



PERMIT NO.:	<b>97-0049</b>
SHOT HOLE OPERATIONS:	<b>XX</b>

**SECTION 1**

GEOPHYSICAL CONTRACTOR:		<b>Quantum Geophysical, Inc.</b>	
PROJECT NAME AND NUMBER:	<b>Ice Caves</b>	COUNTY(S):	<b>Billings / McKenzie</b>
TOWNSHIP(S):	<b>T 144/145 North</b>	RANGE(S):	<b>R 100/101 West</b>
PERMITTED BY:			
<b>Quantum Geophysical, Inc.</b>			
DATE COMMENCED:	<b>June 01, 2000</b>	DATE COMPLETED:	<b>May 15, 2001</b>

**SECTION 2**

FIRST S.P. #:	<b>501181</b>	LAST S.P. #:	<b>629102</b>								
LOADED HOLES (UNDETONATED SHOT POINTS)											
S.P. #'s:	<b>553194</b>	<b>611139</b>	<b>609131</b>	<b>551146</b>	<b>595116</b>	<b>601113</b>	<b>589101</b>				
CHARGE SIZE::	<b>5#</b>	<b>5#</b>	<b>5#</b>	<b>5#</b>	<b>5#</b>	<b>5#</b>	<b>5#</b>				
DEPTH:	<b>80'</b>	<b>80'</b>	<b>80'</b>	<b>80'</b>	<b>80'</b>	<b>80'</b>	<b>80'</b>				
REASONS HOLES WERE NOT SHOT:											
<b>553194</b>			<b>609131</b>								
<b>611139</b>			<b>551146</b>								
<b>Bad Caps</b>			<b>595116</b>			<b>Could not find these holes in snow</b>					
			<b>601113</b>								
			<b>589101</b>			<b>**ALL HOLES WERE LOCATED AND SHOT</b>					

**SECTION 3**

**DURING SPRING CLEAN-UP\*\***

FLOWING HOLES
S.P.#'s
<b>None</b>
PROCEDURE FOR PLUGGING FLOWING HOLES:
<b>N/A</b>

Include a 7.5 minute USGS topographic quadrangle map or a computer generated post-plot facsimile of the approximate scale displaying each individual shot hole, SP #, line #, and legal location.

\*Non-Explosive Operations - Complete Section 1 and Affidavit.

### AFFIDAVIT OF COMPLETION (GEOPHYSICAL CONTRACTOR)

STATE OF ~~NORTH DAKOTA~~ TEXAS )

)

COUNTY OF Harris )

Before me, Kenny Fisher, a Notary Public in and for the said County and State, this day personally appeared Bruce Fulker who being first duly sworn, deposes and says that (s)he is employed by Quantum Geophysical, Inc., that (s)he has read North Dakota Century Code Section 38-08.1, that the foregoing seismic project has been completed in accordance with North Dakota Administrative Code Rule 43-02-12 and that the statements on the reverse side of this document are true.

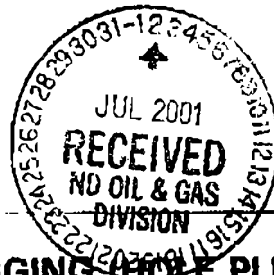
B. Fulker  
Geophysical Contractor Representative

Subscribed in my presence and sworn before me this 26 day of June 2001.

Notary Public Kenny Fisher



My Commission Expires FEB. 8<sup>TH</sup> 2003



**AFFIDAVIT OF PLUGGING (HOLE PLUGGER)**

STATE OF NORTH DAKOTA )

COUNTY OF Dawson )

Before me, Darrik Saeman, a Notary Public in and for the said County and State, this day personally appeared Carrie Ingeby who, being first duly sworn, deposes and says that (s)he is employed by Cochlear Drilling, that (s)he has read North Dakota Century Code Section 38-08.1 and that the foregoing seismic project has been plugged in accordance with North Dakota Administrative Code Rule 43-02-12 and that the statements on the attached documents are true.

Cochlear Drilling by Carrie Ingeby  
Hole Plugger Representative

Subscribed in my presence and sworn before me this 17 day of November, 2000.

Notary Public Darrik Saeman

My Commission Expires 05/13/02



**AFFIDAVIT OF PLUGGING (HOLE PLUGGER)**

Montana  
STATE OF NORTH DAKOTA )

COUNTY OF Richland )

Before me, Douglas A. Lang, a Notary Public in and for the said County and State, this day personally appeared Wayne SWANSON who being first duly sworn, deposes and says that (s)he is employed by SWANSON Drilling Inc, that (s)he has read North Dakota Century Code Section 38-08.1 and that the foregoing seismic project has been plugged in accordance with North Dakota Administrative Code Rule 43-02-12 and that the statements on the attached documents are true.

Wayne Swanson  
Hole Plugger Representative

Subscribed in my presence and sworn before me this 30<sup>th</sup> day of October, 2000.

Notary Public Douglas A. Lang

NOTARY PUBLIC for the State of Montana  
Residing at Sidney, Montana  
My Commission Expires April 19,

My Commission Expires 4-19-2003



**AFFIDAVIT OF PLUGGING (HOLE PLUGGING)**

Montana  
STATE OF NORTH DAKOTA )  
 )  
COUNTY OF Richland )

Before me, Douglas A Lang, a Notary Public in and for the said County and State, this day personally appeared Terry Williams who being first duly sworn, deposes and says that (s)he is employed by Wilderness Exploration, Inc, that (s)he has read North Dakota Century Code Section 38-08.1 and that the foregoing seismic project has been plugged in accordance with North Dakota Administrative Code Rule 43-02-12 and that the statements on the attached documents are true.

Terry Williams  
Hole Plugging Representative

Subscribed in my presence and sworn before me this 27<sup>th</sup> day of October, 2000.

Notary Public Douglas A Lang

My Commission Expires 4-19-2003

NOTARY PUBLIC for the State of Montana  
Residing at Sidney, Montana  
My Commission Expires April 19, 2003



Quantum Geophysical, Inc.  
a Subsidiary of Geokinetics Inc.

SEISMOGRAPH PERMIT

State of North Dakota  
LAND DEPARTMENT  
P.O. Box 5523  
Bismarck, N.D. 58506-5523  
Dear Sir or Madam: *ATTN: Ms. Barb Plum*

Prospect ICE CAUGS  
Permit No. 6

QUANTUM GEOPHYSICAL, INC. is requesting permission to cross property owned and/or leased by you in M<sup>E</sup> RENZIE (County/Parish) North Dakota (State), and is further described as follows:

DESCRIPTION OF PROPERTY: T145 N R100 W  
Section 36  
5 1/2 5 1/2 5 1/2 80 ACRES

PLEASE INDICATE YOUR OWNERSHIP OF THESE LANDS:

SURFACE OWNER North Dakota SURFACE TENANT/LESSEE 5 1/2  
MINERAL OWNER North Dakota MINERAL LESSEE Summit Resource Co. Ltd.  
CONDITIONS: 2400 144 4<sup>th</sup> Ave S.W.  
Calgary, Alberta Canada  
T2P 3N4  
1/2 M<sup>E</sup> Renzie Co. Grazing  
P.O. Box 572  
Watford, N.D. 58854  
TEL: (701) 842-3384  
5 1/2  
Ben & Eunice  
Christopherson  
P.O. Box 173  
GANSSY BUTTE, N.D.  
58634  
TEL: (701) 863-6788

Type of Survey - 3-D Shot Hole  
# of Holes - 6 516 charge per hole  
Payment of \$3.00 per acre 1/2 to go directly to surface  
we will notify surface lessors prior to entry. lessors.  
Permit is valid for 1 yr from date signed.

Our operations will be conducted in a prudent and careful manner. We will indemnify you from all claims and damages that might result from our work by virtue of your permission granted herein.

We would appreciate your signature on this agreement, indicating your consent and permission to enter on said acreage/minerals for this seismic survey

Approval Granted this \_\_\_\_\_ day of \_\_\_\_\_, 199\_\_

Social Security or Tax ID # \_\_\_\_\_

By \_\_\_\_\_

Address P.O. Box 5523  
Bismarck, N.D. 58506-5523

Telephone # (701) 328-2803

Permit Agent Michael Guden Telephone # Contact Bruce Fulkner

On any correspondence, please refer to the Prospect and Permit No. Our home office address is 8401 Westheimer, Suite 150  
Houston, Tx. 77063



Quantum Geophysical, Inc.

a Subsidiary of Geokinetics Inc.

SEISMOGRAPH PERMIT

State of North Dakota  
Land Department  
P.O. Box 5523  
Bismark, N.D. 58506-5523

Prospect ICE CAVES

Permit No. 6

Dear Sir or Madam: Attn: Ms. Barb Plum

QUANTUM GEOPHYSICAL, INC. is requesting permission to cross property owned and/or leased by you in Billings (County/Parish) North Dakota (State), and is further described as follows:

DESCRIPTION OF PROPERTY:

T144 N R100 W  
Section 16 all

PLEASE INDICATE YOUR OWNERSHIP OF THESE LANDS:

SURFACE OWNER North Dakota SURFACE TENANT/LESSEE

Madora Grazing Assoc.  
P.O. Box 108  
Madora, N.D. 58045  
Tel: (701) 623-4336

MINERAL OWNER North Dakota MINERAL LESSEE

Empire Oil Co.  
P.O. Box 1835  
Williston, N.D. 58802  
Tel: (701) 774-2845

CONDITIONS:

Type of Survey - 3-D shot Hole  
# of Holes - 72 516 charge per Hole  
Payment \$3.00 per Acre - 1/2 to go to SURFACE LESSEE  
WE WILL NOTIFY MADORA GRAZING ASSOC. PRIOR TO ENTRY.  
PERMIT IS VALID FOR 1 YR FROM DATE SIGNED

Our operations will be conducted in a prudent and careful manner. We will indemnify you from all claims and damages that might result from our work by virtue of your permission granted herein.

We would appreciate your signature on this agreement, indicating your consent and permission to enter on said acreage/minerals for this seismic survey.

Approval Granted this \_\_\_ day of \_\_\_, 199\_\_

Social Security or Tax ID # \_\_\_\_\_

By \_\_\_\_\_

Address P.O. Box 5523  
Bismark, N.D. 58506-5523

Telephone # (701) 328-2803

Post-it* Fax Note	7671	Date	6/13/00	# of pages	2
To	Dave Hurdon	From	Barb Plum		
Co./Dept	F.V.I.	Co	ND Land Dept		
Phone #		Phone #			
Fax #	0-8000	Fax #			

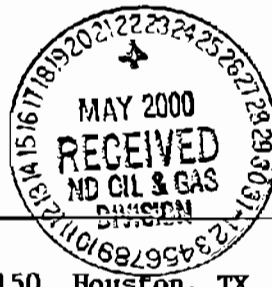
Permit Agent Michael Hurdon Telephone # Contact Bruce Fulkert

On any correspondence, please refer to the Prospect and Permit No. Our home office address is 5565 Glen Felipe, Suite 700, Houston, Texas 77056 (713) 850-9799

8401 Westheimer, Suite 150  
Houston, Tx. 77063



**GEOPHYSICAL EXPLORATION PERMIT**  
**INDUSTRIAL COMMISSION OF NORTH DAKOTA**  
**OIL AND GAS DIVISION**  
 SFN 51459 (11-97)



600 E BOULEVARD AVE  
 BISMARCK, ND 58505

1) a. Company: <b>Quantum Geophysical, Inc.</b>		Address: <b>8401 Westheimer Ste 150 Houston, TX 77063</b>	
Contact: <b>Bruce Fulker</b>		Telephone: <b>(713) 850-9799</b>	Fax: <b>(713) 850-7783</b>
Surety Company: <b>Bank of North Dakota</b>		Bond Amount: <b>\$50,000.00</b>	Bond Number: <b>GEO300</b>
2) a. Subcontractor(s): <b>Wilderness Exploration</b>		Address: <b>PO Box 91 Sidney, MT 59270</b>	
b. Subcontractor(s):		Address:	
c. Subcontractor(s):		Address:	
3) Party Manager: <b>Billy Flipppo</b>		Address: <b>8401 Westheimer Ste 150 Houston, Texas 77063</b>	
4) Project Name or Line Numbers: <b>Ice Caves</b>		Telephone: <b>(713) 824-6256</b>	
5) Exploration Method (Shot Hole, Non-Explosive, 2D, 3D): <b>3-D Shot Hole</b>			
6) Approximate Drilling Start Date: <b>July 15, 2000</b>		Approximate Completion Date: <b>August 15, 2000</b>	

**THE COMMISSION MUST BE NOTIFIED AT LEAST 24 HOURS IN ADVANCE OF COMMENCEMENT OF DRILL/PLUG OPERATIONS**

7) Location of Proposed Project - County <b>McKenzie / Billings</b>								
Section(s), Township(s) & Range(s)	Sec. 3,4,5,6,7,8,9,10 14,15,16,17,18,19,	T 144 North	R 100 West					
	Sec. 20,21,22,23,26,27	T 144 North	R 100 West					
	Sec. 28,29,30	T 144 North	R 100 west					
	Sec. 1,12,13 Sec. 33,34,35,36	144 North T 145 North	101 West R 100 West					
8) Size of Hole	Amt. of Charge	Depth	Shots per Mi.(sq.mi.)	No. of Mi. (sq. mi.)	Identifying Marks Used on Nonmetallic Plug			
3"	5 Lbs	40-60	77.4	18.57	Geophysical ID	a. Plugger ID	b. Plugger ID	c. Plugger ID
					QG			

9) Anticipated special drilling and plugging procedures? **ND Century Code Chapter 38-08-1**  
**All holes will be drilled & Plugged as 43-02-12-10 Revised Drilling & Plugging Requirements**

10) Enclose a pre-plot map with proposed location of seismic program lines and powder mag.

Signed: <i>BJ [Signature]</i>	Title: <b>Permit Supervisor</b>	Date: <b>5-15-00</b>
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(This space for State office use)

Permit No.: <b>97-0049</b>	Approval Date: <b>5/23/00</b>
Approved By: <i>[Signature]</i>	
Title: <i>Geophysical Regulatory Supervisor</i>	
County Approval Sent: <i>McKenzie/Billings Co. 5/24/00</i>	

Conditions of Approval if any:  
*Identify surface plugs w/ #49 and contractor stamp, notify surface owner, county & state field representatives Kim Martin c 227-7436 prior to drilling. All variances must be furnished upon request. 5/23/00*  
*[Signature]*

\*See Instructions On Reverse Side



NORTH DAKOTA INDUSTRIAL COMMISSION

**OIL AND GAS DIVISION**

Lynn D. Helms  
DIRECTOR

<http://explorer.ndic.state.nd.us>

Bruce E. Hicks  
ASSISTANT DIRECTOR

May 24, 2000

Bruce Fulker  
Quantum Geophysical Inc.  
8401 Westheimer, Ste. 150  
Houston, TX 77063

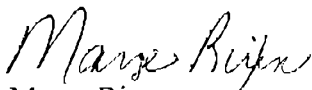
**RE: GEOPHYSICAL EXPLORATION PERMIT NO. 97-0049  
ICE CAVES**

Dear Mr. Fulker:

This letter will verify the approval of the above-captioned Geophysical Permit effective May 22, 2000.

Please feel free to contact Mr. David Hvinden, Geophysical Regulation Supervisor if you should have any questions.

Sincerely,



Marge Rixen  
Legal Assistant

/mr

NORTH DAKOTA INDUSTRIAL COMMISSION

OIL AND GAS DIVISION

Lynn D. Helms  
DIRECTOR

<http://explorer.ndic.state.nd.us>

Bruce E. Hicks  
ASSISTANT DIRECTOR

The Honorable Frances M. Olson  
McKenzie County Auditor  
P.O. Box 543  
Watford City, ND 58854

May 22, 2000

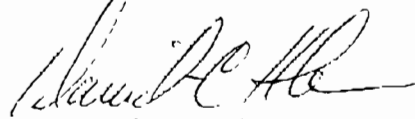
RE: Geophysical Exploration  
Permit # 97-0049

Dear Ms. Olson:

Pursuant to Section 38-08.1-04.2 of the North Dakota Century Code, please be advised that Quantum Geophysical, Inc. was issued the above captioned permit on May 22, 2000 and will remain in effect for a period of one year.

Should you have any questions, please contact our office.

Sincerely,



David C. Hvinden  
Geophysical Regulation Supervisor

DCH/dh

NORTH DAKOTA INDUSTRIAL COMMISSION

OIL AND GAS DIVISION

Lynn D. Helms  
DIRECTOR

<http://explorer.ndic.state.nd.us>

Bruce E. Hicks  
ASSISTANT DIRECTOR

The Honorable Laura Griffin  
Billings County Tax Director  
P.O. Box 247  
Medora, ND 58645

May 22, 2000

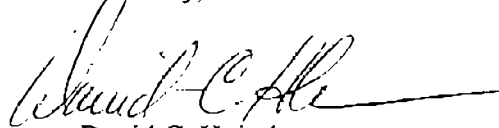
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David C. Hvinden  
Geophysical Regulation Supervisor

DCH/dh