

Oil and Gas Division

Mark F. Bohrer - Assistant Director

North Dakota Industrial Commission

Department of Mineral Resources

www.dmr.nd.gov/oilgas/

August 22, 2024

Echo Seismic USA, Inc.
Richard Habiak
President
4500 8A Street NE
Calgary, AB
T2E 4J7 Canada

RE: COTEAU 2-D PPV TEST LINES CT1, CT3
GEOPHYSICAL EXPLORATION PERMIT #97-0332
MERCER COUNTY
NON-EXPLOSIVE METHODS

Dear Mr. Habiak:

Be advised that your Geophysical Exploration permit is conditionally approved; effective for one year from August 22, 2024.

PERMIT STIPULATIONS:

- **Echo Seismic USA, Inc. must contact seismic inspector Tom Torstenson at (701) 290-1546 72 hours prior, to arrange a start-up meeting. Also, a copy of the entire permit is required for all contractors at the start up meeting.**
- **Echo Seismic USA, Inc. must contact Tom Torstenson at (701) 290-1546 24 hours prior to conducting any geophysical activities.**
- **Pursuant to NDAC 43-02-12-05 (DISTANCE RESTRICTION) Non-explosive exploration methods may not be conducted less than 300 feet from water wells, buildings, underground cisterns, pipelines, and flowing springs.**
- **In addition, pursuant to NDAC 43-02-12-06 (NOTIFICATION OF WORK PERFORMED), "The director is authorized to suspend operations of the entire geophysical project, or any portion thereof, if further activity will cause excessive damage to the surface of the land".**

Review the following conditions for your permit:

1. All variances for distance restrictions are to be furnished, and a pre-plot map displaying any source points that do not comply with the distance restriction rule must be supplied to the inspector.
2. The following information must be submitted within 30 days of the completion of the project by the Geophysical Company:

- a. Completion Report,
 - b. Completion Affidavit,
 - c. Post Plot Map. It must show all water wells, buildings, underground cisterns, pipelines, and flowing springs that fall within the program area and within one half mile of the perimeter of the program.
 - d. Must provide a GIS layer using NAD83 in an Esri shape file format and an Image file (.img) on a Flash Drive or email: ttorstenson@nd.gov with all source and receiver points,
3. The permit agent shall notify the operator of the land at least seven days before commencement of any geophysical exploration activity, unless waived by mutual agreement of both parties. The notice must include the approximate time schedule and the location of the planned activity.
 4. Information regarding the location of water wells, springs, etc.; refer to the following ND State Water Commission Mapservice website, at: <http://mapservice.swc.state.nd.us/>
 5. The entire permit can be viewed, as well as the status of various seismic projects in the state, at: <https://www.dmr.nd.gov/oilgas/seismic/seismicstats.asp>

Should you have any questions regarding this matter, feel free to contact our office.

Sincerely,



Todd L. Holweger
Permit Manager/Geophysical Supervisor

Received

AUG 21 2024

ND Oil & Gas
Division



GEOPHYSICAL EXPLORATION PERMIT - FORM GE 1

INDUSTRIAL COMMISSION OF NORTH DAKOTA
OIL AND GAS DIVISION
600 EAST BOULEVARD DEPT 405
BISMARCK, ND 58505-0840
SFN 51459 (03-2011)

1) a. Company Echo Seismic USA		Address 4833 Front Street, Unit B 435, Castle Rock, CO. 80104		
Contact Milt Tetzlaff		Telephone 403.216.5919	Fax 403.216.0989	
Surety Company Bank of North Dakota		Bond Amount \$50,000.00	Bond Number GEO 307	
2) a. Subcontractor(s)		Address		Telephone
b. Subcontractor(s)		Address		Telephone
3) Party Manager TBD		Address (local)		Telephone (local)
4) Project Name or Line Numbers Coteau 2D PPV Test Lines CT1, - CT3				
5) Exploration Method (Shot Hole, Non-Explosive, 2D, 3D, Other) Vibroseis (PPV Test) 200 stations per line with 50 foot source intervals - No Receivers Deployed.				
6) Distance Restrictions (Must check all that apply)				
<input checked="" type="checkbox"/> 300 feet - NonExplosive - Distance setbacks apply to water wells, buildings, underground cisterns, pipelines, and flowing springs.				
<input type="checkbox"/> 660 feet - Shot Hole - Distance setbacks apply to water wells, buildings, underground cisterns, pipelines, and flowing springs.				
7) Size of Hole 3-D	Amt of Charge	Depth	Source points per sq. mi.	No. of sq. mi.
Size of Hole 2-D	Amt of Charge	Depth	Source points per ln. mi. 105.6	No. of ln. mi. 3.79
8) Approximate Start Date August 20, 2024			Approximate Completion Date September 1, 2024	

THE COMMISSION MUST BE NOTIFIED AT LEAST 24 HOURS IN ADVANCE OF COMMENCEMENT OF GEOPHYSICAL OPERATIONS

9) Location of Proposed Project - County Mercer County "See attached Exhibit A"					
Section(s), Township(s) & Range(s)	Section 6, 7	T.	145	R.	87
	Section 1, 2, 11, 12, 13, 14, 23, 24	T.	145	R.	88
	Section	T.		R.	
	Section	T.		R.	
	Section	T.		R.	
	Section	T.		R.	

I hereby swear or affirm that the information provided is true, complete and correct as determined from all available records.			Date August 1, 2024
Signature 	Printed Name Bruce Fulker	Title Agent for Echo Seismic USA	
Email Address(es) bfulker@cougarlandservices.net			

(This space for State office use)		<p align="center">Permit Conditions</p> <p>* Permit in hand required at pre-program meeting with field inspector and be aware of all NDIC Rules and Regulations (i.e. distance restrictions).</p> <p>* See attached letter.</p>
Permit No. 97-0332	Approval Date 8/22/2024	
Approved by 	Title Mineral Resources Permit Manager	

*See Instructions On Reverse Side

Exhibit "A"

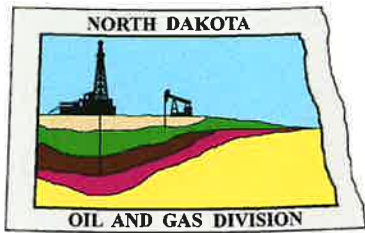
Geophysical Exploration Permit Form GE 1

Coteau 2D Peak Particle Velocity (PPV) Test

Echo Seismic USA

Township 145 N Range 87 West: Sections 6.7

Township 145 N Range 88 West: Sections: 1.2.11.12.13.14.23.24



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Mark F. Bohrer - Assistant Director

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August 22, 2024

The Honorable Carmen Reed
Mercer County Auditor
P.O. Box 39
Stanton, ND 58571-0039

RE: Geophysical Exploration
Permit Number 97-0332

Dear Ms. Reed:

Pursuant to Section 38-08.1-04.2 of the North Dakota Century Code, please be advised that the Echo Seismic USA, Inc. was issued the above captioned permit on August 22, 2024, and will remain in effect for a period of one year. The entire permit can be viewed on our website at: <https://www.dmr.nd.gov/oilgas/seismic/seismicstats.asp>

Should you have any questions, please contact our office.

Sincerely,

Todd L. Holweger

Permit Manager/Geophysical Supervisor

From: [Bruce Fulker](#)
To: [Holweger, Todd L.](#)
Subject: RE: Coteau 2D PPV Test
Date: Wednesday, August 21, 2024 2:22:56 PM
Attachments: [Coteau 2D Surface Map PPV Test Map.pdf](#)

***** **CAUTION:** This email originated from an outside source. Do not click links or open attachments unless you know they are safe. *****

Todd: As discussed I have updated the map removing CT2 and CT4.

The purpose of the PPV (Peak Particle Velocity) Test is to establish the ground movement in inches per second to understand safe offset distances for vibroseis source. In this case we have a lot of infrastructure that is eliminating a lot of area for sources so by establishing the ground movement we can provide this to the mine engineers and work on variances in offsets to close some of these gaps down to insure we get the best quality data while operating in a safe manner so as not to cause damage to pipelines etc.

Ground vibration is measured in terms of Peak Particle Velocity (PPV) with units in mm/s or mm/s-1. It should be noted that the PPV refers to **the movement within the ground of molecular particles and not surface movement**. The highest amplitude of ground motion among three mutually orthogonal components, measured by a triaxial [geophone](#) and is reported in inches per second (in/s).

Hopefully this helps.

Regards,

Bruce Fulker

President

Cougar Land Services, LLC

19901 Southwest Freeway | Suite 102 | Sugar Land, TX 77479

Office.: (281) 242-2244 | Cell: (713) 806-2024

Mailing Address

Cougar Land Services, LLC.

PO Box 17147

Sugar Land, TX 77496-7147

Email: bfulker@cougarlandservices.net

Web: www.cougarlandservices.net



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From: Bruce Fulker
Sent: Sunday, August 4, 2024 2:19 PM
To: Holweger, Todd L. <tholweger@nd.gov>
Subject: Coteau 2D PPV Test

Todd: Attached is the completed Form GE1 for the Coteau 2D PPV Test in Mercer County. The thick black lines along line CT1 and CT3 are the locations where the PPV test will take place. There will be 200 proposed vibrate locations on each line at 50 foot spacing. Obviously they will only vibrate outside buffer's etc. The line on CT1 will probably be offset some to the west to get away from the pipeline but that's to be determined when survey crews get there.

There are no receivers on this test. Technicians with PPV monitors will setup at random locations along these lines to record ground movement at distances from 50' to 500' away from the vibrate.

This test should only take 2-3 days to complete. The test is to establish safe offset distances in advance of coming back in October and reshooting the Coteau 2D again.

If you have any questions feel free to contact me anytime.
Regards,

Bruce Fulker

President

Cougar Land Services, LLC

**19901 Southwest Freeway | Suite 102 | Sugar Land, TX 77479
Office.: (281) 242-2244 | Cell: (713) 806-2024**

Mailing Address

***Cougar Land Services, LLC.
PO Box 17147
Sugar Land, TX 77496-7147***

Email: bfulker@cougarlandservices.net

Web: www.cougarlandservices.net



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North Dakota Industrial Commission Department of Mineral Resources Oil & Gas Division

FORM GE 1 FILING AUTHORIZATION

COMPANY NAME: Echo Seismic USA

ADDRESS: 4833 Front Street, Unit B 435,

CITY: Castle Rock STATE: CO ZIP: 80104

This form authorizes the person(s) listed below to submit a NDIC Geophysical Exploration Permit – Form GE 1 for approval on behalf of the designated company as listed above.

A new authorization will be required if any changes are to be made to the authorized individuals on the form.

The data submitted from the authorized individuals listed below have been checked and conform to the standards and procedures set forth by the NDIC Department of Mineral Resources.

The authorized individual(s) will ensure that the company, as listed above, and party manager receive a copy of the approved Form GE 1

<u>Authorized Individuals</u>	<u>Phone Number</u>	<u>E-Mail Address</u>
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Bruce Fulker	713.806.2024	bfulker@cougarlandservices.net
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Company Authorized Signature:  Date: 11/08/2021

Printed Name: Dan McArthur Title: Corp. VP

Phone: 403 540-1711 Email Address: mcarthurd@echo-group.net

Witness Signature:  Date: 11/08/2021

Witness Printed Name: Keith Wakelam