
Relocation of Acacia and Port Rex Gas Turbines to Ankerlig Power Station

Air Quality Impact Assessment – Summary Report

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1. Impact Assessment and Recommendations

1.1 Air Pollution Impact Rating

Based on the impact ranking described in the impact assessment methodology, the resulting rating and significant points for the Acacia and Port Rex relocations are as follows:

Table 0-1. Construction: Air Pollution Impact Assessment Ranking and Environmental Significance

Nature: Increase of air pollution levels and dust deposition around the power station construction area.		
	Without mitigation	With mitigation
Extent	Local (2)	Local (2)
Duration	Short-term (2)	Short-term (2)
Magnitude	Low (4)	Minor (2)
Probability	Probable (3)	Improbable (2)
Significance	Low (24)	Low (12)
Status (positive or negative)	Negative	Negative
Reversibility	Reversible	Reversible
Irreplaceable loss of resources?	No loss	No loss
Can impacts be mitigated?	Yes	Yes
Mitigation: Application of water suppression. Speed reduction to below 20 km/hr within and around the site. Paving of internal roads as soon as possible.		
Cumulative impacts: Cumulative impacts due to the existing Ankerlig power station units, industrial sources in the adjacent Atlantis Industrial area and vehicular traffic in the area.		
Residual Impacts: No residual impact after the activity ceases.		

Table 0-2. Acacia and Port Rex Relocation Cumulative Air Pollution Impact Assessment Ranking and Environmental Significance

Nature: Increase of the air pollution levels around the power station site.		
	Without Mitigation	With Mitigation
Extent	Local (2)	Local (2)
Duration	Long-term (4)	Long-term (4)
Magnitude	High impact (10)	Moderate (6)
Probability	Highly probable (4)	Highly Probable (4)
Significance	High (64)	Moderate (36)
Status (positive or negative)	Negative	Negative

Reversibility	Reversible	Reversible
Irreplaceable loss of resources?	No irreplaceable loss	No irreplaceable loss
Can impacts be mitigated?	Yes	Yes
Mitigation: The relocated units to utilise the better quality diesel, similar to the one used by the existing Ankerlig units.		
Cumulative impacts: Cumulative impacts due to emissions from existing Ankerlig Power Station units, industrial air pollution sources in the adjacent Atlantis Industrial area and vehicular traffic in the area.		
Residual Impacts: No residual impact after the activity ceases.		

1.2 Conclusions

Based on the air quality modelling results, the following can be concluded:

- During the relocation construction operations of the Acacia and Port Rex units, the impact is considered to be *Low*.
- For the operational phase, if the relocated units utilise the same type of diesel as they currently use, the resulting cumulative impacts will be of *High* significance. The number of the NO₂ 200 µg/m³ hourly guideline exceedances increased to above 15 instances. The annual guideline for this pollutant, however, was not exceeded at any of the sensitive receptors.
- The utilisation of the same cleaner diesel as the one used by the Ankerlig units, will result in cumulative impacts of *Moderate* significance. The number of the NO₂ hourly guideline exceedances reduced to below 10 per year.
- The other pollutants examined, i.e. sulphur dioxide, PM₁₀ and VOCs were well within their respective guidelines for all sensitive receptor locations.

1.3 Recommendations

During construction the following is recommended:

Emission Source	Recommended Control Methods
Material handling	Wet suppression ^a Wind speed reduction screens ^b
Truck transport	Early paving of permanent access roads ^a Speed limit implementation (app. 20 km/hr) ^a Covering of all trucks transporting materials ^a Cleaning of trucks on exit ^a Traffic over exposed areas be kept to a minimum and temporary roads be chemically stabilised via chlorides, asphalt emulsions or petroleum resins ^b
General construction and stock piles	Wet suppression ^a Minimise drop heights ^a

^a Essential

^b Optional

For the operational phase of the relocated Acacia and Port Rex units, the following is recommended:

- Utilise the better quality diesel currently used by the Ankerlig units.
- Install in-stack monitoring equipment for NO₂.

1.4 Air Pollution Management Measures

OBJECTIVE: The objective is to maintain the air quality levels around the power station site within guideline levels and minimise the impact on residential areas and communities.

Project Component/s	<p>The components affecting the air pollution impact are the construction activities during the construction phase, and during the operational phase the emissions from the Acacia and Port Rex relocated units.</p> <p>The existing Ankerlig OCGTs are also affecting the ambient air quality in the area.</p>
Potential Impact	Increased air pollution levels in the surrounding areas and affected communities.
Activity/Risk Source	<p>The activities and equipment which could impact on achieving the objective are:</p> <ul style="list-style-type: none">• Construction activities, i.e. excavating, loading and unloading of trucks, piling, material transport, general building activities, etc.• During the operational phase, exhaust emissions from the relocated power station units.
Mitigation: Target/Objective	<p>The measures required during the construction period are:</p> <ul style="list-style-type: none">• Wet suppression of access roads, stock piles and general construction areas.• Paving of permanent access roads.• Covering of transport trucks and cleaning them at the site exit. <p>The measure required for the operational phase of the relocated units:</p> <ul style="list-style-type: none">• Utilise better quality diesel.

Mitigation: Action/Control	Responsibility	Timeframe
Construction Phase		
Wet suppression on and off site	Site engineer/ mine employees	Throughout the construction lifespan
Early paving of permanent access roads	Site engineer	Throughout the construction lifespan
Covering of transport trucks and cleaning them on exit.	Site engineer/ mine employees	Throughout the construction lifespan
Operational Phase		
Utilise the same cleaner diesel as for the Ankerlig units	ESKOM	Throughout the operational lifespan
Proper maintenance of equipment	Site engineer/ qualified power station employees	Throughout the operational lifespan
In-stack monitoring of emissions	Systems Engineer	Throughout the operational lifespan
Monitoring of nitrogen oxides at local communities	ESKOM / local authorities	Throughout the operational lifespan

Performance Indicator	Compliance with the South African ambient NO ₂ air quality standards.
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