NCIA Regional Noise Management Plan (RNMP)

First Annual Report

Prepared for the

Energy Resources Conservation Board (ERCB)

May 2012

Suite 204, 9902-102 Street
Fort Saskatchewan, Alberta
T8L 2C2

NCIA
Northeast Capital Industrial Association

Suite 204, 9902-102 Street
Fort Saskatchewan, Alberta
T8L 2C3
P. 780.992.1463 F. 780.998.2832
NCIA.ab.ca

May 1, 2012

Don South
Technical Specialist Noise
Energy Resources Conservation Board
Field Surveillance and Operations Branch
640 - 5 Avenue SW
Calgary, Alberta
T2P 3G4

Dear Don:

Re: First Annual (2012) Regional Noise Management Plan Report from the Northeast Capital Industrial Association

Hi Don, please find attached (electronically) our first annual submission to the ERCB for the Annual Report from NCIA regarding the Regional Noise Management Plan.

Please let me know if you would like a hard copy of this report sent to you as well, or if the electronic copy (herewith) is sufficient.

We look forward to formal endorsement by the ERCB of the Regional Noise Management Plan later this year.

I would be happy to discuss any of these materials further with you or your team should you so desire.

Regards,

Dr. Laurie J. Danielson
Executive Director
Phone: 992 1463

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NCIA Regional Noise Management Plan (RNMP)

First Annual Report

to the Energy Resources Conservation Board (ERCB)

2012

1 Executive Summary

NCIA began actively working with the Alberta Energy Utilities Board (EUB; now the ERCB and the Alberta Utilities Commission (AUC)) on amendments to the Noise Control Directive in 2002. Given that the most reasonable approach to managing noise in Alberta's Industrial Heartland (AIH) would be on a regional basis, NCIA created a Noise Best Management Practices Subcommittee in 2005 to begin working with the EUB to develop a regulatory alternative to Permissible Sound Levels (PSLs) based on a "best management practices" approach.

These discussions resulted in an update to the Noise Control Directive to include provisions for a Noise Management Plan in 2005. Further revisions and refinements were made culminating in the current language found in Section 5 of Noise Control Directive 038.

NCIA proposed a RNMP framework which was approved in concept by the EUB. NCIA and the EUB worked together to develop a RNMP that could be effectively implemented in the AIH. After the split of the EUB into the AUC and the ERCB (January 2008), NCIA worked primarily with the ERCB to move the RNMP forward, and made reasonable efforts to ensure that the AUC was kept abreast of the progress on the RNMP.

The current status is:

- Development of an RNMP Compliance Framework - **completed**
- Acknowledgement by ERCB that the Compliance Framework is acceptable – **completed**
- Development of a Noise Equipment Database Tool – **completed**
- Development of Regional Noise Model – **completed**
- Roll out of plan for NCIA member companies – **completed**
- Develop Orientation Package for member companies – **completed**
- Sign off by ERCB that RNMP is now in effect – **pending (Q2 2012)**

2 History

2.1 Working with the EUB/ERCB

NCIA began actively working with the EUB on amendments to the Noise Control Directive in 2002. With financial assistance from several of the regulated companies in Alberta's Industrial Heartland (AIH), the EUB and acoustical consultants undertook several years of noise monitoring in selective parts of the AIH to better understand noise propagation trends and to see how noise changes at resident locations. The monitoring was designed to capture industrial noise levels when all facilities were operating under normal conditions. In 2004, the EUB issued a "*Noise Monitoring Report: Alberta's Industrial Heartland*" (see Appendix 1) comparing noise measurements taken in 2004 to those taken in 2002. The results of this report indicated that noise levels in AIH were very near the allowable permissible sound level (PSL) for the area. Further, the EUB noted that "*in addition to being very complex, overall environmental noise in the area is subject to cumulative effects, that is, all sources of noise add to the total sound level experienced at any one location. Even with detailed isolation analysis (removing of non-industrial noise) it is impossible to completely take out ambient noise such as birds, insects, and non-regulated industries. This is turn makes it difficult to attribute noise levels fully at a residence to a single EUB regulated industrial source*."

While results of noise monitoring showed industry was in compliance with the permitted noise levels at neighboring residences, the margin between those noise levels and PSLs had decreased. In keeping with the provincial government's desire to see AIH be a hub for industrial activity, the NCIA members wanted to ensure ERCB noise level policies were aligned with existing and future industry activities.

The PSL approach, which was designed for facilities in remote locations, was not appropriate for the AIH region where industrial development is high by design. The PSL values are based on measurements taken in the early 1980's. The Basic Sound Level of 40 dBA Leq intended for rural Alberta is difficult for the AIH region to achieve and the adjustments to the PSL for industry are questionable in application for an industrial region.

Not all industry operating in the AIH is subject to requirements of the ERCB noise control directive; yet unregulated facilities (such as gravel-pit operations, railway staging and traffic, truck traffic) contribute in a significant way to the background noise levels in the region. This creates undue business pressure on the regulated industry community and an "un-even" playing field".

Future industrial development within the AIH, and concerns with the ERCB noise management process presented an impetus to re-examine the noise management approach.

It was this work that provided the realization to both the EUB and industry that compliance determination for regulated companies was not really possible given all of the factors in AIH that affect noise at a receptor location. A better approach was needed, one that would address the issue of environmental noise on a regional basis for all industrial operations not just the EUB regulated ones, and it was clear that NCIA was a good vehicle to achieve this.

NCIA created a Noise Best Management Practices Subcommittee in 2005 to begin working with the EUB to develop a regulatory alternative to PSLs based on a "best management practices" approach:

- The plan proposed by the NCIA Noise Best Management Practices Subcommittee to change how noise is managed in the region by the EUB was approved by the NCIA Board of Directors in February of 2005. The plan includes industry noise best management practices and educating the community on noise.
- The NCIA Executive Committee met with the EUB on June 17, 2005 to present NCIA's case for changing how noise is regulated in our region. The EUB supported the innovative plan (which was refined a bit more and is presented in Section 3 below), considered it a good fit with the Industry Collaboration to Address Resident Interests (ICARI; which has now become Life In The Heartland) initiative to craft a dispute resolution process between area residents and industry, and agreed to incorporate it into their new Noise Control Directive.
- On August 4, 2005 the EUB met with the NCIA Environment Committee to review how the new Noise Control Directive incorporated NCIA's noise management plan. The EUB supported a regional noise model and offered to redirect their funding for additional area noise monitoring in 2005 towards model development costs instead.
- The new Noise Control Directive (February 2007) will allow industry to subscribe to NCIA's regional noise management plan in lieu of individual site PSL's for noise, once approved by the ERCB.

2.2 Changes to Noise Control Directive

In 2005, the EUB amended the Noise Control Directive to include provisions for a Noise Management Plan. Further revisions and refinements were made culminating in the current language found in Section 5 of Noise Control Directive 038 (February 2007).

"Noise management plans: In unique cases, as determined by the EUB, where traditional comprehensive sound surveys are not practical, compliance may be demonstrated through the development and implementation of detailed regional noise management plans (Section 5).

5.1 Noise Complaints and Noise Management Plans

1) A facility is in compliance if a CSL survey conducted at representative conditions has results equal to or lower than the established PSL, taking into consideration any LFN. Alternatively, if the EUB agrees that a CSL survey is not practical, a detailed Noise Management Plan (NMP) approved by the EUB may be used.

Noise Management Plans

2) An NMP must include

- *identification of noise sources,*
- *assessment of current noise mitigation programs,*
- *performance effectiveness of noise control devices,*

- *methods of noise measurement,*
- *best practices programs, and*
- *continuous improvement programs.*

3) *In all cases, an NMP must be discussed with and incorporate input from all affected persons, such as local neighbours, regulated and non-regulated industries, and local government. The EUB is willing to assist in the process if requested by the lead industrial operator."*

CSL = Comprehensive Sound Level
PSL = Permissible Sound Level
LFN = Low Frequency Noise

As a result of these changes to the Noise Control Directive, the concept of a Regional Noise Management plan as an **alternative** to Comprehensive Sound Level surveys and PSLs was created.

During the fall 2007 session of the Legislative Assembly, Bill 46, *Alberta Utilities Commission Act*, was enacted. The purpose of the Act was to separate the Alberta Energy and Utilities Board (EUB) into two regulatory bodies, the Alberta Utilities Commission (AUC) and the Energy Resources Conservation Board (ERCB), effective January 1, 2008.

The AUC is responsible for the approval and ongoing supervision of power plants, transmission lines, and gas utility pipelines, as well as the economic regulation and the establishment of rates for electricity, gas, and water. The ERCB focuses on Alberta's regulatory framework for energy resources.

The EUB's Noise Control Directive 038 became the ERCB's Noise Control Directive 038 and the noise management plan section was carried over into the AUC's Rule 012 - Noise Control document. So the concept of a Regional Noise Management Plan as an alternative to Comprehensive Sound Level surveys and PSLs, created under the EUB, was carried forward to both the ERCB and the AUC.

The Regional Noise Management Plan must be approved by the ERCB and may then be used to demonstrate compliance to Noise Control Directive 038.

2.3 Correspondence with the EUB/ERCB

The correspondence from and to the EUB/ERCB can be found in Appendix 2. What follows is an itemized list of the major communication pieces from 2007 onward.

1. February 7, 2007 from NCIA to EUB wherein the details NCIA's proposed RNMP framework are provided and NCIA asks for approval from the EUB on that framework.

2. February 14, 2007 from David DegGane of the EUB to NCIA wherein the EUB grants approval of the NCIA Regional Noise Management Plan.
3. November 7, 2007 from NCIA to the EUB wherein a formal written acknowledgement of understanding respecting the NCIA RNMP Compliance Framework is requested.
4. December 10, 2007 from the EUB to NCIA wherein the EUB acknowledged that the proposed compliance framework is acceptable and meets the requirements of Section 5.1 of Noise Control Directive 038.
5. December 19, 2007 from NCIA to EUB requesting financial support for the Regional Noise Modelling Project work ($30,000 in 2007 and $30,000 in 2008).
6. January 10, 2008 from the EUB to NCIA agreeing to provide $30,000 for 2007 with the funding for 2008 pending approval of the 2008 budget.

2.4 Correspondence/Conversations with the AUC

Although NCIA was working principally with the ERCB on the Regional Noise Management Plan efforts were made to ensure that the AUC was kept abreast of progress and the state of the discussions with the ERCB along the way. A high level summary of these communications are listed below:

1. May 2009: NCIA spoke with Jack Davis of the AUC at the Spring Noise Conference in Banff about the progress of the RNMP.
2. July 25, 2010: NCIA spoke with Jack Davis of the AUC to again provide an update on the progress of the RNMP and documents about the status of the RNMP were sent to Jack at that time.
3. May 2011: NCIA spoke with Jack Davis of the AUC at the Spring Noise Conference where the RNMP and Regional Model work was rolled out.
4. January 3, 2012: NCIA invited Jack Davis of the AUC to a meeting in Calgary about the RNMP and the Regional Model at the HFP Acoustical Offices on February 3, 2012 (Jack attended).
5. February 2, 2012: NCIA sent the draft "NCIA Regional Noise Model Project" report to Jack Davis of the AUC to help prepare him for the February 3, 2012 meeting with HFP and the ERCB.
6. March 13, 2012: NCIA provided Jack Davis of the AUC with correspondence between NCIA and the EUB/ERCB demonstrating that the decision to support the RNMP occurred under the jurisdiction of the EUB (before the split into the AUC and ERCB).
7. March 16, 2012: NCIA provided Jack Davis of the AUC with a copy of the final "NCIA Regional Noise Model Project" report.

3 Scope of RNMP

3.1 Elements of RNMP

3.1.1 Compliance Framework (as approved by the EUB in 2007; see Appendix 2)

Overview

In keeping with provisions of the *EUB Noise Monitoring Directive D-38*, the NCIA has developed a Regional Noise Management Plan. A component of the plan is public engagement and NCIA proposes to use existing community advisory panels and the Life In the Heartland communication portal to meet that requirement.

The Framework

NCIA members participating in the RNMP are required to implement the following framework:

3.1.1.1 Noise Control Commitment Statement

NCIA member-company senior management sets clear expectations for management of noise compliance at their site(s).

3.1.1.2 Site Noise Management Plan

NCIA member-company develops and implements a documented SITE NOISE MANAGEMENT PLAN (NMP) that integrates occupational and environmental objectives. The plan uses an in auditable management system model and includes the following elements at minimum:

- Source Identification
  - Formal gap analysis of hearing conservation (noise control) programs against the Alberta OH&S standard.
- Assessment (routine and planned)
  - Noise baseline at plant to reflect normal operation
  - Complaint management process
- Abatement strategies
  - Engineering control practices for selecting new equipment and for abatement of existing noise sources. The following documents were prepared by the Best Practices Subcommittee and will serve as benchmark tools (these documents are only available to NCIA member companies as part of our resource library for the Regional Noise Management Plan).

- Noise Best Practices - Noise Reduction Strategies; prepared for NCIA by HFP (March 2006);
- ATCO Noise Management Research Report; prepared for NCIA (June 2006); and
- NCIA Noise Reduction Cost Spreadsheet Tool; prepared for NCIA by HFP (October 2008).

o Work processes such as "Management of Change" to incorporate noise impacts assessment.
o Procurement Practices to assure quality in specified equipment and to promote continuous improvement in design by setting expectations for contractors and manufacturers. Best Practices Subcommittee recommended development of template clause to serve contractual purposes.

3.1.1.3 Self Audits

NCIA member-company

o Surveys to confirm program effectiveness
o Verification process to track and report on site implementation progress

3.1.1.4 Disclosure of Improvements to NCIA

NCIA member-company shares results of annual NMP implementation with NCIA on annual basis.

3.1.1.5 Regional Noise Model

Support the development of a Regional Noise Model or alternate noise tracking program for region.

3.1.1.6 Public Communication

Use the Life In The Heartland platform to communicate and engage public feedback on the RNMP.

Compliance

Compliance with D-38 is to be demonstrated through conformance with the RNMP. Compliance to the RNMP will be determined on a basis of "Due Diligence".

- Due Diligence – taking all reasonable steps to reduce a given impact
- Compliance will be based on:
  - Regional Model baseline
  - Receptor impact
  - RNMP conformance

The table below summarizes the compliance requirements for NCIA member companies vis a vis the NCIA RNMP.

NCIA Member	ERCB Regulated	RNMP Participant	Compliance Vehicle
Yes	Yes	Yes	NCIA - RNMP
No	Yes	No	ERCB to Determine
Yes	No	No	Municipality/AENV
Yes	No	Yes	NCIA - RNMP
No	No	Yes	Potential NCIA-RNMP
No	No	No	Other Regulatory Jurisdictions

Conformance

The RNMP framework calls for participating industry to demonstrate due diligence by conforming with the requirements of the plan. Key expectations are as follows:

1. Conformance with individual facility programs
   - Including implementing monitoring, abatement, self audit, annual reporting and other program details
2. Complaint Resolution
   - Partnership with regulator to determine "workable resolution" to noise complaints.
3. Readiness for potential management system verification by regulator (EUB) similar to other regulated activity under current monitoring and enforcement rules
   - E.g. Management system documentation and review, management of Change documentation, etc.
4. Participation in development of the Regional Noise Model
   - Develop a baseline for regional noise by modeling EUB regulated, non-regulated, non-NCIA industry, as well as non-industrial sources.
   - Field verify model results and identify potential problem areas and sources.
   - Companies work with the EUB on continuous improvement plans that provide workable resolutions to potential problem regulated sources
   - New sources coming into the area would use the model to establish incremental impact.

5. Companies that do not demonstrate conformance with the plan would default to PSL compliance.
6. Tracking noise management initiatives and providing an annual status to NCIA to facilitate a comprehensive annual report to the EUB.

3.1.2 Noise Equipment Database Tool

NCIA retained HFP Acoustical Consultants to develop a Spreadsheet Tool, which could be used to conduct a preliminary review of practical noise control treatments available for individual plant equipment, inclusive of ranges of attenuation achievable and budgetary costs. The noise control conceptual guidelines were obtained from the Noise Reduction Strategies work (previously reported). The installed noise control costs were obtained for typical engineering noise control mitigating measure treatments for Alberta's marketplace.

A Spreadsheet Tool with drop-down menus was developed, being capable of estimating noise control treatment material supply and installation costs for various noise control treatments. The user of the spreadsheet would first have to have the results of computer noise modeling for their facility, as well as order-ranked lists of the contribution of the predominant plant equipment noise sources. The user could then continue to use the Spreadsheet Tool to estimate vendor costs (supply only), and total installed costs (inclusive of engineering and installation). These cost estimates would permit establishing benefits obtainable, budgeting for noise control projects, and choosing between alternatives.

The work was completed in 2008 and a seminar on how using the Spreadsheet Tool can be interfaced with computer noise modeling, how the Spreadsheet Tool functions, and identifying specific user needs for follow-up work was completed as part of the Noise Education Day (see Section 4 under 2010).

This tool is available on NCIA's share point site for use by our member companies.

3.1.3 Roll out Plan for NCIA Member Companies/Orientation

A roll out plan for the RNMP was developed and issued in June of 2007 to all NCIA member companies. It included the following:

- Why the RNMP was developed.
- What elements make up the plan.
- What the expectations were for each company who participates in the plan.
- Adoption of the plan by NCIA members.

This process was then reaffirmed in 2011 with the development of an NCIA Noise Management Plan Standard for use by NCIA members (see Appendix 3).

As not all NCIA member companies are regulated by the ERCB, NCIA changed its bylaws (Section 5(f)) in 2009 to read the following:

"As a continuing requirement of Membership in the Association, all Members who are subject to the Alberta Energy Resources Conservation Board ("ERCB") Noise Control Directive 038, which was approved by the ERCB on February 16, 2007, as amended from time to time (the "Directive"), are required to comply with the Association's Regional Noise Management Plan as approved by the ERCB pursuant to the Directive, as amended from time to time."

As of this date, the NCIA membership is made up of the following companies:

NCIA Member*	**ERCB Regulated Status for Noise Control Directive 038**	**Filed an Annual Update with NCIA for 2012** (Appendix 4)	**Developed a Site Noise Management Plan**
Access Pipeline	ERCB regulated under Noise Control Directive 038.	Yes	Not yet
Agrium Fort Saskatchewan	Not regulated	Yes	Yes
Agrium Redwater	Not regulated	Yes	Yes
Air Liquide Canada	Not regulated	Yes	Yes
Aux Sable Canada	Regulated under Section 11 of the OSCA and therefore D-038.	No	Not yet
BA Energy	Will be regulated	Yes	Not yet
Chemtrade West	Not regulated	Yes	Yes
Dow Chemical Canada	Regulated under D-038 Operator No. 0F05	Yes	Yes
Enbridge Pipelines	Will be regulated	Yes	Not yet
Evonik Degussa Canada	Not regulated	Yes	No
Fort Hills Energy Partnership	Will be regulated Operator No. 0XP9	Yes	No
Keyera Energy	Regulated under D-038 Operator No. A5W1 (Keyera Corp; will soon change it to Keyera Energy Ltd.) LSD - 02-14-055-22W4 Facility No. F-12695	Yes	Yes
ME Global	Not regulated	Included with Dow's submission	Yes
North West Redwater Partnership	Will be regulated. LSD - E1/2-18-56-21-W4M	Yes	Not yet

NCIA Member*	ERCB Regulated Status for Noise Control Directive 038	Filed an Annual Update with NCIA for 2012 (Appendix 4)	Developed a Site Noise Management Plan
Pembina NGL Corporation (formerly Provident Energy)	Regulated under D-038	Yes	Yes
Plains Midstream Canada (formerly BP Canada Energy)	Regulated under D-038 Operator No. 60 LSD - 14-55-22 W4M Facility No. 12699	Yes	Yes
Praxair Canada	Not regulated	No	No
Shell Chemicals	Not regulated	Yes	Yes
Shell Refinery	Regulated under Section 11 of the OSCA and therefore Noise Control Directive 038. ERCB Approval No. 11640.	Yes	Yes
Shell Upgrader	ERCB Approval No. 8522 regulated under D-038.	Yes	Yes
Sherritt International	Not regulated	Yes	Yes
Sulzer Metco (Canada)	Not regulated	Yes	Not yet
Tervita Corporation (formerly HAZCO Environmental or Alberta Sulphur Terminals)	Regulated by NRCB and subject to D-038.	No	Not yet
Total E&P Canada	Will be regulated	Yes	No
Umicore Canada	Not Regulated	Yes	Yes

*Bold type signifies that these members have operational assets on the ground within Alberta's Industrial Heartland. Non-bold type means these companies are members, but do not have operational assets, at this time, in the region.

It should be noted, that despite many of our members not being regulated by the ERCB, most have agreed to participate in the RNMP on a voluntary basis (see Section 6.1 below).

4 Public Engagement on RNMP

By way of public stakeholder engagement, the following activities have taken place:

2006

- General NCIA presentation including information about the RNMP to:
  - Synergy Alberta (October 21, 2006)

2007

- General NCIA presentation including information about the RNMP to:
  - Alberta Environment (February 2, 2007)
  - Lamont County Council (March 13, 2007)
- NCIA approached Alberta Environment about participating on our Regional Noise Management Steering Committee (through Ernie Hui who was an Assistant Deputy Minister at that time) in 2007. Alberta Environment stated that with respect to the Regional Noise Management Project, this was an ERCB matter and therefore deferred to them on this file.
  - This was retested with Amit Banerjee (Regional Approvals Manager) in February of 2012 and the same response as above was given.

2008

- General NCIA presentation including information about the RNMP to:
  - AIHA Municipal Government Orientation (January 10, 2008)
  - Fort Saskatchewan Chamber of Commerce (September 3, 2008)
- RNMP framework was presented at a well attended conference.
  - Synergy Alberta (October 2008)
- NCIA approached the AIHA municipalities in 2008 to provide input to our RNMP Steering Committee, through Neil Shelly, Executive Director of AIHA. Neil tested this with the municipalities and responded that since noise was not a major issue for residents in the region, that they would defer to NCIA and the ERCB on this file.

2009

- RNMP framework was presented at well attended conferences.
  - Spring Noise Conference (May 2009)
  - International Workshop on Environmental Nuisances (November 2009)

2010

- Throughout 2010 NCIA presented the plan to the various Community Advisory Panels in the region (there are 4 of them) to discuss this framework and gather feedback.
  - April 7, 2010 to the BP/Keyera/Petrogas CAP
  - April 8, 2010 to the CAP 643 (Agrium/Evonik/Provident)
  - May 17, 2010 to the Dow/MEGlobal CAP
  - May 19, 2010 to the Agrium Fort Saskatchewan CAP
- A Noise Education Day was hosted by NCIA on April 20, 2010 and included NCIA members, acoustical consultants and municipalities. The focus was on education about noise and the language of noise, however the RNMP was also presented and discussed during this event.
- Presented at the Joint Industry Community Meeting on April 29, 2010.

- RNMP framework is posted on the NCIA website and is publicly available there [NCIA Regional Noise Management Plan]
- RNMP framework was put into the February 2010 issue of the NCIA Newsletter which goes out to about 4,500 people in the region, with a request for feedback on the framework [NCIA Newsletter Issue #13 (February 2010)]
- RNMP and Noise Management are key elements of the Life in the Heartland Website which is also used as a vehicle to collect public feedback [Life in the Heartland Noise Link]

Feedback from 2010 CAP meetings on RNMP Discussion:

- It looks like a lot of progress has been made on what seems to be a very good idea
- I'd be interested in learning more about the kinds of noise (sources, high or low frequency) generated
- Some of the technologies that are being used or being developed to reduce noise would be of interest.
- The consequences of a company exceeding the noise levels would be helpful
- You mentioned that you might be doing some public open houses, if so I'd recommend that the presentation be simplified and be easy to understand for someone (i.e. most people) who doesn't understand how noise measured
- From a social impact perspective this provided a good overview for regional noise management, it will be interesting to see if it works.
- It's nice to hear that there's going to be an organization to go to if there's a noise problem.
- The presentation was very good, when you go provide information at open houses, you should provide some comparable noise information (e.g. noise from various sources – conversation; rock band; loud cheering in an arena; train passing; vacuum cleaner being used; etc) since the term "decibels" doesn't mean much to most people.
- This seems positive for the community and neighbours but if I was an industrial operator who had been here for a long time I might be concerned about the changes I'd have to make.
- The language used in the presentation is appropriate and easy to understand.
- I liked your sense of humour.
- The definition of noise is quite good.
- It might be helpful to provide a definition of acronyms (e.g. ERCB – Energy Resources Conservation Board, AUC – Alberta Utilities Commission, PSL – Permissible Sound Level, etc.) early in the presentation
- It would be helpful to distinguish between the various companies and their status as, for example, "actively operating", "permitted but not developed", "landowner only", "no longer in operation".
- Indicate the geographic extent of the noise modeling on a map if possible – what is the "region" and where are the noise sources and impacts
- Maybe use some pictures to illustrate "typical" sources of industrial noise with the noise levels for them.
- Maybe illustrate that noise is "moveable" it comes and goes with the amount of activity at an industrial site for example during morning and evening peak traffic times, when products are being moved to and from the site by rail or truck.

- When the modeling is developed maybe illustrate the noise change over a 24 hour period (e.g. morning, afternoon, evening and nighttime modeled noise levels).
- Describe the main noise concern and sources – where are we now with noise and where do we want to get to on a site and regional basis.
- Describe in an easy to understand way how noise is measured (you noted that it's not a "straight line" measurement but increases logarithmically), the example of how two different sources generating equal amounts of noise actually results in higher comparative noise levels for a "receptor".
- The presentation was very good. I think the benefit will be from building the model to be able to guide noise reduction.
- Noise appears to be difficult to address; it's an interesting method to take action among industry operators.
- The presentation was very good and to the point.

2011

- RNMP framework was presented at a well attended conference.
  - Spring Noise Conference (May 2011)
- Noise has been the subject of Heartland 101 articles [Making Some Noise About Noise]

2012

- Regional Noise Model results presented to Community Advisory Panels in the Region
  - April 19, 2012 to the CAP 643 (Agrium/Evonik/Provident)
  - May 14, 2012 to the Dow/MEGlobal CAP
  - April 15, 2012 to the BP/Keyera/Petrogas CAP
  - May 16, 2012 to the Agrium Fort Saskatchewan CAP

5 Regional Noise Model

NCIA retained HFP Acoustical Consultants Corp. for the development of the NCIA Regional Noise Model (a 2.5 year process). This involved gathering existing noise databases in various formats from all NCIA member company facilities and from other non-member company facilities. In cases where computer noise model databases of existing facilities were available, these were collected and combined into the Regional Noise Model. When no data was available for a facility, non-diagnostic noise measurement surveys were performed and Basic Noise Models were built. Together all of the acquired data was converted into a format acceptable for a common software platform, being SoundPLAN® 7.0, and subsequently imported into one large, region-encompassing, computer noise model.

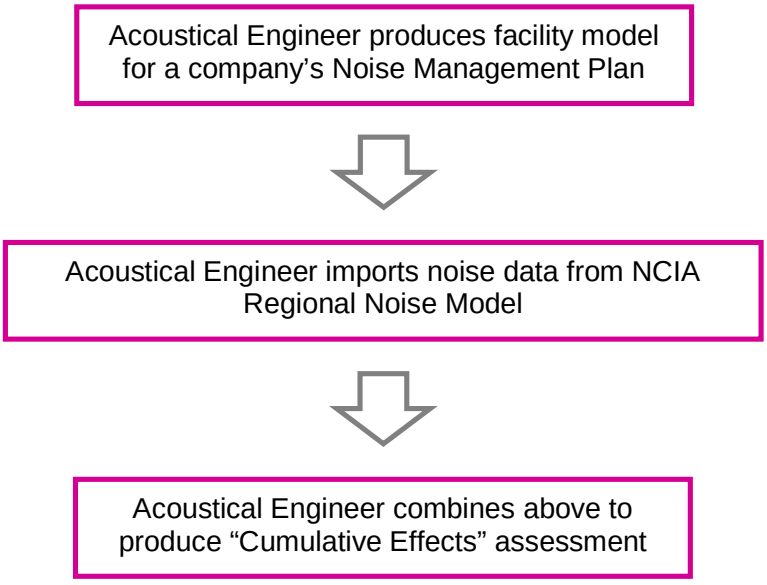
The Regional Noise Model was designed and built with independent sets of input data for each facility, in order to allow for separation of its output data, to be able to depict independent noise contributions from:

- NCIA member company existing regulated facilities;
- NCIA member company proposed facilities (with regulatory approval);
- non-member company existing facilities (voluntary participation);

- road nose contribution;
- rail noise contribution; and
- modelling parameter of downwind or calm wind conditions.

The final report, "Report on Acoustical Consulting Services NCIA Regional Noise Model Project, HFP Acoustical Consultants Corp., HFP File 08 1773-4, March 12, 2012" was provided to the ERCB and is also available to NCIA members on the NCIA share point site.

One of the purposes of the NCIA Regional Noise Model Project (RNM) is to provide tools to member companies to facilitate their estimation of the cumulative sound levels from computer noise models. One of the tools provided by the RNM are pre-calculated noise contours for the Industrial Heartland. These pre-calculated noise contours are designed to provide an easy to use method for adding the baseline noise to a computer noise model of a proposed facility within the Industrial Heartland. The Operational Intent of the Regional Noise Model is as follows:



The computer noise modeling software product that was chosen for the RNM project was "**SoundPLAN**", developed by Braunstein + Berndt GmbH of Germany. The pre-calculated noise contours are provided as SoundPLAN® grid map noise results in their native SoundPLAN® file format. Adding the baseline noise levels to a SoundPLAN® model is accomplished by importing the pre-calculated baseline noise grid map into SoundPLAN®, and adding it to the desired grid noise map of the facility model in the graphics module in SoundPLAN®.

6 Current Status

In keeping with the provisions of the ERCB Noise Control Directive 038, NCIA is developing a RNMP. There are several elements to this plan:

- Development of an RNMP Compliance Framework - **completed**
- Acknowledgement by ERCB that the Compliance Framework is acceptable – **completed**
- Development of a Noise Equipment Database Tool – **completed**
- Development of Regional Noise Model – **completed**
- Roll out of plan for NCIA member companies – **completed**
- Develop Orientation Package for member companies – **completed**
- Sign off by ERCB that RNMP is now in effect – **pending (Q2 2012)**

6.1 Member Company Updates 2012 (including any improvements made over the last 10 years)

These are included as Appendix 4.

7 Next Steps

- Present Regional Noise Model outputs to Community Advisory Panels, Municipalities, Rail companies and provincial regulators (Alberta Environment and Water; ERCB).
- Work with the ERCB to finalize compliance piece and have the ERCB fully endorse the Regional Noise Management Plan.
- Develop procedures for annual updating of the RNMP going forward.
- Develop procedures for accessing the Regional Model outputs for both NCIA member companies and non-member companies.
- Establish routine monitoring objectives and implement.

APPENDIX 1

Noise Monitoring Report: Alberta's Industrial Heartland

Alberta Energy and Utilities Board

Noise Monitoring Report
Alberta's Industrial Heartland

Prepared By

Illiyah Habib

Alberta Energy and Utilities Board

August 2004

Executive Summary

The 2004 Alberta's Industrial Heartland (AIH) noise monitoring program was conducted on the nights of July 26th – July 30th near Fort Saskatchewan. This was the third extended survey in as many years undertaken in the region. The Alberta Energy & Utilities Board (EUB) would like to thank the residents who agreed to be a part of the study and BP Canada, DOW Canada and EnerPro/Keyspan Canada for their participation in the design and financial partnership of the study. The comprehensive sound level surveys were conducted by the EUB in conjunction with ATCO Noise Management .

The monitoring was designed to capture industrial noise levels when all facilities were operating under normal conditions. Six different locations were chosen for monitoring. The EUB monitored the Henkelman and Kropp residences while ATCO Noise Management monitored at the Hutterian Brethern of Scotford, Chartrand, Mckay, and Brabbins residences. Typically, the dominant sources of noise affecting these residences are industrial facilities in Alberta's Industrial Heartland, Highway 15 and rail transportation from the Canadian National Scotford rail yard and mainline tracks.

The permissible sound level (PSL) for this area is 47 dBA nighttime (10pm – 7am) at the Hutterian Brethern of Scotford, Chartrand, McKay, and Brabbins residences and 45 dBA Leq nighttime at the Henkelman and Kropp residences. The slight difference in PSL noted above is the result of proximity of residences to non-regulated facilities that are considered part of the ambient sound environment and not required to meet the requirements set out in EUB Noise Control Directive ID 99-08 and Guide 38. After careful analysis of the results the EUB concluded that noise levels at the residences were within the permissible levels for most nights except at the McKay residence on the nights of July 27-29 and at the Kropp residence on the night of July 27. The EUB will be following up with the residents in question and the industrial operators to determine an appropriate action plan to address regional noise on a sustained basis. Cooperation by members of the Northeast Capital Industrial Association, which represents both EUB regulated and non-regulated facilities, will be key to the ongoing responsible management of industrial noise in the region.

The results of this study demonstrate that industrial noise levels in Alberta's Industrial Heartland are very near the allowable limits and can vary greatly at each residence based on operational, meteorological, topographical and seasonal conditions. In addition to being very complex, overall environmental noise in the area is subject to cumulative effects, that is, all sources of noise add to the total sound level experienced at any one location. Even with detailed isolation analysis (removing of non-industrial noise) it is impossible to completely take out ambient noise such as birds, insects, and non-regulated industries. This in turn makes it difficult to attribute noise levels fully at a residence to a single EUB regulated industrial source. The EUB has taken great care to ensure that the final results are a fair and accurate representation of regulated industrial noise at the monitoring locations in the study. Any proposed EUB regulated development in the area will need to make appropriate design considerations to control noise emissions so that limits are not exceeded under normal operating conditions.

Introduction

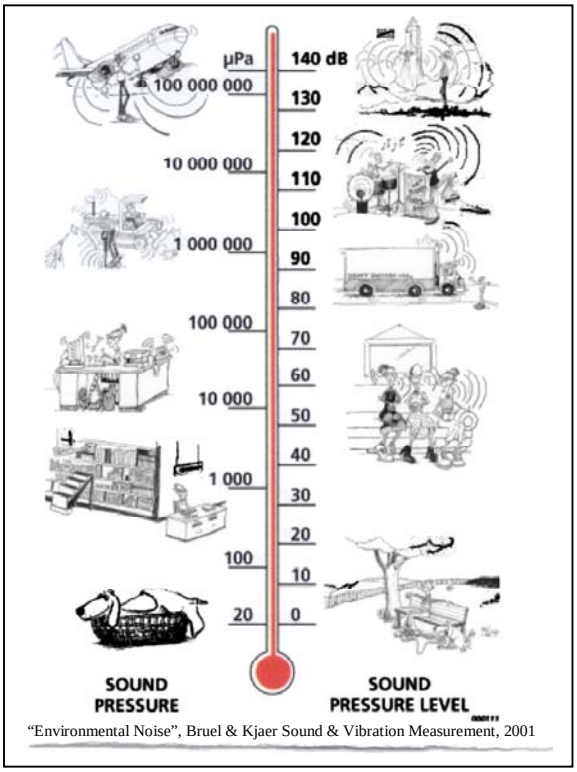
Environmental noise is an inevitable form of pollution produced by industrial energy facilities. As stated in the Alberta Energy and Utilities Board (EUB) *Noise Control Directive (ID 99-8)*, all facilities under EUB jurisdiction must comply with acceptable noise level standards. The *Noise Control Directive User Guide (Guide 38)* presents the rationale for the directive, provides background information, and outlines an approach to dealing with noise problems. The Guide includes a detailed explanation for the calculation of the Permissible Sound Level (PSL), which is the maximum allowable sound level that may be received by either the closest or the most impacted residence in an area.

The EUB and ATCO Noise Management conducted several comprehensive noise surveys in July at the Henkelman, Kropp, Chartrand, Hutterian Brethern of Scotford, Brabbins and McKay residences to determine current noise levels caused by industry in the region. The intent was not to identify compliance, but rather to determine, if possible, the level of environmental noise levels generated by industrial facilities at selected residences. The surveys consisted of 4 measurement periods on the nights of July 26th – 29th, 2004. The surveys captured noise levels when all facilities were under normal operating conditions.

Noise Definitions and Criteria

The human ear is capable of hearing a large range of levels of sound pressure from 20 μPa (or 20x10^{-6} pascal, threshold of hearing) to 100 pascal (threshold of pain). Because this range is so large, the **decibel (dB)** is used to compress the range into a more meaningful scale. The decibel can range from 0 dB (threshold of hearing) to 130 dB (threshold of pain). Although 6 dB represents a doubling in measured *sound pressure*, an increase of 10 dB is usually required before the sound is perceived to be twice as loud. The smallest change we can hear is 3 dB.

Relating decibels to actual sounds, a library is approximately 30 dB, a busy office is about 60 dB and an airplane taking off is approximately 135 dB.



"Environmental Noise", Bruel & Kjaer Sound & Vibration Measurement, 2001

The subjective or *perceived* loudness of a sound is determined by several complex factors. One such factor is that the human ear is not equally sensitive to all frequency ranges. The human ear emphasises middle frequency sounds. The **A-weighted** scale

approximates the way the human ear hears different frequency sounds. The A-weighted decibel scale is represented by dBA.

The **Leq index**, or energy equivalent sound level, is an average A-weighted sound level over a specified period. It is a single number representation of the cumulative acoustical energy measured over a time interval on a logarithmic scale. This means louder noises are given a greater weight when finding the average noise level than quieter noises. The EUB uses a nine-hour nighttime Leq. The **nighttime** hours are from 10:00 pm to 7:00 am.

The **Ambient Sound Level** consists of all noise in the area that is not related to EUB-regulated facilities. This noise includes sound from other non-EUB regulated industrial facilities, transportation sources, animals and nature. The ambient sound level in most of rural Alberta is 35 dBA at night. Energy facilities in Alberta (EUB-regulated) are allowed to contribute a limited amount of sound energy into the environment. The facility may output into the environment to a maximum of 5 dBA above the ambient sound level.

The **Permissible Sound Level** is measured in decibels (dBA) Leq and is an average A-weighted sound level over a nighttime (10:00 pm – 7:00 am) or daytime (07:00 am – 10:00 pm) period. It is the maximum sound level that a facility must not exceed at the nearest or most impacted residence. Generally, for much of rural Alberta, the nighttime PSL is 40 dBA Leq and the daytime PSL is 50 dBA Leq. Higher Permissible Sound Levels can exist in more developed areas where the residence is in close proximity to travelled roads and rail lines, or is subject to airplane flyovers.

In the case of the residences in the survey, the PSLs differ from the levels noted above because the Alberta Industrial Heartland is extensively developed with a combination of EUB and non-EUB regulated facilities. The non-EUB regulated facilities are not subject to the *Noise Control Directive (ID 99-08)* and consequently increase the ambient noise to levels above the average 35 dBA for typical rural Alberta. The resulting PSLs is 47 dBA at the Hutterian Brethern of Scotford, Chartrand, McKay, and Brabbins residences and 45 dBA Leq nighttime at the Henkelman and Kropp residences.

Measurement Methodology

Measurements were conducted over 4 measurement periods on the nights of July 26th – 29th, 2004. The data was obtained using the following instrumentation:

- Brüel & Kjær 2260 Precision Integrating Sound Analyzer
- Brüel & Kjær 2231 Modular Precision Sound Level Meter
- Larson Davis 824 Type 1 Meter
- Larson Davis 3000 Type 1 Meter
- JVC Hi-Fi VCR Unit
- Mitsubishi HS-U69 VCR Recorders
- Panasonic MP3 Voice Recorders

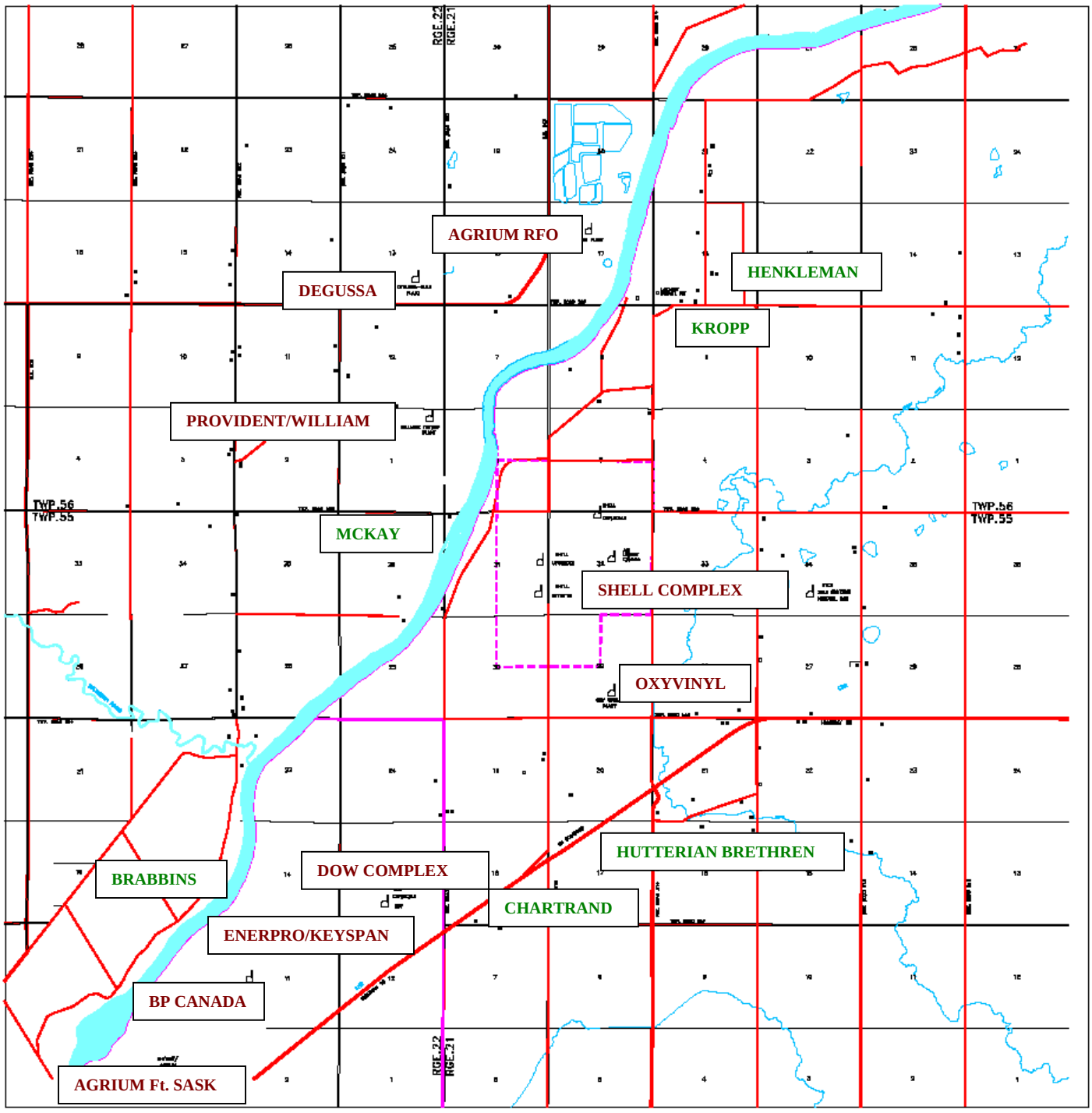
The noise meters were set up to obtain data in “random mode”, where the microphone were positioned vertical on the tripod to receive sound transmitted from all positions surrounding the microphone (from every possible angle for a complete 360 degrees). Random mode is used in complex areas to capture sound transmitted from multiple sound sources. The Audio unit was used to record sound on starting at 10:00 pm and stopping at 7:00 am. The VCR tape and MP3 file is used to differentiate sounds and to isolate the facility noise in the analysis. After the facility noise has been isolated (i.e. removing all noise from dogs, planes, etc), the nighttime Leq is calculated. The noise meters were configured to continuously store one-minute Leq sound levels as per the requirements in the *Noise Control Directive User Guide* (Guide 38). The meter was calibrated at the beginning of each night before the survey was to be conducted. The microphone was mounted 1.5 metres above the ground on a tripod.

Facility and Noise Monitoring Sites

The study area has numerous noise sources (gravel pit, roads, railways) and extensive industrial development (including but not limited to: Dow Canada, Shell Canada, Degussa, BP Canada, Agrium RFO, OxyVinyl, EnerPro/Keyspan Canada and Provident/Williams Energy). The Henkelman and Kropp residences are located East of Agrium RFO and Northeast of Shell. At the Henkelman residence, the sound survey equipment was placed approximately 15 meters Southeast of the household. The sound survey equipment was placed approximately 15 meters North of the Kropp residence. The McKay residence is located Southeast of Provident/Williams Energy and West of Shell. The sound survey equipment was placed approximately 30 meters South of the McKay residence. The Chartrand residence and Hutterian Brethern Church Of Scotford colony are both located primarily East of Dow Chemical and South of OxyVinyl. The survey equipment was placed approximately 25 meters Southwest of the Chartrand residence. The noise meter was placed in the Southwest corner of the Hutterian Brethren complex. The Brabbins residence is located West of BP Canada, Agrium Ft. Sask. and EnerPro/Keyspan. The noise meter was set up approximately 15 meters north of the Brabbins home.

Acoustical logistics as well as EUB guidelines were factors in the placement of sound equipment. The location of equipment set-up at each residence involved consultation with the resident to determine where they felt the optimal monitoring location was. Figure 1 is a map of the area, showing each of the residences as well as all of the major industrial facilities. Figures 2 – 7 are maps of the residences at which the July surveys took place. It should be noted that Figures 2 – 7 are not to scale and are not exactly representative of the property; they are rough visual supplements to diagrammatically show the equipment set-up at the residences.

Figure 1: Map of Area Under Survey



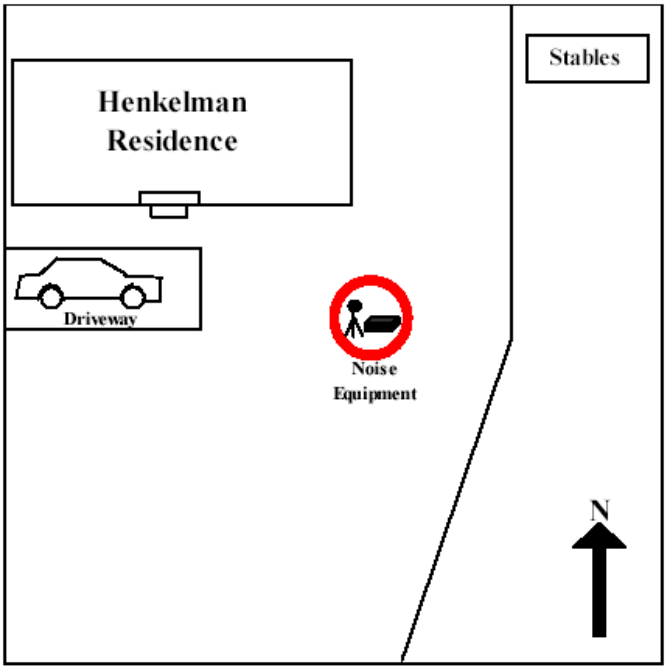


Figure 2: Henkelman Residence

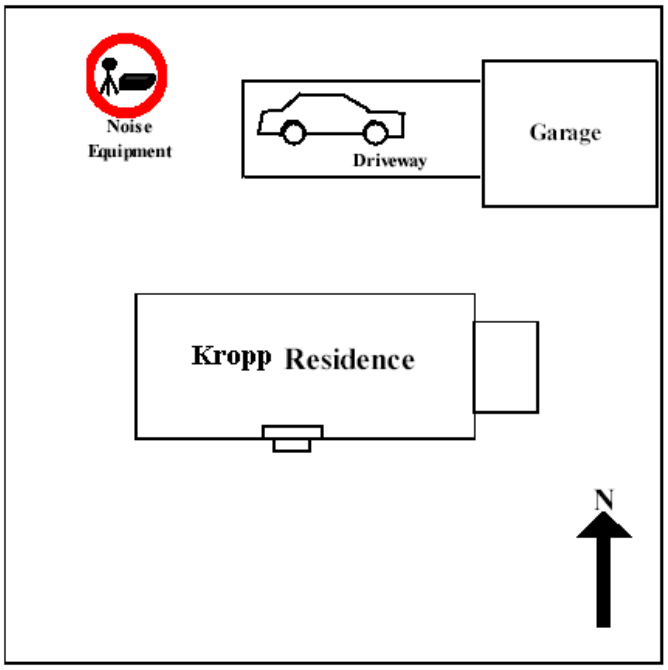


Figure 3: Kropp Residence

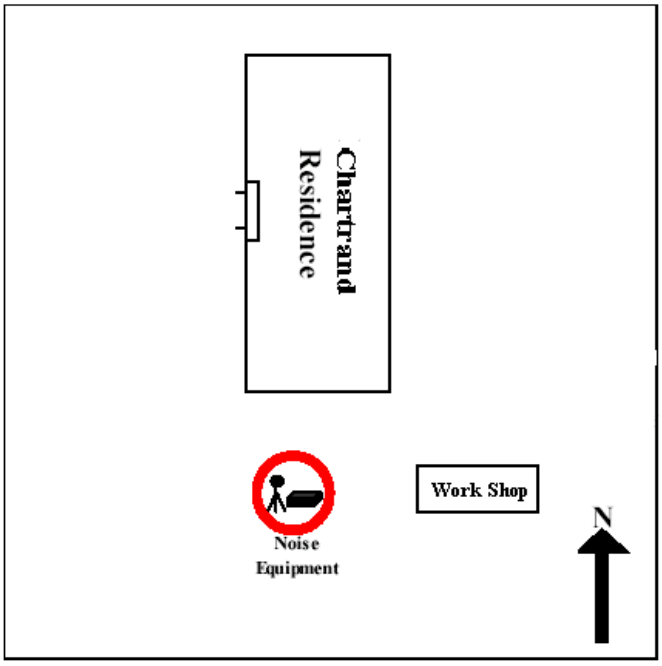


Figure 4: Chartrand Residence

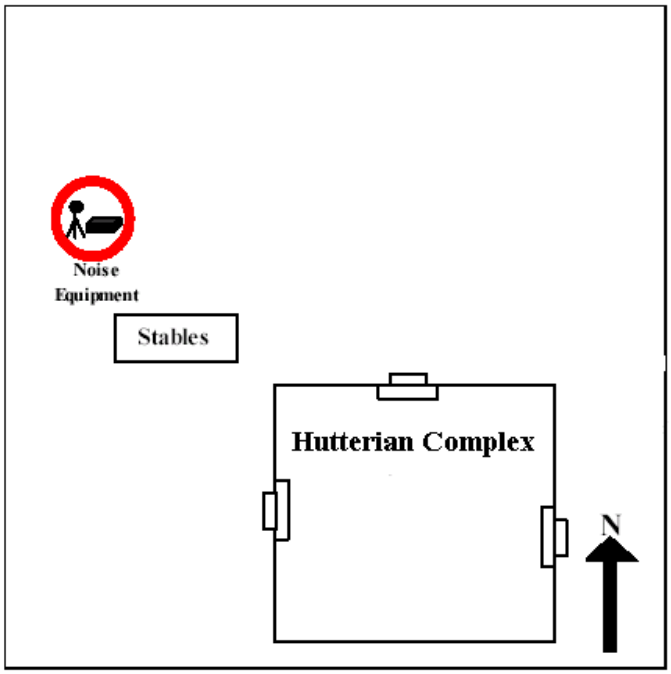


Figure 5: Hutterian Complex

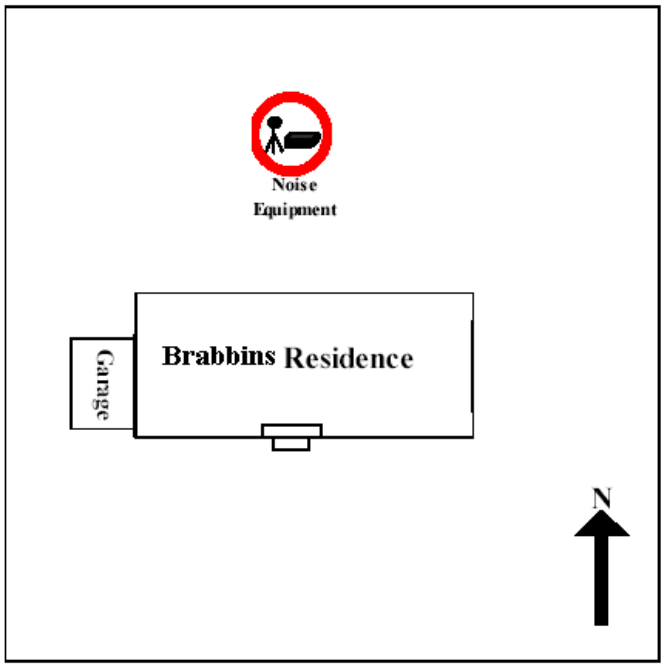


Figure 6: Brabbins Residence

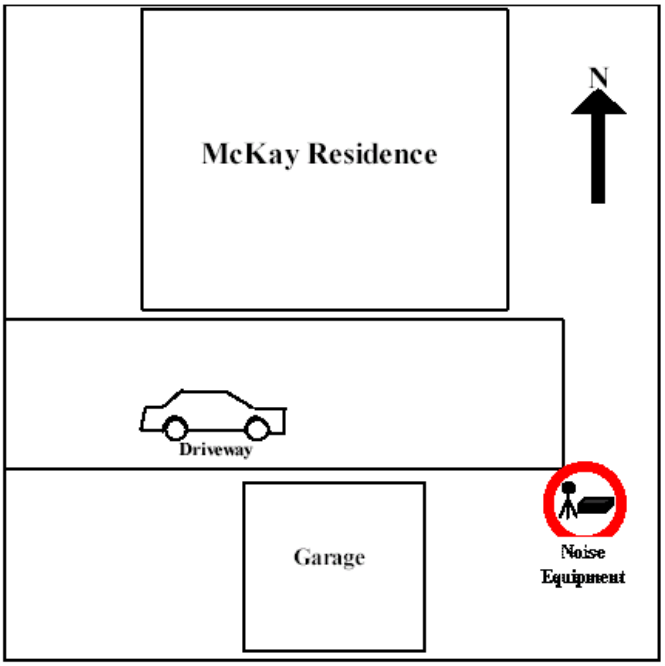


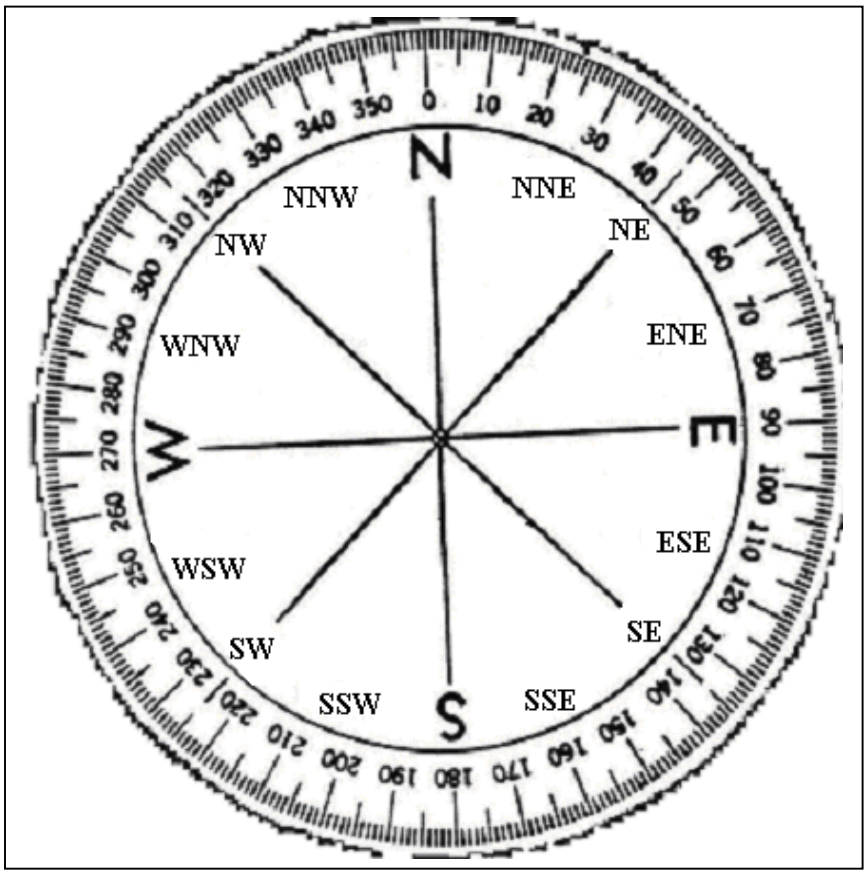
Figure 7: McKay Residence

Representative Conditions during Monitoring

Weather can affect the noise impact at a specific receptor. For example, wind direction/speed, temperature inversion, and ground cover are conditions that can alter noise impact. The meteorological data that is presented in the report was gathered at the Fort Air Partnership Scotford Station (http://www.fortair.org). A summary of wind conditions is included in the Results of Measurement for each night monitored.

Wind direction can be presented as either a direction (West) or a numerical value (270^{o}). See Figure 8 below. An East (90^{o}) wind means that the wind is blowing from the east.

Figure 8: Wind Direction



Results of Measurements

Noise data was collected over 4 nights in July. Information presented for each night includes meteorological data, graphs summarizing data from the noise monitors, nighttime Leq values and a discussion of the monitored results.

Each night's monitoring results are shown using up to 3 graphs for the locations in question. The graphs represent the one-minute Leq values that were collected during monitoring. The first graph contains data for the nine-hour nighttime period (10:00 pm – 7:00 am) and indicates the calculated nighttime Leq value. The second graph shows the isolation analysis results. Isolation analysis is the isolation and removal of noise data from sources other than the industrial facility. Noise data removed can include transportation sources, animals and wind. In some circumstances it is impossible or impractical to remove all non-industrial noise especially when regulated and non-regulated noise is present in the same area. The third graph represents only the non-industrial facility sounds that were removed from the survey using isolations analysis.

Table 1 shows the nights and locations that were monitored as well as the nighttime Leq for the July survey. The isolated nighttime Leq is given when possible. In some cases, isolation analysis was not conducted due to audio problems with the VCR or the Leq was already below the Permissible Sound Level. Detailed analyses of the results are contained in the subsequent section. Data collected from the previous surveys in 2003 and 2002 are shown in Table 2 & 3 for comparative purposes.

Table 1, Summary Table of July 2004 Survey

Date	**July 26, 2004**		**July 27, 2004**		**July 28, 2004**		**July 29, 2004**	
Nighttime Leq (dBA)	**Leq**	**Isolated Leq**	**Leq**	**Isolated Leq**	**Leq**	**Isolated Leq**	**Leq**	**Isolated Leq**
Henkelman PSL = 45 dBA	-**	-	43.6	-	41.3	-	54.1	43.8
Kropp PSL = 45 dBA	-**	-	48.9	46.9	43.9	-	-**	-**
McKay PSL = 47 dBA	-*	-	50.0	48.5	50.9	50.4	51.2	47.3
Chartrand PSL = 47 dBA	-**	-	53.0	-*	47.1	38.2	54.2	46.9
Hutterian PSL = 47 dBA	-**	-	52.4	-***	47.1	-***	56.0	-***
Brabbins PSL = 47 dBA	-**	-	56.6	44.1	51.5	46.4	57.0	44.5

*Mechanical problems with equipment, malfunction due to rain

**Wind or storm during nighttime period- facility not audible for this reason

***Continuous animal and traffic noise throughout the night – not able to isolate from facility noise

Table 2, Summary Table of July and August, 2003 Surveys

Date	Location (PSL = 45 dBA)	Nighttime Leq (dBA)		Location (PSL = 47 dBA)	Nighttime Leq (dBA)	
		Leq	Isolated Leq		Leq	Isolated Leq
July 6, 2003	Henkelman	-*	-	Kofluk	47.4	42.8
July 7, 2003	Henkelman	44.1	42.9	Kofluk	-**	-
July 8, 2003	Henkelman	58.4	38.0	Kofluk	61.6	41.3
July 9, 2003	Henkelman	-**	-	Kofluk	-**	-
July 10, 2003	-	-	-	McKay	46.4	46.1
July 11, 2003	Garon	-*	-	McKay	47.0	40.2
July 12, 2003	Garon	41.4	38.3	McKay	46.2	44.5
July 13, 2003	Garon	-*	-	McKay	45.6	43.2
August 6, 2003	Henkelman	49.7	37.8	Kofluk	-***	-
August 7, 2003	Henkelman	-**	-	Kofluk	44.2	37.4
August 15, 2003	-	-	-	Kofluk	-***	-
August 15, 2003	-	-	-	McKay	49.3	49.3
August 16, 2003	Garon	-*	-	McKay	-*	-

*Mechanical problems with equipment, malfunction due to rain

**Wind or storm during nighttime period- facility not audible for this reason

*** Water fountain noise occurred for duration of nighttime period (not considered ambient noise); noise could not be isolated

Table 3, Summary Table of April – September, 2002 Surveys

Date	Location (PSL = 45 dBA)	Nighttime Leq (dBA)		Location (PSL = 47 dBA)	Nighttime Leq (dBA)	
		Leq	Isolated Leq		Leq	Isolated Leq
April 30, 2002	Henkelman	-*	-	Kofluk	49.2	40.9
May 1, 2002	Henkelman	-*	-	Kofluk	46.9	44.1
May 9, 2002	Henkelman	45.7	42.3	-	-	-
June 10, 2002	Henkelman	40.2	Below PSL***	Kofluk	55.2	40.2
June 11, 2002	Henkelman	-**	-	Kofluk	47.8	40.4
Sept 9, 2002	Henkelman	45.2	42.8 (excludes venting)	Kofluk	55.1	49.1 (includes venting) 47.0 (excludes venting)
Sept. 10, 2002	Henkelman	41.6	Below PSL***	Kofluk	43.4	Below PSL
Sept. 11, 2002	Henkelman	41.2	35.5 (excludes venting)	Kofluk	53.9	47.8 (includes venting) 42.1 (excludes venting)
Sept. 12, 2002	Henkelman	40.0	41.4 (excludes venting)	Kofluk	56.0	49.9 (includes venting) 41.6 (excludes venting)
Sept. 13, 2002	Henkelman	42.8	Below PSL***	Kofluk	58.0	44.7
Sept. 14, 2002	Henkelman	41.8	Below PSL***	McKay	46.2	Below PSL***

* Unable to conduct noise monitoring due to noise from the operation of Alberta Environment's air quality monitors

** Mechanical problems with equipment

*** No isolation analysis because Leq is below the permissible sound level

Noise levels at the Henkelman residence for the July, 2004 survey are comparable to many of the noise levels obtained in the July and August, 2003 and 2002 surveys when operating conditions were normal.

The noise levels at the McKay residence for the July 2004 survey are slightly higher than the noise levels obtained in the July and August 2003 and 2002 surveys. This may be in part due to more favourable meteorological conditions for noise propagation than the previous surveys.

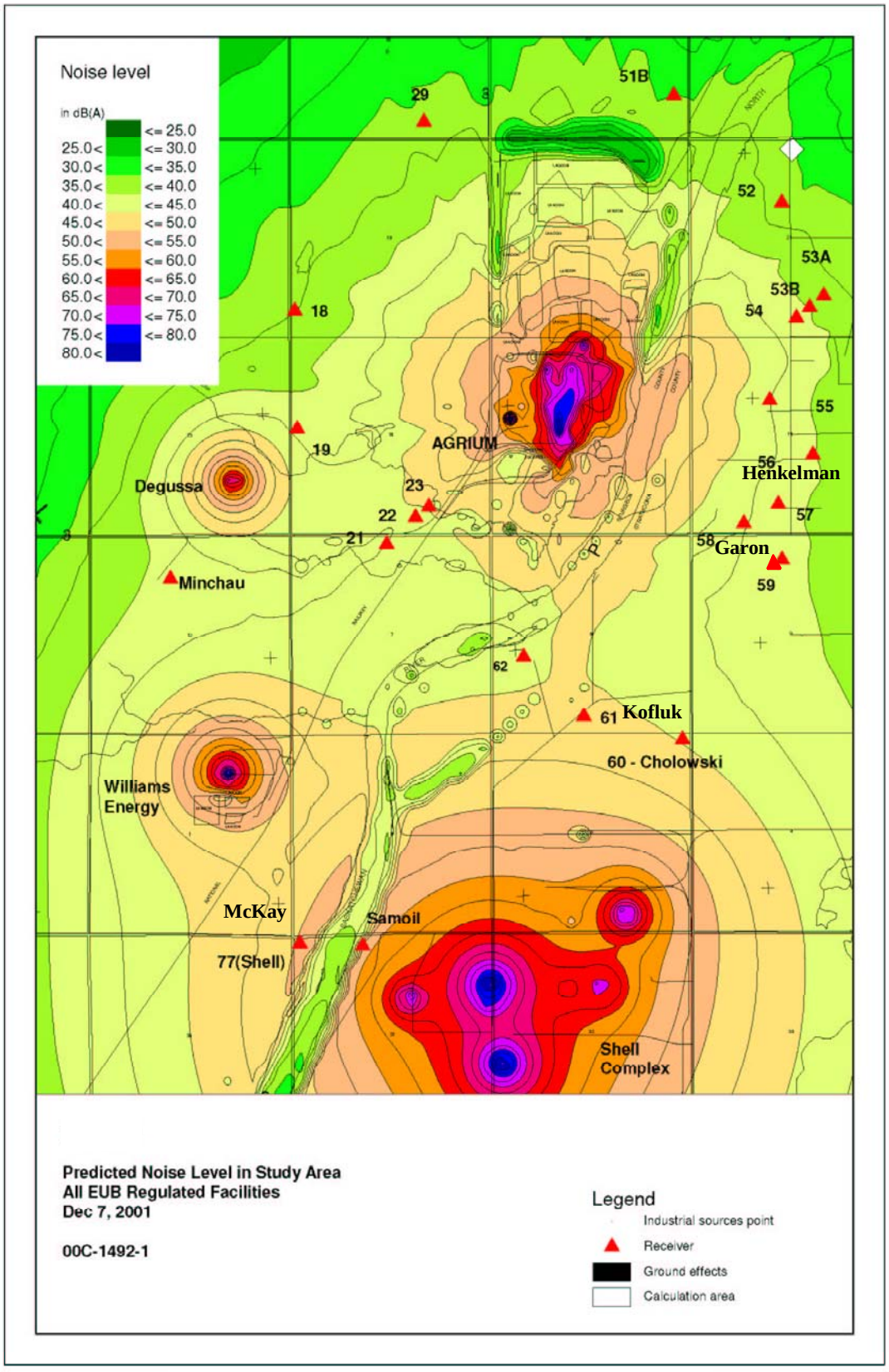
As the remaining residences were not part of the two previous studies it is not possible to make any comparisons to the July, 2004 results. It should be noted however that the Kropp residence is only a few hundred meters from the Garon residence that was part of the 2003 study.

A model for noise levels in the area was prepared in 2001 for Agrium Inc. by HFP Acoustical Consultants Corp and is based on information present at that time. The predicted noise levels for average ground cover, with no wind, 10^{o}C, and relative humidity of 70% are presented in Figure 9. The results of the modelling were initially presented in *"Facility Noise Model and Noise Source Order Ranking – Agrium Inc., Agrium Redwater Fertilizer Plant"*. (Figure 9 is currently being enhanced to include facilities South of the Shell complex but was not available at the time of publication of this report. The EUB wanted to meet the August timetable for delivery of the report as promised to local stakeholders.) Table 4 provides the noise level predicted for applicable residences based on the noise model. As the model is dated, it is difficult to entirely correlate the model results to actual data collected during noise monitoring in 2004 because of the many confounding factors that were not in the model inputs. However, present monitored data (Table 1, Table 2 and Table 3) are still within the 2001 predicted noise level range (Table 4).

Table 4, Predicted Noise Levels

Residence	**Predicted Noise Level (dBA)**
Garon	40.0 - 45.0
Kropp	40.0 - 45.0
Henkelman	40.0 – 45.0
McKay	50.0 – 55.0

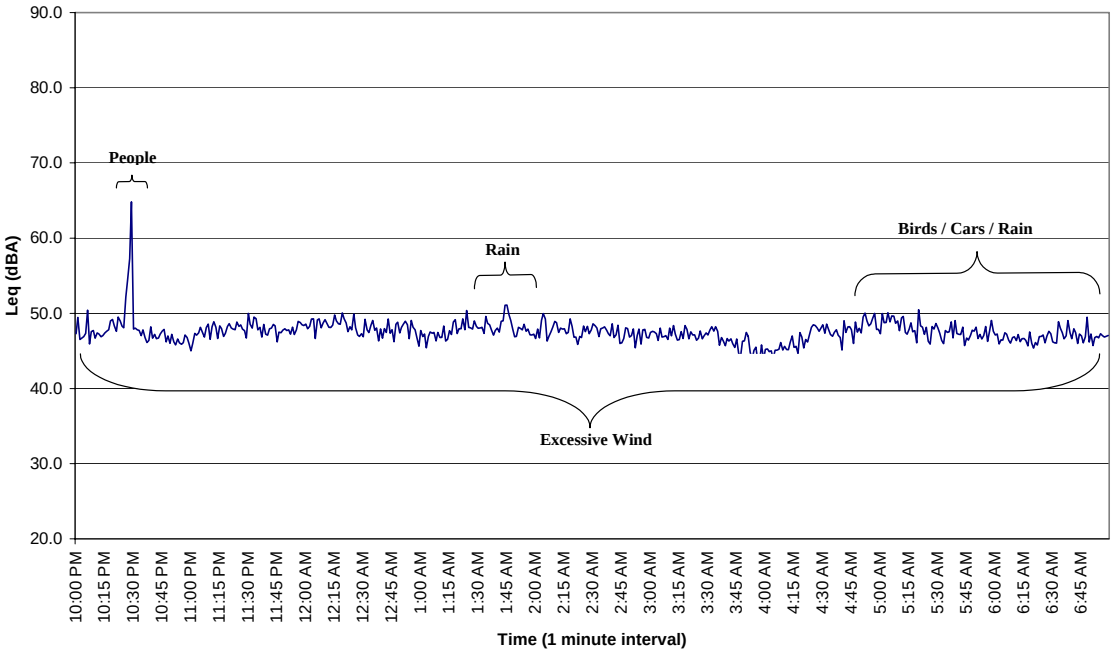
Figure 9 Predicted Noise Levels



July 26 – 27, 2004: Henkelman Residence

Figure A1.0 shows the one-minute Leq values for the night of July 26 to 27, 2004 at the Henkelman residence. Due to the excessive wind over the entire nighttime period the data recorded consists of wind noise rather than facility noise and will be excluded from the analysis.

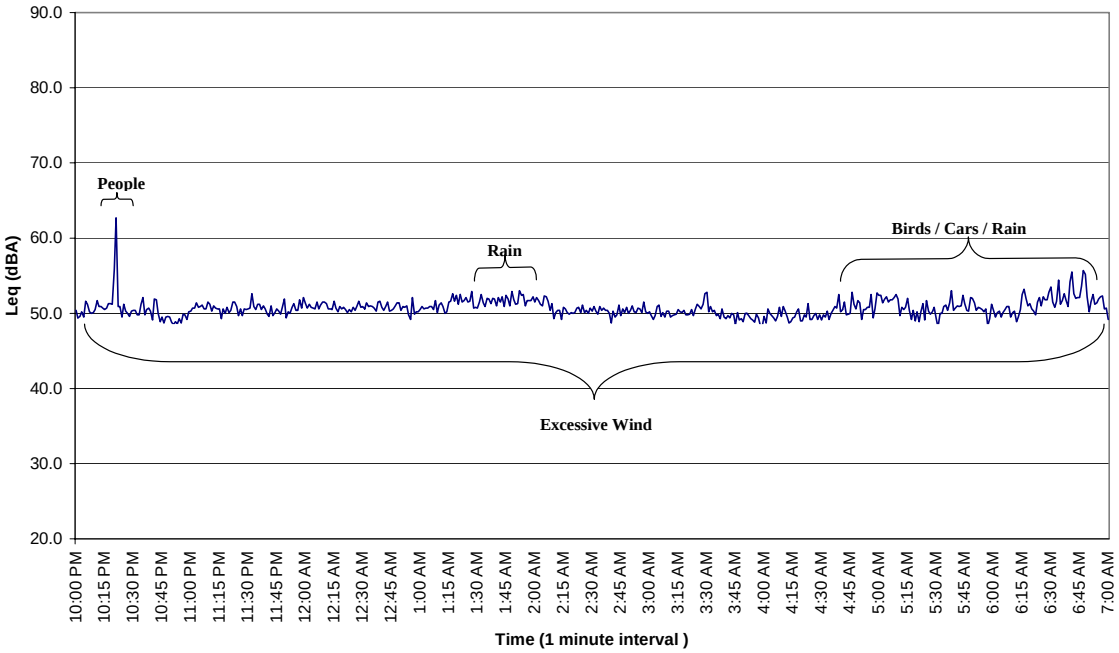
Figure A1.0: Henkelman Residence, July 26th, 2004
Non- facility Noise



July 26 – 27, 2004: Kropp Residence

Figure A2.0 shows the one-minute Leq values for the night of July 26 to 27, 2004 at the Kropp residence. Due to the excessive wind over the entire nighttime period the data recorded consists of wind noise rather than facility noise and will be excluded from the analysis.

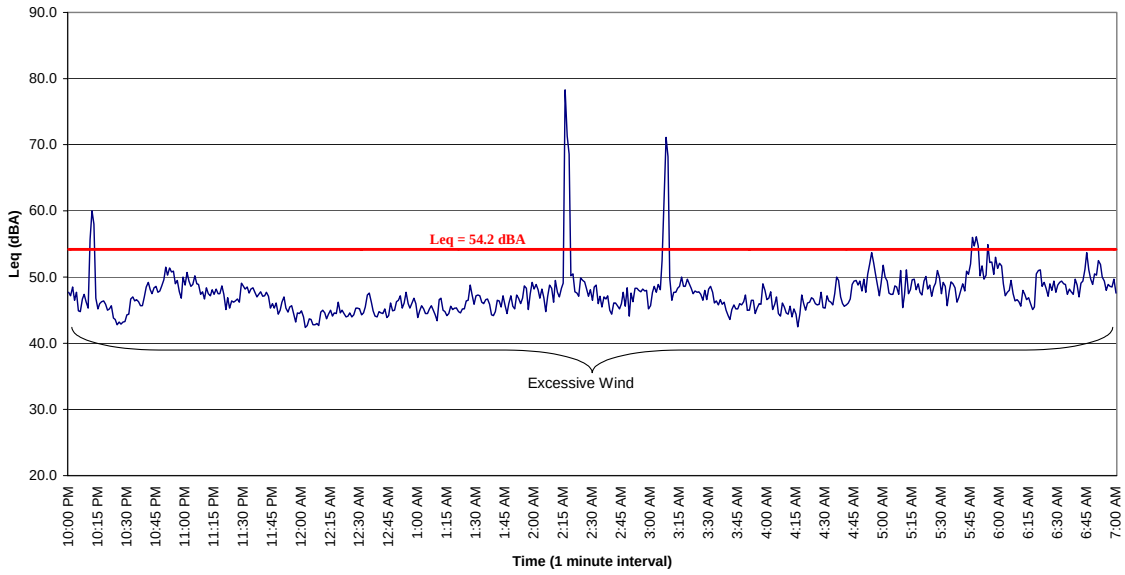
Figure A2.0: Kropp Residence July 26, 2004
Non- facility Noise



July 26-27, 2004: Brabbins Residence

Figure A3.0 shows the one-minute Leq values for the night of July 26 to 27, 2004 at the Brabbins residence. Due to the excessive wind speeds over the entire nighttime period the data recorded consists of wind noise rather than facility noise and will be excluded from the analysis.

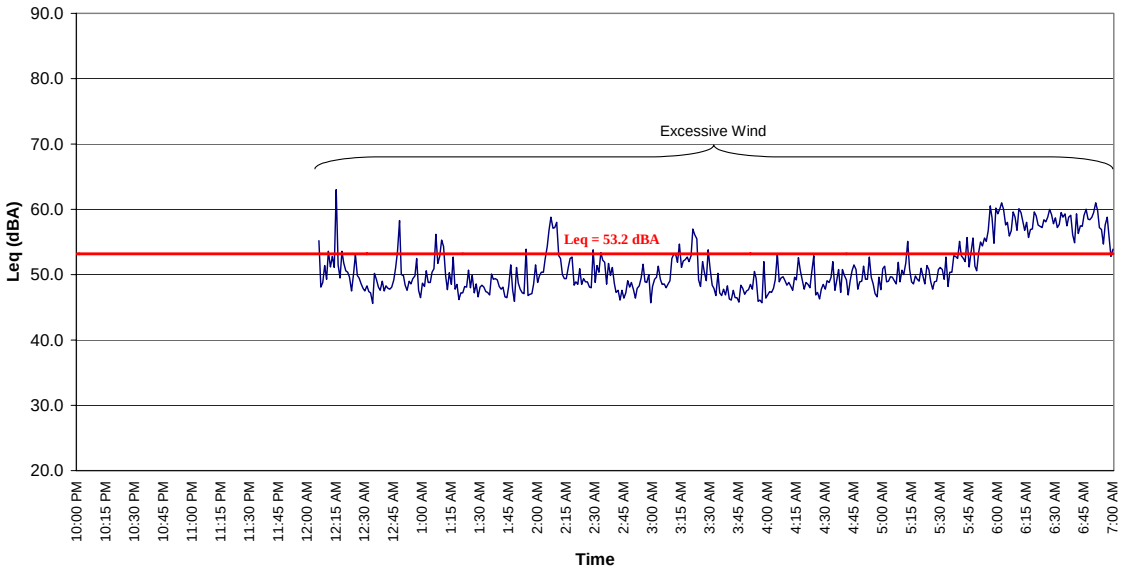
Figure A3.0: Brabbins Residence - July 26, 2004



July 26-27, 2004: Chartrand Residence

Figure A 4.0 shows the one-minute Leq values for the night of July 26 to 27, 2004 at the Chartrand residence. Due to the excessive wind speeds over the entire nighttime period the data recorded consists of wind noise rather than facility noise and will be excluded from the analysis.

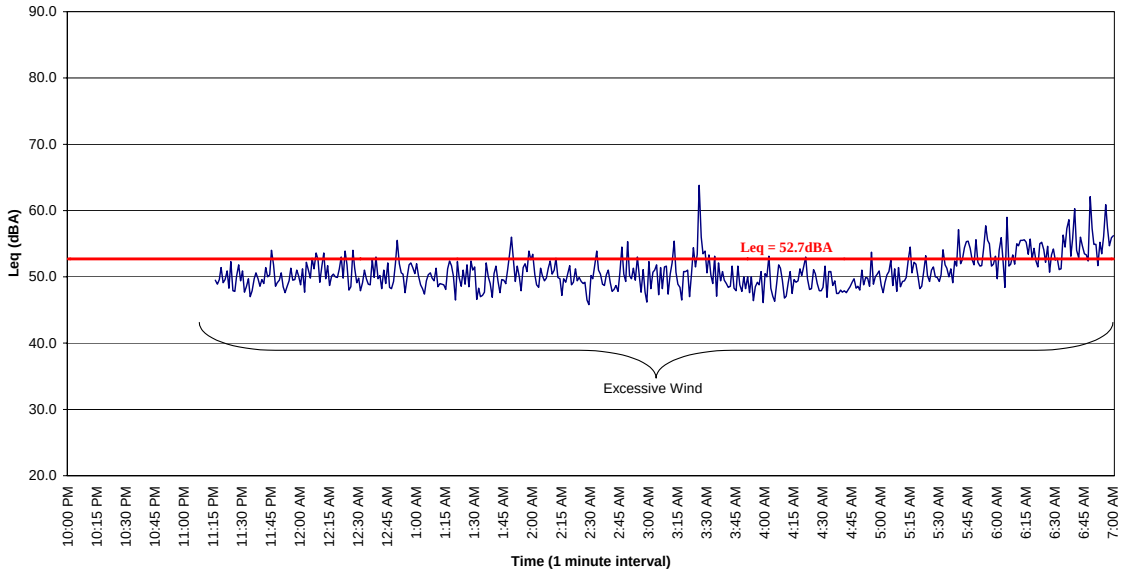
Figure A4.0: Chartrand Residence - July 26, 2004



July 26-27, 2004: Hutterian Brethern of Scotford Residence

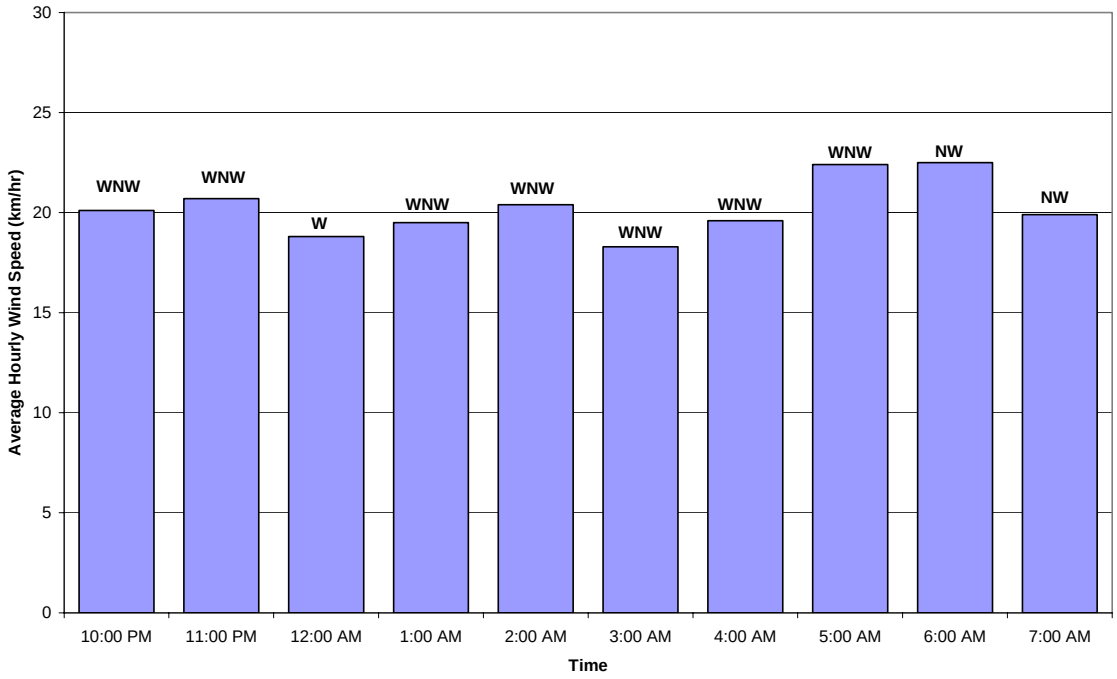
Figure A5.0 shows the one-minute Leq values for the night of July 26 to 27, 2004 at the Hutterian Brethern of Scotford residence. Due to the excessive wind speeds over the entire nighttime period the data recorded consists of wind noise rather than facility noise and will be excluded from the analysis.

Figure A5.0: Hutterian Brethern of Scotford - July 26, 2004



Meteorological Data is presented in Figure I for the night of July 26 – 27, 2004 and illustrates the wind speed and direction. Over the entire nighttime period the wind speeds where greater than 15 km/hr. Due to these high wind speeds the wind noise masks the industrial noise and the data recorded is not reprehensive for the analysis.

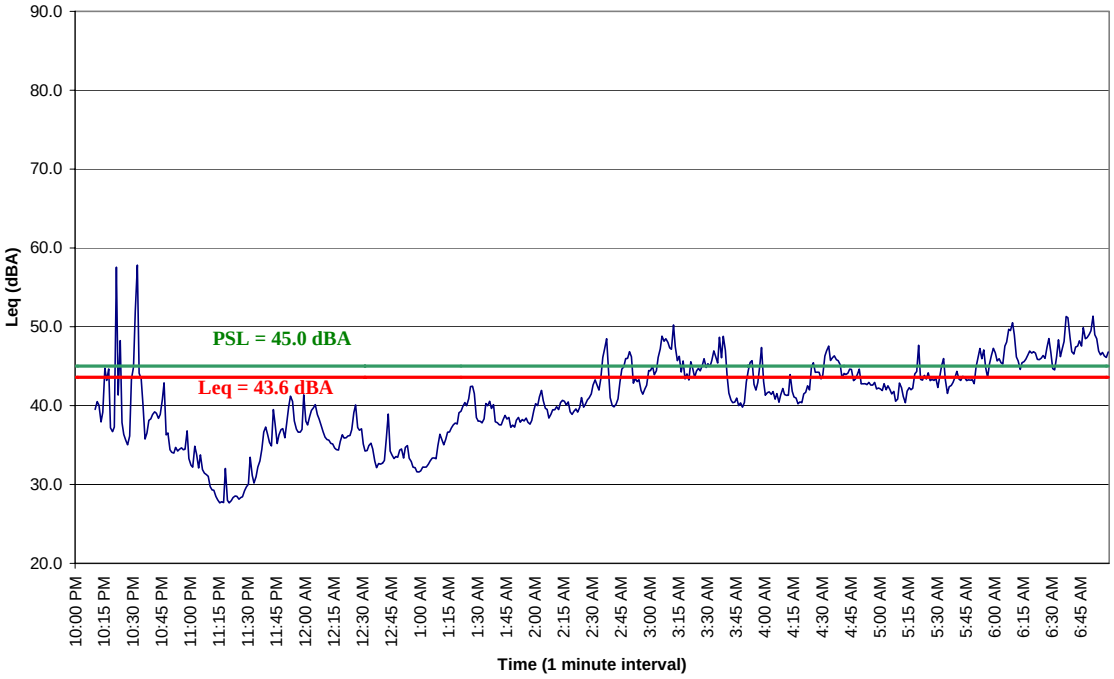
Figure I: Wind Data for July 26 - 27, 2004



July 27 – 28, 2004: Henkelman Residence

Figure A6.0 shows the one-minute Leq values for the night of July 27 – 28, 2004 at the Henkelman residence. The calculated overall nighttime Leq, including facility and non-facility related noise, is 43.6 dBA. Due to this value being below the PSL no isolation analysis is required. The isolated facility noise would be lower than (43.6 dBA).

Figure A6.0: Henkelman Residence, July 27th, 2004



July 27 – 28, 2004: Kropp Residence

Figure A7.0 shows the one-minute Leq values for the night of July 27 – 28, 2004 at the Kropp residence. The Calculated nighttime Leq (48.9 dBA) and all significant noise events that are not facility- related are highlighted. The isolated facility noise is presented in Figure A7.1. The nighttime Leq value is 46.9dBA (highlighted on the graph). Figure A7.2 shows non-facility noise with a nighttime Leq of 51.7 dBA.

Figure A7.0: Kropp Residence, July 27th, 2004

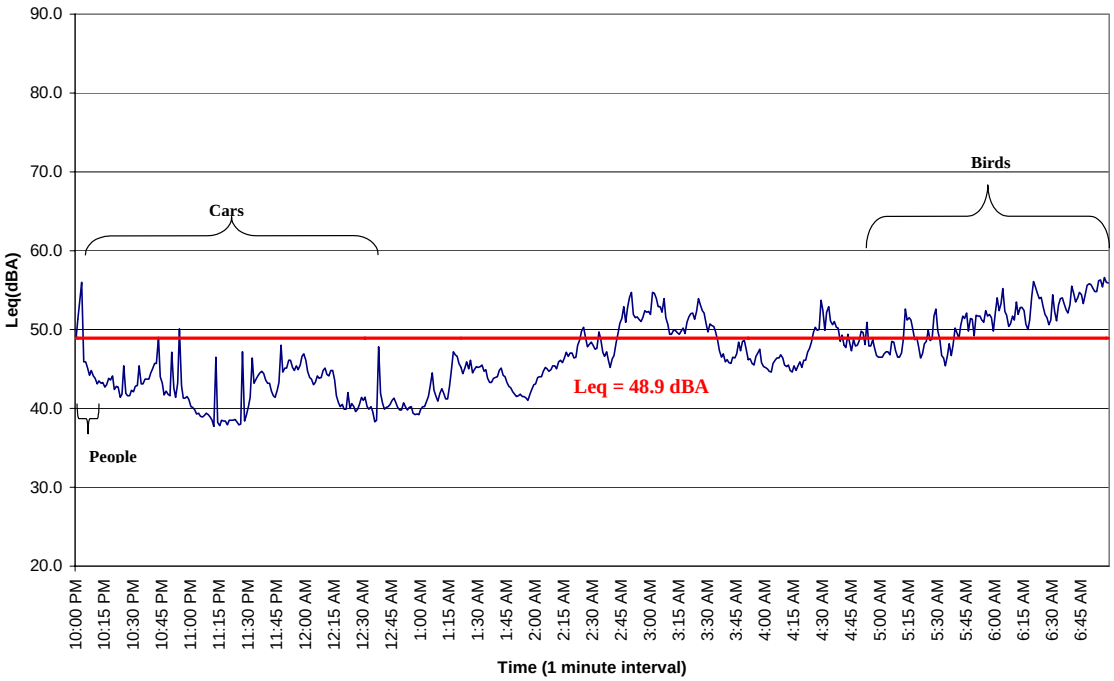


Figure A7.1: Kropp Residence, July 27th, 2004
Facility Noise Isolated

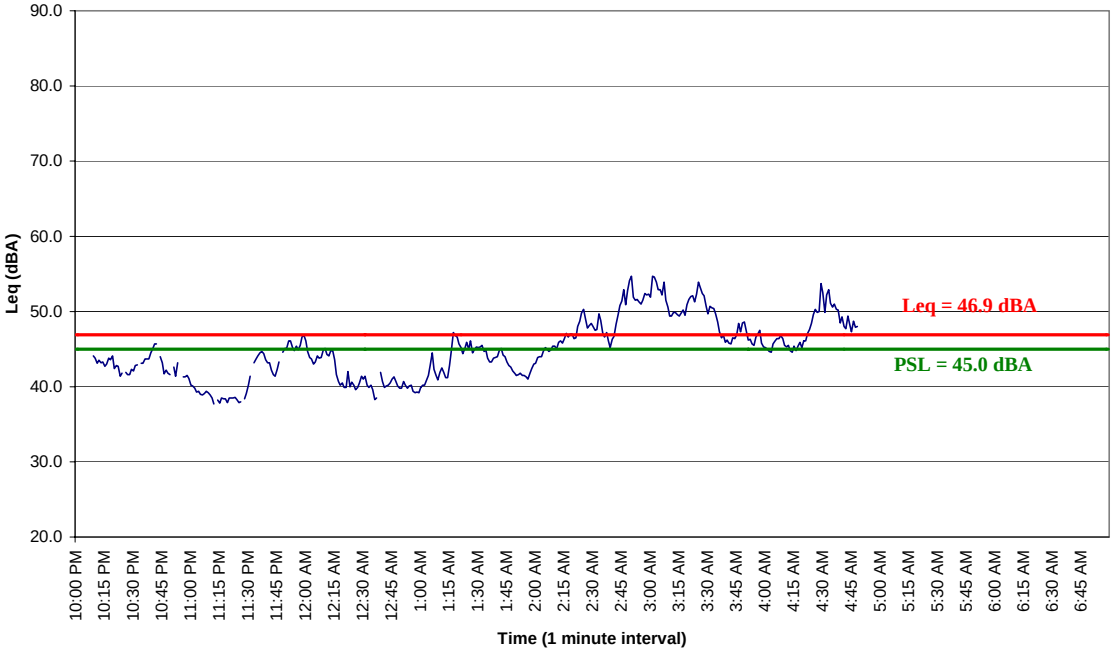
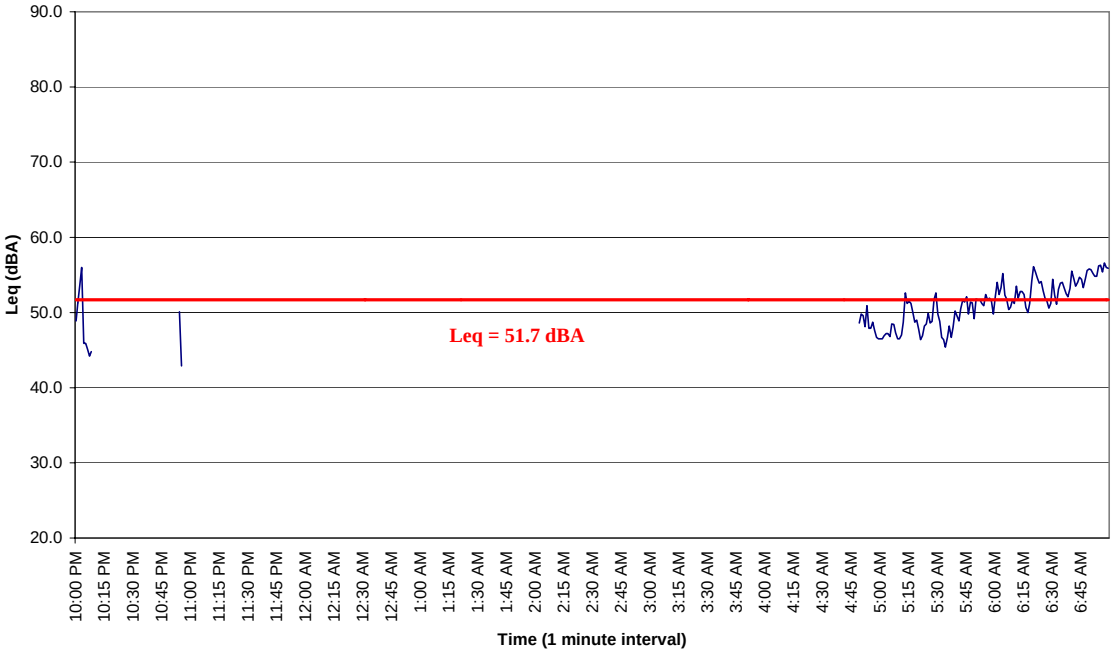


Figure A7.2 Kropp Residence, July 27, 2004
Non- facility Noise



July 27-28, 2004: Brabbins Residence

Figure A8.0 shows the one-minute Leq values for the night of July 27 to 28, 2004 at the Brabbins residence. The calculated Leq (56.6 dBA) represents all facility and non-facility noise, and all the significant noise events that are not facility-related are highlighted. The isolated facility noise is presented in Figure A8.1. The isolated nighttime Leq (44.1 dBA) is highlighted on the graph. Figure A8.2 shows non-facility noise with the associated nighttime Leq (60.1 dBA).

Figure A8.0: Brabbins Residence - July 27, 2004

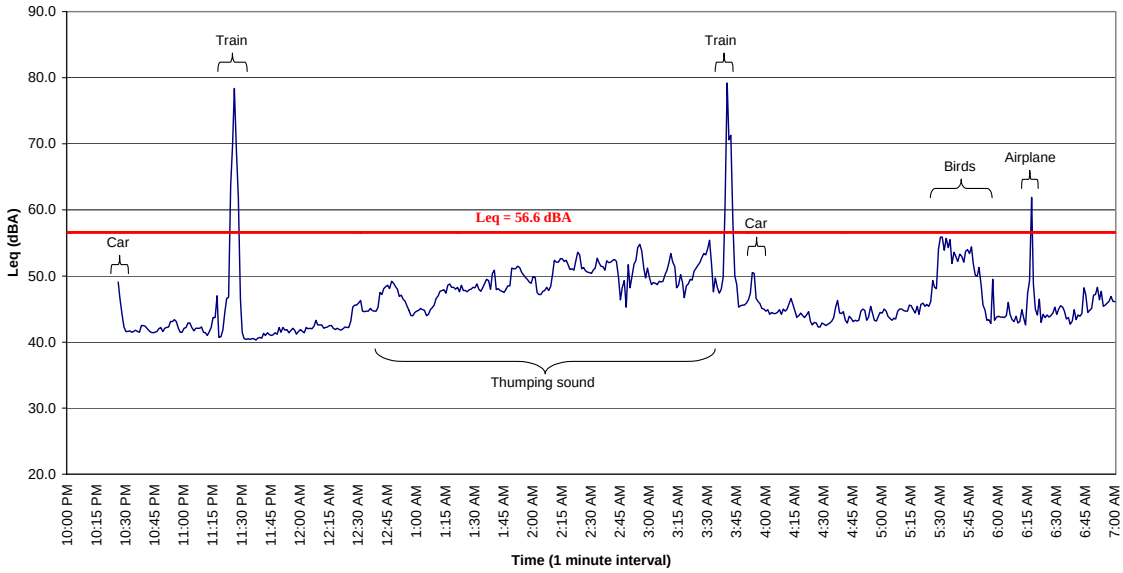


Figure A8.1: Brabbins Residence - July 27, 2004,
Facility Noise Isolated

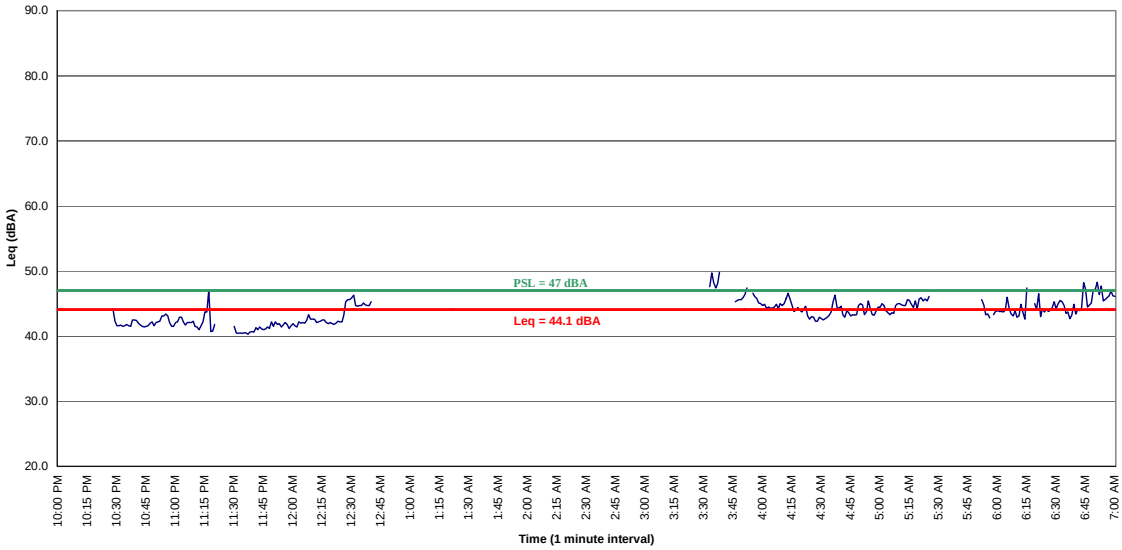
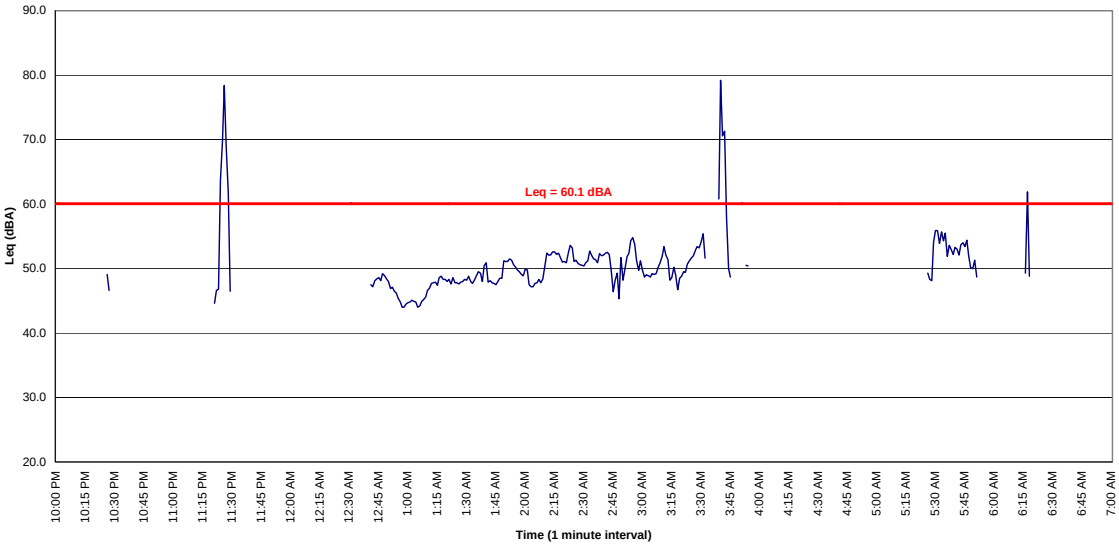


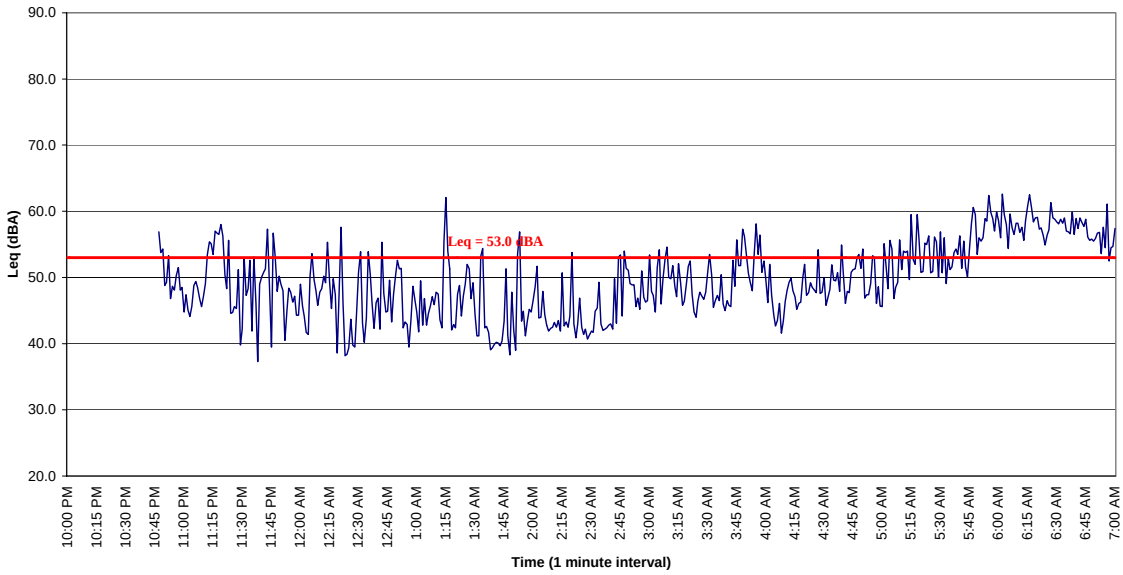
Figure A8.2: Brabbins Residence - July 27, 2004,
Non-Facility Noise



July 27-28, 2004: Chartrand Residence

Figure A9.0 shows the one-minute Leq values for the night of July 27 to 28, 2004 at the Chartrand residence. The calculated Leq (53.0 dBA) represents all facility and non-facility noise. The facility noise could not be isolated due to a mechanical error with the audio recorder. Regardless, due to the proximity of Hwy 15 traffic noise plays a significant role in the sound environment experienced at this residence.

Figure 9.0: Chartrand Residence - July 27, 2004



July 27-28, 2004: McKay Residence

Figure A10.0 shows the one-minute Leq values for the night of July 27 to 28, 2004 at the McKay residence. The calculated Leq (50.0 dBA) represents all facility and non-facility noise, and all the significant noise events that are not facility-related are highlighted. The isolated facility noise is presented in Figure A10.1. The nighttime Leq (48.6 dBA) is highlighted on the graph. Figure A10.2 shows non-facility noise with the associated nighttime Leq (52.3 dBA).

Figure A10.0: McKay Residence - July 27, 2004

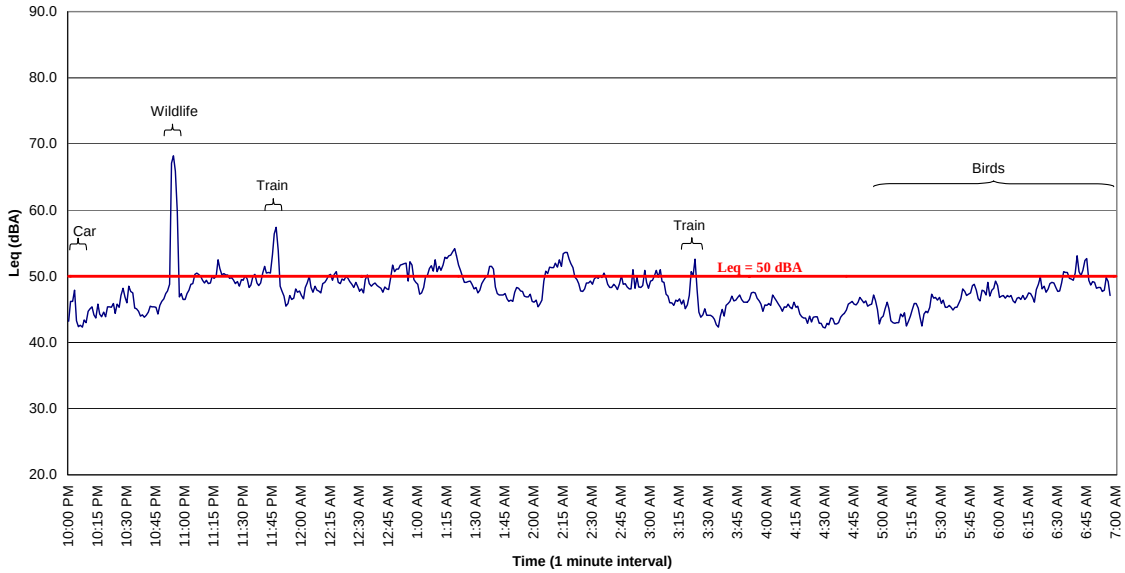


Figure A10.1: McKay Residence - July 27, 2004,
Facility Noise Isolated

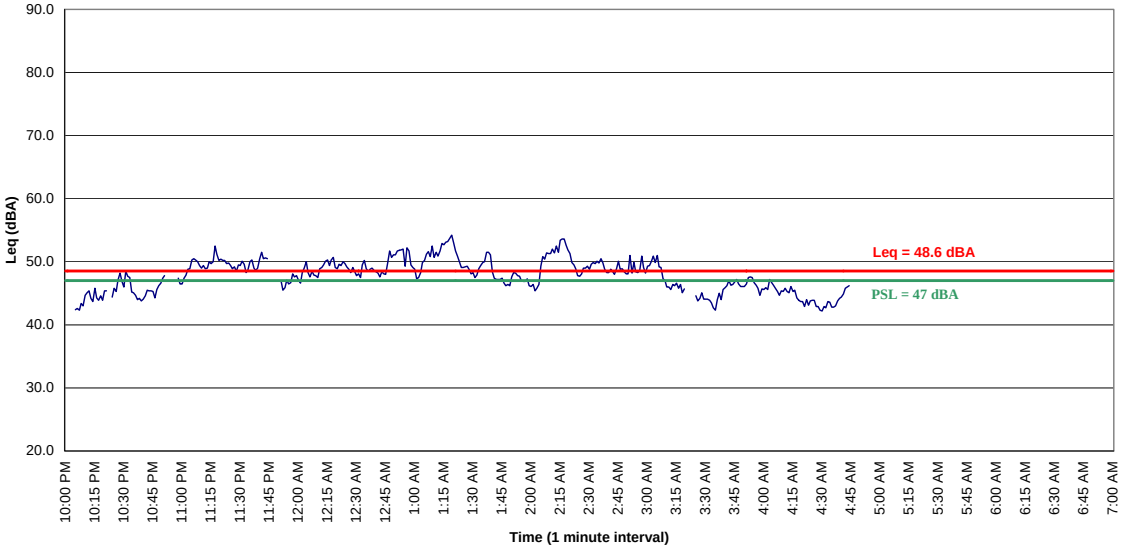
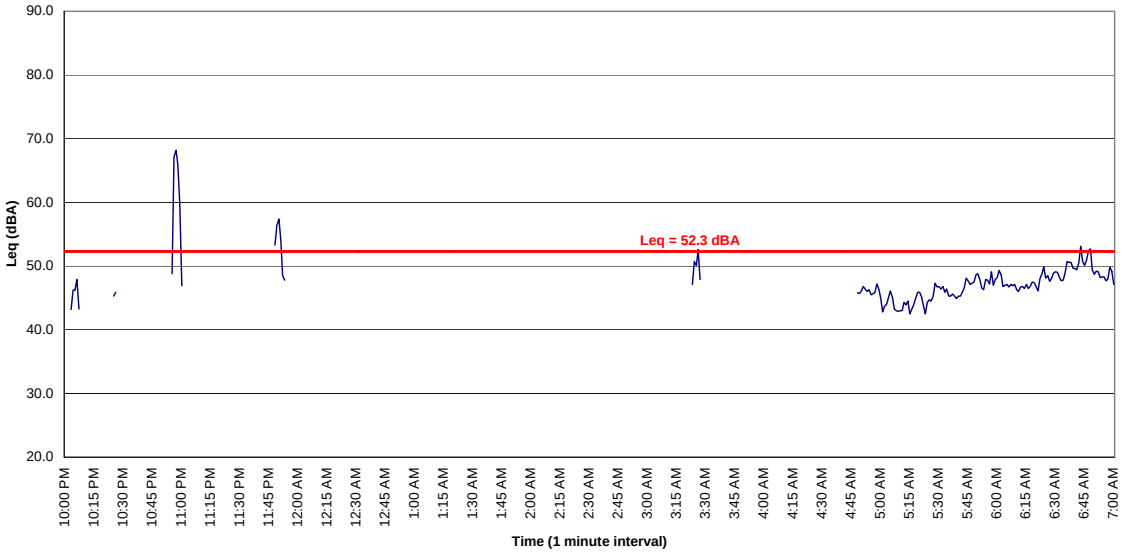


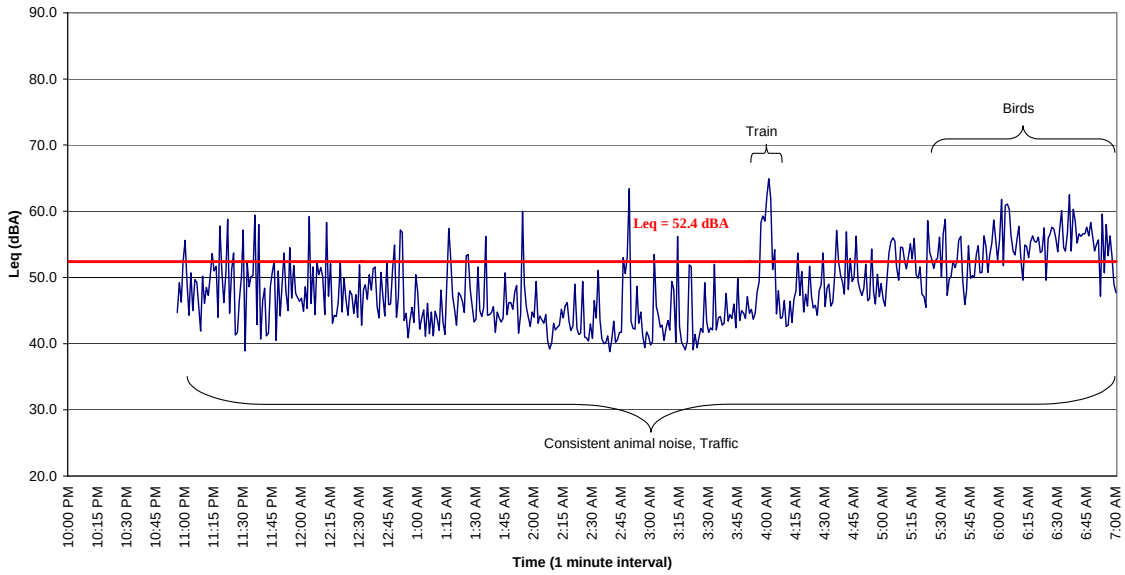
Figure A10.2: McKay Residence - July 27, 2004,
Non-Facility Noise



July 27-28, 2004: Hutterian Brethern of Scotford Residence

Figure A11.0 shows the one-minute Leq values for the night of July 27 to 28, 2004 at the Hutterian Brethern of Scotford residence. The calculated Leq (52.4 dBA) represents all facility and non-facility noise, and all the significant noise events that are not facility-related are highlighted. Due to a consistently high level of animal and Hwy 15 traffic noise, the facility was not audible. It was not possible to isolate the animal and traffic noise from the facility noise.

Figure A11.0: Hutterian Brethern of Scotford - July 27, 2004



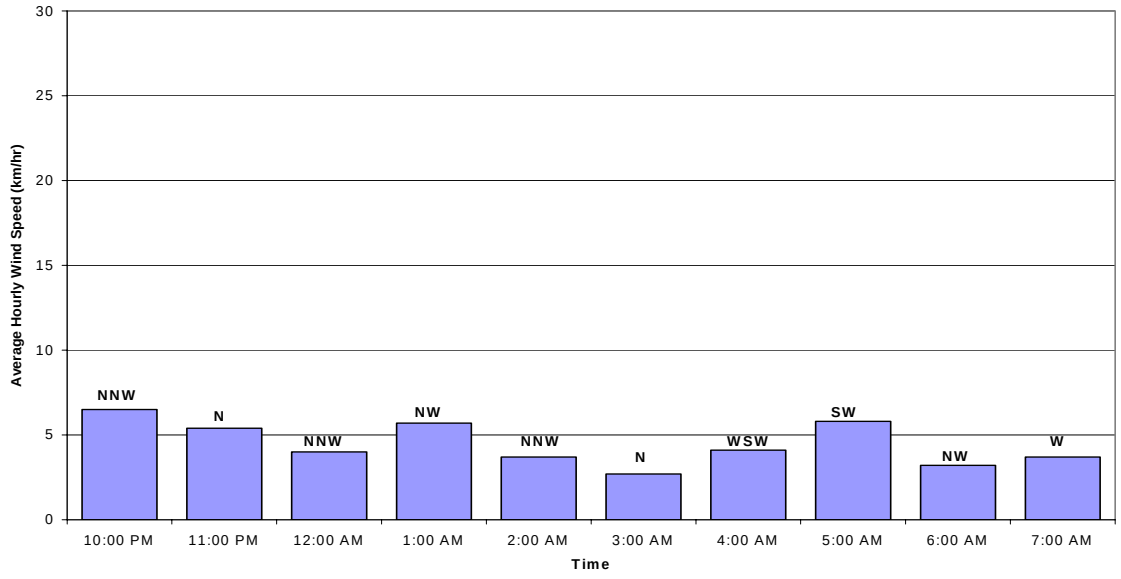
Meteorological Data is presented in Figure II for the night of July 27 – 28, 2004 and illustrates the wind speed and direction. The Meteorological conditions over this nighttime period were ideal for noise monitoring. There was an atmospheric inversion and a predominantly mild (<5 km/hr) Northwestern wind through the nighttime period. The inversion and wind direction has the potential to increase industrial noise at the Henkelman and Kropp residences.

Facility noise at the Kropp residences was isolated between approximately 10:00 PM and 4:45 AM (Figure A4.1), with higher noise readings between approximately 2:15 AM and 4:45 AM. The nighttime isolated Leq (46.9 dBA) at the Kropp residence was above the respective PSL, whereas the non-isolated Leq at the Henkelman (43.6 dBA) residence was underneath the PSL. As noted above an atmospheric inversion was recorded that has the effect of reflecting the noise downward which could result in higher ground level noise readings than would be the case under normal atmospheric conditions. Because of the low wind speeds, inversions have a tendency to make noise from a facility omni-directional (spreading out in all directions equally). Therefore, during an inversion it would be expected that noise levels at all residences would be slightly elevated from the cumulative impact of industry and other noise generators in the area. Cumulative noise levels at individual residences are dependant on the differences in distance between receptor locations to major noise sources in the area.

These same meteorological conditions contributed to the isolated facility noise at the Brabbins residence with cumulative contribution from ambient sources and industrial noise based on proximity to the Agrium Ft. Sask. BP Canada, EnerPro/Keyspan facilities. The isolated nighttime Leq (44.1 dBA) is below the PSL.

Between the hours of 11:00 P.M. to 3:00 A.M., facility noise levels at the McKay residence increased. Isolated facility noise at the McKay residence was mostly due to the favourable meteorological conditions with major noise sources being industrial (Provident/Williams Energy and Shell facilities) and ambient related.

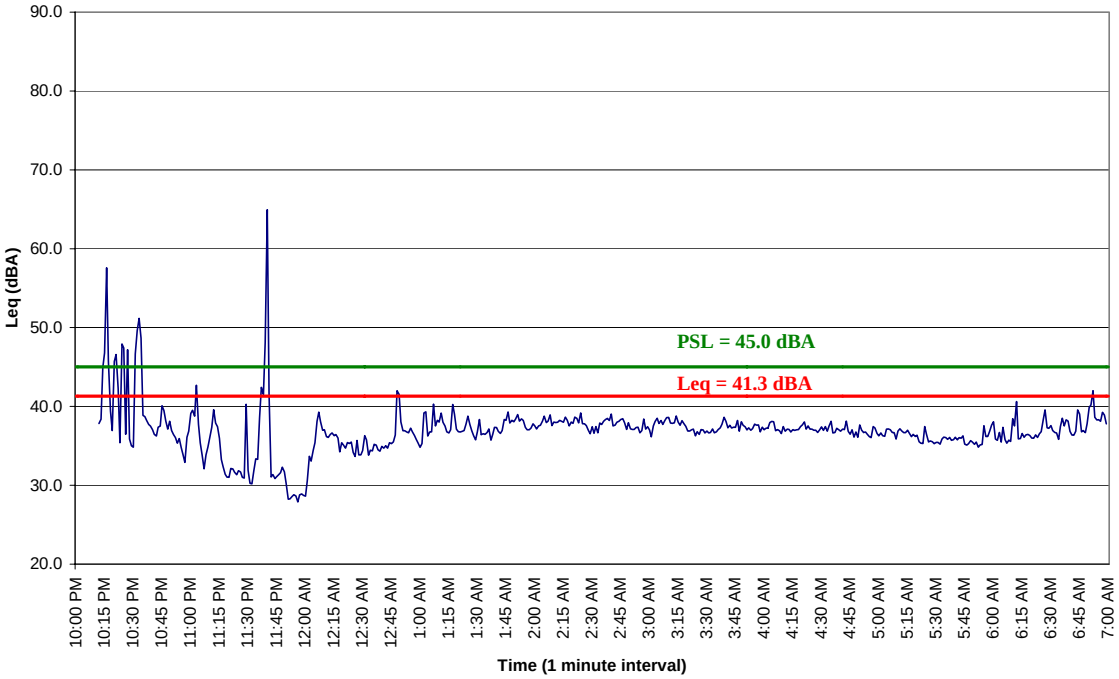
Figure II: Wind Data for July 27 - 28, 2004



July 28– 29, 2004: Henkelman Residence

Figure A12.0 shows the one-minute Leq values for the night of July 28 – 29, 2004 at the Henkelman residence. The calculated overall nighttime Leq, including facility and Non-facility related noise, is 41.3 dBA. Due to this value being below the PSL no isolation analysis is required. The isolated facility noise would be lower than (41.3 dBA).

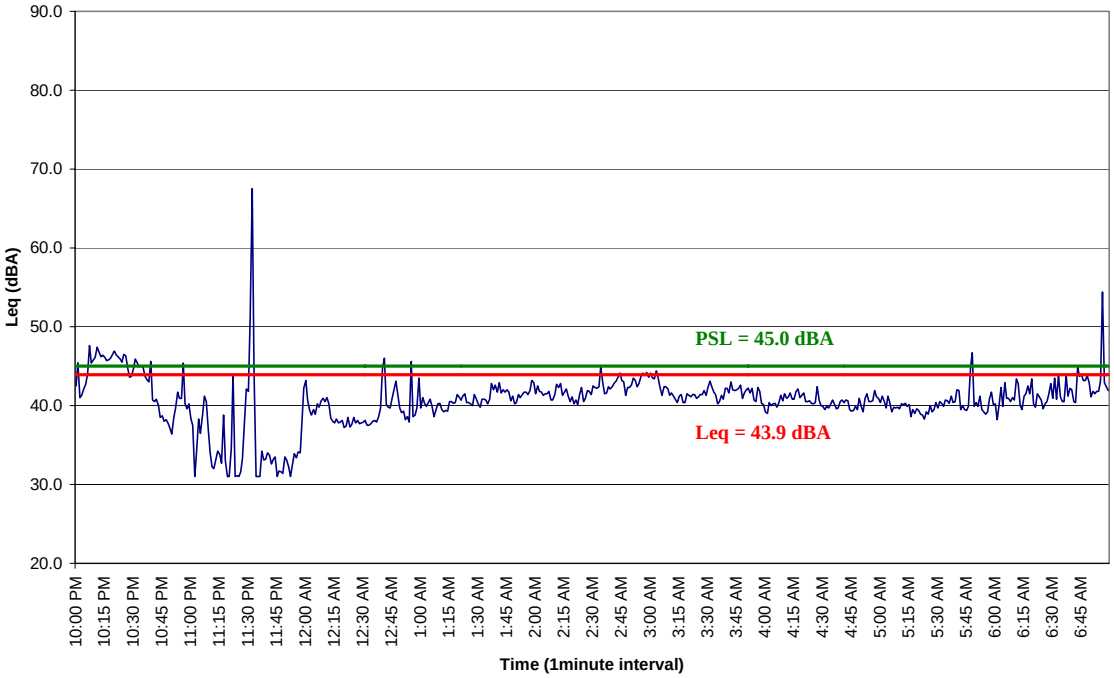
Figure A12.0: Henkelman Residence, July 28th, 2003



July 28– 29, 2004: Kropp Residence

Figure A13.0 shows the one-minute Leq values for the night of July 28 – 29, 2004 at the Henkelman residence. The calculated overall nighttime Leq, including facility and Non-facility related noise, is 43.9 dBA. Due to this value being below the PSL no isolation analysis is required. The isolated facility noise would be lower than (43.9 dBA).

Figure A13.0: Kropp Residence, July 28th, 2004



July 28-29, 2004: Brabbins Residence

Figure A14.0 shows the one-minute Leq values for the night of July 28 to 29, 2004 at the Brabbins residence. The calculated Leq (51.5 dBA) represents all facility and non-facility noise, and all the significant noise events that are not facility-related are highlighted. The isolated facility noise is presented in Figure A14.1. The nighttime Leq (46.3 dBA) is highlighted on the graph. Figure A14.2 shows non-facility noise with the associated nighttime Leq (57.5 dBA).

Figure A14.0: Brabbins Residence - July 28, 2004

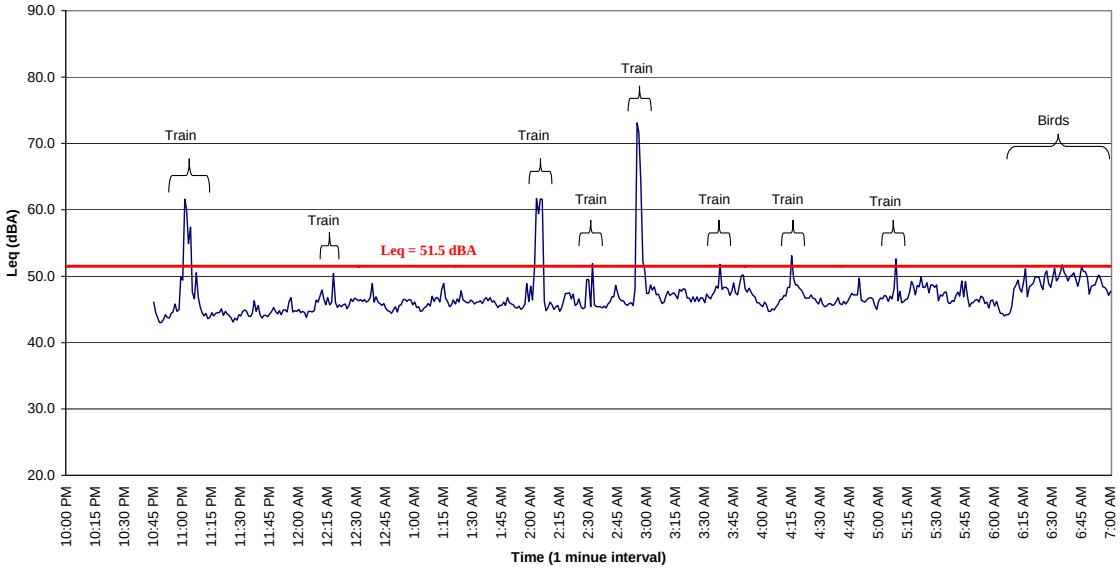


Figure A14.1: Brabbins Residence - July 28, 2004,
Facility Noise Isolated

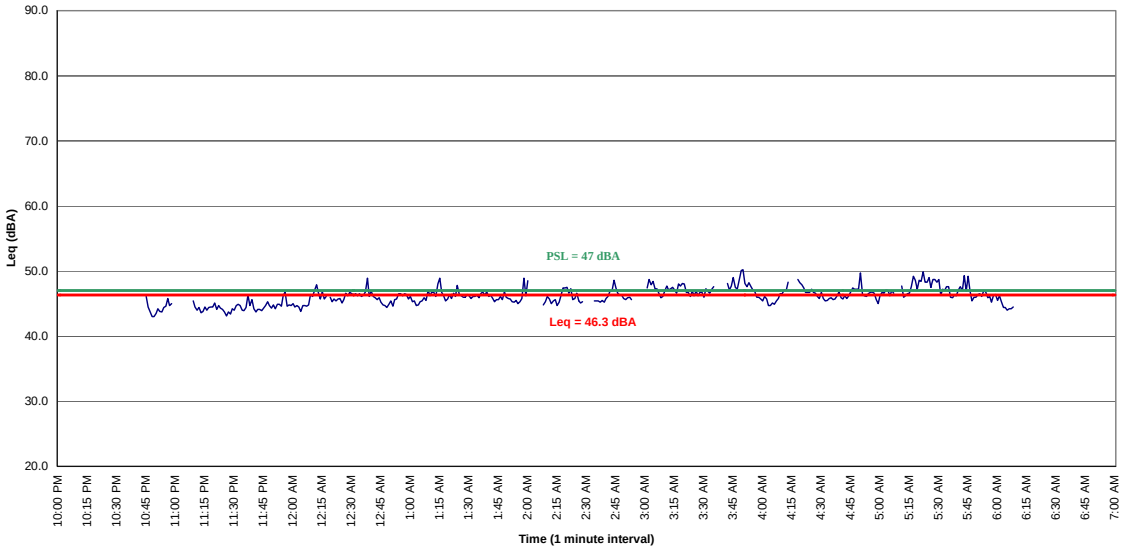
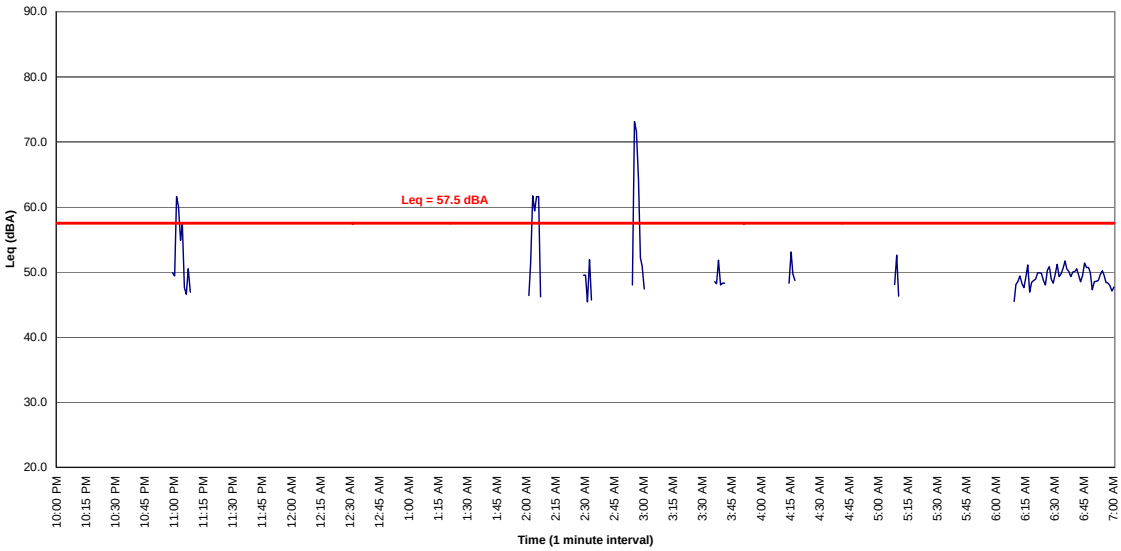


Figure A14.2: Brabbins Residence - July 28, 2004,
Non-Facility Noise



July 28-29, 2004: Chartrand Residence

Figure A15.0 shows the one-minute Leq values for the night of July 28 to 29, 2004 at the Chartrand residence. The calculated Leq (47.1 dBA) represents all facility and non-facility noise, and all the significant noise events that are not facility-related are highlighted. The isolated facility noise is presented in Figure A15.1. The nighttime Leq (38.2 dBA) is highlighted on the graph. Figure A15.2 shows non-facility noise with the associated nighttime Leq (52.1 dBA).

Figure 15.0: Chartrand Residence - July 28, 2004

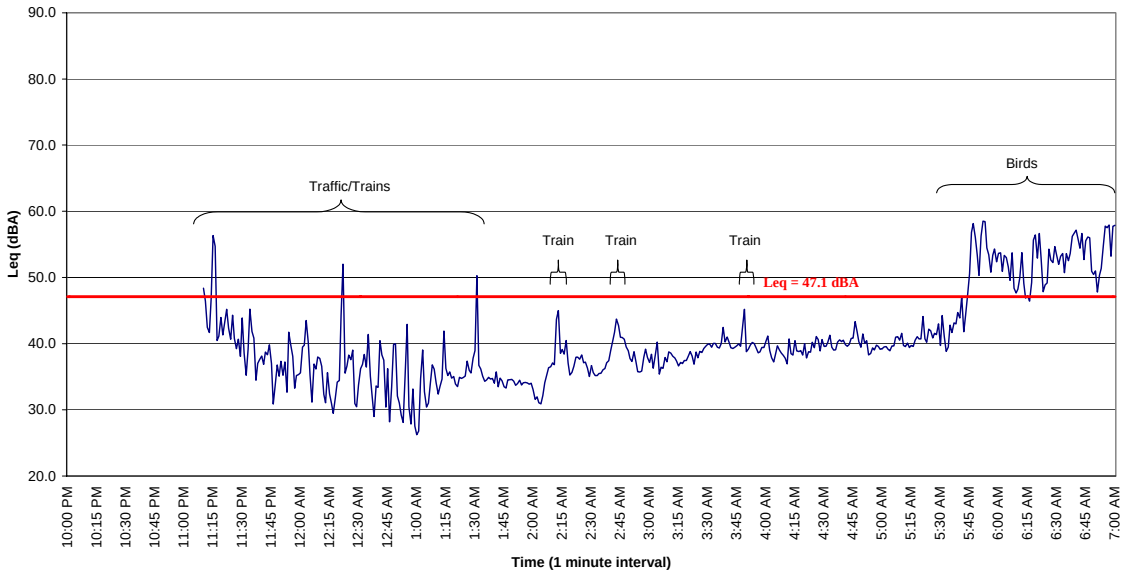


Figure A15.1: Chartrand Residence - July 28, 2004,
Facility Noise Isolated

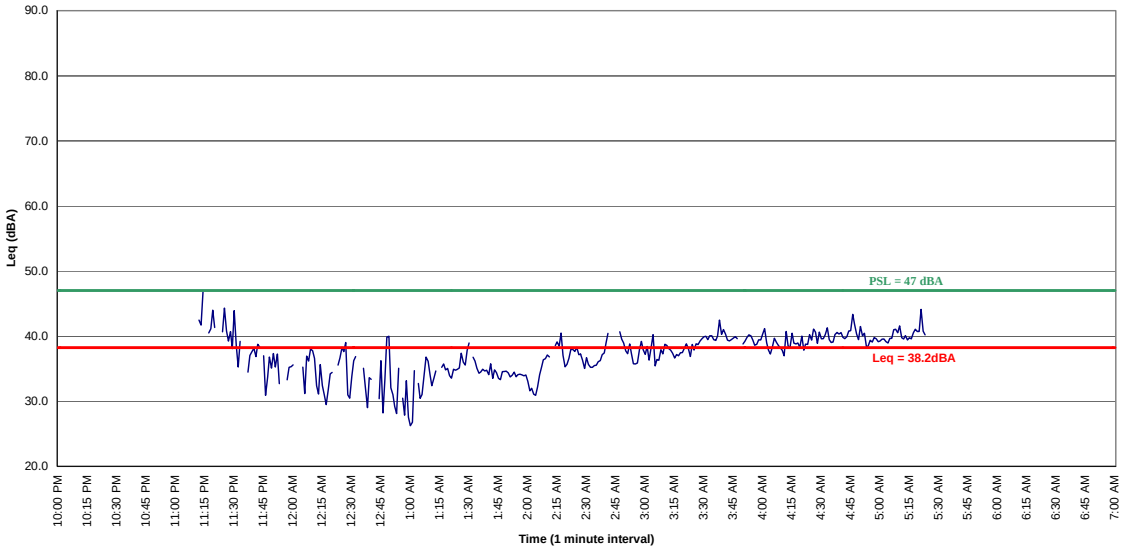
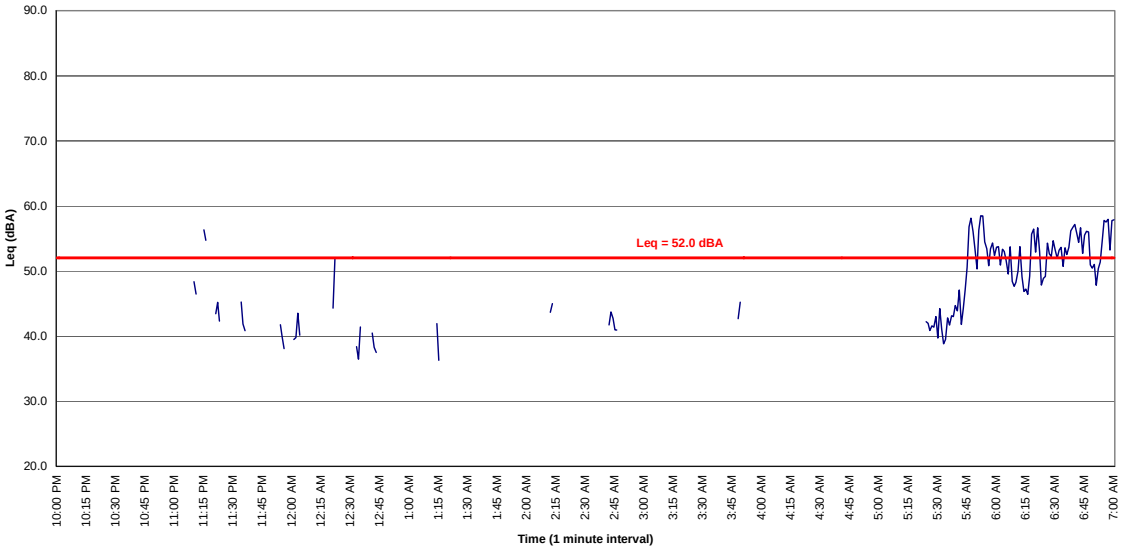


Figure A15.2: Chartrand Residence - July 28, 2004,
Non-Facility Noise



July 28-29, 2004: McKay Residence

Figure A16.0 shows the one-minute Leq values for the night of July 28 to 29, 2004 at the McKay residence. The calculated Leq (50.9 dBA) represents all facility and non-facility noise, and all the significant noise events that are not facility-related are highlighted. The isolated facility noise is presented in Figure A16.1. The nighttime Leq (50.4 dBA) is highlighted on the graph. Figure A16.2 shows non-facility noise and the associated nighttime Leq (51.0 dBA).

Figure A16.0: McKay Residence - July 28, 2004

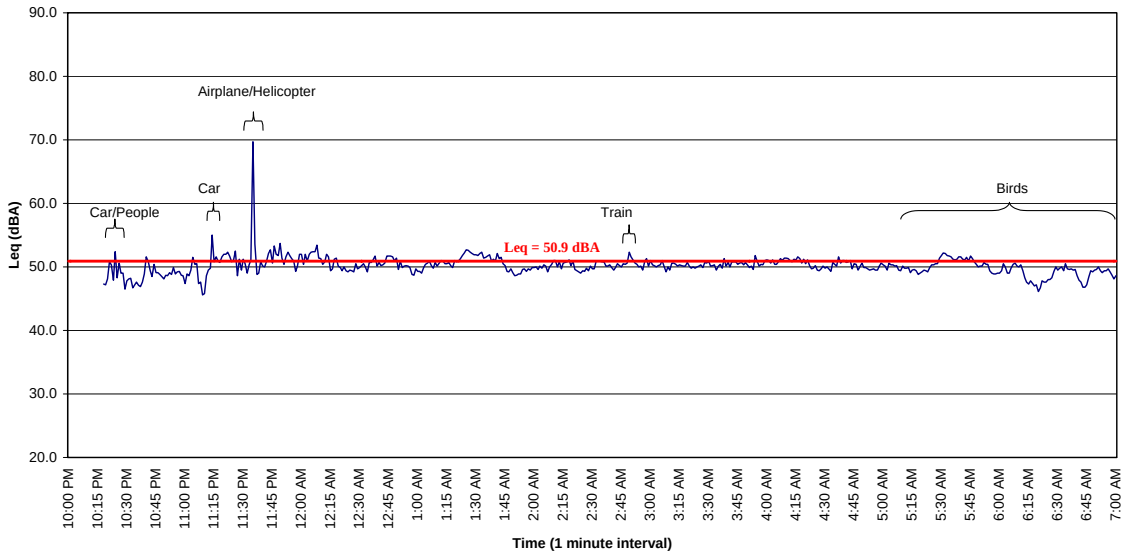


Figure A16.1: McKay Residence - July 28, 2004,
Facility Noise Isolated

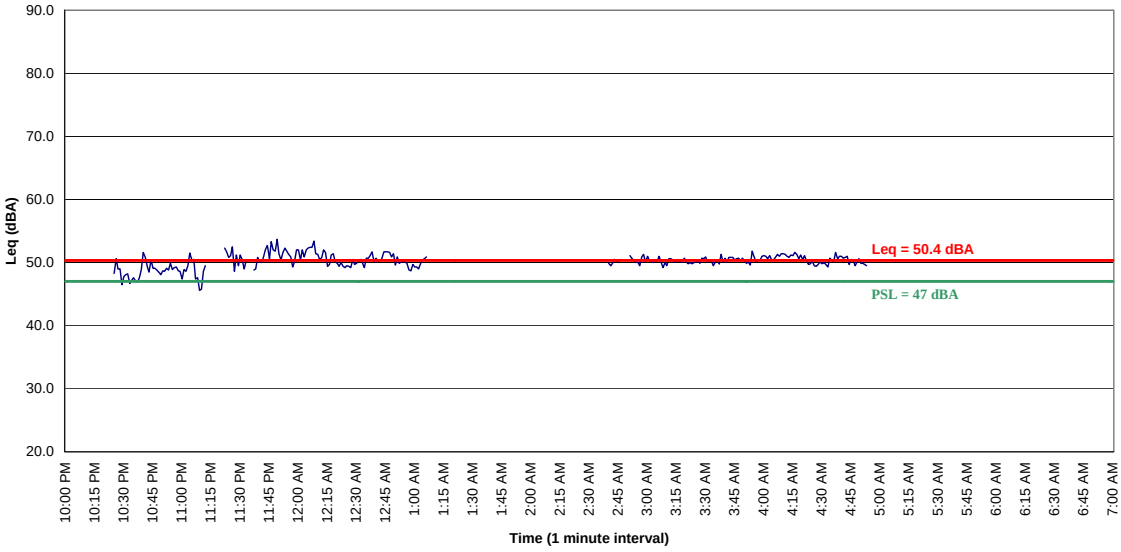
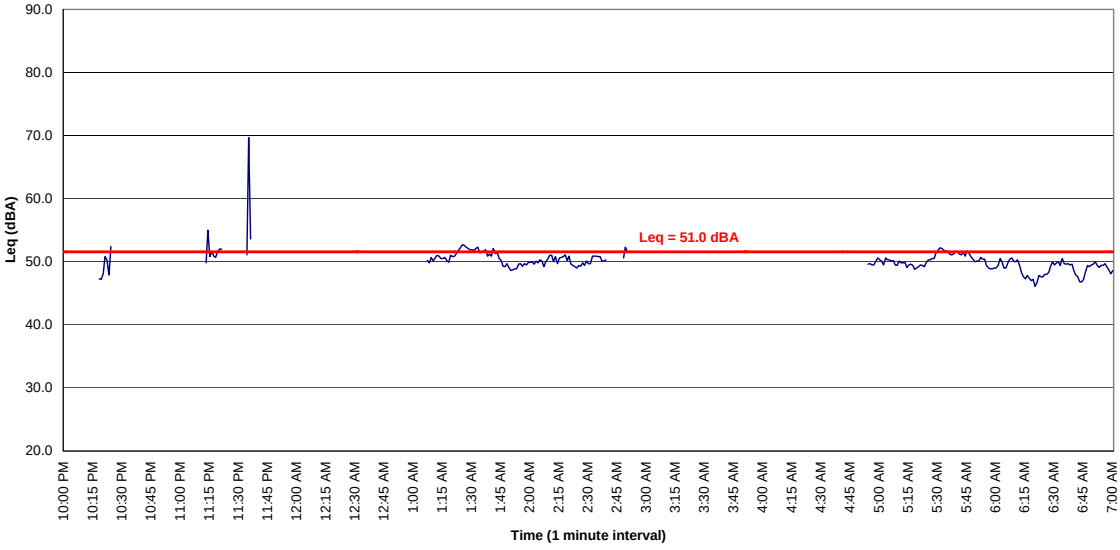


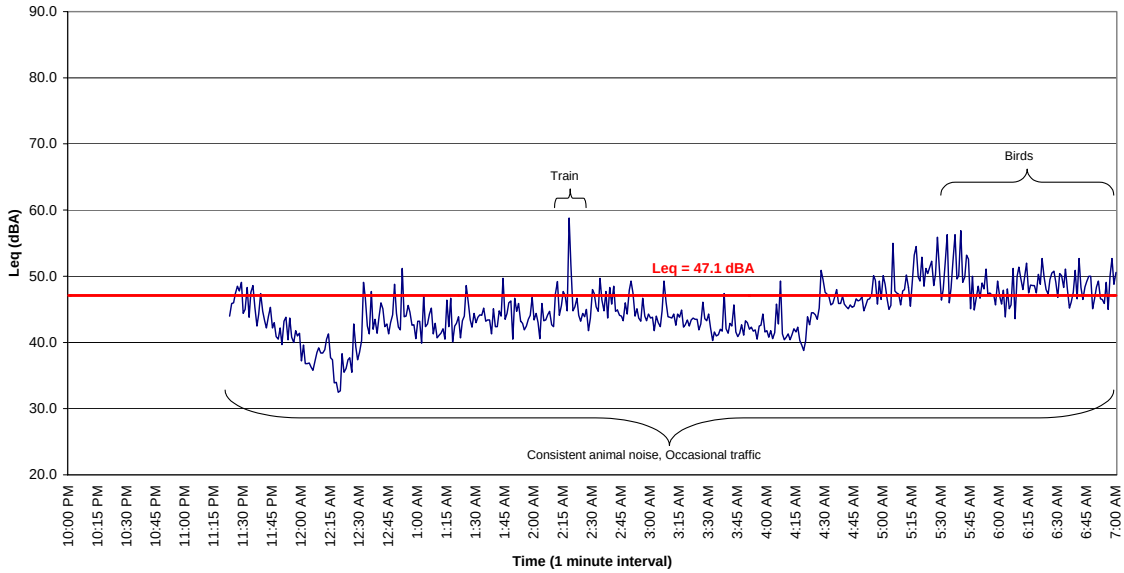
Figure A16.2: McKay Residence - July 28, 2004,
Non-Facility Noise



July 28-29, 2004: Hutterian Brethern of Scotford Residence

Figure A17.0 shows the one-minute Leq values for the night of July 28 to 29, 2004 at the Hutterian Brethern of Scotford residence. The calculated Leq (47.1 dBA) represents all facility and non-facility noise, and all the significant noise events that are not facility-related are highlighted. Due to a consistently high level of animal and Hwy 15 traffic noise, the facility was not audible. It was not possible to isolate the animal and traffic noise from the facility noise.

Figure A17.0: Hutterian Brethern of Scotford - July 28, 2004



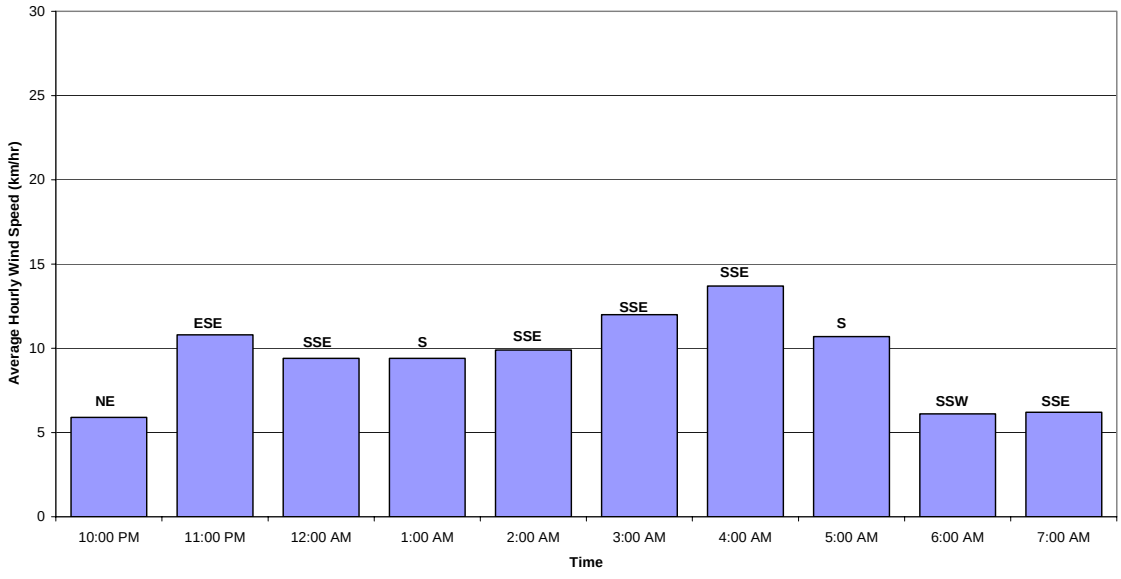
Meteorological Data is presented in Figure III for the night of July 28 – 29, 2004 and illustrates the wind speed and direction. There was a predominantly Southeastern wind over this nighttime period. Although the facilities were audible at both the Henklman and Kropp non-isolated nighttime Leqs (41.3, 43.9 dBA, respectively) are well below the respective PSLs.

Facility noise at the Brabbins residence was consistent throughout the measurement period and the predominantly southeastern wind, along with increased speed from the previous night, could potentially account for a Leq value (46.3 dBA) that approaches the PSL level (47 dBA).

At the Chartrand residence, the facility noise levels do not approach the PSL level (47 dBA) and the Leq (38.2 dBA) is well below it. The wind speed and direction could potentially have reduced the impact of the facility noise coming from the Oxyvinyl and Dow facilities.

The facility noise levels at the McKay residence are consistent from 2:45 A.M. to 5:00 A.M., with a slight increase from 11:45 P.M. to 12:15 A.M. The wind was east southeastern in direction during the period of increased levels and potentially could have augmented the noise impact from the Shell facility, which, in addition to the proximity to Provident/Williams Energy, could account for the peaks. This also applies to an elevated facility noise Leq (50.4 dBA).

Figure III: Wind Data for July 28 - 29, 2004



July 29 – 30, 2004: Henkelman Residence

Figure A18.0 shows the one-minute Leq values for the night of July 29 – 30, 2004 at the Henkelman residence. The Calculated nighttime Leq (54.1 dBA) and all significant noise events that are not facility- related are highlighted. The isolated facility noise is presented in Figure A18.1 the nighttime Leq value is 43.8 dBA (highlighted on the graph). Figure A18.2 shows non-facility noise with a nighttime Leq of 56.0dBA.

Figure A18.0: Henkelman Residence, July 29th, 2004

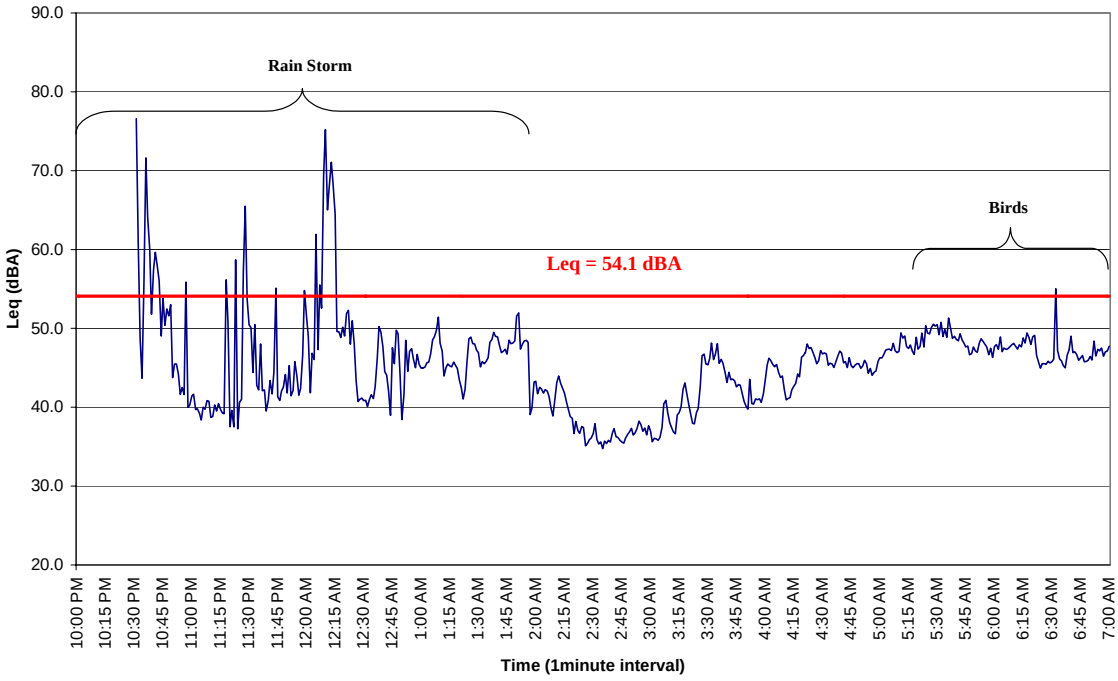


Figure A18.1: Henkelman Residence, July 29th, 2004
Facility Noise Isolated

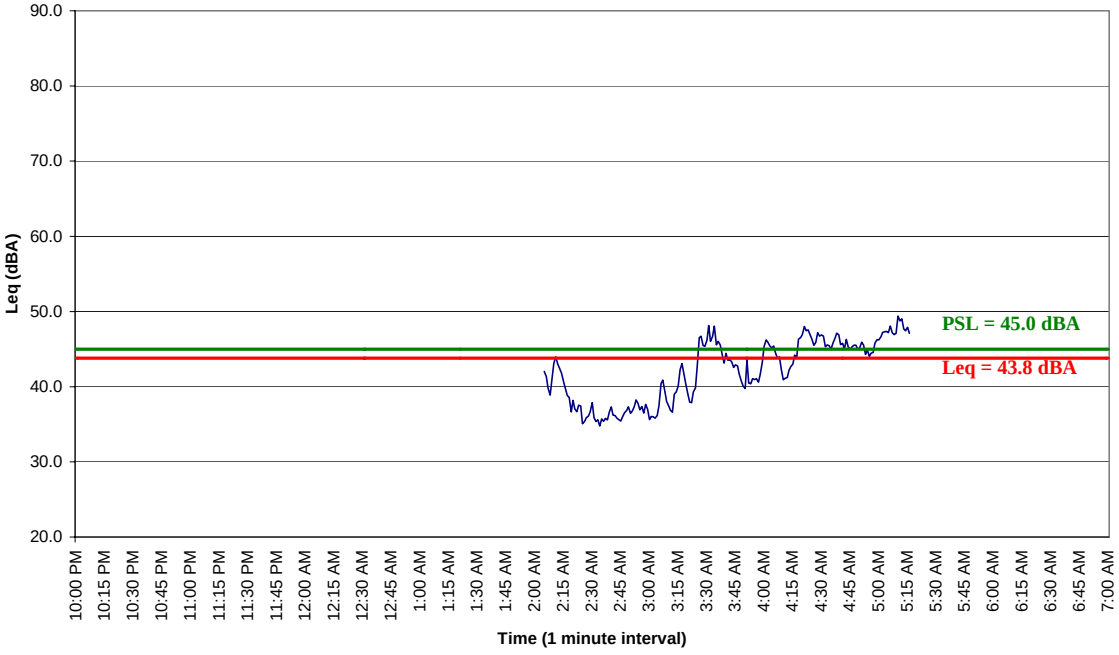
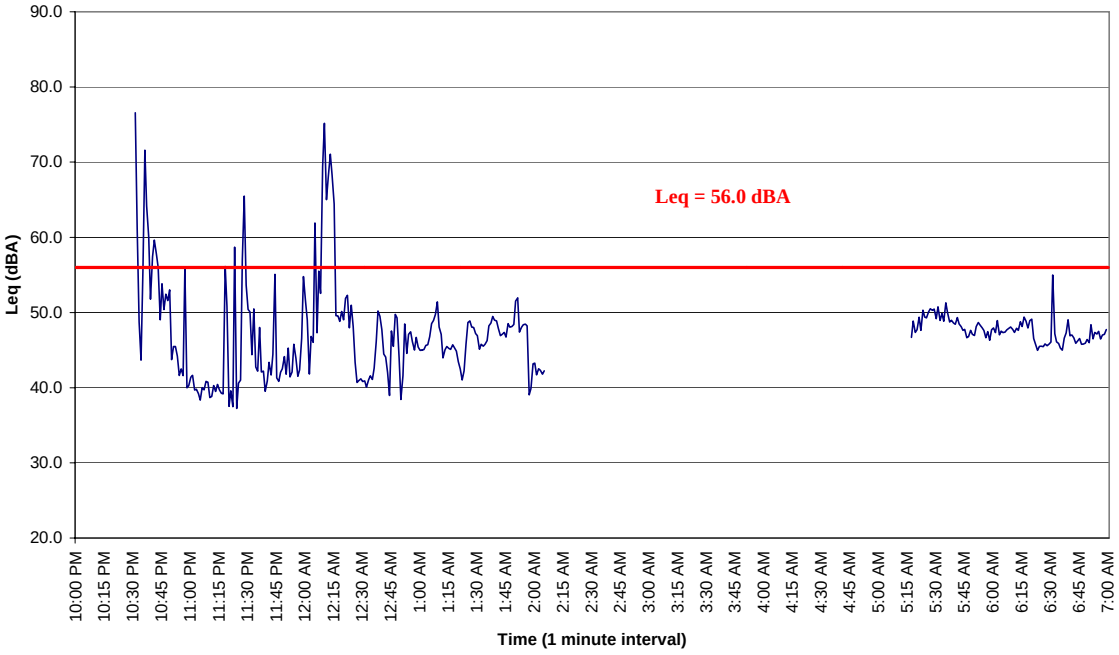


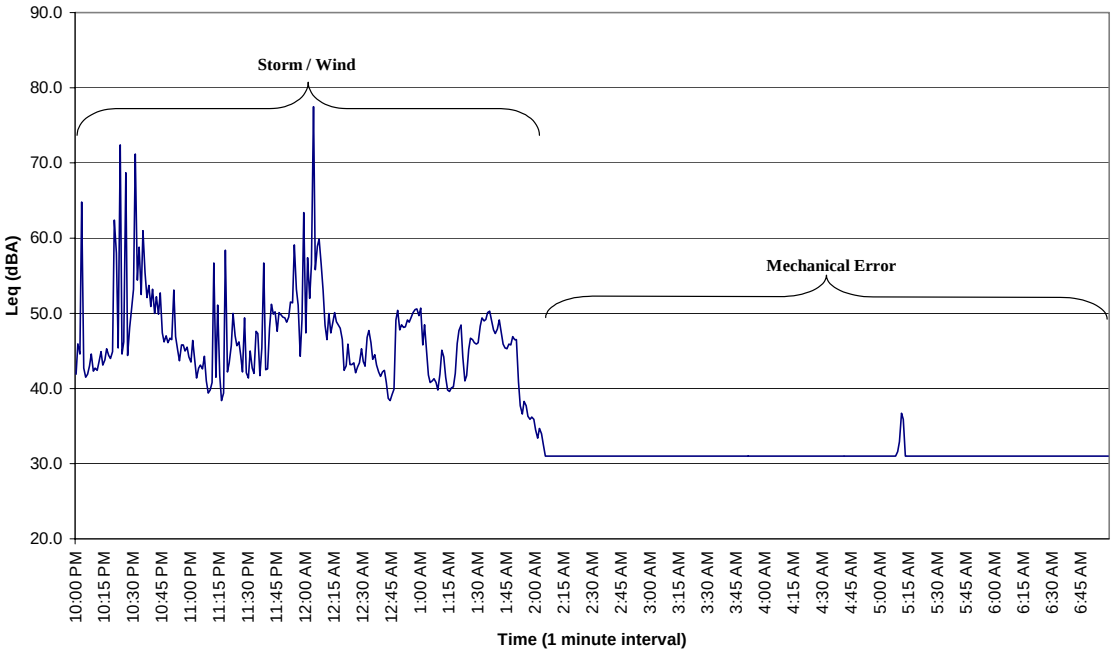
Figure A18.2: Henkelman Residence, July 29th, 2004
Non- facility Noise



July 29-30, 2004: Kropp Residence

Figure A19.0 shows the one-minute Leq values for the night of July 29 to 30, 2004 at the Kropp residence. Due to a storm and a mechanical error induced by the storm the data recorded does not consist of facility noise and will be omitted from the analysis.

Figure A19.0: Kropp Residence, July 29th, 2004
Non-Facility Noise



July 29-30, 2004: Brabbins Residence

Figure A20.0 shows the one-minute Leq values for the night of July 29 to 30, 2004 at the Brabbins residence. The calculated Leq (57.0 dBA) represents all facility and non-facility noise, and all the significant noise events that are not facility-related are highlighted. The isolated facility noise is presented in Figure A20.1. The nighttime Leq (44.4 dBA) is highlighted on the graph. Figure A20.2 shows non-facility noise and the associated nighttime Leq (58.5 dBA).

Figure A20.0: Brabbins Residence - July 29, 2004

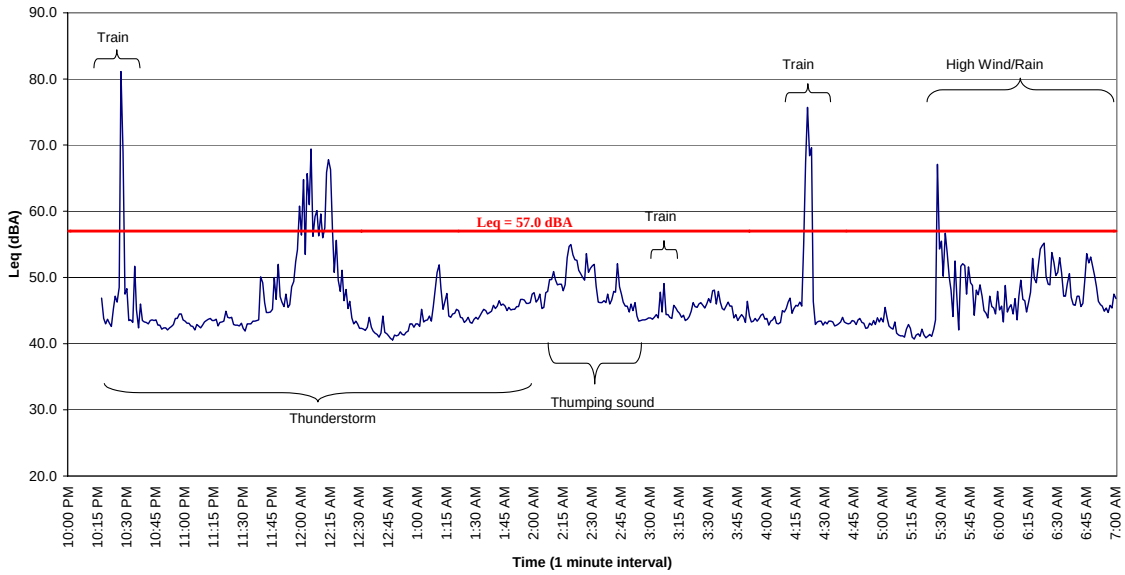


Figure A20.1: Brabbins Residence - July 29, 2004,
Facility Noise Isolated

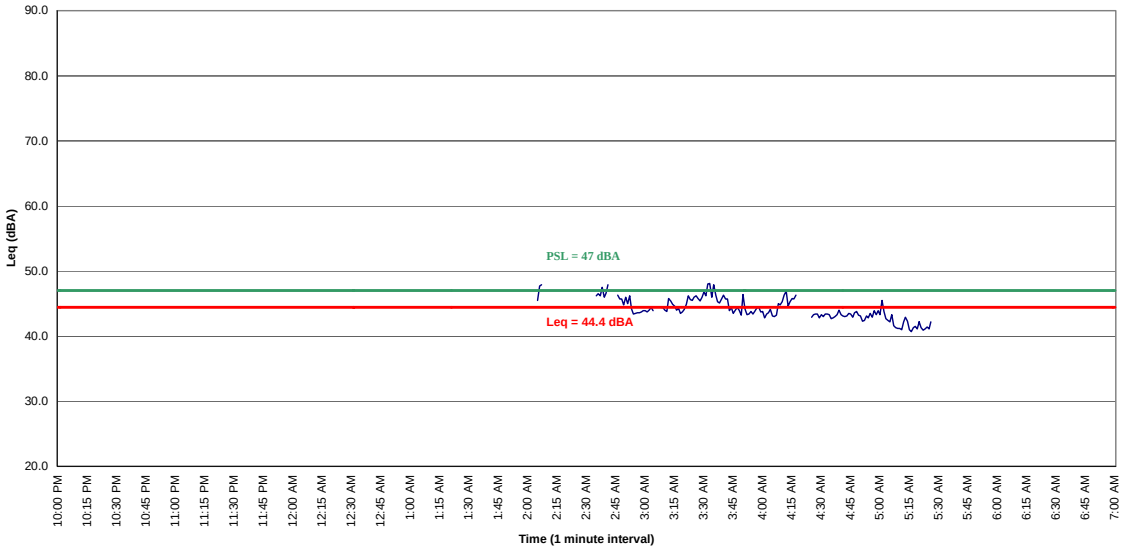
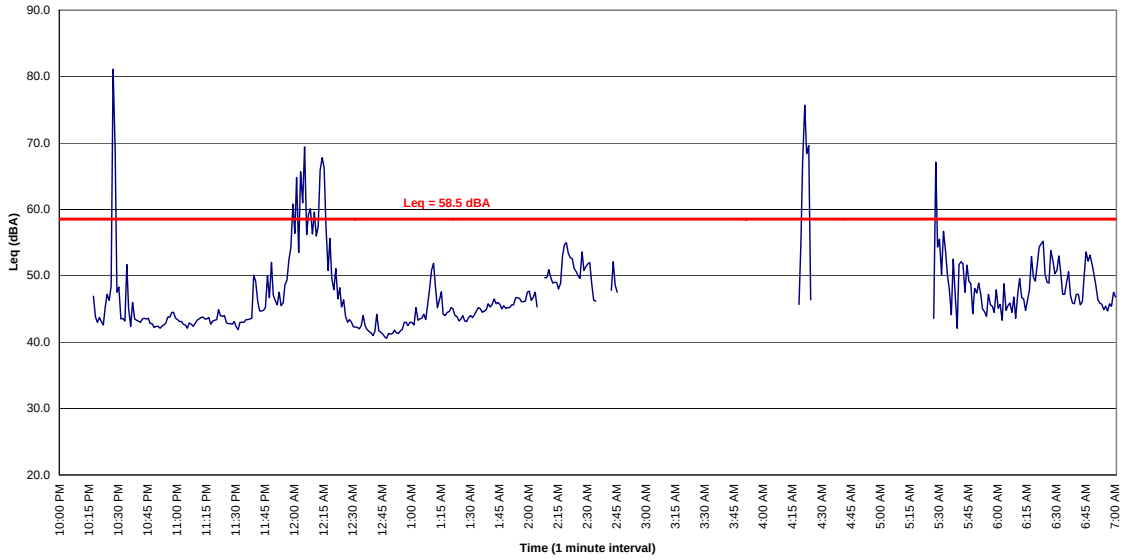


Figure A20.2: Brabbins Residence - July 29, 2004,
Non-Facility Noise



July 29-30, 2004: Chartrand Residence

Figure A21.0 shows the one-minute Leq values for the night of July 29 to 30, 2004 at the Chartrand residence. The calculated Leq (54.2 dBA) represents all facility and non-facility noise, and all the significant noise events that are not facility-related are highlighted. The isolated facility noise is presented in Figure A21.1. The nighttime Leq (46.9 dBA) is highlighted on the graph. Figure A21.2 shows non-facility noise with the associated nighttime Leq (55.5 dBA).

Figure 21.0: Chartrand Residence - July 29, 2004

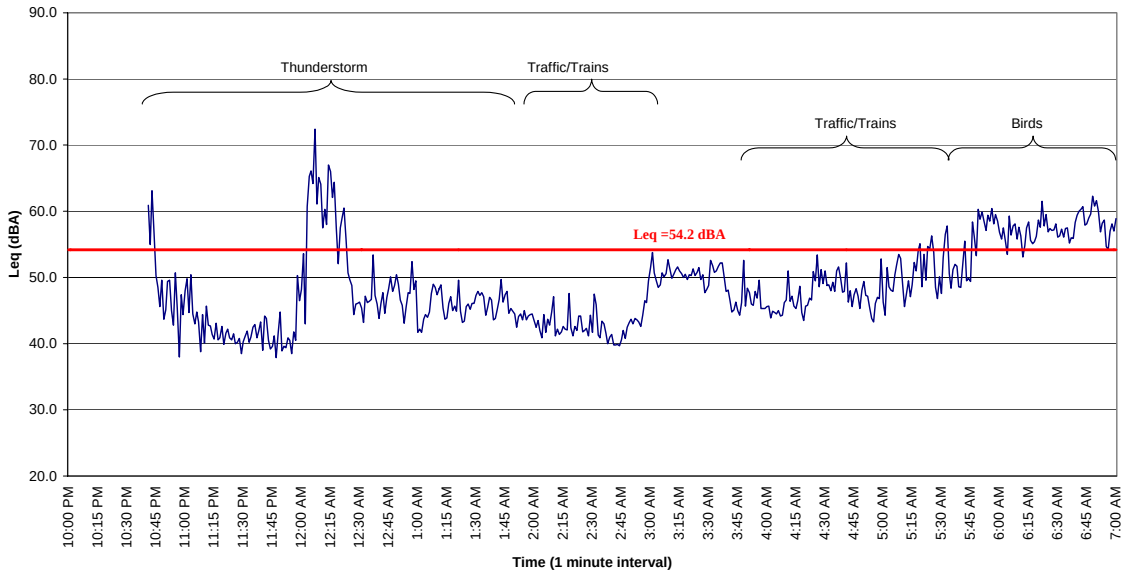


Figure A21.1: Chartrand Residence - July 29, 2004,
Facility Noise Isolated

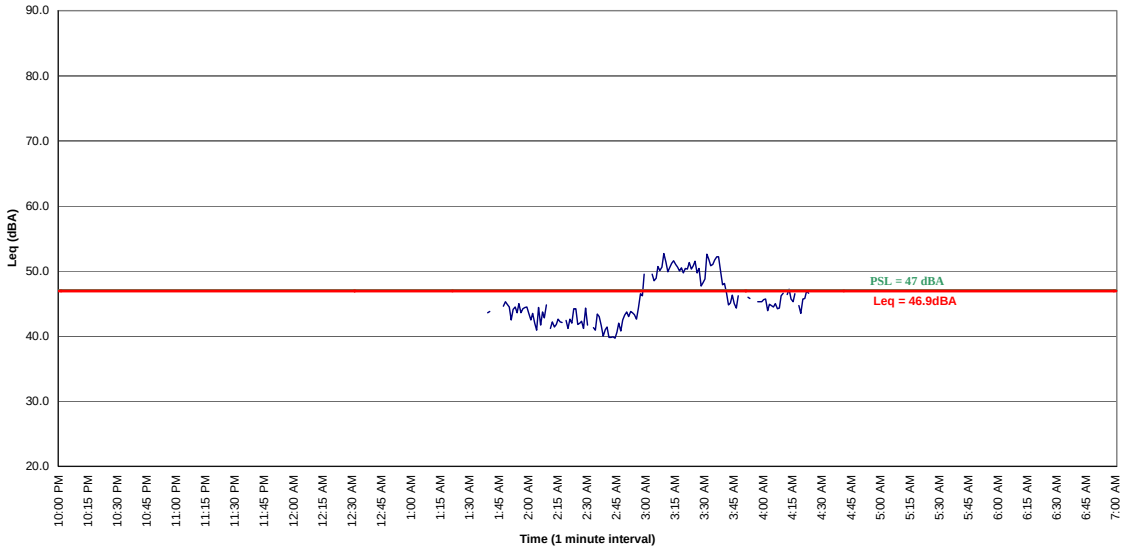
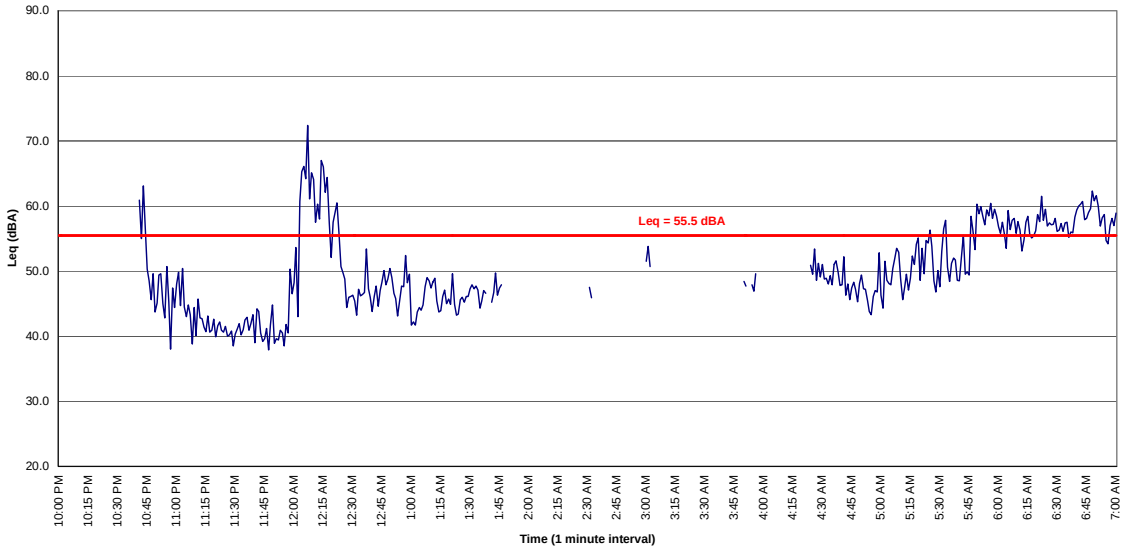


Figure A21.2: Chartrand Residence - July 29, 2004,
Non-Facility Noise



July 29-30, 2004: McKay Residence

Figure A22.0 shows the one-minute Leq values for the night of July 29 to 30, 2004 at the McKay residence. The calculated Leq (51.2 dBA) represents all facility and non-facility noise, and all the significant noise events that are not facility-related are highlighted. The isolated facility noise is presented in Figure A22.1. The nighttime Leq (47.3 dBA) is highlighted on the graph. Figure A22.2 shows non-facility noise with the associated nighttime Leq (52.4 dBA).

Figure A22.0: McKay Residence - July 29, 2004

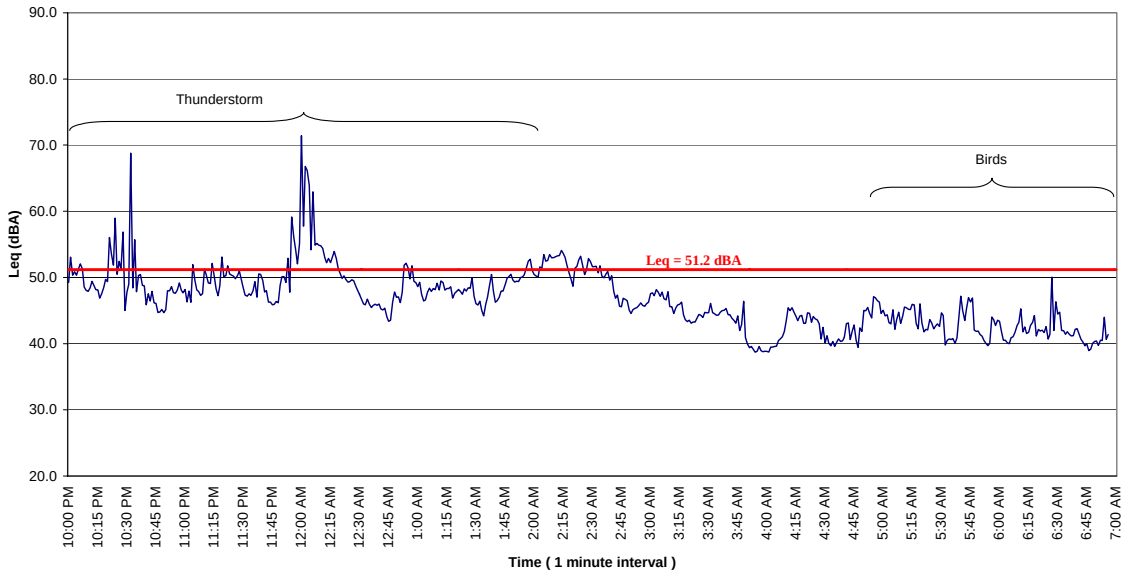


Figure A22.1: McKay Residence - July 29, 2004,
Facility Noise Isolated

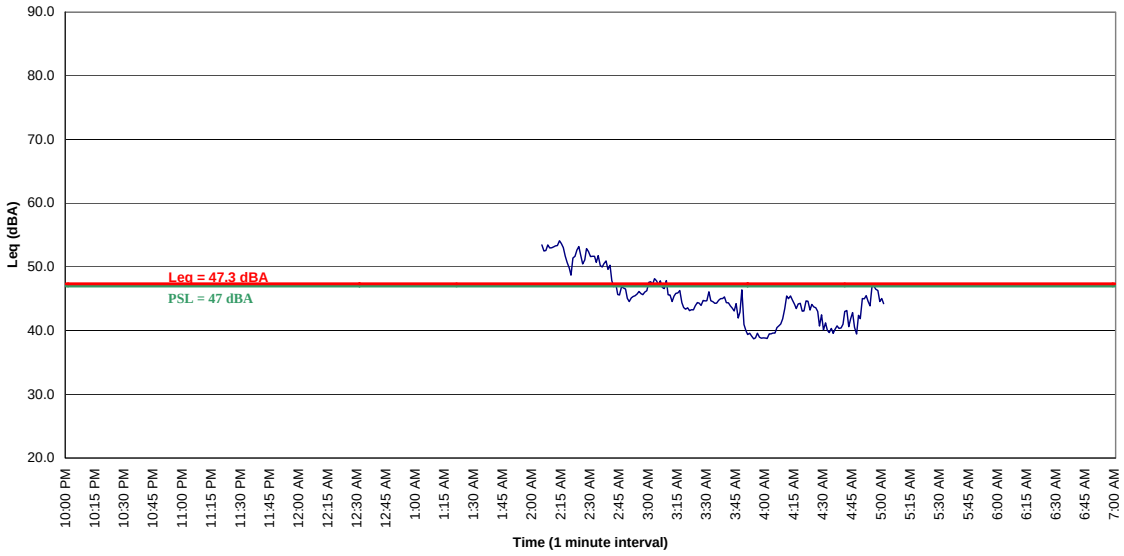
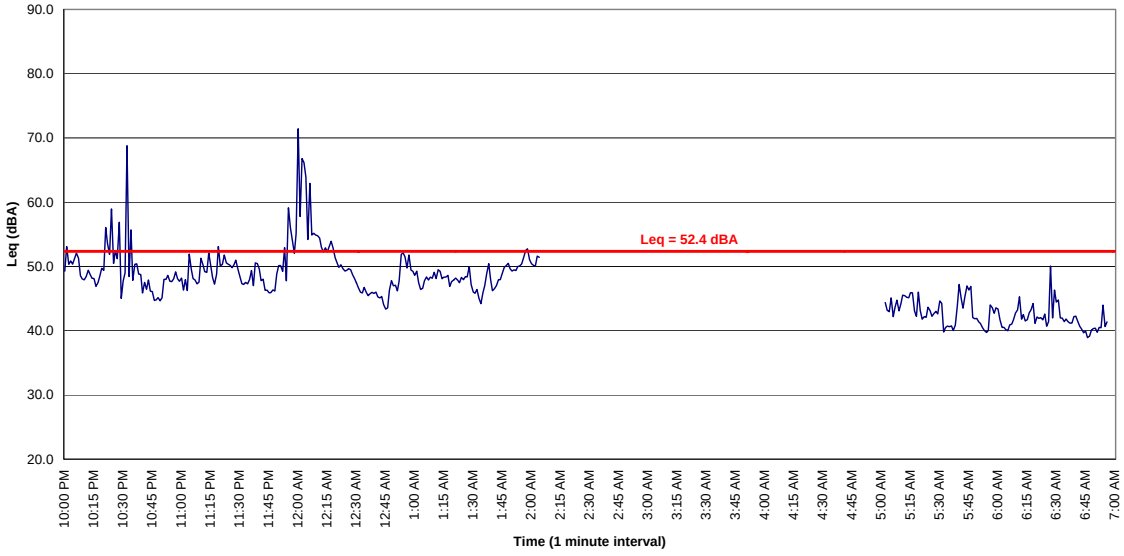


Figure A22.2: McKay Residence - July 29, 2004,
Non-Facility Noise



July 29-30, 2004: Hutterian Brethern of Scotford Residence

Figure A23.0 shows the one-minute Leq values for the night of July 29 to 30, 2004 at the Hutterian Brethern of Scotford residence. The calculated Leq (56.0 dBA) represents all facility and non-facility noise, and all the significant noise events that are not facility-related are highlighted. Figure A23.1 shows the Leq (52.7 dBA) without the storm. Due to a consistently high level of animal and Hwy 15 traffic noise, the facility was not audible. It was not possible to isolate the animal and traffic noise from the facility noise.

Figure A23.0: Hutterian Brethern of Scotford - July 29, 2004

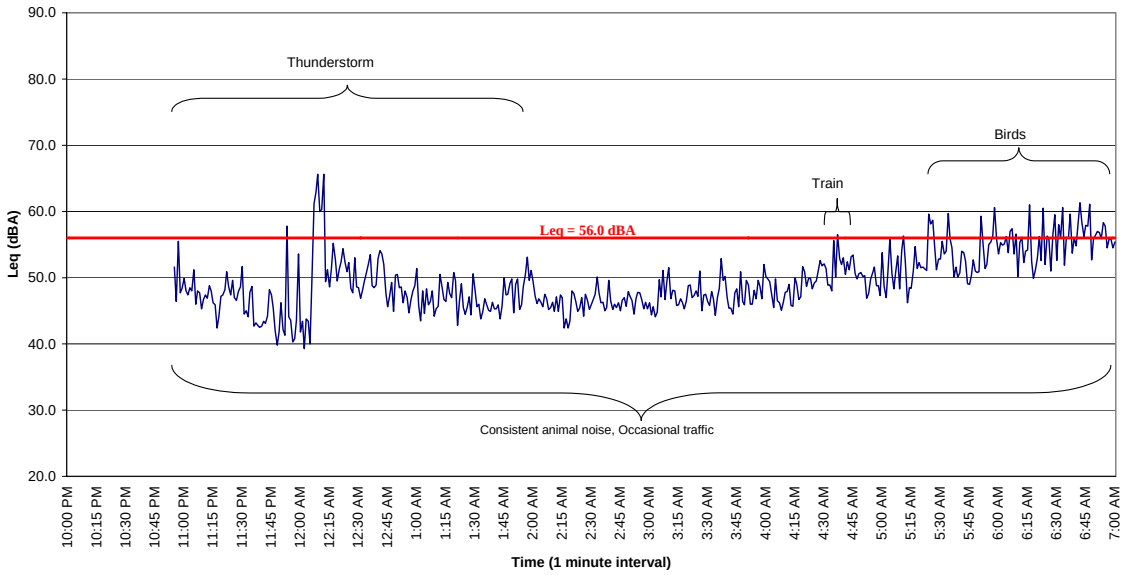
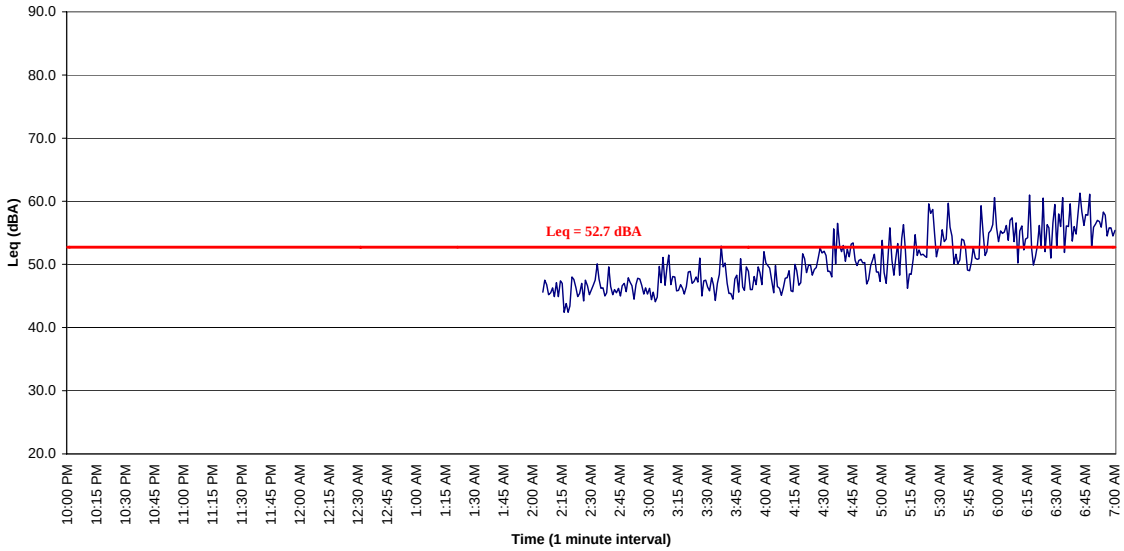


Figure A23.1: Hutterian Brethern of Scotford - July 29, 2004
Non-thunderstorm noise isolated



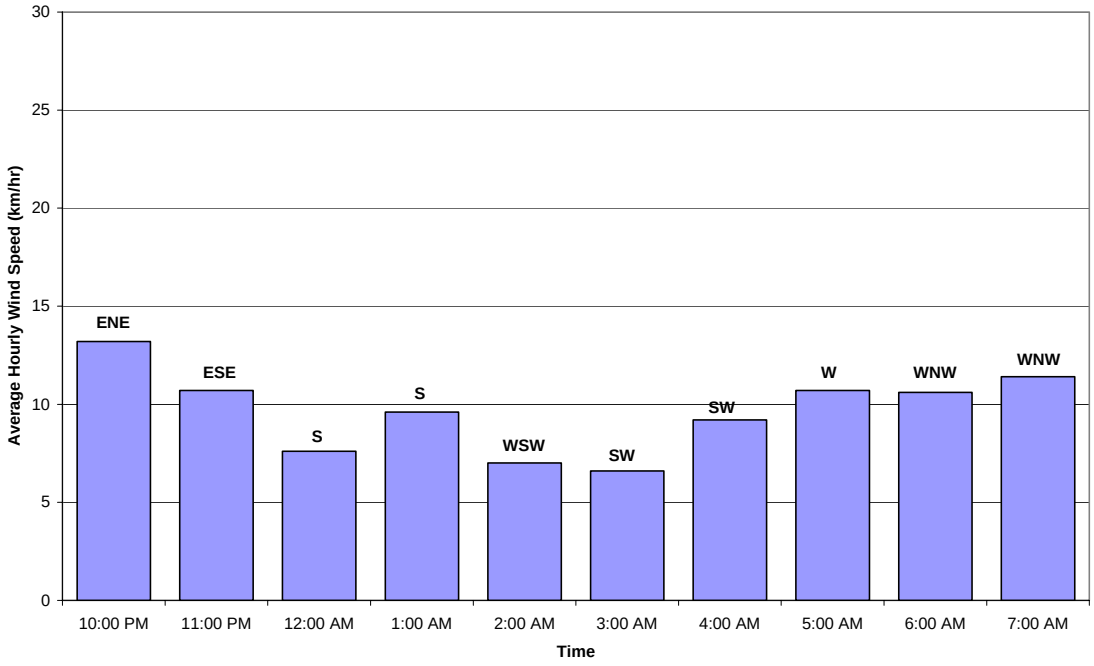
Meteorological Data is presented in Figure IV for the night of July 29 – 30, 2004 and illustrates the wind speed and direction. Facility noise at the Henkelman residence was isolated between approximately 2:00 AM and 5:30 PM. During this time the predominant wind direction was Southwestern. This wind direction has the potential to increase the noise levels of Shell perceived at both residences. At the Henkelman's, the nighttime non-isolated Leq (43.8 dBA) was below the respective PSL.

The wind speeds are low during the start of the isolated facility noise levels at the Brabbins residence, approximately 2:00 A.M., and from a southwestern direction. The Agrium, BP and EnerPro/Keyspan facilities are all east of the residence and the noise levels are most likely a combination of all three facilities. There is an increase in wind speeds from 4:00 A.M. onwards, from a similar direction, which could potentially have caused the small decrease in levels from approximately 4:30 A.M. to 5:30 A.M. The nighttime isolated Leq (44.4 dBA) is below the PSL level.

Dow's facility is west of the Chartrand residence while Oxyvinyl is northwest. Wind direction is from the southwest during the isolated facility noise period, which could potentially increase the noise impact from Dow. Low wind speeds and an increase in isolated levels between 3:00 A.M. and 3:45 A.M. could indicate a rise in facility noise from both Dow and Oxyvinyl during this period. The nighttime isolated Leq (46.9 dBA) is below the PSL.

At the McKay residence, the nighttime isolated Leq was 47.3 dBA. Shell's facility is east and Provident/Williams Energy is northwest of the residence. The wind was southwestern, and the facility noise is due to the close proximity to both facilities.

Figure IV: Wind Data for July 29 - 30, 2004



Discussion

Meteorological, topographical, and seasonal conditions can have a significant impact on noise levels experienced at a residential location. Wind speed/direction, atmospheric conditions (such as inversions), hills and river valleys, etc. can increase or decrease the transmission of industrial noise even over very short periods of time. These drastic changes of noise levels are often a greater source of annoyance than the actual sound pressure level or volume of noise.

Based on the results of the July 26 – 29, 2004, it would appear that the McKay residence was above the established PSL. The McKay residence is primarily impacted by industrial noise from Shell Complex and Provident/Williams Energy with a lesser contribution from BP and EnerPro/Keyspan facilities. Compared to the other five residences, the noise levels at the McKay residence seemed to be the loudest. Once again, the dominant source of industrial noise is dependent on meteorological conditions (including wind speed, humidity, inversions, etc.). The results of this survey reinforce the interpretations of the 2003 and 2002 surveys.

At the Henkelman and Kropp residence, the sources of industrial noise are a combination of Agrium RFO, Provident/Williams and Shell. In discussion with both residences, they expressed that their general perception seemed to be that noise levels were more noticeable from Agrium RFO as compared to Shell. The noise levels at the Henkelman residence were below the established PSL. However at the Kropp residence on the night of July 27th –28th, 2004 the overall nighttime Leq was over the established PSL. Over this nighttime period meteorological conditions were ideal for capturing industrial noise with an atmospheric inversion and wind speeds averaging around 5 km/hr.

The Leq values at the Chartrand and Hutterian Brethren locations are significantly affected by transportation related noise and industrial noise from Dow and OxyVinyl. In addition the Hutterian Brethren location had some domestic animals noise captured in the overall results. During the survey industrial noise levels at both residences were determined to be below the established PSL.

Conclusion and Future Action

Industrial noise in Alberta's Industrial Heartland is a very complex issue that is difficult to manage in a consistent manner. This is largely the result of the many sources of industrial noise (EUB regulated vs. non-regulated), transportation related noise and other variables such as meteorological conditions, topography, proximity to sources, and operational characteristics. Noise levels measured at the residences used in the study can fluctuate significantly in a single night, and from night to night. These fluctuations can be a source of annoyance even when the overall sound pressure levels are within the limits established for the area. There is little doubt that the level of industrial noise is pervasive in the region, and can exceed the permissible limits when there are abnormal operating events, or when all atmospheric and meteorological conditions are favourable for sound propagation.

The EUB will continue to work with industrial operators, local authorities and the community in the design and implementation of noise management programs. This information will add to the growing body of environmental noise data for Alberta's Industrial Heartland and play a key role in continuing the responsible management of industrial noise.

APPENDIX 2

CORRESPONDENCE BETWEEN NCIA AND THE EUB/ERCB

NCIA
Northeast Capital Industrial Association

Mr. David DeGagne
Alberta Energy and Utilities Board
640 - 5th Avenue SW
Calgary, Alberta
T2P 3G4

February 7, 2007

Dear Mr. DeGagne:

RE: **NCIA Regional Noise Management Plan**
Request for Approval

On January 16, 2007 a meeting between NCIA EH&S Subcommittee members and you and your staff was held, at which the NCIA Regional Noise Management Plan (RNMP) was reviewed. The RNMP is a framework for compliance pursuant to EUB Directive D-38, which NCIA understands, is to be imminently published in a new edition. Section 5.2 of that revised edition states that if confirmed by EUB that a standard PSL compliance approach is not practical "an acceptable detailed Noise Management Plan (NMP) may be used".

In follow-up to that meeting and on your direction, this letter is a request for approval of the NCIA RNMP from the Alberta Energy and Utilities Board (EUB).

The NCIA aims to manage the noise issue from a regional perspective, in keeping with the following general principles:

- Responsibly manage industry's noise contribution in the region
- Identify additional changes to further reduce noise
- Recognize area concern (no single entity)
- Sustain or grow industry activity
- Ensure healthy vibrant industry in Alberta.
- Balance industry needs with community expectations
- Address issues collectively and proactively
- Work collaboratively with the community

The RNMP is the first of its kind approach to managing industrial noise issues in a given region where application of permissible sound level for noise control is inappropriate. The NCIA region is experiencing significant growth in recent years and more is expected in the near future, and noise is a cumulative impact issue. Although it is acknowledged that growth will introduce additional noise sources, both industrial and ancillary, the RNMP will ensure that noise emissions are responsibly managed.

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The NCIA RNMP addresses noise control expectations for new industry and offers a management-system approach continuous improvement of existing industrial noise sources. The most important feature of the plan is adoption of a best-practices approach to noise control, which will absolutely benefit industry workers, and on a continuous improvement basis as end of life equipment is replaced in accordance with best (noise management) practices, result in abatement of noise migration to the off-site environment.

The RNMP framework in summary form is in attachment to this letter. The key elements of the framework include implementation of:

- Corporate Policy
- Management system for noise control
- Engineering and purchasing standards for noise abatement in design (new and replacement equipment)
- Annual report to EUB on implementation and improvements that will be publicly communicated
- Regional Noise Model that will be developed in joint partnership with the EUB.

Subject to your acceptance of our RNMP and to facilitate compliance with the RNMP the NCIA will amend its Charter/ By-laws to indicate that the RNMP will establish compliance with D-38 when members sign on to the plan. For those members not wishing to participate, compliance with D-38 Permissible Sound Levels for the said facility will apply directly.

The passing of the resolution for the Charter / By-law amendment is slated for an NCIA Board of Directors meeting in February 2006.

In closing, NCIA wishes to acknowledge guidance and support received from you and EUB staff in developing the precedent setting framework for regional noise management and your commitment of financial and technical support to the development of a key component of the RNMP - the regional noise model.

We look forward to your approval.

Respectfully,

David Onuczko
Executive Director
Northeast Capital Industrial Association

Cc Don Burke EUB
Robert Lacroix Dow
Peter St. George Shell Canada

Attachment

NCIA Member companies to establish:

1. **NOISE CONTROL COMMITTMENT STATEMENT:**

NCIA member company senior management sets clear expectations for management of noise compliance at their site(s).

2. **SITE NOISE MANAGEMENT PLAN:**

If a company has not done so to-date, each company develops and implements a documented SITE NOISE MANAGEMENT PLAN (NMP) that integrates occupational and environmental objectives. The plan uses an auditable management system model and includes the following elements at minimum:

- Source Identification
  - Formal gap analysis of hearing conservation (noise control) programs against the Alberta OH&S standard.
- Assessment (routine and planned)
  - Noise baseline at plant to reflect normal operation
  - Complaint management process to include response, tracking, and reporting
- Abatement strategies
  - Engineering control practices for selecting new equipment and for abatement of existing noise sources. The following references prepared by the Best Practices Subcommittee will serve as a benchmark tools.
  - "General & Equipment Specific Engineering Control Noise Reduction Strategies" documents as prepared in HFP/ATCO.
  - Phase II Database Tool (once developed) with engineering & costing tools for evaluation of noise mitigation strategies for both new and existing equipment
  - Work processes such as "Management of Change" to incorporate noise impacts assessment
  - Procurement Practices to assure quality in specified equipment and to promote continuous improvement in design by setting expectations for contractors and manufacturers. Best Practices Subcommittee recommended development of template clause to serve contractual purposes.
- Self Audits
  - Planned equipment monitoring surveys to confirm program effectiveness
  - Verification process to track and report on site implementation progress

3. **DISCLOSURE OF IMPROVEMENT INITIATIVES TO NCIA**

Share results of annual NMP implementation with NCIA in an annual Association Report.

4. **REGIONAL NOISE MODEL**

Support the development of a Regional Noise Model on a partnership basis with EUB.

5. PUBLIC COMMUNICATION

Support the communication of the Regional NMP with regional stakeholders. Communication will involve the following initiatives:

- Communication of the EUB Approved Regional NMP to AIHA Community
- Prepare public progress reports on an annual basis
- Participate in the closure of IHCARI Synergy Conference noise related issues, i.e. external sources such as transportation (road/rail), non-NCIA member companies/ industries)

EUB Alberta Energy and Utilities Board

Calgary Office 640 – 5 Avenue SW Calgary, Alberta Canada T2P 3G4 Tel 403 297-8311 Fax 403 297-7336

February 14, 2007

Mr. David Onuczko, P. Eng., Executive Director
Northeast Capital Industrial Association
#204, 9902 – 102 Street
Fort Saskatchewan AB T8L 2C3

Dear Mr. Onuczko:

NCIA REGIONAL NOISE MANAGEMENT PLAN

This is to inform you that the Alberta Energy and Utilities Board (EUB) has granted your request for approval of the NCIA Regional Noise Management Plan (RNMP) as outlined in your application of February 7, 2007.

The EUB will be continuing its collaboration with NCIA and other affected stakeholders in the implementation, measurement, and reporting aspects of the RNMP. In addition and because of the precedent setting nature of the work associated with the RNMP, the EUB will provide limited technical and financial resources to develop a regional noise model.

Please contact the undersigned at (403) 297-3200 should you have any questions or concerns regarding this matter.

Yours truly,

David C. DeGagne, B.Sc., C.E.T.
Senior Advisor

pc: Don Burke, EUB Environment Group
Anita Lewis, EUB Operations Group

NCIA
Northeast Capital Industrial Association

Ms. Brenda Austin
Manager
Environment Group
Alberta Energy and Utilities Board
640 - 5th Avenue SW
Calgary, Alberta
T2P 3G4

November 7, 2007

Dear Ms. Austin:

RE: **NCIA Regional Noise Management Plan (RNMP)**
Compliance Framework pursuant to Noise Directive D-38

A formal written acknowledgement of understanding respecting NCIA RNMP Compliance Framework pursuant to D-38 is hereby requested.

Approval of the NCIA Regional Noise Management Plan (RNMP) was received from the Alberta Energy and Utilities Board (EUB) in a letter dated February 14, 2007.

In February 2007, the EUB Directive D-38 was published and in June the NCIA Board of Directors endorsed the RNMP provisions with a resolution to amend the Association's Charter/ By-laws subject to clarifications relating to compliance expectations. Section 5.2 of D-38 states that if confirmed by EUB that a standard PSL compliance approach is not practical "an acceptable detailed Noise Management Plan (NMP) may be used", however the provision does not address the compliance framework that would be used.

Following discussions with your staff, an understanding of the compliance framework was reached, and has been captured, along with additional RNMP details in the attached document entitled *"NCIA Regional Noise Management Plan Pursuant to EUB Noise Directive D-38, October, 2007".*

In summary a NCIA member-company would be in compliance with D-38 by implementing RNMP terms. A regional noise model would be used to first establish the benchmark against which effectiveness of the plan would be gauged. Areas of concern would continue to be worked between the EUB and affected entities.

It is NCIA's position that NCIA members are only a contributing source of noise in the Industrial Heartland region. Noise is a cumulative issue in the region and the success of regional noise mitigation can only be achieved if abatement of all sources of noise is considered. Accordingly, NCIA is encouraging the EUB to engage other stakeholders to participate in establishing

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frameworks that involve applying best practices applicable to their sectors. These other sectors include but are not limited to oil and gas production, non-EUB regulated light/ medium industry and rail and road transportation.

In closing, NCIA wishes to acknowledge guidance and support received from you and EUB staff in developing the precedent setting framework for regional noise management and your commitment of financial and technical support to the development of a key component of the RNMP the regional noise model. The regional noise modelling project will be initiated once the EUB Board acknowledgement is received.

We look forward to your approval.

Respectfully,

David Onuczko
Executive Director
Northeast Capital Industrial Association

Cc Don Burke EUB
Robert Lacroix Dow
Peter St. George Shell Canada

Attachment

Overview

In keeping with provisions of the *EUB Noise Monitoring Directive D-38*, the NCIA has developed a Regional Noise Management Plan. A component of that plan is public engagement and NCIA proposes to use these currently established regional issues resolution processes led by the Industrial Heartland Collaboration to Address Residents Interests (IHCARI).

The Framework

NCIA members participating in the RNMP are required to implement the following framework:

1. NOISE CONTROL COMMITTMENT STATEMENT:

   NCIA member-company senior management sets clear expectations for management of noise compliance at their site(s).

2. SITE NOISE MANAGEMENT PLAN:

   NCIA member-company develops and implements a documented SITE NOISE MANAGEMENT PLAN (NMP) that integrates occupational and environmental objectives. The plan uses an in auditable management system model and includes the following elements at minimum:

   - Source Identification
     - Formal gap analysis of hearing conservation (noise control) programs against the Alberta OH&S standard.

   - Assessment (routine and planned)
     - Noise baseline at plant to reflect normal operation
     - Complaint management process

   - Abatement strategies
     - Engineering control practices for selecting new equipment and for abatement of existing noise sources. The following references prepared by the Best Practices Subcommittee will serve as a benchmark tools.
     - "General & Equipment Specific Engineering Control Noise Reduction Strategies" documents as prepared in HFP/ATCO.

- Phase II Database Tool (once developed) with engineering and costing tools for evaluation of noise mitigation strategies for both new and existing equipment
- Work processes such as "Management of Change" to incorporate noise impacts assessment
- Procurement Practices to assure quality in specified equipment and to promote continuous improvement in design by setting expectations for contractors and manufacturers. Best Practices Subcommittee recommended development of template clause to serve contractual purposes.

3. SELF AUDITS
   NCIA member-company
   - Surveys to confirm program effectiveness
   - Verification process to track and report on site implementation progress

4. DISCLOSURE OF IMPROVEMENT INITIATIVES TO NCIA
   NCIA member-company shares results of annual NMP implementation with NCIA on annual basis

5. REGIONAL NOISE MODEL
   Support the development of a Regional Noise Model or alternate noise tracking program for region.

6. PUBLIC COMMUNICATION
   Use the IHCARI Synergy Forum to communicate and engage public feedback on the RNMP.

Compliance

Compliance with D-38 is to be demonstrated through conformance with the RNMP
Compliance to the RNMP will be determined on a basis of "Due Diligence".

- Due Diligence – taking all reasonable steps to reduce a given impact
- Compliance will be based on:
  - Regional Model baseline
  - Receptor impact
  - RNMP conformance

The table below summarizes the compliance requirements for NCIA member companies vis a vis the NCIA RNMP.

NCIA Member	EUB Regulated	RNMP Participant	Compliance Vehicle
Yes	Yes	Yes	NCIA - RNMP
No	Yes	No	EUB to Determine
Yes	No	No	Municipality/AENV
Yes	No	Yes	NCIA - RNMP
No	No	Yes	Potential NCIA-RNMP
No	No	No	Other Regulatory Jurisdictions

Conformance

The RNMP framework calls for participating industry to demonstrate due diligence by conforming with the requirements of the plan. Key expectations are as follows:

1. Conformance with individual facility programs
   - Including implementing monitoring, abatement, self audit, annual reporting and other program details
2. Complaint Resolution
   - Partnership with regulator to determine "workable resolution" to noise complaints.
3. Readiness for potential management system verification by regulator (EUB) similar to other regulated activity under current monitoring and enforcement rules
   - E.g. Management system documentation and review, management of Change documentation, etc.
4. Participation in development of the Regional Noise Model
   - Develop a baseline for regional noise by modeling EUB regulated, non-regulated, non-NCIA industry, as well as non-industrial sources.
   - Field verify model results and identify potential problem areas and sources.
   - Companies work with the EUB on continuous improvement plans that provide workable resolutions to potential problem regulated sources
   - New sources coming into the area would use the model to establish incremental impact.
5. Companies that do not demonstrate conformance with the plan would default to PSL compliance.

6. Tracking noise management initiatives and providing an annual status to NCIA to facilitate a comprehensive annual report to the EUB.

EUB Alberta Energy and Utilities Board

Calgary Office 640 – 5 Avenue SW Calgary, Alberta Canada T2P 3G4 Tel 403 297-8311 Fax 403 297-7336

December 10, 2007

Mr. David Onuczko
Executive Director
Northeast Capital Industrial Association
#204, 9902 – 102 Street
Fort Saskatchewan, Alberta
T8L 2C3

Dear Mr. Onuczko

RE: Northeast Capital Industrial Association (NCIA) Regional Noise Management Plan (RNMP) Compliance Framework

The EUB Environment Group staff reviewed your letter dated November 7, 2007 requesting a formal written acknowledgement by the EUB of the NCIA RNMP proposed compliance framework pursuant to EUB Directive 38: Noise Control.

In response to your request, the EUB acknowledges that the proposed compliance framework and regional baseline noise model concept presented in the NCIA letter dated November 7, 2007 is acceptable with respect to RNMP requirements outlined in Section 5.1 of Directive 38. The EUB understands that:

- NCIA-member companies will demonstrate compliance with Directive 38 by implementing the RNMP,
- compliance to the RNMP is based on the regional noise model baseline and conformance to the requirements outlined in the RNMP framework,
- new NCIA-member facilities will participate in the RNMP.

Please be advised that the existing resident PSLs and Directive 38 compliance process must be used until the regional noise model is approved, implemented and the regional noise baseline is established. We also understand that details of the noise model and compliance framework will be determined during the development process. We agree with your public engagement approach to use the Industrial Heartland Collaboration to Address Residents Interests (IHCARI) process in ongoing development of the RMNP.

Finally, we understand that the NCIA will be submitting a written request to the EUB Environment Group for $30,000. The EUB approved this money for NCIA to use as seed money to develop the regional noise model. This money must be requested immediately.

The EUB looks forward to working with the NCIA to develop the regional noise model and the RNMP. Please contact Ken Banister (403-297-4786) if you have any questions regarding this letter.

Sincerely;

Brenda Austin
Manager
Environment Group

CC: Don Burke, EUB Environment Group
Ken Banister, EUB Environment Group
Greg Schroter, EUB St. Albert Field Centre

NCIA
Northeast Capital Industrial Association

December 19, 2007

Ms. Brenda Austin
Manager
Environment Group
Alberta Energy and Utilities Board
640 - 5th Avenue SW
Calgary, Alberta
T2P 3G4

Dear Ms. Austin:

RE: NCIA Regional Noise Management Plan (RNMP) – Regional Noise Modeling Project

Further to the written response dated December 10th, 2007 submitted by the EUB accepting the compliance framework for the Regional Noise Management Plan and the regional baseline noise model concept, this is a request for EUB contributions towards the Regional Noise Model Development project for 2007 and 2008.

Attached is the Regional Noise Model Development Proposal which is to be initiated in Q1 of 2008 with implementation and completion by Q4 of 2008. The overall estimate for the project is $160,000 with our understanding being that the EUB will be contributing $30,000 towards this project in 2007 (as of December 31, 2007) and $30,000 in 2008 (as of April 1st, 2008).

Please make the EUB contributions towards this project payable to the Northeast Capital Industrial Association. The NCIA looks forward to working with the EUB in developing the regional baseline noise model for the Regional Noise Management Plan.

Should you have any questions or require any clarification on any of the above, please contact the undersigned.

Sincerely,

Dr. Laurie J. Danielson
Executive Director
Northeast Capital Industrial Association

Cc: Don Burke, EUB Environmental Group
Ken Bannister, EUB Environmental Group
Yolanta Leszczynski, Shell Canada

Attachment included

#204, 9902 - 102 Street, Fort Saskatchewan, Alberta, Canada T8L 2C3 Telephone: (780) 992-1463 Fax: (780) 998-2832

Northeast Capital Industrial Association (NCIA)
Regional Noise Model Development Proposal

Background Information

Member companies of NCIA have a common interest in coordinating a regional noise model to help define and manage noise quality impact in the region. The ultimate goal of the exercise would be to create a complete repository for noise modeling information for a regional model, which could be used in upcoming approval renewals or future expansion and/or new facility discussions with regulators. Ideally, the NCIA will own the model.

Phase I - Initial Steps for Model Development Q1-Q2/08

- Establish an advisory group
- Create a technical working group for the project
- Identify key stakeholders (Energy & Utilities Board (EUB), other agencies, public) and add to technical working group as necessary
- Identify the necessary components of a complete noise modeling database
- Identify all sources of noise, regulated and non-regulated
- Identify potential contractors and generate a request for proposal
- Select contractor to do the work
- Develop a cost allocation model for initial development and future additional costs (database maintenance and updating, new developments to be added to the model etc.)

Phase II – Implementation Q2/08 – Q4/08

- Contractor creates the database
- Contractor generates model output for noise
- Database, model input/output files become property of NCIA

Associated Costs

The estimated cost of the project is $160K in 2007-2008 for development and implementation.

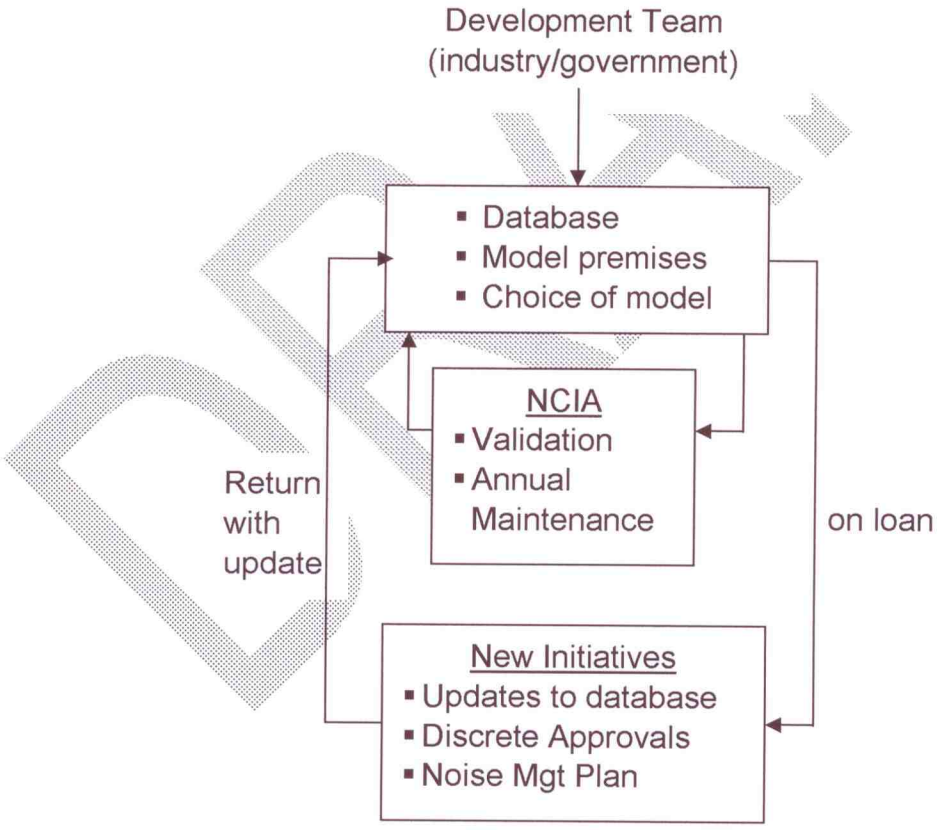
EUB has agreed to contribute $30k in 2007 (as of Dec 31) and $30k in 2008 pending spending approval. Future operating costs will include updates to the database and any new modeling runs as needed for future expansion and/or new facilities (to be funded through a cost allocation framework to be developed).

Justification

As indicated in various statements of concern received by NCIA member companies, noise management is perceived as one of the top environmental issues in this region. Given the indicated recent success of the Industrial Heartland Collaboration to Address Residents Interests (IHCARI) process in managing coummnity issues in the Alberta Industrial Heartland (AIH) area coupled with government and industry acknowledgement that with the industrial growth in the area environmental issues need to be dealt with on a regional, cumulative impact basis.

For industry the collaborative approach is a strategic fit with the Noise Management Plan concept proposed as a compliance tool in the new EUB Noise Directive 38.

Since managing noise is a regional issue, it should also be managed on a regional scale with involvement from regulators and stakeholders.



Northeast Capital Industrial Association (NCIA)
Regional Noise Model Development Proposal

Technical Working Group Activities for Model Development

- Define the boundary of the study area to be the AIH perimeter
- Assemple all existing electronic databases
- Calibrate data
- Select a model
    - Major known technology
    - technically defensible
    - politically defensible
    - accuracy +/- 1-2 dBa
    - expandable and predictive capability
    - diagnostic capability
- Import all data to new model
- Update new model for
    - Major process changes
    - Gaps in data (information that was not available previously)
    - Where theoretical values were assumed
- Calibrate model using field measurements (previously done or through additional monitoring)
- Establish a baseline noise level

ERCB Energy Resources Conservation Board
Calgary Office 640 – 5 Avenue SW Calgary, Alberta, Canada T2P 3G4 Tel 403-297-8311 Fax 403-297-7336 www.ercb.ca

January 10, 2008

Mr. David Onuczko
Executive Director
Northeast Capital Industrial Association
#204, 9902 – 102 Street
Fort Saskatchewan, Alberta
T8L 2C3

Dear Mr. Onuczko

RE: Northeast Capital Industrial Association (NCIA) Regional Noise Management Plan (RNMP) –Regional Noise Modelling Project

The Energy Resources Conservation Board (ERCB) Environment Group staff reviewed your letter dated December 19, 2007 requesting funds for 2007 and 2008 toward the NCIA regional noise model development project.

In response to your request, the ERCB will contribute $30,000 from the 2007 budget to NCIA as seed money to develop the regional noise model. The funds will be provided by cheque upon receipt of an invoice from the NCIA. The invoice should specify the purpose - *NCIA Regional Noise Model Development Project for 2007*- and be addressed to:

Attention: Mr. Ken Banister
Compliance, Environment, and Operations Branch
Environment Group
640 -5 Avenue SW
Calgary, Alberta T2P 3G4

The request for an additional $30,000 in 2008 is pending approval of the 2008 budget.

The ERCB looks forward to working with the NCIA to develop the regional noise model and the RNMP. Please contact Ken Banister (403-297-4786) if you have any questions regarding this letter.

Sincerely;

Brenda Austin
Manager
Environment Group

CC: Maggie Neilson, ERCB Finance Group
Don Burke, ERCB Environment Group
Ken Banister, ERCB Environment Group
Greg Schroter, ERCB St. Albert Field Centre

APPENDIX 3

NCIA NOISE MANAGEMENT PLAN STANDARD

1. Purpose

A **Noise Management Plan** (NMP) is required to ensure that industry has implemented effective systems and programs to minimize to the extent practical noise impacts. An NMP should include:

- An identification of noise sources,
- an assessment of current noise mitigation programs,
- an evaluation of the performance effectiveness of noise control devices,
- a routine noise monitoring and measurement program,
- best practices programs,
- continuous improvement programs, and
- and must be externally auditable.

2. Application

This standard applies to all NCIA member companies.

3. Definitions

Environmental Noise

Displeasing, distracting or physically harmful human or machine created sound that disrupts the environment. The dominant sources of environmental noise are transportation, industrial and recreational activities. Generally this refers to noise outside a facility boundary.

Industrial Hygiene/Occupational Health and Safety

Noise levels regulated by statute or law in a place of work. Generally this refers to noise within the facility boundaries.

4. Reference Documents

ERCB Directive 038: Noise Control

5. Requirements

All NCIA member companies/sites shall implement the following Noise Management protocols:

5.1 A Written Policy which includes:

- A statement of commitment to control noise at site level
- Defines clear expectations for management of noise compliance at their site(s).
- Signed/endorsed by senior mgmt

Note: The RNMP is designed with the intent of minimizing, to the extent practical, the noise levels impacting on the environment from member companies and their associated industrial facilities.

5.2 A documented noise management program established to identify, evaluate and control noise impacts. The system is to include defined:

- Environmental/IH noise performance goals and objectives which include:
  - regulatory compliance objectives,
  - annual and long term noise control performance management objectives,
  - continuous improvement objectives,
  - facility communication strategies.
  - roles and responsibilities,

- Training requirements for specific roles and key positions such as:
  - EH&S personnel,
  - operations & maintenance,
  - product handling and shipping,
  - management and first line supervisors.
  - purchasing/procurement
  - Engineering/Design

- Monitoring and measurement program to assess site noise performance and initiate corrective action in a timely manner (dBA and dBC).
  - IH/Onsite noise monitoring
  - offsite noise monitoring

- Abatement strategies which include:
  - established engineering control practices and standards for selecting new equipment and for abatement of existing noise sources which are periodically reviewed to ensure alignment with best practices.

Note: The following references can be used to facilitate this process:

- "General & Equipment Specific Engineering Control Noise Reduction Strategies" documents prepared by HFP.
- Database Tool with engineering & costing tools for evaluation of noise mitigation strategies for both new and existing equipment.
  - Work processes such as "Management of Change" and "Project Engineering and Design" to incorporate an evaluation and control of noise impacts.
  - Procurement Practices to ensure equipment that is equivalent to BATEA standards for noise is purchased and to promote continuous improvement in design by setting expectations for contractors and manufacturers.
- Noise complaint resolution process that as a minimum addresses the requirements of ERCB Directive 038: Noise Control
- Corrective action response process (incident reporting, & followup)
- Document Control and Retention

5.3 Audit/Self Assessment program that addresses the following review criteria:

- process (documented program review)
- people (training, qualifications, understanding)
- performance (conformance with documented program, monitoring results, corrective action status, etc.)
- Note that the ERCB will be conducting random audits of site programs annually to validate and provide credibility to the RNMP performance.

5.4 Reporting

- Annual NCIA report requirements
  - Results of monitoring for reporting year (qualitative evaluation only)
  - Improvements/Corrective action(s) implementation status
  - Additions/Projects
  - Audit/Self Assessment evaluation (qualitative evaluation only, with senior site leader sign-off)
  - Noise complaint summary including actions taken.

6. Revalidation

A review of this standard is to be completed by the NCIA Environmental committee annually.

7. Business Owner / Document Owner

The NCIA Executive Director is the owner of this standard.

APPENDIX 4

NCIA MEMBER COMPANY NOISE MANAGEMENT PLAN UPDATES

2012

Access Pipeline

Input Description	Member Site Comments
Confirmation that site has implemented a best management practice to address environmental noise as per NCIA Noise Management Plan Standard 2010-001 issued 3-Sep-10.	An initial noise assessment was filed with the ERCB. Access has remained under the threshold levels since that time and periodically retests.
Procedure/Practice/Standard reference (i.e. SOP-AG-RW-200-002)	
Results of any monitoring/assessments (fenceline outward) completed in 2011.	None.
Improvements implemented in 2011. Also, include any improvements that you have made, with respect to noise abatement, on your site over the past 10 years.	None.
Changes that have resulted in increased noise levels on your site for 2011.	None.
Noise Complaints received in 2011 and follow up actions taken to address them.	None.
Planned improvements to noise management practice, noise abatement work or noise model work for 2012.	None.

Agrium Fort Saskatchewan and Redwater Facilities

Input Description	Member Site Comments
Confirmation that site has implemented a best management practice to address environmental noise as per NCIA Noise Management Plan Standard 2010-001 issued 3-Sep-10.	Agrium implemented a focused noise mitigation program starting in 1999. Agrium has a formal Noise Best Management Standard in place that meets the NCIA Noise Management Plan Standard as issued Sept 3, 2010. Agrium remains committed to minimizing our noise footprint and impact on our neighbours.
Procedure/Practice/Standard reference (i.e. SOP-AG-RW-200-002)	Environmental Systems and Procedures Manual: Noise Management Program Standards ESP-7.06.01, ESP-7.06.02, ESP-7.06.03 Industrial Hygiene Program Manual: Occupational Noise Standard 4.2.1
Results of any monitoring/assessments (fenceline outward) completed in 2011.	There were no issues identified as a result of offsite surveillance monitoring for either the Redwater or the Fort Saskatchewan operations.
Improvements implemented in 2011. Also, include any improvements that you have made, with respect to noise abatement, on your site over the past 10 years.	See attached document for RFO noise mitigation projects implemented since 1999.
Changes that have resulted in increased noise levels on your site for 2011.	No material changes at the Redwater or Ft. Sask. Facility that would have resulted in increased noise levels at either site.
Noise Complaints received in 2011 and follow up actions taken to address them.	Agrium received a noise complaint from a neighbour as a result of propane canons that are required for migratory bird control for our tailings pond. Agrium attempted to minimize the offsite impact of these canons by repositioning them and minimizing the online time to the extent possible. There were no complaints for noise associated with either the Redwater or Fort Saskatchewan operating plants.
Planned improvements to noise management practice, noise abatement work or noise model work for 2012.	No planned improvements for 2012.

Agrium
Bag 20
Redwater, Alberta T0A 2W0
Telephone: (780) 998-6111
Direct Line: (780) 998-6843
Facsimile: (780) 998-6143

REPORT: Agrium Redwater Fertilizer Operation: Noise Mitigation Projects

This report is intended to detail the activities undertaken by the Agrium Redwater Fertilizer Operations for the purposes of reducing the offsite noise from this operating facility.

Agrium has been and remains committed to responsibly managing the impact of it's facilities on the environment and it's neigbours. From 1969 to the summer of 1999, this facility received very few noise complaints, and when we did, they were typically related to a specific event such as shutdown or startup venting. The noise complaints to the aforementioned Agrium facility began in the summer of 1999 and were exclusively limited to the residents to the east of the plant in the Strathcona district. Agrium responded to these complaints diligently and instituted a program to reduce the facility noise at the source.

Agrium believed that the noise complaints received in 1999 were related to a suspected failure of the ammonia plant (NH3-2 unit) CO2 vent silencer. A silencer was ordered and the installation was completed in the spring of 2000 during the scheduled annual maintenance turnaround for the NH3-2 unit.

Agrium continued to receive noise complaints directly from the neighbours and through complaints made to the AEUB following the installation of the CO2 vent silencer. AEUB conducted a noise survey at a residence location to the east of the plant. The result indicated that the noise guideline was exceeded under certain meteorological conditions.

Agrium undertook a further review of it's operations to idendify other opportunities for noise abatement. As a result a number of projects were implemented. These projects included, but were not necessarily limited to, the Ammonia 1 CO2 Vent silencer, the Urea CO2 startup vent silencer and associated lagging, the Urea process vent silencer, diversion of the Urea inerts vent, NH3-2 furnace eductor silencers.

In spite of these additional efforts, Agrium continued to receive noise complaints from our neighbours to the east. In response to these continued complaints, Agrium enlisted the services of a noise consultant specialist (HFP Acoustical Consultants Corp.) to help define the scope of the problem and further identify potential mitigation strategies. The final report was completed in December 2001.

Agrium continued to implement noise reduction projects well before the completion of this report. In 2001, Agrium also commissioned HFP to complete an extended environmental noise assessment at three resident locations around the facility. A 5 day survey was completed in September of 2001 at the Resident #1 (east of plant), Resident

#2 (east of plant) and Resident #3 (west of plant) residents. The results of this survey indicated a marked reduction in the ambient noise levels as a result of the projects implemented at the Redwater facility to August 2001. The survey indicated that all three locations were in compliance with the noise guideline. Further, a number of AEUB surveys from 2002 to 2004 have also confirmed Agrium's continued compliance with the guideline limits under normal plant operations.

Agrium has continued to implement noise mitigation projects to further minimize the impact of it's facilities to the residents.. As of the writing of this report, the most recent project was completed in January, 2005. Where practical, Agrium will continue to seek and implement continuous improvement opportunities for further minimization of facility noise.

The noise mitigation projects to date are chronologically listed in detail in the section to follow.

Project Details (Project Date, Description, Source Type, Driver)	**Pictures** (Far/Near View)
June 2000 NH3-2 CO2 Vent Silencer Continuous Source (CI activity -site idendified project)	 
September 2000 NH3-1 CO2 Vent Silencer Continuous Source (CI activity -site idendified project)	 
November 2000 AN Brinks Stack Silencer and associated lagging Continuous Source (CI activity -site idendified project)	 
November 2000 Urea CO2 Compressor Startup Vent Silencer and associated lagging Intermittent /Continuous Source (CI activity -site idendified project)	 

November 2000 NH3-2 Furnace Air Eductor Silencers Intermittent /Continuous Source (CI activity -site idendified project)	 
August 2001 Urea Process Vent Silencer Continuous Source (CI activity -site idendified project)	 
February 2002 600# Steam Vent Silencer (original) Intermittent /Continuous Source (Complaint Investigation)	 
March/April 2002 2 x 30# SteamVent Silencers Intermittent /Continuous Source (HFP study)	 

June 2002 Urea Inerts vent diverted to urea granulation stack Continuous Source (CI activity -site idendified project)	 
December 2002 SA1 blower building outlet ducting of blower turbine Continuous Source (HFP Study)	 
December 2002 SA2 blower building inlet and outlet ducting of blower turbine Continuous Source (HFP Study)	   

December 2002 SA2 Warmup Steam Vent Silencer Intermittent /Continuous Source (CI activity -site idendified project)	 
December 2003 NH3-2 Dearator Vent Silencer Intermittent /Continuous Source (CI activity -site idendified project)	 
July 2003 NH3-2 50# steam vent diversion to 600# steam let down system Intermittent /Continuous Source (HFP Study)	No picture available Reduces noise of 50# steam venting directly to atmosphere during unit s/u and s/d situations.
February 2004 SA1 blower building noise reduction upgrades Continuous Source (HFP Study)	No picture available Misc. noise abatement upgrades to the blower building.
February 2004 CGT902 600# warm up line vent upgrade Intermittent Source (CI activity -site idendified project)	No picture available Misc. rerouted and pipe expansion to reduce velocity

June 2004 NH3-2 D-957 Blowdown flash drum (steam boiler feeddrum) vent silencer Intermittent Source (CI activity -site idendified project)	 
October 2004 Utilities #3 boiler air intake silencer Continuous Source (HFP study)	 
October 2004 Utilities #3 boiler lagging for force draft (FD) fans Continuous Source (HFP Study)	 
January 2005 600# Steam Vent Silencer (replacement) Intermittent /Continuous Source (Complaint Investigation) Redesign of silencer completed to increase capacity of original design by a factor of 2x	 

Note: CI Activity = Continuous Improvement Activity.

In addition to the capital projects implemented, a number of non-capital noise mitigation activities were undertaken as well to further minimize the sites impacts to it's neighbours. These activities include but are not limited to the following:

1. Agrium enlisted the services of a noise consultant (HFP) to complete a site noise assessment and model of the Redwater facility which was used to direct the appropriate noise mitigation strategies for the site.
2. HFP was also engaged to perform an environmental noise survey at a number of area residences to quantify the effect of the mitigation activities undertake to that particular date
3. The elimination of rail crossings during the night time to reduce the amount of horn blowing by trains
4. Back up alarms on front end loaders at rock storage were replaced with strobe lights during the night time operations.
5. Agrium implemented a routine noise monitoring program to continually assess the noise levels in the area. This routine noise monitoring program ensures that any changes to the operation resulting in increased noise levels are identified and corrected in a timely manner.
6. The Phosphogypsum Stack (hitherto refered to as the gypstack) maintenance contractor was requested to replace all worn out and suspect mufflers on the gypstack equipment with OEM mufflers or better.
7. The startup procedures for the gypstack heavy equipment was modified to minimize offsite noise levels in the morning.
8. Pulled gypstack equipment out of service until the muffler could be repaired in response to a neighbour complaint on one occasion, and as a result of Agrium's routine offsite noise monitoring program on another occasion.
9. The phos rock storage was relocated to a tent thereby reducing noise levels from equipment operating outside in the rock tee pee area (in addition to minimizing dust issues associated with this raw material)
10. Agrium continues to respond to neighbour concerns and complaints on noise issues. Where applicable, action is taken to minimize the noise levels from the site either through immediate action taken to correct an identified cause or through on going continuous improvement projects. Investigation of neighbour noise complaints directly resulted in the installation of the original 600# steam vent silencer as well as the 2004 600# steam vent silencer replacement project. Operational changes to minimize venting were immediately implemented after the results of an investigation of a complaint indicated that the original 600# steam vent silencer had failed. Elimination of the rail crossings and back up alarms during the night were in direct response to direct discussions with the neighbours on the noise issue as well. In general, all the noise abatement projects to date are in response to neighbour noise concerns in the area.

Agrium understands and accepts their responsibility for managing their sites appropriately in order to minimize our contribution to the noise levels in the area. To that end, Agrium has invested over one million dollars in noise abatement projects since 2000.

Air Liquide Canada

Input Description	Member Site Comments
Confirmation that site has implemented a best management practice to address environmental noise as per NCIA Noise Management Plan Standard 2010-001 issued 3-Sep-10.	Yes
Procedure/Practice/Standard reference (i.e. SOP-AG-RW-200-002)	HSEQ-HEA-002.1
Results of any monitoring/assessments (fenceline outward) completed in 2011.	No measurements done outside the fence line
Improvements implemented in 2011. Also, include any improvements that you have made, with respect to noise abatement, on your site over the past 10 years.	None
Changes that have resulted in increased noise levels on your site for 2011.	No changes to the process or equipment in 2011
Noise Complaints received in 2011 and follow up actions taken to address them.	No noise complaint received
Planned improvements to noise management practice, noise abatement work or noise model work for 2012.	Nothing planned in 2012 other than following the check list (Hearing Protection and Conservation program)

BA Energy (Heartland Upgrader)

Input Description	**Member Site Comments**
Confirmation that site has implemented a best management practice to address environmental noise as per NCIA Noise Management Plan Standard 2010-001 issued 3-Sep-10.	N/A Construction is suspended
Procedure/Practice/Standard reference (i.e. SOP-AG-RW-200-002)	N/A Construction is suspended
Results of any monitoring/assessments (fenceline outward) completed in 2011.	N/A Construction is suspended
Improvements implemented in 2011. Also, include any improvements that you have made, with respect to noise abatement, on your site over the past 10 years.	none
Changes that have resulted in increased noise levels on your site for 2011.	none
Noise Complaints received in 2011 and follow up actions taken to address them.	none
Planned improvements to noise management practice, noise abatement work or noise model work for 2012.	none

Chemtrade West (formerly Marsulex Inc.)

Input Description	**Member Site Comments**
Confirmation that site has implemented a best management practice to address environmental noise as per NCIA Noise Management Plan Standard 2010-001 issued 3-Sep-10.	**Chemtrade** has created document number CHE-FSK-ESH-001 to comply with the NCIA Noise Management Plan. The document covers both Fort Saskatchewan sites (CSC & Sulphides).
Procedure/Practice/Standard reference (i.e. SOP-AG-RW-200-002)	CHE-FSK-ESH-001
Results of any monitoring/assessments (fenceline outward) completed in 2011.	See the attached copy of a notice sent to NCIA at the end of December, 2011.
Improvements implemented in 2011. Also, include any improvements that you have made, with respect to noise abatement, on your site over the past 10 years.	In 2011, there was a pump replacement and new boiler (replaced a heater) installed at Sulphides, and the Alum/SBS building roof was re-insulated at the CSC. **Historical projects:** CSC An air compressor was replaced and several old technology pumps were upgraded. Sulphides Buildings were erected around 2 compressors and a muffler added to an addition compressor at Sulphides.
Changes that have resulted in increased noise levels on your site for 2011.	No changes were made in 2011 that have been found to have increased noise.
Noise Complaints received in 2011 and follow up actions taken to address them.	There were no noise complaints made to either site in 2011.
Planned improvements to noise management practice, noise abatement work or noise model work for 2012.	There are plans to upgrade some insulation for a room which houses loud equipment.

NCIA office, Fort Saskatchewan
#204 9902- 102 Street
Fort Saskatchewan, AB
Attn: Dr. Laurie J. Danielson, P.Chem.
Executive Director, Northeast Capital Industrial Association

RE: Environmental Noise Monitoring Results for the Fort Saskatchewan CSC and Sulphides sites

The following are Environmental Noise Monitoring Results for the Fort Saskatchewan CSC and Sulphides sites for 2011 as per the Chemtrade Environmental Noise Monitoring and Control Procedure CHE-FSK-ESH-001.

General Information

The Meter

A Cirrus Model CR171A Noise Meter was used for all sound measurements. The meter was last calibrated on November 7, 2011 using techniques recommended by International Standards IEC 61672-1:2002, IEC 60651:1979, IEC 60804:2001, IEC 60942:1997, IEC 61252:1993, ANSI S1.4-1983 and ANSI S1.43-1997. An acoustic calibrator designed specifically for the meter, was used to check the calibration prior to the meter being used on December 22, 2011.

The Measurements

Noise measurements were taken by Nola Ruhl on December 22, 2011.

Weather Information

The wind direction on December 22, 2011 was out of the WSW and the wind speed varied between 3-5 mph.

Fort Saskatchewan CSC

Noise measurements were taken on December 22, 2011 at the same locations as those outlined in CHE-FSK-ESH-001.

CSC Noise Measurement Results

ID	Linear Sound Pressure Levels (dB L_{eq}) at Octave Band Frequencies (Hz)									dBA
	31.5	**63**	**125**	**250**	**500**	**1000**	**2000**	**4000**	**8000**	
1	75.2	73.7	67.3	59.2	58.4	55.2	49.1	48.8	31.2	60.1
2	74.3	71.5	65.8	60.9	64.1	65.8	71.3	70.4	63.3	75.5
3	69.9	70.3	62.6	56.1	57.2	55.3	50.4	45.0	41.2	59.4
4	76.6	72.8	66.1	59.8	60.5	62.7	65.2	66.2	59.5	70.9
5	73.7	70.4	65.5	59.3	58.4	57.7	53.0	49.8	44.4	61.7
6	73.5	72.4	66.1	57.4	57.0	55.2	53.0	51.4	44.4	60.6
7	75.6	79.6	67.5	65.8	58.2	54.4	53.0	51.8	43.4	62.5
8	77.6	74.1	67.2	63.9	58.0	53.5	46.3	45.5	45.1	60.4

11652 99 Avenue, PO Box 3180, Fort Saskatchewan, Alberta T8L 2T2
T 780-998-2225 F 780-998-0959
Web Site: www.chemtradelogistics.com

9	82.8	77.6	71.3	65.2	62.4	62.3	63.5	64.6	57.9	69.8

Fort Saskatchewan Sulphides

Noise measurements were taken on December 22, 2011 at the same locations as those outlined in CHE-FSK-ESH-001.

Sulphides Noise Measurement Results

ID	Linear Sound Pressure Levels (dB L_{eq}) at Octave Band Frequencies (Hz)									dBA
	31.5	**63**	**125**	**250**	**500**	**1000**	**2000**	**4000**	**8000**	
1	75.0	79.6	70.2	69.4	64.2	61.1	56.4	51.6	45.9	66.7
2	70.6	69.2	68.2	62.9	60.5	56.1	57.5	53.8	51.7	63.7
3	72.2	68.8	65.5	58.8	54.8	54.5	51.4	45.8	42.9	59.1
4	70.1	70.6	67.5	65.4	66.3	68.4	66.1	58.2	48.5	71.6
5	75.1	71.6	67.9	61.8	57.3	54.5	54.1	45.4	39.3	60.9
6	72.1	71.0	71.9	67.2	58.1	56.9	53.2	46.5	39.0	63.5
7	71.3	67.8	64.7	57.3	52.8	51.7	46.4	39.9	33.3	56.5

Discussion

2011 noise measurement results are consistent with those taken by HFP in July (Sulphides) and September (CSC) 2010. Variations are attributed to the cold weather and differences in traffic along adjacent roadways.

There were no projects undertaken in 2011 which would have any significant impact on the overall noise generated at either the CSC of Sulphide sites.

If you have any questions or concerns, please contact me at 780-992-4724.

Yours truly,

N. (Nola) J. Ruhl, P.Eng., CCEP
EHS Manager, Chemtrade West GP Inc.

cc: H. Zuczek, Plant Manager – Sulfides and CSC
D. Burroughs, Director EHS – Canada

Dow Chemical Canada ULC
Bag 16, Highway 15
Fort Saskatchewan, Alberta
T8L 2P4, Canada

February 1, 2012

Northeast Capital Industrial Association
Laurie Danielson, Executive Director
#204, 9902 - 102 Street
Fort Saskatchewan, AB T8L 2C3

Dear Dr. Danielson,

Subject: 2011 Noise Management Annual Report
Dow Chemical Canada ULC (Dow) Fort Saskatchewan Site

Please find attached Dow Chemical Canada ULC (Dow) input into the NCIA Regional Noise Management Plan report to the ERCB along with a copy of the Noise Management Plan for the Dow Fort Saskatchewan Industrial Site. MEGlobal Canada Inc. (MEGlobal) operates a production facility within the Dow Site and is included in this submission.

Please call Marcella deJong at 780 - 992 - 8529 or myself at 780 - 998 - 5756 if you require any further information or clarification.

Yours truly,

Carol Moen, P. Eng.
Associate EH&S Operations Director

Copy: Pravind Ramdial, Responsible Care Leader MEGlobal Canada Inc.
EH&S File: \\Fsnt06\environment\Approved\Regulatory Affairs\ERCB\Reports\NCIA Noise\2011 Noise Management Annual Report to NCIA.docx
ERCB Noise Model Binder
2012 Correspondence Binder

Dow Fort Saskatchewan Site
2011 Noise Management Annual Report
Prepared for Northeast Capital Industrial Association (NCIA)

This report provides Dow and MEGlobal's 2011 input to the NCIA Regional Noise Management Plan report to the ERCB. Based on ERCB licensed gas plant, wells and caverns on the Fort Saskatchewan Site, Dow is required to follow ERCB Noise Directive 38 and provide input into the NCIA report. The Dow power plant is governed by the Alberta utilities Commission Rule 012: Noise Control. MEGlobal participates in the Noise Management Plan and provides this information on a voluntary basis.

Description	Dow and MEGlobal Comments
Confirmation that site has implemented a best management practice to address environmental noise as per NCIA Noise Management Plan Standard 2010-001 issued 3-Sep-10.	A Noise Management Plan has been developed for Dow and MEGlobal and is attached to this report for reference. Noise management is done on a site wide basis without separation of which facilities are required to follow ERCB Directive 38 or AUC Rule 012.
Procedure/Practice/Standard reference (i.e. SOP-AG-RW-200-002)	Dow and MEGlobal use the Dow Operating Discipline Management System to manage all EH&S requirements including environmental Noise and Hearing Conservation.
Results of any monitoring/assessments (fenceline outward) completed in 2011.	A noise model was completed in 2011 for all sources within the Dow Fort Saskatchewan Site, including MEGlobal. This model was validated with NCIA noise monitoring. Results of the noise model are consistent with results from the NCIA regional model. All sources on the Dow Fort Saskatchewan Site are included in the NCIA model. A copy of the Dow site noise model final report will be provided on request.
Improvements implemented in 2011. Also, for this first report, we want to include any improvements that you have made, with respect to noise abatement, on your site over the past 10 years.	Site flare tips have been replaced in the last 10 years to reduce noise. Dow has closed production facilities in the last 10 years which has resulted in lower noise.
Changes that have resulted in increased noise levels on your site for 2011.	A seasonally operated steam vent was added to the model which resulted in an increase in predicted noise. This is not a new source to the site, but it had not been included in previous noise models.
Noise Complaints received in 2011 and follow up actions taken to address them.	No noise complaints were received in 2011.
Planned improvements to noise management practice, noise abatement work or noise model work for 2012.	In 2012, Dow will evaluate potential noise controls that can be implemented to manage the seasonal steam vent.

Dow Fort Saskatchewan Site Noise Management Plan

Policy

The Dow Chemical Canada ULC Fort Saskatchewan site follows the Operating Discipline Management System (ODMS) of the Dow Chemical Company to manage environmental noise and hearing conservation.

MEGlobal Canada Inc. (MEGlobal) Operations on the Dow Fort Saskatchewan Site follows ODMS and is included in this Noise Management Plan.

Scope

This document is created to define how the Dow Chemical Canada ULC Fort Saskatchewan site complies with the ODMS requirements concerning Noise Minimization and Hearing Conservation outlined in:

- Section E (noise minimization to meet community expectations and applicable government requirements) of 06.07 L1 Pollution Prevention
- Section C14 (employee hearing conservation) of 06.05 L1 Employee Health and Safety
- Section A2 (all equipment must be designed to control noise levels) of 06.03 EH&S Engineering Design and Control

Purpose

This document summarizes how the Dow Fort Saskatchewan Site meets the Northeast Capital Industrial Association (NCIA) requirement for a Noise Management Plan including identification, evaluation and control of noise impacts at this site.

Goals / Objectives

Dow and MEGlobal, as Responsible Care® Companies will:

- Minimize, to the extent possible, noise levels impacting on the environment including minimizing nighttime and low frequency noise
- Maintain a noise monitoring program to reduce the likelihood of noise impacts on the environment
- Assign employees to manage the site noise monitoring, mitigation and continuous improvement.
- Ensure employees associated with noise sources are aware of the impact on the environment and the processes in place to control
- Design new and modified equipment to minimize noise.

Training Requirements

Workers are educated on noise through:

- All workers receive initial and three year recurring Environmental Training (Instructor led or MyLearning), which includes environmental noise.
- Noise exposed workers receive MyLearning training on hearing conservation.
- Personnel conducting noise monitoring receive training from the Industrial Hygiene specialists.
- Personnel delivering unit industrial hygiene programs receive MyLearning training on these programs.

Abatement Strategies

New facilities and modifications to existing facilities are designed and built to control noise levels. Engineering controls are addressed through the Management of Change process and ODMS 06.03 EH&S Design and Control.

All projects are reviewed by EH&S regulatory opposite the Alberta Operations Project and MOC Regulatory Review Checklist, which includes noise abatement and models.

\\Fsnt06\environment\Approved\Projects\Alberta Operations Project and MOC Regulatory Review Checklist.xlsx

Onsite / Offsite Monitoring Requirements	Dow and MEGlobal follow ODMS and ERCB regulatory requirements for noise monitoring on site. Offsite noise monitoring is addressed through the NCIA regional noise model. Dow has a current Noise Model prepared by HFP Acoustical Consultants Corp which includes all site sources within the fenceline. The site noise model is updated if equipment is added or removed from the site that would significantly impact noise levels. Dow responds to external noise complaints appropriately, including monitoring if necessary. Dispatch Noise Complaint Procedure EH&S On-Call Noise Complaint Procedure EH&S On-Call Noise Complaint Logsheet Individual production units do their own noise surveys at least every five years, or when equipment is added, modified or removed. The onsite noise monitoring program is managed as per in ODMS 06.05.C14 Personal noise dosimetry is done periodically on a frequency depending on exposure.
Site Noise Sources	Site noise sources are detailed in the site Noise Model and included in the NCIA regional noise model. In addition, each unit has an area noise map.
Audit / Self Assessment Requirements	Intensive EH&S ODMS based integrated audits are conducted at 3 to 5 year frequencies for all site units/departments and include ODMS elements related to noise and hearing conservation. Periodic self assessments are conducted by unit/department ODMS element owners and results are reviewed and annual site/unit/department Management System Reviews. These assessments include environmental noise and hearing conservation. The hearing conservation program is reviewed annually.
Reporting Requirements	Annual reports will be generated for the NCIA. This report will include the following information for the calendar year: • Confirmation that the site has implemented a Noise Management Program and that it has been reviewed/updated as required. • Results of any monitoring / assessments (fenceline outward) • Any improvements implemented • Additions / projects that have resulted in increased noise levels on the site • Information on any external noise complaints received and actions taken • Planned improvements to noise management practice, noise abatement work or noise model work in the following year.
Ownership	The ERCB Regulatory Specialist manages the Noise Management Program and reports to NCIA as required.

.

Revision History

Approval

Approved by Date: January 2012

Carol Moen (Dow Responsible Care Leader)

Pravind Ramdial (MEGlobal Responsible Care Leader)

Revision History

The following information documents at least the last 3 changes to this document, with all the changes listed for the last 6 months.

Date	Revised By	Changes
January 2012	Marcella deJong	New document.

Enbridge Pipelines

Input Description	Member Site Comments
Confirmation that site has implemented a best management practice to address environmental noise as per NCIA Noise Management Plan Standard 2010-001 issued 3-Sep-10.	The Stonefell Terminal is the only Enbridge facility within NCIA under the jurisdiction of the ERCB. It is currently under construction and scheduled to be operational in 2012.
Procedure/Practice/Standard reference (i.e. SOP-AG-RW-200-002)	Not at this time
Results of any monitoring/assessments (fenceline outward) completed in 2011.	N/A
Improvements implemented in 2011. Also, include any improvements that you have made, with respect to noise abatement, on your site over the past 10 years.	N/A
Changes that have resulted in increased noise levels on your site for 2011.	N/A
Noise Complaints received in 2011 and follow up actions taken to address them.	N/A
Planned improvements to noise management practice, noise abatement work or noise model work for 2012.	N/A

Evonik Degussa

Input Description	Member Site Comments
Confirmation that site has implemented a best management practice to address environmental noise as per NCIA Noise Management Plan Standard 2010-001 issued 3-Sep-10.	Evonik is in the process of including noise abatement within the Management of Change Process.
Procedure/Practice/Standard reference (i.e. SOP-AG-RW-200-002)	
Results of any monitoring/assessments (fenceline outward) completed in 2011.	None. Evonik was included in the Regional Model by way of a Basic Noise Model.
Improvements implemented in 2011. Also, include any improvements that you have made, with respect to noise abatement, on your site over the past 10 years.	No improvements implemented in 2011, in approximately 2005 a muffler system was installed on the intake piping of a vacuum pump.
Changes that have resulted in increased noise levels on your site for 2011.	No Site changes made will increase noise levels.
Noise Complaints received in 2011 and follow up actions taken to address them.	None.
Planned improvements to noise management practice, noise abatement work or noise model work for 2012.	None.

For Hills Energy Partnership

Input Description	Member Site Comments
Confirmation that site has implemented a best management practice to address environmental noise as per NCIA Noise Management Plan Standard 2010-001 issued 3-Sep-10.	Development of this project has been suspended since November 2008.
Procedure/Practice/Standard reference (i.e. SOP-AG-RW-200-002)	N/A
Results of any monitoring/assessments (fenceline outward) completed in 2011.	N/A
Improvements implemented in 2011. Also, include any improvements that you have made, with respect to noise abatement, on your site over the past 10 years.	N/A
Changes that have resulted in increased noise levels on your site for 2011.	N/A
Noise Complaints received in 2011 and follow up actions taken to address them.	N/A
Planned improvements to noise management practice, noise abatement work or noise model work for 2012.	N/A

Keyera Energy

Input Description	Member Site Comments
Confirmation that site has implemented a best management practice to address environmental noise as per NCIA Noise Management Plan Standard 2010-001 issued 3-Sep-10.	Confirmed. The site has a noise management plan based on the NCIA standard.
Procedure/Practice/Standard reference (i.e. SOP-AG-RW-200-002)	The document is called KFS Site Noise Management Plan.
Results of any monitoring/assessments (fenceline outward) completed in 2011.	In 2011 we conducted detailed on-site measurements which were used to develop a computer model to predict sound levels at a number of the closest residential dwellings. This work was part of a noise impact assessment in support of an ERCB application to add additional product injection pumps (to be completed in 2012). The model was also used to predict the impact of the additional pumps and the sound level increase at the receptors was negligible. (Note: Offsite monitoring had been completed in 2008 and 2010 during cavern drilling operations.)
Improvements implemented in 2011. Also, include any improvements that you have made, with respect to noise abatement, on your site over the past 10 years.	No alterations were made in 2011. The NIA referenced above resulted in several modifications to the proposed pump installation, including an acoustically treated building and low noise valves. These will be implemented in 2012.
Changes that have resulted in increased noise levels on your site for 2011.	There were no changes made in 2011 that resulted in increased noise levels on site.
Noise Complaints received in 2011 and follow up actions taken to address them.	There were no noise complaints received in 2011.
Planned improvements to noise management practice, noise abatement work or noise model work for 2012.	The new injection pump building will be installed in 2012, complete with the noise abatement items described above. Once these units are operational it is expected that further on-site monitoring will be done to refine the computer noise model.

North West Redwater Partnership

Input Description	Member Site Comments
Confirmation that site has implemented a best management practice to address environmental noise as per NCIA Noise Management Plan Standard 2010-001 issued 3-Sep-10.	As an NCIA member, North West Redwater Partnership is committed to the NCIA Regional Noise Management Plan (RNMP) for the Heartland area. The North West Redwater Sturgeon Refinery project is not actively under construction at this time. North West's noise model data is included in the NCIA regional model. North West also submitted a detailed Noise Impact Assessment to the ERCB which demonstrated compliance with Noise Control Directive 038. As North West proceeds with its project, we will be advancing design and procurement with the RNMP as a criteria.
Procedure/Practice/Standard reference (i.e. SOP-AG-RW-200-002)	N/A
Results of any monitoring/assessments (fenceline outward) completed in 2011.	N/A
Improvements implemented in 2011. Also, include any improvements that you have made, with respect to noise abatement, on your site over the past 10 years.	N/A
Changes that have resulted in increased noise levels on your site for 2011.	N/A
Noise Complaints received in 2011 and follow up actions taken to address them.	N/A
Planned improvements to noise management practice, noise abatement work or noise model work for 2012.	N/A

Pembina NGL Corporation (Formerly Provident Energy)

Input Description	**Member Site Comments**
Confirmation that site has implemented a best management practice to address environmental noise as per NCIA Noise Management Plan Standard 2010-001 issued 3-Sep-10.	Pembina NGL Corporation has developed and implemented a Noise Management Plan at its Redwater Facility.
Procedure/Practice/Standard reference (i.e. SOP-AG-RW-200-002)	Pembina NGL Corporation Procedures-Noise Management Plan
Results of any monitoring/assessments (fenceline outward) completed in 2011.	Pembina NGL Corporation and Williams completed a Noise assessment as part of a site expansion project. There were no significant noise issues or increases identified. The report will be made available to NCIA for the RNMP model updating as required.
Improvements implemented in 2011. Also, include any improvements that you have made, with respect to noise abatement, on your site over the past 10 years.	As part of these projects Pembina/Williams incorporated several measures which had a positive effect for noise mitigation. The most significant of these the housing of a large compressor in a building.
Changes that have resulted in increased noise levels on your site for 2011.	None
Noise Complaints received in 2011 and follow up actions taken to address them.	None
Planned improvements to noise management practice, noise abatement work or noise model work for 2012.	Both Pembina and Williams have proposed projects they are working on. As part of the Noise Management Plan they will address noise as part of the engineering process.

Plains Midstream Canada (formerly BP Canada Energy)

Input Description	Member Site Comments
Confirmation that site has implemented a best management practice to address environmental noise as per NCIA Noise Management Plan Standard 2010-001 issued 3-Sep-10.	A site practice has been implemented by Plains Midstream Canada
Procedure/Practice/Standard reference (i.e. SOP-AG-RW-200-002)	FSK-P-36-00-12
Results of any monitoring/assessments (fenceline outward) completed in 2011.	None in 2011
Improvements implemented in 2011. Also, include any improvements that you have made, with respect to noise abatement, on your site over the past 10 years.	2007 - VFD NGL Injection Pumps - Change Positive displacement NGL pumps with Variable Frequency Centrifugal Pumps – less maintenance, emissions and noise. 2010 - Direct Fire Heaters - The new direct fire heater coming to site in 2010 has an air inlet silencer and expansion joints on the air piping, which will significantly reduce the noise level. The new blower is approximately 40 HP so it is relatively quiet in comparison to other equipment at the site. 2011 – Installation of insulated building around facility river water pumps and generator. This has reduced noise levels for the pumps.
Changes that have resulted in increased noise levels on your site for 2011.	Start up of mothballed plant in September 2011 may contribute to increased noise levels; however, this has not been verified at the fenceline outward.
Noise Complaints received in 2011 and follow up actions taken to address them.	No complaints in 2011
Planned improvements to noise management practice, noise abatement work or noise model work for 2012.	None planned at this time.

Shell Scotford Manufacturing (Chemicals and Refinery)

Input Description	**Member Site Comments***
Confirmation that site has implemented a best management practice to address environmental noise as per NCIA Noise Management Plan Standard 2010-001 issued 3-Sep-10.	Noise as an environmental aspect is managed as part of the Scotford Manufacturing Management System which is certified to International Organization for Standardization [ISO 14001(2004)], and verified under the Responsible Care® Codes and Principles.
Procedure/Practice/Standard reference (i.e. SOP-AG-RW-200-002)	Scotford Manufacturing Management System
Results of any monitoring/assessments (fenceline outward) completed in 2011.	No fenceline monitoring surveys completed in 2011. Model assessment of finfan exchanger mods conducted; < 2 dB change at closest neighbour predicted.
Improvements implemented in 2011. Also, include any improvements that you have made, with respect to noise abatement, on your site over the past 10 years.	Please refer to the attached list.
Changes that have resulted in increased noise levels on your site for 2011.	None directly associated with the Scotford Manufacturing facilities. No infrastructure has been added and no new operational units/ equipment has come on line. Annual shutdown activities typically result in higher traffic which can
Noise Complaints received in 2011 and follow up actions taken to address them.	None
Planned improvements to noise management practice, noise abatement work or noise model work for 2012.	2012 Awareness Orientation at operational, project, C&P, HSSE levels. A NMP pointer reference will become a useful auditing tool as well. Internal management system audit to include noise management in 2013.

Attachment: Noise Initiatives since 2005

Year Implemented	**Project**	**Description**
2005	Ref silencer on steam vent	Silencer on Hydrogen Plant Deaerator Steam Vent.
2009	Ref C2201 piping	Pipe-lagging installed to control radiating compressor piping noise.
2006	Ref Ultra-low Sulphur Diesel Process Unit	Modeling of new process unit equipment was done to understand its impact on community. The model identified opportunities for improvements which were implemented to reduce incremental noise from the new facility by only reduced to approximately 0.1 dB to 0.3 dB at the closest residences. The improvements included: compressors housed in buildings; air coolers designed with lower-noise blades and variable speed drives as well as quiet burner design in the heater.
2011	Chem MEG Unit Air cooler upgrades	Air cooling capacity increase project involved modifying existing coolers with changes in Blade pitch and installing variable speed motors. The changes were modeled using the new RNMP model to predict the incremental noise impact of the change on the community. The result indicated an increase in the range of 0.1 dB to 0.3 dB at the closest residence. This magnitude of change would not be audible to the receptor.

Shell Scotford Upgrader

Input Description	Member Site Comments
Confirmation that site has implemented a best management practice to address environmental noise as per NCIA Noise Management Plan Standard 2010-001 issued 3-Sep-10.	Shell Scotford Upgrader has noise management practices embedded into an ISO 14000 Accredited EMS (Environmental Management System).
Procedure/Practice/Standard reference (i.e. SOP-AG-RW-200-002)	SCU-ENV-5.4, SCU-ENV-5.4-PR-1, SCU-ENV-5.4-TO-1, SCU-ENV-5.4-TO-2, SDP11021, SDF11021
Results of any monitoring/assessments (fenceline outward) completed in 2011.	N/A
Improvements implemented in 2011. Also, include any improvements that you have made, with respect to noise abatement, on your site over the past 10 years.	The Upgrader had a detailed model developed in 2005.
Changes that have resulted in increased noise levels on your site for 2011.	N/A
Noise Complaints received in 2011 and follow up actions taken to address them.	None
Planned improvements to noise management practice, noise abatement work or noise model work for 2012.	2011 saw the start up of the Shell Upgrader Expansion. Post construction noise monitoring will be completed, and if operations are steady in 2012 the existing noise model will be updated to include the Expansion facility. The updated model will be included in the Regional Noise Model. The plan is to also develop an 'oversight' document for the site NMP instead of having it in different spots within the EMS.

March 14, 2012

Northeast Capital Industrial Association (NCIA)
Dr. Laurie Danielson, Executive Director
Northeast Capital Industrial Association
Suite 204, 9902-102 Street
Fort Saskatchewan, AB
T8L 2C3

Dear Laurie:

Re: Sherritt International Corporation (Sherritt) Annual Noise Management Report -- 2011

This report is the 2011 annual summary of Sherritt's progress with respect to the Noise Management Plant at the operating facility in Fort Saskatchewan as part of our membership with the NCIA. Sherritt is committed to work towards the management of noise that may affect the neighbouring communities and within the plant boundaries

History

Historically, Sherritt was regulated by the Alberta Energy and Utilities Board (EUB) which is now called the Energy Resource Conversation Board (ERCB) Directive 38 (Noise Control Directive) and had to be aware of the City of Fort Saskatchewan Municipal No. C25-95 (The Bylaw)

Sherritt has historically been in compliance with the ERCB and municipal requirements. By participating in the NCIA Regional Noise Management Plan (RNMP), Sherritt will comply with the requirements of the ERCB and strive for continuous improvement within our facility.

Sherritt International Noise Management Plan

A procedure for noise management (FSSMP001-021) has been developed and is currently undergoing internal review. Sherritt's Noise Management Plan meets the requirements as outlined by the NCIA Standard 2010-001 issued 3-Sep-10.

Occupational Noise Studies

During 2011, Sherritt completed occupational noise surveys within the operating units to:

- ensure proper signage is in place for the workers entering the buildings where noise is present;
- identify potentially problematic equipment ; and
- Aid in the installation of noise controls where required.

Environmental Noise Studies (fence line outward)

Previous environmental noise studies have been conducted in 1997, 1999 and 2005 by third party consultants.

An update to the Plant Noise Model was completed in October of 2011 to assess the impact of changes in our operations. The model was updated with fence line locations for future reference points and will be included in the Regional Noise Model.

This model indicated a decrease in the noise production from the facility since 2005.

Improvements/Corrective Actions

In 2005, silencers were installed on the reformer hot vent and the methanator vent in the Gas Reform part of the Ammonia Unit. These two vents release natural gas, steam, and nitrogen to the atmosphere during start-up and shutdown of the Gas Reform process and had been identified as a source of episodic noise.

In 2006, a project was initiated to automate the drain lines on the No. 1 and No. 2 Boilers in the Utilities Unit. Included in the scope of the project was a new silencer to replace the existing one. The new silencer meets industry best practices for noise management.

2011, the sulphur burner in the Sulphuric Acid Plant was replaced; significantly lowering the occupational noise levels in the area. Also, silencers were installed on the vents of the autoclaves in the Nickel Reduction Unit.

Results of the Plant Noise Model indicated an overall reduction of 1 to 5 dBA from the plant site since the previous surveys.

There have been no changes that have been made on site that have resulted in an increase in our noise output.

Noise Complaints

Since 2000, there have been seven noise complaints received by Sherritt from the public. The last public noise complaint dates back to April 2002.

A Noise Complaint Procedure is initiated when a complaint is received from the public. This procedure includes contacting all operating units to investigate any process or other conditions that may be contributing to the noise complaint. All findings are corrected as applicable, documented, and communicated to the originator of the complaint.

There were no noise complaints for the 2011 year.

Planned Work

Updating of plant noise maps and monitoring of new equipment will continue in 2012. Plans will be put into place as a result of recommendations prescribed in the assessments and as per the Noise Management Plan.

If there are any further questions or concerns about this report, please contact myself, Candy Wagner, about the information presented.

Regards

Candy Wagner, CRSP, ROHT
Health and Safety Advisor: Hygiene

Sulzer Metco (Canada)

Input Description	Member Site Comments
Confirmation that site has implemented a best management practice to address environmental noise as per NCIA Noise Management Plan Standard 2010-001 issued 3-Sep-10.	Not as of yet. This is to be developed in Q1 2012
Procedure/Practice/Standard reference (i.e. SOP-AG-RW-200-002)	None
Results of any monitoring/assessments (fenceline outward) completed in 2011.	None completed fence line outward
Improvements implemented in 2011. Also, include any improvements that you have made, with respect to noise abatement, on your site over the past 10 years.	No direct improvements in 2011
Changes that have resulted in increased noise levels on your site for 2011.	No changes in 2011
Noise Complaints received in 2011 and follow up actions taken to address them.	No noise complaints received
Planned improvements to noise management practice, noise abatement work or noise model work for 2012.	None planned for 2012

Umicore Canada

Input Description	Member Site Comments
Confirmation that site has implemented a best management practice to address environmental noise as per NCIA Noise Management Plan Standard 2010-001 issued 3-Sep-10.	Noise Exposure Management Plan added to Umicore EHS Management System. Reference to 'environmental noise' added to Umicore Air Quality Management Program.
Procedure/Practice/Standard reference (i.e. SOP-AG-RW-200-002)	COP-323-7 Noise Exposure Management Plan
Results of any monitoring/assessments (fenceline outward) completed in 2011.	Not applicable – industrial hygiene dosimetry monitoring completed in 2011
Improvements implemented in 2011. Also, include any improvements that you have made, with respect to noise abatement, on your site over the past 10 years.	Management of Change (MOC) program enhanced in 2011 which includes an assessment by the EHS Manager for potential changes/impacts to the Industrial Hygiene programs (including additional noise exposure and/or dust monitoring).
Changes that have resulted in increased noise levels on your site for 2011.	No increases in noise levels in 2011 – no significant changes/modifications to equipment that could have resulted in increased noise levels, etc.
Noise Complaints received in 2011 and follow up actions taken to address them.	Did not receive any noise complaints in 2011
Planned improvements to noise management practice, noise abatement work or noise model work for 2012.	Continuing to conduct Industrial Hygiene noise exposure assessments as required for major equipment/process changes as part of the MOC program.

Total E&P Canada

Input Description	Member Site Comments
Confirmation that site has implemented a best management practice to address environmental noise as per NCIA Noise Management Plan Standard 2010-001 issued 3-Sep-10.	Project is on hold
Procedure/Practice/Standard reference (i.e. SOP-AG-RW-200-002)	N/A
Results of any monitoring/assessments (fenceline outward) completed in 2011.	N/A
Improvements implemented in 2011. Also, include any improvements that you have made, with respect to noise abatement, on your site over the past 10 years.	N/A
Changes that have resulted in increased noise levels on your site for 2011.	N/A
Noise Complaints received in 2011 and follow up actions taken to address them.	N/A
Planned improvements to noise management practice, noise abatement work or noise model work for 2012.	N/A