

B-3

**Revised Class II UIC Permit Application for Chevron Michigan, LLC;
Chevron Michigan, LLC, Stratton #16-4,
Antrim County, Michigan,
received April 6, 2012**



RE: Stratton 16-4 SWD, MI-009-2D-0217 - Additional information
Schrader, Natalie to: Schrader, Natalie, Allan Batka

04/06/2012 01:19 PM

3 attachments



AmendmentISLC.PDF



Stratton 16-4 SWD Write-up.doc



Stratton SWD new P&A.pdf

Allan –

Per our phone conversation attached please find revised P&A plan and attachments to the permit application reflecting the change in USDW.

Please let me know if you have more questions regarding this.

I can put originals in the mail if you need them. Please let me know.

Thank you.

Natalie

From: Schrader, Natalie

Sent: Tuesday, March 20, 2012 1:47 PM

To: 'Allan Batka'

Subject: Stratton 16-4 SWD, MI-009-2D-0217 - Additional information

Allan –

In response to your letter dd 02/22/12 requesting additional information regarding Traverse and Antrim formation as potential sources of drinking water, attached please find report from our staff geologist along with the records for water wells located in Section 4 of Jordan township, showing that water wells are never drilled lower than the Base of Drift.

Please let me know if there are any questions. Hopefully the provided info is enough to complete application process for the subject well.

Thank you.

Natalie Schrader
nschrader@chevron.com

Chevron Michigan, LLC.
Appalachian/Michigan Business Unit (AMBU)
Chevron North America Exploration & Production
a division of Chevron U.S.A. Inc.
10691 East Carter Rd, Suite 201
Traverse City, MI 49684
231 995 4076 phone
231 995 4115 fax

1 / 1 -

**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.

<u>Well Name</u>	<u>Type</u>	<u>Operator</u>	<u>Date Drilled</u>	<u>Depth</u>
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 this part of Antrim county. Wells drilled through the Traverse Limestone (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.

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

Traverse Limestone blankets the entire area to depths that range from 550-1300'. It is light gray or brown in color, very finely crystalline, moderately argillaceous, with some gray, platy shale stringers. The Bell Shale underlies the Traverse Lime and is gray shale. Expected thickness of the Bell Shale at this location is about 40'. The formation used to determine the lowest source of drinking water was obtained from the EPA, 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'	ANTRIM SHALE
Paxton	497'	
Norwood	520'	
Traverse Formation	540'	
Traverse Limestone	581'	
Bell Shale	1301'	
Dundee	1344'	
Detroit River Anhydrite	1525'	

H. Operating Data

1. The proposed injection rate is 5000 BHPD. The maximum rate should not exceed 9000 BHPD.
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.
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 $1647' \times 0.8 \text{ psi/ft} = 1318 \text{ psi}$ bottom hole pressure at the uppermost open hole. Using the formula $[0.8 \text{ psi/ft} - 0.433 \times (1.005 + 0.05)] \times 1344 - 14.7 \text{ psi/ft}$ 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 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.



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U.S. Bank National Association
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TELEX:
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612-303-7395
Fax : 612-303-5226

MARCH 1, 2012

LETTER OF CREDIT NUMBER: SLCMMSP06369

AMENDMENT NUMBER: 1

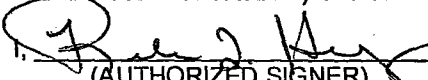
APPLICANT: CHEVRON MICHIGAN, LLC
10691 E. CARTER ROAD, SUITE 201
TRAVERSE CITY, MI 49684

BENEFICIARY: UNDERGROUND INJECTION CONTROL BRANCH, REGION 5
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WU-16J
77 W. JACKSON BOULEVARD
CHICAGO, IL 60604-3590

THE ABOVE MENTIONED CREDIT IS AMENDED AS FOLLOWS:

PRESENT AVAILABLE BALANCE DECREASED BY USD 116,000.00 TO A NEW TOTAL OF USD 1,384,000.00.

THE ABOVE IS SUBJECT TO BENEFICIARY APPROVAL/DISAPPROVAL AND MUST BE ACCEPTED OR REFUSED BY MAKING SUCH NOTATION BY YOUR SIGNATURE ON THE ATTACHED COPY OF THIS AMENDMENT ON THE LINES PROVIDED AND RETURNING SAME TO OURSELVES. (ORIGINAL SIGNATURE REQUIRED.) IMMEDIATE REPLY REQUESTED.


(AUTHORIZED SIGNER)

APPROVE/ACCEPT SUBJECT AMENDMENT
DATED 3/7/12
OR

(AUTHORIZED SIGNER)

DISAPPROVE/REFUSE SUBJECT AMENDMENT
DATED _____

THIS AMENDMENT IS TO BE CONSIDERED AS PART OF THE ABOVE CREDIT AND MUST BE ATTACHED THERETO.

ALL OTHER TERMS AND CONDITIONS REMAIN UNCHANGED.

U.S. BANK NATIONAL ASSOCIATION


AUTHORIZED SIGNATURE



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

February 27, 2012

Mr. John Prigge, CFA
US Bank
800 Nicollet Mall
Minneapolis, MN 55402

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

Mr. Prigge:

Please amend the standby letter of credit number SLCMMSP06369 as follows:

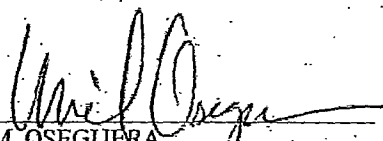
- Decrease the value by USD 116,000.00, from USD 1,500,000.00 to USD 1,384,000.00.

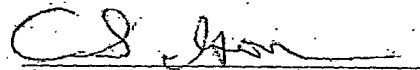
All other terms and conditions remain unchanged.

Please forward a copy of this amendment via facsimile to Mr. Sky Huber at 925 842-8180 or via email to skyhuber@chevron.com.

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

CHEVRON MICHIGAN, LLC


U. M. OSEGUERA
Vice President and Treasurer


C. S. ISOM
Assistant Treasurer



All of **us** serving you

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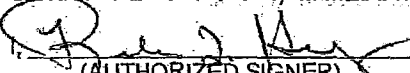
MARCH 1, 2012

LETTER OF CREDIT NUMBER:	SLCMMSP06369
AMENDMENT NUMBER:	1
APPLICANT:	CHEVRON MICHIGAN, LLC 10691 E. CARTER ROAD, SUITE 201 TRAVERSE CITY, MI 49684
BENEFICIARY:	UNDERGROUND INJECTION CONTROL BRANCH, REGION 5 UNITED STATES ENVIRONMENTAL PROTECTION AGENCY WU-16J 77 W. JACKSON BOULEVARD CHICAGO, IL 60604-3590

THE ABOVE MENTIONED CREDIT IS AMENDED AS FOLLOWS:

PRESENT AVAILABLE BALANCE DECREASED BY USD 116,000.00 TO A NEW TOTAL OF USD 1,384,000.00.

THE ABOVE IS SUBJECT TO BENEFICIARY APPROVAL/DISAPPROVAL AND MUST BE ACCEPTED OR REFUSED BY MAKING SUCH NOTATION BY YOUR SIGNATURE ON THE ATTACHED COPY OF THIS AMENDMENT ON THE LINES PROVIDED AND RETURNING SAME TO OURSELVES. (ORIGINAL SIGNATURE REQUIRED.) IMMEDIATE REPLY REQUESTED.


(AUTHORIZED SIGNER)

APPROVE/ACCEPT SUBJECT AMENDMENT
DATED 3/7/12
OR

I, _____
(AUTHORIZED SIGNER)

DISAPPROVE/REFUSE SUBJECT AMENDMENT
DATED _____

THIS AMENDMENT IS TO BE CONSIDERED AS PART OF THE ABOVE CREDIT AND MUST BE ATTACHED THERETO.

ALL OTHER TERMS AND CONDITIONS REMAIN UNCHANGED.

U.S. BANK NATIONAL ASSOCIATION


AUTHORIZED SIGNATURE

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

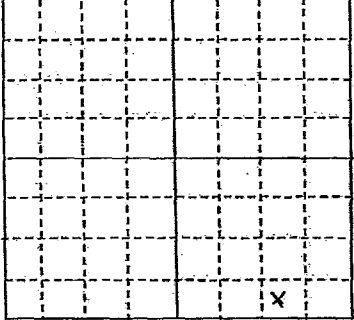
PLUGGING AND ABANDONMENT PLAN

WELL NAME & NUMBER, FIELD NAME, LEASE NAME & NUMBER Stratton 16-4 SWD	NAME, ADDRESS, & PHONE NUMBER OF OWNER / OPERATOR Chevron Michigan, LLC 10691 E. Carter Rd. Suite 201 Traverse City, MI 49684 231-995-4000
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STATE MI	COUNTY Antrim	STATE PERMIT NUMBER 60515
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Locate Well and Outline Unit on Section Plat - 640 Acres

N



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 <input checked="" type="checkbox"/> Individual Permit <input type="checkbox"/> Rule <input type="checkbox"/> Area Permit Number of Wells in Area Permit : US EPA Permit Number : MI-009-2D-0217	WELL ACTIVITY <input type="checkbox"/> Class I <input type="checkbox"/> Hazardous <input type="checkbox"/> Nonhazardous <input checked="" type="checkbox"/> Class II <input checked="" type="checkbox"/> Brine Disposal <input type="checkbox"/> Hydrocarbon Storage <input type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Class III <input type="checkbox"/> Class IV
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CASING/TUBING/CEMENT RECORD AFTER PLUGGING AND ABANDONMENT

Size	VA (lbm) 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

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	1300					
Sacks of Cement to be Used		6	153					
Slurry Volume to be Used (cu. Ft.)		7	180					
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. Spot 153 sks of cement to surface. Cut csg 4' below ground level. Weld plate on sub. Restore location.

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 Michael Link, Technical Team Lead, Engineering	SIGNATURE 	DATE SIGNED 04/06/12
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B-4

**Statement of Basis for Issuance of Underground Injection
Control (UIC) Permit, Permit Number MI-009-2D-0217,
Facility Name: Stratton #16-4**



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

STATEMENT OF BASIS FOR ISSUANCE OF UNDERGROUND INJECTION
CONTROL (UIC) PERMIT

Permit Number: MI-009-2D-0217

Facility Name: Stratton #16-4

Chevron Michigan, LLC of Traverse City, Michigan, has applied for a United States Environmental Protection Agency (USEPA) permit for the Stratton #16-4 injection well to be used for noncommercial brine disposal in Antrim County, Michigan.

Review of the permit application indicates that no significant environmental impact should result from the proposed injection. The USEPA, therefore, intends to issue a permit for this well. Under the authority of Title 40 of the Code of Federal Regulations (40 CFR) Parts 144 and 146, USEPA permits must specify conditions for construction, operation, monitoring, reporting, and plugging and abandonment of injection wells so as to prevent the movement of fluids into any Underground Source of Drinking Water (USDW). General provisions for USEPA UIC permit requirements are found at 40 CFR Parts 144 and 146, while regulations specific to Michigan injection operations are found at 40 CFR Part 147 Subpart X. In accordance with 40 CFR § 124.7, general information and highlighted permit conditions specific to this well are as follows:

Area of Review (AOR) and Corrective Action: In accordance with 40 CFR §§ 144.55, 146.6 and 146.7, this is the area surrounding the well within which the applicant must research wells which penetrate the injection zone. If any of these wells are improperly sealed, completed or abandoned, and might provide a conduit for fluid migration, the applicant must develop a corrective action plan as shown in Attachment C of the permit to address the deficiency. The applicant has provided documentation on the well population within 1/4 mile of the injection well (i.e., the AOR). There are 1 producing, 1 injection, 0 temporarily abandoned, and 0 plugged and abandoned wells within the 1/4 mile radius AOR which penetrate the injection zone.

Underground Sources of Drinking Water (USDWs): USDWs are defined by the UIC regulations as aquifers or portions thereof which contain less than 10,000 milligrams per liter of total dissolved solids and which are being or could be used as a source of drinking water. The base of the lowermost possible USDW in the vicinity of the injection well has been identified at approximately 1301 feet below ground surface. This water-bearing formation is the Traverse Limestone.

Injection and Confining Zone: Injection for noncommercial brine disposal is limited by the permit to the Dundee Limestone in the interval between 1343 and 1535 feet below ground surface. This injection zone is separated from the lowermost USDW by approximately 42 feet of rock strata.

Construction Requirements: The proposed construction of the injection well meets the regulatory criteria of 40 CFR § 146.22. This requires that all new wells which inject fluids which are brought to the surface in connection with oil or natural gas production, or for enhanced recovery of oil or natural gas, be sited so that they inject into a formation which is separated from any USDW by a confining zone free of known open faults or fractures within the AOR. All Class II wells must also be cased and cemented to prevent the movement of fluids into or between USDWs. The permittee shall not commence construction, including drilling, of any new well until a final permit has been issued.

Injection Fluid: The injected fluid is limited by the permit to produced brine and fresh water. The expected maximum daily volume of fluid to be injected is 9,000 barrels.

Maximum Injection Pressure: The maximum injection pressure shall be limited to 446 pounds per square inch gauge (psig). This limitation will ensure that the pressure during injection does not initiate fractures in the confining zone adjacent to the lowermost USDW during injection operations. This in turn ensures that the injection pressure will not cause the movement of injection or formation fluids into a USDW as prohibited by 40 CFR § 146.23(a)(1).

Monitoring and Reporting Requirements: In accordance with 40 CFR §§ 144.54 and 146.23, the applicant will be responsible for observing and recording injection pressure, flow rate, annulus pressure, and cumulative volume on a weekly basis and reporting this to the USEPA on a monthly basis. The applicant will also be responsible for observing, recording and reporting annulus liquid loss on a quarterly basis. An analysis of the injected fluid must be submitted on an annual basis. In addition, the applicant is required to conduct and pass a two-part Mechanical Integrity Test (MIT), in accordance with 40 CFR § 146.8, before authorization to inject is granted, and after the well is completed. The applicant is also required to repeat the annulus pressure test, which is the first part of the MIT, at least once every five (5) years thereafter. If a temperature or noise log or another method as approved by the Director is used to determine the second part of the MIT (i.e., the absence of fluid movement), then the applicant will be required to repeat this test at least once every five (5) years thereafter. These tests will provide USEPA with an evaluation of the integrity of the tubular goods (casing, tubing and packer) as well as documentation as to the absence or presence of fluid movement behind the casing.

Plugging and Abandonment: In accordance with 40 CFR §§ 146.10 and 146.24(d), the permit includes a plugging and abandonment plan for an environmentally protective well closure at the time of cessation of operations. Chevron Michigan, LLC has demonstrated adequate financial responsibilities to close, plug, and abandon this underground injection operation. A Letter of Credit in the amount of \$1,384,000 has been established for this purpose with U.S. Bank National Association.

Issuance and Effective Date of Permit: In accordance with 40 CFR § 124.15, the permit will become effective immediately upon issuance if no public comments were received that requested a change in the draft permit. However, in the event that public comments are received that requested a change in the draft permit then the permit will become effective thirty (30) days after the date of issuance unless the permit is appealed. In accordance with 40 CFR § 144.36(a), the permit will be in effect for the life of the facility, unless it is otherwise modified, revoked and reissued, or terminated as provided at 40 CFR §§ 144.39, 144.40 and 144.41. The permit will expire in one (1) year if the permittee fails to commence construction, unless a written request for an extension of this one (1) year period has been approved by the Director. The permit will be reviewed by the USEPA at least once every five (5) years from its effective date for consistency with new or revised Federal regulations.

Questions, comments and requests for additional information or for a public hearing may be submitted in writing to the contact person listed below or made verbally to Allan Batka at (312) 353-7316 or batka.allan@epa.gov via the internet. The public comment period on this permitting action will close thirty (30) days after the date of the public notice. If the USEPA receives written comments indicative of public interest that warrants a hearing on this action, a public notice of a scheduled hearing will be published locally and mailed to interested parties.

To preserve your right to appeal any final permit decision that may be made in this matter under 40 CFR Part 124, you must either participate in the public hearing or send in written comments on the draft permit decision. The first appeal must be made to the Environmental Appeals Board; only after all agency review procedures have been exhausted may you file an action in the appropriate Circuit Court of Appeals for review.

**U.S. Environmental Protection Agency
Region 5 (WU-16J)
77 West Jackson Boulevard
Chicago, Illinois 60604-3590**

**Attn: Lisa Perenchio, Chief
Direct Implementation Section**



**Lisa Perenchio, Chief
Direct Implementation Section**

B-5

**U. S. EPA Draft Underground Injection Control Permit: Class II,
Permit Number MI-009-2D-0217, Facility Name: Stratton #16-4,
dated May 24, 2012**



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

REPLY TO THE ATTENTION OF:
WU-16J

MAY 24 2012

CERTIFIED MAIL 7009 1680 0000 7644 2473
RETURN RECEIPT REQUESTED

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

RE: Draft Permit for the Stratton #16-4 Well in Antrim County; U. S. Environmental Protection Agency (EPA) Permit Number MI-009-2D-0217 ; Michigan Department of Environmental Quality (MDEQ) Permit # 60515

Dear Ms. Schrader:

In accordance with Federal Underground Injection Control Program permitting procedures, enclosed is a copy of the draft permit referenced above.

To preserve your right to appeal any final permit decision that may be made in this matter under Title 40 of the Code of Federal Regulations (40 C.F.R.) §124.19, you must either participate in a public hearing or send in written comments on these draft permits decision. Following such participation, the first appeal for review of any condition of the final permit decision must be made to the Environmental Appeals Board of the EPA. Such a petition must include a statement of the reasons supporting review of the decision, including a demonstration that the issue(s) being raised for review were raised during the public comment period (including any public hearing). The petition should, when appropriate, show that each condition being appealed is based on either, (1) a finding of fact or conclusion of law which is clearly erroneous, or (2) an exercise of discretion or an important policy demonstration which the Environmental Appeals Board should, in its discretion, review. If you wish to request an administrative review, you must submit such a request by **regular mail** to the EPA, Environmental Appeals Board, (MC 1103B), Ariel Rios Building, NW, Washington, D.C. 20460-0001. Requests sent by **express mail** or **hand delivered** must be sent to the USEPA, Environmental Appeals Board, Colorado Building, 1341 G. Street, NW, Suite 600, Washington, D.C. 20005. The request must arrive at the Board's office within 30 days of the receipt of the notice of decision. The request will be timely if received within this time period. For this request to be valid, it must conform to the requirements of 40 CFR §124.19.

According to 40 CFR §124.10(b), a public notice of the preparation of a draft permit shall allow at least a 30 day public comment period. At the end of the public comment period you will be

notified if any significant changes in the draft permit are required. If no changes are made, the final permit will be issued without prior notification.

If you have any questions, please contact Allan Batka of my staff by telephone at (312) 353-7316 or by email to batka.allan@epa.gov.

Sincerely yours,

Lisa Perenchio, Chief
Direct Implementation Section

enclosure

cc: Rick Henderson, Michigan Department of Environmental quality

AB 5/2/12
JAH
5/10/12

LP 5/11/12



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

Page 1 of 15

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY (USEPA)
UNDERGROUND INJECTION CONTROL PERMIT: CLASS II

Permit Number: MI-009-2D-0217

Facility Name: Stratton #16-4

Pursuant to the provisions of the Safe Drinking Water Act, as amended (42 U.S.C. 300f et seq., commonly known as the SDWA) and implementing regulations promulgated by the United States Environmental Protection Agency (USEPA) at Parts 124, 144, 146 and 147 of Title 40 of the Code of Federal Regulations (40 CFR),

Chevron Michigan, LLC of Traverse City, Michigan

is hereby authorized to drill and operate an injection well located in Michigan, Antrim County, T31N, R6W, Section 4, 1/4 Section SE, for injection into the Dundee Limestone at depths between 1343 and 1535 feet, upon the express condition that the permittee meet the restrictions set forth herein. Injection shall not commence until the operator has received authorization in accordance with Part I(E)(10) of this permit.

The purpose of the injection is limited to noncommercial brine disposal from production wells owned or operated by Chevron Michigan, LLC.

All references to Title 40 of the Code of Federal Regulations are to all regulations that are in effect on the date that this permit is effective.

This permit shall become effective on _____ and shall remain in full force and effect during the operating life of the well, unless this permit is otherwise revoked, terminated, modified or reissued pursuant to 40 CFR §§ 144.39, 144.40 and 144.41. This permit shall also remain in effect upon delegation of primary enforcement responsibility to the State of Michigan, unless that State chooses to adopt this permit as a State permit. The permit will expire in one (1) year if the permittee fails to commence construction, unless a written request for an extension of this one (1) year period has been approved by the Director. The permittee may request an expiration date sooner than the one (1) year period, provided no construction on the well has commenced. This permit will be reviewed at least every five (5) years from the effective date specified above.

Signed and dated: _____

DRAFT

Tinka G. Hyde
Director, Water Division

TABLE OF CONTENTS

PART I. GENERAL PERMIT COMPLIANCE 2

- A. EFFECT OF PERMIT 2**
- B. PERMIT ACTIONS 2**
- C. SEVERABILITY 2**
- D. CONFIDENTIALITY 2**
- E. DUTIES AND REQUIREMENTS 3**
 - 1. Duty to Comply 3*
 - 2. Penalties for Violations of Permit Conditions 3*
 - 3. Need to Halt or Reduce Activity not a Defense 3*
 - 4. Duty to Mitigate 3*
 - 5. Proper Operation and Maintenance 3*
 - 6. Duty to Provide Information 4*
 - 7. Inspection and Entry 4*
 - 8. Records 4*
 - 9. Notification Requirements 5*
 - 10. Commencing Injection 6*
 - 11. Signatory Requirements 7*
 - 12. Notice of Plugging and Abandonment 7*
 - 13. Plugging and Abandonment 7*
 - 14. Financial Responsibility 8*
 - 15. Insolvency 8*
 - 16. Corrective Action 8*
 - 17. Mechanical Integrity 9*
 - 18. Restriction on Injected Substances 10*

PART II. WELL SPECIFIC CONDITIONS FOR UNDERGROUND INJECTION CONTROL PERMITS 11

- A. CONSTRUCTION REQUIREMENTS 11**
 - 1. Siting 11*
 - 2. Casing and Cementing 11*
 - 3. Tubing and Packer Specifications 11*
 - 4. Wellhead Specifications 11*
 - 5. Logs and Tests 11*
 - 6. Formation Data 12*
 - 7. Prohibition of Unauthorized Injection 12*
- B. OPERATING, MONITORING AND REPORTING REQUIREMENTS 12**
 - 1. Operating Requirements 12*
 - 2. Monitoring Requirements 13*
 - 3. Reporting Requirements 13*

PART III. SPECIAL CONDITIONS 15

- A. OPERATING, MONITORING AND REPORTING REQUIREMENTS A1**
- B. PLUGGING AND ABANDONMENT PLAN B1**
- C. CORRECTIVE ACTION PLAN C1**

following information will be denied:

- (1) The name and address of the permittee; and,
- (2) Information which deals with the existence, absence or level of contaminants in drinking water.

E. DUTIES AND REQUIREMENTS

1. Duty to Comply

The permittee shall comply with all conditions of this permit, except to the extent and for the duration such non-compliance is authorized by an emergency permit pursuant to 40 CFR § 144.34. Any permit noncompliance constitutes a violation of the SDWA and is grounds for enforcement action, permit termination, revocation and reissuance or modification.

2. Penalties for Violations of Permit Conditions

Any person who operates this well in violation of permit conditions is subject to civil penalties, fines, and other enforcement action under the SDWA and may be subject to such actions under the Resource Conservation and Recovery Act. Any person who willfully violates a permit condition is subject to criminal prosecution.

3. Need to Halt or Reduce Activity not a Defense

It shall not be a defense for a permittee in an enforcement action to state that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

4. Duty to Mitigate

The permittee shall take all reasonable steps to minimize or correct any adverse impact on the environment resulting from noncompliance with this permit.

5. Proper Operation and Maintenance

The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar

systems only when necessary to achieve compliance with the conditions of the permit.

6. **Duty to Provide Information**

The permittee shall furnish to the Director, within thirty (30) days, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the Director, upon request, copies of records required by this permit to be retained.

7. **Inspection and Entry**

The permittee shall allow the Director, or an authorized representative, upon the presentation of credentials and other documents as may be required by law to:

- a. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this permit;
- b. Have access to and copy, at reasonable times, any records that must be retained under the conditions of this permit;
- c. Inspect, at reasonable times, any facilities, equipment (including monitoring equipment), practices, or operations, regulated or required under this permit; and
- d. Sample or monitor the injected fluids, at reasonable times, for the purposes of assuring permit compliance, or as otherwise authorized by the SDWA, at any location.

8. **Records**

- a. The permittee shall retain records of all monitoring information, including all calibration and maintenance records and copies of all records required by this permit, for a period of at least three (3) years from the date of the sample, measurement or report. The permittee shall also maintain records of all data required to complete this permit application and any supplemental information submitted under 40 CFR §§ 144.31 and 144.51. These periods may be extended by request of the Director at any time by written notice to the permittee.
- b. The permittee shall retain records concerning the nature and composition of all injected fluids until three (3) years after the completion of plugging and abandonment in accordance with the plugging and abandonment plan,

contained in Part III(B) of this permit. The owner or operator shall continue to retain the records after the three (3) year retention period unless he delivers the records to the Regional Administrator or obtains written approval from the Regional Administrator to discard the records.

- c. Records of monitoring information shall include:
- (i) The date, exact place, and the time of sampling or measurements;
 - (ii) The individual(s) who performed the sampling or measurements;
 - (iii) A precise description of both sampling methodology and the handling of samples;
 - (iv) The date(s) analyses were performed;
 - (v) The individual(s) who performed the analyses;
 - (vi) The analytical techniques or methods used; and,
 - (vii) The results of such analyses.

9. **Notification Requirements**

- a. **Planned Changes** - The permittee shall notify and obtain the Director's approval at least thirty (30) days prior to any planned physical alterations or additions to the permitted facility, or changes in the injection fluids. Within ten (10) days prior to injection, an analysis of new injection fluids shall be submitted to the Director for approval in accordance with Parts II(B)(2) and II(B)(3) of this permit.
- b. **Anticipated Noncompliance** - The permittee shall give at least thirty (30) days advance notice to the Director for his/her approval of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.
- c. **Transfer of Permits** - This permit is not transferable to any person except after notice is sent to the Director at least thirty (30) days prior to transfer and the requirements of 40 CFR § 144.38 have been met. The Director may require modification or revocation of the permit to change the name of the permittee and incorporate such other requirements as may be necessary under the SDWA.
- d. **Compliance Schedules** - Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any

compliance schedule of this permit shall be submitted to the Director no later than thirty (30) days following each schedule date.

e. **Twenty-Four Hour Reporting**

(i) The permittee shall report to the Director any noncompliance which may endanger health or the environment. This information shall be provided orally within twenty-four (24) hours from the time the permittee becomes aware of the circumstances, and shall include the following information:

(a) Any monitoring or other information which indicates that any contaminant may cause an endangerment to an underground source of drinking water; or,

(b) Any noncompliance with a permit condition or malfunction of the injection system which may cause fluid migration into or between underground sources of drinking water.

(ii) A written submission shall also be provided as soon as possible but no later than five (5) days from the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance.

f. **Other Noncompliance** - All other instances of noncompliance shall also be reported by the permittee in accordance with Part I(E)(9)(e)(i) and (ii) of this permit.

g. **Other Information** - If or when the permittee becomes aware that the permittee failed to submit any relevant facts in the permit application, or submitted incorrect information in a permit application or in any report to the Director, the permittee shall promptly submit such facts or corrected information in accordance with 40 CFR § 144.51(l)(8).

h. **Report on Permit Review** - Within thirty (30) days of receipt of the final issued permit, the permittee shall report to the Director that the permittee has read and is personally familiar with all terms and conditions of this permit.

10. **Commencing Injection**

The permittee shall not commence injection into any newly drilled or converted well until:

- a. Formation data and injection fluid analysis have been submitted in accordance with Parts II(A)(6) and II(B)(2), respectively;
- b. A report on any logs and tests required under Parts II(A)(5) and III(D) of this permit has been submitted.
- c. Mechanical integrity of the well has been demonstrated in accordance with Part I(E)(17);
- d. Any required corrective action has been performed in accordance with Parts I(E)(16) and III(C); and,
- e. Construction is complete and the permittee has submitted to the Permit Writer, by certified mail with return receipt requested, a notice of completion of construction using EPA Form 7520-10 and either:
 - (i) The Director has inspected or otherwise reviewed the new injection well and finds it is in compliance with the conditions of the permit; or,
 - (ii) The permittee has not received, within thirteen (13) days of the date of the Director's receipt of the report required above, notice from the Director of his or her intent to inspect or otherwise review the new injection well, in which case prior inspection or review is waived and the permittee may commence injection.

11. **Signatory Requirements**

All reports or other information requested by the Director shall be signed and certified according to 40 CFR § 144.32.

12. **Notice of Plugging and Abandonment**

The permittee shall notify the Director at least forty-five (45) days before conversion or abandonment of the well.

13. **Plugging and Abandonment**

The permittee shall plug and abandon the well as provided in the plugging and abandonment plan contained in Part III(B) of this permit. Plugging shall occur as soon as practicable after operation ceases but not later than two (2) years thereafter. During the period of non-operation, the well must be tested to ensure

that it maintains mechanical integrity, unless the permittee fulfills the other requirements under 40 CFR § 144.52(a)(6), prior to expiration of the two (2) year period. The permittee shall notify the Director of plugging and abandonment in accordance with the reporting procedures in Part I(E)(12) of this permit.

14. **Financial Responsibility**

The permittee shall maintain financial responsibility and resources to plug and abandon the underground injection well in accordance with 40 CFR § 144.52(a)(7) as provided in Attachment R of the administrative record corresponding to this permit action which is hereby incorporated by reference as if it appeared fully set forth herein. The permittee shall not substitute an alternative demonstration of financial responsibility from that which the Director has approved, unless the permittee has previously submitted evidence of that alternative demonstration to the Director and the Director has notified the permittee in writing that the alternative demonstration of financial responsibility is acceptable. The financial responsibility mechanism shall be updated periodically, upon request of the Director, except when Financial Statement Coverage is used as the financial mechanism, this coverage must be updated on an annual basis.

15. **Insolvency**

- a. In the event of the bankruptcy of the trustee or issuing institution of the financial mechanism, or a suspension or revocation of the authority of the trustee institution to act as trustee or the institution issuing the financial mechanism to issue such an instrument, the permittee must submit an alternative demonstration of financial responsibility acceptable to the Director within sixty (60) days after such event. Failure to do so will result in the termination of this permit pursuant to 40 CFR § 144.40(a)(1).
- b. An owner or operator must also notify the Director by certified mail of the commencement of voluntary or involuntary proceedings under Title 11 (Bankruptcy), U.S. Code, naming the owner or operator as debtor, within ten (10) business days after the commencement of the proceeding. A guarantor of a corporate guarantee must make such a notification if he/she is named as debtor, as required under the terms of the guarantee.

16. **Corrective Action**

The permittee shall shut in the injection well whenever he/she or the USEPA determines that operation thereof may be causing upward fluid migration through the well bore of any improperly plugged or unplugged well in the area of review and shall take such steps as he/she can to properly plug the offending well(s). Any operation of the well which may cause upward fluid migration from an improperly plugged or unplugged well will be considered a violation of this

permit. If the permittee or the USEPA determines that the permitted well is not in compliance with 40 CFR § 146.8, the permittee will immediately shut in the well until such time as appropriate repairs can be effected and written approval to resume injection is given by the Director. In addition, the permittee shall not commence injection until any and all corrective action has been taken in accordance with any plan contained in Part III(C) of this permit and the requirements in Part I(E)(10) of this permit have been met.

17. **Mechanical Integrity**

- a. The permittee must establish (prior to receiving authorization to inject), and shall maintain mechanical integrity of this well, in accordance with 40 CFR § 146.8.
- b. A demonstration of mechanical integrity, in accordance with 40 CFR § 146.8, shall be performed at least every five (5) years from the date of the last approved demonstration. The permittee shall notify the Director of his/her intent to demonstrate mechanical integrity at least thirty (30) days prior to such demonstration.
- c. The permittee shall demonstrate the mechanical integrity of the well by pressure testing whenever:
 - (i) the tubing is removed from the well or replaced;
 - (ii) the packer is reset; or,
 - (iii) a loss of mechanical integrity occurs. Operation shall cease whenever one of the aforementioned conditions occurs and not resume until the Director gives approval to recommence injection.
- d. The Director may, by written notice, require the permittee to demonstrate mechanical integrity at any time.
- e. The permittee shall cause all gauges used in mechanical integrity demonstrations to be calibrated prior to the demonstration.
- f. The permittee shall cease injection if a loss of mechanical integrity occurs or is discovered during a test, or a loss of mechanical integrity as defined by 40 CFR § 146.8 becomes evident during operation. Operations shall not be resumed until the Director gives approval to recommence injection.
- g. The permittee shall notify the Director of the loss of mechanical integrity, in accordance with the reporting procedures in Parts II(B)(3)(d) and I(E)(9)(e) of this permit.

- h. The permittee shall report the result of a satisfactory mechanical integrity demonstration as provided in Part II(B)(3)(d) of this permit, except the first such result after Permit issuance, which shall be sent to the Permit Writer.

18. **Restriction on Injected Substances**

The permittee shall be restricted to the injection of fluids brought to the surface in connection with conventional oil or natural gas production or those fluids used in the enhancement of oil and gas production as specified in 40 CFR § 146.5(b). Further, no fluids other than those from sources noted in the administrative record for this permit and approved by the Director shall be injected.

PART II**WELL SPECIFIC CONDITIONS FOR UNDERGROUND INJECTION CONTROL PERMITS****A. CONSTRUCTION REQUIREMENTS****1. Siting**

Notwithstanding any other provision of this permit, the injection well shall inject only into a formation which is separated from any USDW by a confining zone that is free of known open faults or fractures within the area of the review.

2. Casing and Cementing

Injection wells shall be cased and cemented to prevent the movement of fluids into or between underground sources of drinking water. The casing and cement to be used in the construction of the well shall be as contained in Attachments L and M of the administrative record corresponding to this permit action which is hereby incorporated by reference as if they appeared fully set forth herein.

3. Tubing and Packer Specifications

Injection shall only take place through tubing with a packer set in the long string casing within or below the nearest cemented and impermeable confining system immediately above the injection zone. Tubing and packer specifications shall be as represented in engineering drawings contained in Attachments L and M of the administrative record corresponding to this permit action which are hereby incorporated by reference as if they appeared fully set forth herein. Any proposed changes shall be submitted by the permittee in accordance with Part I(E)(9)(a) and (b) of this permit.

4. Wellhead Specifications

For every injection well, the operator shall provide a female fitting, with a cutoff valve, to the tubing at the wellhead, so that the amount of injection pressure being used may be measured by a representative of the USEPA by attaching a gauge having a male fitting.

5. Logs and Tests

Upon approval of the surface casing and cementation records by the Director, any logs and tests noted in Part III of this permit shall be performed, unless already provided. Prior to commencement of injection, the permittee shall submit a descriptive report prepared by a knowledgeable log analyst interpreting the results

of those logs and tests to the Director for approval along with the notice of completion required in Part I(E)(10) of this permit.

6. **Formation Data**

If not already provided, the permittee shall determine or calculate the following information concerning the injection formation and submit it to the Director for review and approval, prior to operation:

- a. Formation fluid pressure;
- b. Fracture pressure; and,
- c. Physical and chemical characteristics of the formation.

7. **Prohibition of Unauthorized Injection**

Any underground injection, except as authorized by permit or rule issued under the UIC program, is prohibited. The construction, including drilling, of any well required to have a permit is prohibited until the permit has been issued.

B. OPERATING, MONITORING AND REPORTING REQUIREMENTS

1. **Operating Requirements**

- a. Beginning on the effective date of this permit, the permittee is authorized to operate the injection well, subject to the limitations and monitoring requirements set forth herein. The injection pressure and injected fluid shall be limited and monitored as specified in Parts I(E)(18) and III(A) of this permit.
- b. Injection at a pressure which initiates fractures in the confining zone or causes the movement of injection or formation fluids into or between underground sources of drinking water is prohibited.
- c. Injection between the outermost casing protecting underground sources of drinking water and the well bore is prohibited.
- d. The annulus between the tubing and the long string casing shall be filled with a liquid designed to inhibit corrosion. The annulus liquid will be monitored in accordance with Parts II(B)(2)(d) and II(B)(3)(b) of this permit. Any specific annulus requirements are contained in Part III(A) of this permit.

2. **Monitoring Requirements**

- a. Samples and measurements, taken for the purpose of monitoring as required in Part II(B)(3), shall be representative of the monitored activity. Grab samples shall be used to obtain a representative sample of the fluid to be analyzed. Part III(A) of this permit describes the sampling location and required parameters for injection fluid analysis. The permittee shall identify the types of tests and methods used to generate the monitoring data. The monitoring program shall conform to the one described in Part III(A) of this permit.
- b. **Analytical Methods** - Monitoring of the nature of injected fluids shall comply with applicable analytical methods cited and described in Table I of 40 CFR § 136.3 or in Appendix III of 40 CFR Part 261 or by other methods that have been approved by the Director.
- c. **Injection Fluid Analysis** - The nature of the injection fluids shall be monitored as specified in Part III(A) of this permit. An initial analysis of the injection fluid is contained in Attachment H of the administrative record corresponding to this permit action which is hereby incorporated by reference as if it appeared fully set forth herein. The Director may, by written notice require the permittee to sample and analyze the injected fluid at any time.
- d. **Injection Pressure, Annulus Pressure, Annulus Liquid Loss, Flow Rate and Cumulative Volume** - Injection pressure, annulus pressure, flow rate and cumulative volume shall be recorded at least weekly and shall be reported monthly as specified in Part III(A) of this permit. Annulus liquid loss shall be recorded at least quarterly and shall be reported in accordance with the provisions of Part II(B)(3)(b), as the volume of liquid added to the annulus to keep it filled in accordance with Part II(B)(1)(d). All gauges used in monitoring shall be calibrated in accordance with Part I(E)(17)(e) of this permit.

3. **Reporting Requirements**

Copies of the monitoring results and all other reports shall be submitted to the Director at the following address:

**U.S. Environmental Protection Agency
Region 5
77 West Jackson Boulevard
Chicago, Illinois 60604-3590
Attn: UIC Branch, Direct Implementation (WU-16J)**

- a. **Monthly Reports** - Monitoring results obtained during each week shall be recorded on a form which has been signed and certified according to 40 CFR § 144.32. The first report shall be postmarked no later than the 10th day of the month after authorization to inject has been granted. Thereafter, forms shall be submitted at the end of each month and shall be postmarked no later than the 10th day of the month following the reporting period. This report shall include the weekly measurements of injection pressure, annulus pressure, flow rate and cumulative volume as required in Parts II(B)(2)(d) and III(A) of this permit.
- b. **Quarterly Reports** - Monitoring results obtained each quarter shall include the measurement of annulus liquid loss as required in Parts II(B)(2)(d) and III(A) of this permit. Reports shall be submitted at the end of each quarter and shall be postmarked no later than the 10th day of the first month of the following quarter.
- c. **Annual Reports** - Monitoring results obtained each year shall include the measurements of injected fluid characteristics as required in Part III(A) of this permit. Reports shall be submitted at the end of each anniversary year and shall be postmarked no later than the 10th day of the first month of the following year.
- d. **Reports on Well Tests, Workovers, and Plugging and Abandonment** - The applicant shall provide the Director with the following reports and test results within sixty (60) days of completion of the activity:
- (i) Mechanical integrity tests, except tests which the well fails in which case twenty-four (24) hour reporting under Part I(9)(e) is applicable;
 - (ii) Logging or other test data;
 - (iii) Well workovers (using EPA Form 7520-12); and
 - (iv) Plugging and abandonment.

PART III

SPECIAL CONDITIONS

These special conditions include, but are not limited to plans for maintaining correct operating procedures, monitoring conditions and reporting, as required by 40 CFR Parts 144 and 146.

These plans are described in detail in the permittee's application for a permit, and the permittee is required to adhere to these plans as approved by the Director, as follows:

- A. OPERATING, MONITORING AND REPORTING REQUIREMENTS (ATTACHED)
- B. PLUGGING AND ABANDONMENT PLAN (ATTACHED)
- C. CORRECTIVE ACTION PLAN (ATTACHED)

OPERATING, MONITORING AND REPORTING REQUIREMENTS

Characteristic	Limitation	Minimum Monitoring Requirements		Minimum Reporting Requirements
		Freq.	Type	Freq.
*Injection Pressure	446 psig (maximum)	weekly		monthly
Annulus Pressure		weekly		monthly
Flow Rate		weekly		monthly
Cumulative Volume		weekly		monthly
Annulus Liquid Loss		quarterly		quarterly
**Chemical Composition of Injection Fluid		annually	grab	annually

SAMPLING LOCATION: The sample location is at the well head.

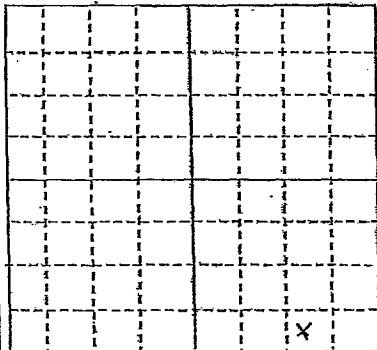
*The limitation on wellhead pressure serves to prevent confining-formation fracturing. This limitation was calculated using the following formula: $[(0.8 \text{ psi/ft} - (0.433 \text{ psi/ft})(\text{specific gravity})) \times \text{depth}] - 14.7 \text{ psi}$. The maximum injection pressure is dependent upon depth and specific gravity of the injected fluid. The Dundee Limestone at 1343 feet was used as the depth and a specific gravity of 1.055 was used for the injected fluid.

**Chemical composition analysis shall include, but not be limited to, the following: Sodium, Calcium, Magnesium, Barium, Total Iron, Chloride, Sulfate, Carbonate, Bicarbonate, Sulfide, Total Dissolved Solids, pH, Resistivity (ohm-meters @ 75°F), and Specific Gravity.

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

PLUGGING AND ABANDONMENT PLAN

WELL NAME & NUMBER, FIELD NAME, LEASE NAME & NUMBER Stratton 16-4 SWD	NAME, ADDRESS, & PHONE NUMBER OF OWNER / OPERATOR 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 <div style="text-align: center;"> N </div> 	STATE MI	COUNTY Antrim	STATE PERMIT NUMBER 60515
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) <u>SOUTH</u> Line of Quarter Section And 687 ft. From (E/W) <u>EAST</u> Line of Quarter Section			
TYPE OF AUTHORIZATION <input checked="" type="checkbox"/> Individual Permit <input type="checkbox"/> Rule <input type="checkbox"/> Area Permit Number of Wells in Area Permit : US EPA Permit Number : MI-009-2D-0217		WELL ACTIVITY <input type="checkbox"/> Class I <input type="checkbox"/> Hazardous <input type="checkbox"/> Nonhazardous <input checked="" type="checkbox"/> Class II <input checked="" type="checkbox"/> Brine Disposal <input type="checkbox"/> Hydrocarbon Storage <input type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Class III <input type="checkbox"/> Class IV	

CASING/TUBING/CEMENT RECORD AFTER PLUGGING AND ABANDONMENT							METHOD OF EMPLACEMENT OF CEMENT PLUGS.
Size	Wd (Inch) 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	-	<input checked="" type="checkbox"/> Balance Method <input type="checkbox"/> Dump Bailer Method <input type="checkbox"/> Two Plug Method <input type="checkbox"/> Other
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	

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	1300					
Sacks of Cement to be Used		6	153					
Slurry Volume to be Used (cu. Ft.)		7	180					
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. Spot 153 sks of cement to surface. Cut csg 4' below ground level. Weld plate on sub. Restore location.

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 Michael Link, Technical Team Lead, Engineering	SIGNATURE 	DATE SIGNED 04/06/12
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ORIGINAL WELL CONSTRUCTION DURING OPERATION				PLUGGING AND ABANDONMENT CONSTRUCTION			
Stratton 16-4 SWD				Stratton 16-4 SWD			
Surface				Surface			
Top of cement surface				Top Plug Interval 0 - 1300'			
150 sks Type 1			Surface Casing 245'	*USDW Base Plug Interval n/a			Surface Casing 245'
Top of cement n/a			USDW Base 1301'	*Intermediate Cut/Rip Point Plug Interval n/a to n/a			USDW Base 1301'
			Intermediate Csg. n/a	*Middle Plug Interval n/a to n/a			*Intermediate Csg. n/a
Top of Cement Surf			Packer Depth 1335	*Long String Cut/Rip Point Plug Interval n/a to n/a			*Long String Csg Cut/Rip Depth n/a
40 sks Lite 240 sks Type 1			Long String Csg. 1350	Bottom Plug Depth 1300 - 1350			Long String Csg. 1350
Perforations None			*Depth 1535	*Mechanical Plug Depth n/a			Depth 1535
Hole Size 4 3/4"							
		1535				1350	
** Add Any Additional Information				** Add Any Additional Information			
* May not Apply				* 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			

CORRECTIVE ACTION PLAN

No corrective action is required at this time.

B-6

**Petitioner's Public Comment on Proposed Chevron Michigan, LLC,
Class II Injection Well Draft Permit #MI-009-2D-0217,
T31N, R6W, Section 4, ¼ Section SE, Antrim County, Michigan,
submitted by Norma Petrie, dated June 4, 2012**

RECEIVED

June 4, 2012

U.S. Environmental Protection Agency
DI Section (Attn: Lisa Perenchio)
77 West Jackson Boulevard, (WU-16J)
Chicago, IL 60604-3590

JUN 07 2012

UIC BRANCH
EPA REGION 5

Dear Ms. Perenchio;

Last week I received a notice that the EPA plans to issue an injection well permit on property adjacent to mine. This is in Jordan Township, Antrim County, Michigan, and the USEPA Draft Permit # is MI-009-2D-0217. I live in the Jordan Valley, which includes the Jordan River watershed. The headwaters of the Jordan River is nearby, and the Jordan River flows into Lake Charlevoix and hence to Lake Michigan. As you may know, the Jordan River is in the Jordan Valley Management Area, where gas and oil exploration is prohibited. My property has springs and a pond, and in fact the pond is within a few dozen feet of the proposed injection well. What is the distance permitted from water wells to the injection site? We have measured the distance from our home well to the proposed site at less than 400 feet using GPS technology.

I am writing in objection to the proposed injection well due to the possible endangerment of the health and safety of residents. Although I understand the need for disposal of waste from gas drilling, I believe that it is irresponsible of the EPA to issue a permit in an area of such significance in the production of our most precious resource—water. Personally, I am concerned that the health of my children and grandchildren could be compromised by disposal so close to my home and water supply. The scientific evidence regarding deep well injection is inconclusive. Is there a possibility this type of brine disposal may be linked to seismic activity? Is there a history of leakage from wells constructed in this manner? If there is a leak, what is the chance of natural radiation seepage? What chemicals besides those listed for testing might be present in the brine? Overall, we do not know what effect global warming may have on water levels in the Great Lakes and consequently on the movement of the underground water supply in Michigan.

In addition, I am worried about the noise and traffic level that such an activity may produce. How will the waste be transported and what is the timeframe of the entire process? The small highway that serves this location, M-32, is hilly and winding and known as a dangerous stretch of road due to limited visibility. My own property is a Michigan Historical Site, and includes the original log cabin, built in 1887, and the gravesite of two pioneers. It is a unique property.

I request that the EPA reject this permit on the grounds that issuing it would constitute negligence in protecting the health and safety of my family, my home, my neighbors, as well as the vulnerable Jordan River Valley watershed.

Sincerely,



Norma Petrie
5169 St. Johns Road
East Jordan, MI 49727
231-536-0891

Cc: USDA, Antrim County Health Department, Michigan Department of Environmental Quality
Addendum

RECEIVED

JUN 07 2012

UIC BRANCH
EPA, REGION 5

Addendum

June 4, 2012

U.S. Environmental Protection Agency
DI Section (Attn: Lisa Perenchio)
77 West Jackson Boulevard, (WU-16J)
Chicago, IL 60604-3590

Re: USEPA Draft Permit # MI-009-2D-0217

I am requesting that Chevron be ordered to test my own well before, during, and periodically after drilling so that my family is assured the water can safely be consumed, and that my natural water source is protected during drilling. I am also requesting that Chevron be ordered to plant substantial foliage at the edge of my property which would act as a sound and environmental barrier and would be aesthetically appealing.

Norma Petrie
5169 St. Johns Road
East Jordan, MI 49727
231-536--0891



Re: USEPA draft permit #MI-009-2D-0217 
Allan Batka to: petrie

06/06/2012 06:50 AM

Dear Ms. Petrie:

Thank you for your comments on the Draft Permit for the Stratton #16-4 proposed injection well (USEPA #MI-009-2D-0217). Following our procedures for responding to public comments on a draft Class II permit, the U.S. Environmental Protection Agency will generate a written response to your comments within a few weeks after the close of the public comment period for this draft permit. This response will be sent to you at the address listed in your e-mail message.

Thank you
Allan Batka, Engineer
Underground Injection Control Branch

petrie	June 4, 2012	06/04/2012 10:44:39 AM
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From: petrie@freeway.net
To: Allan Batka/R5/USEPA/US@EPA
Date: 06/04/2012 10:44 AM
Subject: USEPA draft permit #MI-009-2D-0217

June 4, 2012

Environmental Protection Agency

DI Section (Attn: Lisa Perenchio)

77 West Jackson Boulevard

, (WU-16J)

Chicago, IL 60604-3590

Dear Ms. Perenchio;

Last week I received a notice that the EPA plans to issue an injection well permit on property adjacent to mine. This is in the Jordan Township , Antrim County, Michigan , and the USEPA Draft Permit # is

MI-009-2D-0217. I live in the Jordan Valley , which includes the Jordan River watershed. The headwaters of the Jordan River is nearby, and the Jordan River flows into Lake Charlevoix and hence to Lake Michigan . As you may know the Jordan River is in the Jordan Valley Management Area, where gas and oil exploration is prohibited. My property has springs and a pond, and in fact the pond is within a few dozen feet of the proposed injection well. We have measured the distance from our home well to the proposed injection site at less than 400 feet using GPS technology. In this area small creeks and springs flow underground and rise to the surface here and there to water the animals and keep the vegetation lush.

I am writing in objection to the proposed injection well due to the possible endangerment of the health and safety of residents, both human and animal. Although I understand the need for disposal of waste from gas drilling, I believe that it is irresponsible of the EPA to issue a permit in an area of such significance in the production of our most precious resource—water. Personally, I am concerned that the health of my children and grandchildren could be compromised by drilling so close to my home and water supply. The scientific evidence supporting underground drilling is not certain. There is a possibility such drilling may be linked to seismic activity. With the advent of global warming, there are increasing questions about the affect on water levels in the Great Lakes and consequently the underground water supply in Michigan .

In addition, we are worried about the noise and traffic level that such an activity may produce.

The small highway, M-32, that serves this location is hilly and winding and known as a dangerous stretch of road due to limited visibility. My own property is a Michigan Historical Site, and includes the original log cabin, built in 1887, and the gravesite of two pioneers. It is a unique and the clamor of drilling will inevitably have a negative impact.

I request that the EPA reject this permit on the grounds that issuing it would constitute negligence in protecting the health and safety of my family, my home, my neighbors, and the irreplaceable, vulnerable, beautiful, and sancrosanct Jordan River Valley watershed—source of all life.

Sincerely,

Norma Petrie

5169 St. Johns Road

East Jordan , MI 49727

231-536-0891

Addendum

Cc: USDA, Antrim County Health Department, Michigan Department of Environmental Quality

B-7

**U.S. EPA Underground Injection Control Permit:
Class II, Permit Number MI-009-2D-0217,
Facility Name: Stratton #16-4,
dated August 20, 2012**



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

Page 1 of 15

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY (USEPA)
UNDERGROUND INJECTION CONTROL PERMIT: CLASS II

Permit Number: MI-009-2D-0217

Facility Name: Stratton #16-4

Pursuant to the provisions of the Safe Drinking Water Act, as amended (42 U.S.C. 300f et seq., commonly known as the SDWA) and implementing regulations promulgated by the United States Environmental Protection Agency (USEPA) at Parts 124, 144, 146 and 147 of Title 40 of the Code of Federal Regulations (40 CFR),

Chevron Michigan, LLC of Traverse City, Michigan

is hereby authorized to drill and operate an injection well located in Michigan, Antrim County, T31N, R6W, Section 4, 1/4 Section SE, for injection into the Dundee Limestone at depths between 1343 and 1535 feet, upon the express condition that the permittee meet the restrictions set forth herein. Injection shall not commence until the operator has received authorization in accordance with Part I(E)(10) of this permit.

The purpose of the injection is limited to noncommercial brine disposal from production wells owned or operated by Chevron Michigan, LLC.

All references to Title 40 of the Code of Federal Regulations are to all regulations that are in effect on the date that this permit is effective.

This permit shall become effective on SEP 20 2012 and shall remain in full force and effect during the operating life of the well, unless this permit is otherwise revoked, terminated, modified or reissued pursuant to 40 CFR §§ 144.39, 144.40 and 144.41. This permit shall also remain in effect upon delegation of primary enforcement responsibility to the State of Michigan, unless that State chooses to adopt this permit as a State permit. The permit will expire in one (1) year if the permittee fails to commence construction, unless a written request for an extension of this one (1) year period has been approved by the Director. The permittee may request an expiration date sooner than the one (1) year period, provided no construction on the well has commenced. This permit will be reviewed at least every five (5) years from the effective date specified above.

Signed and dated: August 20, 2012

Tinka G. Hyde
For

Tinka G. Hyde
Director, Water Division

TABLE OF CONTENTS

PART I. GENERAL PERMIT COMPLIANCE	2
A. EFFECT OF PERMIT.....	2
B. PERMIT ACTIONS	2
C. SEVERABILITY	2
D. CONFIDENTIALITY	2
E. DUTIES AND REQUIREMENTS	3
1. <i>Duty to Comply</i>	<i>3</i>
2. <i>Penalties for Violations of Permit Conditions.....</i>	<i>3</i>
3. <i>Need to Halt or Reduce Activity not a Defense.....</i>	<i>3</i>
4. <i>Duty to Mitigate</i>	<i>3</i>
5. <i>Proper Operation and Maintenance</i>	<i>3</i>
6. <i>Duty to Provide Information</i>	<i>4</i>
7. <i>Inspection and Entry</i>	<i>4</i>
8. <i>Records.....</i>	<i>4</i>
9. <i>Notification Requirements.....</i>	<i>5</i>
10. <i>Commencing Injection</i>	<i>6</i>
11. <i>Signatory Requirements</i>	<i>7</i>
12. <i>Notice of Plugging and Abandonment.....</i>	<i>7</i>
13. <i>Plugging and Abandonment</i>	<i>7</i>
14. <i>Financial Responsibility.....</i>	<i>8</i>
15. <i>Insolvency.....</i>	<i>8</i>
16. <i>Corrective Action</i>	<i>8</i>
17. <i>Mechanical Integrity.....</i>	<i>9</i>
18. <i>Restriction on Injected Substances</i>	<i>10</i>
PART II. WELL SPECIFIC CONDITIONS FOR UNDERGROUND INJECTION CONTROL PERMITS.....	11
A. CONSTRUCTION REQUIREMENTS.....	11
1. <i>Siting</i>	<i>11</i>
2. <i>Casing and Cementing</i>	<i>11</i>
3. <i>Tubing and Packer Specifications</i>	<i>11</i>
4. <i>Wellhead Specifications.....</i>	<i>11</i>
5. <i>Logs and Tests.....</i>	<i>11</i>
6. <i>Formation Data</i>	<i>12</i>
7. <i>Prohibition of Unauthorized Injection</i>	<i>12</i>
B. OPERATING, MONITORING AND REPORTING REQUIREMENTS	12
1. <i>Operating Requirements.....</i>	<i>12</i>
2. <i>Monitoring Requirements</i>	<i>13</i>
3. <i>Reporting Requirements.....</i>	<i>13</i>
PART III. SPECIAL CONDITIONS.....	15
A. OPERATING, MONITORING AND REPORTING REQUIREMENTS	A1
B. PLUGGING AND ABANDONMENT PLAN	B1
C. CORRECTIVE ACTION PLAN.....	C1

PART I**GENERAL PERMIT COMPLIANCE****A. EFFECT OF PERMIT**

The permittee is allowed to engage in underground injection in accordance with the conditions of this permit. The underground injection activity, otherwise authorized by this permit or rule, shall not allow the movement of fluid containing any contaminant into underground sources of drinking water, if the presence of that contaminant may cause a violation of any Primary Drinking Water Regulation pursuant to 40 CFR Part 142 or may otherwise adversely affect the health of persons. Any underground injection activity not specifically authorized in this permit or otherwise authorized by permit or rule is prohibited. Issuance of this permit does not convey property rights of any sort or any exclusive privilege; nor does it authorize any injury to persons or property, any invasion of other private rights, or any infringement of State or local law or regulations. Compliance with the terms of this permit does not constitute a defense to any action brought under Section 1431 of the Safe Drinking Water Act (SDWA), or any other law governing protection of public health or the environment.

B. PERMIT ACTIONS

This permit may be modified, revoked and reissued, or terminated for cause as specified in 40 CFR §§ 144.39, 144.40, and 144.41. The filing of a request for a permit modification, revocation and reissuance, termination, or the notification of planned changes or anticipated noncompliance on the part of the permittee does not stay the applicability or enforceability of any permit condition.

C. SEVERABILITY

The provisions of this permit are severable, and if any provision of this permit or the application of any provision of this permit to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of this permit shall not be affected thereby.

D. CONFIDENTIALITY

In accordance with 40 CFR Part 2 and § 144.5, any information submitted to the USEPA pursuant to this permit may be claimed as confidential by the submitter. Any such claim must be asserted at the time of submission by stamping the words "confidential business information" on each page containing such information. If no claim is made at the time of submission, USEPA may make the information available to the public without further notice. If a claim is asserted, the validity of the claim will be assessed in accordance with the procedures in 40 CFR Part 2 (Public Information). Claims of confidentiality for the

following information will be denied:

- (1) The name and address of the permittee; and,
- (2) Information which deals with the existence, absence or level of contaminants in drinking water.

E. DUTIES AND REQUIREMENTS

1. Duty to Comply

The permittee shall comply with all conditions of this permit, except to the extent and for the duration such non-compliance is authorized by an emergency permit pursuant to 40 CFR § 144.34. Any permit noncompliance constitutes a violation of the SDWA and is grounds for enforcement action, permit termination, revocation and reissuance or modification.

2. Penalties for Violations of Permit Conditions

Any person who operates this well in violation of permit conditions is subject to civil penalties, fines, and other enforcement action under the SDWA and may be subject to such actions under the Resource Conservation and Recovery Act. Any person who willfully violates a permit condition is subject to criminal prosecution.

3. Need to Halt or Reduce Activity not a Defense

It shall not be a defense for a permittee in an enforcement action to state that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

4. Duty to Mitigate

The permittee shall take all reasonable steps to minimize or correct any adverse impact on the environment resulting from noncompliance with this permit.

5. Proper Operation and Maintenance

The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar

systems only when necessary to achieve compliance with the conditions of the permit.

6. **Duty to Provide Information**

The permittee shall furnish to the Director, within thirty (30) days, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the Director, upon request, copies of records required by this permit to be retained.

7. **Inspection and Entry**

The permittee shall allow the Director, or an authorized representative, upon the presentation of credentials and other documents as may be required by law to:

- a. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this permit;
- b. Have access to and copy, at reasonable times, any records that must be retained under the conditions of this permit;
- c. Inspect, at reasonable times, any facilities, equipment (including monitoring equipment), practices, or operations, regulated or required under this permit; and
- d. Sample or monitor the injected fluids, at reasonable times, for the purposes of assuring permit compliance, or as otherwise authorized by the SDWA, at any location.

8. **Records**

- a. The permittee shall retain records of all monitoring information, including all calibration and maintenance records and copies of all records required by this permit, for a period of at least three (3) years from the date of the sample, measurement or report. The permittee shall also maintain records of all data required to complete this permit application and any supplemental information submitted under 40 CFR §§ 144.31 and 144.51. These periods may be extended by request of the Director at any time by written notice to the permittee.
- b. The permittee shall retain records concerning the nature and composition of all injected fluids until three (3) years after the completion of plugging and abandonment in accordance with the plugging and abandonment plan,

contained in Part III(B) of this permit. The owner or operator shall continue to retain the records after the three (3) year retention period unless he delivers the records to the Regional Administrator or obtains written approval from the Regional Administrator to discard the records.

- c. Records of monitoring information shall include:
- (i) The date, exact place, and the time of sampling or measurements;
 - (ii) The individual(s) who performed the sampling or measurements;
 - (iii) A precise description of both sampling methodology and the handling of samples;
 - (iv) The date(s) analyses were performed;
 - (v) The individual(s) who performed the analyses;
 - (vi) The analytical techniques or methods used; and,
 - (vii) The results of such analyses.

9. **Notification Requirements**

- a. **Planned Changes** - The permittee shall notify and obtain the Director's approval at least thirty (30) days prior to any planned physical alterations or additions to the permitted facility, or changes in the injection fluids. Within ten (10) days prior to injection, an analysis of new injection fluids shall be submitted to the Director for approval in accordance with Parts II(B)(2) and II(B)(3) of this permit.
- b. **Anticipated Noncompliance** - The permittee shall give at least thirty (30) days advance notice to the Director for his/her approval of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.
- c. **Transfer of Permits** - This permit is not transferable to any person except after notice is sent to the Director at least thirty (30) days prior to transfer and the requirements of 40 CFR § 144.38 have been met. The Director may require modification or revocation of the permit to change the name of the permittee and incorporate such other requirements as may be necessary under the SDWA.
- d. **Compliance Schedules** - Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any

compliance schedule of this permit shall be submitted to the Director no later than thirty (30) days following each schedule date.

e. **Twenty-Four Hour Reporting**

(i) The permittee shall report to the Director any noncompliance which may endanger health or the environment. This information shall be provided orally within twenty-four (24) hours from the time the permittee becomes aware of the circumstances, and shall include the following information:

(a) Any monitoring or other information which indicates that any contaminant may cause an endangerment to an underground source of drinking water; or,

(b) Any noncompliance with a permit condition or malfunction of the injection system which may cause fluid migration into or between underground sources of drinking water.

(ii) A written submission shall also be provided as soon as possible but no later than five (5) days from the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance.

f. **Other Noncompliance** - All other instances of noncompliance shall also be reported by the permittee in accordance with Part I(E)(9)(e)(i) and (ii) of this permit.

g. **Other Information** - If or when the permittee becomes aware that the permittee failed to submit any relevant facts in the permit application, or submitted incorrect information in a permit application or in any report to the Director, the permittee shall promptly submit such facts or corrected information in accordance with 40 CFR § 144.51(l)(8).

h. **Report on Permit Review** - Within thirty (30) days of receipt of the final issued permit, the permittee shall report to the Director that the permittee has read and is personally familiar with all terms and conditions of this permit.

10. **Commencing Injection**

The permittee shall not commence injection into any newly drilled or converted well until:

- a. Formation data and injection fluid analysis have been submitted in accordance with Parts II(A)(6) and II(B)(2), respectively;
- b. A report on any logs and tests required under Parts II(A)(5) and III(D) of this permit has been submitted.
- c. Mechanical integrity of the well has been demonstrated in accordance with Part I(E)(17);
- d. Any required corrective action has been performed in accordance with Parts I(E)(16) and III(C); and,
- e. Construction is complete and the permittee has submitted to the Permit Writer, by certified mail with return receipt requested, a notice of completion of construction using EPA Form 7520-10 and either:
 - (i) The Director has inspected or otherwise reviewed the new injection well and finds it is in compliance with the conditions of the permit; or,
 - (ii) The permittee has not received, within thirteen (13) days of the date of the Director's receipt of the report required above, notice from the Director of his or her intent to inspect or otherwise review the new injection well, in which case prior inspection or review is waived and the permittee may commence injection.

11. **Signatory Requirements**

All reports or other information requested by the Director shall be signed and certified according to 40 CFR § 144.32.

12. **Notice of Plugging and Abandonment**

The permittee shall notify the Director at least forty-five (45) days before conversion or abandonment of the well.

13. **Plugging and Abandonment**

The permittee shall plug and abandon the well as provided in the plugging and abandonment plan contained in Part III(B) of this permit. Plugging shall occur as soon as practicable after operation ceases but not later than two (2) years thereafter. During the period of non-operation, the well must be tested to ensure

that it maintains mechanical integrity, unless the permittee fulfills the other requirements under 40 CFR § 144.52(a)(6), prior to expiration of the two (2) year period. The permittee shall notify the Director of plugging and abandonment in accordance with the reporting procedures in Part I(E)(12) of this permit.

14. **Financial Responsibility**

The permittee shall maintain financial responsibility and resources to plug and abandon the underground injection well in accordance with 40 CFR § 144.52(a)(7) as provided in Attachment R of the administrative record corresponding to this permit action which is hereby incorporated by reference as if it appeared fully set forth herein. The permittee shall not substitute an alternative demonstration of financial responsibility from that which the Director has approved, unless the permittee has previously submitted evidence of that alternative demonstration to the Director and the Director has notified the permittee in writing that the alternative demonstration of financial responsibility is acceptable. The financial responsibility mechanism shall be updated periodically, upon request of the Director, except when Financial Statement Coverage is used as the financial mechanism, this coverage must be updated on an annual basis.

15. **Insolvency**

- a. In the event of the bankruptcy of the trustee or issuing institution of the financial mechanism, or a suspension or revocation of the authority of the trustee institution to act as trustee or the institution issuing the financial mechanism to issue such an instrument, the permittee must submit an alternative demonstration of financial responsibility acceptable to the Director within sixty (60) days after such event. Failure to do so will result in the termination of this permit pursuant to 40 CFR § 144.40(a)(1).
- b. An owner or operator must also notify the Director by certified mail of the commencement of voluntary or involuntary proceedings under Title 11 (Bankruptcy), U.S. Code, naming the owner or operator as debtor, within ten (10) business days after the commencement of the proceeding. A guarantor of a corporate guarantee must make such a notification if he/she is named as debtor, as required under the terms of the guarantee.

16. **Corrective Action**

The permittee shall shut in the injection well whenever he/she or the USEPA determines that operation thereof may be causing upward fluid migration through the well bore of any improperly plugged or unplugged well in the area of review and shall take such steps as he/she can to properly plug the offending well(s). Any operation of the well which may cause upward fluid migration from an improperly plugged or unplugged well will be considered a violation of this

permit. If the permittee or the USEPA determines that the permitted well is not in compliance with 40 CFR § 146.8, the permittee will immediately shut in the well until such time as appropriate repairs can be effected and written approval to resume injection is given by the Director. In addition, the permittee shall not commence injection until any and all corrective action has been taken in accordance with any plan contained in Part III(C) of this permit and the requirements in Part I(E)(10) of this permit have been met.

17. **Mechanical Integrity**

- a. The permittee must establish (prior to receiving authorization to inject), and shall maintain mechanical integrity of this well, in accordance with 40 CFR § 146.8.
- b. A demonstration of mechanical integrity, in accordance with 40 CFR § 146.8, shall be performed at least every five (5) years from the date of the last approved demonstration. The permittee shall notify the Director of his/her intent to demonstrate mechanical integrity at least thirty (30) days prior to such demonstration.
- c. The permittee shall demonstrate the mechanical integrity of the well by pressure testing whenever:
 - (i) the tubing is removed from the well or replaced;
 - (ii) the packer is reset; or,
 - (iii) a loss of mechanical integrity occurs. Operation shall cease whenever one of the aforementioned conditions occurs and not resume until the Director gives approval to recommence injection.
- d. The Director may, by written notice, require the permittee to demonstrate mechanical integrity at any time.
- e. The permittee shall cause all gauges used in mechanical integrity demonstrations to be calibrated prior to the demonstration.
- f. The permittee shall cease injection if a loss of mechanical integrity occurs or is discovered during a test, or a loss of mechanical integrity as defined by 40 CFR § 146.8 becomes evident during operation. Operations shall not be resumed until the Director gives approval to recommence injection.
- g. The permittee shall notify the Director of the loss of mechanical integrity, in accordance with the reporting procedures in Parts II(B)(3)(d) and I(E)(9)(e) of this permit.

- h. The permittee shall report the result of a satisfactory mechanical integrity demonstration as provided in Part II(B)(3)(d) of this permit, except the first such result after Permit issuance, which shall be sent to the Permit Writer.

18. **Restriction on Injected Substances**

The permittee shall be restricted to the injection of fluids brought to the surface in connection with conventional oil or natural gas production or those fluids used in the enhancement of oil and gas production as specified in 40 CFR § 146.5(b). Further, no fluids other than those from sources noted in the administrative record for this permit and approved by the Director shall be injected.

PART II**WELL SPECIFIC CONDITIONS FOR UNDERGROUND INJECTION CONTROL PERMITS****A. CONSTRUCTION REQUIREMENTS****1. Siting**

Notwithstanding any other provision of this permit, the injection well shall inject only into a formation which is separated from any USDW by a confining zone that is free of known open faults or fractures within the area of the review.

2. Casing and Cementing

Injection wells shall be cased and cemented to prevent the movement of fluids into or between underground sources of drinking water. The casing and cement to be used in the construction of the well shall be as contained in Attachments L and M of the administrative record corresponding to this permit action which is hereby incorporated by reference as if they appeared fully set forth herein.

3. Tubing and Packer Specifications

Injection shall only take place through tubing with a packer set in the long string casing within or below the nearest cemented and impermeable confining system immediately above the injection zone. Tubing and packer specifications shall be as represented in engineering drawings contained in Attachments L and M of the administrative record corresponding to this permit action which are hereby incorporated by reference as if they appeared fully set forth herein. Any proposed changes shall be submitted by the permittee in accordance with Part I(E)(9)(a) and (b) of this permit.

4. Wellhead Specifications

For every injection well, the operator shall provide a female fitting, with a cutoff valve, to the tubing at the wellhead, so that the amount of injection pressure being used may be measured by a representative of the USEPA by attaching a gauge having a male fitting.

5. Logs and Tests

Upon approval of the surface casing and cementation records by the Director, any logs and tests noted in Part III of this permit shall be performed, unless already provided. Prior to commencement of injection, the permittee shall submit a descriptive report prepared by a knowledgeable log analyst interpreting the results

of those logs and tests to the Director for approval along with the notice of completion required in Part I(E)(10) of this permit.

6. **Formation Data**

If not already provided, the permittee shall determine or calculate the following information concerning the injection formation and submit it to the Director for review and approval, prior to operation:

- a. Formation fluid pressure;
- b. Fracture pressure; and,
- c. Physical and chemical characteristics of the formation.

7. **Prohibition of Unauthorized Injection**

Any underground injection, except as authorized by permit or rule issued under the UIC program, is prohibited. The construction, including drilling, of any well required to have a permit is prohibited until the permit has been issued.

B. OPERATING, MONITORING AND REPORTING REQUIREMENTS

1. **Operating Requirements**

- a. Beginning on the effective date of this permit, the permittee is authorized to operate the injection well, subject to the limitations and monitoring requirements set forth herein. The injection pressure and injected fluid shall be limited and monitored as specified in Parts I(E)(18) and III(A) of this permit.
- b. Injection at a pressure which initiates fractures in the confining zone or causes the movement of injection or formation fluids into or between underground sources of drinking water is prohibited.
- c. Injection between the outermost casing protecting underground sources of drinking water and the well bore is prohibited.
- d. The annulus between the tubing and the long string casing shall be filled with a liquid designed to inhibit corrosion. The annulus liquid will be monitored in accordance with Parts II(B)(2)(d) and II(B)(3)(b) of this permit. Any specific annulus requirements are contained in Part III(A) of this permit.

2. **Monitoring Requirements**

- a. Samples and measurements, taken for the purpose of monitoring as required in Part II(B)(3), shall be representative of the monitored activity. Grab samples shall be used to obtain a representative sample of the fluid to be analyzed. Part III(A) of this permit describes the sampling location and required parameters for injection fluid analysis. The permittee shall identify the types of tests and methods used to generate the monitoring data. The monitoring program shall conform to the one described in Part III(A) of this permit.
- b. **Analytical Methods** - Monitoring of the nature of injected fluids shall comply with applicable analytical methods cited and described in Table I of 40 CFR § 136.3 or in Appendix III of 40 CFR Part 261 or by other methods that have been approved by the Director.
- c. **Injection Fluid Analysis** - The nature of the injection fluids shall be monitored as specified in Part III(A) of this permit. An initial analysis of the injection fluid is contained in Attachment H of the administrative record corresponding to this permit action which is hereby incorporated by reference as if it appeared fully set forth herein. The Director may, by written notice require the permittee to sample and analyze the injected fluid at any time.
- d. **Injection Pressure, Annulus Pressure, Annulus Liquid Loss, Flow Rate and Cumulative Volume** - Injection pressure, annulus pressure, flow rate and cumulative volume shall be recorded at least weekly and shall be reported monthly as specified in Part III(A) of this permit. Annulus liquid loss shall be recorded at least quarterly and shall be reported in accordance with the provisions of Part II(B)(3)(b), as the volume of liquid added to the annulus to keep it filled in accordance with Part II(B)(1)(d). All gauges used in monitoring shall be calibrated in accordance with Part I(E)(17)(e) of this permit.

3. **Reporting Requirements**

Copies of the monitoring results and all other reports shall be submitted to the Director at the following address:

**U.S. Environmental Protection Agency
Region 5
77 West Jackson Boulevard
Chicago, Illinois 60604-3590
Attn: UIC Branch, Direct Implementation (WU-16J)**

- a. **Monthly Reports** - Monitoring results obtained during each week shall be recorded on a form which has been signed and certified according to 40 CFR § 144.32. The first report shall be postmarked no later than the 10th day of the month after authorization to inject has been granted. Thereafter, forms shall be submitted at the end of each month and shall be postmarked no later than the 10th day of the month following the reporting period. This report shall include the weekly measurements of injection pressure, annulus pressure, flow rate and cumulative volume as required in Parts II(B)(2)(d) and III(A) of this permit.
- b. **Quarterly Reports** - Monitoring results obtained each quarter shall include the measurement of annulus liquid loss as required in Parts II(B)(2)(d) and III(A) of this permit. Reports shall be submitted at the end of each quarter and shall be postmarked no later than the 10th day of the first month of the following quarter.
- c. **Annual Reports** - Monitoring results obtained each year shall include the measurements of injected fluid characteristics as required in Part III(A) of this permit. Reports shall be submitted at the end of each anniversary year and shall be postmarked no later than the 10th day of the first month of the following year.
- d. **Reports on Well Tests, Workovers, and Plugging and Abandonment** - The applicant shall provide the Director with the following reports and test results within sixty (60) days of completion of the activity:
 - (i) Mechanical integrity tests, except tests which the well fails in which case twenty-four (24) hour reporting under Part I(9)(e) is applicable;
 - (ii) Logging or other test data;
 - (iii) Well workovers (using EPA Form 7520-12); and
 - (iv) Plugging and abandonment.

PART III**SPECIAL CONDITIONS**

These special conditions include, but are not limited to plans for maintaining correct operating procedures, monitoring conditions and reporting, as required by 40 CFR Parts 144 and 146. These plans are described in detail in the permittee's application for a permit, and the permittee is required to adhere to these plans as approved by the Director, as follows:

- A. OPERATING, MONITORING AND REPORTING REQUIREMENTS (ATTACHED)
- B. PLUGGING AND ABANDONMENT PLAN (ATTACHED)
- C. CORRECTIVE ACTION PLAN (ATTACHED)

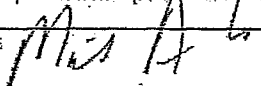
OPERATING, MONITORING AND REPORTING REQUIREMENTS

Characteristic	Limitation	Minimum Monitoring Requirements		Minimum Reporting Requirements
		Freq.	Type	Freq
*Injection Pressure	446 psig (maximum)	weekly		monthly
Annulus Pressure		weekly		monthly
Flow Rate		weekly		monthly
Cumulative Volume		weekly		monthly
Annulus Liquid Loss		quarterly		quarterly
**Chemical Composition of Injection Fluid		annually	grab	annually

SAMPLING LOCATION: The sample location is at the well head.

*The limitation on wellhead pressure serves to prevent confining-formation fracturing. This limitation was calculated using the following formula: $[(0.8 \text{ psi/ft} - (0.433 \text{ psi/ft})(\text{specific gravity})) \times \text{depth}] - 14.7 \text{ psi}$. The maximum injection pressure is dependent upon depth and specific gravity of the injected fluid. The Dundee Limestone at 1343 feet was used as the depth and a specific gravity of 1.055 was used for the injected fluid.

**Chemical composition analysis shall include, but not be limited to, the following: Sodium, Calcium, Magnesium, Barium, Total Iron, Chloride, Sulfate, Carbonate, Bicarbonate, Sulfide, Total Dissolved Solids, pH, Resistivity (ohm-meters @ 75°F), and Specific Gravity.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY WASHINGTON, D.C. 20460										
PLUGGING AND ABANDONMENT PLAN										
WELL NAME & NUMBER, FIELD NAME, LEASE NAME & NUMBER Stratton 16-4 SWD					NAME, ADDRESS, & PHONE NUMBER OF OWNER / OPERATOR 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 <div style="text-align: center;">N</div>		STATE MI	COUNTY Antrim	STATE PERMIT NUMBER 60515						
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 <u>465</u> ft. From (N/S) <u>SOUTH</u> Line of Quarter Section And <u>687</u> ft. From (E/W) <u>EAST</u> Line of Quarter Section										
TYPE OF AUTHORIZATION <input checked="" type="checkbox"/> Individual Permit <input type="checkbox"/> Rule <input type="checkbox"/> Area Permit Number of Wells in Area Permit : US EPA Permit Number : MI-009-2D-0217					WELL ACTIVITY <input type="checkbox"/> Class I <input type="checkbox"/> Hazardous <input type="checkbox"/> Nonhazardous <input checked="" type="checkbox"/> Class II <input checked="" type="checkbox"/> Brine Disposal <input type="checkbox"/> Hydrocarbon Storage <input type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Class III <input type="checkbox"/> Class IV					
CASING/TUBING/CEMENT RECORD AFTER PLUGGING AND ABANDONMENT							METHOD OF EMPLACEMENT OF CEMENT PLUGS.			
Size	W (in) TBS/CSG	Original Amount (CSG)	CSG to be Left in Well	Hole Size	Sacks Cement Used	Type	<input checked="" type="checkbox"/> Balance Method	<input type="checkbox"/> Dump Bailer Method	<input type="checkbox"/> Two Plug Method	<input type="checkbox"/> Other
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				
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	1300						
Sacks of Cement to be Used			6	153						
Slurry Volume to be Used (cu. Ft.)			7	180						
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. Spot 153 sks of cement to surface. Cut csg 4' below ground level. Weld plate on sub. Restore location.										
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 Michael Link, Technical Team Lead, Engineering				SIGNATURE 				DATE SIGNED 04/06/12		

ORIGINAL WELL CONSTRUCTION DURING OPERATION				PLUGGING AND ABANDONMENT CONSTRUCTION			
Stratton 16-4 SWD				Stratton 16-4 SWD			
Surface				Surface			
Top of cement surface				Top Plug Interval 0 - 1300'			
150 sks Type 1							
			Surface Casing 245				Surface Casing 245
			USDW Base 1301'	*USDW Base Plug Interval n/a			USDW Base 1301'
Top of cement n/a				*Intermediate Cut/Rip Point Plug Interval n/a to n/a			*Intermediate Cut/Rip Depth NA
			Intermediate Csg. n/a				*Intermediate Csg. n/a
				*Middle Plug Interval n/a to n/a			
Top of Cement Surf				*Long String Cut/Rip Point Plug Interval n/a to n/a			*Long String Csg Cut/Rip Depth n/a
40 sks Lite			Packer Depth 1335				
240 sks Type 1				Bottom Plug Depth 1300 - 1350			Long String Csg. 1350
Perforations None			Long String Csg. 1350	*Mechanical Plug Depth n/a			
Hole Size 4 3/4"			* Depth 1535				Depth 1535
		1535				1535	
** Add Any Additional Information				** Add Any Additional Information			
* May not Apply				* 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

CORRECTIVE ACTION PLAN

No corrective action is required at this time.

B-8

**U.S. EPA, Region 5, Response to Comments
submitted by Norma Petrie, dated August 21, 2012**



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 5

77 WEST JACKSON BOULEVARD

CHICAGO, IL 60604-3590

AUG 2 1 2012

REPLY TO THE ATTENTION OF
WU-16J

CERTIFIED MAIL 7009 1680 0000 7674 5598
RETURN RECEIPT REQUESTED

Ms. Norma Petrie
5169 St. Johns Road
East Jordan, Michigan 49727

**Re: Public Comments on United States Environmental Protection Agency (USEPA)
Draft Permit #MI-009-2D-0217**

Dear Ms. Petrie:

Thank you for your comments on the draft permit referenced above. We appreciate you taking the time to express your concerns regarding the injection of water in the vicinity of your property.

The scope of the Federal Underground Injection Control (UIC) regulations is limited to the determination of the soundness of construction and operation of injection wells as they relate to the protection of all underground sources of drinking water (USDWs). A USDW is an aquifer or its portion which contains less than 10,000 mg/l of total dissolved solids.

In this case, the proposed well will be drilled to a depth of 1,535 feet below ground surface into the Dundee Limestone. The top of the injection zone is at 1,343 feet. The base of the lowermost USDW has been identified at a depth of 1,301 feet below ground surface and is separated from the top of the Dundee Limestone injection zone by approximately 42 feet of sedimentary rock strata. This rock strata consists of very low permeability rock and will prevent vertical migration of fluid. In addition, all well casing strings are adequately cemented to preclude the movement of fluids into and between USDWs due to injection operations.

As additional protection, injection will take place through tubing which is set within the steel casing. A packer will be set at the bottom of the tubing to seal off the space between the casing and tubing, which will be filled with a liquid mixture containing a corrosion inhibitor, and will allow the pressure in the space to be monitored. The pressure in the space between the tubing and casing (annulus) will be tested initially after the completion of the well to ensure that the well has mechanical integrity and monitored weekly thereafter to ensure that the well maintains mechanical integrity. Any loss of annulus fluid is monitored at least quarterly. If the well should fail a mechanical integrity demonstration, then the well will be shut down until corrective actions

have been taken and the well has been brought back into compliance. Any work performed on the well which requires the moving and/or removal of the tubing or packer must be followed by a mechanical integrity test before authorization to resume injection will be given. Under permit conditions, the injection pressure will be limited to ensure the safe operation of the well and monthly reports of pressure and flow rates must be submitted to our office for review. If, despite these safeguards, contamination of drinking water occurs, the operator is fully liable for providing alternate sources of drinking water. In addition, some operators may be willing to work with local residents to respond to problems.

One of your comments expressed concerns regarding the contamination of the surrounding drinking water wells and surface waters.

Underground injection wells are designed with multiple safeguards to prevent, minimize, and internally contain leaks within the well. Injection wells are constructed with multiple steel casings cemented into place. Injection takes place through tubing located at the center of the innermost steel casing. A device called a packer seals off the bottom of the tubing, and the space between the innermost steel casing and tubing (called the annulus) is filled with a fluid containing a corrosion inhibitor. To assure that no leaking occurs in the well, the pressure within the annulus space is tested after the well is completed and then re-tested periodically. If this test fails, the well is shut down immediately, and the cause of the leak is isolated and repaired. Once shut down, a successful pressure test must be demonstrated before EPA will allow the operator to resume well injection. Although small leaks can happen due to a loss of seal between the packer and the well casing, this does not mean that any fluid leaks out into the drinking water aquifer because the fluid will go into the injection zone. The injection well will be constructed and operated in such a manner so as to confine the injected fluids to the permitted interval and prevent the migration of any fluids into and between the Underground Source of Drinking Water (USDW). As a result, there should be no connection between the injection well and nearby drinking water wells or surface waters. An EPA permit for an injection well conveys permission to inject fluids based on EPA's finding that the construction and operation of the well is such that injection into the well is environmentally safe. In addition, surface spill prevention and remediation are regulated by the Michigan Department of Environmental Quality (MDEQ). The MDEQ also issues permits for underground injection wells within the State of Michigan. The Michigan administrative rules contain requirements regarding well site maintenance and clean-up. Chevron Michigan, LLC is fully responsible for ensuring the groundwater is protected from contamination due to injection. The EPA, under the Safe Drinking Water Act, and the Michigan Department of Environmental Quality, under Act 307, can require owners/operators to clean-up any contamination due to injection, and/or supply alternative drinking water sources.

You asked if there was a permitted distance between drinking water wells and injection wells.

The Federal Regulations for underground injection wells do not restrict the surface distance between an injection well and a drinking water well. Federal Regulations restrict the depth of the injection well to a depth deeper than the lowermost known USDW. This is to insure that the injected fluid does not migrate into the USDW. The drinking water wells in the area of the proposed injection well are drilled to an average depth of between 40 feet to 200 feet. The

proposed top of the injection zone for the proposed well is located at 1,343 feet below the ground surface. There will be approximately 1,000 feet of low permeability rock layers between the proposed injected fluid and the drinking water aquifer used in the area around the well. These rock layers prevent movement of the injected fluid into the local drinking water wells.

You asked if brine disposal through injection wells are linked to seismic activity.

Any seismic activity from disposal well injection would be caused by fracturing any of the rock formations surrounding the well. The draft permit for this well does not allow the fracturing of any rock formation. EPA has established the maximum permitted injection pressure for this well using the fracture gradient equation. This equation uses a conservative estimate for the fracture gradient and establishes a maximum injection pressure well below the pressure needed to fracture the rock formation in the confining and injection zones. The draft permit requires Chevron to monitor the injection pressure on a weekly basis and report to EPA on a monthly basis. Injection pressures above the permitted maximum injection pressure would be a violation of the conditions of the permit. Additional operating conditions contained in the draft permit prohibit the fracturing of the confining zone. Violation of any permit condition would subject Chevron Michigan, LLC to an enforcement action by EPA.

You asked if there is a history of fluid and/or radiation leakage from wells constructed in the manner proposed by Chevron Michigan, LLC.

The Safe Drinking Water Act was authorized in 1974 and gave EPA the authority to regulate underground injection for the protection of underground sources of drinking water through the regulation of construction and operation of injection wells. EPA regulations for the Underground Injection Control Program were promulgated in 1980 and insure the use of past and future industry standards for the construction and operation of injection wells that are protective of underground sources of drinking water. There have been no documented failures resulting in contamination of underground sources of drinking water since implementation of the UIC regulations.

You asked to identify all the chemicals present in the brine.

The Federal Regulations for Class 2 underground injection wells do not require analysis for all chemicals that may or may not be present in the brine proposed for injection. The permit application and subsequent draft permit allows for the injection of noncommercial brine from production wells owned and operated by Chevron Michigan, LLC. The brine produced by the Chevron production wells originates within oil and gas producing rock formations and has a chemical make-up very similar to the ground water existing at the depth of the proposed injection well. The chemicals contained in the brine that are critical to the injection operation are listed in Special Condition A, "Operating, Monitoring and Reporting Requirements" of the draft permit. The brine produced by the Chevron production wells has a relatively consistent chemical make-up. Also, Chevron is not authorized to inject fluids from any other sources. In order to confirm the chemical

make-up of the injected fluid, conditions of the draft permit allow EPA to require injection fluid sampling and analysis at any time. Once injected, the fluid will be confined to the permitted injection zone as described in the first two pages of this letter. Injection of fluid not consistent with the terms of the permit would constitute a violation of the conditions of the permit. Violations of any permit condition would be subject to an enforcement action by EPA.

One of your comments expressed concerns regarding increased noise and vehicle traffic in the area of the proposed injection well.

EPA regulations at 40 C.F.R. Parts 144 and 146 state the requirements and standards that a permit applicant must meet to have an underground injection control (UIC) permit application approved. These regulations deal primarily with the geologic siting, well engineering, operating, and monitoring standards for deep injection wells. Vehicle transportation and noise issues are not addressed by the UIC regulations and are outside the scope of the UIC permit process.

You requested that EPA order Chevron to monitor the water quality of your drinking water well and plant foliage at your property line to act as a barrier between the well site and your property.

EPA regulations at 40 C.F.R. Parts 144 and 146 state the requirements and standards that a permit applicant must meet to have a UIC permit application approved. These regulations deal primarily with the geologic siting, well engineering, operating, and monitoring standards for deep injection wells. There is no requirement for the permit applicant to test or monitor drinking water wells in the vicinity of the proposed injection well. EPA cannot compel the permit applicant to conduct testing or monitoring of local drinking water wells as part of the permit approval process for this proposed injection well. In addition, there are no requirements in the EPA regulations for the permit applicant to plant foliage as a barrier between the injection well and neighboring properties.

We are taking the opportunity in this letter to serve notice to you that we are proceeding with the issuance of the permit for the well referenced above. In accordance with 40 CFR Section 124.19, any person who filed comments on the draft permit or participated in the public hearing (if held) may petition the Environmental Appeals Board to review any condition of the final permit decision. Such a petition shall include a statement of the reasons supporting review of the decision, including a demonstration that the issue(s) being raised for review were raised during the public comment period (including the public hearing, if held) to the extent required by these regulations. The petition should, when appropriate, show that the permit condition(s) being appealed are based upon either, (1) a finding of fact or conclusion of law which is clearly erroneous, or (2) an exercise of discretion or an important policy consideration which the Environmental Appeals Board should, in its discretion, review. If you wish to request an administrative review, you must submit such a request by regular mail to the United States 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. Requests sent by express mail or hand-delivered must be sent to the United States Environmental

Protection Agency, Clerk of the Board, Environmental Appeals Board, Colorado Building, 1341 G Street, N.W., Suite 600, Washington D.C. 20005. The request must arrive at the Board's office within 30 days of the receipt of this notice of decision. The request will be timely if received within this time period. For this request to be valid, it must conform to the requirements of 40 CFR Section 124.19. A copy of these requirements is attached. This request for review must be made prior to seeking judicial review of any permit decision.

If you have any further questions or concerns, please feel free to contact Allan Batka of my staff at (312) 353-7316 or by e-mail at batka.allan@epa.gov.

Sincerely yours,

Lisa Perenchio, Chief
Direct Implementation Section

Enclosures

AB 8/10/12

LR 8/14/12

LP 8/15/12

MI-009-20-0217 BATHA

WA-165 (1/13)

SENDER: COMPLETE THIS SECTION

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- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Mr. Norma Petrie
5169 St. Johns Rd.
East Garden, WI
49727

A. Signature

X *Norma Petrie* Agent Addressee

B. Received by (Printed Name) *Norma Petrie* C. Date of Delivery *8-29-12*

D. Is delivery address different from item 1? Yes No
If YES, enter delivery address below:

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- Certified Mail Express Mail
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