SAINT ELMO PROJECT

FACTSHEET: SURFACE WATER

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).

WATER DEMAND

Water is required for various components of the Project such as construction, operation, processing, dust suppression, vehicle wash downs, firefighting, safety showers, amenities and drinking water. The total water demand required to produce 10,000 tonnes of vanadium will be approximately 2.5 gigalitres per annum (GL/annum), with the majority of water being consumed in the material processing facilities.

The Project has been declared a 'project of regional significance', as defined under the *Water Plan (Gulf) 2007*. This declaration reflects the positive impacts of the Project on the region and means that the Project can apply for a water entitlement from water held in the Strategic Reserve for the Flinders River sub-catchment area

WATER SUPPLY STRATEGY

Water access is a key issue for the Project and Multicom are continuing to work with McKinlay Shire Council and the State Government on options to ensure that this vital resource is available to the Project in a sustainable way which does not impact other users in the region.

In establishing a suitable solution, a Water Supply Strategy was implemented to investigate a range of possible sources. This strategy identified that the construction of an Offsite Water Storage Facility (OWSF) adjacent to the nearby Flinders River (approximately 24 km east from the mine site) was the most suitable option for principal water supply.

In comparison, operational supply from the Great Artesian Basin was not considered viable and hence, was removed as an option.

A hydrological assessment was completed for the proposed OWSF and outlined the key results, outcomes and recommendations for furthering the Project within the requirements of the Queensland water planning framework, including the *Water Plan (Gulf) 2007* and the *Gulf Resource Operations Plan* (amended August 2015).

WATER QUALITY IMPACTS

A summary of water quality impacts includes:

- Disturbance of land resulting in reduction of clean water overland flow; increase dirty water runoff; and increase in mine water runoff.
- Alteration of natural flow paths due to construction of the Project.
- Potential impacts to receiving environment due to uncontrolled releases from overflows of dirty and mine/process water infrastructure, during extreme rainfall events.
- Potential contamination impacts due to spills of products during loading or transportation.
- Overflows from the dirty and mine/process water management systems could cause potential contamination impacts onsite due to uncontrolled releases to receiving environments.

WATER RESOURCES IMPACTS

A summary of water resources impacts include:

- Disturbance of land resulting in the reduction in clean water overland flow, alteration of downstream flow regime in receiving waterways and impacts to wetlands.
- Interaction of the proposed mine plan with minor tributaries and overland flow paths.
- Adverse impacts to other local water users due to site water demands.

STREAM FLOW IMPACTS

The Project has potential to impact stream flow of waterways within and surrounding the Project. However, as the Project is located along the ridgeline of the Flinders River and Cloncurry River sub-basins, impacts to streamflow are minimised as the site is in the headwaters of each basin and only a few minor tributaries cross the southern portion of the site.

The Project will reduce the annual flow for both unnamed tributaries onsite and Horse Creek at the western site boundary due to containment of upstream waters within the Project

surface water management system. However, at the end of mine life the baseline annualised flow will be reinstated by decommissioning the water supply dam.

The modelled downstream impact to Julia Creek over the Life of Mine will only cause a minor reduction from baseline conditions (i.e. maximum four percent). Therefore, there will be negligible impacts to sensitive receptors (including a downstream surface water licence user) or environmental values due to the Project altering the stream flow regime within the receiving environment.

FLOODING IMPACTS

The potential flooding impacts associated with the Project include:

- The proposed infrastructure has potential to interact and alter the flow paths and flooding regime.
- The proposed mine plan will interact with minor tributaries and overland flow paths. This may require redirection or protection against these tributaries to reduce contamination of the clean water management system during flood events.

WATER MANAGEMENT INFRASTRUCTURE

To mitigate potential impacts, water management infrastructure at the Project is separated into three categories:

- Clean Water: surface water diverted around or through without mixing with dirty or mine water (e.g. runoff from rehabilitated areas and raw water supply).
- Dirty Water: water generated from runoff of disturbed areas (i.e. waste rock dumps, hardstand, roads). Dirty water is mostly contaminated by sediment.
- Mine/Process Water: water used or affected by mining activities, such as pit water, processing water, and any surface water in contact with these waters.

To divert clean water around the site, a Levee will be constructed on Horse Creek. This Levee will be designed for a 1 in 1,000 year flood event. Under existing conditions, the baseline flood assessment indicated for Flinders Highway at the Horse Creek crossing, the flood depths for the 1 in 10 year and 1 in 100 year events are up to 1 and 2 metres, respectively. Without the Project, the Flinders Highway is already not trafficable during existing floods. While construction of the Levee will change the flooding behaviour immediately south of the Project and upstream along Horse Creek, the increase to flood levels due to the Levee will not cause further impacts on the use of Flinders Highway.

Mine or process affected water will not be released directly to the receiving environment due to the potential presence of contaminants. However, the mine/process water management infrastructure will be designed to contain mine water in addition to wet season inflows and a buffer volume to prevent overflows.

KEY MANAGEMENT MEASURES

A summary of key management measures related to water quality, water resources and flooding include:

- Redirection of clean surface water runoff to reduce potential contamination of natural surface runoff;
- Up to 80 percent of conventional processing water demand will be recycled.
- Erosion and sediment controls, including sediment dams, will be implemented to contain dirty water runoff and allow suspended particles to settle out of solution.
- Pit dewatering to reduce stored water onsite.
- All mine/process water infrastructure is designed so there is no requirement to release water offsite.
- Diversion of clean water around disturbed areas.
- Decommissioning of site infrastructure and progressive rehabilitation to ensure disturbed areas are reinstated to natural features consistent with the existing topography.
- Securing of storage containers of hazardous contaminants.

Surface Water Quality Monitoring Program

The monitoring program will collect data from locations both upstream and downstream of the Project site, with results analysed against the finalised water quality objectives to measure and determine any impacts and effectiveness of the surface water management system.

Make Good Provisions

In the event that surrounding surface water users raise concerns that they have been adversely impacted as a result of Project activities, an investigation will be undertaken, which will include:

- Identification of potential contributing factors including upstream influences.
- Assessment of surface water monitoring data, including stream flow data, against background (upstream) trends to identify any anomalies or causes.
- Where the impact is potentially attributable to Project activities, appropriate make good provisions as well as mitigation and management strategies will be developed and implemented.

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