GEOPHYSICAL EXPLORATION SUNDRY NOTICE - FORM GE 4

INDUSTRIAL COMMISSION OF NORTH DAKOTA
OIL AND GAS DIVISION
600 EAST BOULEVARD DEPT 405
BISMARCK, ND 58505-0840
SFN 51458 (03-2011)

PERMIT # 970215

Project Name
Oasis BA #30ND0000BA
County
Williston, North Dakota
Supplemental Information
MicroSeismic,s process is designed specifically to monitor activity in and around the wellbore darning wells stimulation. There will be approximately 115 well monitoring stations on this project. There will be battery boxes and recording box on each station. It appears that not all of the stations will be active at once. There will be no cable used on this project. MSI is obtaining permission from all surface owners before entering their surface.

Company		Telephone Number
MicroSeismic, Inc		**713 781-2323**
Address		
10777 Westheimer Ste.500		
City	State	Zip Code
Houston	**TX**	**77042**
Signature	Printed Name	
	Henry Jake Fadeley 713 304-3044	
Title	Date	
Representative MicroSeismic, Inc.	**December 16, 2016**	
Email Address		
hjfad@aol.com		

FOR STATE USE ONLY

☒ Received	☐ Approved
Date: 12/28/16	
By:	
Title: **Mineral Resources Permit Manager**	

Oasis Ba

UTV Only
Stay close to fence lines
NO SNOW plowing
No driving on crops

Core
Land
No Permit

No Access
No Permit

Walk
Only

Pipe line

129214 129215 129208 129209 129210 129211 129212 129213 129202 129201 129203 129204 129205 129206 129207 129126 129192 129195 129196 129197 129198 129199 129200 129194 129193 129185 129186 129187 129188 129189 129190 129191 129119 129184 129176 129177 129178 129179 129180 129181 129182 129183 129168 129170 129171 129172 129173 129175 129169 129166 129174 129167 129159 129160 129161 129162 129163 129164 129165 129153 129152 129154 129155 129156 129157 129158 129151 129143 129144 129145 129146 129147 129148 129149 129150 129135 129136 129137 129138 129139 129140 129141 129142 129127 129128 129129 129130 129131 129132 129133 129134 129120 129121 129122 129123 129124 129125 129113 129114 129115 129116 129117 129118 129108 129109 129110 129111 129112 129104 129101 129105 129106 129107 129102 129103

Steep hill
Walk Only
Stay off the crops
wet
old elect fence
ROCKS
old elec fence
DO NOT use crossing
Saty on trail only
WASH
No active Legend.
wet washouts
steep hill
stay on trail only
wet crossing
NO Trucks
rocks
steep
road is narrow
Walk to station
wash out
Wet crossing
Steep hill

132 Rd NW
132 Dr NW
130 Rd NW
45th Ln NW
48th St NW
49th St N
127th Ave NW
128th Ave NW
Willow Crk

Radio Towers
Our Savior Ch
Scoria Pit
Badlands
Gravel
Creek
Willow

STONY CREEK

INDEFINITE BOUNDARY
WILLIAMS CO
MC KENZIE CO

0 0.4 0.8
miles

GEOPHYSICAL EXPLORATION AFFIDAVIT OF PLUGGING (HOLE PLUGGER) - FORM GE 7B

INDUSTRIAL COMMISSION OF NORTH DAKOTA
OIL AND GAS DIVISION
600 EAST BOULEVARD DEPT 405
BISMARCK, ND 58505-0840
SFN 51457 (03-2011)

PERMIT NAME (Required): Oasis Buried Array

PERMIT NUMBER: 97-0215

AFFIDAVIT OF PLUGGING (HOLE PLUGGER)

STATE OF Texas)
)
COUNTY OF Midland)

Before me, Nancy A. Hanson a Notary Public in and for the said County and State, this day personally appeared Dimas Gonzalez Jr.

who being first duly sworn, deposes and says that (s)he is employed by Micro Seismic, 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.

Hole Plugger Representative

Subscribed in my presence and sworn before me this 19 day of March, 2015.

NOTARY PUBLIC STATE OF TEXAS
NANCY A HANSON
My Commission Expires
June 6, 2018

Notary Public

My Commission Expires 6-6-18

GEOPHYSICAL EXPLORATION AFFIDAVIT OF COMPLETION REPORT - FORM GE 6B

INDUSTRIAL COMMISSION OF NORTH DAKOTA
OIL AND GAS DIVISION
600 EAST BOULEVARD DEPT 405
BISMARCK, ND 58505-0840
SFN 51456 (03-2011)

PERMIT NAME (Required): Oasis Buried Array

PERMIT NUMBER: 97-0215

AFFIDAVIT OF COMPLETION (GEOPHYSICAL CONTRACTOR)

STATE OF Texas)

)

COUNTY OF Midland)

Before me, Nancy A. Hanson, a Notary Public in and for the said County and State, this day personally appeared Dimas Gonzalez Jr.

who being first duly sworn, deposes and says that (s)he is employed by _____

Micro Seismic, 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.

Geophysical Contractor Representative

Subscribed in my presence and sworn before me this 19 day of March, 2015.

NOTARY PUBLIC STATE OF TEXAS
NANCY A HANSON
My Commission Expires
June 6, 2018

Notary Public Nancy A. Hanson

My Commission Expires 6-6-18

MicroSeismic
Passive Monitoring, Active Listening

Industrial Commission of North Dakota
Oil & Gas Division
600 East Blvd. Dept. 405
Bismarck, North Dakota 58505

Oasis Buried Array #97-0215

Dear, Mr. Todd Holweger,

We have contacted landowners during the permitting process to explain the project followed by the rules and guidelines that apply while performing the Buried Array project.

Best Regards,
Skye Jones

Permit Agent

Alstate Permit Services

GEOPHYSICAL EXPLORATION COMPLETION REPORT - FORM GE 6A

INDUSTRIAL COMMISSION OF NORTH DAKOTA
OIL AND GAS DIVISION
600 EAST BOULEVARD DEPT 405
BISMARCK, ND 58505-0840
SFN 51456 (03-2011)

Permit No.	
97-0215	
Shot Hole Operations	*Non-Explosive Operations
no	**yes**

SECTION 1

Geophysical Contractor	
MicroSeismic Inc.	
Project Name and Number	County(s)
Oasis Burried Array	**Williams**
Township(s)	Range(s)
see Attached	**see attached**
Drilling and Plugging Contractors	
Val's Drilling	
Date Commenced	Date Completed
December 5, 2011	**January 31, 2012**

SECTION 2

First S.P. #	Last S.P. #
129101	**129201**

Loaded Holes (Undetonated Shot Points)

S.P.#'s												
Charge Size												
Depth												

Reasons Holes Were Not Shot

SECTION 3

Flowing Holes and/or Blowouts
S.P.#'s

none

Procedure for Plugging Flowing Holes and/or Blowouts

see schematic

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 (Form GE 6B).**

Installation of Micro Seismic monitors in the Oasis BA

This project involves the installation of Micro Seismic monitors in **112** locations over an area as noted below and on the attached map. All specific locations will be approved by landowners and care will be taken to locate monitors where they will be easily accessible by Micro Seismic, Inc. technicians on a regular basis, and where they will not conflict with farming or ranching operations. Monitors will be in use for at least one year and up to five years.

Area of Monitor Installation:
Project area is in **Williams** County, North Dakota:

T154-R100-SEC 36, 35 34
T154-R99-SEC 31
T153-R100-SEC 1, 2, 3, 4, 9, 10, 11, 12, 13, 14, 15, 22, 23, 24, 25, 26, 27, 34, 35, 36
T153-R99-SEC 6, 7, 18, 19, 30, 31
T152-R100-SEC 3, 4, 5

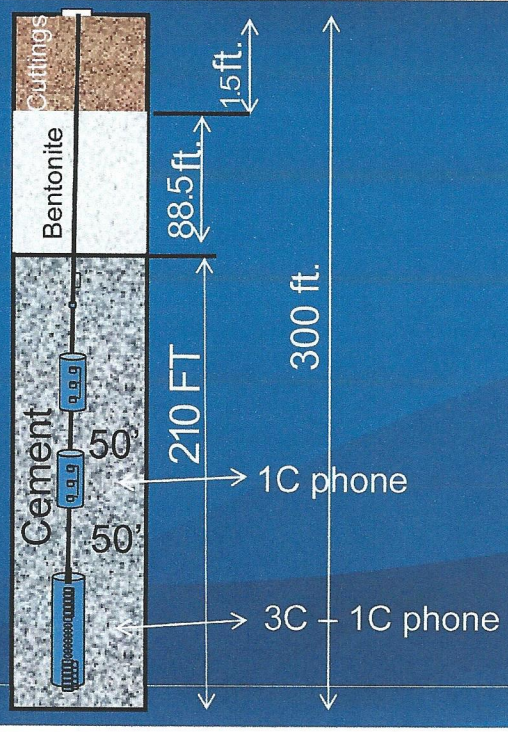
Purpose of Monitors:
To record the sounds emitted when the reservoir is stimulated with high pressure fluid during the hydro fracturing procedures in the area. By mapping the spatial and temporal location of the points of sound emission in the reservoir and by relating these positions to the rate of fluid injection, much can be determined to improve the effectiveness of hydro fracturing.

Installation Process and Plugging Information:
A 300' hole will be drilled (using conventional drill trucks) at each predetermined location as approved by landowners. The geophone string will be attached to a 1" PVC pipe and lowered in to the hole. The geophones are spaced 50' apart to a depth of 300' (with the top geophone located 150' below surface).

Once the geophones are installed they will be cemented in, using a light slurry of "Quick Crete" Portland cement pumped through the PVC to a level approximately 100 feet from the surface. The compressive strength of the cement will be 945 psi @ 140 deg After 72 hours. From past experience, it is expected to take 20 sacks of cement from 300 ft to 150ft. Once the cement is pumped the hole is temporarily plugged to allow the cement 24 hrs to set up. The cement will settle to the 150 foot level.

24 hrs later the temporary plug is removed and one bag of sand is added to assist in attenuating noise from above reaching the cemented area. The hole will then be filled with course bentonite to within 18 inches of the surface. A non metallic plug (which will have MSI scribed into the plug) will be inserted in to a depth of 18 inches. The hole will then be filled with cuttings to the surface. Cuttings will be spread out or removed

Geophone Installation



MicroSeismic
Passive Monitoring, Active Velocity

GEOPHYSICAL EXPLORATION HOLE PLUGGING REPORT - FORM GE 7A

INDUSTRIAL COMMISSION OF NORTH DAKOTA
OIL AND GAS DIVISION
600 EAST BOULEVARD DEPT 405
BISMARCK, ND 58505-0840
SFN 51457 (03-2011)

Geophysical Company	Date Plugged
MicroSeismic Inc.	**January 31, 2012**
Hole Plugging Contractor	Permit No.
Val's Drilling	**97-0215**
Prospect	Hole Plugger
Oasis Burried Array	**Val's Drilling**

	Line No.	S.P. No.	Hole Depth	Drill Type *CABP	Wet/ Dry	Bent. Sx	Bent. Capsules	Capsule Size**	Surface Plug Depth	Remarks Hole Bridged, Thick Mud, Etc.
1	**see**	**attached**	**document**							
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										

*Conventional-Auger-Buggy-Portable

**Diameter X Length

OASIS BA MASTER DRILL LOG

HOLE #	DRILLER	DATE	DEPTH	CEMENT	Bentonite
115	116	116	116	116	116
129101	JESSE HOFER	17-Dec	300	9	7.0
129102	TIM HOFER	18-Dec	300	9	6.0
129103	TIM HOFER	18-Dec	300	9	4.5
129104	JESSE HOFER	16-Dec	300	9	14.0
129105	JESSE HOFER	17-Dec	300	9	9.0
129106	JESSE HOFER	18-Dec	300	9	11.0
129107	JESSE HOFER	18-Dec	300	9	7.0
129108	JESSE HOFER	16-Dec	300	9	7.5
129109	JESSE HOFER	16-Dec	300	9	7.5
129110	JESSE HOFER	16-Dec	300	9	10.0
129111	JESSE HOFER	17-Dec	300	9	7.0
129112	JESSE HOFER	18-Dec	300	9	7.0
129113	TIM HOFER	17-Dec	300	9	8.5
129114	JESSE HOFER	15-Dec	300	9	1.0
129115	JESSE HOFER	15-Dec	300	9	8.0
129116	TIM HOFER	14-Dec	300	9	8.0
129117	TIM HOFER	14-Dec	300	9	5.0
129118	TIM HOFER	15-Dec	300	10	6.0
129119	JESSE HOFER	31-Jan	300	9	7.0
129120	TIM HOFER	17-Dec	300	9	10.0
129121	TIM HOFER	17-Dec	300	9	9.0
129122	JESSE HOFER	15-Dec	300	9	6.0
129123	TIM HOFER	14-Dec	300	9	7.0
129124	JESSE HOFER	13-Dec	300	9	6.0
129125	JESSE HOFER	13-Dec	300	9	8.0
129126	JESSE HOFER	31-Jan	300	9	7.0
129127	TIM HOFER	18-Dec	300	9	7.5
129128	JESSE HOFER	11-Dec	300	9	8.0
129129	JESSE HOFER	15-Dec	300	9	6.0

129130	TIM HOFER	19-Dec	300	9	8.5
129131	JESSE HOFER	13-Dec	300	9	8.0
129132	JESSE HOFER	13-Dec	300	9	6.0
129133	TIM HOFER	14-Dec	300	9	8.5
129134	TIM HOFER	13-Dec	300	9	9.0
129135	TIM HOFER	16-Dec	300	9	6.0
129136	TIM HOFER	17-Dec	300	9	7.0
129137	JESSE HOFER	11-Dec	300	9	6.0
129138	TIM HOFER	19-Dec	300	9	6.0
129139	JESSE HOFER	18-Dec	300	9	7.0
129140	JESSE HOFER	12-Dec	300	9	8.0
129141	JESSE HOFER	12-Dec	300	9	7.5
129142	TIM HOFER	13-Dec	300	9	9.0
129143	JESSE HOFER	11-Dec	300	9	7.0
129144	JESSE HOFER	11-Dec	300	9	7.5
129145	JESSE HOFER	10-Dec	300	9	5.5
129146	JESSE HOFER	10-Dec	300	9	5.0
129147	JESSE HOFER	12-Dec	300	9	7.0
129148	TIM HOFER	12-Dec	300	9	6.0
129149	TIM HOFER	13-Dec	300	9	6.0
129150	TIM HOFER	13-Dec	300	9	5.0
129151	TIM HOFER	16-Dec	300	9	7.0
129152	TIM HOFER	16-Dec	300	9	7.0
129153	TIM HOFER	15-Dec	300	9	6.0
129154	JESSE HOFER	10-Dec	300	9	8.0
129155	TIM HOFER	12-Dec	300	9	8.0
129156	TIM HOFER	12-Dec	300	9	6.0
129157	TIM HOFER	12-Dec	300	9	7.0
129158	TIM HOFER	11-Dec	300	9	8.0
129159	TIM HOFER	15-Dec	300	9	7.0
129160	TIM HOFER	16-Dec	300	9	7.0
129161	JESSE HOFER	28-Dec	300	9	6.0
129162	JESSE HOFER	10-Dec	300	9	7.0
129163	TIM HOFER	11-Dec	300	9	8.0
129164	TIM HOFER	11-Dec	300	9	9.0
129165	TIM HOFER	11-Dec	300	9	8.0
129166	JESSE HOFER	19-Dec	300	9	7.0

129167	JESSE HOFER	19-Dec	300	9	7.0
129168	JESSE HOFER	19-Dec	300	9	7.0
129169	JESSE HOFER	14-Dec	300	9	6.0
129170	JESSE HOFER	6-Dec	300	8	9.0
129171	JESSE HOFER	6-Dec	300	8	6.0
129172	JESSE HOFER	6-Dec	300	8	9.0
129173	JESSE HOFER	6-Dec	300	8	9.5
129174	TIM HOFER	7-Dec	300	8	8.0
129175	TIM HOFER	6-Dec	300	8	8.5
129176	JESSE HOFER	14-Dec	300	9	7.0
129177	JESSE HOFER	14-Dec	300	9	8.5
129178	JESSE HOFER	7-Dec	300	8	7.0
129179	JESSE HOFER	7-Dec	300	8	8.0
129180	JESSE HOFER	5-Dec	300	8	8.0
129181	JESSE HOFER	5-Dec	300	8	7.0
129182	TIM HOFER	5-Dec	300	8	9.0
129183	TIM HOFER	10-Dec	300	9	6.0
129184	JESSE HOFER	14-Dec	300	9	6.0
129185	JESSE HOFER	9-Dec	300	8	7.0
129186	TIM HOFER	7-Dec	300	8	6.0
129187	TIM HOFER	7-Dec	300	8	8.0
129188	TIM HOFER	########	300	8	7.0
129189	TIM HOFER	10-Dec	300	9	8.0
129190	TIM HOFER	6-Dec	300	8	6.0
129191	TIM HOFER	5-Dec	300	8	7.0
129192	JESSE HOFER	9-Dec	300	11	14.0
129193	JESSE HOFER	9-Dec	300	9	6.0
129194	JESSE HOFER	9-Dec	300	8	8.0

129195	JESSE HOFER	7-Dec	300	8	8.0
129196	JESSE HOFER	7-Dec	300	8	6.5
129197	JESSE HOFER	10-Dec	300	9	10.5
129198	TIM HOFER	9-Dec	300	8	10.0
129199	TIM HOFER	6-Dec	300	8	7.0
129200	TIM HOFER	10-Dec	300	9	6.0
129201	JESSE HOFER	8-Dec	300	8	8.0
129202	JESSE HOFER	8-Dec	300	8	7.0
129203	JESSE HOFER	8-Dec	300	8	7.0
129204	TIM HOFER	8-Dec	300	8	7.0
129205	TIM HOFER	8-Dec	300	8	7.0
129206	TIM HOFER	9-Dec	300	8	8.0
129207	TIM HOFER	9-Dec	300	10	6.0
129208	JESSE HOFER	8-Dec	300	8	7.0
129209	TIM HOFER	8-Dec	300	8	7.0
129210	TIM HOFER	8-Dec	300	8	5.5
129211	TIM HOFER	9-Dec	300	8	6.0
129212	TIM HOFER	10-Dec	300	9	7.0
129213	JESSE HOFER	31-Jan	300	9	8.0
129214	JESSE HOFER	31-Jan	300	9	6.0
129215	JESSE HOFER	31-Jan	300	9	7.5
129211	JESSE HOFER	12-Dec	300	9	7.5

#970215 OASIS BURIED ARRAY
POST PLOT MAP

GEOPHYSICAL EXPLORATION SUNDRY NOTICE - FORM GE 4

INDUSTRIAL COMMISSION OF NORTH DAKOTA
OIL AND GAS DIVISION
600 EAST BOULEVARD DEPT 405
BISMARCK, ND 58505-0840
SFN 51458 (03-2011)

RECEIVED
JAN 2012
ND OIL & GAS DIVISION

PERMIT # 97-0215

Project Name
Oasis Buried Array

County
Williams County

Supplemental Information

Please note revised map.
On our original map, hole # 129119 located on 153N 99W section31 was not drilled due to rough terrain and limited access. This hole was relocated north to 153N 99W section 6. see attached map.

On our original map hole # 129126 located on 153N 99W section30 was not drilled due to rough terrain and limited access. This hole was relocated north to 153N 99W section 6. see attached map.

Our original project was for 112 holes and we would like to add an additional 3 holes to the project giving us a total of 115 holes for the Oasis Buried Array.

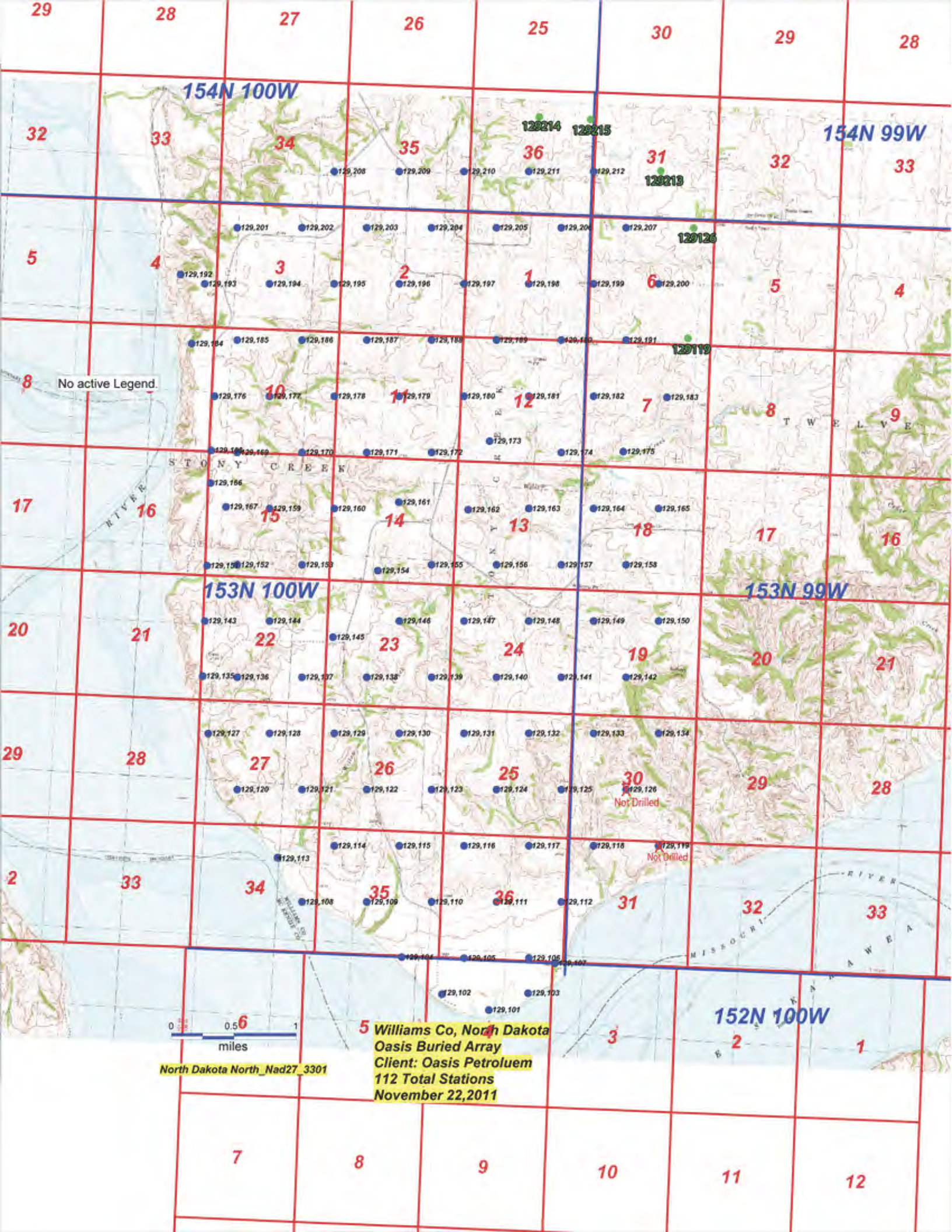
Hole 129213 located on 154N 99W section 36
Holes 129214 and 129215 located on 154N100W section 36

See attached map all new locations are marked with a green icon.

Company: MicroSeismic, Inc.		Telephone Number: (432) 238-9700
Address: 1300 West Sam Houston Parkway South, Suite 200,		
City: Houston	State: Texas	Zip Code: 77042
Signature: Dimas Gonzalez	Printed Name: Dimas Gonzalez	
Title: Sr. Project Manager	Date: January 23, 2012	
Email Address: dgonzalez@microseismic.com		

FOR STATE USE ONLY

☐ Received	☒ Approved
Date: 1/23/12	
By:	
Title: Field Receiving Permit	


154N 100W
154N 99W
153N 100W
153N 99W
152N 100W
No active Legend.
Not Drilled
Not Drilled
STONY CREEK
RIVER
MISSOURI
0
0.5
1
miles
North Dakota North_Nad27_3301
Williams Co, North Dakota
Oasis Buried Array
Client: Oasis Petroluem
112 Total Stations
November 22,2011

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)

RECEIVED
NOV 2011
ND OIL & GAS DIVISION

1) a. Company **MicroSeismic, Inc.**	Address **1300 West Sam Houston Parkway South, Suite 200, Houston, TX. 77042**	
Contact **Dimas Gonzalez**	Telephone **(432) 238-9700**	Fax **(713) 781-2326**
Surety Company **U.S. Specialty Insurance Company**	Bond Amount **$50,000**	Bond Number **B005315**
2) a. Subcontractor(s) **Allstate Permit Services, LP**	Address **5646 Milton St, Suite 608A, Dallas, TX**	Telephone **(214) 212-1524**
b. Subcontractor(s) **Val's Drilling**	Address **186 Dawn Dr,Columbia Falls, MT 599**	Telephone **(403) 226-0572**
3) Party Manager **Terry Dejaiffe**	Address (local) **TBD**	Telephone (local) **(607) 377-2036**

4) Project Name or Line Numbers
Oasis BA

5) Exploration Method (Shot Hole, Non-Explosive, 2D, 3D, Other)
Burried geophone monitors at specific locations within project areas. See attached detailed description.

6) Distance Restrictions (Must check all that apply)

- [x] 300 feet - NonExplosive - Distance setbacks apply to water wells, buildings, underground cisterns, pipelines, and flowing springs.
- [ ] 660 feet - Shot Hole - Distance setbacks apply to water wells, buildings, underground cisterns, pipelines, and flowing springs.

7) Size of Hole	Amt of Charge	Depth	Source points per sq. mi.	No. of sq. mi.	
3-D **na**	**na**	**300'**	**na**	**22**	
Size of Hole	Amt of Charge	Depth	Source points per ln. mi.	No. of ln. mi.	
2-D					

8) Approximate Start Date	Approximate Completion Date
December 1, 2011	**December 1, 2016**

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

9) Location of Proposed Project - County
Williams County (see atached details)

Section(s), Township(s) & Range(s)			
	Section	T.	R.
	Section see attached document	T.	R.
	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 **November 22, 2011**

Signature	Printed Name	Title
	Skye Jones	**Contract permit Agent**

Email Address(es)
dgonzalez@microseismic.com,skyejones2011@gmail.com

(This space for State office use)

Permit No. 970215	Approval Date 11/28/11
Approved by	
Title Mineral Resources Permit Manager	

Permit Conditions

* Permit in hand required at pre-program meeting with field inspector and be aware of all NDIC Rules and Regulations (i.e. distance restrictions).
* See attached letter.

*See Instructions On Reverse Side

Installation of Micro Seismic monitors in the **Oasis BA**

This project involves the installation of Micro Seismic monitors in **112** locations over an area as noted below and on the attached map. All specific locations will be approved by landowners and care will be taken to locate monitors where they will be easily accessible by Micro Seismic, Inc. technicians on a regular basis, and where they will not conflict with farming or ranching operations. Monitors will be in use for at least one year and up to five years.

Area of Monitor Installation:
Project area is in **Williams** County, North Dakota:

T154-R100-SEC 36, 35 34
T154-R99-SEC 31
T153-R100-SEC 1, 2, 3, 4, 9, 10, 11, 12, 13, 14, 15, 22, 23, 24, 25, 26, 27, 34, 35, 36
T153-R99-SEC 6, 7, 18, 19, 30, 31
T152-R100-SEC 3, 4, 5

Purpose of Monitors:
To record the sounds emitted when the reservoir is stimulated with high pressure fluid during the hydro fracturing procedures in the area. By mapping the spatial and temporal location of the points of sound emission in the reservoir and by relating these positions to the rate of fluid injection, much can be determined to improve the effectiveness of hydro fracturing.

Installation Process and Plugging Information:
A 300' hole will be drilled (using conventional drill trucks) at each predetermined location as approved by landowners. The geophone string will be attached to a 1" PVC pipe and lowered in to the hole. The geophones are spaced 50' apart to a depth of 300' (with the top geophone located 150' below surface).

Once the geophones are installed they will be cemented in, using a light slurry of "Quick Crete" Portland cement pumped through the PVC to a level approximately 100 feet from the surface. The compressive strength of the cement will be 945 psi @ 140 deg After 72 hours. From past experience, it is expected to take 20 sacks of cement from 300 ft to 150ft. Once the cement is pumped the hole is temporarily plugged to allow the cement 24 hrs to set up. The cement will settle to the 150 foot level.

24 hrs later the temporary plug is removed and one bag of sand is added to assist in attenuating noise from above reaching the cemented area. The hole will then be filled with course bentonite to within 18 inches of the surface. A non metallic plug (which will have MSI scribed into the plug) will be inserted in to a depth of 18 inches. The hole will then be filled with cuttings to the surface. Cuttings will be spread out or removed

depending on the landowner's preference.

Surface Indications:
On the surface there will be a small vault that will be flush to the ground for the purpose of housing the geophone leads. There will be a sign installed on location indicating geophone buried-do not dig. The sign will also have Micro Seismic, Inc. contact information and client name.

During periods of data acquisition each geophone string is plugged in to a Remote Acquisition Unit (RAUL) used to digitize the analog geophone output. Each RAUL is approximately 6" x 6" x 10" in size, has a 12 volt external power supply and sits on the ground near the buried geophone string.

Four wheeled all-terrain vehicles (UTV's) such will be used for bulk equipment movement along approved roads and trails.
Some time in the future when the monitoring is completed, wire leads will be cut, signs removed and the surface will be restored to normal.

Upon Completion of Monitor Installation:
An inventory of locations will be done upon completion and landowners will be paid pursuant to the permit agreement.

The NDIC Oil & Gas Division will be provided;
A post-plot map showing actual monitor location installations and an SD Card with the Latitude and Longitude of each monitor location that is installed.

NORTH DAKOTA
OIL AND GAS DIVISION

Oil and Gas Division

Lynn D. Helms - Director Bruce E. Hicks - Assistant Director

Department of Mineral Resources

Lynn D. Helms - Director

North Dakota Industrial Commission

www.oilgas.nd.gov

NOVEMBER 28, 2011

Mr. Dimas Gonzalez
MicroSeismic, Inc.
1300 West Sam Houston Parkway South
Suite 200
Houston, TX 77042

RE: OASIS BURIED ARRAY
GEOPHYSICAL EXPLORATION PERMIT # 97-0215
WILLIAMS COUNTY
NON EXPLOSIVE METHOD

Dear Mr. Gonzalez:

Please be advised that we are in receipt of your Geophysical Exploration (noise attenuation test) permit application and it is conditionally approved; effective for one year from NOVEMBER 28, 2011. **PURSUANT TO NDAC 43-02-12-05 (DISTANCE RESTRICTION) non-explosive exploration method may not be conducted not less than 300 feet from a water well, building, underground cistern, pipelines, and flowing spring.** Review the following conditions for your permit:

1. A pre-program meeting with state seismic inspector Tom Torstenson is required. You must contact him at 701-290-1546 (cell) or 701-227-7436 at least 24 hours prior to any exploration operations. Also, a copy of the entire permit is required for all contractors at the pre-program meeting.
2. 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.
3. 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. SD card or email: ttorstenson@nd.gov with all source and receiver points,

e. Letter stating that the Geophysical Company has given all surface owner's a copy of the Section and Chapter of the NDCC as stated in paragraph 5.

4. The following information must be submitted within 30 days of the completion of the project by the SUBCONTRACTOR(s) (when applicable):
   a. Plugging Report
   b. Plugging Affidavit
5. It is required that within seven days of initial contact between the permitting agent and the operator of the land, the permitting agent shall provide the operator of the land and each landowner owning land within one-half mile of the land on which geophysical exploration activities are to be conducted a written copy of NDCC Section 38-08.1-04.1 (Exploration Permit) and NDCC Chapter 38-11.1 (Oil and Gas Production Damage Compensation). The permitting agent shall file an affidavit with this office confirming compliance with such notification. For your convenience, a copy of both Sections are enclosed.
6. 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.
7. 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/
8. 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 me at 701-328-8020, or Tom Torstenson at the number listed in paragraph 1.

Sincerely,

Todd L. Holweger
DMR Permit Manager

Oil and Gas Division

Lynn D. Helms - Director Bruce E. Hicks - Assistant Director

Department of Mineral Resources

Lynn D. Helms - Director

North Dakota Industrial Commission

www.oilgas.nd.gov

NOVEMBER 28, 2011

The Honorable Beth Innis
Williams County Auditor
P.O. Box 2047
Williston, ND 58802-2047

RE: Geophysical Exploration
Permit #97-0215

Dear Ms. Innis:

Pursuant to Section 38-08.1-04.2 of the North Dakota Century Code, please be advised that MICROSEISMIC, INC. was issued the above captioned permit on NOVEMBER 28, 2011 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
DMR Permit Manager

MicroSeismic
Passive Monitoring, Active Listening

Industrial Commission of North Dakota
Oil & Gas Division
600 East Blvd. Dept. 405
Bismarck, North Dakota 58505

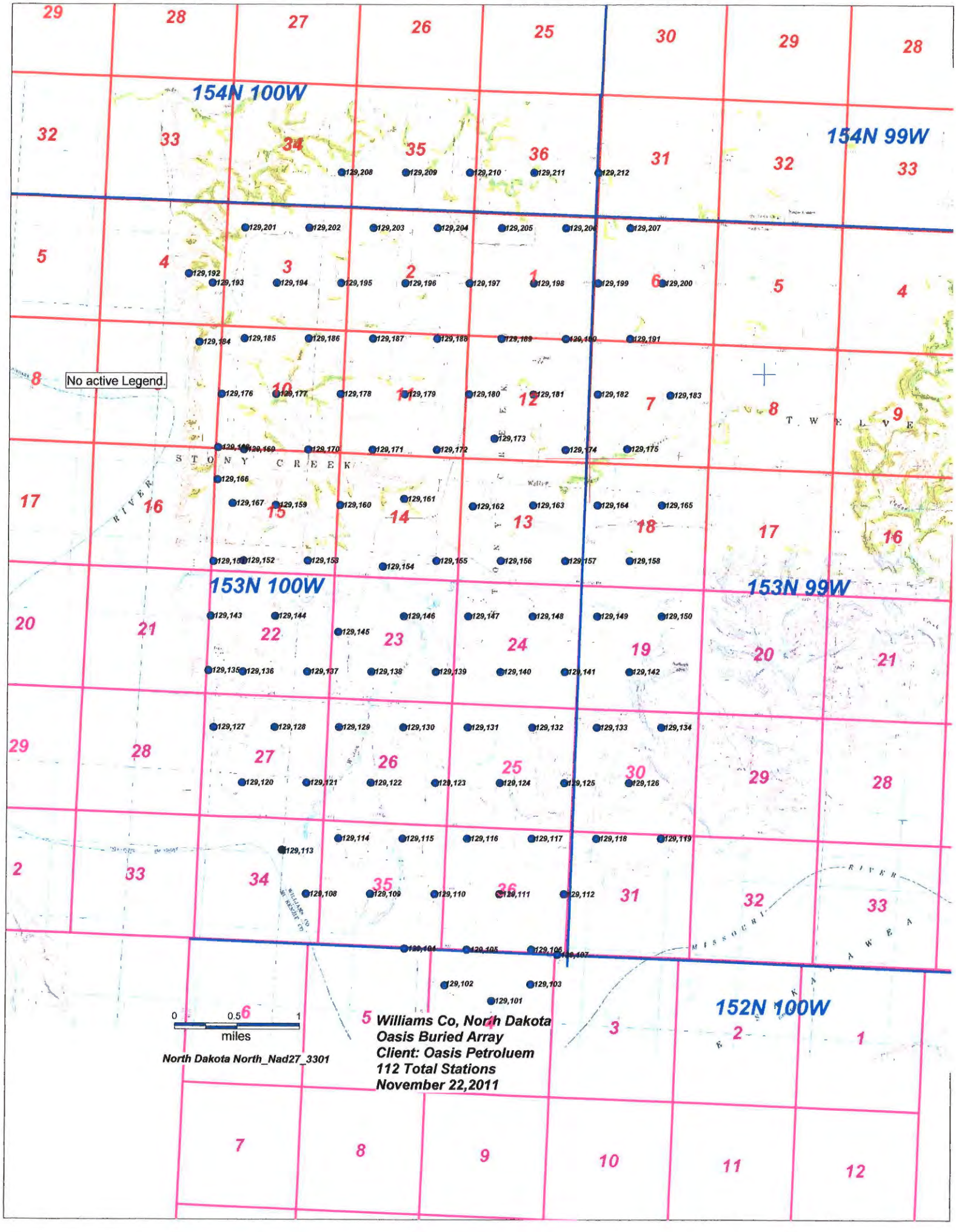
RE: AllState Permit Services, LP, Contracted to MicroSeismic, Inc.

Dear, Mr. Todd Holweger,

We at MicroSeismic, Inc. are engaged in the process of conducting, a Buried Array Service, in Williams County, North Dakota. Our client Oasis Petroleum has contracted to MicroSeismic to Bury Geophones in the Ground and Monitor, their Fracing programs.
Microseismic has contracted Allstate Permit Services, LP to acquire permission from the surface Owners of the property were we will be placing the Buried Array. AllState Permitting, will obtain all permits for the surface, to bury the Geophones. Please call if you have questions. (713) 304-3044

Best Regards
Jake Fadeley

Permit Manager
MicroSeismic, Inc.


154N 100W
154N 99W
153N 100W
153N 99W
152N 100W
No active Legend.
STONY CREEK
RIVER
MISSOURI
RIVER
0 0.5 1
miles
North Dakota North_Nad27_3301
Williams Co, North Dakota
Oasis Buried Array
Client: Oasis Petroluem
112 Total Stations
November 22,2011

154N 100W

154N 99W

153N 100W

153N 99W

152N 100W

Davis Surface Status 11-20-11

- Davis_Numbered_Stations
- SIGNED
- NO PERMIT