



## environmental affairs

Department:  
Environmental Affairs  
**REPUBLIC OF SOUTH AFRICA**

Private Bag X 447 · PRETORIA · 0001 · Environment House · 473 Steve Biko Road, Arcadia, · PRETORIA  
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**NEAS Reference:** DEA/EIA/0001492/2012

**DEA Reference:** 14/12/16/3/3/3/61

**Enquiries:** Masina Litsokane

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Mr Mark van der Riet  
Eskom Holdings SOC Ltd  
Private Bag X40175  
**CLEVELAND**  
2022

Fax No: 011-629-5542

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E-Mail: [Mark.vdRiet@eskom.co.za](mailto:Mark.vdRiet@eskom.co.za)

### PER FACSIMILE / MAIL

Dear Mr van der Riet

**APPLICATION FOR INTEGRATED ENVIRONMENTAL AUTHORISATION IN TERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998: GN R. 543 AND NATIONAL ENVIRONMENTAL MANAGEMENT: WASTE ACT, 2008 GOVERNMENT NOTICE 921: UNDERGROUND COAL GASIFICATION PROJECT AND ASSOCIATED INFRASTRUCTURE AT THE MAJUBA POWER STATION MPUMALANGA PROVINCE**

With reference to the above application, please be advised that the Department has decided to grant authorisation. The environmental authorisation (EA) and reasons for the decision are attached herewith.

In terms of regulation 10(2) of the Environmental Impact Assessment Regulations, 2010 (the Regulations), you are instructed to notify all registered interested and affected parties, in writing and within 12 (twelve) days of the date of the EA, of the Department's decision in respect of your application as well as the provisions regarding the submission of appeals that are contained in the Regulations.

Your attention is drawn to Chapter 7 of the Regulations, which prescribes the appeal procedure to be followed. This procedure is summarised in the attached document. Kindly include a copy of this document with the letter of notification to interested and affected parties.

Should the applicant or any other party wish to appeal any aspect of the decision a notice of intention to appeal must be lodged by all prospective appellants with the Minister, within 20 days of the date of the EA, by means of one of the following methods:

By post: Private Bag X447,

By hand: Pretoria, 0001; or  
Environment House  
473 Steve Biko,  
Arcadia,  
Pretoria, 0083

If the applicant wishes to lodge an appeal, it must also serve a copy of the notice of intention to appeal on all registered interested and affected parties as well as a notice indicating where, and for what period, the appeal submission will be available for inspection, should you intend to submit an appeal.

**Appeals must be submitted in writing to:**

Mr Z Hassam Director: Appeals and Legal Review, of this Department at the above mentioned addresses or fax number. Mr Hassam can also be contacted at:

Tel: (012) 399 9356

Email: [AppealsDirectorate@environment.gov.za](mailto:AppealsDirectorate@environment.gov.za)

The authorised activities shall not commence within twenty (20) days of the date of signature of the authorisation. Further, please note that in terms of section 43(7) of the National Environmental Management Act, 1998, an appeal under section 43 of that Act will suspend the environmental authorisation or any provision or condition attached thereto. In the instance where an appeal is lodged, you may not commence with the activity until such time that the appeal is finalised.

Yours faithfully

  
Mr Sabelo Malaza

Chief Director: Integrated Environmental Authorisations  
Department of Environmental Affairs

Date: 24/08/2015

CC: Mr M Roods	Royal HaskoningDHV <a href="mailto:malcolm.roods@rhdhv.com">malcolm.roods@rhdhv.com</a>	Tel: 011 798 6442	Fax: 011 798 6010
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**APPEALS PROCEDURE IN TERMS OF CHAPTER 7 OF THE NEMA EIA REGULATIONS, 2010 (THE REGULATIONS) AS PER GN R. 543 OF 2010 TO BE FOLLOWED BY THE APPLICANT AND INTERESTED AND AFFECTED PARTIES UPON RECEIPT OF NOTIFICATION OF AN ENVIRONMENTAL AUTHORISATION (EA)**

APPLICANT	INTERESTED AND AFFECTED PARTIES (IAPs)
1. Receive EA from the relevant Competent Authority (the Department of Environmental Affairs [DEA]).	1. Receive EA from Applicant/Consultant.
2. Within 12 days of date of the EA notify all IAPs of the EA and draw their attention to their right to appeal against the EA in terms of Chapter 7 of the Regulations.	2. N/A.
3. If you want to appeal against the EA, submit a notice of intention to appeal within 20 days of the date of the EA with the Minister of Environmental Affairs (the Minister).	3. If you want to appeal against the EA, submit a notice of intention to appeal within 20 days of the date of the EA. with the Minister of Environmental Affairs (the Minister).
4. After having submitted your notice of intention to appeal to the Minister, provide each registered IAP with a copy of the notice of intention to appeal within 10 days of lodging the notice.	4. After having submitted your notice of intention to appeal to the Minister, provide the applicant with a copy of the notice of intention to appeal within 10 days of lodging the notice.
5. The Applicant must also serve on each IAP: <ul style="list-style-type: none"> <li>• a notice indicating where and for what period the appeal submission will be available for inspection.</li> </ul>	5. Appellant must also serve on the Applicant within 10 days of lodging the notice, <ul style="list-style-type: none"> <li>• a notice indicating where and for what period the appeal submission will be available for inspection by the applicant.</li> </ul>
6. The appeal must be submitted in writing to the Minister within 30 days after the lapsing of the period of 20 days provided for the lodging of the notice of intention to appeal.	6. The appeal must be submitted to the Minister within 30 days after the lapsing of the period of 20 days provided for the lodging of the notice of intention to appeal.
7. Any IAP who received a notice of intention to appeal may submit a responding statement to that appeal to the Minister within 30 days from the date that the appeal submission was lodged with the Minister.	7. An Applicant who received notice of intention to may submit a responding statement to the appeal to the Minister within 30 days from the date that the appeal submission was lodged with the Minister.

**NOTES:**

1. **An appeal must be:-**
  - a) submitted in writing;
  - b) accompanied by:
    - a statement setting out the grounds of appeal;
    - supporting documentation which is referred to in the appeal; and
    - a statement that the appellant has complied with regulation 62 (2) or (3) together with copies of the notices referred to in regulation 62.

Integrated Environmental Authorisation Issued in terms of

The National Environmental Management Act, 1998 and the Environmental Impact Assessment Regulations 2010

And

The National Environmental Management: Waste Act, 2008 and Government Notice 921 of 2013

Underground Coal Gasification (UCG) Pilot Project Phase 2 in support of co-firing of gas at the Majuba Power Station, Mpumalanga Province

Gert Sibande District Municipality

<b>Authorisation register number:</b>	14/12/16/3/3/61
<b>Last amended:</b>	First Issue
<b>Holder of integrated authorisation:</b>	Eskom Holdings SOC Ltd
<b>Location of activities:</b>	MPUMALANGA PROVINCE: On Portions 1, 2, 3 and remaining extent of the Farm Roodekopjes 67 HS; Portions 17 and 21 of the Farm Bergvliet 65 HS; Portions 4 and 5 of the Farm Rietfontein 66 HS near Amersfoort, within Pixley ka Seme Local Municipality

This authorisation does not negate the holder of the authorisation's responsibility to comply with any other statutory requirements that may be applicable to the undertaking of the activity.

## 1. DECISIONS

The Department is satisfied, on the basis of information available to it and subject to compliance with the conditions of this integrated environmental authorisation ("the environmental authorisation") that the applicant should be authorised to undertake the NEMA EIA and NEMWA listed activities specified below.

Details regarding the basis on which the Department reached this decision are set out in Annexure "1" to this environmental authorisation.

## 2. NEMA EIA AND NEMWA ACTIVITIES AUTHORISED

By virtue of the powers conferred on it by NEMA, the NEMA EIA Regulations, 2010, NEMWA and Government Notice 921 of November 2013 the Department hereby authorises –

### **ESKOM HOLDINGS SOC LTD**

with the following contact details –

Mr Mark van der Riet

Eskom Holdings SOC Ltd

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**CLEVELAND**

2022

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to undertake the following activities (hereafter referred to as "the activities"):

Listed activities	Activity/Project description
<p><u>GN R. 544 Item 11:</u> The construction of: (iii) bridges; (xi) infrastructure or structures covering 50 square metres or more Where such construction occurs within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse, excluding where such construction will occur behind the development setback line.</p>	<p>Should any infrastructure (roads, bridges, pipelines, etc) occurs within a watercourse, or within 32 m of a watercourse, this activity will be applicable.</p>
<p><u>GN R. 544 Item 12:</u> The construction of facilities or infrastructure for the off-stream storage of water, including dams and reservoirs, with a combined capacity of 50000 cubic metres or more, unless such storage falls within the ambit of activity 19 of Notice 545 of 2010;</p>	<p>The existing raw water dam is considered to be part of the baseline (i.e. a part of Pilot Plant Phase 1). Should additional raw water dams be required (possibly next to the existing raw water dam) to facilitate the process, this activity would be triggered.</p>
<p><u>GN R. 544 Item 18:</u> The infilling or depositing of any material of more than 5 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 5 cubic metres from: (i) a watercourse;</p>	<p>Should any infrastructure (roads, bridges, pipelines, etc) occurs within a watercourse, or within 32 m of a watercourse, this activity will be applicable.</p>
<p><u>GN R. 544 Item 20:</u> Any activity requiring a mining permit in terms of section 27 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) or renewal thereof.</p>	<p>Borrow pits might need to be established for construction and would have to be appropriately licensed.</p>

<p><u>GN R. 544 Item 22:</u> The construction of a road, outside urban areas, (i) with a reserve wider than 13,5 meters or, (ii) where no reserve exists where the road is wider than 8 metres, o</p>	<p>This is applicable to the new service road that will be constructed between the site offices on the farm Bergvliet 65 HS to the UCG Gas Treatment Plant site. In addition, internal secondary roads between the gasifier units must also be considered.</p>
<p><u>GN R. 544 Item 23:</u> The transformation of undeveloped, vacant or derelict land to – (ii) residential, retail, commercial, recreational, industrial or institutional use, outside an urban area and where the total area to be transformed is bigger than 1 hectare but less than 20 hectares; - except where such transformation takes place – (i) for linear activities; or (ii) For purposes of agriculture or afforestation, in which case Activity 16 of Notice No. R. 545 apply.</p>	<p>This activity is applicable to the new gasifier units that are scattered along the farm. Note that this activity excludes linear developments (i.e. roads, pipelines, etc.), of which it is assumed the 70,000 Nm<sup>3</sup>/hr gas specification would mostly comprise of. The applicability of other proposed development components, which are not linear in nature, will be confirmed during detailed engineering.</p>
<p><u>GN R. 544 Item 28:</u> The expansion of or changes to existing facilities for any process or activity where such expansion or changes to will result in the need for a permit or license in terms of national or provincial legislation governing the release of emissions or pollution, excluding where the facility, process or activity is included in the list of waste management activities published in terms of section 19 of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) in which case that Act will apply.</p>	<p>This activity is included considering the Section 21 Water Uses that will be applied for pertaining to existing infrastructure constructed under the prospecting right and which will also be expanded.</p>

<p><u>GN R. 544 Item 39:</u> The expansion of (iii) bridges; within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse, where such expansion will result in an increased development footprint but excluding where such expansion will occur behind the development setback line.</p>	<p>Expansion of watercourse crossing infrastructure including any additional pipe bridges and vehicle access bridges to service such pipe bridges.</p>
<p><u>GN R. 544 Item 40:</u> The expansion of (iv) infrastructure by more than 50 square metres within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse, but excluding where such expansion will occur behind the development setback line.</p>	<p>Expansion of any infrastructure including footings thereof (e.g. pipe bridges).</p>
<p><u>GN R. 544 Item 42:</u> The expansion of facilities for the storage, or storage and handling, of a dangerous good, where the capacity of such storage facility will be expanded by 80 cubic metres or more.</p>	<p>This pertains to the storage of any additional diesel, fuel, or other hazardous substances on the site increasing the amount by more than 80 m<sup>3</sup> in combined total.</p>
<p><u>GN R. 544 Item 47:</u> The widening of a road by more than 6 metres, or the lengthening of a road by more than 1 kilometre - (i) where the existing reserve is wider than 13,5 meters; or (ii) where no reserve exists, where the existing road is wider than 8 metres – excluding widening or lengthening occurring inside urban areas.</p>	<p>Expansion (length or width) of existing roads within the greater project site</p>



<p><u>GN R. 544 Item 48:</u> The expansion of facilities for the refining, extraction or processing of gas, oil or petroleum products where the installed capacity of the facility will be increased by 50 cubic metres or more per day, excluding facilities for the refining, extraction or processing of gas from landfill sites.</p>	<p>This activity pertains to expansion of facilities for the processing of gas, oil or petroleum products.</p>
<p><u>GN R. 544 Item 49:</u> The expansion of facilities or infrastructure for the bulk transportation of dangerous goods: (i) in gas form, outside an industrial complex, by an increased throughput capacity of 700 tons or more per day; (ii) in liquid form, outside an industrial complex or zone, by an increased throughput capacity of 50 cubic metres or more per day</p>	<p>This activity pertains to expansion of facilities or infrastructure for the bulk transportation of dangerous goods e.g. gas pipelines.</p>
<p><u>GN R. 544 Item 55B:</u> The expansion of facilities for the treatment of effluent, wastewater or sewage on undeveloped land where the capacity will be increased by 15 000 cubic metres or more per day.</p>	<p>Existing water treatment facilities and infrastructure (i.e. from the previously approved Pilot Plant Phase 1) may be expanded / upgraded to cater for the 70,000 Nm<sup>3</sup>/hr gas specification.</p>
<p><u>GN R. 544 Item 56:</u> The construction of facilities or infrastructure for the storage, or for the storage and handling, of a dangerous good, where such storage occurs in containers with a combined capacity of 80 but not exceeding 500 cubic metres</p>	<p>This activity pertains to phased activities for all activities associated with the UCG operations.</p>

<p><u>GN R. 545 Item 6:</u> The construction of facilities or infrastructure for the bulk transportation of dangerous goods - (i) in gas form, outside an industrial complex, using pipelines, exceeding 1000 metres in length, with a throughput capacity of more than 700 tons per day; (ii) in liquid form, outside an industrial complex, using pipelines, exceeding 1000 metres in length, with a throughput capacity more than 50 cubic metres per day</p>	<p>Syngas will be transported in pipelines to the main pipeline, which goes to the Majuba Power Station. Should these new "tie-in pipelines" be longer than 1 km in length with a throughput capacity of more than 70 tonnes per day, this activity will be triggered.</p>
<p><u>GN R. 545 Item 15:</u> Physical alteration of undeveloped, vacant or derelict land for residential, retail, commercial, recreational, industrial or institutional use where the total area to be transformed is 20 hectares or more;</p>	<p>This is applicable to the new gasifier units that are scattered around the Roodekopjes farm. Note that this activity excludes linear developments (i.e. roads, pipelines, etc.), of which it is assumed the 70,000 Nm<sup>3</sup>/hr gas specification would mostly be comprised of.</p>
<p><u>GN R. 545 Item 19:</u> The construction of a dam, where the highest part of the dam wall, as measured from the outside toe of the wall to the highest part of the wall, is 5 metres or higher or where the high-water mark of the dam covers an area of 10 hectares or more.</p>	<p>A new dam might be required as part of the 70000 Nm<sup>3</sup>/hr gas specification. In addition, brine storage might also be required but this will only be determined during detailed engineering.</p>
<p><u>GN R. 545 Item 20:</u> Any activity which requires a mining right or renewal thereof as contemplated in sections 22 and 24 respectively of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002).</p>	<p>Eskom is applying for a mining right.</p>
<p><u>GN R. 545 Item 22:</u> Any activity which requires a production right or renewal thereof as contemplated in sections 83 and 85 respectively of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002).</p>	<p>Once Eskom has been granted a mining right, they (Eskom) will be applying for a production right to start extraction.</p>

<p><u>GN R. 545 Item 27:</u> The construction of facilities for the treatment of effluent, wastewater or sewage with a daily throughput capacity of 15 000 cubic metres or more.</p> <p><u>GN R. 546 Item 4:</u> The construction of a road wider than 4 meters with a reserve less than 13.5 meters outside urban areas, in: <b>(a) In Mpumalanga:</b> ii. Outside urban areas, in: (cc) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;</p>	<p>At this stage it is not known how much water will be treated, but it is envisaged that the amount could be more than 15,000 m<sup>3</sup>.</p> <p>The trigger related to roads of wider than 4 m within sensitive areas is especially important given the proposed road linking the two (2) portions of the greater site which runs through a greenfield area and thus is expected to trigger this activity. The proposed new service road traverses irreplaceable CBAs as identified in the Mpumalanga Biodiversity Sector Plan (2013).</p>
<p><u>GN R. 546 Item 10:</u> The construction of a road wider than 4 meters with a reserve less than 13.5 meters outside urban areas, in: <b>(a) In Mpumalanga:</b> ii. Outside urban areas, in: (cc) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans</p>	<p>Applicable to the construction of facilities for the storage of hazardous substances including fuels, and most importantly, additional reagents from the gasification process.</p>
<p><u>GN R. 546 Item 12:</u> The clearance of an area of 300 square metres or more of vegetation where 75% or more of the vegetative cover constitutes indigenous vegetation. <b>(b) Within critical biodiversity areas identified in bioregional plans</b></p>	<p>Clearance of sensitive vegetation related to a CBA, especially for the new road could trigger the clearance of 300 m<sup>2</sup> footprint as a minimum.</p>

<p><u>GN R. 546 Item 13:</u> The clearance of an area of 1 hectare or more of vegetation where 75% or more of the vegetative cover constitutes indigenous vegetation <b>(a)</b> Critical biodiversity areas and ecological support areas as identified in systematic biodiversity plans adopted by the competent authority. <b>(c) In Mpumalanga:</b> ii. Outside urban areas, in: cc) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority;</p>	<p>Vegetation clearance of footprint(s) for the total site leading a clearance of more than 1 ha. This would be in terms of possible CBA areas and the new gasifier footprints, combined.</p>
<p><u>GN R. 546 Item 14:</u> The clearance of an area of 5 hectares or more of vegetation where 75% or more of the vegetative cover constitutes indigenous vegetation, <b>(a) In Mpumalanga:</b> i. All areas outside urban areas.</p>	<p>Vegetation clearance of footprint(s) for the total site leading a clearance of more than 5 ha. This would be in terms of CBA areas and the new gasifier footprints, combined.</p>

<p><u>GN R. 546 Item 16:</u> The construction of: (iv) infrastructure outside urban areas in sensitive areas covering 10 square meters or more where such construction occurs within a watercourse or within 32 meters of a watercourse, measured from the edge of a watercourse, excluding where such construction will occur behind the development setback: <b>(a) In Mpumalanga:</b> ii. Outside urban areas, in: (dd) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; (ff) Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans</p>	<p>Construction of any new watercourse crossings, or infrastructure within watercourses (including stormwater controls) and within the watercourses' buffer areas (e.g. new pipe bridge crossings, new access roads).</p>
<p><u>GN R. 546 Item 19:</u> The widening of a road by more than 4 meters or lengthening of a road by more than 1 kilometre, outside urban areas, <b>(a) In Mpumalanga:</b> ii. Outside urban areas, in: cc) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans (ii) Areas on the watercourse side of the development setback line or within 100 metres from the edge of a watercourse where no such setback line has been determined.</p>	<p>Widening of existing roads by 4 m or more, including access roads to the new gasifiers within greenfield areas and possibly within CBAs or otherwise sensitive vegetation.</p>

<p><u>GN R. 546 Item 23:</u></p> <p>The widening of a road by more than 4 meters or lengthening of a road by more than 1 kilometre, outside urban areas,</p> <p><b>(a) In Mpumalanga:</b></p> <p>ii. Outside urban areas, in:</p> <p>cc) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority;</p> <p>(ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans</p> <p>(ii) Areas on the watercourse side of the development setback line or within 100 metres from the edge of a watercourse where no such setback line has been determined</p>	<p>Expansion of the baseline level (as approved for the Pilot Plant Phase 1) of hazardous substances including fuels, and most importantly, additional reagents, plus any increase in the evaporation pond (also referred to as condensate or process water dam) size.</p>
<p><u>GN R. 546 Item 24:</u></p> <p>The expansion of:</p> <p>(d) infrastructure where the infrastructure will be expanded by 10 square meters or more where such construction occurs within a watercourse or within 32 meters of a watercourse, measured from the edge of a watercourse, excluding where such construction will occur behind the development setback line outside urban areas,</p> <p><b>(a) In Mpumalanga:</b></p> <p>ii. Outside urban areas, in</p> <p>(cc) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority;</p> <p>(ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans</p>	<p>Expansion within a watercourse or its buffer areas of any infrastructure including bridges.</p>

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<p><u>GN R. 546 Item 26:</u> Phased activities for all activities listed in this Schedule and as it applies to a specific geographical area, which commenced on or after the effective date of this Schedule, where any phase of the activity may be below a threshold but where a combination of the phases, including expansions or extensions, will exceed a specified threshold.</p>	<p>Related to phased developments placing the combined development over the lower thresholds. Due to the sheer scale of the project at hand, and its phasic nature, this activity applies.</p>
<p><u>GN R. 921 Category A Item 4</u> The recycling of hazardous waste in excess of 500kg but less than 1 ton per day calculated as a monthly average, excluding recycling that takes place as an integral part of an internal manufacturing process within the same premises.</p>	<p>Applicable to the recycling of condensate in the water treatment plant to produce water suitable for irrigation and reuse within the UCG plant and Majuba Power Station.</p>
<p><u>GN R. 921 Category A Item 7:</u> The treatment of hazardous waste using any form of treatment at a facility that has the capacity to process in excess of 500kg but less than 1 ton per day excluding the treatment of effluent, wastewater or sewage.</p>	<p>Should hazardous waste (i.e. condensate) on the site be treated for onwards sale, rather than simply being held for off-site disposal. The throughput will however need to be calculated to see what the maximum daily throughput possible is as the daily threshold may not be triggered. Note that this activity will be triggered if the condensate is deemed to be hazardous waste rather than effluent.</p>
<p><u>GN R. 921 Category A Item 13:</u> The expansion of a waste management activity listed in Category A or B of this Schedule which does not trigger an additional waste management activity in terms of this Schedule.</p>	<p>Expansion activities could potentially trigger this activity – that is increase from the baseline set by the rectification process. Note that this activity will be triggered if the condensate is deemed to be hazardous waste rather than effluent.</p>
<p><u>GN R. 921 Category B Item 1:</u> The storage of hazardous waste in lagoons excluding storage of effluent, wastewater or sewage.</p>	<p>Note that this activity will only trigger if the evaporation pond (also referred to as condensate or process water dam)</p>

	<p>is expanded (previously approved as part of Pilot Plant Phase 1) and if it is deemed to be hazardous waste rather than merely effluent. It is noted that the condensate dam as it stands was approved as part of the Pilot Plant Phase 1 approvals.</p>
<p><u>GN R. 921 Category B Item 2:</u> The reuse or recycling of hazardous waste in excess of 1 ton per day, excluding reuse or recycling that takes place as an integral part of an internal manufacturing process within the same premises.</p>	<p>Applicable to the recycling of condensate in the water treatment plant to produce water suitable for irrigation and reuse within the UCG plant and Majuba Power Station especially of the threshold for Activity 7 of Category A is exceeded.</p>
<p><u>GN R. 921 Category B Item 4:</u> The treatment of hazardous waste in excess of 1 ton per day calculated as a monthly average; using any form of treatment excluding the treatment of effluent, wastewater or sewage.</p>	<p>Treatment of condensate for irrigation and uses within the UCG site.</p>
<p><u>GN R. 921 Category B Item 5:</u> The treatment of hazardous waste in lagoons, excluding the treatment of effluent, wastewater or sewage.</p>	<p>The treatment of condensate in the evaporation pond, as well as the water treatment plant will trigger this activity.</p>
<p><u>GN R. 921 Category B Item 10:</u> The construction of a facility for a waste management activity listed in Category B of this Schedule (not in isolation to associated waste management activity).</p>	<p>Construction of a facility for waste management activities indicated above (Activity 1 and 5).</p>



as described in the Environmental Impact Assessment Report (EIR) dated October 2014 at:

GASIFIER	POSITION	COORDINATES
1	NW CORNER	29° 48' 5.04" E
	NE CORNER	29° 48' 35.21" E
	SE CORNER	29° 48' 33.59" E
	SW CORNER	29° 48' 3.43" E
2	NW CORNER	29° 47' 51.13" E
	NORTH	29° 47' 57.00" E
	NE CORNER	29° 48' 1.87" E
	SE CORNER	29° 48' 0.62" E
3	SOUTH	29° 47' 51.05" E
	SW CORNER	29° 47' 45.55" E
	NW CORNER	29° 48' 33.59" E
	NE CORNER	29° 48' 3.43" E
4	SE CORNER	29° 48' 19.18" E
	SW CORNER	29° 48' 0.62" E
	NW CORNER	29° 47' 28.68" E
	NE CORNER	29° 47' 34.46" E
5	EAST	29° 47' 34.56" E
	SE CORNER	29° 47' 36.86" E
	SOUTH	29° 47' 28.29" E
	SW CORNER	29° 47' 25.06" E
6	WEST	29° 47' 26.95" E
	NW CORNER	29° 46' 59.67" E
	NORTH	29° 47' 19.40" E
	SE CORNER	29° 47' 20.20" E
7	SOUTH	29° 47' 17.60" E
	SW CORNER	29° 47' 12.12" E
	NW CORNER	29° 46' 46.78" E
	NE CORNER	29° 47' 6.30" E
8	SE CORNER	29° 47' 19.40" E
	SW CORNER	29° 46' 59.67" E
	NW CORNER	29° 47' 6.30" E
	NE CORNER	29° 47' 45.69" E
9	SE CORNER	29° 47' 47.19" E
	SW CORNER	29° 47' 19.40" E
	NW CORNER	29° 48' 2.79" E
	NORTH	29° 48' 18.54" E
	NORTH	29° 48' 28.26" E
	NE CORNER	29° 48' 48.52" E
	SE CORNER	29° 48' 37.63" E
	SOUTH	29° 48' 16.73" E
	NW CORNER	29° 48' 43.54" E
	NORTH	29° 49' 1.64" E
	SE CORNER	29° 48' 49.44" E
	SW CORNER	29° 48' 35.41" E

	SW CORNER	29° 48' 32.63" E	27° 3' 5.99" S
New service Road	START	29° 47' 55.66" E	27° 4' 49.43" S
	MIDDLE	29° 49' 25.49" E	27° 4' 31.11" S
	END	29° 51' 0.49" E	27° 5' 7.54" S

for the Underground Coal Gasification (UCG) Pilot Project Phase 2 in support of co-firing of gas at the Majuba Power Station near Amersfoort within Pixley ka Seme Local Municipality in the Free State Province, hereafter referred to as "the property".

### 3. SCOPE OF AUTHORISATION

- 3.1 Authorisation is granted for the Underground Coal Gasification (UCG) within site co-ordinates as indicated above. Site Alternative 1 for gasfield compartments is hereby approved.
- 3.2 Authorisation of the activities is subject to the conditions contained in this authorisation, which form part of the environmental authorisation and are binding on the holder of the environmental authorisation.
- 3.3 The Department shall by written notice to the holder of an environmental authorisation suspend with immediate effect an environmental authorisation if suspension of the authorisation is necessary to prevent harm or further harm to the environment.
- 3.4 The activities must commence within a period of five (5) years from the date of issue. If commencement of the activity does not occur within that period, the environmental authorisation lapses and a new application for an environmental authorisation must be made for the activities to be undertaken. Commencement with one activity listed in terms of this authorisation constitutes commencement of all authorised activities.
- 3.5 The holder of the environmental authorisation shall be responsible for ensuring compliance with the conditions contained in this environmental authorisation. This includes any person acting on the holder's behalf, including but not limited to, an agent, servant, contractor, sub-contractor, employee, consultant or person rendering a service to the holder of the authorisation.
- 3.6 Any changes to, or deviations from, the project description set out in this authorisation must follow the amendment processes as prescribed in Chapter 4 (Parts 1-3) of the NEMA EIA Regulations, 2010 and be approved, in writing, by the Department before such changes or deviations may be effected. In assessing whether to grant such approval or not, the Department may request such information as it deems necessary to evaluate the significance and impacts of such changes or deviations and it may be necessary for the holder of the authorisation to apply for further authorisation in terms of the regulations.

#### 4. NOTIFICATION OF AUTHORISATION AND RIGHT TO APPEAL

- 4.1 The holder of the authorisation must notify every registered interested and affected party, in writing and within 12 (twelve) calendar days of the date of this environmental authorisation, of the decision to authorise the activity.
- 4.2 The notification referred to must –
- 4.2.1 specify the date on which the authorisation was issued;
  - 4.2.2 inform the interested and affected party of the appeal procedure provided for in Chapter 7 of the Environmental Impact Assessment (EIA) Regulations, 2010;
  - 4.2.3 advise the interested and affected party that a copy of the authorisation will be furnished on request; and
  - 4.2.4 give the reasons for the decision.
- 4.3 The holder of the authorisation must publish a notice –
- 4.3.1 informing interested and affected parties of the decision;
  - 4.3.2 informing interested and affected parties where the decision can be accessed; and
  - 4.3.3 drawing the attention of interested and affected parties to the fact that an appeal may be lodged against this decision in the newspaper(s) contemplated and used in terms of regulation 54(2)(c) and (d) and which newspaper was used for the placing of advertisements as part of the public participation process.
- 4.4 The holder of the environmental authorisation must, in writing, within 12 days of the date of the decision on the application –
- (a) notify all registered interested and affected parties of –
    - (i) the outcome of the application; and
    - (ii) the reasons for the decision;
  - (b) draw the attention of all registered interested and affected parties to the fact that an appeal may be lodged against the decision in terms of Chapter 7 of the NEMA EIA Regulations, 2010 if such appeal is available in the circumstances of the decision;
  - (c) draw the attention of all interested and affected parties to the manner in which they can access the decision; and
  - (d) publish a notice –
    - (i) informing interested and affected parties of the decision;
    - (ii) informing interested and affected parties where the decision can be accessed; and
    - (iii) drawing the attention of interested and affected parties to the fact that an appeal may be lodged against the decision in terms of Chapter 7 of the NEMA EIA Regulations, 2010, if such appeal is available under the circumstances of the decision; in the

newspapers contemplated in regulation 54(2)(c) and (d) of the NEMA EIA Regulations, 2010 and which newspaper was used for the placing of advertisements as part of the public participation process.

## **5. MANAGEMENT OF THE ACTIVITY**

- 5.1. The Environmental Management Programme (EMPr) submitted as part of the Application for EA is hereby approved. This EMPr must be implemented and adhered to.
- 5.2. Should there be changes in the operation and management of the authorised activities; the EMPr must be amended to accommodate those changes and be submitted to this Department for written approval before implementation incorporated as part of the EMPr. Once approved, the EMPr must be implemented and adhered to.
- 5.3. The approved EMPr and operational EMPr for the UCG process must be implemented and strictly enforced during all phases of the project. It shall be seen as a dynamic document and shall be included in all contract documentation for all phases of the development.
- 5.4. Changes to the EMPr and the operational EMPr for the UCG process which are environmentally defensible, shall be submitted to this Department for acceptance before such changes could be effected.
- 5.5. The Department reserves the right to request amendments to the EMPr and the operational EMPr for the UCG process should any impacts that were not anticipated or covered in the EIR be discovered.
- 5.6. The provisions of the approved EMPr and the operational EMPr for the UCG process including the mitigation measures identified in the EIR and specialist' studies shall be an extension of the conditions of this EA and therefore non-compliance with them would constitute non-compliance with the EA.
- 5.7. The gasification management system must be managed and operated:
  - 5.7.1. In accordance with an Environmental Management System (EMS), that inter alia identifies and minimises risks of pollution, including those arising from operations, maintenance, accidents, incidents and non-conformances and those drawn to the attention of the holder of the environmental authorisation as a result of complaints;
  - 5.7.2. By sufficient persons who are competent in respect of the responsibilities to be undertaken by them in connection with the operation of the activities.
- 5.8. The holder of authorisation must maintain and ensure continued functioning of a Monitoring Committee for the normal operative lifetime of the site operational process and for a period of at

least two years after the closure of the site, or at such longer period as may be determined by the Director.

## 6. ENVIRONMENTAL CONTROL OFFICER (ECO)

- 6.1 The holder of this authorisation must appoint an independent Environmental Control Officer (ECO) with experience or expertise in the field for the construction phase of the development. The ECO will have the responsibility to ensure that the conditions referred to in this authorisation are implemented and to ensure compliance with the provisions of the EMPr.
- 6.2 The ECO must be appointed before commencement of any authorised activity.
- 6.3 Once appointed, the name and contact details of the ECO must be submitted to the Director: Compliance Monitoring of the Department.
- 6.4 The ECO must remain employed until all rehabilitation measures, as required for implementation due to construction damage, are completed and the site is ready for operation.
  - 6.4.1 The ECO must:
  - 6.4.2 Keep record of all activities on site, problems identified, transgressions noted and a schedule of tasks undertaken by the ECO.
  - 6.4.3 Keep and maintain a detailed incident (including spillage of bitumen, fuels, chemicals, or any other material) and complaint register on site indicating how these issues were addressed, what rehabilitation measures were taken and what preventative measures were implemented to avoid re-occurrence of incidents/complaints.
  - 6.4.4 Keep and maintain a daily site diary.
  - 6.4.5 Keep copies of all reports submitted to the Department.
  - 6.4.6 Keep and maintain a schedule of current site activities including the monitoring of such activities.
  - 6.4.7 Obtain and keep record of all documentation, permits, licences and authorisations such as waste disposal certificates, hazardous waste landfill site licences etc. required by this facility.
  - 6.4.8 Compile a monthly monitoring report.

## 7. WASTE MANAGEMENT CONTROL OFFICER (WMCO)

- 7.1 The applicant must designate a Waste Management Control Officer (WMCO) in writing, who will monitor and ensure compliance and correct implementation of all conditions and provisions as stipulated in the environmental authorisation and approved EMPr related to the UCG

process and power plant. The WMCO must report any non-compliance with any environmental authorisation conditions or requirements or provisions of NEMWA to the Department through the means reasonably available.

7.2 The duties and responsibility of the WMCO should not be seen as exempting the holder of the environmental authorisation from the legal obligations in terms of the NEMWA.

## **8. RECORDING AND REPORTING TO THE DEPARTMENT**

8.1 The holder of this authorisation must keep all records relating to monitoring and auditing on site and make it available for inspection to any relevant and competent authority in respect of this development.

8.2 All records and/or reports required or resulting from activities relating to this environmental authorisation must:

8.2.1 be legible;

8.2.2 be submitted as required and must form part of the external audit report;

8.2.3 if amended, the record and/or report must be amended in such a way that the original and any subsequent amendments remain legible and are easily retrievable; and

8.2.4 be retained in accordance with documented procedures which are approved by the Department.

8.3 All documentation e.g. audit/monitoring/compliance reports and notifications, required to be submitted to the Department in terms of this authorisation, must be submitted to the Director: Compliance Monitoring at the Department.

8.4 Records demonstrating compliance with conditions of this EA must be maintained for five years.

8.5 The holder of the environmental authorisation must keep records and update all the information referred to in Annexure II and submit this information to the Department on an annual basis.

## **9. ENVIRONMENTAL AUDIT REPORT FOR CONSTRUCTION**

9.1 The holder of the authorisation must submit an environmental audit report to the Department within 30 days of completion of the construction phase (i.e. within 30 days of site handover) and within 30 days of completion of rehabilitation activities.

9.2 The environmental audit report must:

9.2.1 Be compiled by an independent environmental auditor;

9.2.2 Indicate the date of the audit, the name of the auditor and the outcome of the audit;

- 9.2.3 Evaluate compliance with the requirements of the approved EMPr and this environmental authorisation;
- 9.2.4 Include measures to be implemented to attend to any non-compliances or degradation noted;
- 9.2.5 Include copies of any approvals granted by other authorities relevant to the development for the reporting period;
- 9.2.6 Highlight any outstanding environmental issues that must be addressed, along with recommendations for ensuring these issues are appropriately addressed;
- 9.2.7 Include a copy of this authorisation and the approved EMPr;
- 9.2.8 Include all documentation such as waste disposal certificates, hazardous waste landfill site licences etc. pertaining to this authorisation; and
- 9.2.9 Include evidence of adherence to the conditions of this authorisation and the EMPr where relevant such as training records and attendance records.

## **10. COMMENCEMENT OF ACTIVITIES**

- 10.1 The authorised activity shall not commence within twenty (20) days of the date of signature of the authorisation.
- 10.2 An appeal under section 43 of the National Environmental Management Act (NEMA), Act 107 of 1998 (as amended), suspend an environmental authorisation or exemption, or any provisions or conditions attached thereto.
- 10.3 Should you be notified by the Minister of a suspension of the authorisation pending appeal procedures, you may not commence with the activity until such time that the Minister allows you to commence with such an activity in writing.
- 10.4 The holder of this authorisation must obtain a Water Use Licence from the Department of Water Affairs (DWA) prior to the commencement of the project should the holder impact on any wetland or water resource. A copy of the license must be submitted to the Chief Director: *Integrated Environmental Authorisations* at the Department.
- 10.5 The holder of this authorisation must obtain Atmospheric Emission Licence from relevant authority prior to commencement of the project should the project trigger listed activities in terms of the National Environmental Management: Air Quality Act 39 of 2004. The copy of the licence obtained must be included in the first audit submitted to the Department.

## **11. NOTIFICATION TO AUTHORITIES**

- 11.1 Fourteen (14) days written notice must be given to the Department that the activity will commence. Commencement for the purposes of this condition includes site preparation. The notice must include a date on which it is anticipated that the activity will commence. This notification period may coincide with the Notice of Intent to Appeal period, within which construction may not commence.
- 11.2 After construction of the site or further development within the site, the EA holder shall notify the Responsible Authority thereof and the person referred to in condition 2 shall submit a certificate or alternatively a letter to the Responsible Authority that the construction of the site or further development within the site, as proposed by the EA holder and approved by the Responsible Authority is in accordance with recognised civil engineering practice and the requirements in this EA before gasification may commence on the site. If the Responsible Authority is satisfied with the construction of the site or any further development within the site and has given written permission, the EA holder may use the site or any further development within the site for the disposal of waste.

## **12. OPERATION OF THE ACTIVITY**

- 12.1 Fourteen (14) days written notice must be given to the Department that the activity operational phase will commence.
- 12.2 The holder of this authorisation must compile an operational EMPr for the operational phase of the activity or alternatively, if the holder has an existing operational environmental management system, it must be amended to include the operation of the authorised activity.

## **13. SITE CLOSURE AND DECOMMISSIONING**

- 13.1 Should the activity ever cease or become redundant, the applicant shall undertake the required actions as prescribed by legislation at the time and comply with all relevant legal requirements administered by any relevant and competent authority at that time.

## **14. LEASING AND ALIENATION OF THE SITE**

- 14.1 Should the holder of the environmental authorisation want to alienate or lease the site, he/she shall notify the Department in writing of such an intention at least 120 days prior to the said



transaction. Should the approval be granted, the subsequent holder of the environmental authorisation shall remain liable to compliance with all licence conditions.

## **15. TRANSFER OF ENVIRONMENTAL AUTHORISATION**

- 15.1 Should the holder of the environmental authorisation transfer holdership of this environmental authorisation due to a change of ownership [as provided for in terms of S24E(c) of NEMA], he/she must apply in terms of Section 52 of NEMWA.
- 15.2 Should the transfer of holder ship of this environmental authorisation mentioned above be for any reason other than the change of ownership in the property, the holder of this environmental authorisation must inform the Department of any change in ownership in the property and must request an amendment to this environmental authorisation to reflect such change in ownership.
- 15.3 Any subsequent holder of an environmental authorisation shall be bound by conditions of this environmental authorisation.

## **16. INVESTIGATIONS**

- 16.1 If, in the opinion of the Department, pollution, nuisances or health risks may be or are occurring on the site, the holder of the environmental authorisation must initiate an investigation into the cause of the problem or suspected problem, including such investigations as identified by the Department related to the risks posed. Such investigation must include the monitoring of water quality variables at those monitoring points and at such frequency as may be specified by Director: Department of Water and Sanitation.
- 16.2 Should the investigation carried out as per conditions 16.1 above reveal any unacceptable levels of pollution, the holder of the environmental authorisation must submit mitigation measures to the satisfaction of the relevant Department.

## **17. SPECIFIC CONDITIONS RELATED TO THE UCG AND POWER GENERATION PLANT**

- 17.1 Site Security and Access Control
  - 17.1.1 The holder of the environmental authorisation must ensure effective access control to the effluent management system to prevent unauthorised entry. Weatherproof, durable and legible signs in at least three official languages applicable in the area must be displayed at each entrance to the site. The signs must indicate the risks involved in entering the site as well as the person responsible for the operation of the site.

## 17.2 Permissible waste

- 17.2.1 Any portion of the site must be constructed or developed according to Regulations 636, Norms and Standards for Disposal of Waste to Landfill, dated 23 August 2013 and approved in writing by the Director may be used for the disposal of waste classified according to Regulation 634, Waste Classification and Management Regulations, dated 23 August 2013.
- 17.2.2 The holder of environmental authorisation must ensure that only the brine classified, accepted and treated according to the Environmental Impact Assessment Report and Environmental Management Programme dated September 2014 prepared by Royal Haskoning DHV will be disposed of at Majuba Brine Ponds as approved by the Chief Director: Integrated Environmental Authorisations.
- 17.3 Construction and commissioning of activities
- 17.3.1 The construction and further construction of the Site must be in accordance with the Environmental Impact Assessment Report and Environmental Management Programme dated September 2014 prepared by Royal Haskoning DHV.
- 17.3.2 Construction and further development of the waste facilities required for the gasification process must be carried out under the supervision of a Registered Professional Engineer, registered under the Engineering Profession Act, 2000 (Act 46 of 2000). The design drawings for the waste disposal facilities associated with the project must be approved in writing by the Chief Director: Integrated Environmental Authorisations before construction and disposal of brine may commence.
- 17.3.3 After construction of the Site or further development within the Site, the holder of environmental authorisation shall notify the Chief Director: Integrated Environmental Authorisations thereof and the person referred to in condition 17.3.2 shall submit a certificate or alternatively a letter to the Chief Director: Integrated Environmental Authorisations that the construction of the Site or further development within the Site, as proposed by the Holder of the Environmental Authorisations and approved by the Chief Director: Integrated Environmental Authorisations, is in accordance with recognised civil engineering practice and the requirements in this Environmental Authorisation, before disposal may commence on the Site. If the Chief Director: Integrated Environmental Authorisations is satisfied with the construction of the Site or any further development within the Site and has given written permission, the holder of authorisation may use the Site or any further development within the Site for the disposal of authorised waste.

- 17.3.4 Works shall be constructed and maintained on a continuous basis by the holder of environmental authorisation to divert and drain from the Site in a legal manner, all runoff water arising on land adjacent to the Site, which could be expected as a result of the estimated maximum precipitation during a period of 24 hours with an average frequency of once in fifty (50) years (hereinafter referred to as the "estimated maximum precipitation"). Such works must, under the said rainfall event, maintain a freeboard of 0.8 metres.
- 17.3.5 Works must be constructed and maintained on a continuous basis by the holder of authorisation to divert and drain from the working face of the Site, all runoff water arising on the Site, which could be expected as a result of the estimated maximum precipitation and to prevent such runoff water from coming into contact with leachate from the Site. Such works must, under the said rainfall event, maintain a freeboard of 0.8 metres and be lined to the satisfaction of the competent authority, to prevent pollution to groundwater.
- 17.3.6 The holder of environmental authorisation must ensure that the storage areas have firm, waterproof base and drainage system. It must be designed and managed such that there is no escape of contaminants into the environment. All runoff must be prevented from entering local watercourses including wetlands.
- 17.3.7 The holder of environmental authorisation must ensure that the integrity of the waterproof base and walls are routinely monitored and corrective actions taken before containment integrity is breached.
- 17.3.8 The Site shall be constructed in accordance with recognised civil engineering practice to ensure that it remains stable.
- 17.4 Environmental auditing and reporting
- 17.4.1 Internal Audits
- (a) Internal audits must be conducted quarterly by the holder of the environmental authorisation in order to audit compliance with conditions related to this environmental authorisation and the approved EMPr, and on each audit occasion an official report must be compiled by the relevant auditor to report the findings of the audits, which must be made available to the external auditor specified in condition below.
- 17.4.2 External Audits
- (a) The holder of the environmental authorisation and approved EMPr must appoint an independent external auditor to audit the power plant bi-annually subject to the environmental authorisation and this auditor must compile an audit report documenting

the findings of the audit, which must be submitted by the holder of the environmental authorisation.

- (b) The audit report must-
- (i) Specifically state whether or not conditions and requirements related to this environmental authorisation are adhered to;
  - (ii) Include an interpretation of all available data and test results regarding the operation of the site and all its impacts on the environment;
  - (iii) Specify target dates for the implementation of the recommendations by the holder of the environmental authorisation to achieve compliance;
  - (iv) Contain recommendations regarding non-compliance or potential non-compliance and must specify target dates for the implementation of the recommendations by the holder of the environmental authorisation and whether corrective actions were taken from the previous audit from which compliances were found to be inadequate;
  - (v) Show results graphically and conduct trend analysis; and
  - (vi) Include the information required in Annexure II.
- (c) Each external audit report referred to in condition 17.4.2 must be submitted to the Department within 30 days from the date on which the external auditor finalised the audit.

#### 17.4.3 Reporting

- (a) The holder of the environmental authorisation must, within 24 hours, notify the Director of the occurrence or detection of any incident on the site, or incidental to the operation of the site, which has the potential to cause, or has caused pollution of the environment, health risks, nuisance conditions or water pollution.
- (b) The holder of the environmental authorisation must, within 14 days inform the Department of the occurrence or detection of any incident referred to in condition 16.1, must within 14 days period of time specified by the Department submit an action plan, which must –
- (i) Correct the impact resulting from the incident;
  - (ii) Prevent the incident from causing any further impacts; and
  - (iii) Prevent a recurrence of a similar incident to the satisfaction of the Department.
- (c) In the event that measures have not been implemented within 21 days of the incident, or within the time period identified by the Department, or the measures which have been implemented are inadequate, the Department may implement the necessary measures at the cost and risk of the holder of the environmental authorisation.

- (d) The holder of the environmental authorisation must keep an incident report and complaints register, which must be made available to the external auditor, representatives of this Department and Department of Water and Sanitation for the purpose of audit.
- (e) The Department must be notified as soon as the holder of this environmental authorisation becomes aware of the following incidents:
- (i) Any malfunction, breakdown or failure of equipment or techniques, accident or fugitive emission which has caused, is causing or may cause significant pollution;
  - (ii) The breach of this environmental authorisation; and
  - (iii) Any significant adverse environmental and health effects.
- 17.5 General operation and impact management of waste management activities
- 17.5.1 Waste, which is not sewage from the authorised development, must be dealt with according to relevant legislation or the Department's policies and practices.
- 17.5.2 The holder of environmental authorisation must prevent spillages. Where the spillages occur, the holder of authorisation must ensure the effective and safe cleaning of such spillages.
- 17.5.3 The holder of environmental authorisation must prevent the occurrence of nuisance conditions or health hazards.
- 17.5.4 The holder of environmental authorisation must ensure that all personnel who work with hazardous waste are trained to deal with these potential hazardous situations so as to minimise the risks involved. Records of training and verification of competence must be kept by the holder of environmental authorisation.
- 17.5.5 No effluent must be discharged into any storm water drain or furrow, whether by commission or by omission.
- 17.5.6 No activities will be allowed to encroach into a water resource without a water use authorisation being in place from the Department of Water and Sanitation.
- 17.6 Water quality management
- 17.6.1 Runoff water referred to in condition 17.3.5 shall comply with the quality requirements prescribed by the Department of Water and Sanitation which may be determined from time to time and shall be drained from the Site in a legal manner.
- 17.6.2 Runoff water referred to in condition 17.3.5 which does not comply with the quality requirements referred to in condition 17.6.1 shall, by means of works be constructed and maintained on a continuous basis by the holder of environmental authorisation-
- 17.6.2.1 be treated to comply with the aforementioned standard and discharged in a legal manner, and/or

- 17.6.2.2 be discharged into any convenient sewer if accepted by the authority in control of that sewer.
- 17.7 Water quality monitoring
- 17.7.1 Monitoring of groundwater and surface water must be conducted at the locations specified in conditions 17.8 and 17.9 at any other location or locations that may from time to time be specified by the Chief Director: Integrated Environmental Authorisations.
- 17.8 Groundwater quality monitoring network
- 17.8.1 A monitoring borehole network for the Site must be maintained by the holder of environmental authorisation at borehole location number (WMD2, WMD3, WMD4, WMIL1, WMIL2, WMIL3, WMIL4, WMIU1, WMIU2, WMIU3, WMIU4, WMS1, WMS2, WMS3, WMS4, P1, P2, P3, PZ1, PZ2 & PZ4) and according to the Golder Associates technical memorandum with reference number 11613755-mem-006 dated 22 February 2013 and to the satisfaction of the Chief Director: Integrated Environmental Authorisations so that unobstructed sampling, as required in terms of the environmental authorisation, can be undertaken.
- 17.8.2 Monitoring boreholes must be equipped with lockable caps. The Department reserves the right to take water samples at any time and to analyse these samples or have them analysed.
- 17.8.3 Monitoring boreholes must be drilled in the intermediate and lower aquifer down-gradient of the production zones and monitoring boreholes be continuously expanded as mining activities progresses.
- 17.8.4 The holder of environmental authorisation must ensure that the monitoring boreholes precede production boreholes and groundwater quality including groundwater levels are determined prior to mining or before production commence.
- 17.8.5 The study has shown that should there be any goafing then groundwater quality and groundwater levels in the shallow and immediate aquifers will be affected. The holder of environmental authorisation must ensure that a detailed geohydrological report be submitted within 6 months of issuance of the environmental authorisation to the Director and such report must include:
- Geophysical and structural geology studies in relation to goafing.
  - Hydrocensus
  - Trends in the groundwater quality

- Proposed new geophysical techniques such as seam seismic, cross hole seismic, electric resistance tomography and seismic refraction methods. These methods are expected to pick up structures that could not be detected using aeromagnetic data.
- Microseismic monitoring system that will make it possible to determine if the goafing poses any significant risks.

## 17.9 Surface water quality monitoring network

17.9.1 Monitoring for surface water shall be conducted monthly at locations (Witbankspruit, downstream of the UCG, upstream of the UCG and cooling water dam) as indicated in the surface water impact assessment for the Majuba Underground Coal Gasification Project report compiled by Golder Associates with report number 11613755-11905-3.

## 17.10 Background monitoring

17.10.1 Samples from the borehole where the groundwater in the borehole is at an expected higher hydraulic pressure level of the ground water under the Site shall be considered as background monitoring.

17.10.2 Background groundwater monitoring must be conducted during each monitoring occasion in terms of conditions 17.11, 17.12 and/or 17.13 for the water quality variables listed in Annexure III.

## 17.11 Detection Monitoring

17.11.1 Monitoring for surface and groundwater quality must be conducted for variables listed in Annexure IV on a quarterly basis.

## 17.12 Investigative Monitoring

17.12.1 If, in the opinion of the competent authority, a water quality variable listed under the detection monitoring programme, as referred to in condition 17.11 shows an increasing trend, the holder of authorisation shall initiate a monthly monitoring programme and analyse variables listed in Annexure V.


## 17.13 Further investigations

17.13.1 If, in the opinion of the Chief Director: Integrated Environmental Authorisations, groundwater and/or surface water pollution have occurred or may possibly occur, the holder of environmental authorisation must conduct and/or appoint specialists to conduct the necessary investigations and implement additional monitoring and rehabilitation measures to the satisfaction of the Chief Director: Integrated Environmental Authorisations.

17.14 Analysis of samples

- 17.14.1 The holder of environmental authorisation must ensure that all samples taken in accordance with condition 4 are-
- Analysed by a laboratory accredited by the South African Bureau of Standards (SABS); and
  - According to the methods prescribed in terms of the Standards Act 2008, (8 of 2008) or another method of analysis for which written approval has been obtained from the Director.

Date of environmental authorisation: 24/08/2012

  
Mr Sabelo Malaza

Chief Director: Integrated Environmental Authorisations  
Department of Environmental Affairs



## Annexure I: Reasons for Decision

### 1. Key factors considered in making the decision

All In reaching its decision, the Department took, *inter alia*, the following into consideration -

- a) The information contained in the EIR dated October 2014;
- b) The mitigation measures included in the EIR dated October 2014; and the EMP;
- c) The comments received from the Directorate: Authorisations & Waste Disposal Management and comments from interested and affected parties as included in the EIR dated October 2014; and
- d) The objectives and requirements of relevant legislation, policies and guidelines, including section 2 of the National Environmental Management Act, 1998 (Act No. 107 of 1998).

### 2. Conclusions

After consideration of the information and factors listed above the Department reached the following conclusions:

- a) Eskom has been granted the several authorisations for the exploration and testing phases of the UCG pilot project.
- b) There is some existing infrastructure on site that was approved for the testing pilot project, some will be used for the proposed development.
- c) The identification and assessment of impacts are detailed in the EIR dated October 2014; and sufficient assessment of the key identified issues and impacts have been completed.
- d) The procedure followed for impact assessment is adequate for the decision-making process.
- e) The proposed mitigation of impacts identified and assessed adequately curtails the identified impacts.
- f) A sufficient public participation process was undertaken and the applicant has satisfied the minimum requirements as prescribed in the EIA regulations, 2010, for public involvement.

In view of the above, the Department is satisfied that, subject to compliance with the conditions contained in the environmental authorisation, the activities will not conflict with the general objectives of integrated environmental management laid down in Chapter 5 of the National Environmental Management Act, 1998 and that any potentially detrimental environmental impacts resulting from the activity can be mitigated to acceptable levels. The environmental authorisation is accordingly granted.



**ANNEXURE III**

**WATER QUALITY VARIABLES REQUIRED FOR BACKGROUND MONITORING**

Monitor at bi-annually intervals for:

Alkalinity (Total Alkalinity)

Aluminium (Al)

Ammonia (NH<sub>3</sub>-N)

Calcium (Ca)

Dissolved Manganese as Mn

Chloride (Cl)

Electrical Conductivity (EC)

Fluoride (F)

Magnesium (Mg)

Manganese (Mn)

Nitrate (NO<sub>3</sub>-N)

pH

Potassium (K)

Sodium (Na)

Sulphate (SO<sub>4</sub>)

Total Dissolved Solids (TDS)

Phosphates (PO<sub>4</sub>)

Iron (Fe)

#### ANNEXURE IV

#### WATER QUALITY VARIABLES REQUIRED FOR DETECTION MONITORING

Monitor at quarterly intervals for:

Calcium (Ca)

Fluoride (F)

Magnesium (Mg)

Sodium (Na)

Sulphates (SO<sub>4</sub>)

Cyanide (Cn)

Mercury (Hg)

Iron (Fe)

Chromium (hexavalent) (Cr<sup>6+</sup>)

Phenoli compound

**ANNEXURE V**  
**WATER QUALITY VARIABLES REQUIRED FOR INVESTIGATIVE MONITORING**

Alkalinity (P.AIk)  
Aluminium (Al)  
Ammonia (NH<sub>3</sub>-N)  
Chemical Oxygen Demand (COD)  
Chloride (Cl)  
Electrical Conductivity (EC)  
Chromium (Total) (Cr)  
Nitrate (NO<sub>3</sub>-N)  
pH  
Potassium (K)  
Sodium (Na)  
Sulphate (SO<sub>4</sub>)  
Boron (B)  
Cadmium (Cd)  
Fluoride (F)  
Petroleum Hydrocarbons (PH C6 to C36)  
Iron (Fe)  
Lead (Pb)  
Magnesium (Mg)  
Mercury (Hg)  
Total and dissolved manganese (Mn)  
Lithium (Li)  
Strontium (Sr)  
Zinc (Zn)  
Molybdenum (Mo)  
DOC

ICP Scan

ICP- OES

Cations

Anions

Oil and Grease