APPENDIX A:

CERTIFIED INDEX OF ADMINISTRATIVE RECORD

Permit Writer's Administrative Record Certified Statement
Chevron Michigan, LLC, Stratton #16-4
UIC Permit MI-009-2D-0217

I, Allan Batka, an Environmental Engineer and permit writer in the Underground Injection Control Branch of the Water Division, Region 5 of the U.S. Environmental Protection Agency, certify that the administrative record for the final permit decision for the permit identified above was completed on this date. The administrative record includes, to the best of my knowledge, all documents required by 40 C.F.R. § 124.18.

The attached Administrative Record Index references all of the documents in the administrative record for this final permit decision.

Allan Batka, Permit Writer
Underground Injection Control Branch,
U.S. EPA, Region 5

11/15/12
Date

Index to the Administrative Record

Chevron Michigan, LLC, Stratton #16-4 , MI-009-2D-0217

Doc	Date of doc	Date received	Time	Title/Description/Subject	Author/sender	Addressee
I. Permit Application (40 C.F.R. § 124.9(b)(1))						
1	1/10/12	01/18/2012		Chevron Michigan, LLC, Stratton #16-4 , MI-009-2D-0217 permit application	Chevron Michigan, LLC	
II. Supporting Documentation Supplied by Permit Applicant (40 C.F.R. § 124.9(b)(1))						
2	1/10/12	01/18/2012		Permit Application Form	Chevron Michigan, LLC	
3	1/10/12	01/18/2012		Area of Review Methods	Chevron Michigan, LLC	
4	1/10/12	01/18/2012		Area of Review Maps	Chevron Michigan, LLC	
5	1/10/12	01/18/2012		Corrective Action	Chevron Michigan, LLC	
6	1/10/12	01/18/2012		Name and Depth of USDW	Chevron Michigan, LLC	
7	1/10/12	01/18/2012		Geology of Injection and Confining Zone	Chevron Michigan, LLC	
8	1/10/12	01/18/2012		Operating Data	Chevron Michigan, LLC	
9	1/10/12	01/18/2012		Formation Testing Program	Chevron Michigan, LLC	
10	1/10/12	01/18/2012		Stimulation Program	Chevron Michigan, LLC	
11	1/10/12	01/18/2012		Injection Procedure	Chevron Michigan, LLC	
12	1/10/2012	01/18/2012		Well Construction	Chevron Michigan, LLC	
13	1/10/12	01/18/2012		Well Schematic	Chevron Michigan, LLC	
14	1/10/12	01/18/2012		Contingency Plan	Chevron Michigan, LLC	
15	1/10/12	01/18/2012		Monitoring Program	Chevron Michigan, LLC	
16	1/10/12, 4/6/12	01/18/2012		Plugging and Abandonment Plan	Chevron Michigan, LLC	
17	11/22/1995	01/18/2012		Record of Well Drilling or Deepening # 48814	Chevron Michigan, LLC	
18	1/10/2012	01/18/2012		MDNR Permit Application to Drill #	Chevron Michigan, LLC	
19	1/10/2012	01/18/2012		State Historic Preservation Section 106 Review	Chevron Michigan, LLC	
20	1/10/2012	01/18/2012		Endangered Species Act Assessment Report	Chevron Michigan, LLC	
21	11/3/2011	01/18/2012		General Water Analysis	Chevron Michigan, LLC	
22	1/10/12	01/18/2012		Fracture Gradient Data	Chevron Michigan, LLC	
23	1/10/12	01/18/2012		List of property owners	Chevron Michigan, LLC	
24	3/7/2012	04/06/2012		Financial Assurance Documentation	Chevron Michigan, LLC	
25	1/10/2012	01/18/2012		Description of Buisness	Chevron Michigan, LLC	
26	3/20/2012	03/20/2012		USDW information from applicant	Chevron Michigan, LLC	
27	4/6/2012	04/06/2012		Revised permit application	Chevron Michigan, LLC	
III. Draft Permit or Notice of Intent to Deny the Application or Terminate the Permit (40 C.F.R. § 124.9(b)(2))						
28				Chevron Michigan, LLC, Stratton #16-4 , MI-009-2D-0217	Allan Batka	
IV. Statement of Basis or Fact Sheet (40 C.F.R. § 124.9(b)(3))						
29				Statement of Basis for draft permit # MI-009-2D-0217	Allan Batka	
V. All Documents Cited in the Statement of Basis or Fact Sheet (40 C.F.R. § 124.9(b)(4))						
30				40 CFR Parts 124, 144, 146, and 147		

Doc	Date of doc	Date received	Time	Title/Description/Subject	Author/sender	Addressee
VI. Other Documents Contained in the Supporting File for the Draft Permit (40 C.F.R. § 124.9(b)(5))						
31	1/31/2012			UIC Area of Review Investigation	Steve Roy	
32	2/15/2012	02/24/2012		Historic Preservation Act Determination	State of Michigan	
33	5/29/2012			Public notice announcement for draft permit # MI-009-2D-0217	Allan Batka	
34	2/22/2012			Information Request	Allan Batka	Chevron
35				Class 2 Technical Review Sheet	Allan Batka	
VII. Documents Contained in the Supporting File for the Final Permit (40 C.F.R. § 124.18(b))						
36	6/4/2012	06/07/2012		comments from Norma Petrie	Norma Petrie	EPA
37	6/22/2012	06/25/2012		comments from Lawrence and Sandra Nemecek	Lawrence and Sandra Nemecek	EPA
38	6/19/2012	06/25/2012		comments from Monica Nemecek	Monica Nemecek	EPA
39	5/29/2012	05/29/2012		comments from Peter Bormuth	Peter Bormuth	EPA
40	6/26/2012	06/29/2012		comments from Lucille Lercel	Lucille Lercel	EPA
41	8/21/2012	08/29/2012		EPA response to comments from Norma Petrie	EPA	Norma Petrie
42	8/21/2012	08/24/2012		EPA response to comments from Lawrence and Sandra Nemecek	EPA	Lawrence and Sandra Nemecek
43	8/15/2012	08/25/2012		EPA response to comments from Monica Nemecek	EPA	Monica Nemecek
44	8/15/2012	08/18/2012		EPA response to comments from Peter Bormuth	EPA	Peter Bormuth
45	8/15/2012	08/17/2012		EPA response to comments Lucille Lercel	EPA	Lucille Lercel
46				map of Charlevoix and Antrim Counties	Allan Batka	
47	6/29/2012			Michigan list of wild and scenic rivers	Michigan	
48	10/1/1972			Jordan River Natural River Plan	MDNR	
49	8/20/2012			Final Permit	EPA	

APPENDIX B:

DOCUMENTS IN THE ADMINISTRATIVE RECORD REFERENCED IN THIS RESPONSE TO PETITION FOR REVIEW:

B-1

Appeal of U.S. EPA Final Decision Regarding Permit #MI-009-2D-0217, Chevron Michigan, LLC, Stratton #16-4, Class II Injection Well, T31N, R6W, Section 4, ¼ Section SE, Antrim County, Michigan, dated September 16, 2012

Norma Petrie
5169 St. Johns Road
East Jordan, MI 49727

September 16, 2012

Environmental Protection Agency
Clerk of the Board
Environmental Appeals Board (MC 1103B)
Ariel Rios Building
1200 Pennsylvania Avenue, N.W.
Washington, D.C. 20460-0001

Clerk of the Board:

I am requesting an administrative review in accordance with 40 CFR Section 124.19, part (2) of the decision to allow Chevron to inject brine water in the vicinity of my property (Draft permit # MI-009-2D-0217).

I believe this decision is based on tenuous knowledge of the relationship between injection wells and underground drinking water and that the EPA has an imperative to protect and defend our water sources as a matter of policy and that an administrative review is in order to bring recent scientific evidence to the panel.

Sincerely,

Norma Petrie

Norma Petrie
231-350-1110 (cell)

B-2

Class II UIC Permit Application for Chevron Michigan, LLC;
Chevron Michigan, LLC, Stratton #16-4, Antrim County, Michigan,
dated January 10, 2012

Chevron

Appalachian/Michigan Business Unit

Chevron North America
Exploration and Production Company
(a Chevron U.S.A. Inc. division)
10691 East Carter Road
Suite 201
Traverse City, MI 49684
Tel 231 995 4000

January 10, 2012

United States Environmental Protection Agency
Underground Injection Control
Region 5, WU – 16J
77 W. Jackson Blvd.
Chicago, IL 60604

Attn: Lisa Perenchio

Re: Class II Permit Application for the Stratton 16-4 SWD well in Jordan 9 Antrim Unit, T31N-R6W, Antrim County, MI

Dear Ms. Perenchio,

Enclosed please find complete application package for the above referenced well, as well as copies of the application packages submitted to the Michigan Department of Environmental Quality and State Historic Preservation Office.

Should you have any questions or require additional information, please call 231-995-4076 or reach me at nschrader@chevron.com

Sincerely,

Natalie Schrader

Natalie Schrader,
Technical Assistant

Permit Writer- Allan Batka
MI-009-2D-0217

Enclosures:

ach:
Stratton 16-4 SWD Permit Application.doc

OMB No. 2040-0042 Approval Expires 12/31/2011

United States Environmental Protection Agency

EPA

Underground Injection Control Permit Application

(Collected under the authority of the Safe Drinking Water Act. Sections 1421, 1422, 40 CFR 144)

I. EPA ID Number		
	T/A	C
U		

Read Attached Instructions Before Starting

For Official Use Only

Application approved mo day year	Date received mo day year	Permit Number	Well ID	FINDS Number

II. Owner Name and Address

Owner Name	Street Address	Phone Number	City	State	ZIP CODE
Marvin & Judith Bolton	2950 W. Delhi Rd.		Ann Arbor	MI	48103

III. Operator Name and Address

Owner Name	Street Address	Phone Number	City	State	ZIP CODE
Chevron Michigan, LLC.	10691 E. Carter Rd. Suite 201	(231) 995-4000	Traverse City	MI	49684

IV. Commercial Facility

- [ ] Yes
- [x] No

V. Ownership

- [x] Private
- [ ] Federal
- [ ] Other

VI. Legal Contact

- [ ] Owner
- [x] Operator

VII. SIC Codes

VIII. Well Status *(Mark "x")*

- [ ] A. Operating — Date Started mo day year:
- [ ] B. Modification/Conversion
- [x] C. Proposed

IX. Type of Permit Requested *(Mark "x" and specify if required)*

- [x] A. Individual
- [ ] B. Area

Number of Existing Wells	Number of Proposed Wells	Name(s) of field(s) or project(s)
	1	Jordan 9

X. Class and Type of Well *(see reverse)*

A. Class(es) (enter code(s))	B. Type(s) (enter code(s))	C. If class is "other" or type is code 'x,' explain	D. Number of wells per type (if area permit)
II	D		

XI. Location of Well(s) or Approximate Center of Field or Project

Latitude Deg	Min	Sec	Longitude Deg	Min	Sec	Township and Range Sec	Twp	Range	1/4 Sec	Feet From	Line	Feet From	Line
45	06	17	85	02	33	4	31N	6W	SE	465	S	687	E

XII. Indian Lands (Mark 'x')

- [ ] Yes
- [x] No

XIII. Attachments

(Complete the following questions on a separate sheet(s) and number accordingly; see instructions)

For Classes I, II, III, (and other classes) complete and submit on a separate sheet(s) Attachments A--U (pp 2-6) as appropriate. Attach maps where required. List attachments by letter which are applicable and are included with your application.

XIV. Certification

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

A. Name and Title *(Type or Print)*	B. Phone No. *(Area Code and No.)*
Michael Link, Technical Team Lead, Engineering	(231) 995-4018
C. Signature: Michael A Link	D. Date Signed: 01/10/2012

EPA Form 7520-6 (Rev. 12-08)

EPA PERMIT APPLICATION
STRATTON 16-4 SWD

A. Attachment A: Area of Review

The area of review shall be fixed radius of 1/4 mile from the proposed SWD wellbore.

B. Map of well area of review (1 attachment)

The Map of producing, abandoned and dry wells, water wells, roads, residences, lakes, mines, quarries, etc. is attached.

Well Name	Type	Operator	Date Drilled	Depth
Stratton 16-4	SWD	Chevron Michigan	Proposed	1535'

C. Corrective Action Plan and Well Data

The Glacial Drift is known to be the only underground source of drinking water, although the Traverse Limestone may be a USDW in some parts of Antrim, Charlevoix and Cheboygan counties. Wells drilled through the USDW are cased and cemented to surface, which provides protection to the USDW even if there are improperly or unplugged wells. However, should fluid from the proposed injection well migrate to any improperly or unplugged wells in the area, Chevron Michigan, LLC. will shut in the injection well until corrective action can be completed. Also, an intermediate casing string will be set to protect the Traverse Limestone.

? (E.) TRAVERSE LS

Name and Depth of U.S.D.W.'s

Glacial Drift blankets the entire area to depths that range from 0-300'. It is the main source of drinking water for the area residents with wells penetrating 50-200'. The drift is composed of alternating layers of clay, gravel, sand and boulders. The Coldwater Shale underlies the Drift and is gray shale. The shale effectively separated the drift from the brackish waters in the deeper formations. Expected thickness of the Coldwater Shale at this location is 440'. Surface casing is set through the drift, at least 100' into the Coldwater Shale and cemented to surface to protect the USDW's from contamination during and after drilling operations. The formation used to determine the lowest source of drinking water was obtained from the Michigan D.N.R. and the Antrim County Health Department.

G. Geological Data on Confining zones

The proposed formation for injection is the Dundee Limestone, which is predominantly buff to brownish-gray and fine to coarsely crystalline limestone. Lost circulation during drilling operations is quite common through this formation, indicating that it is a prime formation for injection of produced brine fluids. The overlying formation is the Bell Shale, which is blue-gray dense shale. The underlying formation is the Detroit River Group consisting of layers of dolomite, anhydrite, salt and limestone.

Tops taken from the nearby Josifek D4-4 well, Section 4, T31N-R6W, were used to derive the following drilling depth prognosis:

Drift (Base)	145'
Lachine	417'
Paxton	497'
Norwood	520'
Traverse Formation	540'
Traverse Limestone	581'
Bell Shale	1301'
Dundee	1344'
Detroit River Anhydrite	1525'

BELL SHALE CONFINING ZONE

H. Operating Data

- 210,000 gpd

1. The proposed injection rate is 5000 BWPD. The maximum rate should not exceed 9000 BWPD. → 379,000 gpd
2. Due to good porosity and permeability exhibited in this formation, gravity injection is expected.
3. The annulus fluid will be fresh water with corrosion inhibitors added.
4. The source of injection fluid is from several wells producing from the Antrim formation. Analysis of similar Antrim produced water from a nearby injection well shows approximately 8.38 ppg weight with 1,100 mg/L Chlorides, TDS of 3,204 and specific gravity of 1.005.

ANTRIM USDW?

5. The fracture gradient based on 2.5 gm/cc average density of stratigraphic rock in the area is 0.8 psi/ft of depth. Therefore, the actual frac gradient should be 1647' x 0.8 psi/ft = 1318 psi bottom hole pressure at the uppermost open hole. Using the formula [0.8 psi/ft - 0.433 x (1.005 + 0.05)] x 1344 – 14.7 psi/ft therefore, 446 psi is the maximum allowable surface pressure.

I. Formation Testing Program

Prior to injecting water from the surface, fluids will be collected from a tap located on the disposal string approximately two feet from the wellhead as shown in Figure 1 attached hereto, and analyzed per EPA requirements.

The injected water volume from the surface will be measured by passing through a Halliburton inline fluid flow meter (or equivalent) with monthly volume reporting. The surface pressure required for injection (if greater than 14.73 psi) will be monitored with a standard gage mounted in the injection piping at or near the point at which the fluid enters the down hole tubing string.

J. Stimulation Program

Chevron Michigan, LLC. does not anticipate the need for stimulation of the Dundee formation as it has proven to be a prolific disposal zone in this area. If stimulation is needed, approximately 500 to 1,000 gallons of HCl acid will be used.

K. Injection Procedure

This well is proposed to dispose of water from the project's gas wells. Attached figure illustrates 3-1/2" OD disposal tubing and packer will be run through 5-1/2" casing, for disposal in the Dundee formation. Injected water volume from the surface will be measured by passing it through an inline fluid flow meter and monthly water volumes will be reported. The surface pressure required for injection (if greater than 14.7 psia) will be monitored with a standard gage mounted in the injection piping at or near the point of which fluid enters the down hole tubing string.

L. Construction Procedure

1. 16" Conductor will be driven to about 50'.
2. 12-1/4" hole will be drilled to at least 100' below the base of the Drift, approximately 245'. 8-5/8" casing, 20 lb/ft, will be run to the bottom and cemented to surface.
3. 7-7/8" hole will be drilled into the Dundee Formation, approximately 1,350'. 5-1/2" casing, 13 lb/ft, will be run to the bottom and cemented to surface.
4. 4-3/4" hole will be drilled to an estimated depth of 1,535'.

5. A tension packer will be run on 3-1/2" tubing to within 50' of the bottom of the casing in Bell Shale.

6. The well will be acidized with 750 gallons of 20% HCL acid to clean up the wellbore across the injection zone, if necessary after successful MIT.

7. Pack off wellhead and fill tubing/casing annulus with corrosion inhibited packer fluid consisting of Dowell Corban 326 or equivalent mixed with fresh water at a concentration of 7000 ppm.

8. Test per EPA MIT specifications. Submit for approval.

M. Construction Detail

An illustration of the proposed well construction details is attached as Figure 1.

O. Plans for Well Failures

If a well failure is detected, the well will be shut in until the faulty equipment is replaced or repaired and the well returned to safe operating condition. If the failure and operation pose no environmental hazard, nothing further will be done.

P. Monitoring Program

The monitoring program for this well will consist of the compliance with the EPA permit requirement of the filing of monthly, quarterly, and annual reports.

Q. Plugging and Abandonment Procedure

An illustration of the plugging and abandonment construction details is attached as Construction Schematics. EPA form 7520-14 is attached.

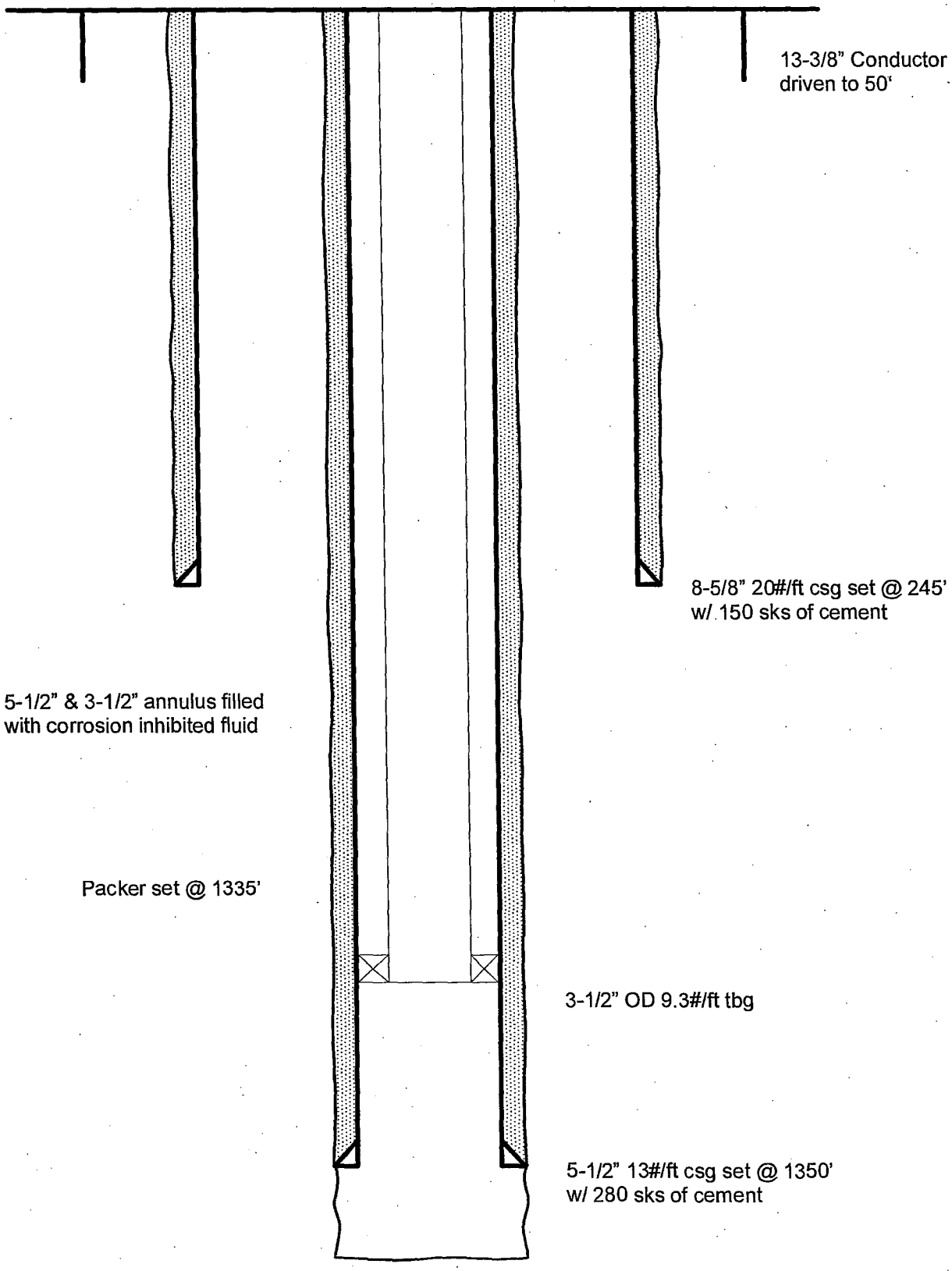
R. Necessary Resources

The required Financial Guarantees for this test are attached to this application.

U. Description of Business

Chevron Michigan, LLC. is a subsidiary of Chevron Corporation and is engaged in natural gas exploration and development in the state of Michigan.

CHEVRON MICHIGAN, LLC.
STRATTON 16-4 SWD
JORDAN 9



ANTRIM WELL PROGNOSIS

Project: Jordan 9

Well Name: Stratton 16-4 SWD

Location: Section 4, T31N-R6W

QTR Section: SW SE SE

Footages: 465' from SOUTH section line & 687' from EAST section line
465' from SOUTH quarter section line & 687' from EAST quarter section line

Reference Elevations (feet, estimated): GL: 903 KB: 909

Formation Tops	**Est. Drilling Depth**	
	Vertical	Est. Sub sea
BOD	145	764
Lachine	417	492
Paxton	497	412
Norwood	520	389
Traverse Fm	540	369
Traverse Lm	581	328
Bell Shale	1301	-392
Dundee	1344	-435
Det Rvr Anhy	1524	-615
TD	1535	-626

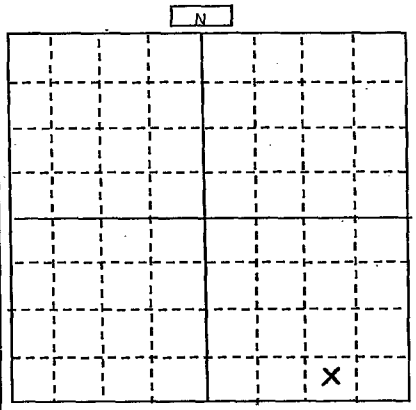
Special Logs Requested: None

ED STATES ENVIRONMENTAL PROTECTION AGE.
WASHINGTON, D.C. 20460

PLUGGING AND ABANDONMENT PLAN

WELL NAME & NUMBER, FIELD NAME, LEASE NAME & NUMBER	NAME, ADDRESS, & PHONE NUMBER OF OWNER / OPERATOR
Stratton 16-4 SWD	Chevron Michigan, LLC 10691 E. Carter Rd. Suite 201 Traverse City, MI 49684 231-995-4000

Locate Well and Outline Unit on Section Plat - 640 Acres



STATE	COUNTY	STATE PERMIT NUMBER
MI	Antrim	Pending

SURFACE LOCATION DESCRIPTION
SW/SE/SE, Sec. 4, T31N-R6W

LOCATE WELL IN TWO DIRECTIONS FROM NEAREST LINES OF QUARTER SECTION AND DRILLING UNIT

Surface Location 465 ft. From (N/S) SOUTH Line of Quarter Section
And 687 ft. From (E/W) EAST Line of Quarter Section

TYPE OF AUTHORIZATION
- [x] Individual Permit
- [ ] Rule
- [ ] Area Permit

Number of Wells in Area Permit :

US EPA Permit Number : Pending

WELL ACTIVITY
- [ ] Class I
  - [ ] Hazardous
  - [ ] Nonhazardous
- [x] Class II
  - [x] Brine Disposal
  - [ ] Hydrocarbon Storage
  - [ ] Enhanced Recovery
- [ ] Class III
- [ ] Class IV

CASING/TUBING/CEMENT RECORD AFTER PLUGGING AND ABANDONMENT

Size	Wt (lb/ft) TBG/CSG	Original Amount (CSG)	CSG to be Left in Well	Hole Size	Sacks Cement Used	Type
13-3/8"	Conductor	50	50	Driven	Driven	-
8-5/8"	20#	245	245	12-1/4"	150 sks	Class A
5-1/2"	13#	(1535) 1350?	(1535) 1350?	7-7/8"	280 sks	Class A

METHOD OF EMPLACEMENT OF CEMENT PLUGS
- [x] Balance Method
- [ ] Dump Bailer Method
- [ ] Two Plug Method
- [ ] Other

CEMENT TO PLUG AND ABANDON DATA	Plug # 1	Plug # 2	Plug # 3	Plug # 4	Plug # 5	Plug #6	Plug #7
Size of Hole or Pipe in Which Plug Will Be Placed (inches)	5-1/2"	5-1/2"					
Calculated Top of Plug (ft.)	1300	Surface					
Measured Top of Plug (ft.)	n/a	n/a					
Depth to Bottom of Plug (ft.)	1350	345					
Sacks of Cement to be Used	6	(39)	Alt.				
Slurry Volume to be Used (cu. Ft.)	7	46					
Slurry Weight (lb./gal.)	15.6	15.6					
Type of Cement, Spacer or Other Material Used	Class A	Class A					
Type of Preflush Used	-	-					

DESCRIPTION OF PLUGGING PROCEDURE

MI Service Unit. TOH w/ packer & tubing. TIH w/ CIBP. Set CIBP at 1350'. TOH w/ tbg. Spot 6 sks cement on CIBP. Raise tbg to 345'. Spot cement to surface. Cut csg 4' below ground level. Weld plate on sub.

ESTIMATED COST OF PLUGGING AND ABANDONMENT

Cement	$5,000.00	Cast Iron Bridge Plug	$2,000
Logging	$0.00	Cement Retainer	$0
Rig or Pulling Unit	$5,000.00	Miscellaneous	$2,500
		Total	$14,500

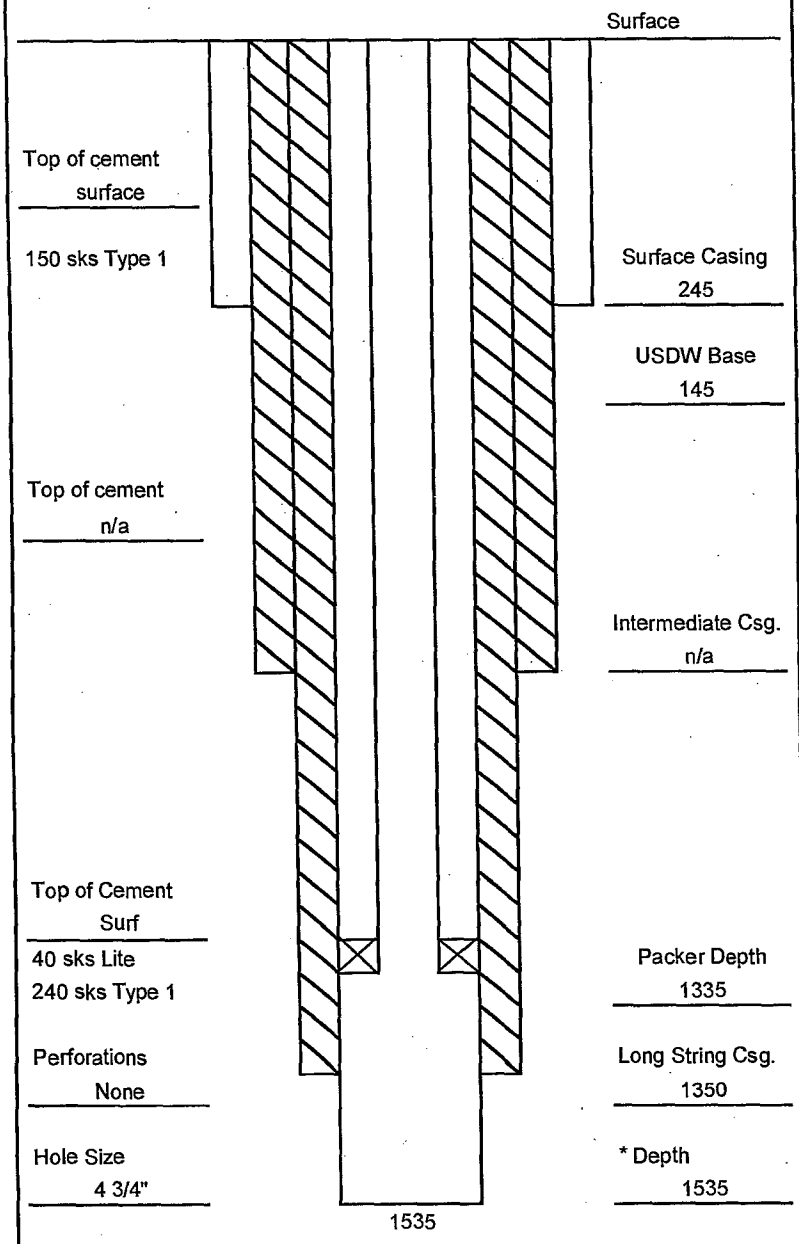
CERTIFICATION

I certify under the penalty of law that I have examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref.40 CFR 144.32)

NAME AND OFFICIAL TITLE	SIGNATURE	DATE SIGNED
Michael Link, Technical Team Lead, Engineering	Mich Link	01/10/12

ORIGINAL WELL CONSTRUCTION DURING OPERATION

Stratton 16-4 SWD

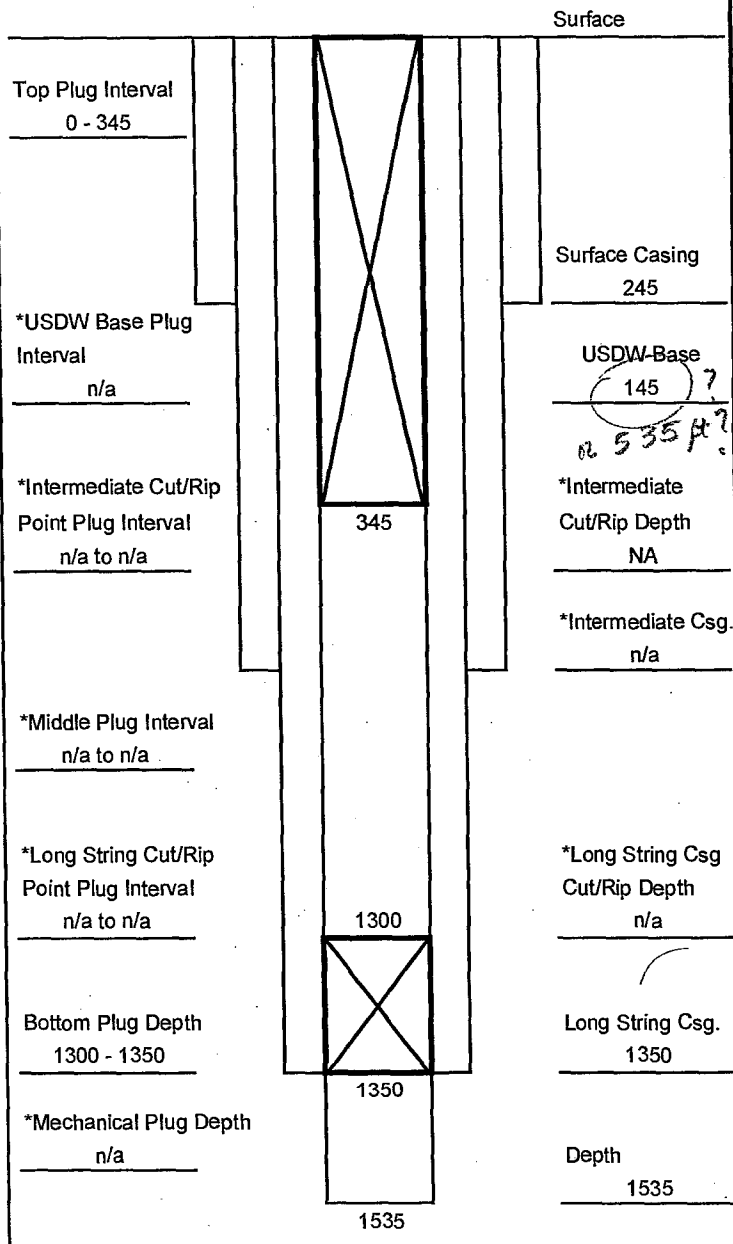


** Add Any Additional Information

* May not Apply

PLUGGING AND ABANDONMENT CONSTRUCTION

Stratton 16-4 SWD



** Add Any Additional Information

* May not Apply

LIST OF ALL OPEN AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED

Specify Open Hole/ Perforations/ Varied Casing		From	To	Formation Name
4-3/4"	Open Hole	1350	1535	Dundee

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

FEB 23 2012

REPLY TO THE ATTENTION OF:

WU-16J

CERTIFIED MAIL 7009 1680 0000 7644 2022
RETURN RECEIPT REQUESTED

Ms. Natalie Schrader
Chevron Michigan, LLC
10691 E. Carter Road, Suite 201
Traverse City, Michigan 49684

Re: Amendment to Standby Trust Agreement for Chevron Michigan, LLC dated September 26, 2011

Dear Ms. Schrader:

Enclosed please find one signed copy of the Amendment to the Standby Trust Agreement dated September 26, 2011, for your file. The second original Amendment to the Standby Trust Agreement will be retained in our office's permit file.

If you should have any questions regarding this matter, feel free to call me at (312) 886-4240.

Sincerely yours,

Patrick Saieh, Engineer
Underground Injection Control Branch

Enclosure

P.S 2/23/12
JSA 2/23/12

AMENDMENT TO STANDBY TRUST AGREEMENT FOR ADDITIONAL WELLS

Chevron Michigan, LLC, as Grantor, and U.S. Bank National Association, as the Trustee, with the approval of the United States Environmental Protection Agency, entered into a Standby Trust Agreement dated September 26, 2011, regarding the surety for the plugging and abandonment of certain underground injection wells.

Section 16 of the Agreement provides that the Agreement may be amended by an instrument in writing executed by the Grantor, the Trustee and the Regional Administrator of the United States Environmental Protection Agency. Such authority to execute such amendments has been duly delegated from the Regional Administrator to the Underground Injection Control Branch Chief.

As provided in Section 2 of the Agreement, Schedule A identifies the wells and facilities to be covered by the Agreement. Schedule A is hereby amended to modify identification of the wells and facilities covered by the Agreement. Schedule A, attached to this agreement, is the sole and complete listing of all wells and facilities covered by the Agreement.

Except as provided in this Amendment, the terms of Agreement are in full force and effect.

Dated this 21st day of February, 2012.

GRANTOR

CHEVRON MICHIGAN, LLC

U. M. Oseguera
Vice President and Treasurer

TRUSTEE

U.S. BANK NATIONAL ASSOCIATION

Claude Acoba
Vice President and Account Manager

C. S. Isom
Assistant Treasurer

ACCEPTED AND AGREED TO THIS 23 day of February, 2012.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Rebecca L. Harvey, Chief
Underground Injection Control Branch
Attachment: Revised Schedule A

CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT

State of California
County of Contra Costa. }

On 2/21/12 (Date) before me, Andrew Tamerson, Notary Public. (Here Insert Name and Title of the Officer)

personally appeared Uriel M. Oseguera & Craig S. Isom. (Name(s) of Signer(s))

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) ~~is~~/are subscribed to the within instrument and acknowledged to me that ~~he/she~~/they executed the same in ~~his/her~~/their authorized capacity(ies), and that by ~~his/her~~/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature Andrew A. Tamerson (Signature of Notary Public)

ANDREW A. TOMERSON
Commission # 1874214
Notary Public - California
Contra Costa County
My Comm. Expires Jan 20, 2014

Place Notary Seal Above

OPTIONAL

Though the information below is not required by law, it may prove valuable to persons relying on the document and could prevent fraudulent removal and reattachment of this form to another document.

Description of Attached Document US Bank NA.

Title or Type of Document: Amendment to Standby Trust Agreement for Additional Wells

Document Date: 2/21/12 Number of Pages: 1

Signer(s) Other Than Named Above: N/A.

Capacity(ies) Claimed by Signer(s)

Signer's Name: Uriel M. Oseguera	Signer's Name: Craig S. Isom
☐ Individual	☐ Individual
☒ Corporate Officer — Title(s): Vice President & Treasurer	☒ Corporate Officer — Title(s):
☐ Partner — ☐ Limited ☐ General	☐ Partner — ☐ Limited ☐ General
☐ Attorney in Fact	☐ Attorney in Fact
☐ Trustee	☐ Trustee
☐ Guardian or Conservator	☐ Guardian or Conservator
☐ Other:	☐ Other:
Signer Is Representing: Chevron Michigan, LLC.	Signer Is Representing:
RIGHT THUMBPRINT OF SIGNER — Top of thumb here	RIGHT THUMBPRINT OF SIGNER — Top of thumb here

ACKNOWLEDGMENT

State of California
County of San Francisco)

On 02/21/12 before me, Nam Huynh, Notary Public
(insert name and title of the officer)

personally appeared Claude Acoba,
who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal:

Signature _____ (Seal)

NAM HUYNH
Commission # 1964323
Notary Public - California
San Francisco County
My Comm. Expires Dec 22, 2015

SCHEDULE A
FACILITIES & COST ESTIMATES

Facility Name	Well Name	Well #	EPA Permit #	Township	County	Township / Range	Sec.	1/4 Sec.	Estimated P&A Cost	Date of Estimate
Albert 1	St. Albert	C4-5 SWD	MI-119-2D-0022	Albert	Montmorency	T29N-R2E	5	NE NE SE	$ 14,500	07/16/10
Anchor Steam	Bates	C2-13 SWD	MI-119-2D-0123	Hillman	Montmorency	T31N-R4E	13	SE NE SW	$ 14,500	07/16/10
Apple Orchard	Foley	D3-10 SWD	MI-119-2D-0097	Rust	Montmorency	T29N-R4E	10	NE SW SE	$ 14,500	07/16/10
Arthur Miller	St. Hillman	C2-14 SWD	MI-119-2D-0107	Hillman	Montmorency	T31N-R3E	14	SE NE SW	$ 14,500	07/16/10
Bagley 16 West	Bagley 17	SWD	MI-137-2D-0054	Bagley	Otsego	T30N-R3W	17	NE NE NW	$ 14,500	07/16/10
Bear Lake 9	McBride	A4-9 SWD	MI-101-2D-0054	Bear Lake	Manistee	T23N-R15W	9	SW NE NE	$ 14,500	07/16/10
Bear Lake 9	Perclin Orchards	B2-17 SWD	MI-101-2D-0034	Bear Lake	Manistee	T23N-R15W	17	SE SE NW	$ 14,500	07/16/10
Bear Lake 29	Acker	6-19 SWD	MI-101-2D-0078	Bear Lake	Manistee	T23N-R15W	19	SE SE NW	$ 14,500	07/16
Blue Sky	Willson	15-24 SWD	MI-009-2D-0203	Central Lake	Antrim	T31N-R8W	24	NW SW SE	$ 14,500	07/16/10
Boyne Valley 31	Darbee-Brannon	C1-36 SWD	MI-029-2D-0005	Wilson	Charlevoix	T32N-R6W	36	SW NW SW	$ 14,500	07/16/10
Brush Limbaugh	St. Hillman	B4-19 SWD	MI-119-2D-0106	Hillman	Montmorency	T31N-R4E	19	NE SE NE	$ 14,500	07/16/10
Central Lake 15/28	Conant	5-15 SWD	MI-009-2D-0177	Central Lake	Antrim	T31N-R8W	15	SW SW NW	$ 14,500	07/16/10
Central Lake 15/28	Kiessel	2-28 SWD	MI-009-2D-0204	Central Lake	Antrim	T31N-R8W	28	SW NW NE	$ 14,500	07/16/10
Chess Play	Burnett	A1-7 SWD	MI-009-2D-0092	Chestonia	Antrim	T30N-R6W	7	SW NW NW	$ 14,500	07/16/10
Chess Play	Devriese	B3-8 SWD	MI-009-2D-0121	Chestonia	Antrim	T30N-R6W	8	NE SW NE	$ 14,500	07/16/10
Chess Play	Kunz	B1-18 SWD	MI-009-2D-0093	Chestonia	Antrim	T30N-R6W	18	SW SW NW	$ 14,500	07/16/10
Chess Play	Kunz	5-18 SWD	PENDING	Chestonia	Antrim	T30N-R6W	18	NW SW NW	$ 14,500	12/30/11
Chess Play	Porter Minerals	7-8 SWD	MI-009-2D-0207	Chestonia	Antrim	T30N-R6W	8	NE SW NE	$ 14,500	07/16/10
Chester 16 West	Dreffs	1-16 SWD	MI-137-2D-0043	Chester	Otsego	T30N-R2W	16	SE NE SW	$ 14,500	07/16/10
Chestonia 31/Custer 1/Kearney 36	Northern Lakes Petroleum	2-31 SWD	MI-009-2D-0206	Chestonia	Antrim	T30N-R6W	31	NE NW NE	$ 14,500	07/16/10
Chief Creek / Brown 13 NE	Chief Creek	1-10 SWD	MI-101-2D-0049	Brown	Manistee	T22N-R15W	10	NE SW NW	$ 14,500	07/16/10
Clearwater 2/14	Voytal	16-2 SWD	MI-079-2D-0038	Clearwater	Kalkaska	T28N-R8W	2	SW SE SE	$ 14,500	07/16/1
Clearwater Central / South	McLachlan	3-27 SWD	MI-079-2D-0045	Clearwater	Kalkaska	T28N-R8W	27	SE NE NW	$ 14,500	07/16/
Connie Stevens East / West	Dewyse	A4-29 SWD	MI-119-2D-0043	Avery	Montmorency	T30N-R3E	29	NW NE NE	$ 14,500	07/16/10
Custer 1 Antrim / Custer 35	Terra Energy Ltd.	1-19 SWD	MI-009-2D-0002	Mancelona	Antrim	T29N-R6W	19	NW SW SW	$ 14,500	07/16/10
Custer 15/20	Biehl Custer	13-21 SWD	MI-009-2D-0159	Custer	Antrim	T29N-R7W	21	NW SW SW	$ 14,500	07/16/10
Custer 33/Rapid River 3/5/21	Raudman & Jordan	8-10 SWD	MI-079-2D-0044	Rapid River	Kalkaska	T28N-R7W	10	NW SE NE	$ 14,500	07/16/10
Custer 33/Rapid River 3/5/21	Ricksgers	C1-33 SWD	MI-009-2D-0131	Custer	Antrim	T29N-R7W	33	NE NW SW	$ 14,500	07/16/10
Custer 33/Rapid River 3/5/21	Zimmerman & Oyer	13-29 SWD	MI-009-2D-0156	Custer	Antrim	T29N-R7W	29	SE SW SW	$ 14,500	07/16/10
Echo 10/11	Rebec	12-14 SWD	MI-009-2D-0169	Echo	Antrim	T31N-R7W	14	SE NW SW	$ 14,500	07/16/10
Echo 24/26/Jordan 29	Beal	D2-27 SWD	MI-009-2D-0139	Echo	Antrim	T31N-R7W	27	NE SE SW	$ 14,500	07/16/10
Echo 24/26/Jordan 29	Kent	12-24 SWD	MI-009-2D-0137	Echo	Antrim	T31N-R7W	24	SE NW SW	$ 14,500	07/16/10

SCHEDULE A
FACILITIES & COST ESTIMATES

Facility Name	Well Name	Well #	EPA Permit #	Township	County	Township / Range	Sec.	1/4 Sec.	Estimated P&A Cost	Date of Estimate
Elmers Glewoll	St. Elmer	C1-11 SWD	MI-135-2D-0016	Elmer	Oscoda	T28N-R2E	11	SW NW SW	$ 14,500	07/16/10
Elmira 14 / North Elmira	Ames	C4-14 SWD	MI-137-2D-0310	Elmira	Otsego	T31N-R4W	14	SW NE SE	$ 14,500	07/16/10
Elmira 14 / North Elmira	Fleming	A2-2 SWD	MI-137-2D-0304	Elmira	Otsego	T31N-R4W	2	NW NE NW	$ 14,500	07/16/10
Elmira 23/26	Provins	6-23 SWD	MI-137-2D-0330	Elmira	Otsego	T31N-R4W	23	SE SE NW	$ 14,500	07/16/10
Elmira Thrive West	St. Elmira	13-5 SWD	MI-137-2D-0276	Elmira	Otsego	T31N-R4W	5	NW SW SW	$ 14,500	07/16/10
Elvira 11	Dobrzelewski	D2-20 SWD	MI-137-2D-0277	Elmira	Otsego	T31N-R4W	20	NE SE SW	$ 14,500	07/16/10
Elvira 11	Burdo	B1-17 SWD	MI-137-2D-0273	Elmira	Otsego	T31N-R4W	17	NE SW NW	$ 14,500	07/16/10
Flint Nappers	Terra	B2-14 SWD	MI-007-2D-0041	Wilson	Alpena	T30N-R6E	14	NW SE NW	$ 14,500	07/16
Forest Home 10/14/34	Patton	6-10 SWD	MI-009-2D-0182	Forest Home	Antrim	T30N-R8W	10	SE SE NW	$ 14,500	07/16/10
Forest Home 10/14/34	Patton	B2-10 SWD	MI-009-2D-0191	Forest Home	Antrim	T30N-R8W	10	SE SE NW	$ 14,500	07/16/10
Fosters Lager	Felsner	C1-22 SWD	MI-119-2D-0113	Hillman	Montmorency	T31N-R4E	22	NE NW SW	$ 14,500	07/16/10
Hawk Lake	St. Mancelona	A4-21 SWD	MI-009-2D-0009	Mancelona	Antrim	T29N-R5W	21	NE NE NE	$ 14,500	07/16/10
Helena 23	Spitza	6-23 SWD	MI-009-2D-0176	Helena	Antrim	T29N-R8W	23	SW SE NW	$ 14,500	07/16/10
Helena 25	Hackewicz	11-36 SWD	MI-009-2D-0152	Helena	Antrim	T29N-R8W	36	NE NE SW	$ 14,500	07/16/10
Helena 25	Luther	16-25 SWD	MI-009-2D-0145	Helena	Antrim	T29N-R8W	25	NE SE SE	$ 14,500	07/16/10
Hillbilly	St. Hillman	B3-21 SWD	MI-119-2D-0103	Hillman	Montmorency	T31N-R3E	21	SW SW NE	$ 14,500	07/16/10
Hillbilly	St. Hillman	7-21 SWD	MI-119-2D-0151	Hillman	Montmorency	T31N-R3E	21	SW SW NE	$ 14,500	07/16/10
Iron Oxide	Cohoon	C4-23 SWD	MI-119-2D-0071	Rust	Montmorency	T30N-R4E	23	NE NE SE	$ 14,500	07/16/10
Jordan 9	Josifek	D4-4 SWD	MI-009-2D-0099	Jordan	Antrim	T31N-R6W	4	SE SE SE	$ 14,500	07/16/10
Jordan 9	Stratton	16-4 SWD	PENDING	Jordan	Antrim	T31N-R6W	4	SW SE SE	$ 14,500	01/10/12
Jordan 12	Bricker	C2-7 SWD	MI-009-2D-0105	Jordan	Antrim	T31N-R5W	7	NE NE SW	$ 14,500	07/16/10
Jordan 12	Stanek	A1-13 SWD	MI-009-2D-0107	Jordan	Antrim	T31N-R6W	13	SW NW NW	$ 14,500	07/16/10
Jordan 12	Sulak	1-14 SWD	PENDING	Jordan	Antrim	T31N-R6W	14	SW NE NE	$ 14,500	08/22
Jordan 21	Hoeksma	A1-22 SWD	MI-009-2D-0106	Jordan	Antrim	T31N-R6W	22	NW NW NW	$ 14,500	07/16/10
Jordan 33	Malpas	A4-34 SWD	MI-009-2D-0097	Jordan	Antrim	T31N-R6W	34	NW NE NE	$ 14,500	07/16/10
Jordan 35	Big Woods	6-35 SWD	MI-009-2D-0212	Jordan	Antrim	T31N-R6W	35	SW SE NW	$ 14,500	06/10/11
Jordan 35	Malpas	B2-35 SWD	MI-009-2D-0098	Jordan	Antrim	T31N-R6W	35	SW SE NW	$ 14,500	07/16/10
Jordan 35	Misner	3-26 SWD	MI-009-2D-0132	Jordan	Antrim	T31N-R6W	26	SE NW NE	$ 14,500	07/16/10
Kearney 15/16/26/33	Smith	3-22 SWD	MI-009-2D-0167	Kearney	Antrim	T30N-R7W	22	SW NE NW	$ 14,500	07/16/10
Kearney 9	St. Kearney	5-10 SWD	MI-009-2D-0209	Kearney	Antrim	T30N-R7W	10	NW SW NW	$ 14,500	07/16/10
King Edwards	Edwards	C4-36 SWD	MI-119-2D-0087	Hillman	Montmorency	T31N-R4E	36	NE NE SE	$ 14,500	07/16/10
Lloyd's of London	St. Hillman	A3-18 SWD	MI-119-2D-0115	Hillman	Montmorency	T31N-R3E	18	SW NW NE	$ 14,500	07/16/10

SCHEDULE A
FACILITIES & COST ESTIMATES

Facility Name	Well Name	Well #	EPA Permit #	Township	County	Township / Range	Sec.	1/4 Sec.	Estimated P&A Cost	Date of Estimate
Loudbert	St. Loud	A2-6 SWD	MI-119-2D-0042	Loud	Montmorency	T29N-R3E	6	NE NE NW	$ 14,500	07/16/10
Miller Creek / Rust Proof	St. Hillman	A3-32 SWD	MI-119-2D-0116	Hillman	Montmorency	T31N-R4E	32	SW NW NE	$ 14,500	07/16/10
Mother Hubbard	Ferguson	B3-31 SWD	MI-007-2D-0019	Green	Alpena	T31N-R5E	31	NE SW NE	$ 14,500	07/16/10
Mt. Marla	Pine Valley	1-32 SWD	MI-001-2D-0033	Alcona	Alcona	T28N-R7E	32	NW NE NE	$ 14,500	07/16/10
Net Werth / Timber Wolf	Prevost	C1-29 SWD	MI-007-2D-0009	Wilson	Alpena	T30N-R7E	29	SE NW SW	$ 14,500	07/16/10
North Rust	Kempf	A4-17 SWD	MI-119-2D-0005	Rust	Montmorency	T29N-R4E	17	NE NE NE	$ 14,500	07/16/10
Old Vandy East	Melling	1-22 SWD	MI-137-2D-0318	Corwith	Otsego	T32N-R3W	22	NE NE NE	$ 14,500	07/16/10
Old Vandy North	Chaffee	D1-17 SWD	MI-137-2D-0312	Corwith	Otsego	T32N-R3W	17	SW SW SW	$ 14,500	07/1
Old Vandy North	Frid	B1-9 SWD	MI-137-2D-0315	Corwith	Otsego	T32N-R3W	9	SE SW NW	$ 14,500	07/16/10
Old Vandy North	Guerin & Matthew	D2-13 SWD	MI-029-2D-0009	Hudson	Charlevoix	T32N-R4W	13	SE SE SW	$ 14,500	07/16/10
Old Vandy South	Beckington	D1-25 SWD	MI-029-2D-0008	Hudson	Charlevoix	T32N-R4W	25	NW SW SW	$ 14,500	07/16/10
Old Vandy South	Grant	C4-30 SWD	MI-137-2D-0309	Corwith	Otsego	T32N-R3W	30	SE NE SE	$ 14,500	07/16/10
Old Vandy South	St. Livingston	A1-6 SWD	MI-137-2D-0306	Livingston	Otsego	T31N-R3W	6	NW NW NW	$ 14,500	07/16/10
Onekama 12	Dittmer	1-24 SWD	MI-101-2D-0075	Onekama	Manistee	T23N-R16W	24	NE NW NW	$ 14,500	07/16/10
Rust Road	Cumper	D4-9 SWD	MI-119-2D-0093	Rust	Montmorency	T30N-R4E	9	SE SE SE	$ 14,500	07/16/10
Scenic	Bicknell	B4-19 SWD	MI-119-2D-0074	Briley	Montmorency	T30N-R2E	19	NW SE NE	$ 14,500	07/16/10
Vienna 14	Presson	D2-14 SWD	MI-119-2D-0060	Vienna	Montmorency	T30N-R1E	14	NE SE SW	$ 14,500	07/16/10
Vienna 23	Miller	C3-23 SWD	MI-119-2D-0055	Vienna	Montmorency	T30N-R1E	23	NE NW SE	$ 14,500	07/16/10
Vienna 27	Montmorency Road	B1-27 SWD	MI-119-2D-0053	Vienna	Montmorency	T30N-R1E	27	NW SW NW	$ 14,500	07/16/10
Warner 2	Kerly	A2-11 SWD	MI-009-2D-0078	Warner	Antrim	T31N-R5W	11	SW NE NW	$ 14,500	07/16/10
Warner 8	Korthase	C3-17 SWD	MI-009-2D-0087	Warner	Antrim	T31N-R5W	17	SE NW SE	$ 14,500	07/16/10
Warner 8	Korthase	D3-8 SWD	MI-009-2D-0089	Warner	Antrim	T31N-R5W	8	NE SW SE	$ 14,500	07/16
Warner 8	Korthase	15-8 SWD	PENDING	Warner	Antrim	T31N-R5W	8	NE SW SE	$ 14,500	10/17/--
Warner 13	Jaroneski	01-12 SWD	MI-009-2D-0074	Warner	Antrim	T31N-R5W	12	NE SW SW	$ 14,500	07/16/10
Warner 22	Gagneur	B4-27 SWD	MI-009-2D-0211	Warner	Antrim	T31N-R5W	27	NW SE NE	$ 14,500	07/16/10
Warner 22	Holloway	A4-16 SWD	MI-009-2D-0210	Warner	Antrim	T31N-R5W	16	NE NE NE	$ 14,500	07/16/10
Wilson 28	Edwards	A1-32 SWD	MI-029-2D-0003	Wilson	Charlevoix	T32N-R6W	32	SE NW NW	$ 14,500	07/16/10
Wilson 28	Thayer	9-36 SWD	MI-029-2D-0006	South Arm	Charlevoix	T32N-R7W	36	NW NE SE	$ 14,500	07/16/10
X-Rea	Rea	C1-26 SWD	MI-119-2D-0075	Hillman	Montmorency	T31N-R4E	26	SW NW SW	$ 14,500	07/16/10
Z-Bart	Schulze	B4-11 SWD	MI-119-2D-0072	Rust	Montmorency	T30N-R4E	11	SE SE NE	$ 14,500	07/16/10
									$ 1,363,000	

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Chevron Corporation
Treasury
6001 Bollinger Canyon Road
San Ramon, CA 94583-2324

Chevron Michigan, LLC
10691 E. Carter Road, Suite 201
Traverse City, MI 49684

May 18, 2011

Ms. Olivera Mladenovic
Global Trade Finance & Advisory
1 Chase Manhattan Plaza, 10th Floor
New York, NY 10081

LETTER OF CREDIT AMENDMENT REQUEST
UNDERGROUND INJECTION CONTROL BRANCH
REGION 5, US EPA

Dear Ms. Mladenovic:

Please amend the letter of credit number CPCS-879650 as follows:

- Change the applicant name from "Atlas Gas & Oil Company, LLC" to now read as "Chevron Michigan, LLC".

All other items remain unchanged.

Please deliver the amendment to Leslie Patterson at the beneficiary address. Contact information is as follows: Telephone: 312-886-4904, Fax: 312-692-2491 and E-mail: Patterson.Leslie@epamail.epa.gov.

Please forward a copy of the amendment by facsimile to Mr. Sky Huber at facsimile number (925) 842-8180 or via e-mail to skyhuber@chevron.com.

Should you have any questions, please contact Mr. Sky Huber at (925) 842-8113.

Thank you for your prompt service.

CHEVRON CORPORATION

U. M. OSEGUERA
Assistant Treasurer

C. S. ISOM
Assistant Treasurer

CHEVRON MCHIGAN, LLC

U. M. OSEGUERA
Vice President & Treasurer

C. S. ISOM
Assistant Treasurer

Chevron Corporation
Treasury
6001 Bollinger Canyon Road
San Ramon, CA 94583-2324

As of February 16, 2011

JPMorgan Chase Bank, N.A.
Global Trade Services/Production
10420 Highland Mn Dr-BL 2, Floor 4
Tampa, FL 33610
Attention: Mr. James Alonzo

Dear Mr. Alonzo:

Re: Standby and Documentary Letter of Credit Agreement dated as of January 6, 2004 between Chevron Corporation and JP Morgan Chase Bank, as amended by First Amendment dated as of October 15, 2010 (as amended, the "LC Reimbursement Agreement")

We understand that (a) pursuant to that certain Credit Agreement dated as of June 29, 2007 among Atlas Energy Operating Company, LLC, as borrower (the "Borrower"), Atlas Energy Resources, LLC, as parent guarantor, the financial institutions signatory thereto, JPMorgan Chase Bank, N.A., as administrative agent for the lenders, and others as agents for the lenders (as amended, the "Credit Agreement"), you, as an Issuing Bank (as defined in the Credit Agreement), issued (i) standby letter of credit no. CPCS-807387 on January 14, 2010 in favor of Capitol Indemnity Corporation in the face amount of $150,000 for the account of the Borrower, (ii) standby letter of credit no. CPCS-820558 on February 10, 2010 in favor of Paramount Group, Inc. in the face amount of $113,200 for the account of Atlas Energy Resources, LLC, (iii) standby letter of credit no. CPCS-820644 on February 1, 2011 in favor of Win Energy REMC in the face amount of $150,000 for the account of Atlas Energy Michigan, and (iv) standby letter of credit no. CPCS-879650 on December 3, 2010 in favor of Underground Injection Control Branch, Region 5, United States Environmental protection Agency in the face amount of $1,410,000 for the account of Atlas Gas & Oil Company, LLC (collectively, the "LCs"); (b) you, as Administrative Agent (as defined in the Credit Agreement), and the Borrower have entered into that certain letter agreement dated as of February 16, 2011 (the "Payoff Letter") pursuant to which the Borrower will pay all amounts due and payable under the Credit Agreement, any other Loan Document and any other transaction documents to which the Borrower or any of its Affiliates is a party pursuant to the transactions contemplated by the Credit Agreement and terminate all of the commitments under the Credit Agreement; and (c) the Payoff Letter provides for the obligations of the Borrower under the Credit Agreement to reimburse the Issuing Bank for draws under the LCs to become the obligation of Chevron Corporation under the LC Reimbursement Agreement as if the LCs had been issued thereunder, effective the date on which the Borrower pays all amounts due and payable under the Credit Agreement, any other Loan Document and any other transaction documents to which the Borrower or any of its Affiliates is a party pursuant to the transactions contemplated by the Credit Agreement and terminate all of the commitments under the Credit Agreement.

This confirms the agreement between Chevron Corporation and JPMorgan Chase Bank, N.A. that upon JPMorgan Chase Bank, N.A.'s receipt of the Payoff (as defined in the Payoff Letter), (i) each of Atlas Energy Operating Company, LLC, Atlas Energy Resources, LLC, Atlas Gas & Oil Company, LLC and Atlas Energy Michigan shall be added as a "Subsidiary Applicant" to the LC Reimbursement Agreement, (ii) each of the LCs shall be deemed to be a letters of credit issued under the LC Reimbursement Agreement, and (iii) the fees and the date when such fees are first payable for each of the LCs shall be as follows:

Letter of Credit	Fee	Date Fee Payable
Capitol Indemnity Corporation CPCS-807387	65 bps p.a. quarterly in arrears	From Feb 17, 2011
Paramount Group, Inc. CPCS-820558	65 bps p.a. quarterly in arrears	From Feb 17, 2011
Win Energy REMC CPCS-820644	65 bps p.a. quarterly in arrears	From Feb 17, 2011
United States Environmental protection Agency CPCS-879650	65 bps p.a. quarterly in arrears	From Feb 17, 2011

Except as expressly modified hereby, the terms and provisions of the Agreement shall remain in full force and effect and be enforceable against Chevron and the Bank.

This letter agreement shall become effective as of the date first written above when the each party shall have received counterpart of this letter agreement executed by the other party.

This letter agreement may be executed in any number of counterparts and by different parties hereto in separate counterparts, each of which when so executed and delivered shall be deemed to be an original and all of which taken together shall constitute but one and the same agreement. Delivery of an executed counterpart of a signature page to this letter agreement by telecopier or in pdf format shall be effective as delivery of a manually executed counterpart of this letter agreement.

This letter agreement shall be governed by and construed in accordance with the laws of the State of New York, without regard to conflicts of law.

CHEVRON CORPORATION

By: _____
Name: U.M. Oseguera
Title: Assistant Treasurer

By: _____
Name: C.S. Isom
Title: Assistant Treasurer

Accepted and agreed as of the date
first written above.

JPMORGAN CHASE BANK, N.A.

By: _____
Name: Marshall Trenckmann
Title: Vice President

Great Lakes Ecosystems
P.O. Box 156
Indian River, Michigan 49749
231-238-7615 Office / bebbers@racc2000.com

ENDANGERED SPECIES ACT SITE ASSESSMENT REPORT

To: Paul R. Conlen, CPL, Land Representative
Chevron Michigan, LLC
10691 East Carter Road, Suite 201
Traverse City, Michigan 49684

From: Bert C. Ebbers, Consulting Biologist

Date: January 9, 2012

Regarding: Additional information requested by the United States Environmental Protection Agency (Region 5, 77 West Jackson Boulevard, Chicago, Illinois 60604-3590), for the proposed **Stratton 16-4 SWD** Injection Well, located in section 4, T31N, R6W, Jordan Township, Antrim County, Michigan.

#1) List of endangered, threatened, and candidate species in the county in which the well is located (per the www.fws.gov/midwest/endangered/section7 website):

Eastern massasauga (*Sistrurus catenatus catenatus*) – Candidate;
Pitcher's thistle (*Cirsium pitcheri*) – Threatened.

#2) Summary of the critical habitat which, if present, may support one of the above-listed species:

Eastern massasauga – In Michigan this species frequents non-acidic wetlands including fens, prairies, diversely-vegetated marshes, floodplains bordering rivers and lakes, and Great Lakes coastal communities where limestone bedrock, either fractured or solid, occurs close to the surface beneath glacial till. Adults hibernate alone, often in chimney-building crayfish burrows, and throughout the warm season can be found living under boards, logs, tree roots, or inside small mammal burrows.

Pitcher's thistle – This species occurs almost exclusively within wide open, wind-whipped sand dune and low beach ridge communities bordering, or close by, Great Lakes shorelines. Although the species can grow in all vegetative stages of dune succession except closed-canopy forest, it favors less-stable areas near the shoreline where coarse sand is constantly carved out and shifted around by strong winds.

#3) Survey of surface vegetation, soils, topography and hydrologic features in the area of review in sufficient detail to address the presence or absence of critical habitat for any endangered, threatened, or candidate species:

The terrain currently including, as well as immediately bordering, the proposed Stratton 16-4 SWD Injection Well site can be characterized as having nearly level to moderately sloping topography, consisting of somewhat excessively drained, to well drained (sandy), upland soils. The USDA soil type there appears to be "Kalkaska-Montcalm Complex, 0 to 12 Percent Slopes". The proposed well is scheduled to be constructed adjacent to the existing, currently operating Josifek D4-4 Antrim Gas Well (Permit # 48814), and within eyesight of an active MichCon Pipeline facility. See Supplemental Plat survey information included at the end of this electronic report for an accurate depiction of the site layout, including nearby buildings and roads.

The proposed well pad is situated in a dry, upland, open old field that has been fallow for many years (farmed historically, presumably), where only a trace of woody vegetation is currently present. The weedy, naturalized old field community currently present across the pad site is dominated by spotted knapweed (*Centaurea maculosa*), timothy (*Phleum pretense*), smooth brome (*Bromus inermis*), Queen Anne's lace (*Daucus carota*) and quackgrass (*Agropyron repens*), supplemented by uncommon amounts of sheep sorrel (*Rumex acetosella*), and rare to trace amounts of old field goldenrod (*Solidago nemoralis*), old field cinquefoil (*Potentilla simplex*) and common mullein (*Verbascum thapsus*). The widely scattered woody vegetation present on the pad site includes one red pine (*Pinus resinosa*) sapling, four black locust (*Robinia pseudoacacia*) saplings, one wild black cherry (*Prunus serotina*) small tree, one common juniper (*Juniperus communis*) shrub, and several autumn olive (*Elaeagnus umbellata*) shrubs.

The absence of high-quality, exceptionally diverse wetland areas or complexes, either within the proposed well pad limits, or immediately adjacent areas, verifies the absence of critical habitat for the eastern massasauga at this site. In addition to habitat structural deficiencies, dry upland old field openings, comprised mainly of non-native plants, do not have the native species richness, or overall biological productivity, necessary to maintain a satisfactory and sustainable eastern massasauga prey base. The relative absence of woody vegetation within the old field community reduces the available vegetative cover and overall ecological productivity, making the site unsuitable to the eastern massasauga, for resting as well as feeding purposes.

The lack of immediate proximity to Lake Michigan (i.e. where wind-crafted coastline vegetative communities are present) verifies, beyond any doubt, the complete absence of critical habitat at this site for Pitcher's thistle. The current vegetative cover type there clearly does not constitute critical habitat for this species, which is exclusive to dunal and related Great Lakes shore communities where shifting sands are prevalent. Pitcher's thistle has never been recorded this far inland in Michigan (a direct result of the total absence, far inland, of its specialized Great Lakes coastline requirements).

#4) Description of the "action area" for the well and associated surface facilities, including dimensions of the affected area plus the extent of disruption of the area:

Based on the SURVEY RECORD OF WELL LOCATION [signed 01-05-2012 by Auberry H. (Hank) Grush, Michigan Professional Surveyor], SUPPLEMENTAL PLAT, SOIL EROSION & SEDIMENTATION CONTROL PLAN and related documents, all prepared for Chevron Michigan LLC by Grush Surveying and Mapping of Traverse City, Michigan, the action area can be described as a new, approximately 200-foot long by 200-foot wide (finished surface dimensions) well pad, immediately adjoining an existing, currently operating Antrim natural gas well (Josifek D4-4, Permit # 48814). A new two-track road is expected to be constructed, providing access to the proposed Stratton 16-4 SWD well site as well as the existing Antrim well, extending north from Highway M-32, and crossing old field habitat identical to where the well pad will be constructed. A new gate will limit access to both the existing gas well and proposed SWD sites, to Authorized Personnel Only.

The total absence of federally listed species and critical habitat indicates that the Stratton 16-4 SWD Injection Well Project, as currently proposed, should comply fully with Section 7 of the Endangered Species Act, in terms of not adversely or measurably affecting any federally endangered, threatened or candidate species.

For the purpose of further verification and documentation of the habitats and land use practices currently surrounding the review area, the following 8 digital photographs, taken on December 20, 2011, are submitted with this report (included in sequential order within the larger PDF file). Additional digital photographs of this site are available, upon request.

Photo 01: Proposed Stratton 16-4 SWD well location, viewed from South looking North.

Photo 02: Stratton 16-4 SWD well location, viewed from West looking East, with immediately adjoining, active Josifek D4-4 Antrim well in background.

Photo 03: Stratton 16-4 SWD well location, viewed from North looking South, toward Highway M-32, located a short distance away in the background.

Photo 04: Stratton 16-4 SWD well location, viewed from East looking West.

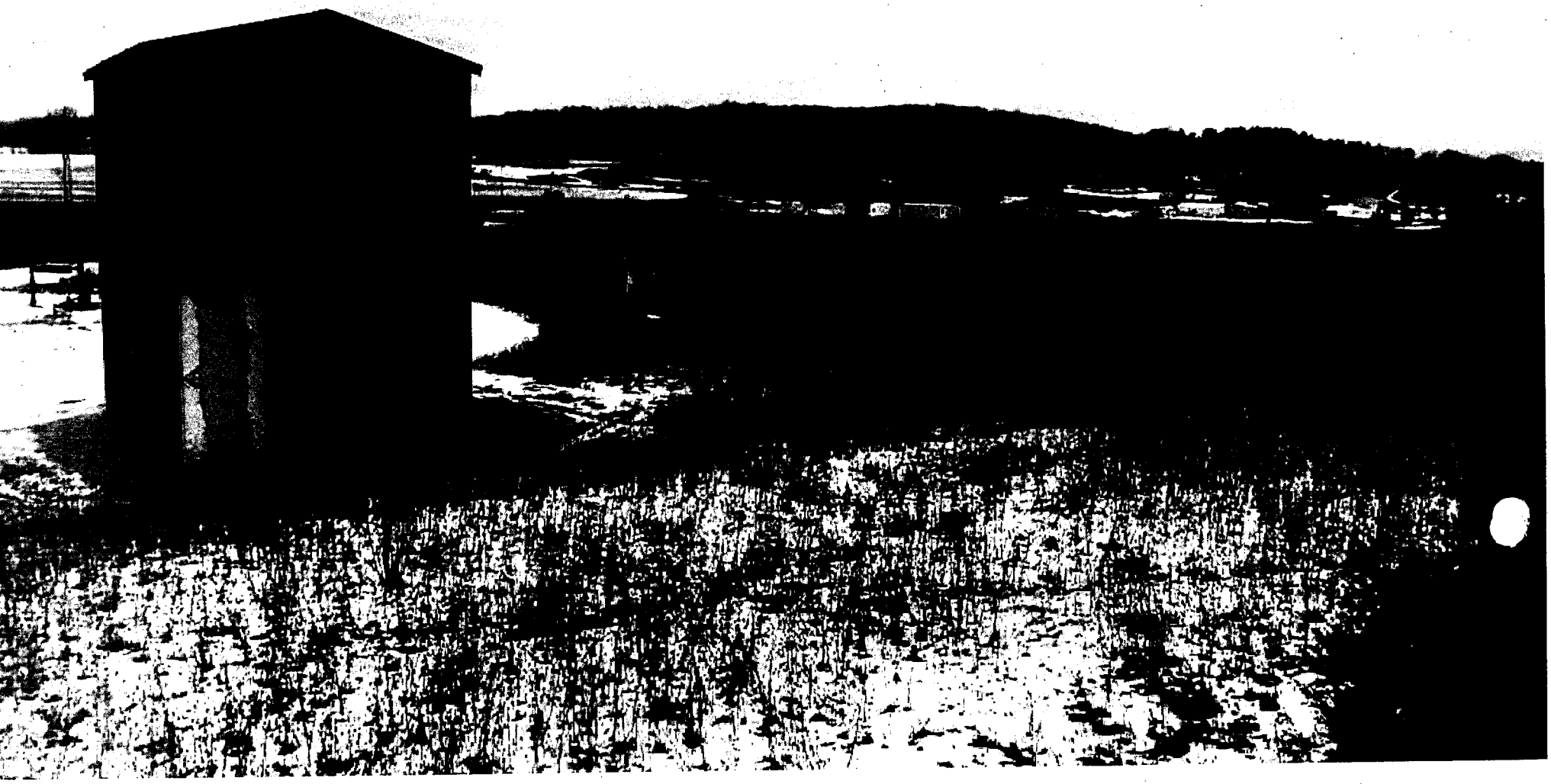
Photo 05: Close-up of the existing, operating Josifek D4-4 Antrim well, which adjoins the proposed Stratton 16-4 SWD well pad on the East edge.

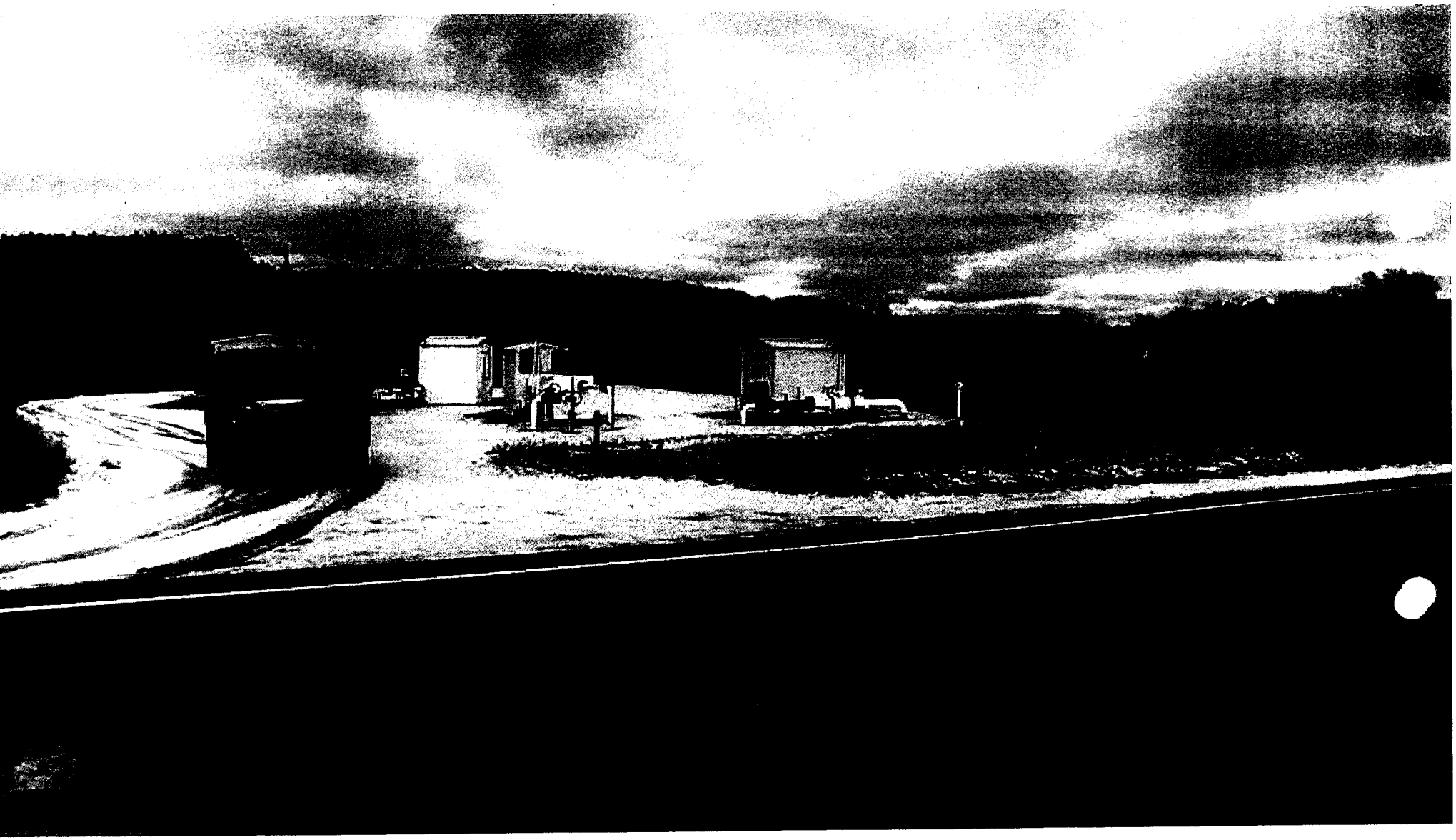
Photo 06: Stratton 16-4 SWD well location, looking North from Highway M-32, down approximate alignment of proposed new SWD well access road.

Photo 07: Stratton 16-4 SWD well location, viewed from Northeast looking Southwest, past existing Josifek D4-4 Antrim well in foreground, toward MichCon Pipeline facility in the far background (along Highway M-32).

Photo 08: Close-up of Michcon Pipeline facility along Highway M-32, with proposed Stratton 16-4 SWD well location in the distance, alongside the existing Josifek D4-4 Antrim Well (viewed from Southwest, looking Northeast).

END OF NARRATIVE PORTION OF ESA ASSESSMENT





STATE OF MICHIGAN
MICHIGAN STATE HOUSING DEVELOPMENT AUTHORITY
STATE HISTORIC PRESERVATION OFFICE

RICK SNYDER
GOVERNOR

GARY HEIDEL
EXECUTIVE DIRECTOR

February 15, 2012

LISA PERENCHIO
EPA REGION 5
77 WEST JACKSON BLVD WU 16J
CHICAGO IL 60604

RE: ER11-456 Chevron Michigan LLC Well Projects, Chevon-Stratton 16-4 Saltwater Disposal Well, T31N, R6W, Section 4, Jordan Township, Antrim County (EPA)

Dear Ms. Perenchio:

Under the authority of Section 106 of the National Historic Preservation Act of 1966, as amended, we have reviewed the above-cited undertaking at the location noted above. Based on the information provided for our review, it is the opinion of the State Historic Preservation Officer (SHPO) that **no historic properties are affected** within the area of potential effects of this undertaking.

The views of the public are essential to informed decision making in the Section 106 process. Federal Agency Officials or their delegated authorities must plan to involve the public in a manner that reflects the nature and complexity of the undertaking, its effects on historic properties and other provisions per 36 CFR § 800.2(d). We remind you that Federal Agency Officials or their delegated authorities are required to consult with the appropriate Indian tribe and/or Tribal Historic Preservation Officer (THPO) when the undertaking may occur on or affect any historic properties on tribal lands. **In all cases**, whether the project occurs on tribal lands or not, Federal Agency Officials or their delegated authorities are also required to make a reasonable and good faith effort to identify any Indian tribes or Native Hawaiian organizations that might attach religious and cultural significance to historic properties in the area of potential effects and invite them to be consulting parties per 36 CFR § 800.2(c-f).

This letter evidences the EPA's compliance with 36 CFR § 800.4 "Identification of historic properties", and the fulfillment of the EPA's responsibility to notify the SHPO, as a consulting party in the Section 106 process, under 36 CFR § 800.4(d)(1) "No historic properties affected."

The State Historic Preservation Office is not the office of record for this undertaking. You are therefore asked to maintain a copy of this letter with your environmental review record for this undertaking. If the scope of work changes in any way, or if artifacts or bones are discovered, please notify this office immediately.

If you have any questions, please contact Brian Grennell, Cultural Resource Management Specialist, at (517) 335-2721 or by email at grennellb@michigan.gov. **Please reference our project number in all communication with this office regarding this undertaking.** Thank you for this opportunity to review and comment, and for your cooperation.

Sincerely,

Brian G. Grennell
Cultural Resource Management Specialist

for Brian D. Conway
State Historic Preservation Officer

SAT: kah

Copy: Mr. Mark Cromell, MDEQ
Mr. Chris Matts, Chevron Michigan

Appalachian/Michigan Business Unit
Chevron North America
Exploration and Production Company
(a Chevron U.S.A. Inc. division)
10691 East Carter Road
Suite 201
Traverse City, MI 49684
Tel 231 995 4000

January 10, 2012

Bureau of Michigan History
State of Historic Preservation Office
Michigan Library & Historic Center
717 W. Allegan St.
Lansing, MI 48918-1800

Attn: Mr. Brian D. Conway,
State Historic Preservation Officer

Re: Stratton 16-4 SWD, Jordan 9 Antrim Unit

Dear Mr. Conway,

Please review the following information on our new project and SWD well site. The name of the project is Stratton 16-4 SWD and it's located in the SW SE SE of Section 4, T31N-R6W, Jordan Township, Antrim County, 465 ft from the South section line & 687 ft from the East section line. Enclosed is the survey record of well location and the supplemental plat highlighting well's exact location.

The drilling operation of the salt-water disposal well at this location should have only a minimal effect on the ecological species, to our knowledge, known to exist within the vicinity of the well site. Drilling operations will be conducted in a prudent manner, with all environmental aspects being considered and respected. Operation of a disposal well at this location should have little or no effect on future population patterns.

An area approximately 200 ft by 200 ft will be required for the drilling pad on the proposed site. The location of the SWD well site was selected to cause minimal additional clearance of vegetation. Very little earthwork will be required to prepare a level drill site.

Appropriate drill site drainage and sedimentation control measures will be incorporated in the operational plan. Topsoil will be stockpiled in an earthen dike along the pad

perimeter of the location. All slopes will be established and maintained to prevent erosion during drilling operations. We do not anticipate any erosion problems at this location.

The proposed site is not zoned.

Also please note contact information for the permitting agencies:

Michigan Department of Environmental Quality (MDEQ)
Contact person – Mr. Mark Cromell
MDEQ Gaylord Field Office
2100 West M-32
Gaylord, MI 49735
Phone: (989)705-3407
Email: cromellm@michigan.gov

US EPA
Contact person – Ms. Lisa Perenchio
Underground Injection Control
Region 5, WU 16 J
77 West Jackson Boulevard
Chicago, IL 60604
Phone: (312) 886-6593
Fax: (312) 886-4235
Email: perenchio.lisa@epa.gov

Should you have any questions or require additional information please call (231) 995-4076 or reach me at nschrader@chevron.com

Sincerely,

Natalie Schrader

Natalie Schrader,
Technical Assistant

Enclosures:

ach: Jordan 9 - Stratton 16-4 SWD.doc

Cc: Lisa Perenchio, US EPA

STATE HISTORIC PRESERVATION OFFICE
Application for Section 106 Review

SHPO Use Only			
☐ IN	Received Date ___ / ___ / ___	Log In Date	___ / ___ / ___
☐ OUT	Response Date ___ / ___ / ___	Log Out Date	___ / ___ / ___
	Sent Date ___ / ___ / ___		

Submit one copy for each project for which review is requested. This application is required. Please type. Applications must be complete for review to begin. Incomplete applications will be sent back to the applicant without comment. Send only the information and attachments requested on this application. Materials submitted for review cannot be returned. Due to limited resources we are unable to accept this application electronically.

I. GENERAL INFORMATION

☒ THIS IS A NEW SUBMITTAL ☐ THIS IS MORE INFORMATION RELATING TO ER#

- ☐ Funding Notice
- ☐ Survey
- ☐ MOA or PA
- ☐ Other:

a. Project Name: CHEVRON - STRATTON 16-4 SALTWATER DISPOSAL WELL
b. Project Address (if available): NONE AT SITE, LAT. 45°-06'-17.07920"N LONG. 85°-02'-33.69950"W
c. Municipal Unit: JORDAN TOWNSHIP County: ANTRIM COUNTY
d. Federal Agency and Contact (*If you do not know the federal agency involved in your project please contact the party requiring you to apply for Section 106 review, not the SHPO, for this information.*): LISA PERENCHIO, UIC BRANCH (WU-16J), US EPA, REGION 5, 77 W. JACKSON BLVD., CHICAGO, IL 60604
e. State Agency and Contact (if applicable): MARK CROMELL, GEOLOGIST, MICHIGAN DEQ, 2100 WEST M-32, GAYLORD, MI 49735, TEL. 989 705-3407
f. Consultant or Applicant Contact Information (if applicable): CHRIS MATTS, PRODUCTION MANAGER, CHEVRON MICHIGAN, LLC, ~~2365 S. OTSEGO AVE., GAYLORD, MI 49735~~, TEL. 989-732-4146
10691 E. CARTER RD. SUITE 201, TRAVERSE CITY, MI 49684

II. GROUND DISTURBING ACTIVITY (INCLUDING EXCAVATION, GRADING, TREE REMOVALS, UTILITY INSTALLATION, ETC.)

DOES THIS PROJECT INVOLVE GROUND-DISTURBING ACTIVITY? ☒ YES ☐ NO (If no, proceed to section III.)

Exact project location must be submitted on a USGS Quad map (portions, photocopies of portions, and electronic USGS maps are acceptable as long as the location is clearly marked).

a. USGS Quad Map Name: CHESTONIA
b. Township: 31N Range: 6W Section: 4
c. Description of width, length and depth of proposed ground disturbing activity: 200' WIDE, 200' LONG, 10' DEEP
d. Previous land use and disturbances: FORESTRY, LOGGING - PERIODICAL TIMBER HARVESTING - HARDWOODS, AGRICULTURAL - ANNUAL CROPS
e. Current land use and conditions: FORESTRY - LOGGING - AGRICULTURAL - FALLOW FARM FIELD - GAS WELL PRODUCTION
f. Does the landowner know of any archaeological resources found on the property? NO
Please describe:

III. PROJECT WORK DESCRIPTION AND AREA OF POTENTIAL EFFECTS (APE)
Note: Every project has an APE.

a. Provide a detailed written description of the project (plans, specifications, Environmental Impact Statements (EIS), Environmental Assessments (EA), etc. **cannot** be substituted for the written description): THE PROJECT INVOLVES THE PREPARATION OF A 200 FOOT BY 200 FOOT LEVELED SITE TO BE USED

FOR THE OPERATION A DRILLING RIG. THE CONSTRUCTION ... THE SITE IS DONE BY BULLDOZERS. ONCE PERMITTED BY THE MICHIGAN DEQ AND THE US EPA, CONSTRUCTION BEGINS. THE TREE COVER, IF ANY, IS REMOVED. THEN THE TOPSOIL IS PUSHED OFF OF THE 200 FOOT BY 200 FOOT SITE AND ACCUMULATED AT ITS LIMITS FOR FUTURE PLACEMENT BACK ONTO THE SITE. THE EARTHWORK CONTINUES BY THE DOZER TO LEVEL THE SITE. THE EARTHWORK IS "BALANCED" ON THE SITE TO ACHIEVE A LEVELED AREA. (NO MATERIAL IS TYPICALLY HAULED IN AND NO MATERIAL IS ORDINARILY REMOVED FROM THE SITE.) A "CUT AREA" USUALLY IS CREATED ON ONE SIDE OF THE SITE AND A "FILL AREA" ON THE OTHER WHICH ARE IN THE MAGNITUDE OF ONE TO TEN FEET VERTICALLY. AT THE LIMITS OF THE SITE ARE USUALLY VERTICAL CUT BANKS, NOT SLOPED OR GROOMED, DUE TO THE TEMPORARY NATURE OF THE SITE. IF THE DRILLING IS UNSUCCESSFUL, THE SITE IS RESTORED BY DOZER TO NEAR NATURAL CONDITION (GRADE), AND THE TOPSOIL REPLACED AND RE-SEEDED. IF THE DRILLING IS SUCCESSFUL, THE MAJORITY OF THE SITE IS RESTORED TO ITS NEAR NATURAL GRADE AND THE TOPSOIL REPLACED AND RE-SEEDED. THE CENTRAL PART OF THE SITE SURROUNDING THE STEEL WELL CASING IS MAINTAINED IN A LEVELED CONDITION, WITH GRAVEL BEING ADDED FOR SURFACE STABILITY. OIL OR GAS PRODUCTION EQUIPMENT IS OFTEN PLACED ON THIS CENTRAL PART OF THE SITE AND MAINTAINED FOR YEARS BY THE OIL AND GAS COMPANY OWNING THE WELL.

b. Provide a localized map indicating the location of the project; road names must be included and legible.
c. On the above-mentioned map, identify the APE.
d. Provide a written description of the APE (physical, visual, auditory, and sociocultural), the steps taken to identify the APE, and the justification for the boundaries chosen. THE APE IS ESSENTIALLY A LARGE, FALLOW FARM FIELD AT THE SOUTH END OF A PRIVATE 80 ACRE PARCEL OF LAND. THIS VERY LARGE UNIT OF PRIVATE FARM LAND (ABOUT 1/4 MILE BY 1/2 MILE IN SIZE) HAS BEEN USED FOR ABOUT 150 YEARS AS A PRODUCING HARDWOOD FOREST AND FARM LAND. THE AREA IS GENTLY TO MODERATELY ROLLING AND PARTIALLY FORESTED ON THE NORTH END. A VERY DEVELOPED TOPSOIL COVER SUPPORTS FARM AND FOREST VEGETATION VERY WELL. THE SUBSOIL IS VERY SANDY CLAY AND HOLDS MOISTURE WELL. A UNIFORM COVER OF HAY AND WILD PLANT LIFE OCCURS AT THE SITE WITH SOME COMPETING UNDERCOVER SPECIES. THE GROUND SURFACE IS PROBABLY VERY NEAR TO ITS ORIGINAL CONTOUR AND WITHOUT MOUNDS OR SUNKEN AREAS. THE SURFACE COVER ACROSS THE AREA IS FAIRLY UNIFORM AND WITHOUT SHAPES OR PATTERNS, INDICATING THE PRESENCE OF SPECIFIC OBJECTS OR PRIOR USES. THE AREA IS UPLAND AND WELL DRAINED. THE LAND APPEARS TO BE REMOTE OR SELDOM USED BY THE PRIVATE LAND OWNERS EXCEPT FOR FORESTRY PURPOSES. AGRICULTURAL USE HAS CEASED IN THE IMMEDIATE AREA. THE SITE OCCURS IN A SOMEWHAT REMOTE PART OF THE 80 ACRE FOREST/FARM AREA WITH THE MORE DISTINCT SURFACE IMPROVEMENTS BEING AN OLDER FARM COMPLEX OF BUILDINGS IN THE SE CORNER OF IT. NEARBY IMPROVEMENTS ARE LIMITED TO GAS WELLS AND THEIR FACILITIES EXCEPT THAT AN OLDER RESIDENCE OCCURS 587 FEET SOUTHEAST. THE SITE HAS PROBABLY BEEN USED FOR FOREST LAND/FARM LAND SINCE THE MID 1800'S. THIS PROJECT WILL NOT DISTURB THE FEATURES AROUND THE CHOSEN SITE. THE VISUAL AFFECT OF THE AREA IS TYPICAL OF THE SURROUNDING FARMLAND, FOREST LAND, NOT OUTSTANDING IN ANY UNUSUAL WAY, AND ORDINARY. THE AUDITORY AFFECT OF THE APE IS PROBABLY VERY TYPICAL OF THE MAJORITY OF THE SURROUNDING COUNTRYSIDE, HAVING SOME LEVEL OF WILD BIRD AND ANIMAL POPULATION WITH OCCASIONAL FARM ANIMAL AND HUMAN PRESENCE, NOT OUTSTANDING. THE SITE AND NEARBY ENVIRONMENT DO NOT APPEAR TO HAVE ABOVE THE ORDINARY SOCIOCULTURAL VALUE. BECAUSE THE SITE OCCURS IN A VERY LARGE PRIVATE FARMLAND/FOREST LAND, HUMAN USE OF THE AREA IS NOT ENCOURAGED. THE LAND IS PARTIALLY FENCED TO EXCLUDE THE PUBLIC ENTRY. THE LIMITS OF THE APE ARE DEFINED LARGELY BY DRILLING RIG OPERATION NEEDS AND BY STATE AND LOCAL REGULATIONS SUCH AS FOR SOIL EROSION AND SEDIMENTATION CONTROL, WHICH LIMIT THE SITE SIZE. THE SITE SIZE AND CONFIGURATION WILL BE VERY TYPICAL OF THAT USED THROUGHOUT THE STATE OF MICHIGAN FOR THE INTENDED ACTIVITY OR USE. FINANCIAL ARRANGEMENTS ARE ENTERED INTO WITH THE PRIVATE LAND OWNER FOR USING A SPECIFIC QUANTITY OF THE LAND.

IV. IDENTIFICATION OF HISTORIC PROPERTIES

a. List and date **all** properties 50 years of age or older located in the APE. If the property is located within a National Register eligible, listed or local district it is only necessary to identify the district: 1.SAINT JOHN NEPOMUCENE CATHOLIC CHURCH, BUILT 1890, REGISTERED MICHIGAN HISTORIC SITE NO. 1883. 2. OLD TOWNSHIP PUBLIC SCHOOL (ABOUT 1890) 3. HISTORIC FARM (ABOUT 1890)

b. Describe the steps taken to identify whether or not any **historic** properties exist in the APE and include the level of effort made to carry out such steps: THE BASIS FOR DETERMINING HISTORIC PROPERTIES ARE: 1. THROUGH INVESTIGATING THE NATIONAL REGISTRY; 2. THROUGH INVESTIGATING STATE OR LOCAL REGISTRIES OF HISTORIC PROPERTIES; 3. THROUGH INTERVIEWING LONG TIME AND CURRENT RESIDENTS; AND 4. BY SITE EXAMINATION. THE LEVEL OF EFFORT USED WAS UNTIL CONCLUSIVE.

c. Based on the information contained in "b", please choose one:

☒ Historic Properties Present in the APE

☐ No Historic Properties Present in the APE

d. Describe the condition, previous disturbance to, and history of any historic properties located in the APE: NONE

V. PHOTOGRAPHS

Note: All photographs must be keyed to a localized map, and should be included as an attachment to this application.

a. Provide photographs of the site itself.

b. Provide photographs of all properties 50 years of age or older located in the APE (faxed or photocopied photographs are not acceptable).

VI. DETERMINATION OF EFFECT

☒ No historic properties affected based on [36 CFR § 800.4(d)(1)], please provide the basis for this determination.

BY DETERMINING THE EXACT MAGNITUDE OF THE DIRECTION AND DISTANCE TO HISTORIC PROPERTIES BY SURVEYING METHODS FROM THE PROPOSED CONSTRUCTION SITE. BY CONSULTING THE NATIONAL, STATE AND LOCAL REGISTRIES. THROUGH INTERVIEWS WITH LOCAL LAND OWNERS. THROUGH SITE INVESTIGATION FOR FEATURES OR ABNORMALITIES.

☒ No Adverse Effect [36 CFR § 800.5(b)] on historic properties, explain why the criteria of adverse effect, 36 CFR Part 800.5(a)(1), were found not applicable.

THE THREE HISTORIC PROPERTIES ARE SUFFICIENTLY DISTANT FROM THE PROPOSED CONSTRUCTION SITE TO BE UNAFFECTED BY THE SITE ACTIVITY.

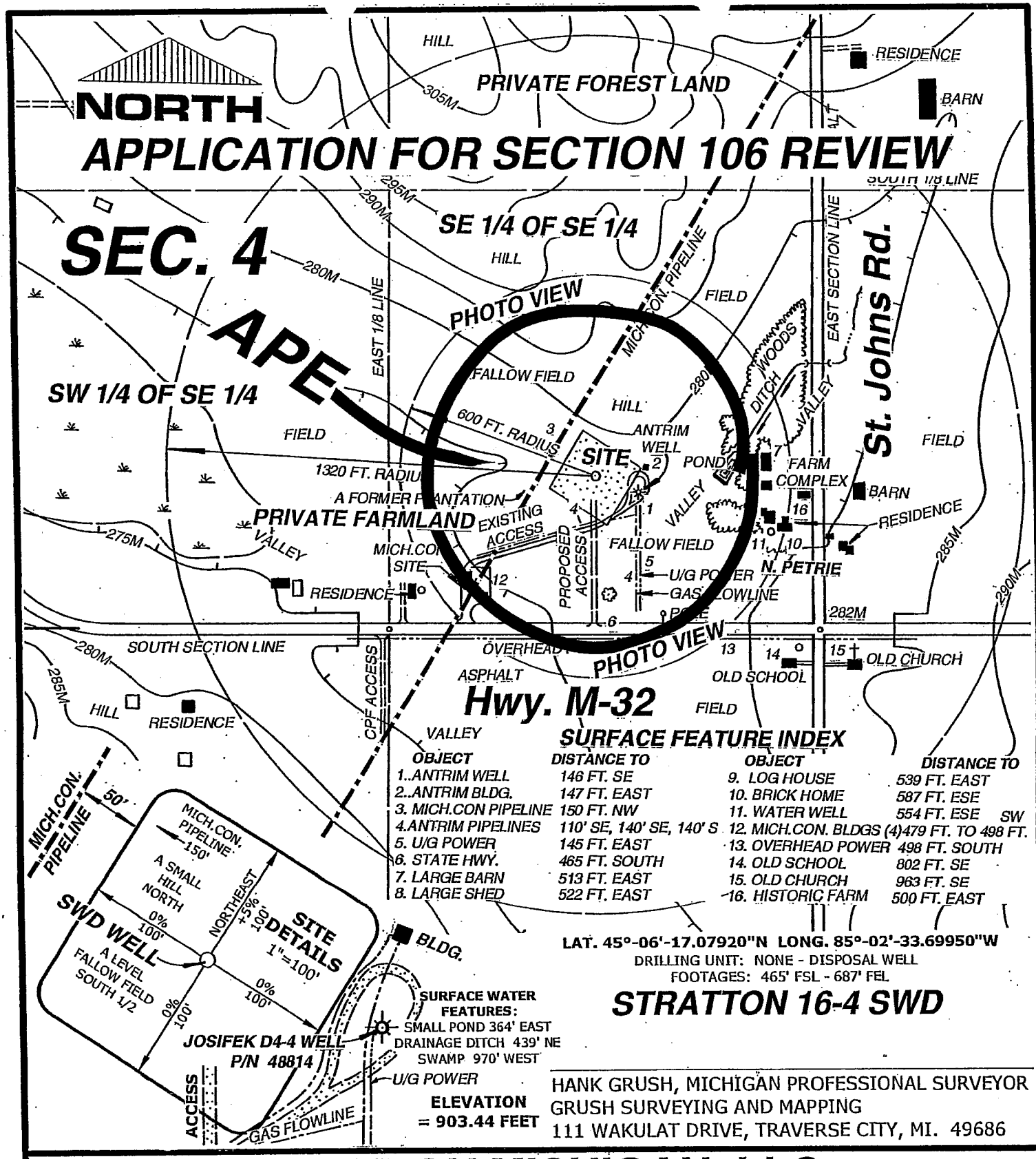
☐ Adverse Effect [36 CFR § 800.5(d)(2)] on historic properties, explain why the criteria of adverse effect, [36 CFR Part 800.5(a)(1)], were found applicable.

NON-APPLICABLE

Please print and mail completed form and required information to:

State Historic Preservation Office, Environmental Review Office, Michigan Historical Center, 702 W. Kalamazoo Street, P.O. Box 30740, Lansing, MI 48909-8240

AREA OF POTENTIAL AFFECTS (AP



SURFACE FEATURE INDEX

OBJECT	DISTANCE TO	OBJECT	DISTANCE TO
1..ANTRIM WELL	146 FT. SE	9. LOG HOUSE	539 FT. EAST
2..ANTRIM BLDG.	147 FT. EAST	10. BRICK HOME	587 FT. ESE
3. MICH.CON PIPELINE	150 FT. NW	11. WATER WELL	554 FT. ESE SW
4.ANTRIM PIPELINES	110' SE, 140' SE, 140' S	12. MICH.CON. BLDGS (4)	479 FT. TO 498 FT.
5. U/G POWER	145 FT. EAST	13. OVERHEAD POWER	498 FT. SOUTH
6. STATE HWY.	465 FT. SOUTH	14. OLD SCHOOL	802 FT. SE
7. LARGE BARN	513 FT. EAST	15. OLD CHURCH	963 FT. SE
8. LARGE SHED	522 FT. EAST	16. HISTORIC FARM	500 FT. EAST

SURFACE WATER FEATURES:
SMALL POND 364' EAST
DRAINAGE DITCH 439' NE
SWAMP 970' WEST

ELEVATION = 903.44 FEET

LAT. 45°-06'-17.07920"N LONG. 85°-02'-33.69950"W
DRILLING UNIT: NONE - DISPOSAL WELL
FOOTAGES: 465' FSL - 687' FEL

STRATTON 16-4 SWD

HANK GRUSH, MICHIGAN PROFESSIONAL SURVEYOR
GRUSH SURVEYING AND MAPPING
111 WAKULAT DRIVE, TRAVERSE CITY, MI. 49686

CHEVRON MICHIGAN, LLC

SUPPLEMENTAL PLAT - JORDAN "9" ANTRIM GAS PROJECT

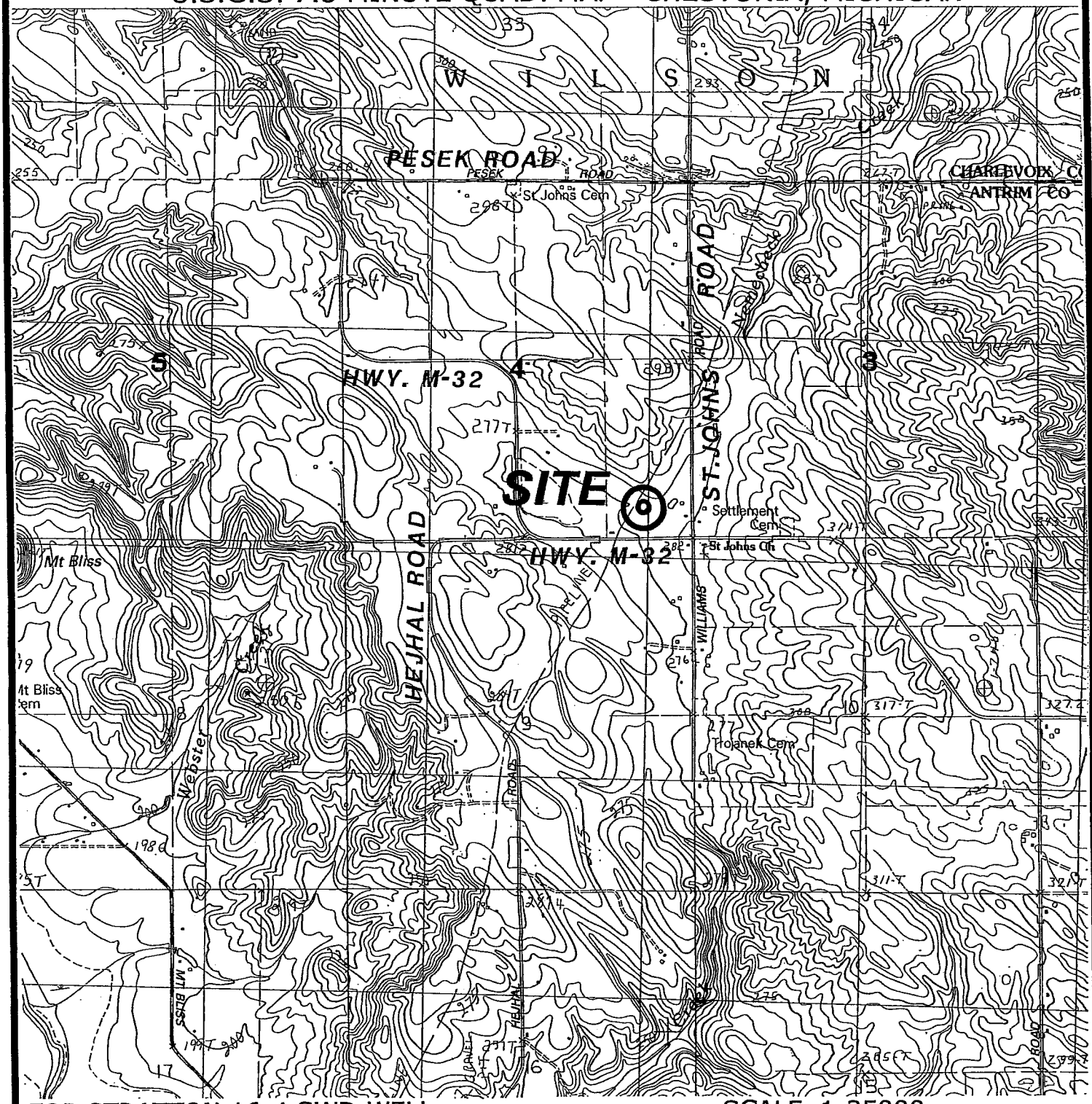
A PART OF THE SE 1/4 OF THE SE 1/4 OF SECTION 4,
T31N, R6W, JORDAN TOWNSHIP, ANTRIM COUNTY, MI.

Drawn by J. GRUSH
Checked by H. GRUSH
Date 1-3-2012
Sheet 1 of 1

STATE HISTORIC PRESERVATION OFFICE APPLICATION

SUPPLEMENTAL PLAT - JORDAN "9" ANTRIM GAS PROJECT

U.S.G.S. 7.5 MINUTE QUAD. MAP - CHESTONIA, MICHIGAN



FOR STRATTON 16-4 SWD WELL

SCALE 1:25000

CHEVRON MICHIGAN, LLC

SUPPLEMENTAL PLAT - SALTWATER DISPOSAL WELL

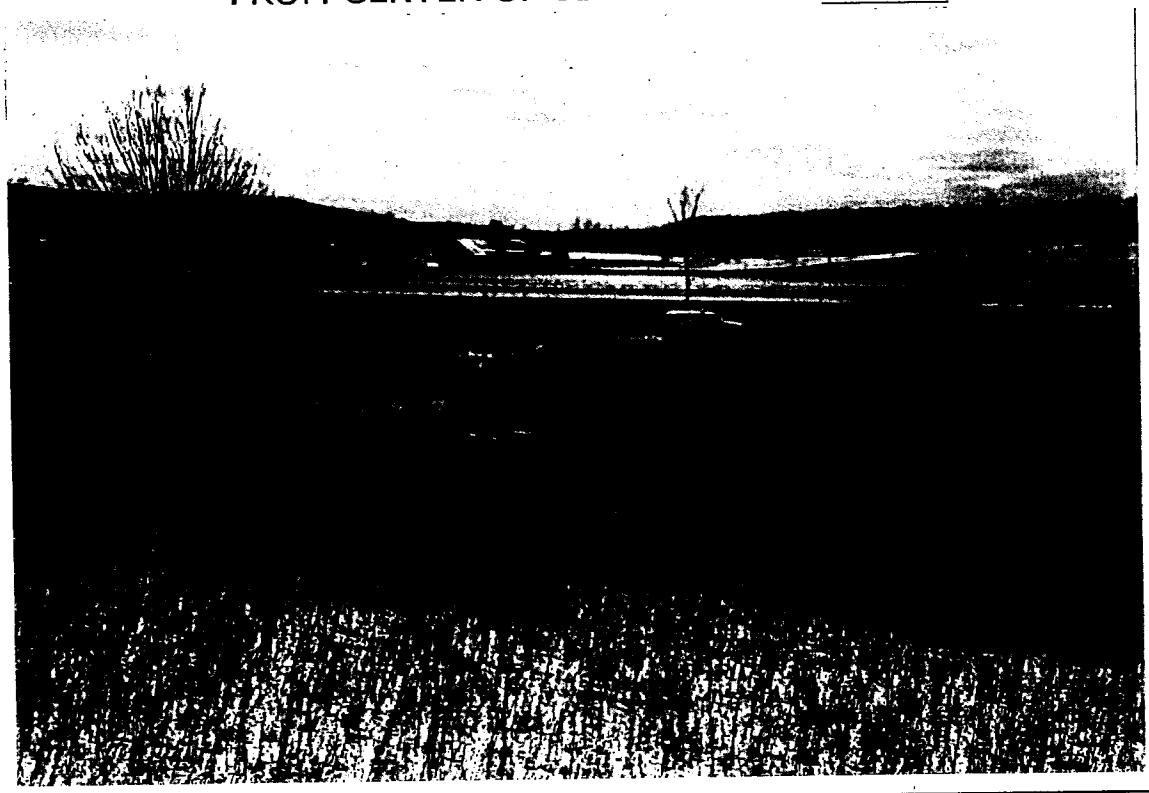
A PART OF THE SE 1/4 OF THE SE 1/4 OF SECTION 4,
T31N, R6W, JORDAN TOWNSHIP, ANTRIM COUNTY, MI.

Drawn by J. GRUSH
Checked by H. GRUSH
Date 1-4-2012
Sheet 1 of 1

SITE PHOTOGRAPHY AT THE STRATTON 16- SWD WELLSITE

FROM CENTER OF SITE LOOKING NORTH

FROM CENTER OF SITE LOOKING SOUTH

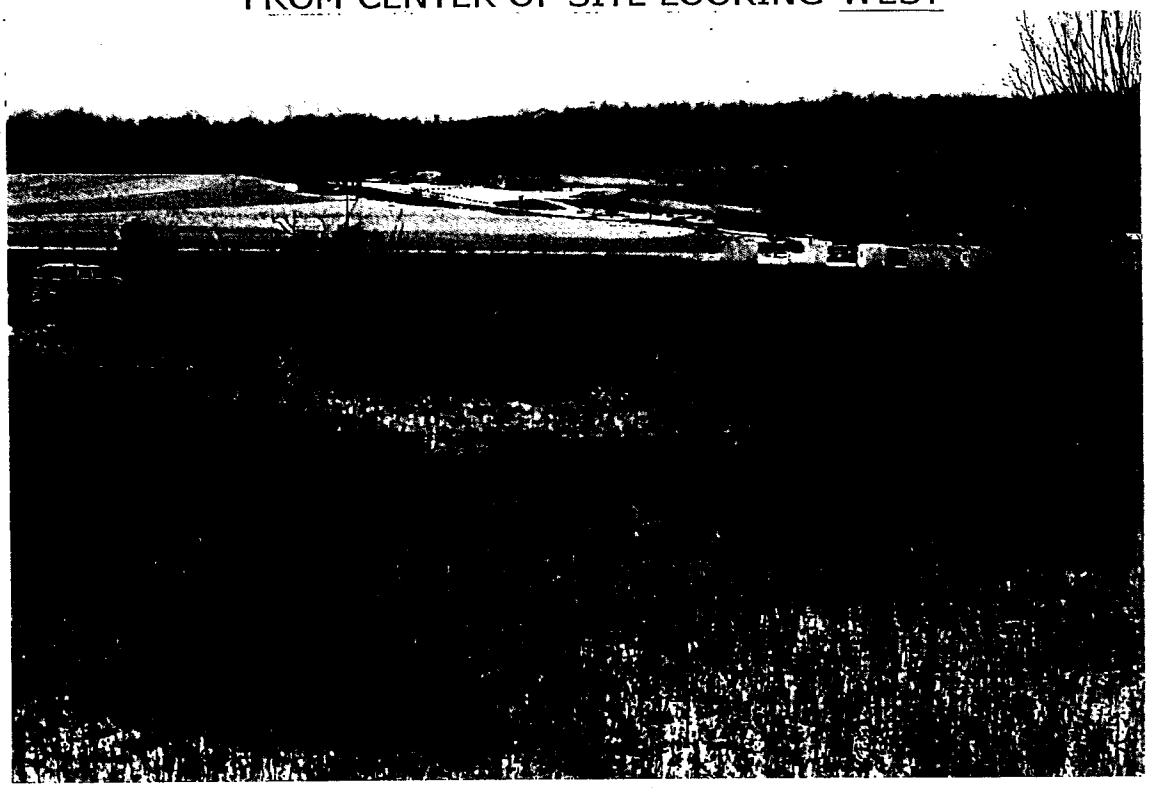


PHOTOGRAPHY OF WELLSITE **STRATTON 16-4 SWD WELLSITE** SEC. 4, T31N, R6W, JORDAN TWP. ANTRIM COUNTY, MICHIGAN	DATE 12/15/2011 DRAWN BY JG	FIELD WORK BY: **GRUSH SURVEYING AND MAPPING** TRAVERSE CITY, MICHIGAN
CLIENT: CHEVRON MICHIGAN, LLC	SCALE NONE	**SITE PHOTOS** **JOB NO. 2011-019**

SITE PHOTOGRAPHY AT THE STRATTON 16-4 SWD WELLSITE

FROM CENTER OF SITE LOOKING EAST

FROM CENTER OF SITE LOOKING WEST



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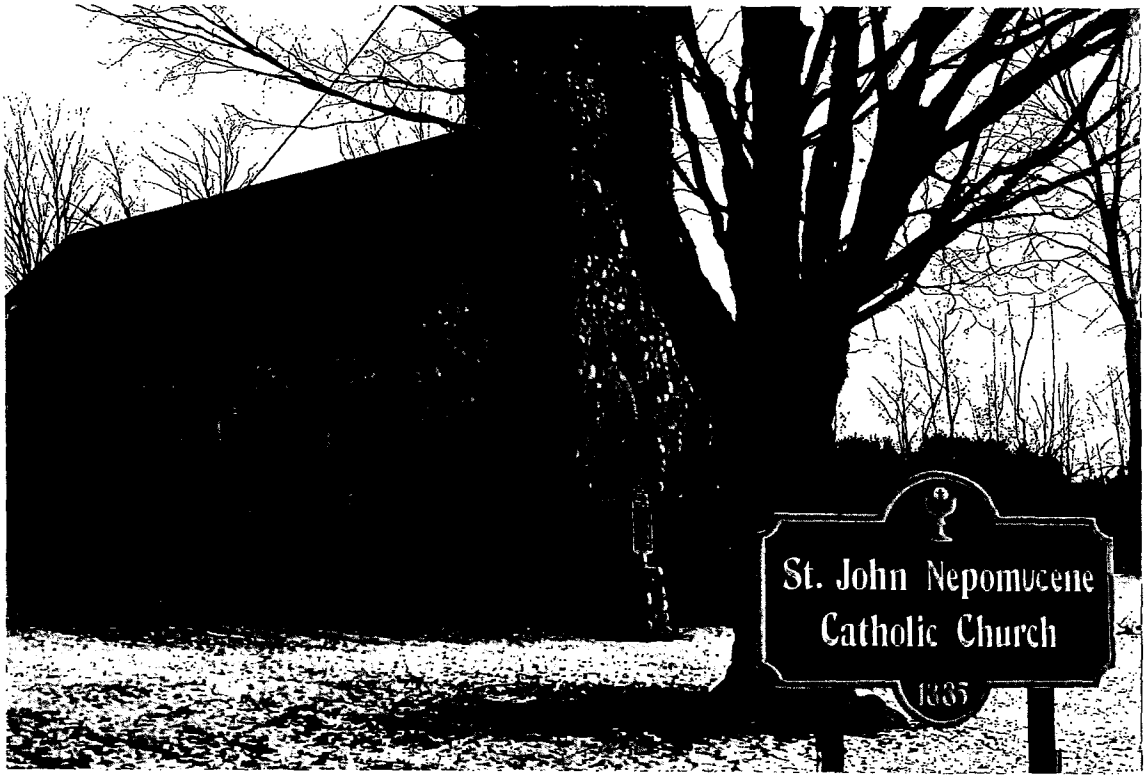
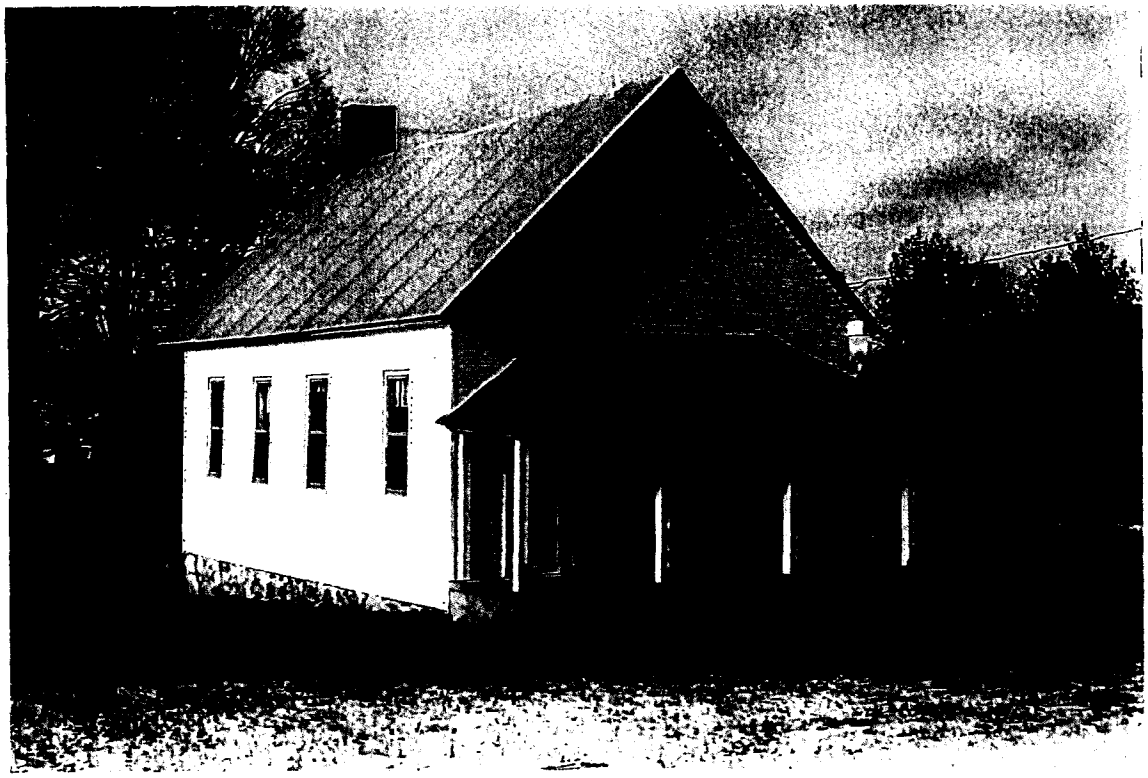
CLIENT: CHEVRON MICHIGAN, LLC	SCALE NONE	**SITE PHOTOS** **JOB NO. 2011-019**

SITE PHOTOGRAPHY AT THE STRATTON 16-4 SWD WELLSITE

HISTORIC PROPERTIES 963' SE - OLD CHURCH



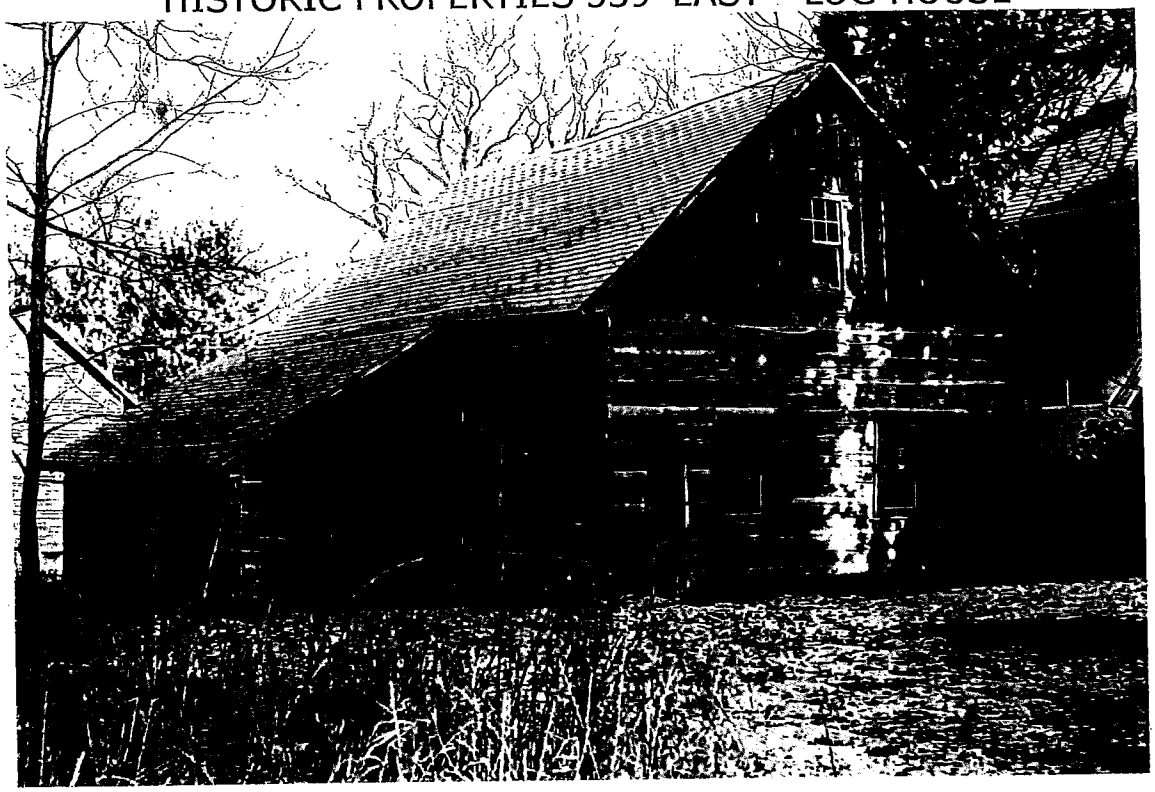
HISTORIC PROPERTIES 802' SE - OLD SCHOOL



PHOTOGRAPHY OF WELLSITE **STRATTON 16-4 SWD WELLSITE** SEC. 4, T31N, R6W, JORDAN TWP. ANTRIM COUNTY, MICHIGAN	DATE 12/15/2011 DRAWN BY JG	FIELD WORK BY: **GRUSH SURVEYING AND MAPPING** TRAVERSE CITY, MICHIGAN
CLIENT: CHEVRON MICHIGAN, LLC	SCALE NONE	**SITE PHOTOS** **JOB NO. 2011-019**

SITE PHOTOGRAP Y AT THE STRATTON 16- SWD WELLSITE

HISTORIC PROPERTIES 539' EAST - LOG HOUSE



HISTORIC PROPERTIES 587' SE - BRICK HOUSE

PHOTOGRAPHY OF WELLSITE **STRATTON 16-4 SWD WELLSITE** SEC. 4, T31N, R6W, JORDAN TWP. ANTRIM COUNTY, MICHIGAN	DATE 12/15/2011 DRAWN BY JG	FIELD WORK BY: **GRUSH SURVEYING AND MAPPING** TRAVERSE CITY, MICHIGAN
CLIENT: CHEVRON MICHIGAN, LLC	SCALE NONE	**SITE PHOTOS** **JOB NO. 2011-019**

STATE OF MICHIGAN
DEPARTMENT OF NATURAL RESC.
GEOLOGICAL SURVEY DIVISION
P.O. BOX 30028, LANSING, MICHIGAN 48909

RECORD OF WELL DRILLING OR DEEPENING

USE APPROPRIATE BLOCKS. FOR ITEMS NOT LISTED SUBMIT ATTACHMENTS.

REQUIRED BY AUTHORITY OF:
☐ ACT 61, P.A. 1939, AS AMENDED. (Submit 2 copies within 30 days of completion.)
☐ ACT 315, P.A. 1969, AS AMENDED. (Submit 2 copies within 60 days of completion.)

NON-SUBMISSION AND/OR FALSIFICATION OF THIS INFORMATION MAY RESULT IN FINES AND/OR IMPRISONMENT.

PERMIT NO./DEEPENING PERI	TYPE OF WELL (after completion)
48814	Antrim Gas/Dundee Dis

FIELD/FACILITY NAME: NA

WELL NAME & NUMBER: Josifek D4-4 SWD (Jordan 9 Gigantic Wave)

SURFACE LOCATION: SE ¼ of SE ¼ of SE ¼ Section 4 T31N R6W

NAME AND ADDRESS OF OWNER
O.I.L. Energy Corp.
P.O. Box 148
Gaylord, MI 49735

TOWNSHIP	COUNTY
Jordan	Antrim

FOOTAGES: NORTH/SOUTH / EAST/WEST
400 Ft. from S Line and 550 Ft. from E Line of ¼ Sec.

NAME AND ADDRESS OF DRILLING CONTRACTOR
CH&P Drilling Comp.
P.O. Box 1809
Traverse City, MI 49

SUBSURFACE LOCATION (if directionally drilled)
NA ¼ of NA ¼ of NA ¼ Section NA T NA R NA

TOWNSHIP	COUNTY
NA	NA

FOOTAGES: NORTH/SOUTH / EAST/WEST
NA Ft. from NA Line and NA Ft. from NA Line of ¼ Sec.

DATE DRILLING BEGAN	DATE DRILL. COMPLETED	DATE WELL COMPLETED
3-17-95	3-22-95	11-17-95

TOTAL DEPTH OF WELL	FORMATION AT T.D.	PROD. FORMATION(S)
Driller 1533 Log 953	Det.Rvr.Anhy.	Antrim

FEET DRILLED — CABLE TOOLS	FEET DRILLED — ROTARY TOOLS
From NA To NA	From 0 To 1533

DATE OF FIRST INJECTION	INJECTED FORMATION	SOLUTION FORMATION
NA	NA	NA

ELEVATIONS

K.B.	R.F.	R.T	Grd.
910 ft.	NA ft.	NA ft.	904 ft.

CASING, CASING LINERS AND CEMENTING, OPERATING STRINGS

SIZE	WHERE SET	CEMENT	FT. PULLED
20"	40'	Driven	
11-3/4"	245'	160 sx Cl A	
4-1/2"	1338'	65 sx Cl A	
4-1/2"	958'	430 sx Cl A	

PERFORATIONS

DATE	NUMBER HOLES	INTERVAL PERFORATED	OPEN YES	OPEN NO
11-2-95	40	452-462		
	40	476-486		
	40	523-533		

GROSS PAY INTERVALS

FORMATION	OIL OR GAS	FROM	TO
ANTRIM	GAS	416	535

ALL OTHER OIL AND GAS SHOWS OBSERVED OR LOGGED

FORMATION	OIL OR GAS	OEPTH	WHERE OBSERVED (X) Sam-ples	Odor	Pits	Mud Line	Gas Log.	Fill Up
NONE	NA	NA	NA	NA	NA	NA	NA	NA

STIMULATION BY ACID OR FRACTURING

OATE	INTERVAL TREATED	MATERIALS ANO AMOUNT USEO
1-17-95	452-486	1200 gals 7½%acid+20000#
		20/40 sand+6300# 12/20RCsand+
		19460 gals 70Q foam
	523-533	300 gals 7½%acid+20000# 20/40 sand +
		5000# 12/20RCsand+22000 gals 70Q foam

WATER FILL UP (F.U.) OR LOST CIRCULATION (L.C.) (X)

FORMATION	F.U.	L.C.	OEPTH	AMOUNT
NONE	NA	NA	NA	NA

MECHANICAL LOGS, LIST EACH TYPE RUN

BRANO	(X)	LOG TYPES	LOGGEO INTERVALS
Schlumberger			
Birdwell			
Halliburton		GR	300-946

DEPTH CORRECTION

OEPTH	CORRECTION
NA	NA

DEVIATION SURVEY

RUN AT	OEGREES
NA	NA

PLUGGED BACK

YES	NO	DEPTH
NA	NA	NA

PRODUCTION TEST DATA

OIL — Bbls/day	GRAVITY — °API	COND. Bbls/day	GAS — MCF/day	WATER — Bbls/day	H_2S — Grains/100 cu. ft.	B.H.P. AND DEPTH
NA	NA	NA	50	250	NA	NA

I AM RESPONSIBLE FOR THIS REPORT. THE INFORMATION IS COMPLETE AND CORRECT.

DATE	NAME AND TITLE (PRINT)	SIGNATURE
11-22-95	Renee Agee Office Manager	Renee Agee

NOTICE: REPORT COMPLETE SAMPLE AND FORMATION RECORD. CORING RECORD AND DRILL STEM TEST INFORMATION ON REVERSE SIDE.

FR 7200-5
Rev 8/85

FORMATION RECORD

ATTACH ADDITIONAL SHEETS IF NECESS

ELEVATION USED:	GEOLOGIST NAME:	TOPS TAKEN FROM: ☐ DRILLERS LOG ☐ SAMPLE LOG ☐ ELECTRIC LOG

NOTE: IF WELL DIRECTIONALLY DRILLED, *ADD* TRUE VERTICAL DEPTH FORMATION TOPS WHERE APPROPRIATE.

FROM	TO	FORMATION (TYPE, COLOR, HARDNESS)
0	145	Drift , sand
145	416	Sunbury, Lt Gy rn Sub Rnd Sm Dk Brn Sl Ang
416	487	Lachine, Dk Brn Sl Ang Fnt Lt Gld Flor Grny In Pt Arg
487	523	Paxton, Dk Brn Ang In Pt Fnt FLor
523	535	Norwood, DK Brn to Blk Ang Frm Grny Fnt LT Blg Flor
535	580	Traverse, Lt Gy Grn Sft Sub Rnd Lmy
580	1300	Traverse Lime, LS
1300	1343	BE11 Shale
1343	1523	Dundee
1523	1533 TD	Detroit River Anhydrite

ANTRIM SHALE

910
487
433

FROM	TO	FORMATION (TYPE,COLOR, HARDNESS)

IF WELL WAS CORED, ATTACH CORE DESCRIPTION

DRILL STEM TEST DATA

LIST ATTACHMENTS:

GEOLOGICAL SURVEY USE ONLY

REVIEWED BY:

DATE OF REVIEW:

DEQ MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY - OFFICE OF GEOLOGICAL SURVEY

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: ☐ Oil and Gas ☒ Brine Disposal ☐ Hydrocarbon Storage ☐ Injection for Secondary Recovery

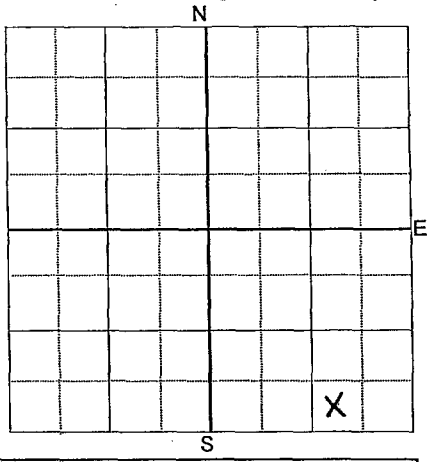
Part 625 Mineral Wells: ☐ Waste Disposal ☐ Brine Production ☐ Processed brine disposal ☐ Storage ☐ Test, fee sched. on rev.

1c. Fee enclosed: ☒ Yes ☐ No, revision of application ☐ No, leg of horz drainhole

2. List all previous permit numbers

3. Fed. Employer ID. No. or Soc. Security No.: 33-1171397

Locate well and outline drilling unit on section plat



4. Conformance bond: ☒ Blanket ☐ Single well

5. ☐ Attached ☒ On file

6. Bond number: 104887923

7. Bond amount: $250,000

8. Applicant (name of permittee as bonded): Chevron Michigan, LLC.

9. Address: 10691 E. Carter Rd. Suite 201 Traverse City, MI 49684

Phone: (231) 995-4000

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

10. Lease or well name (be as brief as possible): Stratton

Well number: 16-4 SWD

11. Surface owner: Marvin & Judith Bolton

12. Surface location: SW 1/4 of SE 1/4 of SE 1/4 of Sec 4 T 31N R 6W — Township: Jordan — County: Antrim

13. If directional, bottom hole location: 1/4 of 1/4 of 1/4 of Sec T R — Township — County

14. The surface location for this well is 465 feet from nearest (N/S) S section line AND 687 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 _____ feet from nearest (N/S) _____ section line AND _____ feet from nearest (E/W) _____ section line

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

17. Kind of tools: ☒ Rotary ☐ Cable ☐ Combination

18. Is sour oil or gas expected? ☒ No ☐ Yes ☐ H_2S Cont. plan enclosed

19. Base of lowest known fresh water aquifer: Formation Drift Depth 145

20. Intended total depth: MD 1535 TVD 1535

21. Formation at total depth: Detroit River Anhy

22. Producing/injection formation(s): Dundee

23. Objective pool, field, or project: Jordan 9

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.
+/-50'	Drift	Driven	13-3/8"	48# Conductor New	50'	Driven				
245	100' Below BOD	12-1/4"	8-5/8"	20# Ltd Serv. New	245	150 sks	surf	12	8.8	50
1350	Dundee	7-7/8"	5-1/2"	13# Ltd Serv.	1350	280 sks	surf		8.3	28
1535	Detroit River	4-3/4"		Open Hole	1535					

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

Surface 150 sks Type 1 1% CaCl 180 cu ft.

Intermediate

Production/Injection 40 sks Lite 6% Gel 3% CaCl 70 cu ft. + 240 sks Type 1 1% CaCl 358 cu ft.

26. Send correspondence and permit to

Name Chevron Michigan, LLC. E-mail nschrader@chevron.com

Address 10691 E. Carter Rd. Suite 201, Traverse City, MI 49684 Phone (231) 995-4000

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): Natalie Schrader Phone: (231) 995-4076

28. Signature: Natalie Schrader Date: 01/10/2012

DEQ Cashier use only.

Office of Geological Survey Use Only

Permit number	API number	Date issued	Owner number

DEQ MICHIGAN DEPART NT OF ENVIRONMENTAL QUALITY - OFFICE OF OLOGICAL 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: CHEVRON MICHIGAN, LLC

Well name and number: STRATTON 16-4 SWD

1a. Surface location: SW 1/4 of SE 1/4 of SE 1/4 of section 4 T 31N R 6W — Township: JORDAN — County: ANTRIM

1b. If this is a directional well, bottom hole location will be: 1/4 of 1/4 of 1/4 of section T R — Township: — County:

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**

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

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

and

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

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

3. **Bottom hole will be** (if directional)

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

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

and

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

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

4. **Bottom hole will be** (directional or straight)

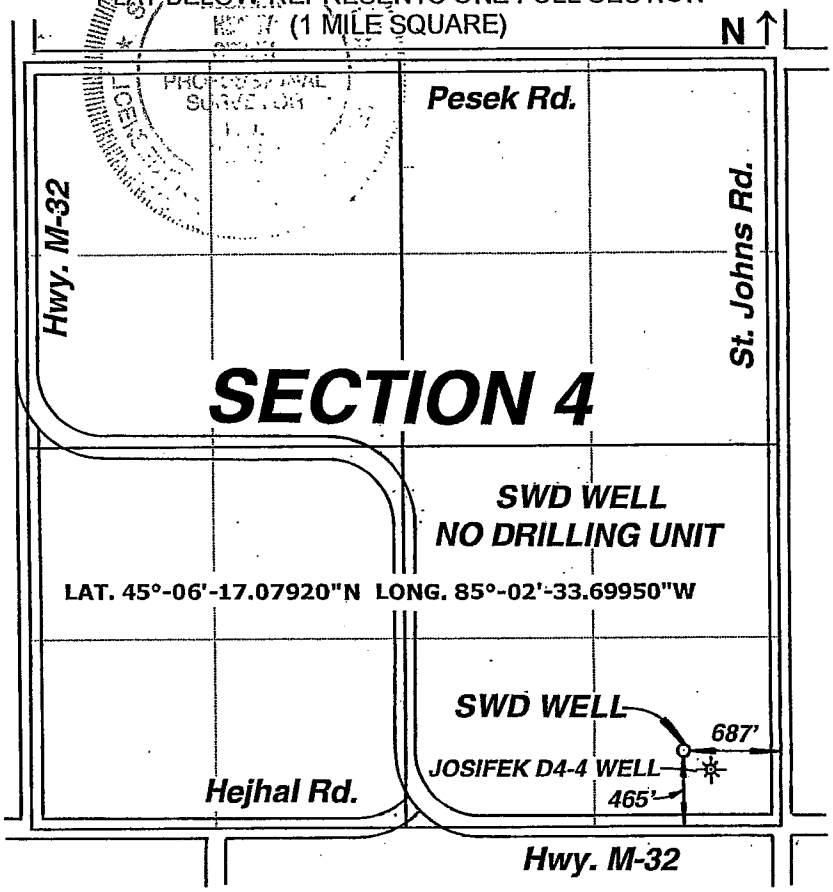
_____ ft. from nearest (N/S) N/A drilling unit line

_____ ft. from nearest (E/W) N/A drilling unit line

5. Show access to stake on plat and describe if it is not readily accessible. The wellsite is marked with an orange flagged wood stake. For access begin at Hwy. M-32 and St. Johns Road. Then West on Hwy. M-32 700 feet. Then North across level fallow field 460 feet to wellsite.

6. Zoning ☐ Residential, effective date _____
Initial date of residential zoning _____
☒ Other None

PLAT BELOW REPRESENTS ONE FULL SECTION (1 MILE SQUARE)



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

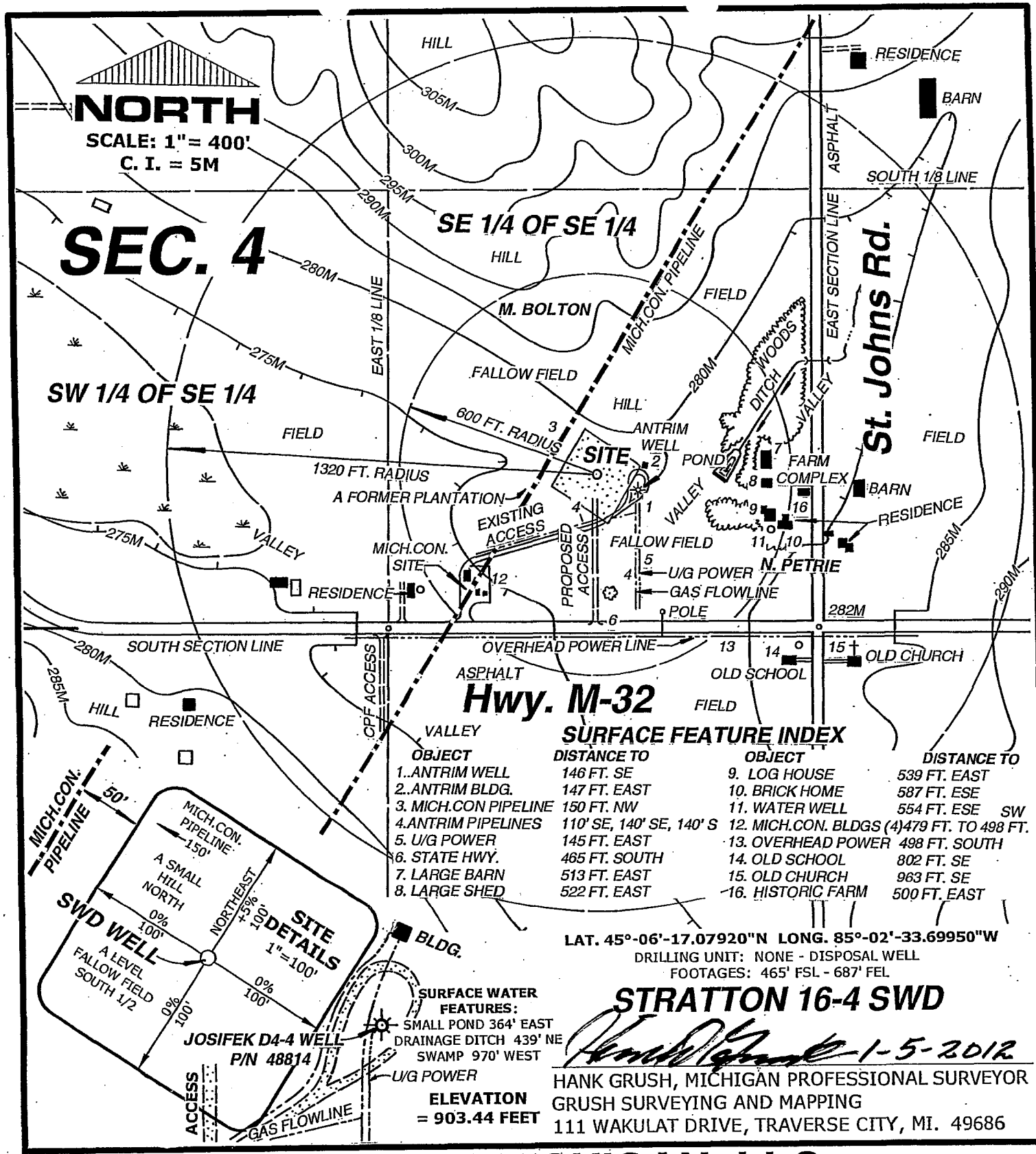
A. All roads, power lines, buildings, residences, fresh water wells, and other man-made features, within 600 feet of the stake.
B. All lakes, streams, wetlands, drainage-ways, floodplains, environmentally sensitive areas, natural rivers, critical dune areas, and threatened or endangered species within 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	Company	Date of survey
Auberry H. (Hank) Grush	Grush Surveying & Mapping	12-15-2011
Address		**Phone**
111 Wakulat Drive, Traverse City, MI 49686		231 947-3426

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

Signature of licensed surveyor (affix seal) — Date 1-5-2012

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



HANK GRUSH, MICHIGAN PROFESSIONAL SURVEYOR
GRUSH SURVEYING AND MAPPING
111 WAKULAT DRIVE, TRAVERSE CITY, MI. 49686

CHEVRON MICHIGAN, LLC

SUPPLEMENTAL PLAT - JORDAN "9" ANTRIM GAS PROJECT

A PART OF THE SE 1/4 OF THE SE 1/4 OF SECTION 4,
T31N, R6W, JORDAN TOWNSHIP, ANTRIM COUNTY, MI.

Drawn by J. GRUSH
Checked by H. GRUSH
Date 1-3-2012
Sheet 1 of 1

CHEVRON MICHIGAN, LLC
STRATTON 16-4 SWD WELL
JORDAN "9" PROJECT

ACCESS TO WELLSITE

For access to the Stratton 16-4 SWD wellsite begin in the town of Mancelona in Antrim County at the intersection of State Highway M-66 and Highway US-131. Then go North on State Highway M-66, 10 miles to Old State Road. Then go East on Old State Road 3 miles to until it becomes Adams Road. Then North on Adams Road 2.5 miles to State Hwy. M-32. Then West on Hwy. M-32 1.2 miles to St. Johns Road. Then continue West on State Highway M-32 0.1 miles. Then North in level fallow field 0.1 miles to wellsite about 100 feet West of the Josifek D4-4 Antrim gas well.

DEQ MICHIGAN DEPAR ENT OF ENVIRONMENTAL QUALITY – OFFICE O' OLOGICAL SURVEY

SOIL EROSION & SED ENTATION 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 o licant
CHEVRON MICHIGAN, LLC
10691 EAST CARTER ROAD, SUITE 201
TRAVERSE CITY, MI 49684
Phone: (231)995-4000 Fax: (231) 995-4072

2. Well or project name:
STRATTON 16-4 SWD

3. Well or project location:
Section(s) 4 T31N R6W

4. Name and address of County or local Enforcement Agent (CEA)
Heidi Shaffer
Antrim Conservation District
4820 Stover Road
Bellaire, MI 49615
Phone: (231)533-8363 Fax: (231) 533-6388

5. Township
JORDAN

6. County
ANTRIM

7. Date earth changes expected to start
August 1, 2012

8. Date of expected completion
November 1, 2012

9. Name and address of person responsible for earth change:
Chevron Michigan, LLC
Mr. John Wilkinson
10691 East Carter Road, Suite 201
Traverse City, MI 49684
Phone: (231)995-4000 Fax: (231) 995-4115

10. Name and address of person responsible for maintenance:
Chevron Michigan, LLC
Mr. Chris Matts
2365 S. Otsego Ave.
Gaylord, MI 49735
Phone: (989)732-4146 Fax: (989) 732-4248

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 01-10-2012

EARTH CHANGE ACTIVITIES

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

a. Number of well sites 1, one acres
b. Number of surface facility sites 0, 0 acres
c. New access roads 355 feet, 0.16 acres
d. Flow line(s) trenched in off well site* 15 feet, 0.01 acres
e. Flow line(s) plowed in off well site* 0 feet, 0 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 NONE

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 THE DNR BLEND OR BY AGREEMENT WITH SURFACE OWNER
☐ Describe other proposed methods of restoration

16. Application prepared by (name) Paul R. Conlen
Signature Paul R. Conlen
Date 12-15-2011

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

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
CHEVRON MICHIGAN, LLC	STRATTON 16-4 SWD	SALTWATER DISPOSAL

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) New wellsite. New access road.

B. IMPACTS AS A RESULT OF DRILLING

1. Access route dimensions

355 feet x 20 feet / 43,560 = 0.16 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 proposed access route is across level to very gently sloping fallow farm field. Surface drainage is Southwest along natural routes. Soils are sandy clay loam medium drained. Surface slopes are at 0% to +2% from the State highway North to the wellsite. The surface cover is fallow farm field. Land use in the area is Agricultural, Petroleum Production, Forestry, Forest Recreational, and sparse Residential.

2. Well site dimensions

200 feet x 200 feet / 43,560 = 0.92 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 topography is gently sloping fallow farm field. Surface drainage is Southwest. Soils are sandy clay loam. Slopes North are +5% for 100'. East is 0% for 100'. South is 0% for 100'. West is 0% for 100'. Surface cover is fallow farm field with a dense cover of hay and wild grasses (possibly former tree plantation). Land use is Agricultural, Petroleum Production,Forestry, Forest Recreational, and sparse Residential.

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.

Antrim well 146' SE, Antrim bldg. 147' E, Mich.Con pipeline 150' NW, Antrim pipelines 110' SE, 140' SE, 140' S, U/G power 145' East, State hwy., 465' S, large barn 513' E, large shed 522' E, log house 539' E, brick home 587' ESE, water well 554' ESE, MichCon bldgs. 479' to 498' SW, overhead power 498' S, old school 802' SE, old church 963' SE, historic farm 500' E.

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, ...ural rivers, critical dune areas, threatened or en...igered species within 1320' and Great Lake shorelines within 1500' of the well site The site is in very upland hayfield. A small man made pond is 364' East. A channeled drainage ditch into the pond is 439' NE. A very large, open lowland is 970' West.

d. Describe the actions to be taken to mitigate impacts to any of the items identified in Part B-5 a-c above. The proposed wellsite perimeter will be constructed with a continuous earthen dike (temporary), where necessary. A silt fence (temporary) will be placed at the base of earth fill areas and in the direction of likely runoff, if required. Areas of surface disturbance will be restored at the earliest opportunity. The operation of heavy equipment will be avoided in soft areas.

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) From a commercially available water well
☐ 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 13'+ Method determined by Hand auger method
☒ On site in-ground pit, anticipated dimensions: L 80' W 35' D 10'
☐ 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 _____ 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 _____ 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)_____
☐ Pit will be solidified.

C. IMPACTS AS A RESULT OF PRODUCTION

1. Kind of well ☐ exploratory ☐ development ☒ Other (describe) Saltwater Disposal Well
☒ Antrim project **(submit separate project EIA, form EQP 7200-21, for access roads, flow lines, and surface facilities)**
where is project EIA found? Project EIA is on file 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 Chevron - Jordan "9" CPF - NE 1/4 of SW 1/4 of NE 1/4 of Section 9, T31N, R6W, Jordan Township, Antrim County, Michigan
_____ 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 15 feet x 20 feet / 43,560 = 0.01 acres.
Describe the topography, drainage, soil type(s), direction and percentage of slopes, land cover and present land use along the flow line route The topography along the flowline route is gently rolling fallow field. Surface drainage is Southwest. Soils are sandy clay loam. Slopes are 0% to +2% from site East to the bldg.. Land cover is fallow farm field - hayfield. The flowline will extend a short distance East-Northeast to the nearby building. Land use is Agricultural, Forestry and Forest Recreational and sparse Residential.

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 NONE - This is a Disposal Well

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 Saltwater Disposal Well

D. MITIGATION OF IMPACTS FROM DRILLING AND/OR PRODUCTION

Describe additional measures to be taken to protect environmental and/or land use values The site and proposed access road are located in level to gently rolling fallow farm field. A new access road will extend North from Hwy. M-32. Other ongoing land uses in the immediate area seem limited to Agricultural and Petroleum Production use.The topsoil will be removed and stockpiled. Earthwork will be moderate due to level to gentle slopes. No tree removal will be required. The site will be diked and the access road maintained. Soil erosion control precautions will be taken to control erosion of slopes in the wellsite area and along the access road. Restoration and re-seeding will be done as soon as possible. Seed, fertilizer and mulch mixes and rates will be per land owner specifications.

E. ADDITIONAL PERMITS

Identify additional permits to be sought EPA Permit for SWD well. MDOT driveway permit for Highway M-32 access.

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?

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."

Hank Grush, Michigan Professional Surveyor		1-5-2012
Name and title (printed or typed)	Authorized Signature	Date

Enclose with *Application For Permit To Drill*

Appalachian/Michigan Business Unit
Chevron North America
Exploration and Production Company
(a Chevron U.S.A. Inc. division)
10691 East Carter Road
Suite 201
Traverse City, MI 49684
Tel 231 995 4000

January 10, 2012

Ms. Heidi Shaffer
Antrim Conservation District
4820 Stover Road
Bellaire, MI 49615

RE: Stratton 16-4 SWD
Jordan 9 Antrim Gas Unit
SW/4 SE/4 SE/4 Section 4, T31N – R6W
Jordan Township, Antrim County, Michigan
APPLICATION FOR PERMIT TO DRILL

Dear Ms. Shaffer:

This letter is to notify you that Chevron Michigan, LLC has filed an application to drill an SWD well upon the land referred to above.

Enclosed for your review are copies of the Soil Erosion, Sedimentation Control Plan, Survey Record of Well Location, Supplemental Plat and Permit Application for the captioned well.

If you have any questions regarding the application and our proposed operations, please contact Paul Conlen, Land Representative for Chevron Michigan, LLC at (231) 995-4085.

Sincerely,

CHEVRON MICHIGAN, LLC

James L. Stachnik, CPL
Team Lead, Land

Enclosures

cc: Holly Brown
JDV - Meridian

Appalachian/Michigan Business Unit
Chevron North America
Exploration and Production Company
(a Chevron U.S.A. Inc. division)
10691 East Carter Road
Suite 201
Traverse City, MI 49684
Tel 231 995 4000

January 10, 2012

Ms. Laura Sexton
Antrim County Clerk
P.O. Box 520
Bellaire, Michigan 49615

RE: Stratton 16-4 SWD
Jordan 9 Antrim Gas Unit
SW/4 SE/4 SE/4 Section 4, T31N – R6W
Jordan Township, Antrim County, Michigan
APPLICATION FOR PERMIT TO DRILL

Dear Ms. Sexton:

This letter is to notify you that Chevron Michigan, LLC has filed an application to drill an SWD well upon the lands referred to above.

Enclosed for your review is a copy of the Application for Permit to Drill submitted to the Michigan Department of Environmental Quality.

If you have any questions regarding the application and our proposed operations, please contact Paul Conlen, Land Representative for Chevron Michigan, LLC at (231) 995-4085.

Sincerely,

CHEVRON MICHIGAN, LLC

James L. Stachnik, CPL
Team Lead, Land

Enclosure

Appalachian/Michigan Business Unit
Chevron North America
Exploration and Production Company
(a Chevron U.S.A. Inc. division)
10691 East Carter Road
Suite 201
Traverse City, MI 49684
Tel 231 995 4000

January 10, 2012

Marvin & Judith Bolton
2950 W. Delhi Road
Ann Arbor, MI 48103

RE: Stratton 16-4 SWD
Jordan 9 Antrim Gas Unit
SW/4 SE/4 SE/4 Section 4, T31N – R6W
Jordan Township, Antrim County, Michigan
APPLICATION FOR PERMIT TO DRILL

Dear Mr. & Mrs. Bolton:

Chevron Michigan, LLC (CHEVRON) has filed an application to drill an SWD well upon the above described lands. Enclosed for your review is a copy of the Application for Permit to Drill that has been submitted to the Michigan Department of Environmental Quality. In accordance with Supervisor of Wells Instruction No. 2-94, we will contact you at least 5 days prior to commencement of well site construction and once again at least 48 hours prior to commencement of drilling.

From the date of issuance of the drilling permit and up to two (2) years thereafter, CHEVRON will have the right but not the obligation to commence drilling operations. CHEVRON anticipates that operations will commence during 2012.

The Michigan Department of Environmental Quality requires that we make the following advisory: "Michigan law provides certain rights to surface owners of lands where the minerals rights have been severed. If you have questions regarding these rights, you may wish to consult an attorney".

If you have any questions, please contact Paul Conlen, Land Representative for Chevron Michigan, LLC at (231) 995-4085.

Sincerely,

CHEVRON MICHIGAN, LLC

James L. Stachnik, CPL
Team Lead, Land

Enclosure

Landowners within ¼ mile of the proposed Stratton 16-4 SWD

Norma L. Petrie
5169 St. Johns Rd.
East Jordan, MI 49727

Marvin & Judith Bolton
2950 W Delhi Rd.
Ann Arbor, MI 48103

William & Camille Yarbrough
2767 W M-32 Hwy
East Jordan, MI 49727

Monica L. Nemecek
1711 Cliff St.
Alexandria, VA 22301

Lawrence & Sandra Nemecek
5362 St. Johns Rd.
East Jordan, MI 49727

Catholic Church
Diocese of Gaylord
P. O. Box 1020
Gaylord, MI 49735

East Jordan Public Schools
P. O. Box 399
East Jordan, MI 49727

June Trojanek
4344 St. Johns Rd.
East Jordan, MI 49727

Cynthia Pearson
2745 M-32 Hwy.
East Jordan, MI 49727

David Paliwoda
c/o Esther Paliwoda
13109 n 21st ave.
Phoenix, AZ 85029

Landowners within ¼ mile of the proposed Stratton 16-4 SWD

Liddle Magdalene
Ellis Maxine
2318 Factory St.
Kalamazoo, MI 49001

Robert T. Johnston
2756 W M-32 Hwy.
East Jordan, MI 49727

DCP Jordan Valley Pipeline, LLC
5718 Westhiemer Suite 1900
Houston, TX 77057

John McCafferty
2606 W M-32 Hwy.
East Jordan, MI 49727

Donald & Constance Nowka
2481 W M-32 Hwy.
East Jordan, MI 49727

Dawn Pringle
126 Garner Rd.
East Jordan, MI 49727

Raymond & Donna Nemecek
2607 W M-32 Hwy.
East Jordan, MI 49727

William & Emily Vernon
2725 W M-32 Hwy.
East Jordan, MI 49727

Mikunkin Appalachian OIL FIELD SUPPLY COMPANY

P.O. Box 518
Charleston, WV 25322
Phone - (304) 348-5847
FAX - (304) 348-1529

As requested, here are the performance properties on 8-5/8" ERW Casing:

1)	WT. PER FOOT T&C NOMINAL	20 LBS
	Wall Thickness Nominal	.219 In.
	Drift Diameter	8.062 In.
	Coupling O.D.	9.625 In.
	Coupling Length	7.750 In.
	Thread Length	3.000 In.
2)	COLLAPSE	
	Minimum Pressure	830 PSI
	Setting Depth* S.F. 1-1/8	1,470 Feet

*(Based On 0.5 PSI/Foot Of Depth (72 Lbs./Cu. Ft. Mud))

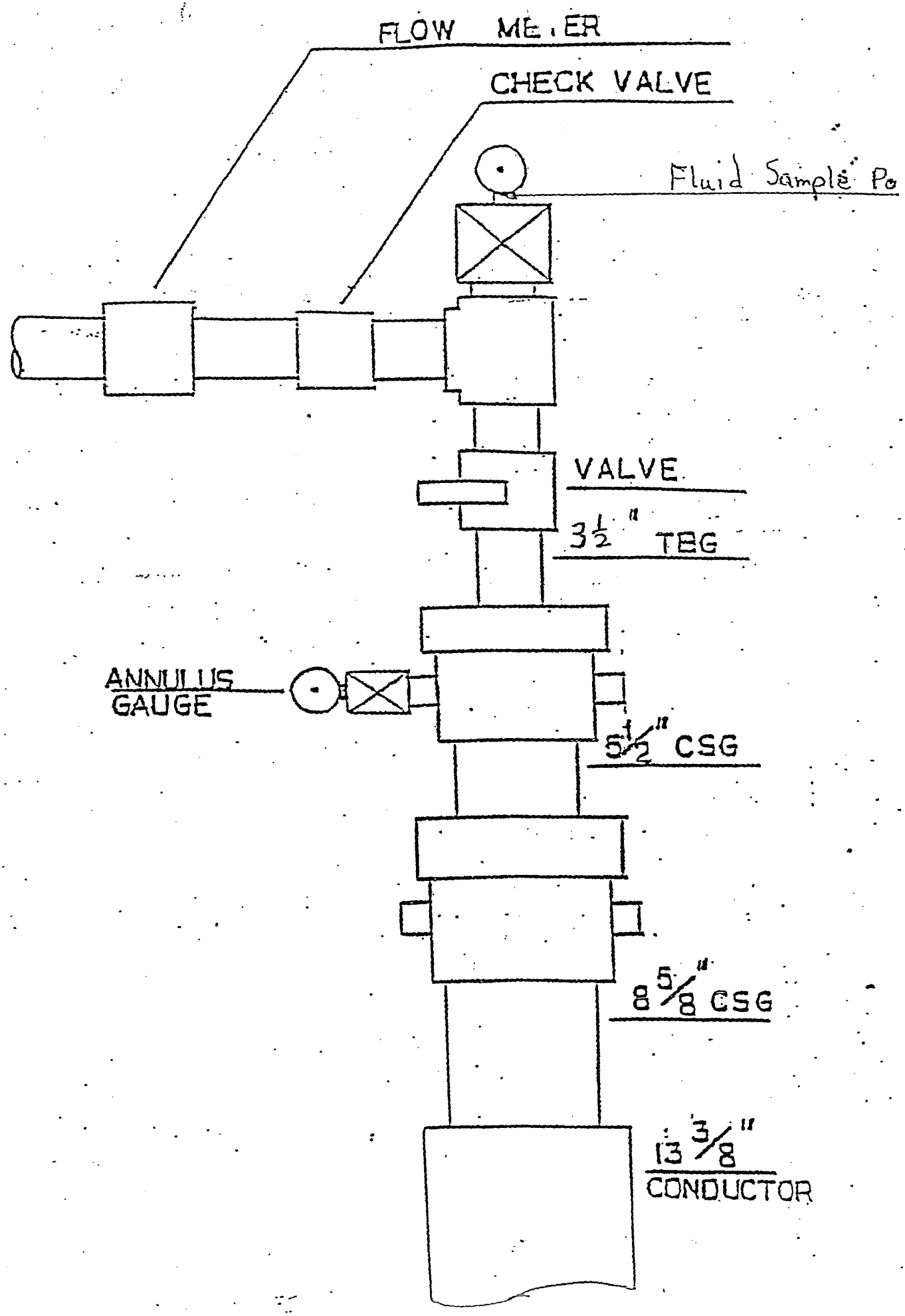
3)	TENSION	
	Ultimate Joint Strength	141,000 Lbs.
	Equivalent Length S.F. 1.8	3,920 Feet
4)	INTERNAL PRESSURE	20 LBS
	Mill Test Pressure	1,220 PSI
	Minimum Yield	1,780 PSI
	Setting Depth S.F. 1.25	2,350 PSI

McJunkin Appalachian Oilfield Supply

Casing Description and Performance Properties

5-1/2" .219w 13.00# STC R3

	J-55 Pipe/J Cplg	MC-50 Pipe/J Cplg
Collapse (S.F. = 1.125)	2120 psi 4230 feet	2040 psi 4070 feet
Burst (5% Tol)	3780 psi	3440 psi
(12% Tol)	3480 psi	3170 psi
(S.F. = 1.1)		
Tension (S.F. = 1.8)	6320 feet	5640 feet


FLOW METER
CHECK VALVE
Fluid Sample Po
VALVE
3½" TBG
ANNULUS GAUGE
5½" CSG
8 5/8" CSG
13 3/8"
CONDUCTOR

DEQ MICHIGAN DEP/ /IENT OF ENVIRONMENTAL QUALITY - GEOLOG SURVEY DIVISION

WELLHEAD BLOWOUT CONTROL SYSTEM

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

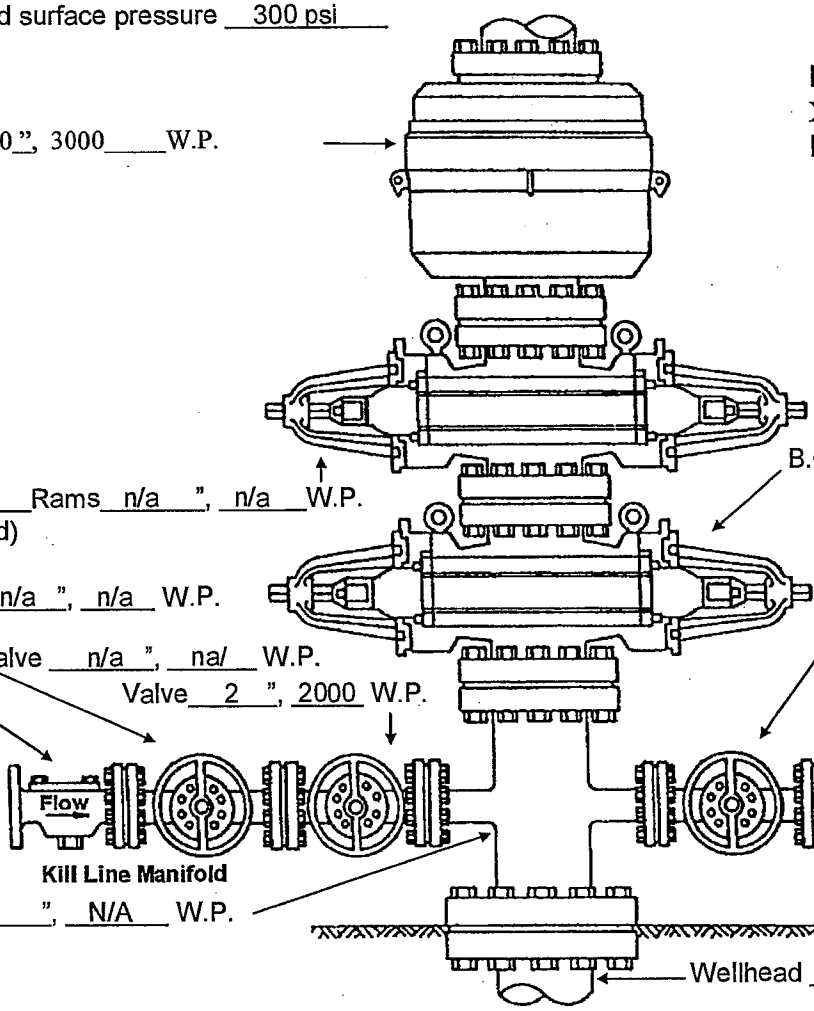
This information is required by authority of Part 615 Supervisor of Wells or Part 625 Mineral Wells, Act 451 PA 1994, as amended, in order to obtain a permit.

Applicant
Chevron Michigan, LLC

Stratton 16-4 SWD

Max. anticipated surface pressure 300 psi

B.O.P.
☐**Manual**
X 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.

Atlas Gas & Oil Company, LLC is requesting an exception to Rule 406, "Blowout prevention equipment" due to this Application being a request to drill in shallow low pressure formations.
Request to test "Blowout prevention equipment" to 500 PSI prior to drilling out from under surface casing.

DEQ MICHIGAN DEPA' ENT OF ENVIRONMENTAL QUALITY - GEOLOGIC 'URVEY DIVISION

INJECTION WELL DATA

Supplemental information for drilling or converting to an injection 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.

Applicant
Chevron Michigan, LLC
10691 E. Carter Rd. Suite 201
Traverse City, MI 49684

Well name and number
Stratton 16-4 SWD

INSTRUCTIONS: Complete all portions of form which apply to this well. **Attach supplemental documents as needed.**
1. File a separate plat which identifies the depth and location of this proposed well and all producing, abandoned, or drilling wells within 1320 feet of it. Also identify the permittee of each producing well within 1320 feet of this proposed well.
2. Enclose a copy of the completion reports for all wells and the plugging records for all plugged wells shown on the plat. Identify what steps will be necessary to prevent injected fluids from migrating up or into inadequately plugged or completed wells.
3. If this is an existing well to be converted to an injection well, enclose this form with an Application To Change Well Status (form EQP 7200-6). Also enclose a copy of the completion report and geologic description and electric logs for this well.
4. Injection wells (except for gas storage) must receive a mechanical integrity test every 5 years pursuant to Rule 324.805.

5. Type of fluids to be injected
☒ Brine ☐ Natural Gas (omit #7 & #12)
☐ Fresh Water (omit #12) ☐ Other _____

6. Maximum expected injection rate 9000 BPD

7. Specific gravity of injected fluid 1.005

8. Maximum expected injection pressure 0 psig or Vacuum

9. Maximum bottom hole injection pressure 446
Show calculations [(.8- .433 x (1.005 + 0.05) x 1344] - 14.7 = =446

10. Fracture pressure of confining formation 1041
Show calculations .8 x 1301 = 1041

11. Fracture pressure of injection formation 1075
Show calculations .8 x 1344 = 1075

12. Chemical analysis of representative samples of injected fluid
Specific conductance 1 / 2.45 = 0.408

Cation (mg/l)		Anions (mg/l)	
Calcium	ND	Chloride	1100
Sodium	1170	Sulfate	103
Magnesium	ND	Bicarbonate	830
Potassium	1.30		

What was the source of this representative sample? Josifek D4-4 SWD (Jordan 9 project)

13. Is this well to be completed in a potential or previous oil or gas producing formation? ☐ Yes ☒ No
If yes, provide a list of all offset permittees and proof of service of notification of this application to all permittees by certified mail.

14. Attach proposed plugging and abandonment plan. OR Briefly list depths, volumes and types of cement and mechanical plugs and depths where casing will be recovered.

Schematic of wellbore construction

Complete bottom of diagram as needed to conform with proposed construction (e.g. show rat hole below casing, open hole completion, packer loc. etc.)

Fresh water fms., name & depth
Base of Drift - 145

Base of freshwater, name & depth
Drift - 145

Surface casing 8-5/8" "x 245 '
Amount of cement 150 sacks
T.O.C. 0'

Intermediate casing (if applicable)
n/a "x '
Amount of cement _____ sacks
T.O.C. n/a

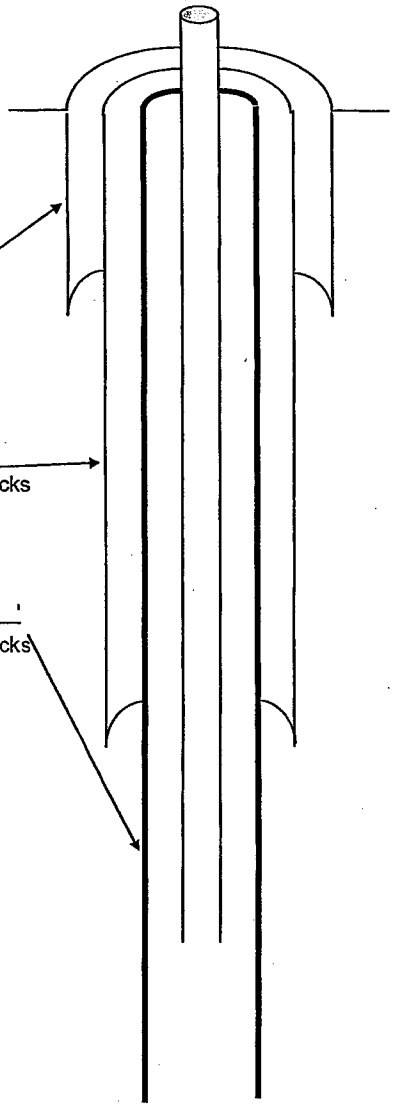
Long string casing 5-1/2" "x 1350 '
Amount of cement 280 sacks
T.O.C. 0'

Confining formation(s) Bell Shale
Depth to top 1301
Depth to base 1344

Injection formation(s) Dundee
Depth to top 1344
Depth to base 1524

Tubing 2-7/8" " x 1335 '
Packer Depth 1335

Bottom TD or PBTD 1535 ft.

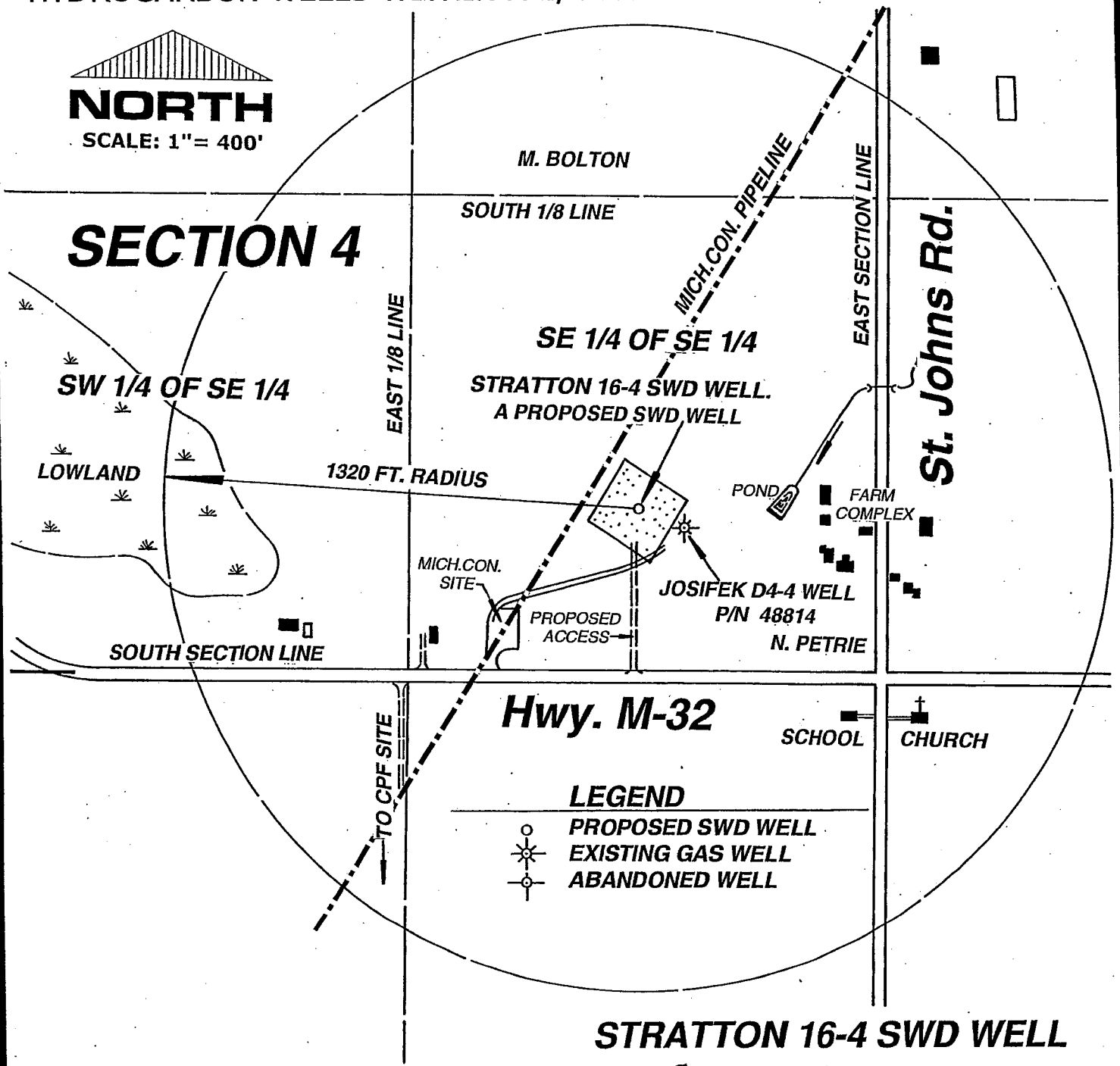


15. Application prepared by (print or type):
Michael Link, Technical Team Lead, Engineering

Date
01/10/2012

EQP 7200-14 (Rev 3/99) Enclose with *APPLICATION FOR PERMIT TO DRILL* or *APPLICATION TO CHANGE WELL STATUS*

HYDROCARBON WELLS WITHIN A 1/4 MILE RADIUS OF PROPOSED SWD



STRATTON 16-4 SWD WELL

LAT. = 45°-06'-17.07920"N LONG. = 85°-02'-33.69950"W
DRILLING UNIT: NONE - DISPOSAL WELL
FOOTAGES: 465' FSL - 687' FEL

1-5-2012

HANK GRUSH, MICHIGAN PROFESSIONAL SURVEYOR
GRUSH SURVEYING AND MAPPING
111 WAKULAT DRIVE, TRAVERSE CITY, MI. 49686

CHEVRON MICHIGAN, LLC

SUPPLEMENTAL PLAT - JORDAN "9" ANTRIM GAS PROJECT

A PART OF THE SE 1/4 OF THE SE 1/4 OF SECTION 4,
T31N, R6W, JORDAN TOWNSHIP, ANTRIM COUNTY, MI.

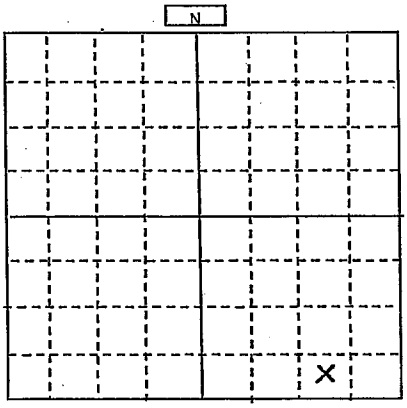
Drawn by J. GRUSH
Checked by H. GRUSH
Date 1-4-2012
Sheet 1 of 1

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

PLUGGING AND ABANDONMENT PLAN

WELL NAME & NUMBER, FIELD NAME, LEASE NAME & NUMBER	NAME, ADDRESS, & PHONE NUMBER OF OWNER / OPERATOR
Stratton 16-4 SWD	Chevron Michigan, LLC 10691 E. Carter Rd. Suite 201 Traverse City, MI 49684 231-995-4000

Locate Well and Outline Unit on Section Plat - 640 Acres



STATE	COUNTY	STATE PERMIT NUMBER
MI	Antrim	Pending

SURFACE LOCATION DESCRIPTION
SW/SE/SE, Sec. 4, T31N-R6W

LOCATE WELL IN TWO DIRECTIONS FROM NEAREST LINES OF QUARTER SECTION AND DRILLING UNIT

Surface Location 465 ft. From (N/S) SOUTH Line of Quarter Section
And 687 ft. From (E/W) EAST Line of Quarter Section

TYPE OF AUTHORIZATION
- [x] Individual Permit
- [ ] Rule
- [ ] Area Permit

Number of Wells in Area Permit :

US EPA Permit Number : Pending

WELL ACTIVITY
- [ ] Class I
  - [ ] Hazardous
  - [ ] Nonhazardous
- [x] Class II
  - [x] Brine Disposal
  - [ ] Hydrocarbon Storage
  - [ ] Enhanced Recovery
- [ ] Class III
- [ ] Class IV

CASING/TUBING/CEMENT RECORD AFTER PLUGGING AND ABANDONMENT

Size	Wt (lb/ft) TBG/CSG	Original Amount (CSG)	CSG to be Left in Well	Hole Size	Sacks Cement Used	Type
13-3/8"	Conductor	50	50	Driven	Driven	-
8-5/8"	20#	245	245	12-1/4"	150 sks	Class A
5-1/2"	13#	1535	1535	7-7/8"	280 sks	Class A

METHOD OF EMPLACEMENT OF CEMENT PLUGS
- [x] Balance Method
- [ ] Dump Bailer Method
- [ ] Two Plug Method
- [ ] Other

CEMENT TO PLUG AND ABANDON DATA	Plug # 1	Plug # 2	Plug # 3	Plug # 4	Plug # 5	Plug #6	Plug #7
Size of Hole or Pipe in Which Plug Will Be Placed (inches)	5-1/2"	5-1/2"					
Calculated Top of Plug (ft.)	1300	Surface					
Measured Top of Plug (ft.)	n/a	n/a					
Depth to Bottom of Plug (ft.)	1350	345					
Sacks of Cement to be Used	6	39					
Slurry Volume to be Used (cu. Ft.)	7	46					
Slurry Weight (lb./gal.)	15.6	15.6					
Type of Cement, Spacer or Other Material Used	Class A	Class A					
Type of Preflush Used	-	-					

DESCRIPTION OF PLUGGING PROCEDURE

MI Service Unit. TOH w/ packer & tubing. TIH w/ CIBP. Set CIBP at 1350'. TOH w/ tbg. Spot 6 sks cement on CIBP. Raise tbg to 345'. Spot cement to surface. Cut csg 4' below ground level. Weld plate on sub.

ESTIMATED COST OF PLUGGING AND ABANDONMENT

Cement	$5,000.00	Cast Iron Bridge Plug	$2,000
Logging	$0.00	Cement Retainer	$0
Rig or Pulling Unit	$5,000.00	Miscellaneous	$2,500
		Total	$14,500

CERTIFICATION

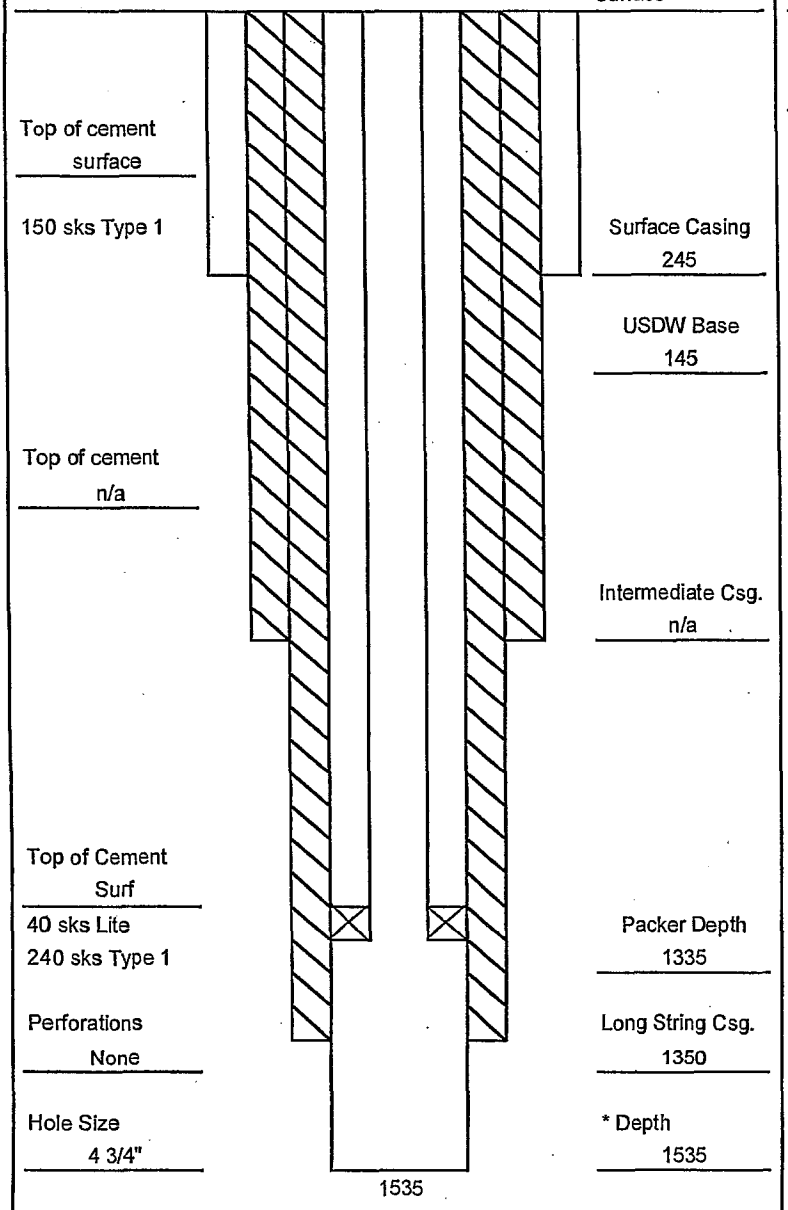
I certify under the penalty of law that I have examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref.40 CFR 144.32)

NAME AND OFFICIAL TITLE	SIGNATURE	DATE SIGNED
Michael Link, Technical Team Lead, Engineering	Mil A/L	01/10/12

EPA Form 7520-14

ORIGINAL WELL CONSTRUCTION / DRILLING OPERATION

Stratton 16-4 SWD

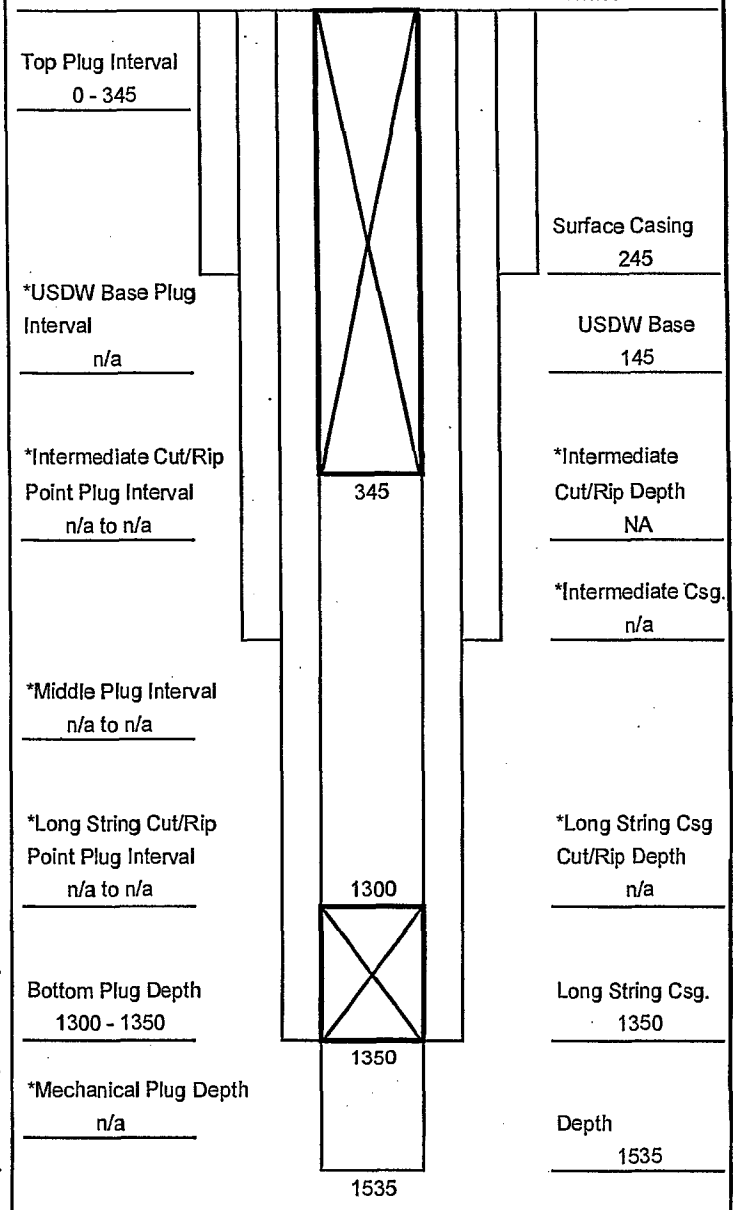


** Add Any Additional Information

* May not Apply

PLUGGING AND ABANDONMENT CONSTRUCTION

Stratton 16-4 SWD



** Add Any Additional Information

* May not Apply

LIST OF ALL OPEN AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED

Specify Open Hole/ Perforations/ Varied Casing		From	To	Formation Name
4-3/4"	Open Hole	1350	1535	Dundee

ACCUTEST LABORATORIES

AccuTest GC / SPL Environmental
459 Hughes Drive
Traverse City, MI 49686
Phone: (231) 947-5777
Fax: (231) 947-1072

GENERAL WATER ANALYSIS

WorkOrder: T11100212 JORDAN 9

Lab ID: **T11100212001** Date/Time Received: 10/25/2011 08:50 Matrix: Water
Sample ID: **JOSIFEK D4-4 SWD** Date/Time Collected: 10/13/2011 00:00

Method	Parameters	Results	Analyzed
	ANION		
EPA 310.1	Alkalinity, CO32- as CaCO3	ND mg/l	10/28/2011 11:22 by MD
EPA 310.1	Alkalinity, HCO3- as CaCO3	830 mg/l	10/28/2011 11:22 by MD
EPA 325.2	Chloride	1100 mg/l	10/28/2011 13:02 by MD
EPA 375.4	Sulfate	103 mg/l	10/28/2011 10:17 by MD
EPA 376.2	Sulfide	ND mg/l	11/02/2011 08:37 by MD
	CATION		
EPA 200.8	Calcium	ND mg/l	10/27/2011 19:09 by JS
EPA 200.8	Magnesium	ND mg/l	10/27/2011 19:09 by JS
EPA 200.8	Potassium	1.30 mg/l	10/27/2011 19:09 by JS
EPA 200.8	Sodium	1170 mg/l	10/27/2011 19:09 by JS
EPA 200.8	Barium	ND mg/l	10/27/2011 19:09 by JS
EPA 200.8	Iron	ND mg/l	10/27/2011 19:09 by JS
	OTHER		
EPA 150.1	pH	7.5 SU	10/28/2011 13:01 by MD
EPA 120.1	Resistivity	2.45 ohm-meter	10/27/2011 15:10 by MD
ASTM D1429	Specific Gravity	1.005	10/26/2011 13:27 by MD
	Total dissolved solids (calculated) =	3204.3	

$< 10{,}000$ PPM