



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): Newfield McKenzie BA
 PERMIT NUMBER: 97-0216

AFFIDAVIT OF COMPLETION (GEOPHYSICAL CONTRACTOR)

STATE OF Texas)

COUNTY OF Midland)

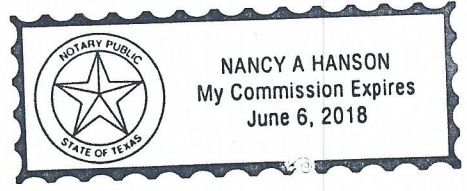
Before me, Nancy A. Hanson, a Notary Public in and for the said
 County and State, this day personally appeared Dimas Gonzalez Jr.

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.

[Signature]
 Geophysical Contractor Representative

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



Notary Public Nancy A. Hanson

My Commission Expires 6-6-18



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): Newfield McKenzie BA

PERMIT NUMBER: 97-0216

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 D.mas Gonzalez Jr

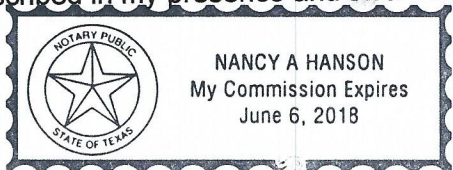
who being first duly sworn, deposes and says that (s)he is employed by

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.

[Signature]
Hole Plugger Representative

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



Notary Public Nancy A. Hanson

My Commission Expires 6-6-18



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

Newfield McKenzie Buried Array # 97-0216

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. 97-0216	
Shot Hole Operations no	*Non-Explosive Operations yes

SECTION 1

Geophysical Contractor MicroSeismic Inc.	
Project Name and Number Newfield McKenzie Burried Array	County(s) McKenzie
Township(s) see Attached	Range(s) see attached
Drilling and Plugging Contractors Val's Drilling	
Date Commenced December 20, 2012	Date Completed February 6, 2012

SECTION 2

First S.P. # 130101	Last S.P. # 130329													
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 **NewField McKenzie BA**

This project involves the installation of Micro Seismic monitors in 229 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 McKenzie County, North Dakota:

- T151 R100 SEC: 35, 36
- T151 R99 SEC: 24, 25, 31-36
- T151 R98 SEC: 19, 20, 29-33
- T150 R100 SEC: 1, 2, 10-15
- T150 R99 SEC: ALL 1-36
- T150 R98 SEC: 4-9, 16-21, 29-32
- T149 R100 SEC: 1
- T149 R99 SEC: 1-6
- T149 R98 SEC: 6

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:

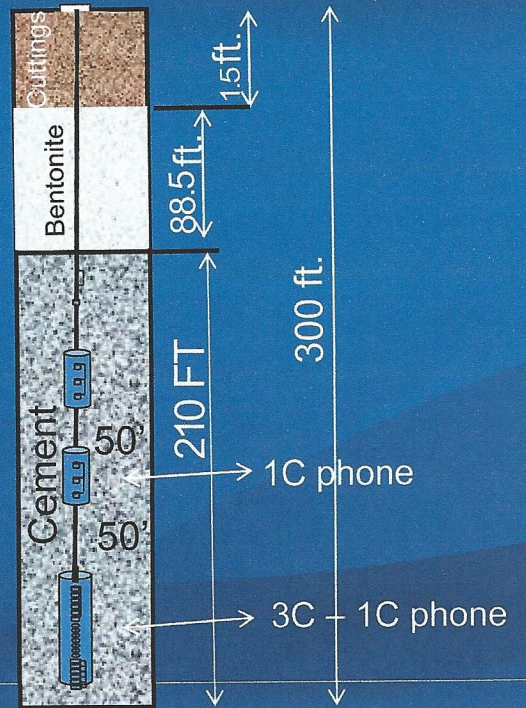
A 300' hole will be drilled (using conventional drill trucks) at each predetermined location as approved by landowners. The geophone string will be attached to a 1" PVC pipe and lowered in to the hole. The geophones are spaced 50' apart to a depth of 300' (with the top geophone located 150' below surface).

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 Inc. proprietary information, which is PRIVILEGED, CONFIDENTIAL, or subject to COPYRIGHT belonging to MicroSeismic Inc





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 MicroSeismic Inc.	Date Plugged February 6, 2012
Hole Plugging Contractor Val's Drilling	Permit No. 97-0216
Prospect Newfield McKenzie Burried Array	Hole Plugger 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

McKenzie BA MASTER DRILL LOG

HOLE #	DRILLER	DATE	START TIME	END TIME	DEPTH	CEMENT	Bentonite
229	228	228	228	228	228	228	228
130101	Jesse	15-Jan	12:59 PM	2:15 PM	300	9	7.0
130102	Jesse Hofer	26-Jan	10:22 AM	11:21 AM	300	9	5.0
130103	Tim	14-Jan	2:15 PM	3:45 PM	300	9	6.0
130104	Tim	14-Jan	12:15 PM	1:30 PM	300	9	6.0
130105	Jesse Hofer	27-Jan	10:23 AM	11:25 AM	300	9	7.0
130106	Jesse	17-Jan	12:07 PM	1:41 PM	300	9	8.0
130107	Jesse Hofer	26-Jan	1:37 PM	2:38 PM	300	9	7.5
130108	Tim	15-Jan	2:05 PM	3:15 PM	300	9	6.0
130109	Jesse	15-Jan	11:51 AM	12:50 PM	300	9	6.0
130110	Jesse Hofer	23-Jan	8:45 AM	9:55 AM	300	9	6.0
130111	Jesse Hofer	26-Jan	8:55 AM	10:04 AM	300	9	6.0
130112	Jesse	17-Jan	8:40 AM	9:48 AM	300	9	7.0
130113	Tim	14-Jan	10:15 AM	11:30 AM	300	9	7.0
130114	Jesse Hofer	3-Feb	4:45 AM	5:35 AM	300	9	8.0
130115	Jesse	12-Jan	9:00 AM	10:17 AM	300	9	5.5
130116	Jesse	12-Jan	10:35 AM	11:38 AM	300	9	7.0
130117	Jesse Hofer	26-Jan	11:40 AM	12:40 PM	300	9	7.0
130118	Jesse	16-Jan	8:45 AM	10:17 AM	300	9	7.0
130119	Tim	15-Jan	8:50 AM	10:00 AM	300	9	6.0
130120	Jesse Hofer	27-Jan	8:40 AM	9:50 AM	300	9	7.0
130121	Jesse	17-Jan	10:10 AM	11:11 AM	300	9	6.0
130122	Tim	13-Jan	3:30 PM	4:50 PM	300	9	6.0
130123	Jesse Hofer	23-Jan	10:23 AM	11:27 AM	300	9	9.0
130124	Tim	14-Jan	8:45 AM	10:00 AM	300	9	7.0
130125	Jesse	3-Feb	11:55 AM	12:56 PM	300	9	7.0
130126	Tim	12-Jan	10:45 AM	11:55 AM	300	9	7.0
130127	Tim	12-Jan	12:12 PM	1:15 PM	300	9	7.0
130128	Jesse Hofer	24-Jan	8:40 AM	9:40 AM	300	9	7.0
130129	Tim	15-Jan	12:00 PM	1:15 PM	300	9	7.0

130130	Jesse	16-Jan	10:28 AM	11:38 AM	300	9	7.0
130131	Tim	15-Jan	10:15 AM	11:30 AM	300	9	7.0
130132	Jesse	11-Jan	8:43 AM	10:00 AM	300	9	7.0
130133	Jesse Hofer	23-Jan	11:43 AM	12:44 PM	300	9	7.0
130134	Jesse	8-Jan	1:00 PM	2:15 PM	300	9	6.0
130135	Jesse	3-Feb	1:06 AM	2:11 AM	300	11	9.0
130136	Jesse	8-Jan	11:48 AM	12:47 PM	300	9	6.0
130137	Tim	12-Jan	9:00 AM	10:30 AM	300	9	6.0
130138	Jesse	15-Jan	10:24 AM	11:30 AM	300	9	7.0
130139	Tim	12-Jan	1:50 PM	2:52 PM	300	9	6.0
130140	Jesse	15-Jan	9:05 AM	10:11 AM	300	9	7.0
130141	Jesse Hofer	24-Jan	10:02 AM	11:05 AM	300	9	6.0
130142	Jesse Hofer	11-Jan	2:18 PM	5:53 PM	300	9	6.0
130143	Tim Hofer	16-Jan	1:00 PM	2:21 PM	300	9	7.0
130144	Jesse Hofer	11-Jan	1:00 PM	2:00 PM	300	9	6.5
130145	Tim Hofer	16-Jan	2:35 PM	3:40 PM	300	9	7.0
130146	Jesse Hofer	21-Jan	1:45 PM	2:46 PM	300	9	7.0
130147	Jesse Hofer	23-Jan	1:25 PM	2:30 PM	300	9	6.0
130148	Jesse Hofer	16-Jan	11:56 AM	12:57 PM	300	9	7.0
130149	Jesse Hofer	9-Jan	11:40 AM	12:35 PM	300	9	6.0
130150	Jesse Hofer	5-Jan	11:50 AM	12:30 PM	300	9	6.0
130151	Tim Hofer	11-Jan	9:15 AM	10:37 AM	300	9	6.0
130152	Jesse Hofer	5-Jan	10:25 AM	11:30 AM	300	9	6.0
130153	Jesse Hofer	24-Jan	11:20 AM	1:11 PM	300	9	7.0
130154	Tim Hofer	3-Feb	4:30 AM	5:45 AM	300	9	7.0
130155	Jesse Hofer	14-Jan	1:48 PM	2:51 PM	300	9	6.0
130156	Jesse Hofer	24-Jan	1:22 PM	2:30 PM	300	9	7.0
130157	Jesse Hofer	3-Feb	2:59 AM	3:58 AM	300	9	6.0
130158	Jesse Hofer	17-Jan	2:10 PM	3:06 PM	300	9	6.0
130159	Tim Hofer	3-Feb	1:10 AM	2:25 AM	300	9	8.5
130160	Jesse Hofer	25-Jan	10:19 AM	11:20 AM	300	9	8.0
130161	Tim Hofer	23-Jan	11:30 AM	1:00 PM	300	9	7.0
130162	Jesse Hofer	1-Feb	11:35 AM	12:35 PM	300	9	7.0
130163	Jesse Hofer	9-Jan	1:06 PM	2:05 PM	300	9	7.0
130164	Tim Hofer	9-Jan	1:35 PM	3:00 PM	300	9	7.0
130165	Jesse Hofer	9-Jan	10:23 AM	11:23 AM	300	9	7.0
130166	Jesse Hofer	5-Jan	1:15 PM	2:20 PM	300	9	7.0

130167	Jesse Hofer	9-Jan	9:00 AM	9:57 AM	300	9	6.0
130168	Tim Hofer	1-Feb	9:00 AM	10:24 AM	300	9	9.0
130169	Jesse Hofer	5-Jan	8:30 AM	9:45 AM	300	9	6.0
130170	Jesse Hofer	12-Jan	12:19 PM	1:25 PM	300	9	5.0
130171	Tim Hofer	17-Jan	2:00 PM	3:12 PM	300	9	5.5
130172	Jesse Hofer	6-Jan	8:50 AM	10:00 AM	300	9	5.5
130173	Jesse Hofer	25-Jan	11:35 AM	12:35 PM	300	9	6.0
130174	Tim Hofer	3-Feb	2:30 AM	4:00 AM	300	9	6.0
130175	Jesse Hofer	2-Jan	1:55 PM	3:10 PM	300	9	7.0
130176	Tim Hofer	23-Jan	9:01 AM	10:47 AM	300	9	7.0
130177	Jesse Hofer	21-Jan	12:19 PM	1:23 PM	300	9	7.0
130178	Tim Hofer	23-Jan	1:19 PM	2:35 PM	300	9	7.0
130179	Tim Hofer	23-Jan	3:00 PM	4:21 PM	300	9	7.0
130180	Tim Hofer	30-Dec	2:30 PM	3:45 PM	300	9	6.0
130181	Jesse Hofer	22-Jan	8:21 AM	9:29 AM	300	9	7.0
130182	Tim Hofer	30-Dec	10:05 AM	11:00 AM	300	9	6.0
130183	Tim Hofer	17-Jan	8:30 AM	10:00 AM	300	9	8.0
130184	Jesse Hofer	6-Jan	10:43 AM	12:00 PM	300	9	7.0
130185	Jesse Hofer	12-Jan	1:42 PM	3:02 PM	300	9	7.0
130186	Tim Hofer	17-Jan	12:00 PM	1:18 PM	300	9	7.0
130187	Jesse Hofer	14-Jan	12:20 PM	1:23 PM	300	9	7.0
130188	Tim Hofer	31-Dec	8:55 AM	12:09 PM	300	9	7.0
130189	Tim Hofer	3-Feb	11:15 AM	1:15 AM	300	9	6.0
130190	Tim Hofer	8-Jan	1:45 PM	2:49 PM	300	9	6.0
130191	Jesse Hofer	10-Jan	12:45 PM	1:34 PM	300	9	6.0
130192	Jesse Hofer	28-Dec	4:58 PM	6:00 PM	300	9	5.0
130193	Jesse Hofer	16-Jan	1:25 PM	2:25 PM	300	9	8.0
130194	Jesse Hofer	29-Dec	8:45 AM	10:15 AM	300	9	7.0

130195	Tim Hofer	30-Dec	1:15 PM	2:00 PM	300	9	7.0
130196	Jesse Hofer	2-Jan	11:25 AM	12:50 PM	300	9	7.0
130197	Tim Hofer	30-Dec	11:30 AM	12:30 PM	300	9	7.0
130198	Jesse Hofer	27-Jan	12:10 PM	1:07 PM	300	9	7.0
130199	Tim Hofer	2-Jan	1:05 PM	2:20 PM	300	9	7.0
130200	Tim Hofer	30-Dec	8:30 AM	9:30 AM	300	9	6.0
130201	Tim Hofer	17-Jan	10:20 AM	11:42 AM	300	9	6.0
130202	Jesse Hofer	8-Jan	10:05 AM	11:07 AM	300	9	6.0
130203	Tim Hofer	7-Jan	2:00 PM	3:00 PM	300	9	6.0
130204	Jesse Hofer	25-Jan	1:06 PM	2:14 PM	300	9	6.0
130205	Tim Hofer	31-Dec	4:05 PM	5:10 PM	300	9	5.5
130206	Tim Hofer	8-Jan	12:00 PM	1:00 PM	300	9	8.0
130207	Jesse Hofer	10-Jan	11:22 AM	12:25 PM	300	9	5.0
130208	Jesse Hofer	20-Dec	9:00 AM	10:30 AM	300	22	6
130209	Jesse Hofer	10-Jan	10:08 AM	11:08 AM	300	9	7.0
130210	Tim Hofer	28-Dec	4:30 PM	5:30 PM	300	9	7.0
130211	Jesse Hofer	21-Jan	10:35 AM	11:38 AM	300	9	7.0
130212	Tim Hofer	20-Jan	8:45 AM	10:10 AM	300	9	7.0
130213	Jesse Hofer	4-Jan	1:15 PM	2:30 PM	300	9	6.5
130214	Jesse Hofer	21-Jan	9:19 AM	10:19 AM	300	9	7.0
130215	Tim Hofer	20-Jan	10:20 AM	11:40 AM	300	9	7.0
130216	Jesse Hofer	29-Dec	2:59 PM	4:23 PM	300	9	6.0
130217	Tim Hofer	29-Dec	2:00 PM	3:22 PM	300	9	6.0
130218	Tim Hofer	20-Jan	2:00 PM	3:00 PM	300	9	6.0
130219	Tim Hofer	2-Jan	11:15 AM	12:40 PM	300	9	6.0
130220	Tim Hofer	29-Dec	9:00 AM	9:56 AM	300	9	6.0
130221	Tim Hofer	25-Jan	2:16 PM	3:19 PM	300	9	6.0
130222	Jesse Hofer	14-Jan	10:48 AM	11:49 AM	300	9	6.0
130223	Tim Hofer	6-Jan	1:30 PM	2:45 PM	300	9	7.0
130224	Jesse Hofer	10-Jan	8:40 AM	9:45 AM	300	9	7.0
130225	Tim Hofer	28-Dec	11:40 AM	1:00 PM	300	9	7.0
130226	Tim Hofer	10-Jan	12:40 PM	2:00 PM	300	9	8.0
130227	Tim Hofer	28-Dec	1:45 PM	3:45 PM	300	9	6.0
130228	Tim Hofer	10-Jan	11:15 AM	12:32 PM	300	9	6.0
130229	Jesse Hofer	28-Jan	8:30 AM	9:41 AM	300	9	6.0
130230	Jesse Hofer	29-Dec	10:30 AM	11:35 AM	300	9	7.0
130231	Tim Hofer	10-Jan	8:10 AM	9:30 AM	300	9	6.0

130232	Tim Hofer	21-Jan	10:25 AM	11:45 AM	300	9	7.0
130233	Jesse Hofer	29-Dec	11:57 AM	12:50 PM	300	9	6.0
130234	Tim Hofer	20-Jan	11:45 AM	1:36 PM	300	9	5.0
130235	Tim Hofer	29-Dec	3:35 PM	5:00 PM	300	9	5.5
130236	Jesse Hofer	7-Jan	8:50 AM	10:00 AM	300	9	6.0
130237	Tim Hofer	21-Jan	8:45 AM	10:00 AM	300	9	7.5
130238	Jesse Hofer	6-Jan	12:22 PM	1:30 PM	300	9	7.0
130239	Tim Hofer	29-Dec	10:40 AM	11:52 AM	300	9	6.0
130240	Tim Hofer	25-Jan	8:40 AM	10:05 AM	300	9	5.5
130241	Tim Hofer	29-Dec	12:45 PM	1:40 PM	300	9	6.0
130242	Jesse Hofer	1-Jan	11:00 AM	12:25 PM	300	9	6.0
130243	Jesse Hofer	28-Dec	2:45 PM	4:31 PM	300	9	6.0
130244	Tim Hofer	7-Jan	8:45 AM	9:50 AM	300	9	6.0
130245	Tim Hofer	7-Jan	10:20 AM	11:26 AM	300	9	6.0
130246	Tim Hofer	21-Jan	12:04 PM	1:27 PM	300	9	6.5
130247	Tim Hofer	4-Jan	8:45 AM	9:53 AM	300	9	13.0
130248	Tim Hofer	9-Jan	8:40 AM	9:45 AM	300	9	7.0
130249	Jesse Hofer	28-Jan	9:55 AM	11:11 AM	300	9	8.0
130250	Tim Hofer	6-Jan	8:30 AM	9:47 AM	300	9	8.0
130251	Tim Hofer	21-Jan	1:45 PM	3:00 PM	300	9	8.0
130252	Jesse Hofer	29-Dec	1:24 PM	2:31 PM	300	9	6.0
130253	Tim Hofer	22-Jan	10:25 AM	11:44 AM	300	9	5.0
130254	Jesse Hofer	30-Dec	3:23 PM	4:31 PM	300	9	5.5
130255	Tim Hofer	22-Jan	12:00 PM	1:14 AM	300	9	6.0
130256	Tim Hofer	10-Jan	9:49 AM	10:52 AM	300	9	6.0
130257	Jesse Hofer	30-Dec	8:40 AM	9:48 AM	300	9	6.0
130258	Tim Hofer	6-Jan	11:45 AM	1:09 PM	300	9	6.0
130259	Tim Hofer	22-Jan	1:40 PM	3:00 PM	300	9	7.0
130260	Jesse Hofer	1-Jan	8:55 AM	10:30 AM	300	9	7.0
130261	Tim Hofer	4-Jan	10:25 AM	11:29 AM	300	9	6.0
130262	Tim Hofer	24-Jan	8:45 AM	10:00 AM	300	9	8.0
130263	Tim Hofer	1-Feb	11:05 AM	12:15 PM	300	9	6.0
130264	Tim Hofer	26-Jan	2:20 PM	3:40 PM	300	9	12.0
130265	Tim Hofer	8-Jan	10:15 AM	11:26 AM	300	9	6.5
130266	Tim Hofer	9-Jan	10:09 AM	11:29 AM	300	9	7.0
130267	Tim Hofer	22-Jan	8:30 AM	10:14 AM	300	9	6.0
130268	Jesse Hofer	25-Jan	8:48 AM	9:50 AM	300	9	6.0

130269	Tim Hofer	28-Jan	8:45 AM	10:16 AM	300	9	5.0
130270	Jesse Hofer	27-Jan	1:27 PM	2:26 PM	300	9	6.0
130271	Tim Hofer	29-Jan	9:45 AM	11:00 AM	300	9	7.0
130272	Jesse Hofer	30-Dec	12:35 PM	3:16 PM	300	9	5.0
130273	Jesse Hofer	6-Feb	1:15 AM	2:10 AM	300	9	12.5
130274	Jesse Hofer	30-Dec	11:11 AM	12:19 PM	300	9	6.0
130275	Tim Hofer	8-Jan	8:30 AM	9:50 AM	300	9	7.0
130276	Tim Hofer	6-Feb	1:25 AM	2:30 AM	300	9	9.0
130277	Jesse Hofer	30-Dec	9:56 AM	10:54 AM	300	9	6.0
130278	Tim Hofer	4-Jan	11:50 AM	1:05 PM	300	9	8.0
130279	Tim Hofer	24-Jan	10:12 AM	11:27 AM	300	9	10.0
130280	Tim Hofer	5-Jan	1:15 PM	2:20 PM	300	9	7.5
130281	Tim Hofer	24-Jan	11:45 AM	12:47 PM	300	9	13.0
130282	Tim Hofer	9-Jan	12:00 PM	1:14 PM	300	9	7.0
130283	Tim Hofer	24-Jan	1:00 PM	2:30 PM	300	9	13.0
130284	Tim Hofer	26-Jan	1:00 PM	2:00 PM	300	9	6.0
130285	Tim Hofer	27-Jan	10:45 AM	11:39 AM	300	9	7.0
130286	Tim Hofer	27-Jan	9:30 AM	10:32 AM	300	9	8.0
130287	Tim Hofer	26-Jan	10:30 AM	12:43 PM	300	9	6.0
130288	Tim Hofer	27-Jan	12:07 PM	1:14 PM	300	9	7.0
130289	Jesse Hofer	6-Feb	2:50 AM	3:50 AM	300	9	5.5
130290	Jesse Hofer	28-Jan	11:50 AM	1:00 PM	300	9	6.0
130291	Jesse Hofer	4-Jan	11:35 AM	12:40 PM	300	9	6.0
130292	Tim Hofer	6-Feb	3:20 AM	4:20 AM	300	9	9.0
130293	Jesse Hofer	4-Jan	10:20 AM	11:20 AM	300	9	7.0
130294	Tim Hofer	5-Jan	10:15 AM	11:25 AM	300	9	7.0
130295	Tim Hofer	1-Feb	3:30 PM	4:50 PM	300	9	7.0
130296	Jesse Hofer	31-Dec	3:05 PM	4:11 PM	300	9	7.0
130297	Tim Hofer	4-Jan	1:45 PM	2:53 PM	300	9	8.0
130298	Tim Hofer	26-Jan	9:00 AM	10:15 AM	300	9	13.0
130299	Tim Hofer	6-Jan	10:20 AM	11:32 AM	300	9	6.0
130300	Tim Hofer	1-Feb	1:20 PM	2:52 PM	300	9	6.0
130301	Jesse Hofer	20-Jan	9:00 AM	10:13 AM	300	9	6.5
130302	Jesse Hofer	1-Feb	1:25 PM	2:27 PM	300	9	6.0
130303	Tim Hofer	25-Jan	12:30 PM	1:40 AM	300	9	6.0
130304	Jesse Hofer	20-Jan	12:00 PM	12:57 PM	300	9	6.5
130305	Tim Hofer	25-Jan	10:45 AM	12:15 PM	300	9	8.5

130306	Tim Hofer	27-Jan	1:30 PM	3:00 PM	300	9	6.0
130307	Jesse Hofer	22-Jan	11:40	12:40 PM	300	9	6.0
130308	Jesse Hofer	4-Jan	8:35 AM	10:00 AM	300	9	5.0
130309	Jesse Hofer	22-Jan	10:17 AM	11:24 AM	300	9	5.0
130310	Jesse Hofer	31-Dec	1:45 PM	2:45 PM	300	9	5.0
130311	Jesse Hofer	5-Jan	11:40 AM	12:45 PM	300	9	6.0
130312	Jesse Hofer	3-Feb	10:05 AM	11:35 AM	300	9	6.0
130313	Tim Hofer	5-Jan	8:25 AM	9:42 AM	300	9	6.5
130314							
130315	Jesse Hofer	20-Jan	1:30 PM	2:26 PM	300	9	6.0
130316	Jesse Hofer	20-Jan	10:50 AM	11:52 AM	300	9	5.0
130317	Jesse Hofer	13-Jan	10:50 AM	11:50 AM	300	9	7.0
130318	Jesse Hofer	13-Jan	12:04 PM	1:05 PM	300	9	5.0
130319	Jesse Hofer	31-Dec	11:12 AM	1:30 PM	300	9	6.5
130320	Jesse Hofer	1-Feb	8:36 AM	9:39 AM	300	9	6.0
130321	Jesse Hofer	13-Jan	8:42 AM	10:48 AM	300	9	6.0
130322	Jesse Hofer	14-Jan	8:47 AM	9:50 AM	300	9	6.0
130323	Jesse Hofer	13-Jan	1:47 PM	2:48 PM	300	9	6.0
130324	Jesse Hofer	1-Feb	9:55 AM	10:54 AM	300	9	6.0
130325	Jesse Hofer	8-Jan	8:28 AM	9:35 AM	300	9	8.0
130326	Jesse Hofer	7-Jan	1:45 PM	2:45 PM	300	9	7.0
130327	Jesse Hofer	31-Dec	9:00 AM	10:05 AM	300	9	7.0
130328	Jesse Hofer	7-Jan	10:40 AM	11:45 AM	300	9	7.0
130329	Jesse Hofer	7-Jan	12:13 PM	1:15 PM	300	9	6.0
redr 130183	Jesse Hofer	22-Jan	1:08 PM	2:15 PM	300	9	6.0
redr 130248	Tim Hofer	10-Jan			300	9	6.0

McKenzie BA

**UTV ONLY
NO WET WORK**

Do Not use Road

Walk Only

**Stay off the
fields as much
as possible.
use turn rows**

Oil and Gas Division

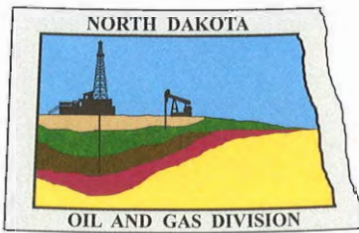
Lynn D. Helms - Director Bruce E. Hicks - Assistant Director

Department of Mineral Resources

Lynn D. Helms - Director

North Dakota Industrial Commission

www.oilgas.nd.gov



DECEMBER 19, 2011

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

RE: NEWFIELD MCKENZIE BURIED ARRAY
GEOPHYSICAL EXPLORATION PERMIT # 97-0216
MCKENZIE 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 DECEMBER 19, 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



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 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 Tex		Telephone (214) 212-1542	
b. Subcontractor(s) Val's Drilling		Address 186 Dawn Dr. Columbia Falls, MT 599		Telephone (403) 226-2057	
3) Party Manager Terry Dejaiffe		Address (local) TBD		Telephone (local) (607) 377-2036	
4) Project Name or Line Numbers NewField McKenzie BA					
5) Exploration Method (Shot Hole, Non-Explosive, 2D, 3D, Other) buried geophones monitors at specific locations within project areas. (see attached description)					
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 na	Amt of Charge na	Depth 300'	Source points per sq. mi. na	No. of sq. mi. 67	
Size of Hole 2-D	Amt of Charge	Depth	Source points per ln. mi.	No. of ln. mi.	
8) Approximate Start Date December 19, 2011			Approximate Completion Date December 19, 2021 (Finish Drilling 2/1/12)		

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

9) Location of Proposed Project - County McKenzie County			
Section(s), Township(s) & Range(s)	Section See Attached document	T.	R.
	Section	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 December 12, 2011
Signature 	Printed Name Skye Jones	Title Contract Permit Agent	
Email Address(es) dgonzalez@microseismic.com, skyejones2011@gmail.com			

(This space for State office use)

Permit No. 970216	Approval Date 12/19/11
Approved by 	
Title Record 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.

Installation of Micro Seismic monitors in the [REDACTED] Array

This project involves the installation of Micro Seismic monitors in [REDACTED] 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 [REDACTED] years.

Area of Monitor Installation:

Project area is in [REDACTED] County, North Dakota:



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.

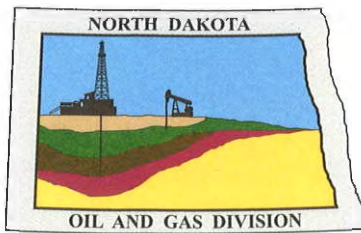


JOB NAME: MCKENZIE BA

JOB No.: #110718-219 BA

LIST OF ALL TOWNSHIPS, RANGES, & SECTIONS

- T151 R100
 - SEC: 35, 36
- T151 R99
 - SEC: 24, 25, 31-36
- T151 R98
 - SEC: 19, 20, 29-33
- T150 R100
 - SEC: 1, 2, 10-15
- T150 R99
 - SEC: ALL 1-36
- T150 R98
 - SEC: 4-9, 16-21, 29-32
- T149 R100
 - SEC: 1
- T149 R99
 - SEC: 1-6
- T149 R98
 - SEC: 6



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

DECEMBER 19, 2011

The Honorable Frances Olson
McKenzie County Auditor
P.O. Box 543
Watford City, ND 58854-0543

RE: Geophysical Exploration
 Permit #97-0216

Dear Frances Olson:

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 DECEMBER 19, 2011 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



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.

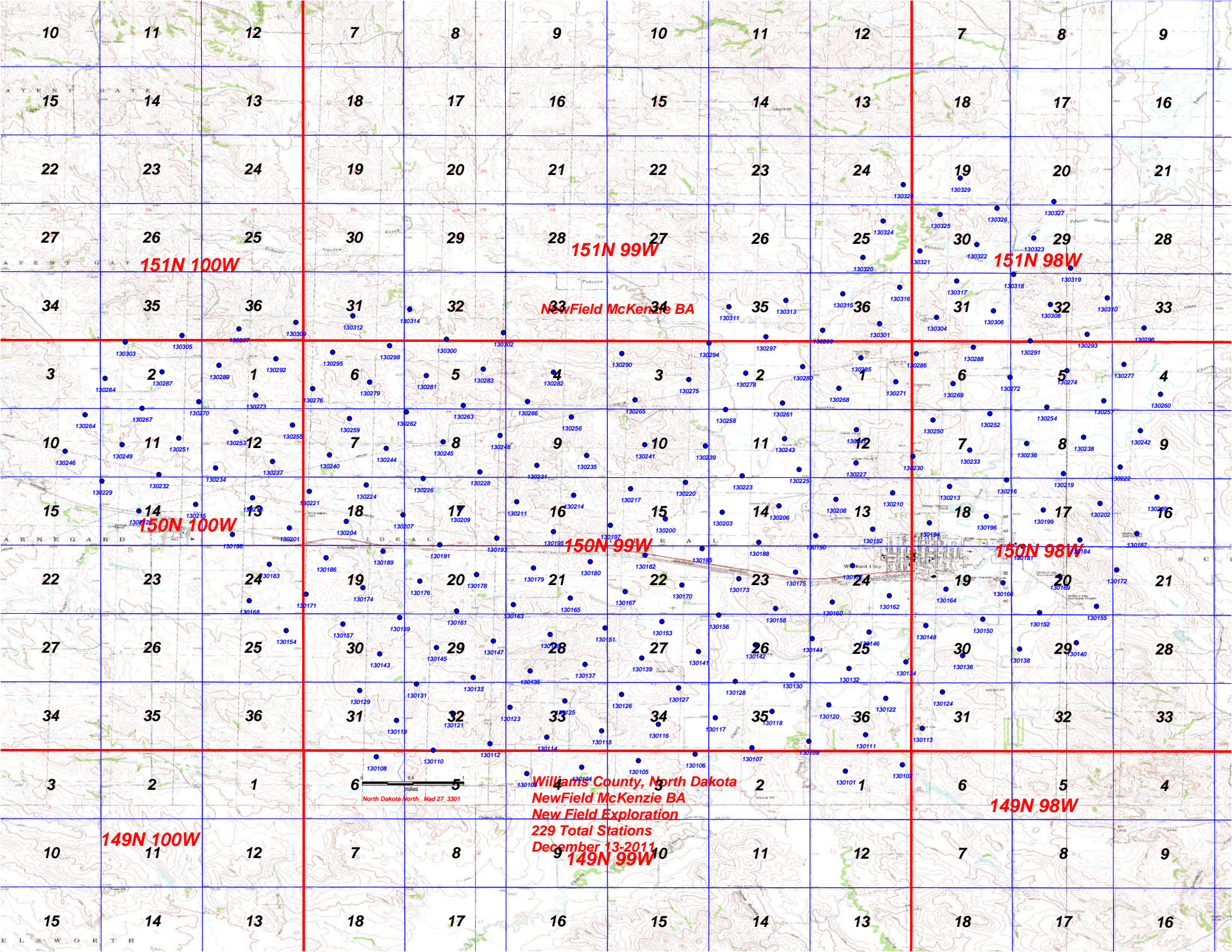
Dear, Mr. Todd Holweger,

We at MicroSeismic, Inc. are engaged in the process of conducting, a Buried Array Service, in McKenzie County, North Dakota. Our client New Field Exploration & Production has contracted MicroSeismic, Inc. to bury Geophones in the Ground and Monitor their Fracing programs. Microseismic has contracted Allstate Permit Services, L.P. 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.

11-29-2011



151N 100W

151N 99W

151N 98W

NewField McKenzie BA

150N 100W

150N 99W

150N 98W

149N 100W

Williams County, North Dakota
NewField McKenzie BA
New Field Exploration
229 Total Stations
December 13-2011

149N 98W

149N 99W

