Wapiti Area Synergy Partnership

Directive 038: Noise Control

Jason Cao, Noise Specialist, Authorizations

January 8, 2019.

Agenda

- Directive 038 Noise Control Requirements
- Participation Involvement
- Noise Complaint Investigation
- Noise Control
- Q & A

Directive 038

Directive 038 Background

- AER noise control guideline/directive since 1970’s.
- One of the most stringent environmental noise regulations in North America.
- Directive 038 addresses environmental noise.

Directive 038

- Criteria
  - The directive sets permissible sound level for outdoor noise at receptor location.
  - Determination of compliance:
    - Equivalent dBA level ≤ permissible sound level.

Directive 038

- Noise Impact Assessment
  - An NIA (modeling results) is required for a new facility and a facility modification.
  - Benefits of NIA
    - Noise management plan ahead;
    - Lower probability of non-compliance;
    - Lower costs if noise control treatments evaluated at the planning stage.

Directive 038

- Temporary Noise Events
  - Construction;
  - Drilling & fracturing;
  - Site maintenance;
  - Emergency.
- Usually, an NIA is not required for a temporary activity.
- Investigation on a noise incident is usually complaint-driven.

Directive 038

- Determination of Permissible Sound Level

Permissible sound level (PSL) = Basic sound level + Daytime adjustment + Class A adjustment + Class B adjustment

Directive 038

Permissible Sound Level

- Basic sound level

Table 1. Basic sound levels for nighttime*

Proximity to transportation	Dwelling unit density per quarter section of land		
	1 - 8 dwellings; 22:00 - 07:00 (nighttime) (dBA Leq)	9 - 160 dwellings; 22:00 - 07:00 (nighttime) (dBA Leq)	>160 dwellings; 22:00 - 07:00 (nighttime) (dBA Leq)
Category 1	40	43	46
Category 2	45	48	51
Category 3	50	53	56

Category – Proximity to heavily travelled roads / rail lines.

- Daytime adjustment

  +10 dB

Directive 038

Permissible Sound Level

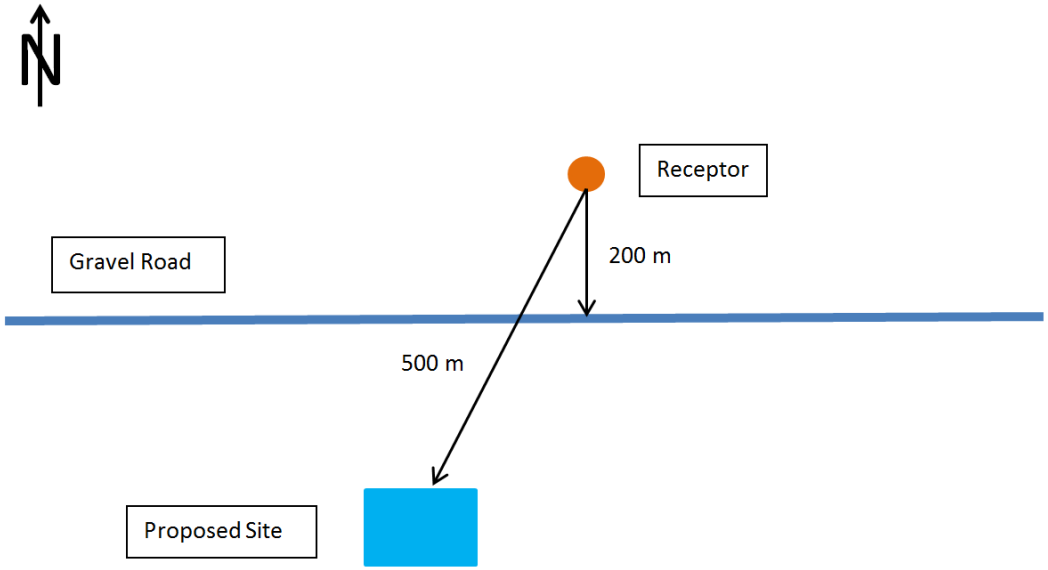
- Class A Adjustment (rarely applied)
  - Seasonal adjustment (0 to 5 dB wintertime)
  - Ambient adjustment (-10 to +10 dB)
- Class B Adjustment (temporary event)

Table 3. Class B adjustments*

Class	Duration of activity	Value (dBA Leq)
B1	1 day	+ 15
B2	7 days	+ 10
B3	≤ 60 days	+ 5
B4	> 60 days	0

Permissible Sound Level Example

- A receptor at 200 m from a gravel road;
- One residence within a quarter section;
- Proposed site 500 m from the receptor.



Directive 038

Permissible Sound Level Example

Scenario	Basic Sound Level, dBA	Daytime Adjustment, dBA	Class A Adjustment, dBA	Class B Adjustment, dBA	Daytime PSL, dBA	Nighttime PSL, dBA
Drilling & Fracturing for 5 Days	40	10	0	+10	**60**	**50**
Drilling & Fracturing for 20 Days	40	10	0	+5	**55**	**45**
Operational Well Site	40	10	0	0	**50**	**40**

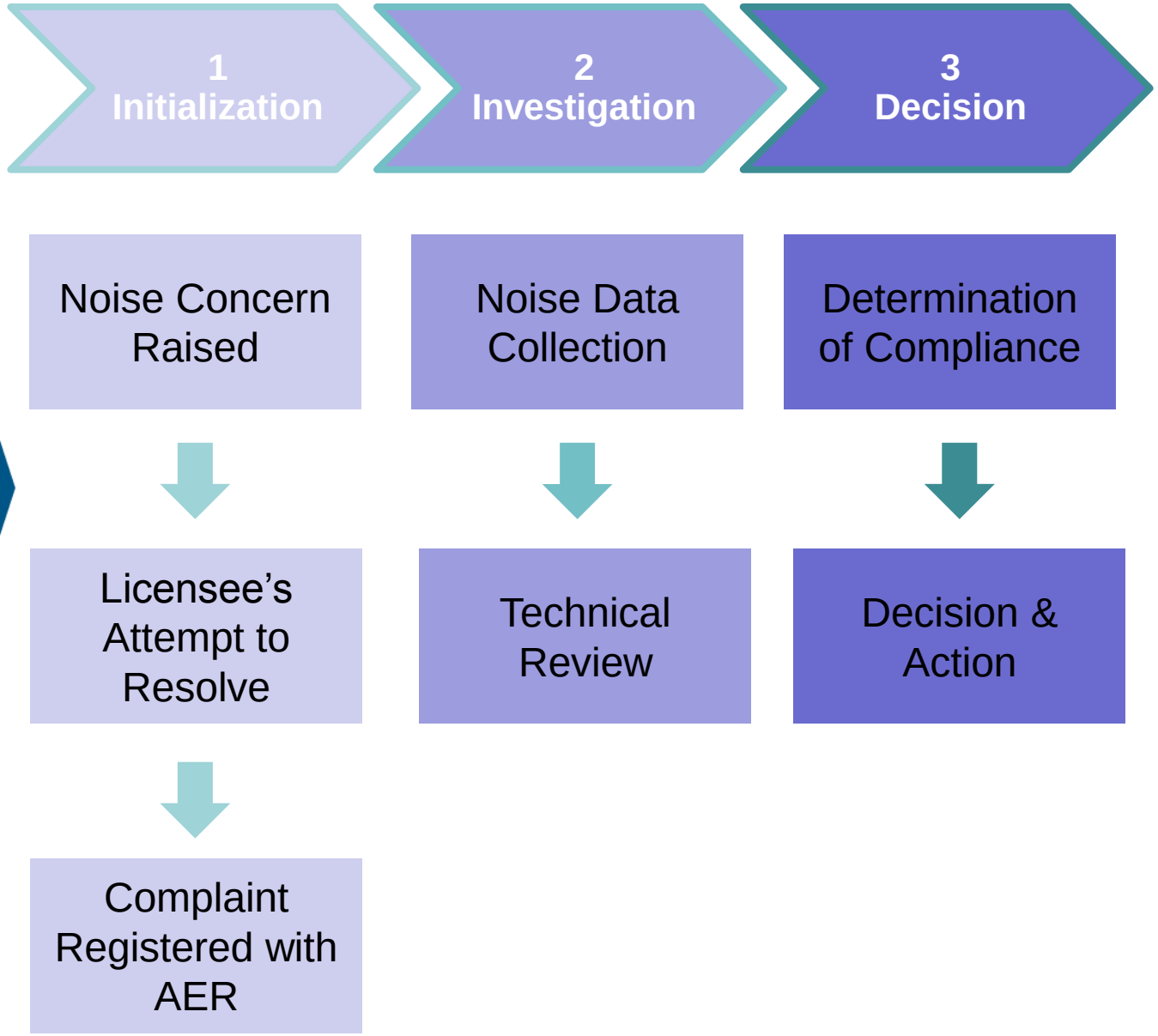
Directive 038

- Comprehensive Sound Level Survey
  - A formal tool to determine compliance;
  - Representative conditions (Noise Complaint Investigation Form);
  - Noise data (dBA, dBC, spectrum);
  - Metrological data.

Noise Concern during Participation Involvement

- Noise concerns before site activities
  - Review participation involvement package;
  - Raise concerns to applicant/operator;
  - Contact the AER
    - Helpline & technical support;
    - SOCs to Participation Involvement Team;
    - Stakeholder engagement.

Noise Complaint Investigation



Noise Mitigation

- Noise Mitigation - Drilling/Fracturing
  - Equipment maintenance;
  - Site activity schedule;
  - Noise control treatments
    - Terrain/Barrier.

Noise Mitigation

- Noise Mitigation - Facility
  - Equipment maintenance;
  - Noise control treatments
    - Enclosure;
    - Silencer/muffler;
    - Lagging;
    - Barrier.

Noise Control Treatments - Facility

Noise Mitigation

Noise Attenuation

Noise Mitigation

Before

After


Q & A

Protecting what matters

www.aer.ca

www.youtube.com/user/ABEnergyRegulator

resource.aer.ca

www.linkedin.com/company/alberta-energy-regulator

@aer_news

General Inquires: Toll-free 1-855-297-8311