Noise Mitigation

TransAlta has retrofitted its mining fleet to minimize the noise the equipment is emitting. This practice will continue with new equipment that will be acquired as mining progresses.

Quarterly noise modeling is conducted by an external noise consultant to determine the noise levels that may be produced by the upcoming mine activities. Forecast mine plans for each quarter are analyzed and recommendations such as changes to mine plans or better placement of equipment during night-time hours are made. These recommendations are then communicated to mine operations to be implemented when required.
TransAlta’s coal mining operations at the Highvale Mine may affect water wells in the immediate vicinity due to drawdown of groundwater levels. Drawdown occurs as the mine advances, resulting in dewatering of the major water-bearing formations above the pit floor. As a result, groundwater supplies to local users may be affected as the mine advances. TransAlta monitors an extensive network of monitoring wells (or piezometers) throughout the Highvale Mine area to assess the effects that mining activities have had on groundwater levels in the following units:

- **Upper and Middle Shale and Upper Sandstone**
  (Bedrock Above Coal – Upper Zone),
- **Middle Sandstone and Lower Shale**
  (Bedrock Above Coal – Lower Zone),
- **Coal Seam #2, Ardley Coal Zone; and**
- **Scollard Formation Sandstone Below Coal**
  (Bedrock Below Coal).

TransAlta develops maps of the extent of groundwater level drawdown in each of these major water-bearing formations and submits the results to the Alberta Energy Regulator to comply with the Water Act approval. TransAlta is committed to replacing water supplies that are interrupted by mining operations per its Water Supply Policy, 2014.
**Surface Water Management**

**Primary water** – drainage from lands not disturbed by mining operations

**Secondary water** – drainage from lands disturbed by mining operations

The primary drainage system intercepts runoff from natural catchments upstream of the advancing pits and diverts this runoff around the pit to either Wabamun Lake (Pits 03 - 07) or the North Saskatchewan River (Pits 08 and 09).

The secondary drainage system collects runoff that has come into contact with areas disturbed by mining operations. This drainage system conveys the runoff to the Sundance Cooling Pond (Pits 01 - 07) or the flocculation station (Pits 08 and 09), where fine particles are settled out before the water is released into the receiving environment.

The primary and secondary drainage systems generally consist of drainage ditches, storage ponds, pumps and pipelines, and riprap chutes. Hydrological analysis is undertaken to determine peak flows and runoff volumes. Drainage designs are reviewed by the Alberta Energy Regulator and Alberta Environment and Parks before construction commences.

**Surface Water Management Plan, Pits 05 & 06**
Dust Management

A number of dust emission sources are associated with the operation of a coal mine. At the Highvale Mine, these sources may include the dust generated by heavy equipment operation, vehicle traffic and the operation of farm equipment on reclaimed land.

TransAlta has taken numerous steps to control dust at the Highvale Mine, including:

- Spraying water and dust suppressant on the mine’s haul roads;
- using vegetation and straw mulch to cover surfaces prone to wind erosion;
- shutting down certain mine operations at times of extreme wind conditions; and
- contouring and planting vegetation on spoil piles as soon as possible after mining.

TransAlta is committed to the effective implementation of these dust control measures and looks for ways to improve our dust management practices. We continually test and review various forms of environmentally friendly dust control products and have found some that have proven to be effective at controlling fugitive dust from our haul roads, parking lots and stockpiles.
The Alberta Energy Regulator (AER) has established limits on noise emissions from mining activities in AER Directive 038 Noise Control. This directive aims to limit outdoor noise levels experienced by residents near facilities, but does not guarantee that a resident will not hear noises from a facility.

TransAlta’s Highvale mining operations must meet the Noise Control Directive. The Permissible Sound Levels (PSL) vary for each residence, depending on factors such as the density of housing and road traffic.

For many of our neighbours, the directive indicates a PSL of 50 A-weighted decibels (dBA) during the day (7 a.m. to 10 p.m.) and a PSL of 40 dBA during the night (10 p.m. to 7 a.m.).

**Common sounds scale**