

SAINT ELMO PROJECT

FACTSHEET:

AIR



OCTOBER 2019

Epic Environmental Pty Ltd (Epic) are working with Multicom Resources Limited (Multicom) on the approvals process for the Saint Elmo Project (the Project), including the Environmental Impact Statement (EIS).

EXISTING ENVIRONMENT

As the region is of a rural nature, existing air quality is influenced by wind-blown dust, agricultural activities, sporadic traffic on unsealed roads as well as bushfires and controlled burning. No other substantial sources of pollutants are currently known in the immediate vicinity of the Project.

The wind occurs predominantly from the southeast during autumn, winter and spring. During summer, winds typically originate in the north-northeast and southeast.

SENSITIVE RECEPTORS

The closest receptor is the Saint Elmo Homestead and is approximately 270 m west of the Mining Lease (ML) boundary. All of the receptors within 10 km of the Project are residences. Julia Creek township is approximately 13 km from the western boundary of ML and is unlikely to be impacted by emissions from the Project.

EMISSIONS ASSOCIATED WITH THE PROJECT

The Project's operations would result in the emission of particulates characterised as:

- Total Suspended Particulate matter (TSP) - particles less than 10 micrometres (μm) in diameter that are capable of penetrating the lower airways of humans. They are generated by windblown dust, earthworks, mining activities, industrial processes and vehicle engines;
- Particulate matter with equivalent aerodynamic diameters of 10 μm or less (PM_{10}) can enter human respiratory system causing adverse health effects. They are generated by motor vehicles and other combustion and industrial processes; and

- Particulate matter with equivalent aerodynamic diameters of 2.5 μm and less ($\text{PM}_{2.5}$) - particles small enough to be inhaled deep into the lungs. These result from the burning of fossil fuels, organic matter and most other materials. Vehicles, power plant emissions and bushfires are major sources.

Anticipated emissions also include gaseous emissions (i.e. CO_2) that will arise from exhaust from both stationary and mobile equipment, including power generation. For mining operations that apply standard control measures, combustion gases normally have substantially less air quality impact than the particulates TSP, PM_{10} and $\text{PM}_{2.5}$. Therefore, compliance with particulate criteria generally indicates compliance with criteria for gases. Gaseous pollutants will also be emitted from processing operations onsite.

SOURCES OF GREENHOUSE GASES

The major source of greenhouse gas (GHG) emissions for the Project will be diesel fuel combustion for onsite power generation. The annual Scope 1 emissions are estimated to be 272 kilotonnes (kt) of $\text{CO}_2\text{-e}$ at a production capacity of 20,000 tpa. This is equivalent to 0.18 percent of Queensland emissions and 1.4 percent of Queensland mining emissions. Opportunities to reduce or offset power requirements will be explored, including a reduction in the reliance upon onsite diesel or gas power generation through the contribution of onsite solar arrays coupled with battery storage units.

SOURCES OF DUST EMISSIONS

The emissions will include dust emissions from clearing of land and material handling, and minor gaseous combustion emissions from mobile equipment.

PREDICTED AIR QUALITY IMPACTS

The major determinant of air impacts over the lifetime of the mine is the extent of the mining fleet, its proximity to

residences and the degree of shielding provided by intervening terrain and pit walls. Two worst-case operational scenarios have been used in dispersion modelling to demonstrate the impact of the Project on existing air quality.

The model has included the use of water sprays and chemical suppressants as control measures to reduce dust. Even with these mitigation measures, the results indicate that PM₁₀ will likely be greater than the stipulated criteria during both scenarios at the Saint Elmo Homestead, due to its proximity to the Project and the prevailing wind conditions. All other sensitive receptors and the Julia Creek township are predicted to be within stipulated criteria limits with these mitigation measures in place.



Figure 1: Dust monitoring station located on the Project site

MITIGATION MEASURES

During the construction, operation and decommissioning of the Project, dust mitigation measures will be applied onsite to minimise the impacts to Saint Elmo Homestead and to prevent exceedances at all other sensitive receptors.

Mitigation measures will include:

- Preparation and implementation of an Air Quality Management Plan;
- Watering and chemical surface suppressant of all unsealed roads;
- Prevention of wind erosion including windbreaks using shade cloth on fresh dumps, progressive revegetation and hydraulic mulch seeding;
- Watering by watering truck when dozer is in use;
- Minimal drop height for trucks dumping overburden;
- Additional management measures during adverse winds;
- Real-time monitoring of weather conditions; and
- Monitoring in the event of a complaint.

Greenhouse Gas Reduction

The Project will adopt a range of the mitigation and abatement measures during planning and design, construction and operation to reduce emissions, energy consumption and energy costs. Such measures may include, but are not limited to:

- Using energy efficiency as a criterion when selecting diesel and electric powered motors and other

equipment;

- Exploring the use of solar panels for power generation and battery storage;
- Using light sensitive switches and motion sensors;
- Effective mine planning to limit the travel time and duty cycle for waste and ore trucks; and
- Progressive rehabilitation of the land and subsequent growth of vegetation will provide a carbon sink.

Further information

If you would like further information on the Project, please:

- Email saintelmo@epicenvironmental.com.au; or
- Freecall 1800 270 844; or
- Visit <http://saintelmoproject.com.au>