



## Certificate Of Registration

IN TERMS OF THE NATIONAL NUCLEAR REGULATOR ACT, 1999 (ACT NO. 47 OF 1999)

### CERTIFICATE OF REGISTRATION NO. COR-7

Certificate of Registration No. COR-7 is hereby granted by the National Nuclear Regulator (hereinafter referred to as the NNR) in terms of section 22 of the above Act

to

**AFRICAN RAINBOW MINERALS GOLD LIMITED (WELKOM OPERATIONS)**

Registration number: 97/15869/07  
Registered address : 29 Impala Road  
Chistlehurst  
SANDTON  
2146

(hereinafter referred to as the holder)

subject to the terms and conditions set out herein.

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M T Magugumela  
CHIEF EXECUTIVE OFFICER

## **AUTHORISATION CONDITIONS**

### **PART 1: GENERAL CONDITIONS**

#### **1.1 SCOPE**

- 1.1.1 The holder is authorised to carry out activities associated with radioactive material as set out, and on the site as identified, in section 2.1 of this Authorisation.

#### **1.2 HAZARD ASSESSMENT**

- 1.2.1 Assessments, approved by the NNR, shall be conducted by the holder in respect of all operations and activities involving radioactive material set out in section 2.1 of this Authorisation which could give rise to a risk of nuclear damage. The assessments must identify and quantify all potential radiation hazards:

1.2.1.1 to persons employed at or visiting the site

and

1.2.1.2 to members of the public.

- 1.2.2 Details of any proposed modification to existing facilities or amendment of any procedure or construction of any facility, which may have an effect on the risk of nuclear damage and which has not been addressed by the hazard assessments identified in section 2.2 of this Authorisation, together with a quantitative assessment of its impact on the risk of nuclear damage, shall be submitted to the NNR by the holder. Such proposals shall be approved by the NNR before being implemented.

#### **1.3 OPERATIONAL LIMITATIONS**

- 1.3.1 The limitations pertaining to normal operations and listed in section 2.3 of this Authorisation shall be adhered to.
- 1.3.2 No activities involving the demolition or disposal of any plant used for the processing of radioactive material shall be undertaken prior to approval by the NNR of the radiation hazard assessment and the radiation protection programme for such activities.

#### **1.4 OPERATIONAL RADIATION PROTECTION**

##### **1.4.1 WORKFORCE**

- 1.4.1.1 Based on the results of the assessments referred to in clause 1.2.1, programmes embodying all aspects as required by NNR documents RD-006:

"Requirements for the Control of Radiation Hazards: Mining and Minerals Processing", and RD-011: "Requirements for Medical Surveillance and Control of Persons Occupationally Exposed to Radiation: Mining and Minerals Processing", in the revisions specified in section 2.4.1, must be established and be submitted to the NNR for approval. These programmes must ensure and demonstrate that radiation doses to persons employed at the site and to visitors to the site are in compliance with the radiation dose limitation system set down in the NNR document RD-010: "Requirements for Radiation Dose Limitation: Mining and Minerals Processing", in the revision specified in section 2.4.1 of this Authorisation. The programmes, as approved by the NNR, shall be implemented by the holder.

- 1.4.1.2 The provisions contained in the revision of documents listed in section 2.4.1 of this Authorisation and submitted in terms of condition 1.4.1.1 of this Authorisation, shall be adhered to.

#### **1.4.2 PUBLIC**

- 1.4.2.1 Based on the results of the assessments referred to in clause 1.2.1, programmes embodying all aspects as required by NNR document RD-007: "Requirements for Control over Radioactive Effluent Discharges and Environmental Surveillance: Mining and Minerals Processing", in the revision specified in section 2.4.2 of this Authorisation, must be established and be submitted to the NNR for approval. These must ensure and demonstrate that radiation doses to members of the public are in compliance with the radiation dose limitation system set down in the NNR document RD-010: "Requirements for Radiation Dose Limitation: Mining and Minerals Processing", in the revision specified in section 2.4.1 of this Authorisation. The programmes, as approved by the NNR, shall be implemented by the holder.

- 1.4.2.2 The provisions contained in the revision of documents listed in section 2.4.2 of this Authorisation and submitted in terms of condition 1.4.2.1 of this Authorisation, shall be adhered to.

#### **1.5 RADIOACTIVE WASTE**

- 1.5.1 A radioactive waste management programme embodying all the requirements contained in the NNR document RD-004: "Requirements for Radioactive Waste Management: Mining and Minerals Processing", in the revision specified in section 2.5 of this Authorisation, shall be established and submitted to the NNR for approval.
- 1.5.2 The provisions contained in the revision of documents listed in section 2.5 of this Authorisation and submitted in terms of condition 1.5.1 of this Authorisation, shall be adhered to.



## 1.6 TRANSPORTATION

- 1.6.1 Transportation of radioactive material or of any equipment or objects contaminated with radioactive material off the site or on roads which are accessible to the public must be carried out in terms of the provisions of the Regulations for the Safe Transport of Radioactive Material of the International Atomic Energy Agency in the revision specified in section 2.6 of this Authorisation.
- 1.6.2 An annual report shall be submitted to the NNR detailing the number of consignments made during the preceding year, the radioactive content per consignment, the nature of the packaging and the names of the consignees.
- 1.6.3 The provisions contained in the revision of documents listed in section 2.6 of this Authorisation and submitted with regard to condition 1.6.1 of this Authorisation, shall be adhered to.

## 1.7 PHYSICAL SECURITY

- 1.7.1 A physical security system, approved by the NNR, which will prevent unauthorized access to areas containing radioactive material and which will prevent the unauthorized removal of such material, shall be in place.
- 1.7.2 The provisions contained in the revision of documents listed in section 2.7 of this Authorisation and submitted in terms of condition 1.7.1 of this Authorisation, shall be adhered to.

## 1.8 OCCURRENCES

- 1.8.1 An occurrence reporting mechanism, approved by the NNR, shall be established which will ensure that occurrences, including incidents and accidents as defined in the National Nuclear Regulator Act (Act No 47 of 1999), and as identified in the NNR document RD-012: "Notification Requirements for Occurrences: Mining and Minerals Processing", in the revision specified in section 2.8 of this Authorisation, are reported to the NNR by the holder in accordance with the provisions of that document and as specified by NNR document RD-009: "Verbal Emergency Communication with the National Nuclear Regulator: Mining and Minerals Processing", in the revision specified in section 2.8 of this Authorisation.
- 1.8.2 An emergency plan, approved by the NNR, shall be established to make provision for any occurrence involving radioactive material which gives rise to, or has the potential to give rise to, an unplanned exposure to radiation in excess of the respective annual effective dose limits for persons employed on the site, visitors to the site, and members of the public. This plan shall comply with the requirements contained in NNR document RD-008: "Requirements for Emergency Preparedness: Mining and Minerals Processing", in the revision specified in section 2.8 of this Authorisation.

- 1.8.3 The provisions contained in the revision of documents listed in section 2.8 of this Authorisation and submitted in terms of condition 1.8.1 and 1.8.2, shall be adhered to.

## 1.9 QUALITY MANAGEMENT

- 1.9.1 All activities carried out within the scope of this Authorisation shall be subject to the requirements contained in the NNR document RD-005: "Quality Management Requirements for Activities Involving Radioactive Material: Mining and Minerals Processing", in the revision specified in section 2.9 of this Authorisation.

- 1.9.2 The provisions contained in the revision of documents listed in section 2.9 of this Authorisation and submitted in terms of condition 1.9.1 of this Authorisation, shall be adhered to.

## 1.10 SCHEDULE

- 1.10.1 The programme, scheduling the achievement of compliance with the conditions of this Authorisation, as set out in section 2.10 shall be adhered to.

This Certificate of Registration is effective from the date of issue.

Issued at Centurion on the 20<sup>TH</sup> day of June 2006.



M T Magugumela  
CHIEF EXECUTIVE OFFICER

**AUTHORISATION CONDITIONS  
PART 2: SPECIFIC CONDITIONS**

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**DOCUMENT CONTROL TABLE**  
**10 February 2006**

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## **SECTION 2.1: SCOPE**

### **2.1.1 The authorised site is:**

The surface and underground areas, as approved by the NNR, where the under mentioned activities are carried out by the holder, and as indicated in the Diagram labelled;

“ARM Welkom Operations RADPLAN”

### **2.1.2 The holder may, subject to the conditions in part 1 of this authorisation, mine underground and process of ore body containing uranium isotopes and handling of radioactive waste and its associated products.**



**SECTION 2.2: HAZARD ASSESSMENT**

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## **SECTION 2.3: OPERATIONAL LIMITATIONS**

- 2.3.1 Radioactive waste with a specific alpha (U-238, U-234, Th-230, Ra-226, Po-210, Th-232 and Th-228) activity exceeding 1000 Bq/g shall be stored in a facility approved by the NNR.

**SECTION 2.4.1: RADIATION PROTECTION PROGRAMME - WORKFORCE**

- |         |        |         |   |
|---------|--------|---------|---|
| 2.4.1.1 | RD-006 | (Rev 1) | Requirements for the Control of Radiation Hazards: Mining and Minerals Processing.  |
| 2.4.1.2 | RD-010 | (Rev 0) | Requirements for Radiation Dose Limitation Mining and Minerals Processing.  |
| 2.4.1.3 | RD-011 | (Rev 0) | Requirements for Medical Surveillance and Control of Persons Occupationally Exposed to Radiation: Mining and Minerals Processing. |



**SECTION 2.4.2: RADIATION PROTECTION PROGRAMME - PUBLIC**

2.4.2.1 RD-007 (Rev 0) Requirements for the Control over Radioactive Effluent Discharges and Environmental Surveillance: Mining and Minerals Processing.

**SECTION 2.5: RADIOACTIVE WASTE**

2.5.1 RD-004 (Rev 0) Requirements for Radioactive Waste Management:  
Mining and Minerals Processing.

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**SECTION 2.6: TRANSPORTATION**

- 2.6.1 TS-R-1 (ST-1, Revised) Regulations for the Safe Transport of Radioactive Material 1996 Edition (Revised).

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**SECTION 2.7: PHYSICAL SECURITY**

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**SECTION 2.8: OCCURRENCES**

2.8.1	RD-012	(Rev 0)	Notification Requirements for Occurrences: Mining and Minerals Processing.
2.8.2	RD-009	(Rev 0)	Verbal Emergency Communication with the National Nuclear Regulator: Mining and Minerals Processing.
2.8.3	RD-008	(Rev 0)	Requirements for Emergency Preparedness: Mining and Minerals Processing.
2.8.4	ONPCOR-7	(Rev 2)	Occurrence Notification Procedure.

## **SECTION 2.9: QUALITY MANAGEMENT**

2.9.1 RD-005 (Rev 0) Quality Management Requirements for Activities Involving Radioactive Material: Mining and Minerals Processing.

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**SECTION 2.10: SCHEDULE**

Scope	Action	Completion
Authorised site – coordinates	Submission	March 2005
<b>Worker Safety Assessment</b>		
Safety Assessment Report for Surface and Underground Operations including decommissioning	Submission	As appropriate
<b>Public Safety Assessment</b>		
Safety Assessment Methodology	Submission	January 2005
Safety Assessment Report	Submission	September 2005
<b>Worker Radiation Protection Programme</b>		
RP Programme, including maintenance activities	Submission	As appropriate
Bi-annual dose reports for surface operations	Submission	As appropriate
Quarterly dose reports for surface operations	Submission	As appropriate
<b>Public Radiation Protection Programme</b>		
RP Programme	Submission	September 2005
<b>General</b>		
Medical Surveillance Programme	Submission	As appropriate
Integrated Radioactive Waste Management Programme	Submission	October 2005
Quarterly Waste Reports	Submission	End of April End of July End of October End of January (include summary for year)
<b>Physical Security</b>		
Physical Security Procedure	Submission	March 2005
<b>Occurrences</b>		
Occurrence Report	Submission	As appropriate
<b>Quality Management</b>		
Quality Management Programme	Submission	May 2005
Self-Inspection Schedule and Plan	Submission	January 2005