



Burnaby Refinery

"Sound
Science",
Monitoring
And Refinery Equipment

Agenda

- Sound Pressure – Noise Measurement
- Burnaby City – Bylaw 7332 & Brochure
- Commercial Noise and Construction
- Sound Attenuation – Managing Noise
- Chevron Turnarounds – Maintenance/Construction

Noise

Simply....noise is **unwanted sound**

Sound is:

- ❑ **Generated / transmitted through air molecules vibrating due to changes in “pressure.”**
- ❑ **A pressure change in the inner ear is detected and interpreted as “sound.”**

Noise levels are increasing

Since 1960:

- ❑ Car traffic - up 162 %
- ❑ Airline traffic - up 438 %
- ❑ Truck traffic - up 483 %
- ❑ Air cargo traffic - up 2,156 %.
- ❑ Recreational and domestic equipment
 - ❑ jet skis, leaf blowers, weed whackers, boom boxes, car alarms, ...

Measuring Noise

- **Frequency: 1 Hz = 1 cycle per second**

- **Sound power level:**
 - ❑ $L = 10 \log (P1/P0)$ Intensity in decibels
 - ❑ 10 x Power = 10dB
 - ❑ 1000 x Power = 30dB

Is it Noise or Sound

- ❑ [Sound Levels](#) & Decibel Scale
 - ❑ When does sound become noise?

- ❑ Burnaby Bylaws – [City Web Site](#)
 - ❑ Commercial Noise
 - ❑ Construction Noise

 - ❑ Burnaby City Noise and Sound Abatement
 - ❑ Brochure – [2 Page Summary](#)

Chevron Burnaby Sound

- ❑ Refinery Sound Sources – [Bby Map](#)
 - ❑ Source ← → Receiver (distance matters)
 - ❑ Power varies as 1/radius

- ❑ Potential Sources of at Bby Refinery

Sound Level (dBA)	EQUIPMENT
106 - 109	Typical Large Air Blower
90 - 97	Common Processing Area
86 - 96	Typical row of pumps

Mitigation Strategies

❑ Measuring Sound Levels

- *Area Surveys* - [Noise Measurement](#)

❑ Controlling / reducing noise exposure

- *Engineering Controls*
 - ▶ *Equipment selection*
 - ▶ Vacuum Truck Size/Placement
- *Administrative Controls*
 - ▶ Acoustic Noise Barriers
 - ▶ Work Timing/scheduling, noise monitoring