

August 6, 2014

VIA HAND DELIVERY

Darrell Nitschke
Executive Secretary
North Dakota Public Service Commission
600 E. Boulevard, Dept. 408
Bismarck, ND 58505-0480



**RE: Hiland Crude, LLC —
Case Number PU-13-136**

Dear Mr. Nitschke:

At the public hearing in the above-referenced matter, the North Dakota Public Service Commission (“Commission”) requested additional information regarding Hiland Crude, LLC’s siting application in the form of several late-filed exhibits. To that end, please find enclosed for filing, an original and ten (10) copies of the following documents:

1. Letter report describing noise studies, including impact maps.

The above is also being submitted in electronic format on the enclosed CD.

If you have any questions, please advise.

Sincerely,

A handwritten signature in blue ink, appearing to read "Jillman Rupnow".

JILMAN RUPNOW

cc: Wade Mann (*via e-mail*)
Brian Schmidt (*via e-mail*)
Jim Suttle (*via e-mail*)
Kathye Spilman (*via e-mail*)

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PU-13-136 Filed: 8/6/2014
Late-filed Exhibit LF-9

Pages: 13

August 4, 2014

Jim Suttle
Hiland Crude, LLC
Suite 100
302 North Independence St
Enid OK 73701

Via Electronic Mail

Hearing Late Exhibit – Noise Studies
PSC Case 13-136 Crude Oil Pipeline McKenzie, Williams and Mountrail Counties

Per your request, Keitu Engineers & Consultants, Inc. (Keitu) preformed an assessment of potential noise impacts from the operation of the Market Center Pipeline.

Sound occurs over a wide band of frequencies, some detectable to the human ear and others not. For noise ordinances, sound is traditionally weighted on the "A-scale" in a logarithmic unit of measurement known as a decibel (dB). Typically, noise ordinances make distinctions between daytime and nighttime operation as well as differences in residential and industrial zones. While individual municipalities may alter the actual clock hour definition of "daytime" and "nighttime" and slightly modify the actual noise levels enforces, an example of a model ordinance would require industrial noise levels of 75 dBA (night) and 80 dBA (day) levels in industrial areas and 50 dBA (night) and 55 dBA (day) levels in residential areas.

Keitu staff measured noise readings at the Market Center Gathering Johnson's Corner Station and Tioga (Beaver Lodge) stations where identical pumps were already in operation.

At the Johnson's Corner station noise was measured at 89.3 dBA 3 feet from the 800 horsepower DXPE HP Plus 862 Size 1800 42 Stage pump. At the Tioga Truck Station & Storage Terminal (Beaver Lodge) , noise was measured at 92.9 dBA 3 feet from the 800 horsepower DXPE HP Plus 862 Size 1800 42 Stage Pump.

Using the Inverse Square Law, which predicts the behavior of all forms of radiation including sound, the distance required for the noise level to drop to desired levels was estimated. Residential limits of 55 dBA (daytime) and 50 dBA (nighttime) were used rather than industrial limits.

At the Johnson's Corner Station, the noise level drops to 55 dB at approximately 192 feet and 50 dB at approximately 384 feet. At the Tioga Truck Station & Storage Terminal (Beaver Lodge), the noise level drops to 55 dB at approximately 384 feet and 50 dB at approximately 768 feet.

Given that pumps were not installed or operating at the time at the other locations, we relied on a conservative approach and used data from the pump and driver pair with the highest sound level was used if other site specific-data was not available. Circles with estimated noise levels were

superimposed over the most recent aerial photograph available to denote estimated impacts at each of the Market Center pipeline pump stations.

A wide variety of factors impact how sound behaves and conditions will continue to change in North Dakota. However, based on the information we have at this point in time, all occupied residences predicted to be at 50 dBA or less.

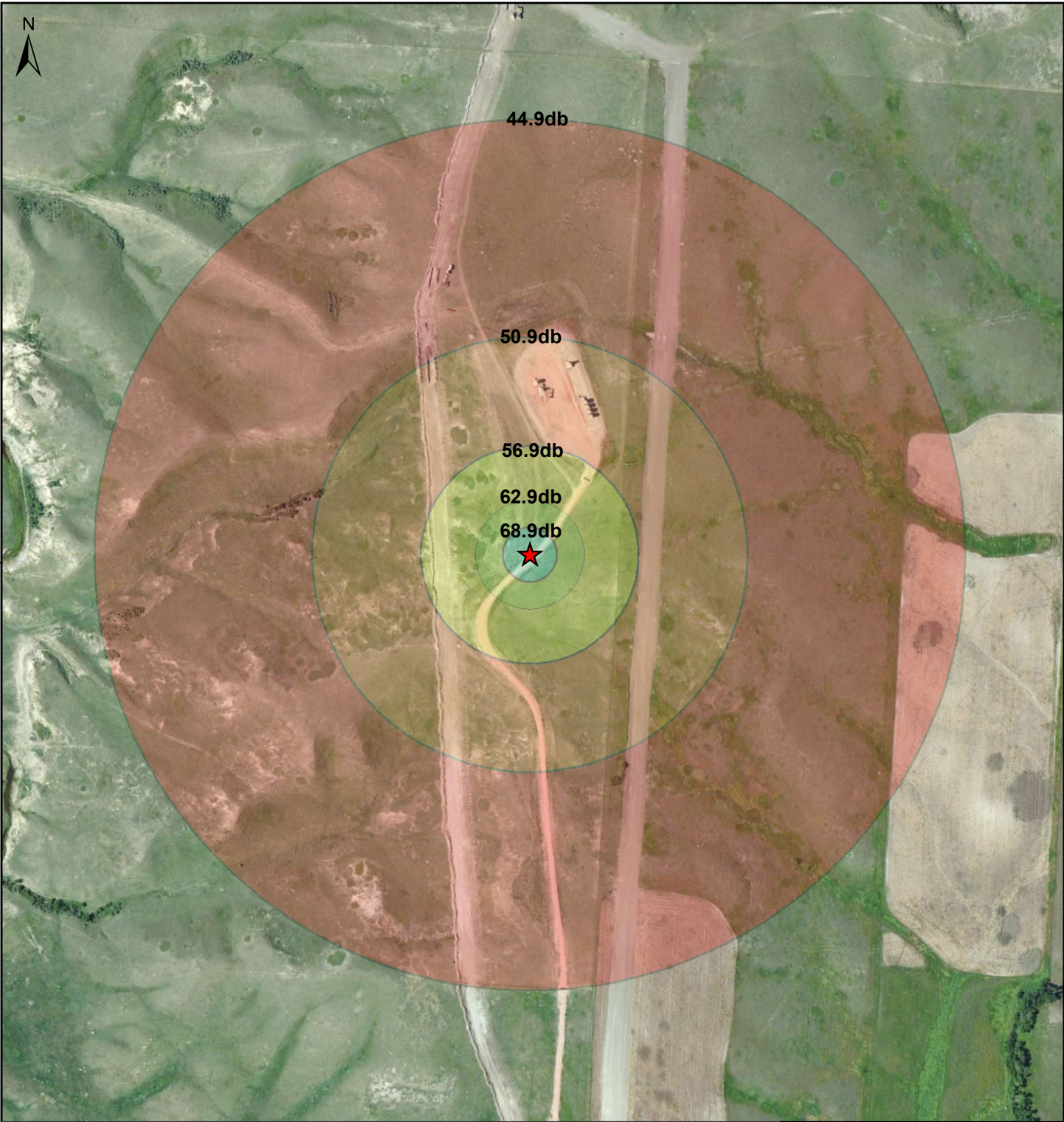
Keitu appreciates the opportunity to work with you on this project. Please contact me at your convenience with questions or comments you may have at 701/667-1808 ext 100 or via email at kspilman@keitu.com.

A handwritten signature in blue ink, appearing to read "Kathleen M. Spilman".

Kathleen M. Spilman, P.E.
Managing Director
Keitu Engineers & Consultants, Inc.

Enclosures (10)

cc: Lawrence Bender / Fredrikson & Byron, P.A. (electronic)
Jillian Rupnow / Fredrikson & Byron, P.A. (electronic)

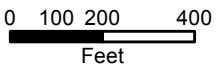


10	11	12	7
15	14	13	18
22	23	24	19
27	26	25	30

★ Williams
153-103
153-102

Legend

- ★ Facility
- 80ft
- 160ft
- 320ft
- 640ft
- 1280ft



**Bainville Injection Station
Noise Study Map
Market Center Pipeline**



30	29	28	27
31	32	33	34
156-102			
155-102		★	
6	5	Williams 4	3
7	8	9	10

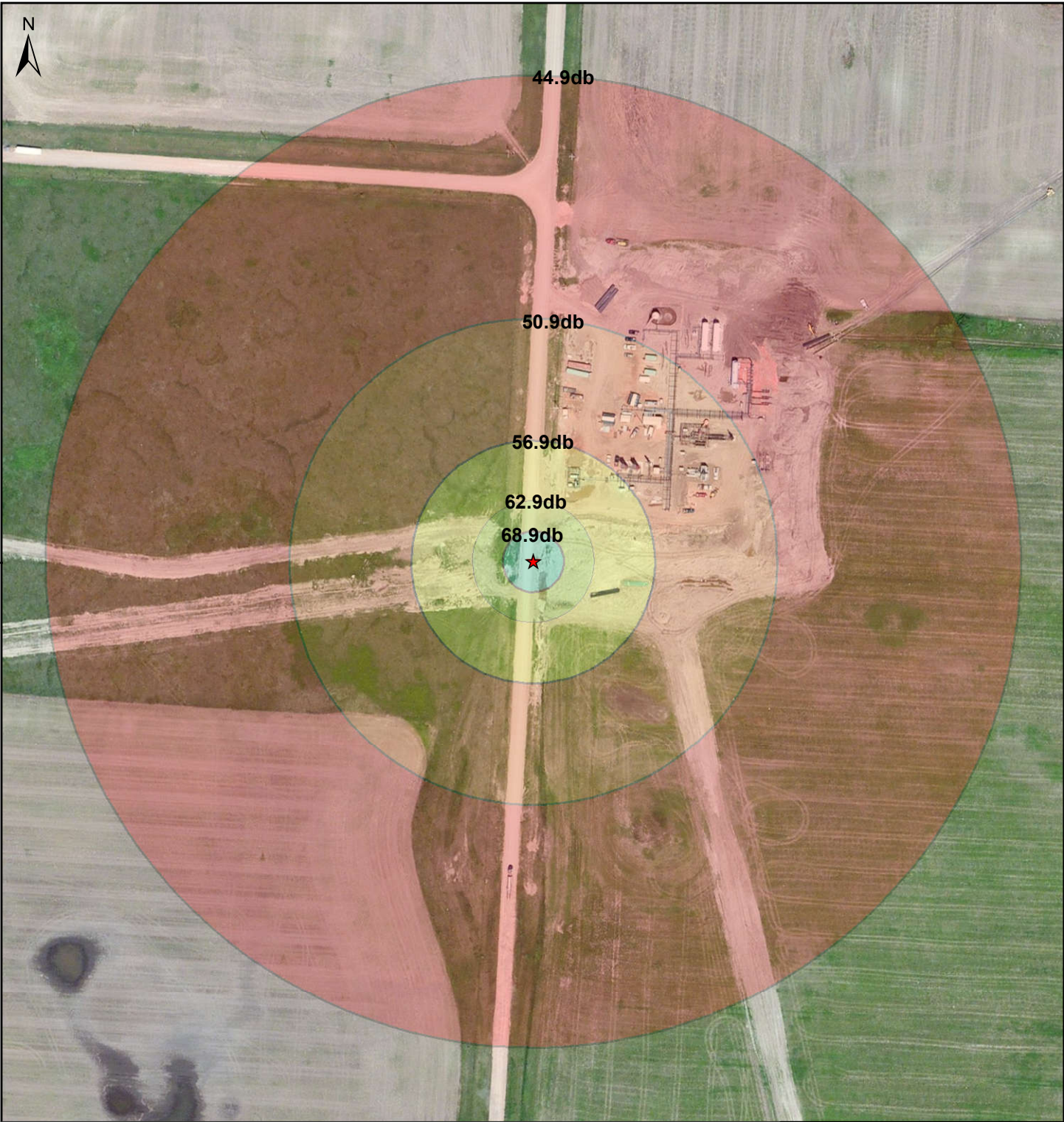
Legend

- ★ Facility
- 80ft
- 160ft
- 320ft
- 640ft
- 1280ft

0 100 200 400
Feet

**Bethel Injection Station
Noise Study Map
Market Center Pipeline**

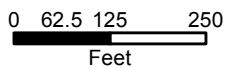
Printed: 8/4/2014



32	33	34	35
	152-99		
	151-99		
5	4	3	2
McKenzie			
	★		
8	9	10	11
17	16	15	14

Legend

- ★ Facility
- 80ft
- 160ft
- 320ft
- 640ft
- 1280ft



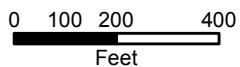
**East Camp Creek Injection Station
Noise Study Map
Market Center Pipeline**



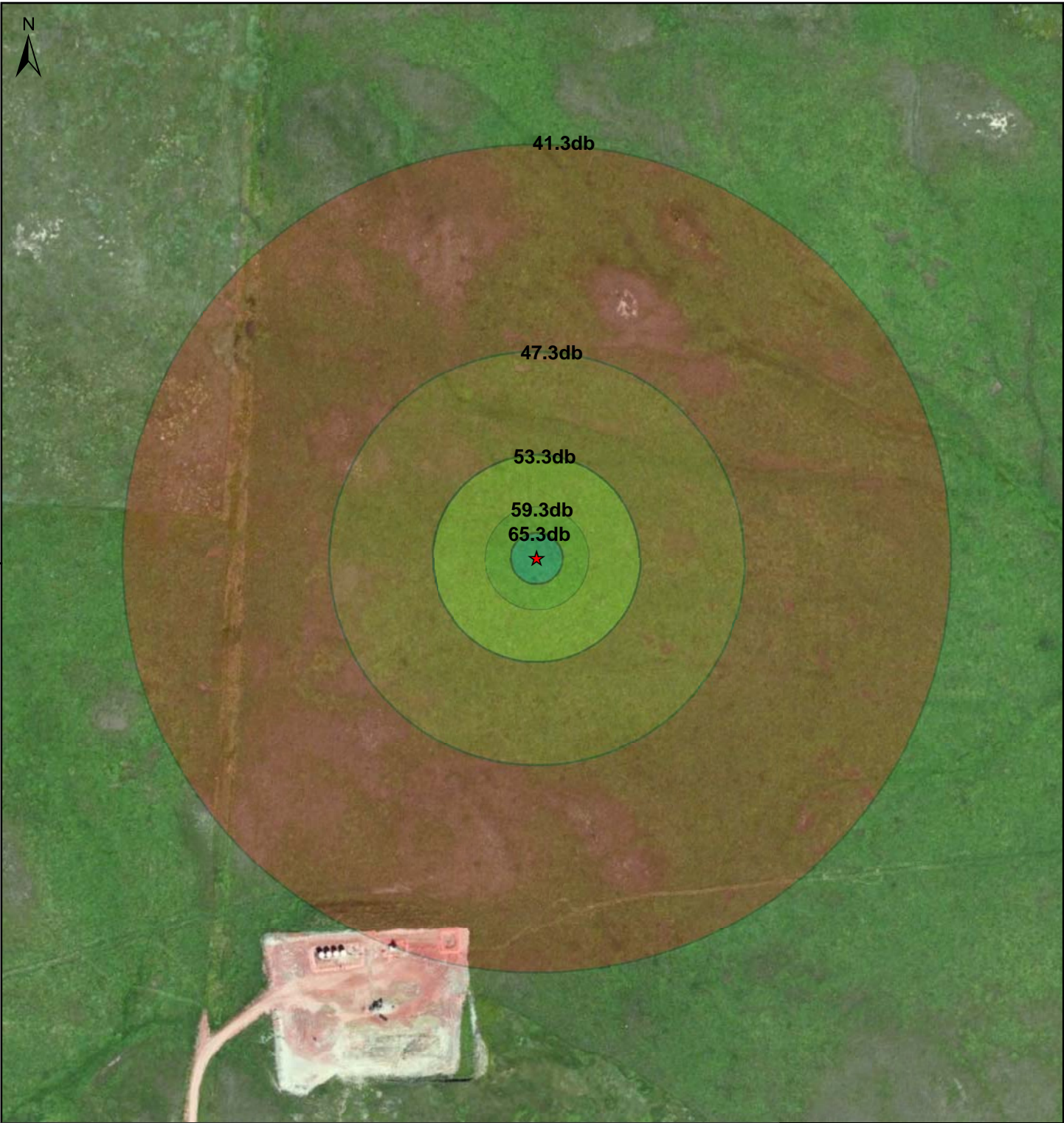
36	31	155-98	32	33
1	6	5		4
12	155-99	155-98	Williams 8	9
	7	★		
13	18	17		16

Legend

- ★ Facility
- 80ft
- 160ft
- 320ft
- 640ft
- 1280ft



**Epping Injection Station
Noise Study Map
Market Center Pipeline**



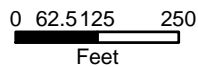
9	10	11	12	7	8
16	15	14	13	18	17
21	22	23	24	19	20
28	27	26	25	30	29
33	34	35	36	31	32

McKenzie

150-96
150-95

Legend

- ★ Facility
- 80ft
- 160ft
- 320ft
- 640ft
- 1280ft



**Johnson's Corner Station
Noise Study Map
Market Center Pipeline**



44.9db

50.9db

56.9db







62.9db

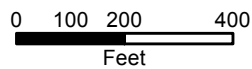
68.9db



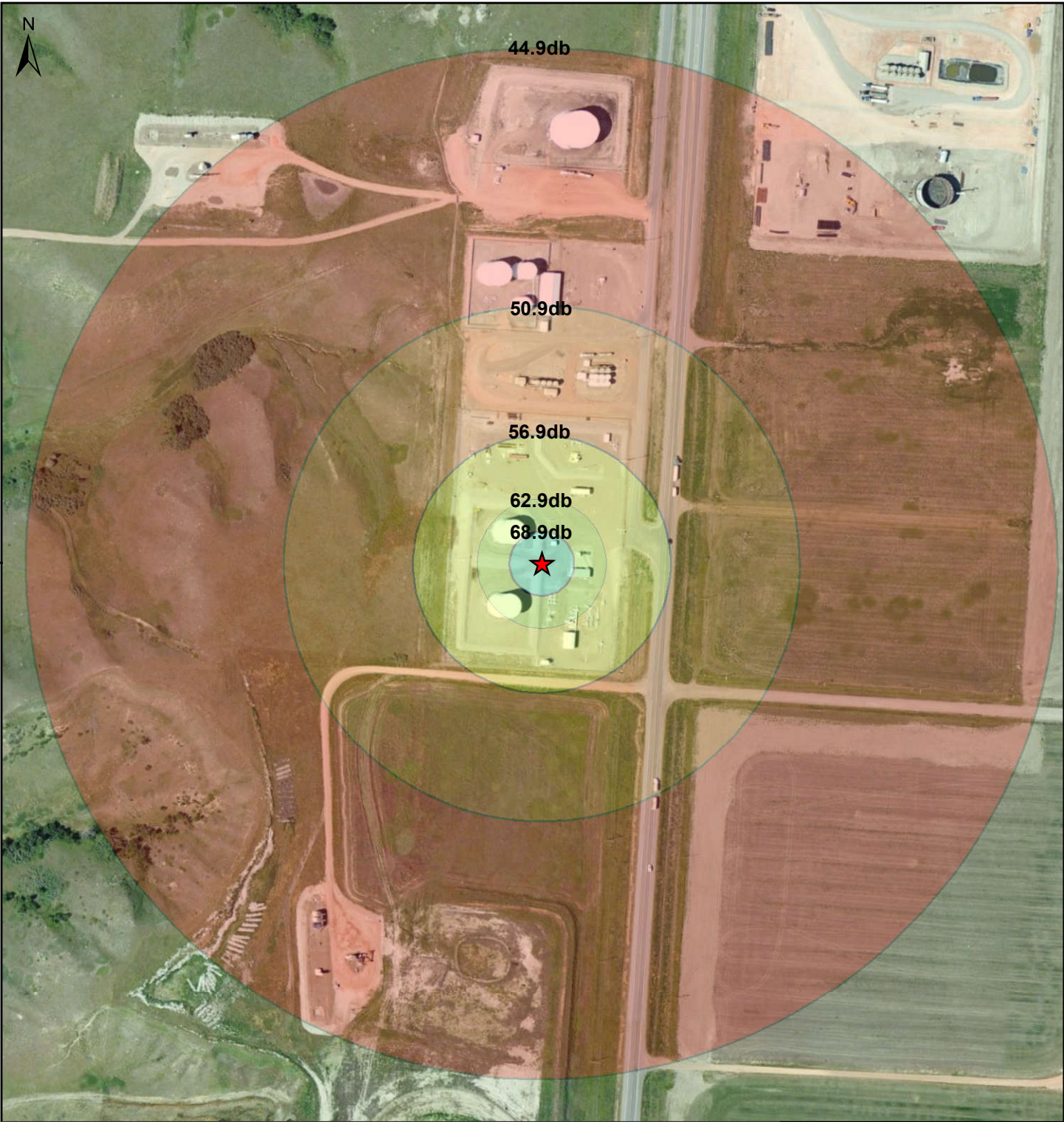
	12	7	8	9
13	18		17	16
24	159-96	159-95	Williams	21
	19		20	
25	30		29	28

Legend

-  Facility
-  80ft
-  160ft
-  320ft
-  640ft
-  1280ft



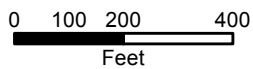
**McGregor Station
Noise Study Map
Market Center Pipeline**



28	27	26	25
33	34	35	36
154-102	★		
153-102		Williams	
4	3	2	1
9	10	11	12

Legend

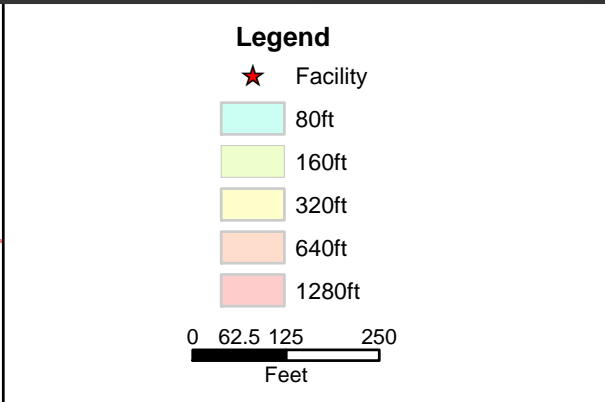
- ★ Facility
- 80ft
- 160ft
- 320ft
- 640ft
- 1280ft



**Trenton Station
Noise Study Map
Market Center Pipeline**



31	32	33
156-95	Williams	
155-95	★	
6	5	4



**Tioga Terminal
Noise Study Map
Market Center Pipeline**

Printed: 7/23/2014

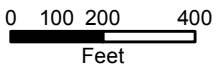


3	2	1	6
10	11	12	7
		 McKenzie	
15	14	13	18
22	23	24	19

151-98
151-97


Legend

- Facility
- 80ft
- 160ft
- 320ft
- 640ft
- 1280ft









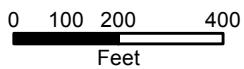
**Watford City Injection Station
Noise Study Map
Market Center Pipeline**



19	20	21	22
30	29	28	27
31	 Mountrail 32 156-93 155-93	33	34
6	5	4	3

Legend

-  Facility
-  80ft
-  160ft
-  320ft
-  640ft
-  1280ft



**White Earth Injection
Noise Study Map
Market Center Pipeline**