Weekly Inspections and Analysis Summary

Phase One Hydraulic Fracturing

January 31, 2012 through February 3, 2012

Trinity TCC Site – 7504 Pleasant Run Road

Titan Operating – Operator

Titan TCC Site - 7504 Pleasant Run Road - Weekly Inspections and Incident Summary
Phase One Fracking - Week of January 30, 2012

	1/31/12	2/1/12	2/2/12	2/3/12	2/4/12
Wells Fracked (seven wells total)	2	1	1	2	
# OF INSPECTIONS					
Belcheff	2	2	2	2	
City	3	2	2	2	
VOC Air Quality Inspections	3*	3*	2	2	
VOC Air Quality Issues/Problems	0	0	0	0	
Other Air Quality Issues/Problems	0	0	0	0	
*Average PID VOC Measurement on Pad Site***	0.1	0.1	0.1	0.1	
** includes 24 hour automated monitoring*					
*** measured in parts per million*					
INCIDENTS					
Police Dispatches	0	0	0	0	
Noise Complaints	3	2	1	0	
Fire Dispatches	0	0	0	0	
Lighting Complaints	0	0	0	0	
Traffic Complaints	0	0	0	0	
Other Complaints	0	0	0	0	
Trespassing	0	0	0	0	
*Documented Liquid Spills**	0	1	0	0	
Road Damage	0	0	0	0	
** all spills were contained and cleaned*					
VIOLATIONS					
Noise	0	0	0	0	
Traffic/Truck Route	2	0	0	0	
State/Federal	0	0	0	0	
Other	0	0	0	0	

Air Quality Analyses

February 1, 2012
Project No. DFW12009

MODERN GEOSCIENCES
Trusted Environmental Advisors

Monitoring Period: *January 30th (5:22 PM) to February 1st (6:59 AM)*

Air Monitoring Results
Titan Padsite
7504 Pleasant Run
Colleyville, Texas

Daily Monitoring Report

BACKGROUND:

Titan Operating, LLC (Titan) is performing hydraulic fracturing activities from January 31, 2012 through February 3, 2012 at the above facility. Per the Colleyville Land Development Code; Chapter 3.1, these operations may only occur during daytime hours (7:00 a.m. to 7:00 p.m.) and must meet all City of Colleyville ordinance requirements. Concurrent with these operations, Modern Geosciences, LLC (Modern) has been engaged by the City of Colleyville to perform 24-hour air monitoring during this period. For more information on this padsite and City requirements, please visit www.colleyville.com/gaswelldrilling.html.

MONITORING APPROACH:

Modern has deployed an Open-Path Monitor (OPM) that extends for approximately 50 meters (164 feet) through the well/equipment work area. The OPM projects a continuous beam of ultraviolet light (UV) that is capable of detecting specific compounds entering the beam and providing an estimate of concentrations. Data is collected approximately every three seconds and averaged over five-minute intervals. Additionally, Modern is using a wireless monitoring system to maintain contact with the OPM and review data throughout operation period. Additional monitoring data includes periodic inspection both inside and outside the padsite during operations by Modern personnel with handheld analyzers. A summation of the target compounds monitored through OPM and direct field measurements is detailed below.

MONITORING RESULTS:

During the monitoring period the following data were noted:

- Wind conditions were generally from the South during operational hours; and
- No spills or releases were noted during periodic inspections within operational hours.

Maximum field monitoring results outside padsite boundaries are presented in Table 1.

Table 1 External Padsite Maximum Concentrations

Compound	MDL	Regulatory Goal	North	East	South	West
Methane:	1	10,000*	<1	<1	<1	<1
tVOCs:	0.001	10,000	<0.001	<0.001	<0.001	<0.001
H_2S:	1	0.08	<1	<1	<1	<1

*All concentrations presented in parts per million by volume (ppmv) * 20% of the Lower Explosive Limit (LEL)*
tVOCs (total Volatile organic Compounds); H_2S (Hydrogen Sulfide);
MDL (Method or Equipment Detection Limit)

Maximum field monitoring results inside padsite boundaries are presented in Table 2.

Table 2 Internal Padsite Maximum Concentrations

Compound	MDL	Regulatory Goal	North	East	South	West
Methane:	1	10,000*	<1	<1	<1	<1
tVOCs:	0.001	10,000	0.012	<0.001	<0.001	<0.001
H_2S:	1	0.08	<1	<1	<1	<1

*All concentrations presented in parts per million by volume (ppmv) * 20% LEL*
tVOCs (total Volatile organic Compounds); H_2S (Hydrogen Sulfide);
MDL (Method or Equipment Detection Limit)

OPM results are presented in Table 3.

Table 3 OPM Monitoring Data Summary

COC	MDL	Night Maximum 1722-0700	Day Maximum 0700-1900	Night Maximum 1900-0700	NAAQS	AMCV
Ammonia	0.006	BDL	BDL	BDL		NA
Acetaldehyde	0.030	BDL	BDL	BDL		0.25
Benzene	0.003	BDL	BDL	BDL		0.18
Ethyl Benzene	0.003	BDL	BDL	BDL		20
Formaldehyde	0.032	BDL	BDL	BDL		0.041
Naphthalene	0.002	BDL	BDL	BDL		500
Hydrogen Sulfide	0.005	BDL	BDL	BDL		NA
Nitric Oxide (NO)	0.003	BDL	**1.96**	BDL		NA
Nitrogen Dioxide (NO_2)	0.040	BDL	BDL	BDL	0.1	NA
Ozone (O_3)	0.020	BDL	BDL	BDL	0.12	NA
o-xylene	0.038	**0.063**	BDL	BDL		1.7
m-xylene	0.004	BDL	BDL	BDL		1.7
p-xylene	0.002	BDL	BDL	BDL		1.7
Phenol	0.003	BDL	BDL	BDL		NA
Sulfur Dioxide (SO_2)	0.003	BDL	BDL	BDL	0.5	NA
Styrene	0.006	BDL	BDL	BDL		5.1
Toluene	0.008	BDL	**0.044**	BDL		4

MDL – Path-length Method/Equipment Detection Limit (100 meters) All concentrations presented in parts per million by volume (ppmv)
** Utilizes ESLs or other Texas statutory criteria when an AMCV is not available NA – Not Available*
AMCV – Air Monitoring Comparison Value (TCEQ; 2011) – Short-term health-based criteria
NAAQS – National Ambient Air Quality Standards (SO_2 – 3-hour secondary criteria, NO_2 – 1-hour primary criteria, O_3 – 8-hour primary criteria is 0.075, with legacy 1-hour average of 0.12)

MONITORING DISCUSSION:

Three compounds were noted above equipment detection limits in the OPM alignment. This included o-xylene, toluene, and nitric oxide. The o-xylene concentrations were noted during afternoon staging activities for the hydraulic fracturing event on January 31, 2012. None of the identified compounds exceed TCEQ Air Monitoring Comparison Values (AMCVs) for short-term health criteria or National Ambient Air Quality Standards set by the EPA. It should be noted that these compounds are consistent with diesel exhaust and were monitored within a work area where this would be expected.

Following completion of daily monitoring efforts, a full summary report will be prepared to document individual monitoring observations, monitoring methodology, regulatory comparison criteria and final results.

February 2, 2012
Project No. DFW12009

MODERN GEOSCIENCES
Trusted Environmental Advisors

Monitoring Period: *February 1st (7:00 AM) to February 2nd (7:00 AM)*

Air Monitoring Results
Titan Padsite
7504 Pleasant Run
Colleyville, Texas

Daily Monitoring Report

BACKGROUND:

Titan Operating, LLC (Titan) is performing hydraulic fracturing activities from January 31, 2012 through February 3, 2012 at the above facility. Per the Colleyville Land Development Code; Chapter 3.1, these operations may only occur during daytime hours (7:00 a.m. to 7:00 p.m.) and must meet all City of Colleyville ordinance requirements. Concurrent with these operations, Modern Geosciences, LLC (Modern) has been engaged by the City of Colleyville to perform 24-hour air monitoring during this period. For more information on this padsite and City requirements, please visit www.colleyville.com/gaswelldrilling.html.

MONITORING APPROACH:

Modern has deployed an Open-Path Monitor (OPM) that extends for approximately 50 meters (164 feet) through the well/equipment work area. The OPM projects a continuous beam of ultraviolet light (UV) that is capable of detecting specific compounds entering the beam and providing an estimate of concentrations. Data is collected approximately every three seconds and averaged over five-minute intervals. Additionally, Modern is using a wireless monitoring system to maintain contact with the OPM and review data throughout monitoring period. Additional monitoring data includes periodic inspection both inside and outside the padsite during operations by Modern personnel with handheld analyzers. A summation of the target compounds monitored through OPM and direct field measurements is included below.

MONITORING RESULTS:

During the monitoring period the following data were noted:

- Moderate wind conditions were observed from the northwest during operational hours; and
- No spills or releases were noted during periodic inspections within operational hours.

Maximum field monitoring results outside padsite boundaries are presented in Table 1.

Table 1 External Padsite Maximum Concentrations

Compound	MDL	Regulatory Goal	North	East	South	West
Methane:	1	10,000*	<1	<1	<1	<1
tVOCs:	0.001	10,000	<0.001	<0.001	<0.001	<0.001
H_2S:	1	0.08	<1	<1	<1	<1

*All concentrations presented in parts per million by volume (ppmv) * 20% of the Lower Explosive Limit (LEL)*
tVOCs (total Volatile organic Compounds); H_2S (Hydrogen Sulfide);
MDL (Method or Equipment Detection Limit)

Maximum field monitoring results inside padsite boundaries are presented in Table 2.

Table 2 Internal Padsite Maximum Concentrations

Compound	MDL	Regulatory Goal	North	East	South	West
Methane:	1	10,000*	<1	<1	<1	<1
tVOCs:	0.001	10,000	<0.001	<0.001	<0.001	<0.001
H_2S:	1	0.08	<1	<1	<1	<1

*All concentrations presented in parts per million by volume (ppmv) * 20% LEL*
tVOCs (total Volatile organic Compounds); H_2S (Hydrogen Sulfide);
MDL (Method or Equipment Detection Limit)

OPM results are presented in Table 3.

Table 3 OPM Monitoring Data Summary

COC	MDL	Day Maximum 0700-1900	Night Maximum 1900-0700	NAAQS	AMCV
Ammonia	0.006	BDL	BDL		NA
Acetaldehyde	0.030	BDL	BDL		0.25
Benzene	0.003	BDL	BDL		0.18
Ethyl Benzene	0.003	**0.195**	BDL		20
Formaldehyde	0.032	BDL	BDL		0.041
Naphthalene	0.002	BDL	BDL		500
Hydrogen Sulfide	0.005	BDL	BDL		NA
Nitric Oxide (NO)	0.003	**2.3**	BDL		NA
Nitrogen Dioxide (NO_2)	0.040	BDL	BDL	0.1	NA
Ozone (O_3)	0.020	BDL	BDL	0.12	NA
o-xylene	0.038	**0.138**	**0.068**		1.7
m-xylene	0.004	BDL	BDL		1.7
p-xylene	0.002	BDL	BDL		1.7
Phenol	0.003	BDL	BDL		NA
Sulfur Dioxide (SO_2)	0.003	BDL	BDL	0.5	NA
Styrene	0.006	BDL	BDL		5.1
Toluene	0.008	**0.137**	BDL		4

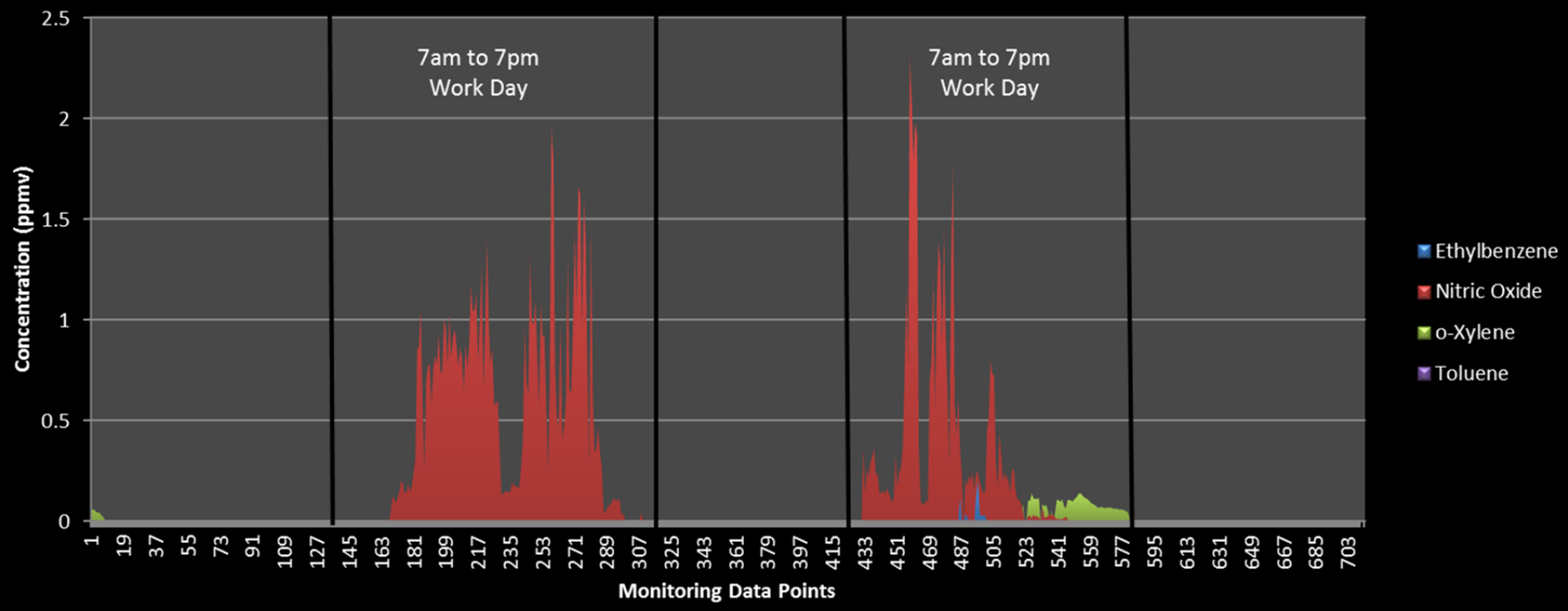
MDL – Path-length Method/Equipment Detection Limit (100 meters) All concentrations presented in parts per million by volume (ppmv)
** Utilizes ESLs or other Texas statutory criteria when an AMCV is not available NA – Not Available*
AMCV – Air Monitoring Comparison Value (TCEQ; 2011) – Short-term health-based criteria
NAAQS – National Ambient Air Quality Standards (SO_2 – 3-hour secondary criteria, NO_2 – 1-hour primary criteria, O_3 – 8-hour primary criteria is 0.075, with legacy 1-hour average of 0.12)
BDL – Below Detection Limits

MONITORING DISCUSSION:

Four compounds were noted above equipment detection limits in the OPM alignment. This included ethyl benzene, o-xylene, toluene, and nitric oxide. None of the identified compounds exceed TCEQ Air Monitoring Comparison Values (AMCVs) for short-term health criteria or National Ambient Air Quality Standards (NAAQS) set by the EPA. It should be noted that these compounds are consistent with diesel exhaust and were monitored within a work area where this would be expected.

Following completion of daily monitoring efforts, a full summary report will be prepared to document individual monitoring observations, monitoring methodology, regulatory comparison criteria and final results.

January 30th to February 2nd 2012 - Hydraulic Fracturing
Titan Padsite, Colleyville, Texas



Air Quality Monitoring Results

Modern Geosciences

Noise Monitoring Analyses

Continuous Daily Monitoring Report

report for:

Titan Operating
Trinity
Report Date: Feb 1 2012
Municipality: City of Colleyville

Operations: **Fracturing**
Survey Findings: **In Compliance**
Reporting Period: Jan 31, 2012

Dear Mr. Brown,

We have measured and calculated the sound levels and the results of the survey are shown in the attached chart.

The graph will display the hourly average (LEQ) sound levels and compare them against the approved allowable sound levels to insure continual compliance at the site.

The maximum permissable allowables are calculated from the results of the 72hr Ambient Survey performed by Mike Fann & Assoc., which yielded an ambient average of 53 dBA which has been submitted to the City of Colleyville.

Equipment:
B&K Model 2250 Type I ANSI 1.4 Approved
Calibration:
Feb 1 at 114 dB with no deviations
Meter Placement:

Please contact me if you have any questions or comments.

Best regards,

Brian Cackson

Acoustical Consultant
Noise Attenuation Construction (NAC)

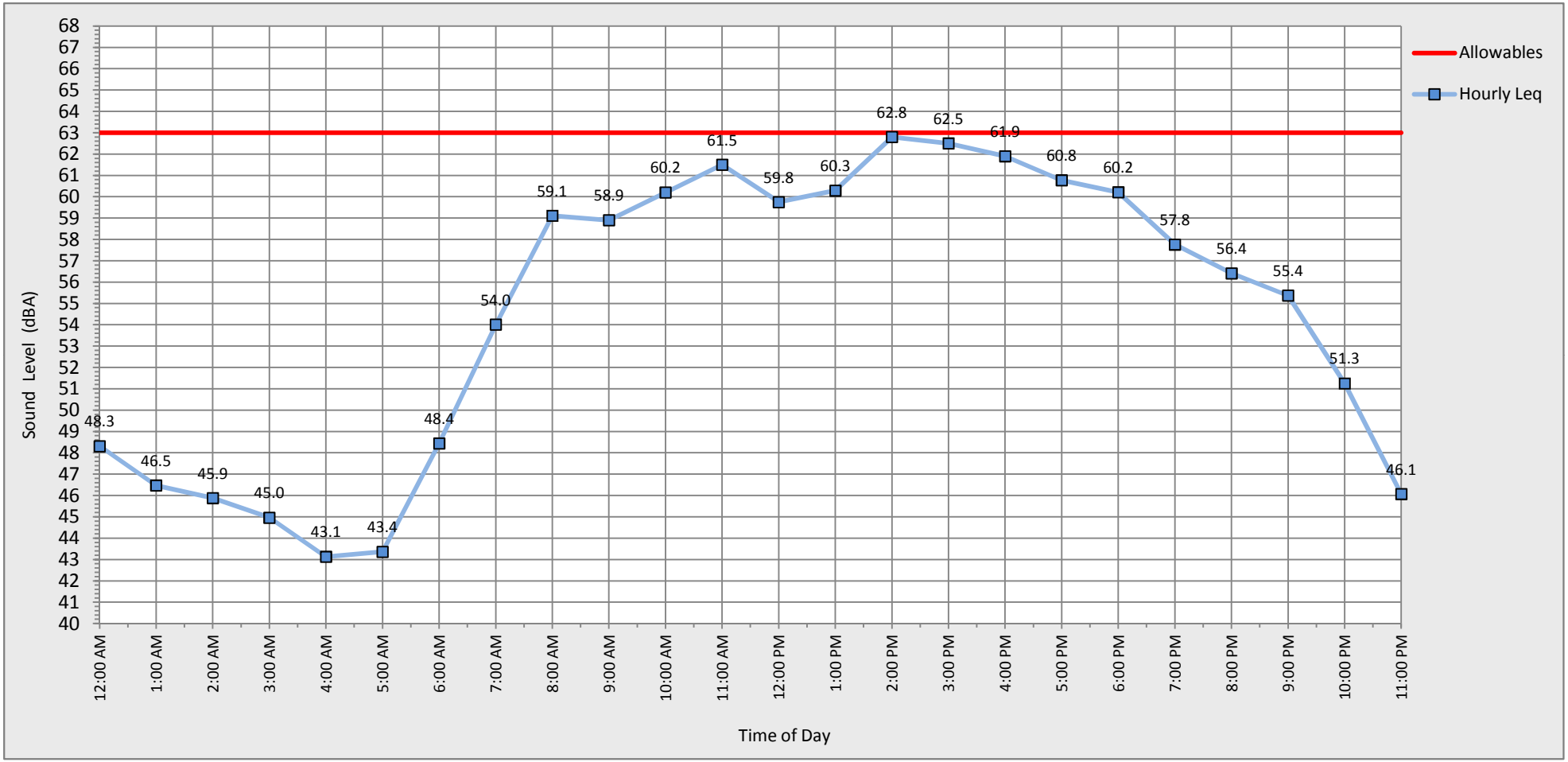
Continuous Daily Monitoring Report

Survey Findings: In Compliance

Audio Recording:	Enabled
Frequency Logging:	Enabled
Weighting:	dB in A Freq in A
Logging Periods:	1 Hour
Frac Max Allowable:	63 dBA

Raw Data (dBA):

12:00 AM	**48.3**	*8:00 AM*	**59.1**	*4:00 PM*	**61.9**
1:00 AM	**46.5**	*9:00 AM*	**58.9**	*5:00 PM*	**60.8**
2:00 AM	**45.9**	*10:00 AM*	**60.2**	*6:00 PM*	**60.2**
3:00 AM	**45.0**	*11:00 AM*	**61.5**	*7:00 PM*	**57.8**
4:00 AM	**43.1**	*12:00 PM*	**59.8**	*8:00 PM*	**56.4**
5:00 AM	**43.4**	*1:00 PM*	**60.3**	*9:00 PM*	**55.4**
6:00 AM	**48.4**	*2:00 PM*	**62.8**	*10:00 PM*	**51.3**
7:00 AM	**54.0**	*3:00 PM*	**62.5**	*11:00 PM*	**46.1**



Reporting Period: **Jan 31, 2012** **Trinity** **Hourly Averages (Leq)**

Continuous Daily Monitoring Report

report for:

Titan Operating
Trinity
Report Date: Feb 2 2012
Municipality: City of Colleyville

Operations: **Fracturing**
Survey Findings: **In Compliance**
Reporting Period: Feb 1, 2012

Dear Mr. Brown,

We have measured and calculated the sound levels and the results of the survey are shown in the attached chart.

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The maximum permissable allowables are calculated from the results of the 72hr Ambient Survey performed by Mike Fann & Assoc., which yielded an ambient average of 53 dBA which has been submitted to the City of Colleyville.

Equipment:
B&K Model 2250 Type I ANSI 1.4 Approved
Calibration:
Feb 2 at 114 dB with no deviations
Meter Placement:

Please contact me if you have any questions or comments.

Best regards,

Brian Cackson

Acoustical Consultant
Noise Attenuation Construction (NAC)

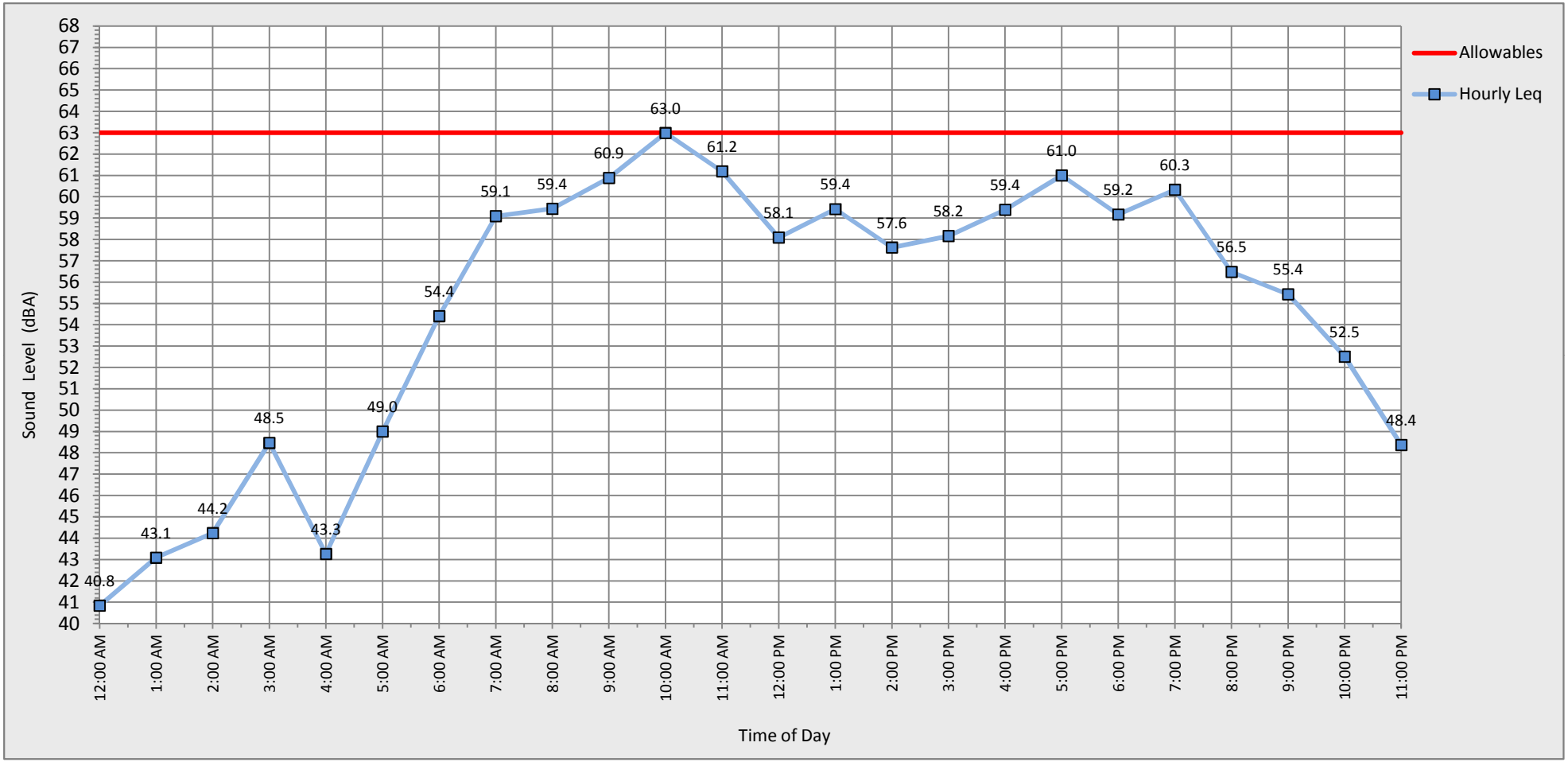
Continuous Daily Monitoring Report

Survey Findings: In Compliance

Audio Recording:	Enabled	
Frequency Logging:	Enabled	
Weighting:	dB in A	Freq in A
Logging Periods:	1 Hour	
Frac Max Allowable:	63	dBA

Raw Data (dBA):

12:00 AM	**40.8**	*8:00 AM*	**59.4**	*4:00 PM*	**59.4**
1:00 AM	**43.1**	*9:00 AM*	**60.9**	*5:00 PM*	**61.0**
2:00 AM	**44.2**	*10:00 AM*	**63.0**	*6:00 PM*	**59.2**
3:00 AM	**48.5**	*11:00 AM*	**61.2**	*7:00 PM*	**60.3**
4:00 AM	**43.3**	*12:00 PM*	**58.1**	*8:00 PM*	**56.5**
5:00 AM	**49.0**	*1:00 PM*	**59.4**	*9:00 PM*	**55.4**
6:00 AM	**54.4**	*2:00 PM*	**57.6**	*10:00 PM*	**52.5**
7:00 AM	**59.1**	*3:00 PM*	**58.2**	*11:00 PM*	**48.4**



Reporting Period: **Feb 1, 2012** **Trinity** **Hourly Averages (Leq)**