



Integrated Risk Management

<p>Final Risk Assessment Report: Eskom Holdings Generation: Proposed installation of an additional 500m³ bulk storage fuel oil tank at Grootvlei Power Station</p>	<p>13 February 2012</p>
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FOR PUBLIC PARTICIPATION

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1. INTRODUCTION

Eskom Holdings Generation are planning the installation of a 500m³ bulk storage fuel oil tank at the Grootvlei Power Station that will increase the total storage capacity of the fuel oil from 560 m³ to 1060 m³.

In order to comply with the Eskom risk management standards and guidelines, it has been agreed to subject the current project scope to a risk identification and assessment process, in order to identify current risks, their causes, potential impacts and their treatment options.

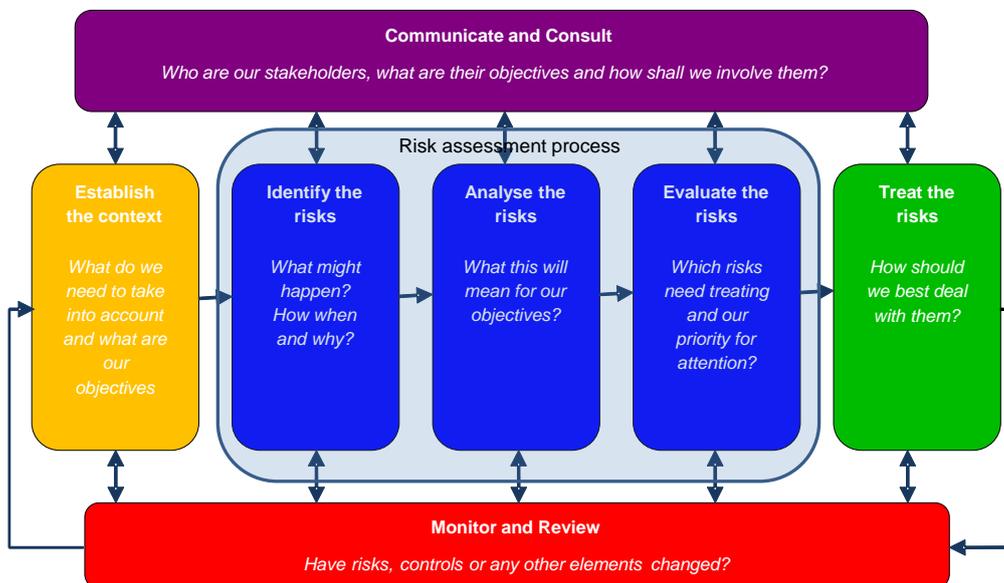
The Eskom IRM process comprises identifying and analysing risks that could potentially have an impact on the project achieving its objectives and ultimately Eskom's objectives. Sivest engaged Mondial Consultants (Pty) Ltd, a professional risk management consultancy, to facilitate the aforesaid risk assessment process, which was held on 1st December 2011 at the Grootvlei Power Station.

The workshop was attended by members of the Sivest and Eskom project teams, as well as staff members representing the Grootvlei Power Station risk function.

An overview of the risk assessment methodology that was followed as well as the outcomes of the process is recorded in the paragraphs below.

2. RISK ASSESSMENT PROCESS

The process followed during the workshop is based on the Eskom Group IRM Risk Framework¹ and ISO 31000:2009 as graphically represented in the diagram hereunder:



After a discussion on the basics of IRM the participants were provided with the opportunity to:

- Set the context by:
 - Confirming the objectives of the project and their alignment to Grootvlei Power Station and ultimately Eskom's objectives (**Appendix 1**);
 - Identifying key stakeholders (external and internal) (**Appendix 2**);

¹ Integrated Risk Management Framework and Standards:32-391Revision 5

- Identifying external and internal factors that could have an effect on Grootvlei Power Station achieving its project objectives (**Appendix 3**); and
- Identifying the key elements of the project (**Appendix 4**).
- Identifying significant risk exposures (uncertainties) that they believe Grootvlei Power Station are exposed to in light of the key elements identified;
- Listing the high level controls presently employed to manage these risk issues;
- Assigning ratings based on the Eskom risk control effectiveness guide, consequence and likelihood criteria; and
- Identifying those individuals who are responsible for the specific risks and controls as identified.

3. RESULTS AND CONCLUSIONS

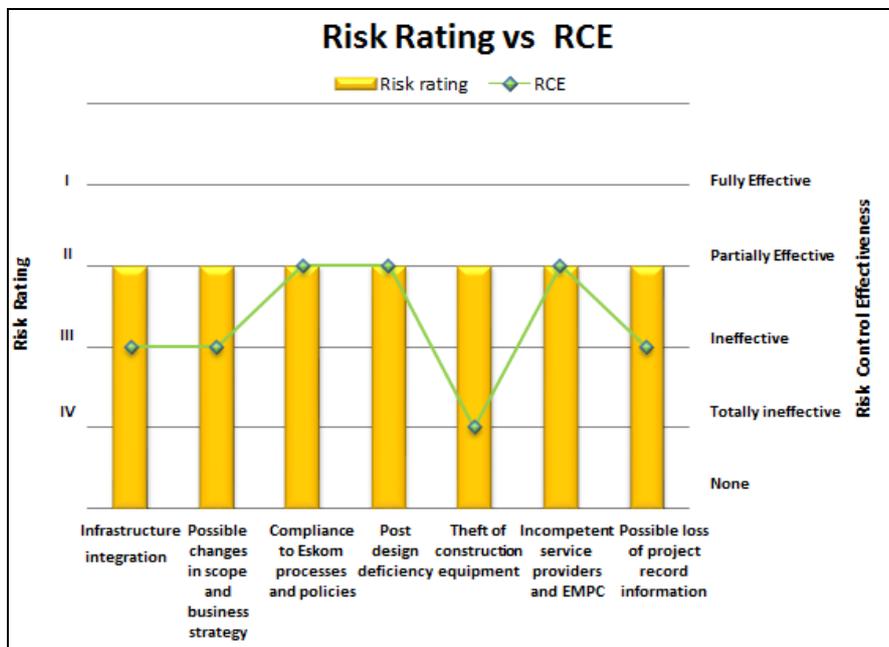
The uncertainties identified comprised a good spread of risks covering both internally and externally focused risks. We are also comfortable that the risks identified represent all currently (at the time of the assessment) known uncertainties that could affect Grootvlei Power Station achieving its project objectives.

The risk assessment process identified a total of 27 project level risks that could have a material impact on the project objectives, taking into account all aspects of the proposed development. Of the risks identified and documented, the following issues are ranked as the most significant risks to the project (in no particular priority):

Ref.	Risk	Description and Treatment
1	Infrastructure integration	<p>Description: Between the decommissioning and the subsequent decision to re-commission the Grootvlei Power Station there have been significant technological advancements in the infrastructure used to generate electricity.</p> <p>Treatment: Eskom has commissioned a complete upgrade of the infrastructure of the Grootvlei Power Station which is currently underway.</p>
2	Delays in the project due to possible changes in scope and business strategy	<p>Description: Possible changes in business strategy could lead to delays in the project.</p> <p>Treatment: Grootvlei Power Station has dedicated specialist in the field as well as continuous squad checks to enable it to proactively monitor any changes to the project scope.</p>
3	Compliance to Eskom processes and policies	<p>Description: The compliance to Eskom’s processes and policies in terms of vendor registration, non responsive tenders and late advertisement of tenders could lead to possible delays in the project.</p> <p>Treatment: Eskom utilise a centralised and well established procurement process, they hold site clarification meetings before any tenders are submitted and have frequent internal and external audits performed on the Eskom procurement process.</p>
4	Post Design deficiency	<p>Description: Given the nature of the project the design and subsequent construction of the proposed tank is critical to the successful implementation of the project, any deviations from the design or mis-</p>

Ref.	Risk	Description and Treatment
		<p>interpretation of the design information could lead to a project delay.</p> <p>Treatment:</p> <p>Grootvlei Power Station has the following controls in place to treat the causes of the risk:</p> <ul style="list-style-type: none"> • dedicated specialist in the field; • quality checks; • professional liability insurance; • compliance with South African National Standards (SANS) standards; and • manufacturer (Original Equipment Manufacturer) guarantees from prospective suppliers.
5	Theft of construction equipment	<p>Description:</p> <p>Theft of equipment caused by the nature of the product and the equipment used in the installation of the fuel tank could lead to a delay in the project.</p> <p>Treatment:</p> <p>The controls in place include:</p> <ul style="list-style-type: none"> • CCTV cameras located on site; • strict access control into and out of Grootvlei Power Station; • asset management; and • station perimeter control monitoring.
6	Incompetent service providers and EMPC	<p>Description:</p> <p>The insufficient experience of suppliers on work of this nature as well as incorrect technical evaluations could lead to the poor quality of work performed, delays in project execution and a potential legal dispute between Eskom and the supplier.</p> <p>Treatment:</p> <p>The controls in place to treat the impacts are:</p> <ul style="list-style-type: none"> • technical specification meetings between Eskom and the supplier; • quality assurance activities; • continuous monitoring during execution; and • sign off of all scope of work prior to execution.
7	Possible loss of project record information	<p>Description:</p> <p>The loss of project information caused by human error, fire or deliberate attack.</p> <p>Treatment:</p> <p>The controls in place to treat the causes associated with this risk range from a documentation centre for the safe storage of information to audits and a fire management system.</p>

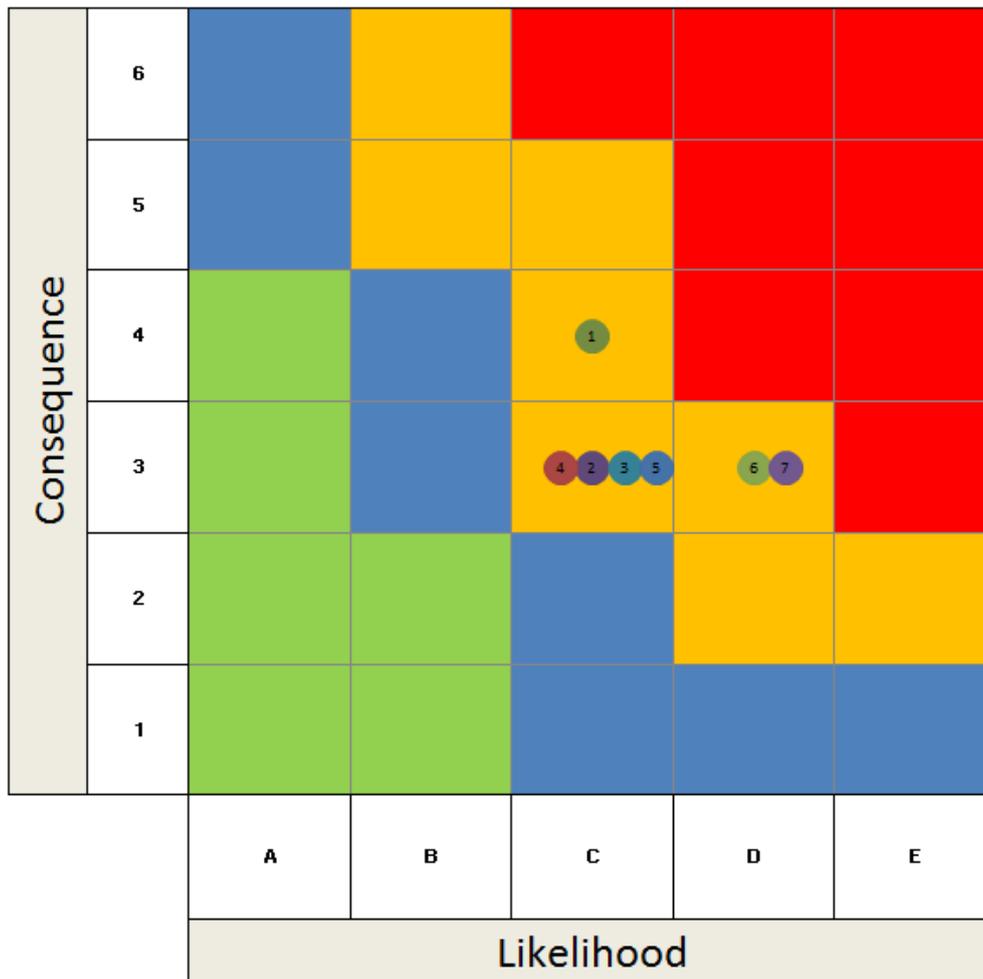
The following graph indicates the level of the various residual risks in relation to the respective control effectiveness ratings.



Notes on the graph above:

- Risks reflected relate to those noted above.
- Risk rating, risk control effectiveness descriptors and colours of risks are as per the Eskom Risk Management Framework.

The following matrix indicates the level of the various residual risks in relation to one another as plotted on the Eskom risk matrix.



Notes on the graph above:

- Risk numbers reflected relate to those noted above.
- Consequences, likelihood descriptors and colours of risks are as per the Eskom Risk Management Framework.

4. WAY FORWARD

In our view a comprehensive risk assessment has been completed for the proposed installation of an additional 500m³ bulk storage fuel oil tank at Grootvlei Power Station as per the Eskom Group IRM standards and procedures. No major risks have been identified that would have a significant impact on Eskom achieving its project objectives.

However, it is necessary that Management give due consideration to:

- Drawing up and implementing a formal risk treatment plan for all identified risks.
- Regularly maintaining the current risk register in line with the Eskom IRM standards and guidelines. This should be done monthly and through the steering committees structures.

5. ACKNOWLEDGEMENTS, DISCLAIMER AND RESTRICTION ON DISTRIBUTION OF THIS DOCUMENT

Acknowledgements

We would like to thank the Sivist project team, Eskom project team and all workshop participants for their cooperation and participation in the workshop and involving Mondial in the process.

Disclaimer

It is important to note that risk management is the responsibility of Eskom line management. Mondial's responsibilities are limited to the facilitation of the risk assessments (ranking of the identified risks).

Restriction on distribution of this document

This document has been prepared for the sole and exclusive use of Sivist and Eskom Generation and may not be made available to anyone other than authorised persons within Sivist or Eskom Generation, nor relied upon by any third party without the prior written consent of Mondial Consultants (Pty) Ltd.

APPENDIX 1: OBJECTIVES

Project Objectives:

- Proposed installation, operation and maintenance of an additional 500m³ fuel tank;
- Approval from environmental affairs (legal compliance/legislation requirements);
- To safe guard supply;
- For light up and stabilisation of the power station;
- Compatibility of proposed fuel tank with existing infrastructure;
- Compliance with Eskom SHEQ policies - installation in a safe way.

Grootvlei Power Station Objectives:

- Clean Plant;
- Plant Performance and Management Performance;
- SHE Performance;
- Maintenance Practices and Performance;
- Operating Practices and Performance;
- Engineering Best Practices and Performance.

Eskom Holdings Strategic Imperatives:

- Becoming a high performance organisation;
- Leading and partnering to keep the lights on;
- Reducing our environmental footprint and pursuing low-carbon growth opportunities;
- Securing our future resource requirements, mandate and the required enabling environment;
- Ensuring our financial sustainability;
- Setting ourselves up for success;
- Implementing coal haulage and the road to rail migration plan; and
- Pursuing private sector participation.

APPENDIX 2: STAKEHOLDERS

a. External stakeholders

External Stakeholders as brainstormed by the participants of the workshop
<ul style="list-style-type: none">• National Government (DEA, DWA, DAFF, Energy)• Provincial Government (District, Labour, environment, agriculture, roads)• Local authority (local municipality)• Local community including land owners, schools• Environmental NGOs - fauna and flora organisations• Suppliers (Sasol, manufacturing, OEM)• Customers (Operations)• Activist groups

b. Internal stakeholders

Internal Stakeholders as brainstormed by the participants of the workshop
<ul style="list-style-type: none">• Grootvlei Power Station management and staff• Eskom management and staff• Project team (Sivest, Mondial, Environmental sub consultants)• Eskom Holdings

APPENDIX 3: EXTERNAL AND INTERNAL FACTORS

a. External factors

External factors that could have an effect on the achievement of the Eskom objectives as brainstormed by the participants of the workshop
<ul style="list-style-type: none">• Local by laws in draft• Availability of labour• Weather conditions• COP17 (clean energy)• Local community (farmers) opposition• Public relations• Community expansion• Government approval

b. Internal factors

Internal factors that could have an effect on the achievement of the Eskom objectives as brainstormed by the participants of the workshop
<ul style="list-style-type: none">• Life of power station• Existing infrastructure• Experience of skills• Procurement and SAP management system• Cost cutting (technical plan)• Multiple parties involved in project• Interface between supplier head off and power station

APPENDIX 4: KEY ELEMENTS

Key elements based on function as brainstormed by the participants of the workshop
<ul style="list-style-type: none">• Environment• Engineering• Safety, Health, Environment and Quality (SHEQ)• Projects• Community/Social (IBI integrated business improvement)• Procurement• Communication• Security