



PRINCIPLE ENVIRONMENTAL, LLC

Continuous Monitoring
Sound Level Survey

Billings 3A-18H Pad

Complaint Monitoring Location

161 Henson Drive (4,000' S)

Weld County, Colorado

1/29/2015 – 1/30/2015

Prepared for:

Encana Oil & Gas (USA) Inc.

3601 Stagecoach Road

Longmont, Colorado 80504

Prepared by:

Principle Environmental, LLC

201 West Ranch Court

Weatherford, Texas 76087

January 30, 2015

Executive Summary of Results

There were multiple 15-minute LAeq overages during the monitoring period that exceeded the Industrial Zoning limits. There were multiple 15-minute LCEq overages during the monitoring period that exceeded the low frequency C-weighted sound level limit of 65 dBC. The sound level meter was setup to record all LAeq signals greater than or equal to the limit of 70 dB during all hours of monitoring.

Principle Environmental, LLC (Principle) prepared this report to document the completion operations Continuous Monitoring sound level survey conducted at the monitoring location at approximately 4,000 feet south from the edge of the pad at 40°12'41.43"N, 105°3'6.86"W in Weld County, Colorado. Principle conducted approximately 14 hours of monitoring from Thursday, January 29, 2015 to Friday, January 30, 2015. The coordinates for the pad site are 40°13'21.60"N, 105° 3'6.39"W. The location and monitoring point are shown in the figure below. Photographs of the monitoring location are provided in Attachment 1.



Continuous Monitoring Data and Results

The completions operations continuous monitoring sound level survey was conducted from approximately 5:00 p.m. on Thursday, January 29, 2015 to 7:00 a.m. on Friday, January 30, 2015. The south monitoring location is located to the east of E County Line road. The meter is deployed at 4 ft. height and approximately 4,000 feet south from the pad. The complaint residence is located approximately 4,000 feet south from the well-bore at 161 Henson Drive.

The following table summarizes the logarithmic A-weighted and C-weighted average sound levels obtained during the monitoring:

Date	LAeq (dB)	LCeq (dB)	Wind Speed (mph)	Rainfall (inches)
Thursday, January 29, 2015	46.43	61.51	2.4	0.00
Friday, January 30, 2015	51.74	65.11	1.2	0.00
Total Daily Average	49.85	63.67	-	-

The 15 minute average summary table and chart obtained from the monitoring data for the location can be found in the Attachments 2 and 3. Manufacturer's specifications for the meter are available upon request.

The services provided for this project were performed with the care and skill ordinarily exercised by reputable members of the profession practicing under similar conditions. No warranty, expressed or implied, is made or intended by rendition of these consulting services or by furnishing oral or written reports of the findings made. This report has been prepared by Principle Environmental, LLC for the exclusive use by Encana Oil and Gas (USA) Inc.