



CERTIFICATE OF REGISTRATION

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

CERTIFICATE OF REGISTRATION NO. COR-57

Certificate of Registration No. COR-57, is hereby granted by the National Nuclear Regulator (hereinafter referred to as the NNR) in terms of section 22 of the above Act

to

CROWN GOLD RECOVERIES (PTY) LIMITED

Registration number:	88/05115/07
Registered address :	DRD Building 45 Empire Road Parktown JOHANNESBURG

(hereinafter referred to as the holder)

subject to the terms and conditions set out herein.

PART 1

AUTHORISATION 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 the operations and activities involving radioactive material as set out in section 2.1 of this Authorisation and 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 Authorization.
- 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 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.

Certificate of Registration No. COR-57
(Variation 0)

Page 6 of 6

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 *14th* day of *March* 2004.


L B Zondo
CHIEF EXECUTIVE OFFICER

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PART 2

CONTENTS

DOCUMENT CONTROL TABLE

SECTION 2.1 :	SCOPE
SECTION 2.2 :	HAZARD ASSESSMENT
SECTION 2.3 :	OPERATIONAL LIMITATIONS
SECTION 2.4.1:	OPERATIONAL RADIATION PROTECTION - WORKFORCE
SECTION 2.4.2:	OPERATIONAL RADIATION PROTECTION - PUBLIC
SECTION 2.5 :	RADIOACTIVE WASTE
SECTION 2.6 :	TRANSPORTATION
SECTION 2.7 :	PHYSICAL SECURITY
SECTION 2.8 :	OCCURRENCES
SECTION 2.9 :	QUALITY MANAGEMENT
SECTION 2.10 :	SCHEDULE

Certificate of Registration No. COR-57
(Variation 0)

Page 1 of 1

DOCUMENT CONTROL TABLE
9 February 2004

		REVISION												
SECTION	PAGE	0	1	2	3	4	5	6	7	8	9	10	11	12
2.1	1	X												
2.2	1	X												
2.3	1	X												
2.4.1	1	X												
2.4.2	1	X												
2.5	1	X												
2.6	1	X												
2.7	1	X												
2.8	1	X												
2.9	1	X												

SECTION	PAGE	REVISION
2.10	1	0

SECTION 2.1: SCOPE

2.1.1 The authorized site is:

All the surface areas enclosed by the brown, orange, green, blue, purple and dark blue colours on the diagram headed "FIGURE 1. SCOPE OF CROWN GOLD RECOVERIES (PTY) LIMITED" dated 10 October 2003 annexed to Controlled Copy 1 and annexed to Controlled copy NNR of this authorization.

2.1.2 Authorized activities may be undertaken:

Subject to the provisions of section 2.3, the activities that may be undertaken under the authority of this authorization, are restricted to:

The recovery the gold according to the process description detailed in section 9 of the Radiation Survey and Hazard Assessment of City Deep Limited (Ref.103A0016), Crown Mines Limited (Ref. 102A0030) and Knights Gold Mining Company Limited (Ref.107A016).

Certificate of Registration No. COR-57
(Variation 0)

Page 1 (Rev 0)

SECTION 2.2: HAZARD ASSESSMENT

2.2.1	RSHARS3A7	(Rev 0)	Radiation Survey and Hazard Assessment of Recovery Site 3A7. (Crown Mines)
2.2.2	RSHARS4A9	(Rev 0)	Radiation Survey and Hazard Assessment of Recovery Site 4A9. (City Deep)
2.2.3	RSHART	(Rev 0)	Radiation Survey and Hazard Assessment of Rooikraal Tailings Dam. (Knights)
2.2.4	RSHARS3L20	(Rev 0)	Radiation Survey and Hazard Assessment of Recovery Site 3L20. (Crown Mines)
2.2.5	RSHARS4A11	(Rev 0)	Radiation Survey and Hazard Assessment Recovery Site 4A11. (City Deep)
2.2.6	RSHAMRS	(Rev 0)	Radiation Survey and Hazard Assessment of Mia Recovery Site. (Knights)
2.2.7	RSHARS3A10/3L30	(Rev 0)	Radiation Survey and Hazard Assessment of Recovery Sites 3A10 and 3L30. (Crown Mines).
2.2.8	RSHARS4L26	(Rev 0)	Radiation Survey and Hazard Assessment of Recovery Site 4L26. (City Deep).
2.2.9	RSHAE/SRS	(Rev 0)	Radiation Survey and Hazard Assessment of E & S Recovery Site. (Knights).
2.2.10	RSCFSD	(Rev 0)	Radiation Survey carried out on Fleurhof Slimes Dam. (Crown Mines).

Certificate of Registration No. COR-57
(Variation 0)

Page 2 (Rev 0)

2.2.11	RSHASRS	(Rev 0)	Radiation Survey and Hazard Assessment of Solomon Recovery Site. (<i>Knights</i>).
2.2.12	RSHATD	(Rev 0)	Radiation Survey and Hazard Assessment carried out in the Tailings Dam. (<i>Crown Mines</i>).

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.

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Certificate of Registration No. COR-57
(Variation 0)

Page 1 (Rev 0)

SECTION 2.4.1: RADIATION PROTECTION PROGRAMME - WORKFORCE

2.4.1.1	RD-006	(Rev 0)	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.
2.4.1.4	RADPROFUN	(Rev 1)	The Organisation and Performance of the Radiation Protection Function. (<i>Crown Mines</i>).
2.4.1.5	RADPROFUN	(Rev 1)	The Organisation and Performance of the Radiation Protection Function. (<i>City Deep</i>).
2.4.1.6	TOPRPFKGRL	(Rev 2)	The Organisation and Performance of the Radiation Protection Function at Knights Gold Mining Company Limited.
2.4.1.7	PSDER	(Rev 2)	Procedure for the Survey and Decontamination of Equipment for Refurbishment. (<i>Crown Mines</i>).

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.
2.4.2.2	PSRCML	(Rev 0)	Procedure for the Survey and Decontamination of Equipment for Refurbishment. (<i>Crown Mines</i>)
2.4.2.3	PSRCML	(Rev 0)	Procedure for the Survey and Decontamination of Equipment for Refurbishment. (<i>City Deep</i>).

Certificate of Registration No. COR-57
(Variation 0)

Page 1 (Rev 0)

SECTION 2.5: RADIOACTIVE WASTE

2.5.1	RD-004	(Rev 0)	Requirements for Radioactive Waste Management: Mining and Minerals Processing. (<i>Crown Mines</i>).
2.5.2	PRSMS	(Rev 0)	Interim Procedure for the Monitoring, Segregation and Transport of Scrap from Temporary Salvage Yard. (<i>Crown Mines</i>).
2.5.3	PRSMS	(Rev 1)	Procedure for the Release of Scrap Metal for Smelting. (<i>Crown Mines</i>).
2.5.4		(Rev 0)	Interim Procedure for the Monitoring, Segregation and Transport of Scrap from Temporary Salvage Yard. (<i>City Deep</i>).
2.5.5	PRSMS	(Rev 0)	Procedure for the Decontamination of Potentially Radioactive Items. (<i>Knights</i>).
2.5.6	DECONTAMINATION OF ITEMS	(Rev 0)	Proposed Procedure for the Decontamination of Potentially Radioactive Items. (<i>Knights</i>).
2.5.7	SCRAP FOR SMELTING	(Rev 0)	Procedure for the Release of Scrap Metal for Smelting regarding <i>Knights Gold Mining Company Limited</i> .
2.5.8	CM/RP/012	(Rev 1)	The procedure to operate the interim storage facility at <i>Crown Mines Limited</i>

Certificate of Registration No. COR-57
(Variation 0)

Page 1 (Rev 0)

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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Certificate of Registration No. COR-57
(Variation 0)

Page 1 (Rev 0)

SECTION 2.7: PHYSICAL SECURITY

2.7.1	PSRCML	(Rev 1)	Physical Security System. (<i>Crown Mines</i>).
2.7.2		(Rev 0)	Physical Security System. (City Deep).
2.7.3	PHYSICAL SECURITY	(Rev 0)	Physical Security regarding Knights Gold Mining Company Limited.

**Certificate of Registration No. COR-57
(Variation 0)**

Page 1 (Rev 0)

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	ESRO	(Rev 1)	Establishment of a system for the Reporting of Occurrences.

**Certificate of Registration No. COR-57
(Variation 0)**

Page 1 (Rev 0)

SECTION 2.9: QUALITY MANAGEMENT

2.9.1	RD-005	(Rev 0)	Quality Management Requirements for Activities Involving Radioactive Material: Mining and Minerals Processing.
2.9.2	TRPQMPCML	(Rev 0)	The Radiation Protection Quality Management Programme for Crown Mines Limited.
2.9.3	TRPQMPCDL	(Rev 0)	The Radiation Protection Quality Management Programme for City Deep Limited.
2.9.4	TRPQMPKGR	(Rev 0)	The Radiation Protection Quality Management Programme for Knights Gold Recovery.

**Certificate of Registration No. COR-57
(Variation 0)**

SECTION 2.10: SCHEDULE

Page 1 (Rev 0)

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