



# Wilgerup Mine Development

## Mine Site Environmental Considerations and Rehabilitation

The purpose of this fact sheet is to provide information on the potential environmental issues and management measures that are planned to address these issues. Centrex has formally lodged its Mining Lease Proposal and supporting documentation with the Department of Primary Industries and Resources (PIRSA) as part of the approval process for the proposed Wilgerup mine. The Mining Lease Proposal was formally released for a six week public consultation period on 6 November 2008, including referral to relevant government agencies for comment.

In developing the Mining Lease Proposal, Centrex and their consultants have undertaken environmental investigations for the proposed Wilgerup Mine project to identify and address potential environmental impacts associated with mine development, operations and closure. As part of the mining approval process the State Government may require Centrex to implement additional management measures as well as those currently proposed. Centrex will also be required to prepare a Mining and Rehabilitation Plan based on the Mining Lease Proposal which will also be assessed by the State Government.

The mining process is explained overleaf in **Figure 1**.

Key environmental considerations for the mine development include:

- Vegetation clearance
- Fauna impacts
- Noise and vibration impacts from mine activities
- Air quality
- Groundwater and water supply
- Surface water

### Vegetation Clearance

The majority of the mine site area has previously been cleared of vegetation and used for farming. The remaining native vegetation is limited to a number of small highly degraded and isolated Mallee patches scattered over the proposed Mining Lease area.

No species or vegetation communities of conservation significance were found on the site, however numerous exotic species are present.

A limited number of Mallee patches would be cleared within the mine site but this is not expected to result in significant habitat loss. This is due to the poor quality of the remaining vegetation patches, with highly degraded understory and the fact that they are isolated from any areas of significant vegetation that would provide good habitat value.

Centrex shall provide an environmental offset for any vegetation cleared.

### What is an environmental offset?

Under SA's *Native Vegetation Act 1991*, an application for clearance of native vegetation needs to include details of how the applicant would 'offset' the loss of vegetation to provide an equal environmental benefit to the region. This environmental benefit can be in many different forms including maintenance or restoration of existing native vegetation, revegetation, or a financial contribution to an environmental fund. The purpose of the offset is to provide an overall improvement to the environmental and biodiversity value of the area.

### Fauna Impacts

An environmental assessment of the proposed Mining Lease area found that the general area provided low to no habitat value for fauna due to historic clearance and grazing of the area.

Given the low habitat values present at the site, impacts to fauna resulting from minor vegetation clearance are likely to be minimal. Some common bird species utilise the vegetation patches and would be impacted by any habitat loss. However the birds are expected to adapt to the changes from the mine development as the vegetation clearance proposed is only a minor percentage of the vegetation remaining at the site and numerous other Mallee patches exist in the broader area.



Typical view of proposed Wilgerup Iron Ore Mine site.

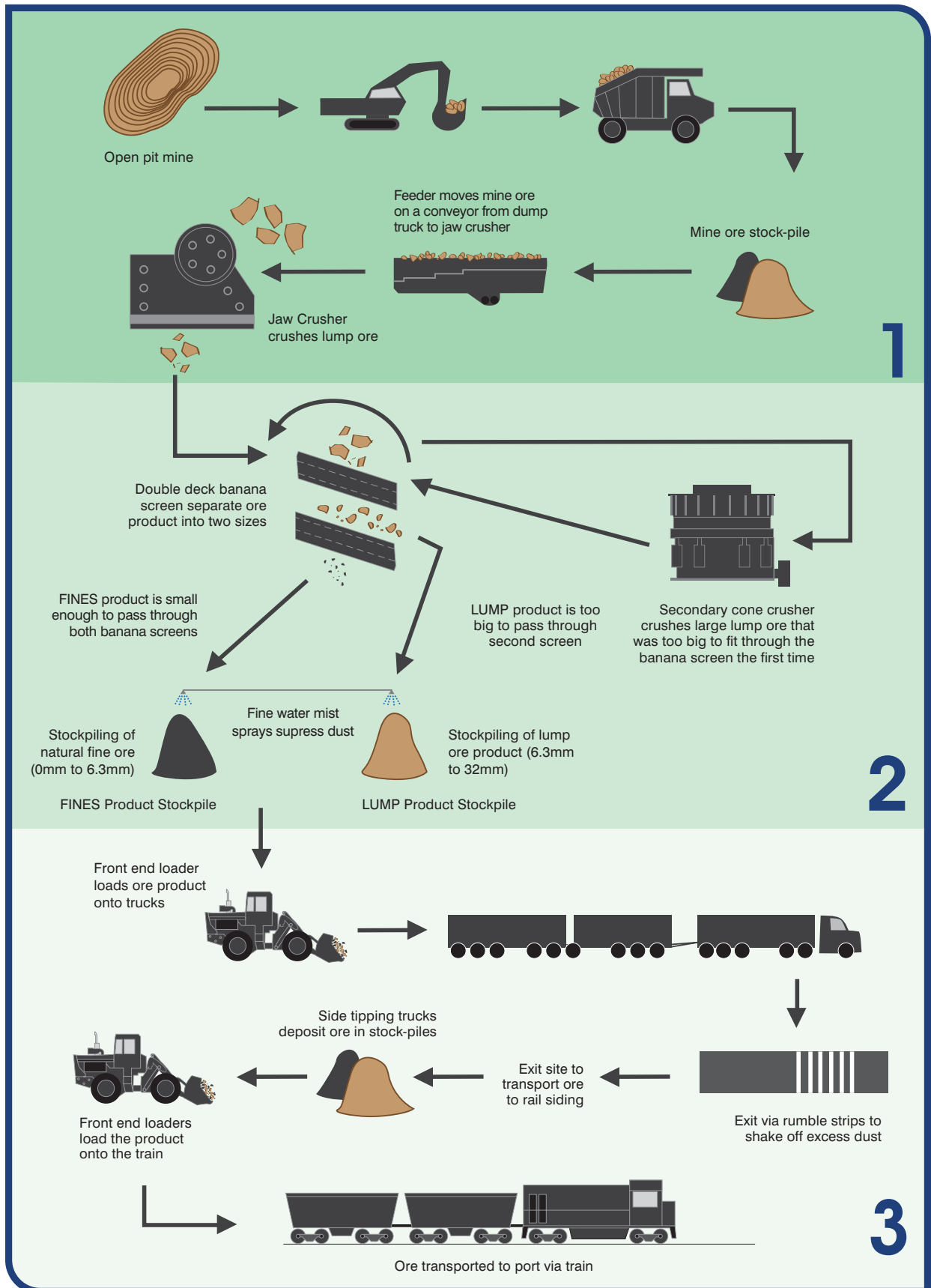


Figure 1: Proposed Wilgerup Iron Ore Mine Operations Process



## Noise impacts

Potential sporadic noise sources at the proposed Wilgerup mine include drilling and blasting activities, iron ore trucks, loading excavators and the ore crushing plant. Some of the activities such as excavation works would operate 24 hours a day throughout the expected six to seven year life of the mine.

Centrex aims to minimise noise impacts through a number of innovative and proven methods. These would include methods such as:

- engineering solutions, such as pit and machinery design;
- vegetated noise attenuation mounds;
- transport practices such as limiting exhaust braking; and
- adjustment to operational times.

Noise impacts from blasting activities would be unavoidable in the vicinity of the mine site. In order to minimise these impacts, Centrex has committed to limiting blasting activities to once a day, and only during daylight hours. Disturbance from blasting activities would not exceed 10 seconds in duration.

For more information about noise, refer to Fact Sheet 5 - Noise.

## Air quality

The main air quality impact for the mine operation is dust. Initial dust and air quality investigations have revealed that there would be limited effects of dust outside of the Wilgerup mine site locality.

Some of the key dust mitigation measures planned at the proposed mine site to minimise air quality impacts include water spraying the mine haul roads and progressive rehabilitation and revegetation of the waste rock dumps and noise attenuation mounds. Road rumble strips would be installed to ensure that any dust on the outside of the trucks is shaken off prior to exiting the mine site.

For more information about dust, refer to Fact Sheet 4 - Iron Ore Dust and You.

## Groundwater and water supply

The mine operations would require both a potable and non-potable water supply. The primary operation requiring non-potable water is dust suppression. Operations that require potable water include domestic (drinking, showering, etc.), dust suppression sprays on the crushing and screening plant and equipment wash down facilities. Centrex's assessment of water requirements at the mine site has determined that approximately 1.4 ML/day would be required. The majority of this will be saline groundwater.

During initial consultation with the local community, water supply was raised as one of the key issues to be addressed in developing the project. Since this time, initial field investigations and a supplementary desktop study have been undertaken to better understand the groundwater conditions and to develop an approach to water supply and mine dewatering.

Centrex proposes to use the following water sources at Wilgerup:

- Local groundwater would be used as the main water source. This would be sourced from the mine dewatering process. Mine dewatering at Wilgerup would involve pumping from bores to limit the ingress of water to the open pit to ensure wall stability. The water would be stored, prior to use, in a lined storage pond on site.
- Where potable water is required, the groundwater would be treated on site via a reverse osmosis plant. Rainwater would be captured and used where possible.
- The mains network in the project area has a limited supply capacity. The existing water services would be used solely in their existing capacity (eg: water use would be capped at historic levels) and would not be extended, so as not to impact the local community water supply.

Initially, groundwater would be sourced from mine dewatering operations. A preliminary groundwater field investigation indicated the dewatering well-field should supply sufficient saline groundwater over the six year mine life. Further groundwater monitoring investigations would continue once mining operations commenced.

Based on uncertainties relating to the long term yield of the proposed dewatering supply, Centrex is developing the following supplementary and back-up supply options:

- Supplementary supply option: Boosting production from the local aquifer by locating a well-field in the region to the south of the proposed mine site, where exploration drilling has identified a groundwater resource.
- Back-up supply option: Develop a supplementary well-field, extracting saline groundwater from the Poldas Basin located 5 to 10 km to the north of the project area. This option would only be implemented if the mine dewatering and supplementary supply options are insufficient for the mine operations.

These supplementary and back-up supply options would only be used if necessary and once the required approvals were obtained.

Removal of groundwater from the mine pit as a result of dewatering has the potential to affect local and regional groundwater conditions however a qualitative assessment has found that the risk of impacts to these groundwater systems from the Wilgerup operations is highly unlikely. To address the small degree of uncertainty, Centrex has developed and would implement a groundwater management plan. Ongoing monitoring of regional groundwater levels would provide an 'early warning' system and provide progressive information on any unexpected regional groundwater impacts and the need for, and feasibility of control measures.



## Surface Water

Assessment of the regional contour plans of the mine site area and surrounding region identify that the proposed mine site is not within a defined surface water flowpath. This reduces the likelihood of any off site surface water impacts.

Management measures such as diversion banks and channels would be in place to control surface water runoff and minimise impacts on localised water flow passages. Erosion and sediment control structures would be placed near exposed areas such as the waste rock dump and roads to reduce impacts on water quality. These measures would be monitored on an ongoing basis to make sure they are working effectively.

## Mine Site Rehabilitation

Once mining activities have finished, the mine site would be rehabilitated in accordance with a Mining and Rehabilitation Plan approved by the State Government. This would include:

- A mound constructed around the mining pit void and revegetated to prevent public access.
- The top soil and sub-soil layers of the disturbed area would be separately removed and stockpiled so they can be placed back onto the disturbed areas at the end of mine life.
- Progressive rehabilitation and revegetation of disturbed areas including the waste rock dump as mining operations progress.
- Mine infrastructure, including crushing plant, internal access roads, dewatering pumping infrastructure and sheds would be removed from site.
- Continuous monitoring to demonstrate that the closure and rehabilitation objectives have been met. This monitoring would be implemented following the mine closure.

## Frequently Asked Questions

- Q:** Once you are finished with the mine, what sort of water would be in the mine?
- A:** *The water would be extremely saline, but the site would meet all the requirements of the relevant standards and legislation.*
- Q:** What would be the depth of water in the mine pit after mining has finished?
- A:** *The water surface would be 25-30m below the current ground level and the pit would be approximately 130m deep.*
- Q:** What would be the impact of dust on the vegetation?
- A:** *All the roads used off site would be sand sealed bitumen or blue metal finished roads, whereby dust would not be an issue. For further information on dust, please see Fact Sheet 4- Iron Ore Dust and You.*
- Q:** What happens with the top soil that is removed from the top of the mine site? How is this protected from erosion?
- A:** *This valuable soil would be protected through revegetation. The vegetation would add value/nutrients to the quality of the soil when it is later used for landscaping the escarpment and waste rock dump (a sculptured, vegetated hill in the long term).*

Centrex has also published fact sheets on the following topics:

- Fact Sheet 1 – Project Overview
- Fact Sheet 3 - Port Lincoln Wharf
- Fact Sheet 4 - Iron Ore Dust and You
- Fact Sheet 5 - Noise

For more information or to have your say contact:

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