Fill above blanks with applicable information. If not applicable, enter "N.A." or cross-out item shown.

Describe test pressures and procedure for conducting pressure test. Identify any exceptions to R324.406 being requested.

After setting the 13⅜" surface casing, a 13 5/8" 10,000 psi annular, double gate, mud cross, and single gate BOPs will be nippled up & pressure tested with the rig pump to 1,000 psi for 20 minutes and the test results recorded in the driller's log book. After setting the 9 5/8" intermediate casing the same 13 5/8" BOPs wil remain nippled up Prior to drilling the shoe of the 9 5/8" intermediate casing a third-party will provide the necessary equipment to provide a witnessed pressure test. The drill string will be removed from the well and a test plug will be set below the BOP stack in the wellhead. The choke manifold, Kelly and surface valves will be individually tested to 8,000 psi. The annular BOP will be individually tested to 5,000 psi. Additionally a low pressure test will be conducted at 250 psi. All test periods will be a minimum of 20 minutes and the test results recorded in the driller's log book. After setting the 7" liner the same 13 5/8" BOPs will remain nippled up and pressure tested with the rig pumps to 1,500 psi for 20 minutes and the test results recorded in the driller's log book.

B.O.P.
☐ **Manual**
☒ **Hydraulic**
☒ **Sour Trim**

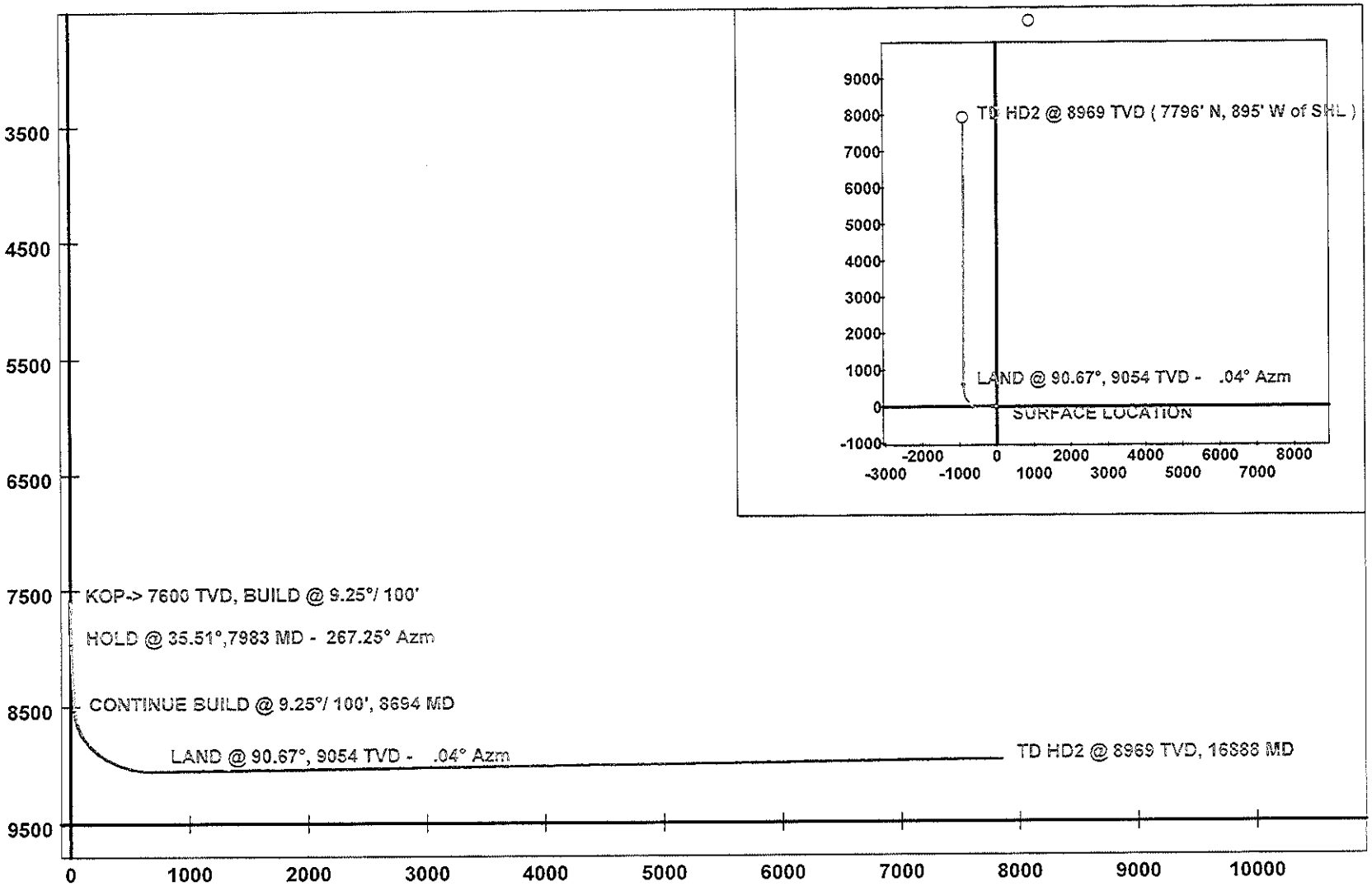
Max. anticipated surface pressure 10,000 PSI



Company: ENCANA OIL & GAS
Lease/Well: ST. EXCELSIOR 1-25 HD2
Location: EXCELSIOR TWP., KALKASKA CO.
Rig Name: ENSIGN # 119
State/Country: MICHIGAN / USA
File name: C:\WINSERVE\PENDING\2012\EX125HD2.SVY

Date/Time: 30-Mar-12 / 13:52

Directional Drilling Contractors, LLC.



Directional Drilling Contractors, LLC.

Job Number: □
Company: ENCANA OIL & GAS
Lease/Well: ST. EXCELSIOR 1-25 HD2
Location: EXCELSIOR TWP., KALKASKA CO.
Rig Name: ENSIGN # 119
RKB: □
G.L. or M.S.L.: □

State/Country: MICHIGAN / USA
Declination: □
Grid: □
File name: C:\WINSERVE\PENDING\2012\EX125HD2.SVY
Date/Time: 30-Mar-12 / 13:55
Curve Name: ST. EXCELSIOR 1-25 HD2

Directional Drilling Contractors
PROPOSAL REPORT

WINSERVE PROPOSAL REPORT
Minimum Curvature Method
Vertical Section Plane 353.45
Vertical Section Referenced to Wellhead
Rectangular Coordinates Referenced to Wellhead

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	CLOSURE Distance FT	CLOSURE Direction Deg	Dogleg Severity Deg/100
KOP-> 7600 TVD, BUILD @ 9.25°/ 100'									
7600.00	.00	267.25	7600.00	.00	.00	.00	.00	.00	.00
7630.00	2.78	267.25	7629.99	-.03	-.73	.05	.73	267.25	9.25
7660.00	5.55	267.25	7659.91	-.14	-2.90	.19	2.90	267.25	9.25
7690.00	8.33	267.25	7689.68	-.31	-6.52	.43	6.53	267.25	9.25
7720.00	11.10	267.25	7719.25	-.56	-11.57	.77	11.59	267.25	9.25
7750.00	13.88	267.25	7748.54	-.87	-18.05	1.20	18.07	267.25	9.25
7780.00	16.65	267.25	7777.48	-1.25	-25.94	1.72	25.97	267.25	9.25
7810.00	19.43	267.25	7806.00	-1.69	-35.22	2.34	35.26	267.25	9.25
7840.00	22.20	267.25	7834.04	-2.20	-45.86	3.04	45.92	267.25	9.25
7870.00	24.98	267.25	7861.53	-2.78	-57.85	3.84	57.92	267.25	9.25
7900.00	27.75	267.25	7888.41	-3.42	-71.16	4.72	71.24	267.25	9.25
7930.00	30.53	267.25	7914.61	-4.12	-85.75	5.69	85.85	267.25	9.25
7960.00	33.30	267.25	7940.07	-4.88	-101.59	6.74	101.70	267.25	9.25
HOLD @ 35.51°,7983 MD - 267.25° Azm									
7983.91	35.51	267.25	7959.80	-5.53	-115.08	7.64	115.21	267.25	9.25
8083.91	35.51	267.25	8041.20	-8.31	-173.10	11.49	173.30	267.25	.00
8183.91	35.51	267.25	8122.60	-11.10	-231.12	15.33	231.39	267.25	.00
8283.91	35.51	267.25	8204.00	-13.89	-289.14	19.18	289.48	267.25	.00
8383.91	35.51	267.25	8285.40	-16.68	-347.16	23.03	347.56	267.25	.00
8483.91	35.51	267.25	8366.80	-19.46	-405.18	26.88	405.65	267.25	.00
8583.91	35.51	267.25	8448.20	-22.25	-463.20	30.73	463.74	267.25	.00

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	CLOSURE Distance FT	CLOSURE Direction Deg	Dogleg Severity Deg/100
8683.91	35.51	267.25	8529.60	-25.04	-521.22	34.58	521.82	267.25	.00
CONTINUE BUILD @ 9.25°/ 100', 8694 MD									
8694.15	35.51	267.25	8537.93	-25.32	-527.17	34.98	527.77	267.25	.00
8724.15	35.52	272.03	8562.36	-25.43	-544.58	36.85	545.17	267.33	9.25
8754.15	35.71	276.78	8586.75	-24.09	-561.99	40.17	562.50	267.55	9.25
8784.15	36.08	281.47	8611.06	-21.30	-579.34	44.93	579.73	267.89	9.25
8814.15	36.64	286.06	8635.22	-17.06	-596.60	51.10	596.85	268.36	9.25
8844.15	37.36	290.51	8659.19	-11.40	-613.73	58.69	613.84	268.94	9.25
8874.15	38.25	294.80	8682.89	-4.31	-630.69	67.66	630.71	269.61	9.25
8904.15	39.29	298.91	8706.29	4.18	-647.44	78.01	647.45	270.37	9.25
8934.15	40.46	302.84	8729.31	14.05	-663.94	89.70	664.08	271.21	9.25
8964.15	41.76	306.57	8751.92	25.29	-680.14	102.70	680.61	272.13	9.25
8994.15	43.18	310.10	8774.05	37.85	-696.02	117.00	697.05	273.11	9.25
9024.15	44.70	313.45	8795.66	51.72	-711.53	132.55	713.41	274.16	9.25
9054.15	46.31	316.62	8816.69	66.86	-726.65	149.31	729.71	275.26	9.25
9084.15	48.00	319.62	8837.09	83.24	-741.32	167.26	745.98	276.41	9.25
9114.15	49.77	322.46	8856.82	100.81	-755.52	186.34	762.22	277.60	9.25
9144.15	51.60	325.15	8875.82	119.54	-769.22	206.51	778.46	278.83	9.25
9174.15	53.50	327.71	8894.07	139.39	-782.39	227.72	794.71	280.10	9.25
9204.15	55.44	330.14	8911.50	160.30	-794.98	249.93	810.98	281.40	9.25
9234.15	57.43	332.46	8928.09	182.22	-806.98	273.08	827.30	282.72	9.25
9264.15	59.46	334.68	8943.79	205.11	-818.35	297.12	843.66	284.07	9.25
9294.15	61.53	336.81	8958.57	228.92	-829.07	321.99	860.09	285.44	9.25
9324.15	63.63	338.85	8972.38	253.57	-839.11	347.64	876.59	286.81	9.25
9354.15	65.75	340.82	8985.21	279.03	-848.46	373.99	893.16	288.20	9.25
9384.15	67.91	342.73	8997.01	305.23	-857.08	401.00	909.81	289.60	9.25
9414.15	70.08	344.58	9007.77	332.10	-864.96	428.60	926.52	291.00	9.25
9444.15	72.27	346.38	9017.45	359.58	-872.07	456.71	943.30	292.41	9.25
9474.15	74.48	348.13	9026.03	387.62	-878.41	485.29	960.13	293.81	9.25
9504.15	76.70	349.85	9033.50	416.14	-883.96	514.25	977.01	295.21	9.25
9534.15	78.93	351.54	9039.83	445.07	-888.70	543.54	993.92	296.60	9.25
9564.15	81.17	353.20	9045.01	474.36	-892.62	573.08	1010.83	297.99	9.25
9594.15	83.42	354.84	9049.04	503.92	-895.71	602.81	1027.74	299.36	9.25
9624.15	85.68	356.46	9051.89	533.70	-897.98	632.65	1044.60	300.72	9.25
9654.15	87.93	358.08	9053.56	563.61	-899.40	662.53	1061.41	302.07	9.25
9684.15	90.19	359.69	9054.05	593.60	-899.98	692.39	1078.12	303.41	9.25
LAND @ 90.67°, 9054 TVD - .04° Azm									
9690.55	90.67	.04	9054.00	600.00	-900.00	698.75	1081.67	303.69	9.25
9790.55	90.67	.04	9052.82	699.99	-899.94	798.08	1140.12	307.88	.00
9890.55	90.67	.04	9051.65	799.99	-899.87	897.41	1204.06	311.64	.00
9990.55	90.67	.04	9050.47	899.98	-899.81	996.75	1272.64	315.01	.00
10090.55	90.67	.04	9049.29	999.97	-899.75	1096.08	1345.17	318.02	.00
10190.55	90.67	.04	9048.11	1099.97	-899.68	1195.41	1421.04	320.72	.00
10290.55	90.67	.04	9046.94	1199.96	-899.62	1294.75	1499.74	323.14	.00

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	CLOSURE Distance FT	CLOSURE Direction Deg	Dogleg Severity Deg/100
10390.55	90.67	.04	9045.76	1299.95	-899.56	1394.08	1580.85	325.32	.00
10490.55	90.67	.04	9044.58	1399.94	-899.49	1493.41	1664.01	327.28	.00
10590.55	90.67	.04	9043.40	1499.94	-899.43	1592.75	1748.94	329.05	.00
10690.55	90.67	.04	9042.23	1599.93	-899.37	1692.08	1835.38	330.66	.00
10790.55	90.67	.04	9041.05	1699.92	-899.30	1791.41	1923.14	332.12	.00
10890.55	90.67	.04	9039.87	1799.92	-899.24	1890.74	2012.05	333.45	.00
10990.55	90.67	.04	9038.70	1899.91	-899.18	1990.08	2101.95	334.67	.00
11090.55	90.67	.04	9037.52	1999.90	-899.11	2089.41	2192.72	335.79	.00
11190.55	90.67	.04	9036.34	2099.90	-899.05	2188.74	2284.26	336.82	.00
11290.55	90.67	.04	9035.16	2199.89	-898.99	2288.08	2376.49	337.77	.00
11390.55	90.67	.04	9033.99	2299.88	-898.92	2387.41	2469.32	338.65	.00
11490.55	90.67	.04	9032.81	2399.87	-898.86	2486.74	2562.68	339.47	.00
11590.55	90.67	.04	9031.63	2499.87	-898.80	2586.08	2656.53	340.22	.00
11690.55	90.67	.04	9030.45	2599.86	-898.73	2685.41	2750.82	340.93	.00
11790.55	90.67	.04	9029.28	2699.85	-898.67	2784.74	2845.49	341.59	.00
11890.55	90.67	.04	9028.10	2799.85	-898.61	2884.08	2940.52	342.21	.00
11990.55	90.67	.04	9026.92	2899.84	-898.54	2983.41	3035.86	342.78	.00
12090.55	90.67	.04	9025.75	2999.83	-898.48	3082.74	3131.50	343.33	.00
12190.55	90.67	.04	9024.57	3099.83	-898.42	3182.08	3227.39	343.84	.00
12290.55	90.67	.04	9023.39	3199.82	-898.35	3281.41	3323.53	344.32	.00
12390.55	90.67	.04	9022.21	3299.81	-898.29	3380.74	3419.90	344.77	.00
12490.55	90.67	.04	9021.04	3399.81	-898.23	3480.07	3516.46	345.20	.00
12590.55	90.67	.04	9019.86	3499.80	-898.16	3579.41	3613.21	345.61	.00
12690.55	90.67	.04	9018.68	3599.79	-898.10	3678.74	3710.13	345.99	.00
12790.55	90.67	.04	9017.50	3699.78	-898.04	3778.07	3807.21	346.36	.00
12890.55	90.67	.04	9016.33	3799.78	-897.97	3877.41	3904.44	346.70	.00
12990.55	90.67	.04	9015.15	3899.77	-897.91	3976.74	4001.81	347.03	.00
13090.55	90.67	.04	9013.97	3999.76	-897.85	4076.07	4099.30	347.35	.00
13190.55	90.67	.04	9012.80	4099.76	-897.78	4175.41	4196.91	347.65	.00
13290.55	90.67	.04	9011.62	4199.75	-897.72	4274.74	4294.62	347.93	.00
13390.55	90.67	.04	9010.44	4299.74	-897.65	4374.07	4392.45	348.21	.00
13490.55	90.67	.04	9009.26	4399.74	-897.59	4473.41	4490.36	348.47	.00
13590.55	90.67	.04	9008.09	4499.73	-897.53	4572.74	4588.37	348.72	.00
13690.55	90.67	.04	9006.91	4599.72	-897.46	4672.07	4686.46	348.96	.00
13790.55	90.67	.04	9005.73	4699.72	-897.40	4771.41	4784.63	349.19	.00
13890.55	90.67	.04	9004.56	4799.71	-897.34	4870.74	4882.87	349.41	.00
13990.55	90.67	.04	9003.38	4899.70	-897.27	4970.07	4981.18	349.62	.00
14090.55	90.67	.04	9002.20	4999.69	-897.21	5069.40	5079.56	349.83	.00
14190.55	90.67	.04	9001.02	5099.69	-897.15	5168.74	5178.00	350.02	.00
14290.55	90.67	.04	8999.85	5199.68	-897.08	5268.07	5276.50	350.21	.00
14390.55	90.67	.04	8998.67	5299.67	-897.02	5367.40	5375.05	350.39	.00
14490.55	90.67	.04	8997.49	5399.67	-896.96	5466.74	5473.66	350.57	.00
14590.55	90.67	.04	8996.31	5499.66	-896.89	5566.07	5572.31	350.74	.00
14690.55	90.67	.04	8995.14	5599.65	-896.83	5665.40	5671.02	350.90	.00
14790.55	90.67	.04	8993.96	5699.65	-896.77	5764.74	5769.76	351.06	.00

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	CLOSURE Distance FT	CLOSURE Direction Deg	Dogleg Severity Deg/100
14890.55	90.67	.04	8992.78	5799.64	-896.70	5864.07	5868.55	351.21	.00
14990.55	90.67	.04	8991.61	5899.63	-896.64	5963.40	5967.38	351.36	.00
15090.55	90.67	.04	8990.43	5999.62	-896.58	6062.74	6066.25	351.50	.00
15190.55	90.67	.04	8989.25	6099.62	-896.51	6162.07	6165.15	351.64	.00
15290.55	90.67	.04	8988.07	6199.61	-896.45	6261.40	6264.09	351.77	.00
15390.55	90.67	.04	8986.90	6299.60	-896.39	6360.74	6363.06	351.90	.00
15490.55	90.67	.04	8985.72	6399.60	-896.32	6460.07	6462.06	352.03	.00
15590.55	90.67	.04	8984.54	6499.59	-896.26	6559.40	6561.09	352.15	.00
15690.55	90.67	.04	8983.36	6599.58	-896.20	6658.73	6660.16	352.27	.00
15790.55	90.67	.04	8982.19	6699.58	-896.13	6758.07	6759.24	352.38	.00
15890.55	90.67	.04	8981.01	6799.57	-896.07	6857.40	6858.36	352.49	.00
15990.55	90.67	.04	8979.83	6899.56	-896.01	6956.73	6957.50	352.60	.00
16090.55	90.67	.04	8978.66	6999.56	-895.94	7056.07	7056.66	352.71	.00
16190.55	90.67	.04	8977.48	7099.55	-895.88	7155.40	7155.85	352.81	.00
16290.55	90.67	.04	8976.30	7199.54	-895.82	7254.73	7255.06	352.91	.00
16390.55	90.67	.04	8975.12	7299.53	-895.75	7354.07	7354.29	353.00	.00
16490.55	90.67	.04	8973.95	7399.53	-895.69	7453.40	7453.54	353.10	.00
16590.55	90.67	.04	8972.77	7499.52	-895.63	7552.73	7552.81	353.19	.00
16690.55	90.67	.04	8971.59	7599.51	-895.56	7652.07	7652.10	353.28	.00
16790.55	90.67	.04	8970.41	7699.51	-895.50	7751.40	7751.41	353.37	.00
TD HD2 @ 8969 TVD, 16888 MD									
16888.00	90.67	.04	8969.27	7796.95	-895.44	7848.20	7848.20	353.45	.00

H_2S Contingency Plan

State Excelsior 1-25 HD2
Oliver Township, Kalkaska County

March 2012

Permittee:

Encana Oil & Gas (USA) Inc.
370 17th Street, Suite 1700
Denver, CO 80202

TABLE OF CONTENTS

LIST OF ATTACHMENTS

1 Introduction and General Requirements

1.0 INTRODUCTION

This Hydrogen Sulfide Contingency Plan (plan) identifies measures to be taken by Encana Oil & Gas (USA) Inc. (Encana) and/or its contractors and subcontractors in the event of an emergency involving the possible release of hydrogen sulfide (H_2S) gas. The plan provides an organized plan of action for alerting and protecting personnel at an H_2S site and the public.

This plan will be implemented when it is expected to encounter or upon encountering an H_2S zone containing 50 ppm or higher H_2S concentrations. In areas of known H_2S concentrations exceeding 50 ppm, the precautions identified in this plan will be implemented prior to drilling into the A1 Carbonate. All equipment should be located prior to drilling formations that potentially have H_2S. When well conditions allow the escape of gas at the surface, the gas shall be sampled to determine H_2S content. If the gas is determined to have a H_2S content in excess of 50 ppm, then this plan will be implemented.

H_2S is a toxic, poisonous gas that could cause death or injury. The objective of this contingency plan is to provide an organized plan to action for alerting and protecting the public from H_2S exposure in the event a potentially hazardous volume is accidentally released to the atmosphere. This plan should be activated immediately if any such release occurs. Encana's Drilling Consultant is responsible for initiating and carrying out the plan.

Part I of the plan contains the general procedures that shall be followed in the event of an emergency involving the possible release of hydrogen sulfide into the atmosphere. Part I includes a list of personnel to be contacted, delegates duties and responsibilities, and specifies who is responsible for ordering ignition of the well (if necessary). Part I also includes emergency circumstances that require the plan to be put in place, actions to account for and remove personnel, actions for restricting site access, procedures for notifying the general public and emergency response agencies, procedure for evacuating the general public (if required), and procedure for igniting the H_2S well.

Part II of the plan contains maps, a list of emergency contact numbers, and contact information for adjacent landowners, businesses and government agencies.

All personnel are to be thoroughly familiar with this plan and its contents prior to initiating drilling operations.

2.0 CORE INFORMATION

2.1 Physical Properties of Hydrogen Sulfide

Hydrogen sulfide is a gas and is often referred to as H_2S. Hydrocarbons that contain hydrogen sulfide are often referred to as sour oil or sour gas. H_2S has the following physical properties:

- Color: H_2S is a colorless and invisible gas
- Odor: In small concentrations it has a distinctive offensive smell (smells like rotten eggs). At high (fatal) concentrations, the sense of smell is impaired.
- Vapor Density: H_2S is heavier than air so it tends to settle in low-lying areas
- Explosive Limits: Extremely explosive: LEL 4% to UEL 45%
- Combustion Products: Produces Sulfur Dioxide (SO_2) when burned
- Solubility: Easily dissolved in liquids but the gas will break out when slightly agitated

2.2 Exposure

Occupational Exposure and Toxicity Limits

1 ppm	You can smell it (smells like rotten eggs)
10 ppm	NIOSH REL (Recommended Exposure Limit)
20 ppm	Ceiling Concentration (OSHA)
50 ppm	Maximum Peak 10-minute maximum peak – once only if no other measurable exposure occurs during the same 8-hour work period

Serious Health Consequences for Exposures Listed Below

100 ppm	IDLH (Immediately Dangerous to Life or Health). Loss of smell in 2 to 15 minutes (may burn throat, cause headache and nausea).
200 ppm	Sense of smell lost rapidly (burns eyes and throat)
500 ppm	Loss of reasoning and balance, prompt resuscitation needed
700 ppm	Immediate unconsciousness (causes seizures and breathing will stop and death will result)
1000 ppm	Causes immediate unconsciousness (death or permanent brain damage will occur)

3.0 IDENTIFYING, TESTING, AND POSTING H_2S SOURCES

3.1 Identification

Identify and document all areas where significant (i.e., greater than 10 ppm) sources of H_2S gas exist at the facility. List such areas by the maximum level of H_2S expected.

3.2 Testing

Air quality will be measured at the end of the flowline, bell nipple, and at the rotary table each tour when drilling in a formation suspected or known to contain H_2S. Data from each sample shall be recorded on the drilling log. Air quality checks shall be made and recorded after a trip when the bottom is circulated up. Alarm systems shall be tested for operation daily and results recorded in the Drilling Log.

3.3 H_2S Posting

Install signs or markers with the words "Caution Poison Gas" at a facility's normal access point where process or production equipment contains H_2S concentrations greater than 10 ppm.

In areas known to have H_2S concentrations greater than 10 ppm in the breathing zone, signs must include the words "Respiratory protection required beyond this point." Place these signs in locations to prevent accidental entry to the area.

4.0 RISK ASSESSMENT AND CONTROLS

4.1 Risks

For sites where sour products are produced, stored, transferred, or processed, the risk of hydrogen sulfide release should be evaluated and controlled.

Risks are controlled by:

- Fixed or portable H_2S monitors with alarms
- Use of personal H_2S monitors with alarms
- Development of emergency response plans where 100 ppm radius of exposure will be exceeded
- Training of personnel
- Use of appropriate PPE, i.e. respiratory protection for personnel where workplace concentrations could exceed 10 ppm
- Availability of emergency equipment
- Fence and lock all sites with H_2S concentrations above 100 ppm and facilities located inside the town limits or anywhere the public is exposed to production equipment.

5.0 MONITORING AND RESPIRATORY PROTECTION

5.1 Personal Monitoring

Use portable personal direct readying H_2S monitors set to alarm at 10 ppm.

5.2 Area Monitoring

Provide fixed, continuous H_2S monitoring systems with audible and visible indicators set to alarm at 50 ppm H_2S gas in attended facilities where employees would be exposed to concentrations grater than 10 ppm H_2S if released.

- A manually operated H_2S detector will be on the rig floor.
- A manually operated explosimeter will be located on the rig floor.

- The automatic monitor will be set to trigger an alarm and blinker light on the rig floor when H_2S concentrations exceed 10 ppm. Since it may be desirable to deactivate the alarm if H_2S fumes are present for extended periods, the blinker light will serve as a reminder that fumes are still present. Any time the alarm is deactivated, a trained operator must continuously monitor the H_2S detectors for changes in the H_2S concentration. The alarm switch will be activated by the operator is the H_2S concentrations increase to a higher toxic level.

5.3 Respiratory Protection

Provide proper respiratory protection for all employees assigned to work in facilities where workplace concentrations of H_2S could exceed 10 ppm in the breathing zone. Respiratory protection will be located at the Driller's position, on the rig floor, and on the monkey board.

6.0 TRAINING PROGRAM

All personnel associated with the drilling operations will receive training to ensure efficient and correct action in all situations. This training will be in the general areas of personnel safety, rig operations, and well control procedures. Visitors to the locations will also receive training.

6.1 Personnel Safety Training

All personnel shall have received H_2S training in the following areas:

- Hazards and characteristics of H_2S.
- Safety precautions.
- Operation of safety equipment and life support systems.
- Corrective action and shutdown procedures.

6.2 Rig Operations

All rig personnel shall have received training in the following areas:

- Well control procedures.
- Layout and operations of the well control equipment.

NOTE: Proficiency will be developed through BOP drills which will be documented by the Drilling Consultant.

6.3 Service Company Personnel

All service personnel shall have been trained by their employers in the hazards and characteristics of H_2S and the operation of safety equipment and life support systems.

6.4 Visitors

All first-time visitors to the location will be required to attend a safety orientation. The Drilling Consultant shall be responsible for this orientation and he shall see that every visitor is logged correctly. This orientation must include the following elements:

- Hazards and characteristics of hydrogen sulfide.
- The necessity of an emergency action plan.
- The location of hydrogen sulfide within the area of exposure at the drilling location.
- The manner in which the public will be notified of an emergency.
- Steps to be taken in case of an emergency.

Part I—H_2S Contingency Plan

1.0 ROLES AND RESPONSIBILITIES

It is the responsibility of *all personnel* on the location to familiarize themselves with the procedures outlined in this contingency plan.

1.1 All Personnel

- Responsible for assigned safety equipment
- Responsible for knowing the location of all safety equipment.
- Responsible for reporting any indications of H_2S to those in the area and to a supervisor.

1.2 Drilling Consultant

- Responsible for thoroughly understanding and seeing that all aspects of this contingency plan are enforced.
- Responsible for implementing all phases of this contingency plan.
- Responsible for notifying emergency personnel (including 911), surface landowners, general public, and regulatory agencies in the event that an emergency condition develops.
- Responsible for ensuring that all visitors receive and H_2S safety orientation. A visitors log will be maintained as well as a list of all personnel on location after drilling has progressed to the suspected H_2S formation.
- **CONTACT INFORMATION:** Mark Nelson, Discovery Engineering, 231-342-2900 (cell).

1.3 Drilling Supervisor

- Responsible for coordinating all well site operations in the event that an emergency condition develops.
- Responsible for keeping a minimum of personnel on the location during expected hazardous operations.
- Responsible for igniting the well (if necessary).
- **CONTACT INFORMATION:** Sonny McCulley, Les Wilson Inc., 618-383-2780 (cell).

2.0 LOCATION LAYOUT, MUD CONTROL, AND BOP

2.1 Location Layout

The location layout will be followed to the maximum extent possible consistent with rig configuration, well depth, terrain, prevailing winds, etc. The specific locations of emergency equipment will be in readily accessible areas.

A. Safety Briefing Areas: Three areas will be designated as briefing areas. The most upwind (based on prevailing winds) of these areas will always be designated as the SAFE BRIEFING AREA. During any emergency, personnel will assemble at the SAFE BRIEFING AREA for instructions from the Drilling Consultant.

B. H_2S rig monitor with at least three heads: One located at the bell nipple, one located at the shale shaker, and a third one on the rig floor.

C. The location and type of all air masks. Self-contained breathing apparatus for use by rig personnel for this well will be kept in the following location(s):

Type: 30 min rescue unit	Location: Drilling Consultant Trailer
Type: 30 minute rescue unit	Location: All Trailers
Type: 30 min rescue unit (2)	Location: SAFE BRIEFING AREA
Type: 30 min rescue unit (2)	Location: Briefing Area #2
Type: Hoseline work unit (5)	Location: Safety Trailer
Type: 5 min escape unit (3)	Location: Rig Floor
Type: 5 min escape unit	Location: Tubing board (derrick)

If a cascade system is utilized, indicate the location(s);

Type: 10 cylinder cascade	Location: Safety Trailer with 10 cyl cascade is to be located by rig at base of catwalk.

D. The location of windsocks or streamers. The wind direction indicators for this well will be located at:

Type: Windsock	Location: SAFE BRIEFING AREA
Type: Windsock	Location: Briefing Area #2
Type: Windsock	Location: On floor & pits

The windsock on the floor will be firmly anchored at the end of the cat walk with the streamer positioned six feet above rig floor level.

E. The location of any other safety equipment used such as flare guns or bug blowers.

Type: Flare gun	Location: Drilling Consultant's Trailer

F. The location of all telephones and/or means of communications are as follows:

Type: Cell phone Location: Drilling Consultant's Pickup

G. The mud logger's trailer will be located away from the shale shaker and wellbore.

H. The rig will be equipped with a choke manifold, gas-buster, and burner.

I. An adequate mud storage area with sufficient stock will be maintained consistent with well conditions.

J. Warning Signs:
   a. "No Smoking" signs should be strategically located around the rig and rig location. The following locations are appropriate:
      1. Rig Floor
      2. Dog House
      3. Substructure
      4. Lower landing of all stairs to rig floor
      5. Mud pits
      6. Shale shaker

   b. "Poison Gas" signs should also be strategically located around the rig and rig location. The following locations are appropriate:
      1. All entrances leading to location
      2. Lower landing of all stairs leading to rig floor
      3. All areas around substructure, including mud pits and shale shaker.
      4. Various points along the perimeter of the radius of exposure.

NOTE: All warnings should be black and yellow in color and of readable size at a distance.

K. The location of Emergency Contact Information: A list of the current emergency telephone numbers and a map with all residential areas and evacuation routes clearly identified will be located on the rig bulletin board and in the Drilling Consultant's trailer.

2.2 Mud Control

- Mud weight should be such that it provides an overbalance of 150 to 200 psi while drilling potential H_2S formations.
- With water base muds, the pH should be maintained to counteract intruding acid gases such as H_2S and CO_2.
- A sufficient supply of a suitable H_2S scavenger will be on hand to use in conjunction with or instead of a high pH mud system.

2.3 Blowout Prevention (BOP) Equipment

- A high pressure sour service choke manifold, gas buster, and burner will be installed prior to drilling into the potentially sour gas formation.
- BOPs will be of materials qualified by API for H_2S atmospheres.
- BOPs and choke manifold will be pressure tested prior to drilling into the A2 Carbonate and at other times required by State regulations.
- Operational tests shall be performed every tour. Blind ram operation test shall be on every trip of the drill pipe.
- BOP rams will be removed and a visual inspection made of them at the start of each well.

3.0 PLAN ACTIVATION

3.1 Operating Procedures

3.1.1 All Operations

All equipment with potential for H_2S shall be suitable for H_2S service, i.e. Drill String, Casing, Well Head, Blow-Out Preventer equipment and trim, Rotating Head, Kill Lines, Choke Manifold and Lines.

A remote controlled choke will be installed prior to all H_2S drilling.

Mud system pH will be maintained at or above 10.0 with sufficient materials on location to maintain the required pH.

A flare will be located a minimum of 100 feet from wellhead.

3.1.2 Gas Kicks

Any gas kick will be controlled by using approved well control techniques. Upon evidence that ambient H_2S concentrations have reached 10 ppm, all non-essential personnel will be evacuated to pre-determined safe areas. Personnel remaining on the rig floor will continue to control the well until the situation indicates the area is safe to re-enter.

3.1.3 Special Operations

Drill Stem Tests All drill stem tests must be closed chamber and conducted during daylight hours only.

Coring After a core has been cut, circulate bottoms up and monitor for H_2S. If hole conditions (and/or detectors) indicate potentially hazardous conditions, put breathing equipment on (10) ten stands before core barrel reaches surface. Breathing equipment will be worn by all personnel while core barrel is pulled, broken out and opened, and until a safe atmosphere is indicated.

3.2 Operating Conditions

Operating conditions are defined in three categories. A description of each of these conditions and the required action to take are given below.

Condition I – Normal Operating Conditions, Potential Danger, Operations under control.

Characterized by; Normal Drilling Operations in zones which contain or may contain H_2S.

Warning Flag: Yellow
Alarm: None

Probable Occurrence: No detectable gas present at surface

General Action:

1. Know location of safety equipment.
2. Check safety equipment for proper function. Keep it available.
3. Be alert for a condition change.
4. Follow instructions of supervisor.

Condition II – Potential To Moderate Danger to Life.

Characterized by: H_2S gas present. Concentration less than 10 ppm.

Warning Flag: Orange
Alarm: Flashing light at 10 ppm H_2S. Intermittent blasts on horn at 10 ppm H_2S.

Probable Occurrence:

1. As drill gas.
2. As trip gas when circulating bottoms up.
3. When a core barrel is pulled.
4. When a well kick is circulated out.
5. Surface pressure, well flow or lost operations.
6. Equipment failure during testing operations.

General Action:

1. Follow instructions of supervisor.
2. Put on breathing equipment if directed, or if conditions warrant it.
3. Stay in "SAFE BRIEFING AREA" if instructed and not working to correct the problem.
4. The Drilling Consultant will initiate action to reduce the H_2S concentration to zero.

Condition III - Moderate to Extreme Danger to Life.

Characterized by: H_2S present in concentrations at or above 10 ppm. Critical well operations or well control problems. In the extreme, loss of well control.

Warning Flag: Red
Alarm: Flashing light and continuous blast on horn at 10 PPM H_2S.

Probable Occurrence:

1. As drill gas.
2. As trip gas when circulating bottoms up.
3. When a core barrel is pulled.
4. When a well kick is circulated out.
5. Surface pressure, well flow or lost return problems.
6. Equipment failure during testing operations.

General Action:

1. Put on breathing equipment. Move to "SAFE BRIEFING AREA" and remain there if not working to correct or control problem.
2. Follow instructions of Drilling Consultant or other supervisor
3. The Drilling Consultant will initiate emergency action as provided in the contingency plan and as appropriate to the actual conditions. If testing operations are in progress the well will be shut in.
4. The Drilling Consultant will conduct any necessary operations with an absolute minimum of personnel. All persons in the immediate area will wear a breathing apparatus. All other personnel will restrict their movements to those directed by the Superintendent.
5. If gas containing hydrogen sulfide is ignited, the burning hydrogen sulfide will be converted to sulfur dioxide which is poisonous.

4.0 EMERGENCY PROCEDURES

The procedure listed below applies to drilling and testing operations.

A. If at any time during Condition I, the mud logger, mud engineer, or any other person detects H_2S, he will notify the Drilling Supervisor. All personnel should keep alert to the Drilling Supervisor's orders. He will:

- Immediately begin to ascertain the cause or the source of the H_2S and take steps to reduce the H_2S concentration to zero. This should include having the mud engineer run a sulfide and pH determination on the flowline mud if water-base mud is in use. If an oil-base mud is in use, the mud engineer should check the lime content of the mud.
- Order non-essential personnel out of the potential danger area.
- Order all personnel to check their safety equipment to see that it is working properly and in the proper location. Persons without breathing equipment will not be allowed to work in a hazard area.
- Notify the Drilling Consultant of condition and action taken.
- Increase gas monitoring activities with portable H_2S detectors and continue operations with caution.
- Display the orange warning flag.

B. If the H_2S concentration exceed 10 PPM the following steps will be taken:

- Put on breathing equipment.
- Display red flag.
- Driller – prepare to shut the well in.
  - Pick up pipe to get Kelly out of BOPs.
  - Close BOPs if necessary.
- If testing operations are in progress, the well will be shut-in.
- Help anyone who may be affected by gas.
- Evacuate quickly to the "SAFE BRIEFING AREA" if instructed or conditions warrant.

C. In the event a potentially hazardous volume of H_2S is released into the atmosphere, the following steps must be taken to alert the public:

- Remove all rig personnel from the danger area and assemble at a pre-determined safe area, preferably upwind from the well site.
- Alert the drilling office, public safety personnel, regulatory agencies, and the general public of the existence and location of an H_2S release. See List of Emergency Telephone Numbers.
- Assign personnel to block any public road (and access road to location) at the boundary of the area of exposure. Any unauthorized people within the area should be informed that an emergency exists and be ordered to leave immediately.
- Request assistance from public safety personnel to control traffic and/or evacuate people from the threatened area.

5.0 SITE EVACUATION AND SECURITY

All personnel entering the location will be required to sign-in before starting any work and will sign-out when exiting the location. All visitors will also be required to sign-in and sign-out when entering and exiting the location.

In the event that the location must be evacuated, the Drilling Consultant will take the following steps to ensure all personnel on location are accounted for, to safely remove nonessential personnel, and to restrict nonessential personnel and public to the site:

- Remove all rig personnel from the danger area and assemble at a pre-determined safe area, preferably upwind from the well site.
- Account for all personnel, are accounted for per the sign-in sheet.
- Assign personnel to block any public road (and access road to location) at the boundary of the area of exposure. Any unauthorized people within the area should be informed that an emergency exists and be ordered to leave immediately.

6.0 PUBLIC/EMERGENCY RESPONSE NOTIFICATION AND EVACUATION

In the event a potentially hazardous volume of H_2S is released into the atmosphere, the Drilling Consultant will take the following steps to notify and/or evacuate the public:

- Remove all rig personnel from the danger area and assemble at a pre-determined safe area, preferably upwind from the well site.
- Alert the drilling office, public safety personnel, regulatory agencies, and the general public of the existence and location of an H_2S release. See List of Emergency Telephone Numbers.
- Assign personnel to block any public road (and access road to location) at the boundary of the area of exposure. Any unauthorized people within the area should be informed that an emergency exists and be ordered to leave immediately.
- Request assistance from public safety personnel to control traffic and/or evacuate people from the threatened area.

7.0 PROCEDURES FOR IGNITING THE WELL

7.1 Responsibility

The decision to ignite the well is the responsibility of the Drilling Supervisor. This decision should be made only as a last resort and in a situation where it is clear that:

- Human life is endangered.
- There is no hope of controlling the blowout under the prevailing conditions at the well.

NOTE: If the well is ignited, the burning H_2S will be converted to sulfur dioxide (SO_2) which is also highly toxic. DO NOT assume that the area is safe after the well is ignited. Follow through with all plans to evacuate endangered persons.

7.2 Equipment and Manpower

The following equipment and man power will be required to support the ignition team.

- 1—three-man team for igniting the well
- 3—30 minute SCBA units for each team member
- 2—handheld multi-gas (LEL, O_2, H_2S, CO) monitors
- 1— full body harness with 100 foot retrieval rope
- 1—12-gauge flare pistol with shells

7.3 Procedure

The following procedure will be used to ignite a leak in the event that it becomes necessary to protect the public.

A. Two men wearing self-contained, pressure demand air masks must determine the perimeter of the flammable area. This should be done with two men, each using a multi--gas detector. The flammable perimeter should be established at 10% of lower explosive limits (LEL).

B. After the flammable perimeter has been established and all personnel and public been removed from the area, the ignition team should move to within 500 feet of the up-wind side of the leak perimeter and fire a flare into the area. If the leak is not ignited on the first attempt, move in 20 or 30 feet and fire again. Continue moving in and firing until the leak is ignited or the multi-gas detector indicates the ignition team is moving into a hazardous area (<10% of the lower explosive limit). If trouble is incurred in igniting the leak by firing toward the leak, try firing 40 to 90 feet to each side of the area where you have been firing.

C. NOTE: Worker firing flare gun is required to wear full body harness with retrieval rope attached so that if he becomes injured, the other two workers can pull him to safety. Worker firing flare gun is required to have multi-gas monitor. All ignition team workers are required to wear fully-charged, 30-minite SCMA units.

D. If still no ignition is accomplished, access the situation and determine if an alternate method of igniting should be used. If an alternative method of igniting should be used, put any necessary precautions in place before attempting to ignite the well.

E. If ignition is not possible due to the make-up of the gas, the toxic leak perimeter must be established and maintained to insure evacuation is completed and continues until the emergency is secured.

Part II—H_2S Contingency Plan

1.0 MAPS

An accurate map depicting the locations of all existing structures used for public and private occupancy, areas maintained for public recreation, and roads and railroads is provided in Attachment 1.

2.0 CONTACT INFORMATION FOR GENERAL PUBLIC

A list of names, telephone numbers, and addresses of seasonal and permanent residents, private businesses, schools, places of worship, hospitals, government offices and parties responsible for the areas maintained for public camping or gathering identified on the maps are provided in Attachment 2.

3.0 EMERGENCY CONTACT INFORMATION

A list of names, telephone numbers, and addresses of Encana and Contractor representatives, the local emergency preparedness coordinator, the local ambulance services, local hospitals, local fire departments, the Department of Natural Resources and Environment, and the pollution emergency alerting system are provided in Attachment 3.

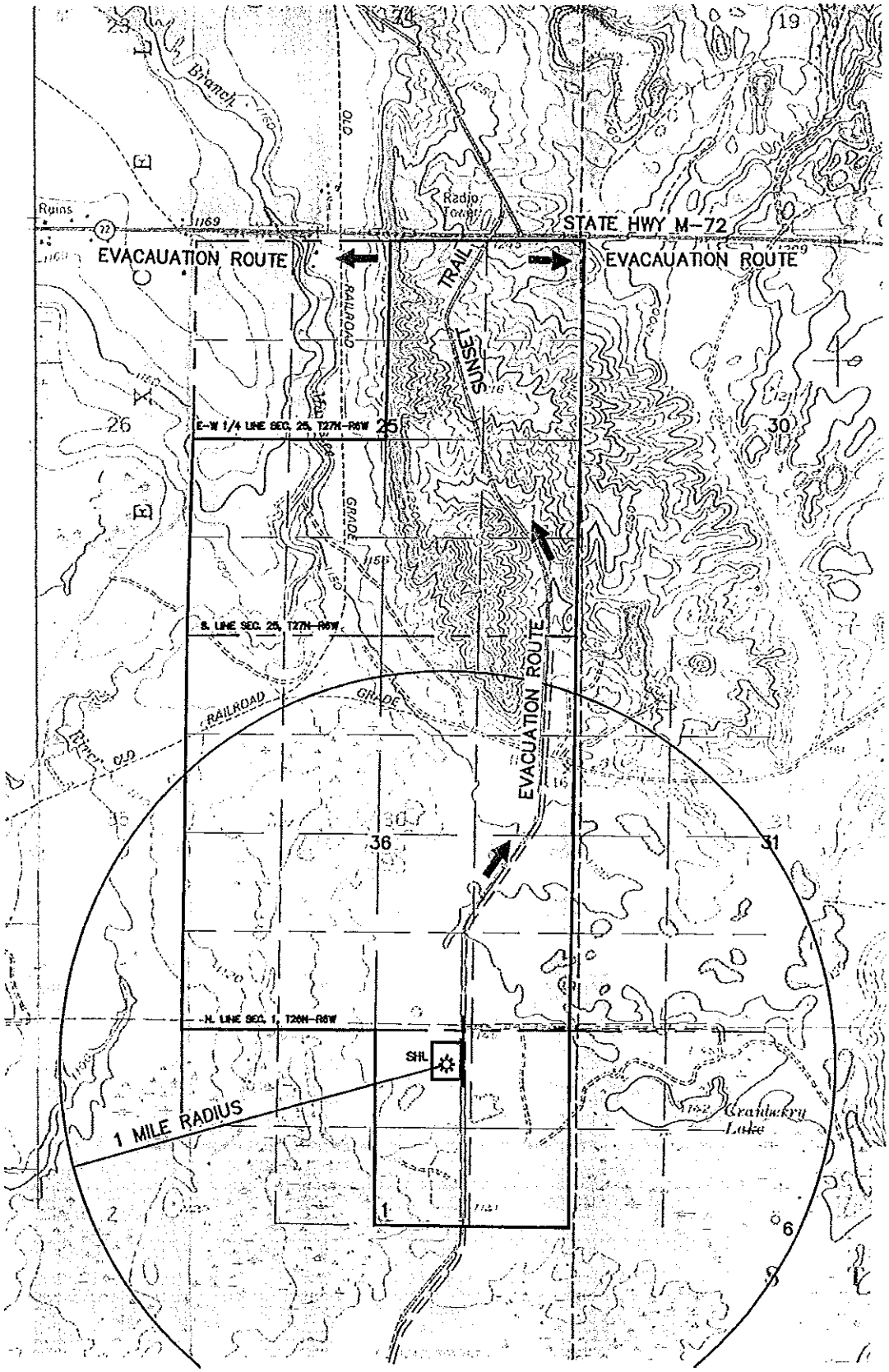
ATTACHMENT 1—Maps
ATTACHMENT 2—Contact Information for General Public
ATTACHMENT 3—Emergency Contact Information

ATTACHMENT 1

MAPS

encana
natural gas

VICINITY MAP – STATE EXCELIOR 1-25HD2



0' 1000' 2000'
SCALE: 1" = 2000'

SURVEYED ELEV. @ WELL: 1148.65'

FOOTAGES:
2165' FSL UNIT 459' FNL SECTION
910' FWL UNIT 1738' FEL SECTION

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FARRIER SURVEYING INC.
P.O. BOX 998
244 S.CEDAR STREET
KALKASKA, MI 49646
TEL(231)258-8162 FAX(231)258-3249
office@farriersurveying.com

CLIENT ENCANA OIL & GAS (USA) INC.

DESCRIPTION STATE EXCELSIOR 1-25HD2

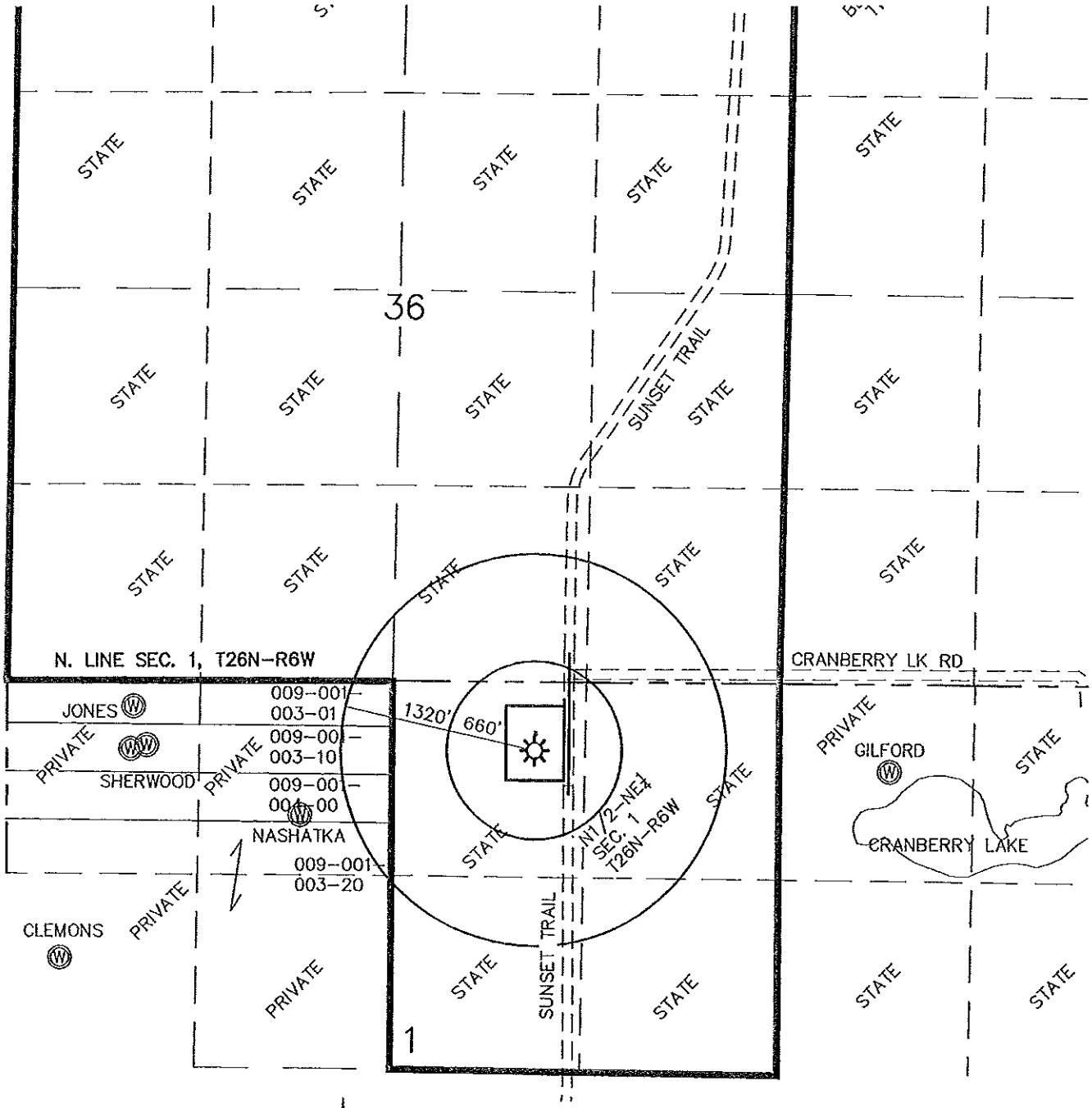
UNIT: SEC. 1: NE 1/4 T26N-R6W, OLIVER TOWNSHIP, SEC. 25: S 1/2, NE 1/4 & SE-NW; SEC. 36 ALL; T27N-R6W EXCELSIOR TWP.,KALKASKA COUNTY, MI

DRAWN: DVS	FILE No. 0311
CHECK: DRF	Fd. Bk. 222 Pg. 44
REVISED:	DATE: 3/30/12
	SHEET: 1 of 1

encana. natural gas

¼ MILE AREA OF REVIEW MAP–STATE EXCELSIOR 1–25HD2

THERE ARE NO RESIDENCES OR WELL OF RECORD WITH IN THE AREA OF REVIEW



0' 500' 1000'

SCALE: 1" = 1000'

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DRAWN: DVS	FILE No. 0311
CHECK: DRF	Fd. Bk. 222 Pg. 44
REVISED:	DATE: 3/30/12
	SHEET: 1 of 1

ATTACHMENT 2

CONTACT INFORMATION FOR GENERAL PUBLIC

PUBLIC CONTACT INFORMATION

SITE INFORMATION: State Excelsior 1-25 HD2		GPS Information
Site Physical Address:	2056 Sunset Trail SE, Kalkaska, MI 49646	Latitude: 44°40'58.501"
Site Phone Number:	TBD	Longitude: -84°58'43.353"
Legal Description:	N ½ of the NE ¼ Section 1 T26N R6W	Elevation: 1149'

PUBLIC CONTACT INFORMATION
(Surface Owners and General Public within 0.25 miles)

State of Michigan
DNR – Traverse City Management Unit
Kalkaska Field Office
Jerry Grieve – Forester
2089 North Birch Street
Kalkaska, MI 49646
231-258-2711 office

Kalkaska County Road Commission
James Woodhams-Manager
1049 Island Lake Road
Kalkaska, MI 49646
231-258-2242

Surface Landowners
Pelton Family Trust (John Pelton)
2303 Pheasant Avenue NW
Grand Rapids, MI 49544
616-791-9571

Thomas M. & Delores H. Pelton
6335 Rapidfalls Drive NE
Grand Rapids, MI 49306
616-361-9768

James & Christine Pelton
881 Maplerow Avenue NW
Grand Rapids, MI 49534
616-791-0014

Jeff Nashatka
3030 Lemuel Drive
Bay City, MI 48706
989-684-7124

August G. Jyla
PO Box 332
Kalkaska, MI 49646
231-258-5071

ATTACHMENT 3

EMERGENCY CONTACT INFORMATION

EMERGENCY CONTACT INFORMATION (Page 1 of 2)

SITE INFORMATION: State Excelsior 1-25 HD2		GPS Information
Site Physical Address:	2056 Sunset Trail SE, Kalkaska, MI 49646	Latitude: 44°40'58.501"
Site Phone Number:	TBD	Longitude: -84°58'43.353"
Legal Description:	N ½ of the NE ¼ Section 1 T26N R6W	Elevation: 1149'

DIRECTIONS TO SITE:

From Kalkaska: From the intersection of US 131 and Highway M-72 on the South end of the Village of Kalkaska, travel East on Hwy M-72 for 10.5 miles. Turn right on Sunset Trail, travel Southerly for 2.25 miles. Turn right to enter the well site.

From Grayling: From I-75, take either of the Grayling exits and follow signage to M-72 West. From the I-75 Business Loop, follow Hwy M-72 for 13 miles. Turn left on Sunset Trail, travel Southerly for 2.25 miles. Turn right to enter the well site.

DIRECTIONS TO HOSPITAL:

Grayling Mercy Hospital: (989-340-5000) Approximately 14.5 miles. From the site, turn left and travel North 2.25 miles on Sunset Trail. Turn right onto M-72, travel East 13 miles to traffic light at the intersection with Cedar Street (M-93 & Business Loop I-75). Turn right onto Cedar Street, travel Southeast 2 blocks. Turn left on Ottawa, travel Northeast 0.6 miles. Take slight left onto Michigan Ave. Turn immediately right into the facility.

Kalkaska Memorial Hospital: (231-258-7500) Approximately 12 miles. From the site, turn left onto Sunset Trail, travel North 2.25 miles. Turn left onto M-72, travel West 10 miles. Turn right onto Old M-66, travel North 1.0 mile. Take slight left turn, continue on Old M-66 (Elm Street), travel Northwest 0.2 mile. Continue straight at the traffic light, crossing Cedar Street/US-131. Continue Northwest on Third Street another 3 blocks. Turn left onto Coral Street, travel Southwest 300 feet to the Emergency Room entrance.

EMERGENCY RESPONSE NUMBERS	
Sheriff 605 N. Birch Street Kalkaska, MI 49646 231-258-8686 (non-emergency)	**911**
State Police Kalkaska Post #79 2089 Birch Street Kalkaska, MI 49646 231-258-4112 (non-emergency)	**911**
Fire	**911**
Ambulance	**911**
Hospital Grayling Mercy Hospital 1100 E. Michigan Avenue Grayling, MI 49738-1312 989-340-5000 (non-emergency)	**911**
Kalkaska Memorial Hospital 491 S. Coral Street Kalkaska, MI 49646 231-258-7500 (non-emergency)	

Is "911" accessible from this location? X Yes No

EMERGENCY CONTACT INFORMATION (Page 2 of 2)

COMPANY CONTACTS

ENCANA OIL & GAS (USA) INC.
Joel Fox
Production Engineer
370 17th Street, Suite 1700
Denver, CO 80202
720-876-3597 office
303-885-0101 cell

DISCOVERY ENGINEERING*
Mark Nelson
Drilling Consultant
2700 Sorority Lane
Holt, MI 48842
231-342-2900 cell

LES WILSON INC.
Verdayne Seals
205 Industrial Ave.
Carmi, IL 62821
618-382-8599 office
618-838-8599 cell

LES WILSON INC.
Sonny McCulley
Drilling Supervisor
205 Industrial Ave.
Carmi, IL 62821
618-383-2780 cell

* Responsible for notifying emergency response agencies, general public, surface landowners, and regulatory agencies.

AGENCY CONTACTS

KALKASKA COUNTY EMERGENCY MANAGEMENT
Mark Laskowski
231-251-3334 office
231-384-5785 cell

POLLUTION EMERGENCY ALERT SYSTEM
1-800-292-4706

DEQ-OGS H_2S SUB-UNIT
Ray Vugrinovich – Supervisor
517-241-1532 office

DNR-Cadillac Office
Rick Henderson – Supervisor
231-876-4435 office
231-631-7078 cell

Susanne Biteman-Geologist
231-876-4436 office

DNR-Traverse Management Unit
Jerry Grieve-Forester
231-258-2711 office

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natural gas

April 2, 2012

Michigan Department of Natural Resources
Forest Mineral and Fire Management Division
P.O. Box 30452
Lansing, MI 48909-7952

Re: Encana Oil & Gas (USA) Inc,
State Excelsior 1-25 HD2
Section 1, Township 26 North, Range 6 West
Notification of Application for Permit to Drill

To Whom It May Concern:

Encana Oil & Gas (USA) Inc. (Encana) intends to drill an exploratory natural gas well in Section 1, Township 26 North, Range 6 West in Oliver Township, Kalkaska County, Michigan. In accordance with Part 615, R324.201(2)(d), of Michigan's Oil and Gas Regulations, Encana is required to notify the surface owner.

Please note the following:

- The Application for Permit to Drill was mailed to the Office of Geological Survey Michigan Department of Environmental Quality on April 2, 2012.
- Activities are expected to begin in April.
- Traverse City Management Unit Forester Jerry Grieve has been notified of the proposed activities.
- A copy of the first page of the Application for Permit to Drill is enclosed for your records.

Sincerely Yours,

Amanda Cavoto

Amanda Cavoto
Engineering Technician

Enc.

Encana Oil & Gas (USA) Inc.
Republic Plaza
370 – 17 Street, Suite 1700
Denver, Colorado
United States 80202
t 720.876.3437
e amanda.cavoto@encana.com

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April 2, 2012

Mark Laskowski
Kalkaska County Emergency Services Coordinator
605 N. Birch Street
Kalkaska, MI 49646

Re: Encana Oil & Gas (USA) Inc.
State Excelsior 1-25 HD2
H_2S Contingency Plan Submittal

Dear Mr. Laskowski:

Encana Oil & Gas (USA) Inc. (Encana) intends to drill an exploratory natural gas well in Section 1, Township 26 North, Range 6 West in Oliver Township, Kalkaska County, Michigan. Encana does not anticipate this well to be a H_2S well; however, H_2S well formations may be encountered during drilling activities. In accordance with Part 615, R324.1101(4), of Michigan's Oil and Gas Regulations, Encana is providing the H_2S Contingency Plan for the State Excelsior 1-25 HD2 well.

Please note the following:

- The Application for Permit to Drill was mailed to the Office of Geological Survey Michigan Department of Environmental Quality April 2, 2012.
- The well site is located on State of Michigan property.
- Activities are expected to begin in April.
- A copy of the H_2S Contingency Plan is enclosed for your records.

Please do not hesitate to contact me if you have any questions or would like additional information.

Sincerely Yours,

Amanda Cavoto

Amanda Cavoto
Engineering Technician

Enc.

Republic Plaza
370 – 17 Street, Suite 1700
Denver, Colorado
United States 80202
t 720.876.3437
e amanda.cavoto@encana.com

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April 2, 2012

Deborah Hill
Kalkaska County Clerk
605 N. Birch Street
Kalkaska, MI 49646

Re: Encana Oil & Gas (USA) Inc.
State Excelsior 1-25 HD2
Notification of Application for Permit to Drill

Dear Ms. Hill:

Encana Oil & Gas (USA) Inc. (Encana) intends to drill an exploratory natural gas well in Section 1, Township 26 North, Range 6 West in Oliver Township, Kalkaska County, Michigan. In accordance with Part 615, R324.201(2)(d), of Michigan's Oil and Gas Regulations, Encana is required to notify the clerk of the county.

Please note the following:

- The Application for Permit to Drill was mailed to the Office of Geological Survey Michigan Department of Environmental Quality (MDEQ) on April 2, 2012.
- The well site is located on State of Michigan property.
- Activities are expected to begin in April.
- A copy of the first page of the Application for Permit to Drill is enclosed for your records.

Please do not hesitate to contact me if you have any questions or would like additional information.

Sincerely Yours,

Amanda Cavoto

Amanda Cavoto
Engineering Technician

Enc.

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Denver, Colorado
United States 80202
t 720.876.3437
e amanda.cavoto@encana.com

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April 2, 2012

Karen Van Horn
Kalkaska Planning & Zoning
890 Island Lake Rd
Kalkaska, MI 49646

Re: Encana Oil & Gas (USA) Inc.
State Excelsior 1-25 HD2
Notification of Application for Permit to Drill
Soil Erosion and Sedimentation Control Plan Submittal

Dear Ms. Van Horn:

Encana Oil & Gas (USA) Inc. (Encana) intends to drill an exploratory natural gas well in Section 1, Township 26 North, Range 6 West in Oliver Township, Kalkaska County, Michigan. In accordance with form EQP 7200-18, Encana is providing a copy of the Soil Erosion and Sedimentation Control Plan (SESCP) and relevant supplemental plats for your records. Please note that the SESCP is for the proposed well site and access road only. Encana will acquire a Soil Erosion Permit and provide a separate SESCP for the flow line when appropriate.

Please note the following:

- The Application for Permit to Drill was mailed to the Office of Geological Survey Michigan Department of Environmental Quality on April 2, 2012.
- The well site is located on State of Michigan property.
- Activities are expected to begin in April.
- A copy of the first page of the Application for Permit to Drill is enclosed for your records.
- A copy of the SESCP form EQP 7200-18 is enclosed for your records.

Please do not hesitate to contact me if you have any questions or would like additional information.

Sincerely Yours,

Amanda Cavoto

Amanda Cavoto
Engineering Technician

Enc.

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State Excelsior 1-25 HD2 Water Withdrawal Proposal

Proposed Plan

Encana Oil & Gas (USA). Inc (Encana) proposes the following for well completion operations:

1. Proposed volume of water
   300,000 bbls

2. Proposed number of water withdrawal wells
   3

3. Aquifer type
   Drift

4. Proposed depth of water withdrawal wells
   151 feet

5. Proposed pumping rate and frequency
   Completion operations are proposed to run at 3 stages/day utilizing approximately 30,000 bbls water/day. The water withdrawal rate for each well is anticipated to be 200 gpm, 24 hours a day, 7 days a week. That rate and frequency will apply for all water withdrawal wells for a total estimated withdrawal of 600 gpm. 24 hours a day, for 10 days. Completion operations are planned for September.

6. Storage
   Encana plans to have ~25 freshwater storage tanks on location to hold ~12,500 bbls of water. The freshwater pit will store ~11,720 bbls.

Water Withdrawal Assessment

Encana has completed a water withdrawal evaluation utilizing the Water Withdrawal Assessment Tool. The tool determined that the proposed withdrawal is a Zone B withdrawal in a cold-transition river system. Please note that Encana plans to fill the freshwater store pit and freshwater storage tanks over time, but for the purpose of the tool Encana proposed maximum possible withdrawal rates. A copy of the assessment is attached.

WATER WITHDRAWAL ASSESSMENT TOOL

Withdrawal Report - 3/28/2012 12:42:59 PM

The proposed withdrawal has 'failed' the screening process and a SITE SPECIFIC REVIEW IS REQUIRED.

RESULTS:
The projected impact of the withdrawal lies within 'Zone B' in a cold-transitional river system. Cold-transitiona systems are very sensitive to reductions in flow, therefore a site-specific review by the Department of Enviror Quality is required before proceeding with this withdrawal. To pursue approval for the withdrawal as proposec request for a site-specific review through the button at the right.

MODIFYING A PROPOSED WITHDRAWAL:
Changing certain characteristics of the proposed withdrawal may decrease the flow taken from nearby river s thereby lessening the likelihood of an adverse resource impact. The following withdrawal characteristics may in the screening process to reduce the potential impact to nearby river systems:

- Reduce the pumping frequency
- Reduce the pumping capacity
- Increase the well depth
- Relocate the withdrawal farther from nearby river systems

You can use the button at the right to rerun the Water Withdrawal Assessment Tool and change the proposed characteristics.

Summary

Watershed ID:	11912
Pumping Capacity (GPM):	600
Estimated Removal (GPM):	39
Well Depth (FT):	151
Well Type:	Ground Water
Aquifer Type:	Glacial
Pumping Frequency:	Intermittent
Numeric Months:	9
Days/Week:	7
Hours/Day:	24
Latitude:	44.683247
Longitude:	-84.97823

DISCLAIMER:
The Water Withdrawal Assessment Tool is designed to estimate the likely impact of a proposed water withdrawal on nearby streams. It indication of how much groundwater may be available for your use. The quantity and quality of groundwater varies greatly with depth. You should consult with a water resources professional or a local well driller about groundwater availability at your location.

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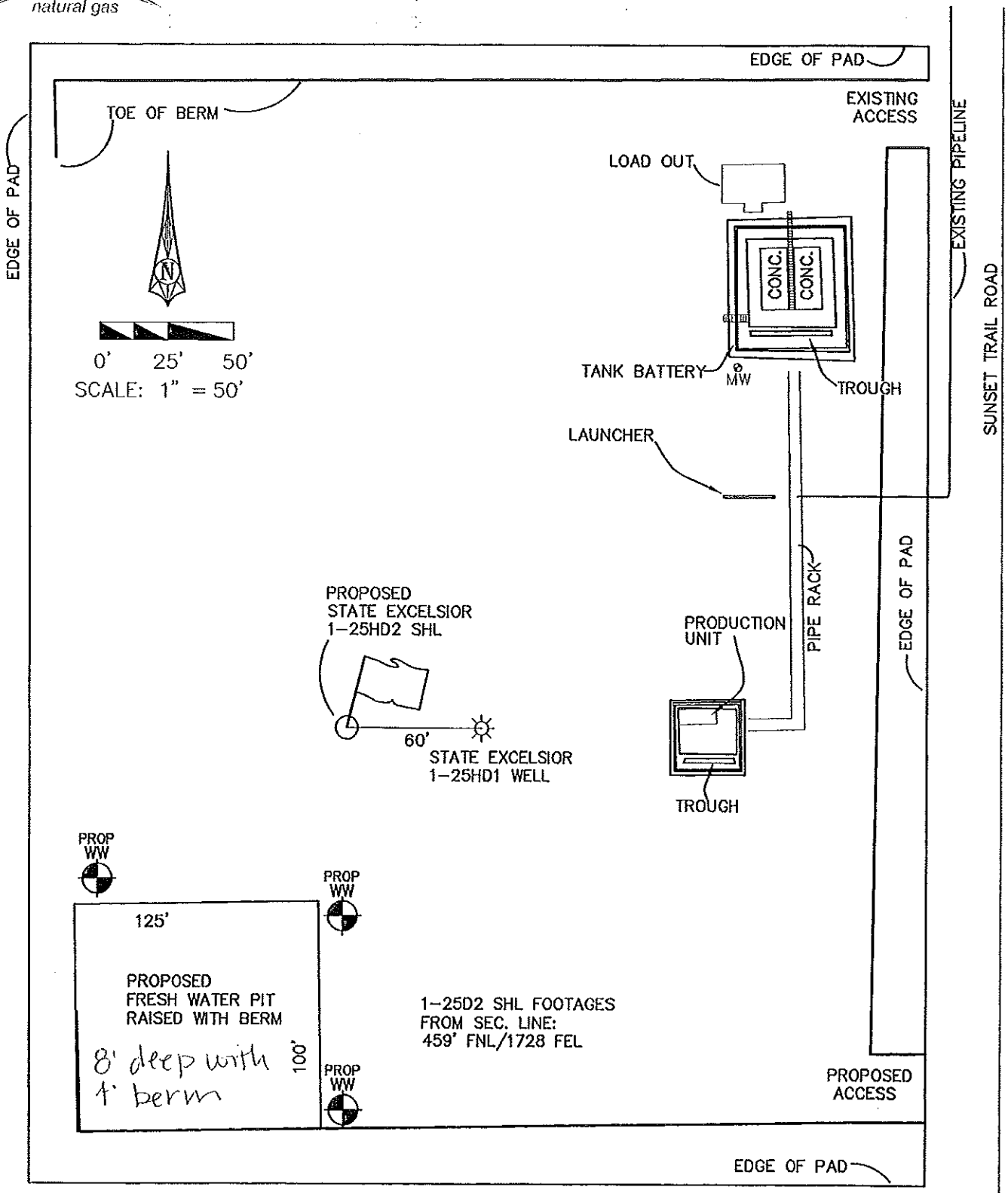
SUPPLEMENTAL PLAT EXCELSIOR 1-25HD2



FARRIER SURVEYING INC.
P.O. BOX 998
244 S.CEDAR STREET
KALKASKA, MI 49646
TEL(231)258-8162 FAX(231)258-3249
office@farriersurveying.com

CLIENT ENCANA OIL & GAS (USA) INC		DRAWN: MPS	FILE No. 0311-12
DESCRIPTION STATE EXCELSIOR 1-25 HD2		CHECK: DRF	Fd. Bk. ELECTRONIC
VPA: NE 1/4 SEC. 1, T26N-R6W, OLIVER TWP., SOUTH 1/2 & NE 1/4 SEC. 25 AND ALL SEC. 36, EXCELSIOR TWP., KALKASKA COUNTY, MICHIGAN		REVISED:	DATE: 3/30/12
			SHEET: 2 of 2

C:\ST EXCELSIOR 1-25HD1 AS-BUILT_recover.dwg 3/16/2012 2:57:36 PM EDT

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March 31, 2012

Mr. Dave Davies
Michigan Department of Environmental Quality
Office of Geological Survey
PO Box 30256
Lansing, MI 48909-7756

Re: Application for Rule 303 Spacing Exception
State Excelsior 1-25 HD2 and State Excelsior 1-25 HD3

Dear Mr. Davies:

Enclosed is an application packet for a Rule 303 Spacing Exception for the Encana Oil & Gas (USA) Inc. (Encana) proposed State Excelsior 1-25 HD2 and State Excelsior 1-25 HD3 wells. The application packet includes one original and two copies of the following:

- Form EQP 7200-23 Application for Rule 303 Spacing Exception
- List of all names on mineral owners and working interests and interests requiring a ratification
- Project map of the proposed unit and development
- Certified copy of executed pooling agreement
- Copy of ratification agreement
- Certification statement

Please note that Encana has requested confidential well status for the State Excelsior 1-25 HD2 and State Excelsior 1-25 HD3.

Please do not hesitate to contact me if you have any questions or would like additional information.

Sincerely,

Brenda R. Linster
Regulatory Advisor

Enc.

Encana Oil & Gas (USA) Inc.
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e brenda.linster@encana.com

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March 31, 2012

Mr. Larry E. Organek
Department of Environmental Quality
Office of Geological Survey
Petroleum and Mining Geology Unit
PO Box 30256
Lansing, MI 48909-7756

Re: Request for Confidential Well Status
State Excelsior 1-25 HD2
Oliver Township, T26N, R6W Section 1

Dear Mr. Organek:

Encana Oil & Gas (USA) Inc. (Encana) has submitted an Application for Permit to Drill the State Excelsior 1-25 HD2 natural gas well. Encana respectfully requests that all information submitted with the application be kept confidential and granted "tight-hole status" to the extent allowed by Michigan's rules and regulations.

Please contact me at your earliest convenience if you have any questions or require additional information.

Sincerely Yours,

Brenda R. Linster
Regulatory Advisor

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March 31, 2012

Mr. Mark Snow
Department of Environmental Quality
Office of Geological Survey
Permits and Bonding Unit
PO Box 30256
Lansing, MI 48909-7756

Re: State Excelsior 1-25 HD2
Section 1, Township 26 North, Range 6 West

Dear Mr. Snow:

Enclosed with this letter is an application packet for the proposed Encana Oil & Gas (USA) Inc. (Encana) State Excelsior 1-25 HD2 natural gas well. The application packet includes the following documents:

- Credit Card Transaction Authorization (EQP 7010) for the $300 application fee

- An original and one copy of the Application for Permit to Drill (form EPQ 7200-1), including
  - Survey Record of Well Location (form EQP 7200-2)
  - Supplemental Survey Plats
  - Environmental Impact Statement (form EQP 7200-19)
  - Rare Species and Unique Natural Features Clearance Letter
  - Soil Erosion & Sedimentation Control Plan (form EQP 7200-18)
  - Wellhead Blowout Control System (form EQP 7200-4)
  - Directional Drilling Plans
  - H_2S Contingency Plan (Part I and Part II)
  - Copy of notification letters
    - Michigan Department of Natural Resources (surface owner)
    - Kalkaska County Emergency Management
    - Kalkaska County Clerk
    - Kalkaska County Planning and Zoning

As part of this application, we respectfully request the installation of three water wells as part of the site construction for the proposed State Excelsior 1-25 HD2 natural gas well.

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e brenda.linster@encana.com

Please note the following:

- Encana has requested confidential status for this well. A copy of the request is provided with this letter.

- Encana has established a 1,280-acre voluntary pooling agreement unit consisting entirely of State of Michigan-owned lands under lease to Encana. Encana has requested a spacing exception from the standard 80-acre spacing authorized under Special Order 1-73 to 1,280-acre spacing. A copy of the request is provided with this letter.

- Encana has completed a Rare Species Review of the proposed well pad and access road. The review indicated that it is highly unlikely that listed species will be negatively impacted by the proposed activities.

  A copy of the Rare Species Review results letter is provided with the application.

- Encana will require a large volume water withdrawal to complete the proposed well. A copy of the water withdrawal plan is provided with the application.

Please contact me at your earliest convenience if you have any questions or require additional information.

Sincerely Yours,

Brenda R. Linster
Regulatory Advisor

Enclosures.

cc w/enclosures: Susanne Biteman-DEQ,
Jerry Grieve-DNR