

NCIA 2025 Regional Noise Management Plan (RNMP) Report  
(covering the 2024 Calendar Year)

Prepared for the  
Alberta Energy Regulator (AER)  
and the  
Alberta Utilities Commission (AUC)

June 2025

NCIA | Northeast Capital Industrial Association

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### Separate Attachments (via email)

*2024 Environmental Noise Survey For The Regional Noise Model Annual  
Field Validation Monitoring – prepared by Acoustical Consultants Inc.  
December 17, 2024*

*Technical Memorandum RE: Comparison of 2024 Sounds Monitoring  
Results to Regional Noise Model – prepared by SLR Consulting (Canada)  
Ltd. December 20, 2024*

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## Executive Summary

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The Northeast Capital Industrial Association (NCIA) has commissioned annual sound monitoring as part of the NCIA Regional Noise Management Plan requirements for 13 consecutive years. One of the purposes of the RNMP is to provide member companies with precalculated facility sound levels throughout the Industrial Heartland region which can be used to account for the cumulative impacts of adjacent facilities, as required by the AER and AUC noise regulations in the completion of Noise Impact Assessments (NIAs).

In this last year, and in prior reports, no general trends in sound levels are observed in the monitoring data across the Alberta Industrial Heartland region despite the expansion of industry.

Annually, NCIA member sites are polled and assessed to determine if changes are warranted to the Regional Noise Model (the 'Model') and/or assessment locations and analysis. No significant changes were made this year as a result, following the update and revamp in 2023 and 2024 (previously to this, the Model was last updated in 2018) as they weren't deemed necessary. NCIA's focus is to build consistent data for trending and analysis. Details of the last Model update were presented in the NCIA 2024 RNMP Report. The primary change to the model was a change in calculation standard from CONCAWE to ISO 9613-2.

A technical steering committee consisting of environmental engineers and staff from various member companies, a representative from ACI Acoustical Consultants Inc (the field validation locations and measurements), as well as from the AER and the AUC, meets to review and analyze the data and evaluate if further adjustments or changes are required.

The results of the Model comparisons generally show good agreement between the model predictions and monitoring results. Most monitored nighttime sound levels fall within the stated range of uncertainty of ISO 9613-2 predictions.

Railyard noise impacts are not accounted for in the Model, and rail line movements and distinct rail sound events are excluded from the monitoring data. NCIA acknowledges that recent community noise concerns have identified rail as the cause.

## Audits

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In 2024, the AER and the AUC completed a review of the 2022-2023 annual report for the Northeast Capital Industrial Association (NCIA) Regional Noise Management Plan (RNMP) and completed a noise study audit for two NCIA facilities in the Alberta Industrial Heartland.

Following these audits, the AER and the AUC reported that overall, they do not have outstanding questions or concerns about the RNMP annual report and noise study audit.

- The AER conducted an audit on two noise impact assessment reports dated May 7, 2008, and October 12, 2023, by the North West Redwater Partnership for its Sturgeon Refinery. The conclusion was that the submitted reports are technically complete and comply with the RNMP.
- The AUC conducted an audit on a noise study report dated January 2020 by Pembina NGL Corporation for its Cogeneration Power Plant at the Redwater Industrial Complex. The conclusion was that the submitted report is technically complete and complies with the RNMP.

The following comments and recommendations were presented and NCIA response and follow up are bulleted following each.

- i) Each RNMP annual report is expected to be completed within six months after the year-end.

- NCIA will target issuance of the Annual Regional Noise Management Report within 6 months from the end of the reporting period (target annual report by June 30th of each year).
- ii) For data security reasons, it is highly recommended that NCIA store and maintain one or two separate copies of the regional noise model, in addition to the ones with SLR.
  - The recommendation for full model copy to be backed up with NCIA – SLR Consulting advises that NCIA does not own some of the proprietary modeling and thus is restricted from maintaining a standalone copy of the functional regional noise model. Their response is “Regarding your request for a full copy of the Regional Noise Model, this isn’t as straightforward as it might seem. The model is built from multiple contributing models, each of which is owned by the individual consultants who created them. We’ve accepted and integrated these models based on agreements that limit their use specifically to the regional noise model, and we do not have permission to share them outright. This also applies to the models that SLR has developed, as they remain our intellectual property.”
  - NCIA will store its model input data and configuration for the Regional Noise Model on its secured SharePoint and will also retain an offline copy of this on a usb drive.
- iii) Any major changes proposed for the regional noise model and the RNMP shall be reviewed and discussed by the noise technical steering committee before they are adopted.
  - NCIA will convene an NCIA Noise Technical Subcommittee meeting at least once per year to review member Annual Report inputs and any major changes proposed for the regional noise model prior to adoption.

- iv) NCIA shall upload the latest “Instructions for Use of the RNM Sound Level Grid” on the NCIA website. The AER and the AUC recommend acoustical modeling for the facilities in the Alberta Industrial Heartland to be conducted following the latest instructions, as practical.
  - NCIA stores a copy of the latest “Instructions for Use of the RNM Sound Level Grid” on the NCIA secured SharePoint site. This is then easily accessed by the members. These instructions may be provided by NCIA to a prospective company that is preparing a Noise Impact Assessment for a project, in consultation with NCIA.

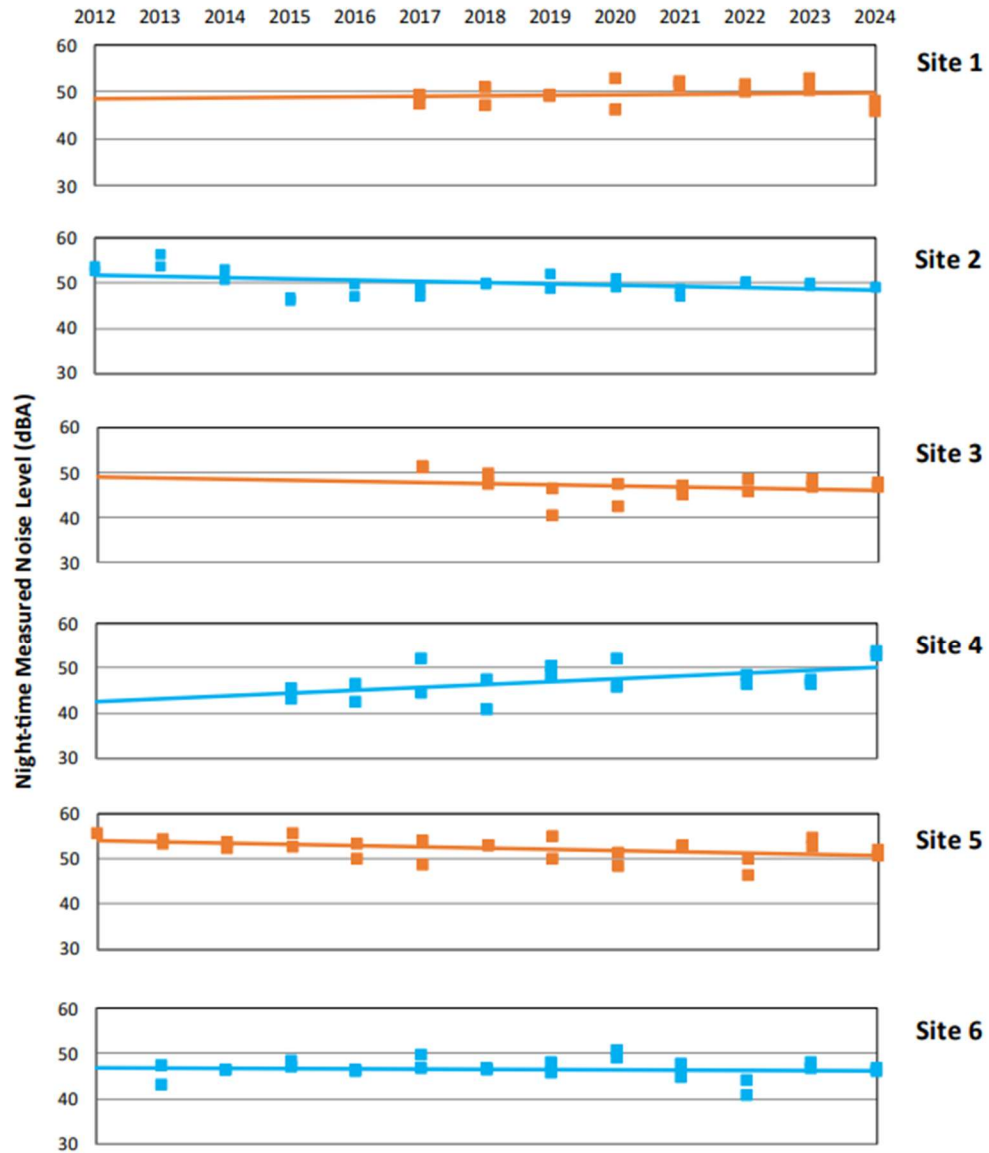
## 2024 Noise Model Results

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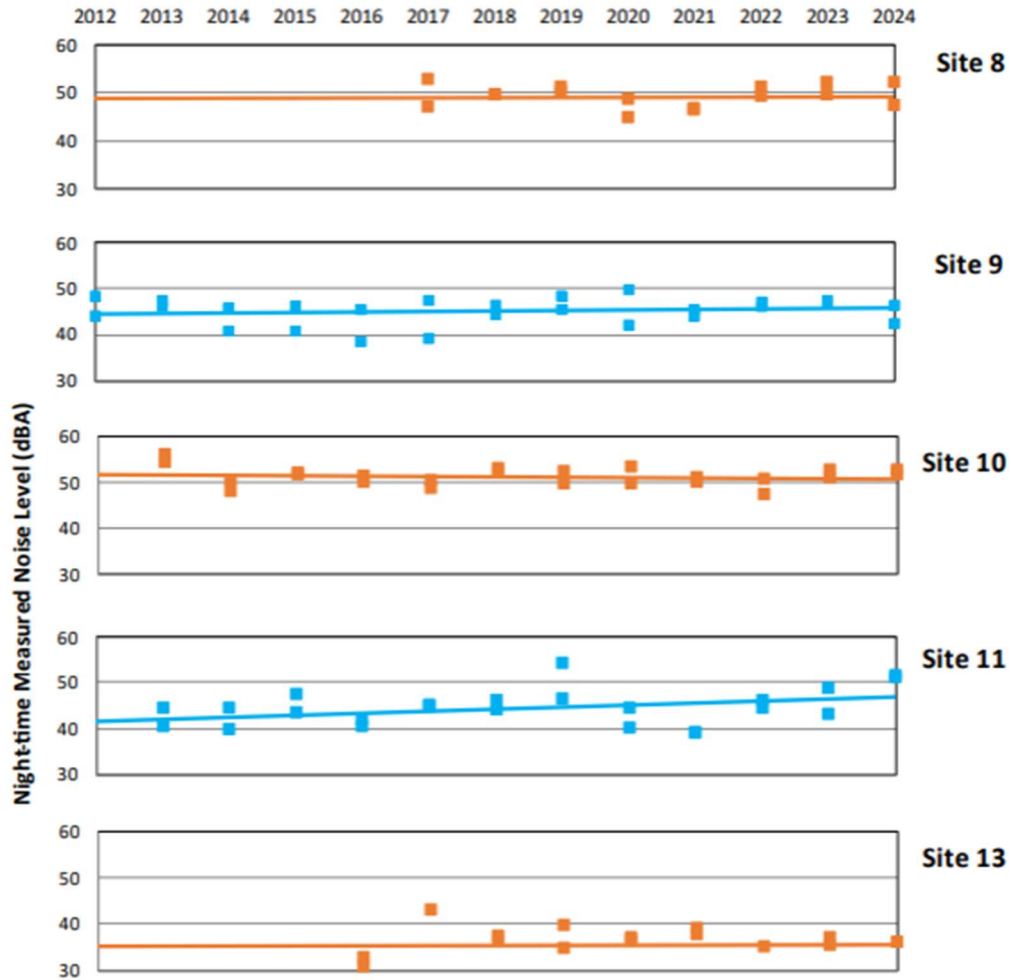
Monitoring Trend Analysis Measured sound levels are plotted year over year from 2012 to 2024 for the monitoring locations to identify trends in the measured sound levels. The data for some locations have gaps due to the monitor having been relocated to improve the coverage and/or adjust for temporary construction or facility changes.

There are no clearly identifiable general trends in sound levels, with large variations across different monitoring periods, in some cases with a range exceeding 10 decibels (dB) due to weather conditions and other sound propagation factors or temporary sources of local sound. The graphs are displayed on the following pages in Monitoring Trends: Figure 1 and Figure 2

**Figure 1: Monitoring Trends, Locations 1 through 6**



**Figure 2: Monitoring Trends, Locations 8 through 13**





The Monitoring Trend Analysis and the update & maintenance of the Model is conducted by SLR Consulting (Canada) Ltd., using the field data collected by Acoustical Consultants Inc.

The predicted sound levels from the 2023 Model (using the ISO 9613-2 standard) were compared to the measured, isolated nighttime energy-equivalent sound levels at all monitoring locations. The results of the comparisons generally show good agreement between the model predictions and monitoring results. Most monitored nighttime sound levels fall within the stated range of uncertainty of ISO 9613-2 predictions.

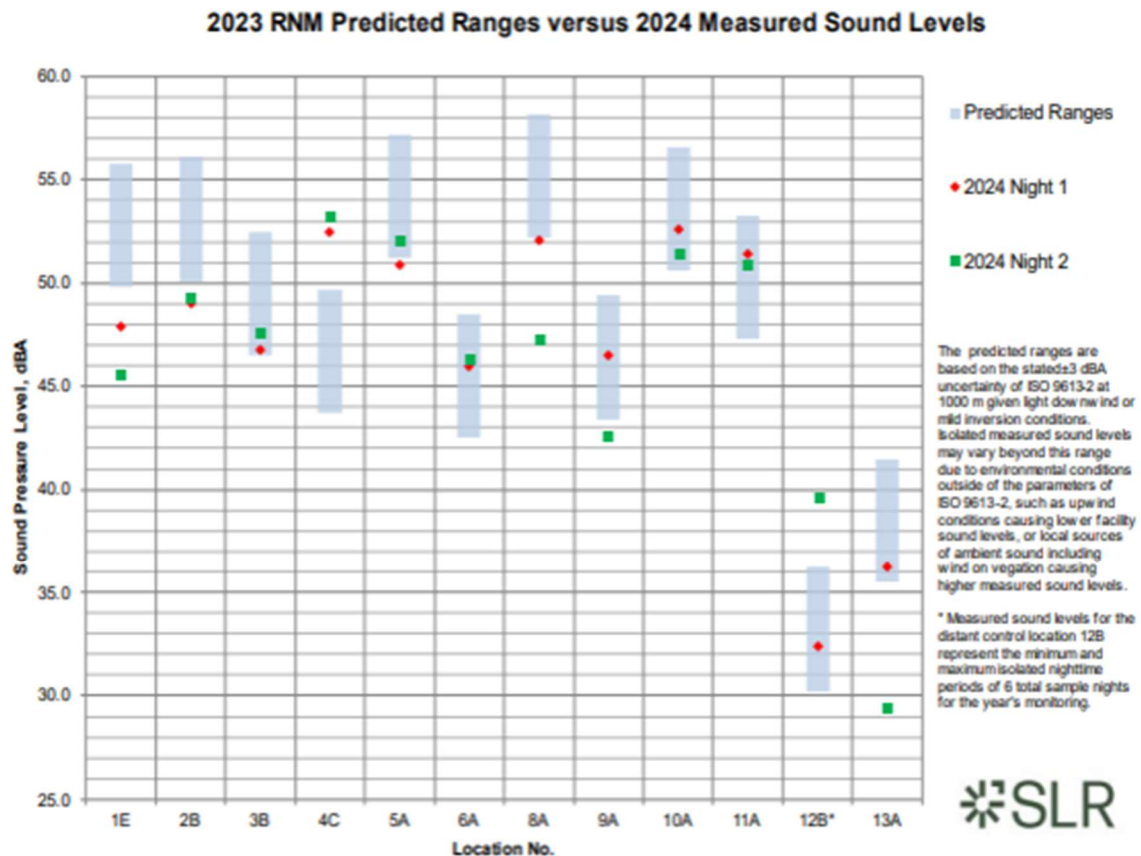
Table 1 on the following page details the results of the comparison for the 2024 monitoring period. A positive result in the Predicted minus Measured column indicates the model overpredicted the sound levels, while a negative result indicates the monitored sound levels were higher than the model prediction.

**Table 1: Comparison of 2024 Measurement Data with 2023 RNM Predictions**

Location	1st Nighttime Period			2nd Nighttime Period			Average Difference (dBA)
	Measured	Predicted	Predicted minus Measured	Measured	Predicted	Predicted minus Measured	
1E	47.9	52.8	4.9	45.6	52.8	7.2	6.1
2C	49.0	52.8	3.8	49.3	52.8	3.5	3.7
3B	46.8	49.5	2.7	47.6	49.5	1.9	2.3
4C	52.5	46.7	-5.8	53.3	46.7	-6.6	-6.2
5A	50.9	54.2	3.3	52.1	54.2	2.1	2.7
6A	46.0	45.5	-0.5	46.4	45.5	-0.9	-0.7
8A	52.1	55.2	3.1	47.3	55.2	7.9	5.5
9A	46.5	46.4	-0.1	42.6	46.4	3.8	1.9
10A	52.6	53.6	1.0	51.5	53.6	2.1	1.6
11A	51.4	50.3	-1.1	50.9	50.3	-0.6	-0.9
12B (1 <sup>st</sup> 48 hrs)	34.1	33.2	-0.9	32.4	33.2	0.8	0.0
12B (2 <sup>nd</sup> 48 hrs)	37.7	33.2	-4.5	37.6	33.2	-4.4	-4.5
12B (3 <sup>rd</sup> 48 hrs)	37.1	33.2	-3.9	39.6	33.2	-6.4	-5.2
13A	36.2	38.5	2.3	29.5	38.5	9.0	5.7

Figure 3 below compares the monitoring results of the 2024 periods to the 2023 MODEL sound level predictions at each monitoring location.

**Figure 3: Prediction Range and Monitoring Comparison Chart**



Most of the divergence of monitoring results from the predictions is due to these main factors:

- ISO 9613-2 simulates a downwind (favourable) sound propagation condition from all sound sources towards all receptors. This does not occur, except during normally short duration temperature inversion conditions. Therefore, some overprediction (typically up to 3 dB) for receptors with significant or nearby sound sources in multiple directions is expected. More distant receptors outside the main built-up industrial areas, especially to the west, may not experience downwind conditions during the monitoring periods. In the NCIA study area, the prevailing winds are northerly and westerly,

therefore a greater degree of overprediction is expected at locations 8, 9, 11, and 13.

- Some underprediction of sound levels was found, and expected, at location 12B, which is 3-5 km to the east of major NCIA facilities. Local sound sources such as farming and other activities, environmental sound including wind disturbing vegetation and across the microphone windscreen, and more dominant road and rail sound can cause significantly higher measured sound levels than the facility contributions. Even with these extraneous sound sources being common and affecting the majority of measured nights, the model agreed well with 2 of the 6 total measured nighttime sound levels suggesting the predicted industrial sound contribution of approximately 33 dBA may be reasonable.

## 2024 Field Validation Monitoring

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Acoustical Consultants Inc. (ACI), of Edmonton AB, was retained by NCIA to conduct an environmental noise survey within Alberta's Industrial Heartland. All noise monitoring procedures and equipment used were in accordance with the requirements of the AER Directive 038 on Noise Control. Site work was conducted by ACI in July 2024.

As part of the study, a total of fourteen (14) 48-hour noise monitorings were conducted through the region. The noise levels at most locations consisted of low frequency components with occasional mid/high frequency components that could be attributed to the nearest facility relative to each individual noise monitoring location. Despite the noise being relatively low in frequency, none of the sites indicated any low frequency tonal components. In comparison to 2023 noise monitoring, the results from 2024 showed greater variability.

The monitorings were conducted under summer conditions with attempt to avoid times of precipitation and high wind speeds based on weather forecasts. Apart from Noise Monitor Locations 1 & 8, all noise monitoring locations were identical to those conducted during the 2023 Noise Survey. The noise monitoring was conducted collecting broadband A-weighted and C-weighted as well as 1/3 octave band sound levels and were conducted during "typical" operations at all facilities.

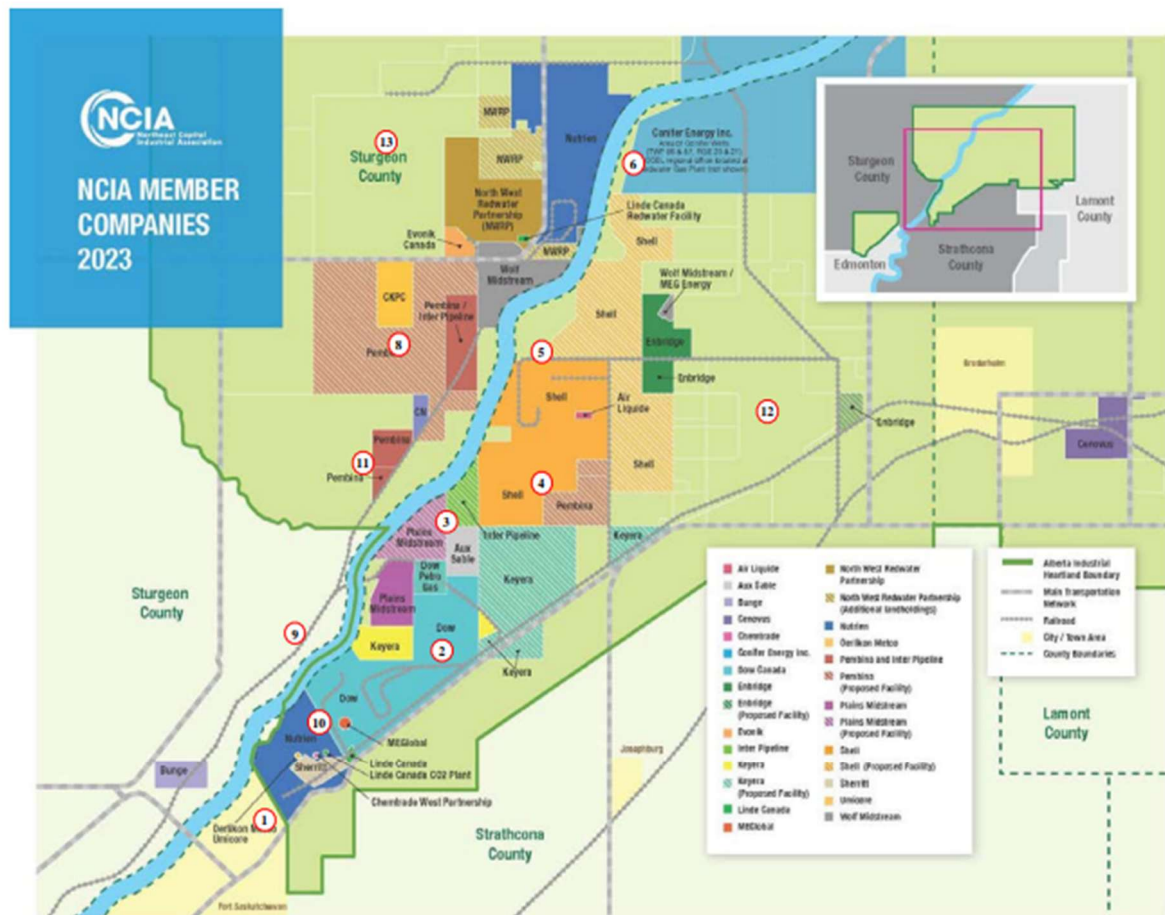
The chosen noise monitoring periods avoided major shutdowns or outages of nearby facilities that could adversely affect the “typical” noise levels (either louder or quieter) in each area. This information was provided by the respective NCIA members in the area.

The results of the fourteen (14) 48-hour noise monitorings are provided below in Table 2. This shows the results of each of the three daytime periods in addition to the isolated and non-isolated values for the nighttime periods. The isolation analysis for the nighttime periods was performed in accordance with Section 4.3.2 of the AER Directive 038.

**Table 2. 2024 – L<sub>eq</sub> 24-Hour Results**

Monitoring Location	1st Daytime Period	1st Night-time Period (Un-isolated)	1st Night-time Period (Isolated)	2nd Daytime Period	2nd Night-time Period (Un-isolated)	2nd Night-time Period (Isolated)	3rd Daytime Period
1E	57.2	51.9	47.9	56.6	51.3	45.6	52.9
2B	50.0	49.7	49.0	51.7	51.7	49.3	64.5
3B	56.2	55.6	46.8	54.7	55.7	47.6	54.5
4C	48.7	53.0	52.5	49.7	53.8	53.3	54.7
5A	54.2	52.0	50.9	54.0	55.1	52.1	55.3
6A	55.1	51.6	46.0	55.9	54.5	46.4	54.2
8A	52.2	52.2	52.1	50.6	47.7	47.3	50.1
9A	50.1	50.5	46.5	49.7	54.3	42.6	53.5
10A	60.1	55.6	52.6	56.1	55.2	51.5	57.6
11A	53.0	52.6	51.4	62.5	53.7	50.9	62.1
12B (1st 48-hour)	50.9	43.8	34.1	48.3	41.8	32.4	48.5
12B (2nd 48-hour)	47.9	49.6	37.7	48.4	49.6	37.6	49.8
12B (3rd 48-hour)	52.7	49.8	37.1	50.8	50.7	39.6	48.4
13A	52.4	47.9	36.2	46.3	36.8	29.5	40.7

- Noise Monitoring Location #1: This location was modified from previous years in an effort to avoid construction at the small metering station to the north.
- Noise Monitoring Location #8: This location was slightly modified from previous years in that it was moved approximately 5 meters to the south due to a construction fence being in place of the last location. This was to accommodate new construction in the field to the north.



### **2024 Study Area (With Noise Monitoring Locations)**



## NCIA Member Compliance

Table 3 below summarizes the compliance requirements for NCIA members and non-member companies vis-à-vis the NCIA Regional Noise Management Plan (RNMP), and Table 4 reflects the 2024 status.

There was only one noise complaint reported by a member company in 2024. North West Redwater Partnership (NWR), received a noise complaint in the spring of 2024 and performed an investigation to validate the complaint. The outcome was indicative that the noise was not coming from NWR but from another source. Regardless, NWR checked their bird deterrent cannons and ensured the cannons were positioned appropriately and operating correctly, and no further complaints were received.

**Table 3: NCIA Member Compliance Requirements**

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

**Table 4: NCIA Member Company Information for RNMP**

<b>NCIA Member</b>	<b>AER Regulated Status for Noise Control Directive 038</b>	<b>Filed an Annual Update with NCIA for 2024</b>	<b>Developed a Site Noise Management Plan</b>
Air Liquide Canada	Not regulated	x	Yes
Aux Sable Canada	Yes. Regulated under Section 11 of the OSCA	Yes	Yes
Conifer Energy	Yes	Yes	Yes
Bunge Canada	Not regulated	x	Yes
Cenovus Energy	Not regulated	x	Yes
Chemtrade West	Not regulated	x	Yes
Dow Chemical Canada	Yes Operator No. 0F05	Yes	Yes
Enbridge Pipelines	Yes	Yes	Yes
Evonik	Not regulated	Yes	Yes
Inter Pipeline HPC	Not regulated	Yes	Yes
Keyera Corp	Yes Operator No. A5W1 LSD-02-14-055-22W4 Facility No. F-12695	Yes	Yes
Linde Canada	Not regulated	x	Yes

MEGlobal	Not regulated	Yes	Yes
North West Redwater Partnership	Yes LSD-E1/2-18-56-21-W4M	Yes	Yes
Nutrien Fort Saskatchewan	Not regulated	Yes	Yes
Nutrien Redwater	Not regulated	Yes	Yes
Oerlikon Metco	Not regulated	Yes	Yes
Pembina NGL Corp	Yes	Yes	Yes
Plains Midstream	Yes Operator No. 60 LSD-14-55-22W4 Facility No. F-12699	Yes	Yes
Shell Chemicals	Not regulated	Yes	Yes
Shell Refinery	Yes. Regulated under Section 11 of the OSCA AER Approval No. 11640	Yes	Yes
Shell Upgrader	Yes. Regulated under Section 11 of the OSCA AER Approval No. 8522	Yes	Yes
Sherritt International	Not regulated	Yes	Yes
Umicore Canada	Not regulated	Yes	Yes
Wolf Pipeline	Yes	Yes	Yes



## Next Steps

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NCIA's Noise Management Technical Working Group participants have met to discuss the 2025 Noise Monitoring and will continue to meet to review the outcomes. Members of the NCIA and the Working Group have been presented with overviews of the updates to the Regional Noise Model and the outcomes, as well as of the Sound Monitoring process and the key considerations and factors influencing the sound monitoring data.

There will continue to be a focus on nighttime reporting, impacts of traffic and wildlife noise as 'outliers', and the considerable consideration of rail activity and related noise. ACI Acoustical Inc., has been contracted for two 24-hour sound monitoring readings. There is potential for a third if the weather conditions are very poor and it is warranted. SLR Consulting Inc. has been contracted for the update of the data in the model and the analysis.

The Noise Management Technical Working Group agreed to the minor adjustments to the following noise monitoring locations for the 2025 Noise Monitoring program:

- #1F – to be moved northwest into the adjacent field to try to gain a little more distance from the shift traffic on 100 Ave and further from Hwy 15. (south of Sherritt)
- #8A – to be moved southwest from the Pembina RFS IV construction down the remaining open roadway mid-point to the Cando expansion with purpose to minimize construction impact
- #11A – to be moved southeast from the Cando site towards the river around the Pembina Fire Training Facility. Provides removal of some rail interference and provides better adjacent exposure south of Pembina and west of Heartland IPL
- #13A – to be moved due east at north side of NWR Sturgeon Refinery as previous site was too far away.