Eskom	ADMINISTRATIVE PROCEDURE	Allocation Centre 38A	Reference Number KAA-633	Rev 13
NNR: NO No.:	CONTROL OF RADIOACTIVE SOURCES AND X-RAY EQUIPMENT			PAGE 1

KORC	ACCESS	IMPORTANCE CATEGORY	NEXT REVIEW DATE	DATE AUTHORISED
NO	Nuclear Restricted	SR	2024-12-08	2021-12-08

COMPILED / REVISED	REVIEWED	AUTHORISED
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JH MULLER	T KARSTEN	M VALAITHAM
OFFICER RADIATION PROTECTION	RADIATION PROTECTION MANAGER	PLANT MANAGER
DATE 2021-12-06	**DATE** 2021-12-07	**DATE** 2021-12-08

THIS PROCEDURE HAS BEEN SEEN AND ACCEPTED BY:

D de Villiers	Document Custodian
P Ellis	ALARA
N Mokoto	RP Licensing
G Visser	Radiochemistry
G Makapela	ESL
D Smith	IMS
A Pieters	RP Instruments
R Graham	Calibration Laboratory
D Khan	RP Training
N Zuma	RP Dosimetry
K Smit	Materials Reliability Group
A Grundmann	Inspection & Test
B de Waal	RP Logistics
L Sparks	Security

FCA	ALARA REVIEW	SUPERSEDES
PROTECTION	YES 2021-11-19	KAA-633, Rev 12 dd. 2018-12-19 FULL REVIEW

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1.0 PURPOSE

1.1 To provide for the registration and control of radioactive sources and X-ray apparatus at Koeberg.

2.0 SCOPE

2.1 Applicable to all hazardous substances:

(1) Group III – electronic products

(2) Group IV – radioactive sources

3.0 DEFINITIONS AND ABBREVIATIONS

3.1 Definitions

3.1.1 **Acting Radiation Protection Officer (Source Control)** – A person appointed in writing by the Power Station Manager, and who must ensure compliance with the conditions of the licence applicable to the Group III and IV hazardous substances.

3.1.2 **Electronic Products** – Any X-ray unit used for security purposes.

3.1.3 **Primary Standard** – The first 50 ml dilution of the supplier's certified standard.

3.1.4 **Private Authority Holder** – Any company or institution outside of Eskom, who has written authorisation from the DRC to possess and use radionuclides, and who may from time to time be required to carry out work involving the use of their own radioactive sources on the Koeberg site.

3.1.5 **Radioactive Sources**

A radioactive source that meets the following requirements is classified as a Sealed Source in terms of Government Gazette 14596, 26 February 1999, Government Notice R246:

(1) A total activity of more than 4000 Becquerel (Bq).

NOTE: *Smoke detector sources are exempt from this provided their activity is less than:*
90 kBq for Radium-226 and Americium-241
260 MBq for Krypton-85 (in gaseous form)

3.1.6 **Radiation Protection Controller** – Radiation Protection Controllers are appointed by management in writing in order to supervise radiography activities on Eskom premises.

3.1.7 **Radiation Protection Officer (Source Control)** – A person appointed in writing by the Power Station Manager, and who must ensure compliance with the conditions of the licence applicable to the Group III and IV hazardous substances.

3.1.8 **RT Co-ordinator** – An individual designated to co-ordinate radiography on site and prepare RT Work Plan (RTWP) packages.

3.1.9 **Secondary Standard** – Any dilution or working standard originating from the primary standard or subsequent dilutions.

3.1.10 **Section Source Controller** – A person to whom the RPO (Source Control) has delegated the function of source control for a specific section/group.

3.1.11 **Source Handler** – A person who has successfully completed the Source Handlers Course.

3.2 Abbreviations

3.2.1 **ACP** – Access Control Point

3.2.2 **ARPO (SC)** – Acting Radiation Protection Officer (Source Control)

3.2.3 **CR** – Condition Report

3.2.4 **DRC** – Directorate: Radiation Control, Department of Health

3.2.5 **KNLD** – Koeberg Nuclear Licensing Department

3.2.6 **MRG** – Materials Reliability Group

3.2.7 **NNR** – National Nuclear Regulator

3.2.8 **RP** – Radiation Protection

3.2.9 **RPC** – Radiation Protection Certificate

3.2.10 **RPC (R)** – Radiation Protection Controller (Radiography)

3.2.11 **RPO (SC)** – Radiation Protection Officer (Source Control)

3.2.12 **SAP (RP)** – Senior Authorised Person (Radiation Protection)

3.2.13 **TRA** – Threat and Risk Assessment

4.0 REFERENCES

4.1 Referenced Documents

4.1.1 238-38, Rev 0b: Radiation Protection Requirements for Baggage Inspection X-ray Devices

4.1.2 238-39, Rev 0a: Requirements for the Safe Use of Industrial Gauges Containing Radioactive Sources

4.1.3 238-40, Rev 0: Radiation Protection Requirements for Industrial Radiography

4.1.4 238-46, Rev 0b: Requirements for the Safety, Security and Control of Radioactive Sources

4.1.5 238-54, Rev 0b: Radiation Protection Licensing Requirements for Koeberg Nuclear Power Station

4.1.6 335-2, Rev 5: Koeberg Nuclear Power Station Management Manual

4.1.7 Hazardous Substances Act No. 15 of 1973 as amended

4.1.8 KAA-500, Rev 13: The Process for Controlled Documents

4.1.9 KAA-634, Rev 12: Responsibilities for the Radioactive Material and Radioactive Waste Control Programme

4.1.10 KSA-011, Rev 14: The Requirements for Controlled Documents

4.1.11 KWH-S-001, Rev 20: Radiation and Surface Contamination Surveys

4.1.12 KWH-S-037, Rev 15: Classification of Solid Radioactive Materials and the Acceptable On and Off Site Packaging Requirements for Such Materials

4.1.13 National Nuclear Regulator Act No. 47 of 1999

4.2 Applicable Documents

4.2.1 240-95405347: Control of Procurement of Items and Services

4.2.2 IAEA TS-R-1: Regulations for the Safe Transport of Radioactive Material, 2005 Edition

4.2.3 KAA-640: Control of Items Leaving Site for Repair or Service

4.2.4 KAA-641: Control of Receipt of Materials

4.2.5 KAA-688: The Corrective Action Process

4.2.6 KAA-733: Monitoring of the Receipt Inspection Processes

4.2.7 KFH-HP-012: Source Register Particulars of Sealed/Unsealed Radioactive Source

4.2.8 KFH-HP-013: Monthly Sealed Source Status Report

4.2.9 KFH-HP-014: Monthly Unsealed Source Status Report

4.2.10 KFH-HP-015: Use of Radiography / Soil Moisture / Density Gauge Sources and X-ray Machine on Koeberg Site

4.2.11 KFH-HP-016: Source Logbook

4.2.12 KFH-HP-017: Weekly Source Checks

4.2.13 KFH-HP-020: Appointment as Section Radioactive Source Controller

4.2.14 KFH-HP-022: Radiography / Soil Moisture / Density Gauge Source and X-ray Machine Arrival on Site

4.2.15 KFH-HP-081: Purchase of Radioactive Isotopes

4.2.16 KFQ-ML-001: Equipment Control Form (ECF)

4.2.17 KSH-008: Radiation Protection Records, Data and Information Management

4.2.18 KWH-S-007: Leakage Tests on Sealed Radioactive Sources

4.2.19 KWH-S-041: Radiation Protection Source Control

4.2.20 KWH-S-045: Radiation Protection Requirements for Industrial Radiography on Site

4.2.21 KWH-S-046: Radiation Protection Requirements for use of Soil Moisture and Density Gauges Containing Radioactive Sources

5.0 RESPONSIBILITIES

5.1 The responsibilities for the source control programme are defined in the responsibility matrix in Appendix 1.

5.2 Section Source Controllers must manage their source programme in accordance with procedures.

6.0 PROCEDURE

6.1 Refer to the Work Flow Responsibility Matrix.

7.0 RECORDS

7.1 The following records generated will be maintained in accordance with KSH-008 and as defined in the Work Flow Responsibility Matrix shown in Appendix 1.

- Source Register (KFH-HP-012) (permanent);
- Monthly Sealed Source Status Report (KFH-HP-013) (non permanent);
- Monthly Unsealed Source Status Report (KFH-HP-014) (non permanent);
- Source Logbook (KFH-HP-016) (non permanent);
- Annual Report. (permanent);
- Examples of Appointments (Appendix 2 to 4) (permanent).

8.0 ATTACHMENTS

Appendix 1 – Work Flow Responsibility Matrix – Source Control

Appendix 2 – Example of Radiation Protection Officer (Source Control) Appointment Certificate

Appendix 3 – Example of Acting Radiation Protection Officer (Source Control) Appointment Certificate

Appendix 4 – Example of Radiation Protection Controller (Industrial Radiography) Appointment Certificate

Appendix 5 – Justification

WORK FLOW RESPONSIBILITY MATRIX	**APPENDIX 1 – SOURCE CONTROL**

R – Responsible
A – Approve
F – File
• – Outside Matrix Scope
Y/N or N/Y – Decision
C – Concur
I – Informed
S – Service
[ ] – Mandatory Requirement
( ) – As Appropriate/Required
Flow Path:
Main Flow Secondary Flow

ACTIVITIES	1 POWER STATION MANAGER	2 RPO (SOURCE CONTROL)	3 APPLICABLE GROUP / SECTION	4 SECURITY	5 RP TRAINING	6 PROCUREMENT GROUP	7 RP CONTROLLER	8 RP DOSIMETRY	9 RP PLANT	10 SECTION SOURCE CONTROLLER	11 NNR	12 SENIOR AUTHORISED PERSON (RP)	**NOTES & REFERENCES**
1 Appointments													
1.1 Appoint the RPO / ARPO (Source Control) and RPC (Radiography).	[R]	[I]					[I]				[I]		Appendix 2 Appendix 3 Appendix 4
1.2 Notify the NNR.		[R]									[I]		The NNR must be notified within 7 days.
1.3 Develop programme.		[R]											
1.4 Ensure that procedures are compiled.		[R]							[S]				
1.5 Appoint Section Source Controllers.		[R]								[I]			KFH-HP-020 KWH-S-041
1.6 Maintain and update Radioactive Source Register.		[R]								[I]			KFH-HP-012 KWH-S-041
1.7 Train Source Handlers.					[R]								
1.8 Register names of Source Handlers on the RadPro system.		[I]						[R]		[I]			KWH-S-041
2 Purchase													
2.1 Determine if the required source can be obtained from existing inventory.		[I]	[R]										
2.2 Raise purchase requisition.			[R]			[S]							Complete 240-95405347 Appendix 2.
2.3 Authorise purchase.		[A]	[R]						[I]			[A]	KFH-HP-081
2.4 Perform safety and security assessment for the radioactive source.		[I]		[R]									

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Flow Path:
Main Flow Secondary Flow

ACTIVITIES	POWER STATION MANAGER (1)	RPO (SOURCE CONTROL) (2)	APPLICABLE GROUP / SECTION (3)	SOURCE HANDLER (4)	RP TRAINING (5)	STORES (6)	SUPPLIER OF SOURCE (7)	SECURITY (8)	RP PLANT (9)	SECTION SOURCE CONTROLLER (10)	SENIOR AUTHORISED PERSON (RP) (11)	(12)	**NOTES & REFERENCES**
3 Receipt of Source													
3.1 Radioactive source arrives at ACP / Stores.							[R]						See activity 9 for radiography sources.
3.2 Inform Radiation Protection of arrival of source at ACP.			[R]					[R]	[I]				
3.3 Inform Radiation Protection of arrival of sources at site stores.						[R]			[I]				KAA-641, KAA-733.
3.4 Inform RPO and SAP (RP) of arrival of all sources.		[I]							[R]		[I]		
3.5 Perform doserate and smear survey.		[I]							[R]	[I]			Send all paperwork to the RPO (Source Control).
3.6 Ensure that the source and/or container has been labelled with a radioactive trefoil, type of nuclide and activity.									[R]				
3.7 Is package acceptable and delivery note signed? (Signed delivery note to be forwarded to Site Stores Receiving for SAP updating.)		[I]	(R)			[I]			(S)		[I]		Acceptance criteria specified in KWH-S-041. Notify the SAP (RP) and RPO (Source Control). ASME NQA1 Subpart 2.2.
3.8 Scan source in X-ray machine.								[R]					
3.9 Accompany source to the required source store.										[R]			

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Flow Path:
Main Flow Secondary Flow

ACTIVITIES	1 POWER STATION MANAGER	2 RPO (SOURCE CONTROL)	3 APPLICABLE GROUP / SECTION	4 SOURCE HANDLER	5 RP TRAINING	6 STORES	7 SUPPLIER OF SOURCE	8 SECURITY	9 RP PLANT	10 SECTION SOURCE CONTROLLER	11 SENIOR AUTHORISED PERSON (RP)	12	NOTES & REFERENCES
	ORGANISATION / FUNCTION												
4 Storage of Radioactive Sources													
4.1 Store sources in an approved location.		(C)								[R]			See location specified in KWH-S-041.
4.2 Assess administrative / engineering controls of storage locations.								[R]		[I]			
4.3 Keep storage location locked.				[S]						[R]			KWH-S-041
4.4 Record all movement of sources in the Source Logbook at the time of movement.				[R]									KWH-S-041 KFH-HP-016
4.5 Post an inventory of sources at the source storage location.				[S]						[R]			KWH-S-041
4.6 Complete a weekly check of the sources and complete the Weekly Source Check Register.				[S]						[R]			KWH-S-041 KFH-HP-017
4.7 Complete a monthly verification of the sources and complete the Source Status Report (this includes sealed and non-sealed sources).		[I]		[S]						[R]			KWH-S-041 KFH-HP-013 KFH-HP-014
5 Safety of Radiation Sources													
5.1 Perform safety assessments for the sources.								[R]					
5.2 Identify the protection and safety measures required for a particular source.								[R}					

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Flow Path:
Main Flow Secondary Flow

ACTIVITIES	POWER STATION MANAGER (1)	RPO (SOURCE CONTROL) (2)	APPLICABLE GROUP / SECTION (3)	SOURCE HANDLER (4)	RP TRAINING (5)	STORES (6)	SUPPLIER OF SOURCE (7)	SECURITY (8)	RP PLANT (9)	SECTION SOURCE CONTROLLER (10)	SENIOR AUTHORISED PERSON (RP) (11)	(12)	**NOTES & REFERENCES**
ORGANISATION / FUNCTION													
6 Security Plan for Radioactive Sources													
6.1 A regular (bi-annual) TRA shall be conductedfor the safety, security and control of radioactive sources.								[R]					
6.2 The Security Plan for the safety, security and control of radioactive sources shall be reviewed annually or whenever the Design Basis Threat changes.								[R]					
7 Assignment of Radioactive Sources to Security Group													
7.1 The assignment of radioactive source to a security group shall be based on the methodology addressed in IAEA-TECDOC-1344.		[R]											IAEA-TECDOC-1344, Catergorization of Radioactive Sources
8 Organisational Responsibilities													
8.1 Ensure that sources are used in accordance with safety and security requirements.								[R]					

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Flow Path:
Main Flow Secondary Flow

ACTIVITIES	1	2	3	4	5	6	7	8	9	10	11	12	NOTES & REFERENCES
		SOURCE HANDLER	RPO (SOURCE CONTROL)	SENIOR AUTHORISED PERSON (RP)	RADIATION PROTECTION CONTROLLER	INSPECTION & TEST	RP PLANT	OPERATING SHIFT MANAGER	SECURITY	SECTION SOURCE CONTROLLER	NNR	DRC	
		ORGANISATION / FUNCTION											
9 Verification of Sources										↓			
9.1 Perform physical verification on sources. Doserate readings are to be performed on high activity sources to indicate that they are present.										[R]			High activity sources are regarded as sources that would normally not be handled, due to the high dose rates and access is reserved due to the composition of the sources. KWH-S-041
9.2 All sources must be verified to ensure that they have, as a minimum, the following: identification; radioactive trefoil, type of nuclide and activity.										[R]			KWH-S-041
9.3 Sources that do not comply with these requirements must immediately be reported to the RPO (SC), who in turn, will advise on the necessary action(s) to be taken.			[I]							[R]			

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Flow Path:
Main Flow Secondary Flow

ACTIVITIES	1 SECTION SOURCE CONTROLLER	2 SOURCE HANDLER	3 RPO (SOURCE CONTROL)	4 SENIOR AUTHORISED PERSON (RP)	5 RADIATION PROTECTION CONTROLLER	6 APPLICABLE GROUP / SECTION	7 RP PLANT	8 OPERATING SHIFT MANAGER	9 SECURITY	10 RISK & REGULATION	11 NNR	12 DRC	NOTES & REFERENCES
10 Lost / Missing Radioactive Source													
10.1 Notify the SAP (RP) the RPO (Source Control) and Shift Manager.	[R]	[I]	[I]	[I]				(I)	(I)		(I)		SAP (RP) must inform the NNR.
10.2 Raise a CR.	[R]												KAA-688
10.3 Institute steps to recover the lost source.	[R]		[I]				(S)		[S]				
10.4 Source recovered?		Y/N											
10.5 Submit report to the NNR describing condition of the source and details of incident.			[R]					[I]		[I]			Within 14 days of loss of source. KAA-688
10.6 Submit final report to NNR and details of incident.			(R)				[S]			[I]	(I)		KAA-688
11 Use of Radioactive Sources													
11.1 Control the use of the source in terms of RPC requirements.		[R]											
11.2 Has a major spillage /incident occurred when using an unsealed source?		Y/N											No further action required.
11.3 Notify SAP (RP), RPO (Source Control) and Shift Manager.		[R]	[I]	[I]				[I]					
11.4 Amend the source inventory.	[R]	[C]	[I]										
11.5 Clean up any spillage.							[S]						
11.6 Raise a CR.		[R]	[I]					(I)					KAA-688
11.7 Submit report to NNR and details of the incident.		[I]	[R]				(S)			[I]			

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Flow Path:
Main Flow ⟷ Secondary Flow

ACTIVITIES	1 SECTION SOURCE CONTROLLER	2 SOURCE HANDLER	3 RPO (SOURCE CONTROL)	4 SENIOR AUTHORISED PERSON (RP)	5 RADIATION PROTECTION CONTROLLER	6 APPLICABLE GROUP / SECTION	7 RP PLANT	8 OPERATING SHIFT MANAGER	9 SECURITY	10 RISK & REGULATION	11 NNR	12 DRC	NOTES & REFERENCES
12 Leak Tests													
12.1 Carry out annual leak test on sealed sources.			[R]				[S]						Permanently retained sources inside equipment leak tested every two years. KWH-S-007
13 Radiography Sources, X-Ray Equipment and Soil Density Gauges													KWH-S-045 KWH-S-046
13.1 Obtain the necessary approvals and inform the respective groups prior to source arrival on site.			[A]	[A]	[A]	[R]	[I]	[I]	[I]				KFH-HP-015 KFH-HP-022 KWH-S-045
13.2 Obtain certification for all sources and personnel and keep on record.						[R]	[I]						RT Co-ordinators must ensure that all certifications and records were obtained by the line groups.
13.3 Escort source and provide job coverage.							[R]						KWH-S-045 KWH-S-046 Job cover as per RPC and RTWP requirements.
13.4 Handle and transport source correctly.						[R]	[S]						IAEA TS-R-1
13.5 Complete the Checklist and send it to the RP Controller.					[I]	[C]	[R]						
13.6 Store source in N040.						[R]	[S]						KFH-HP-016 KWH-S-045
14 X-ray Machines (Security)													
14.1 Apply to the DRC for electronic products licence.			[R]						[S]			[I]	Form RC001 (90 days before intended use). Form obtainable from DOH.
14.2 Notify relevant groups before replacement or removal of the X-ray machine.			[I]						[R]				
14.3 Notify DRC of any changes in X-ray machine.			[R]						[I]			[I]	Form RC001
14.4 Control the keys for the operation of the X-ray machines.									[R]				

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Flow Path:
Main Flow ⟷ Secondary Flow

ACTIVITIES	RPO (SOURCE CONTROL) 1	SOURCE HANDLER 2	RP DECON AND RADWASTE 3	MAINTENANCE TECHNOLOGY SERVICES 4	APPLICABLE GROUP / SECTION 5	OPERATING SHIFT MANAGER 6	SECURITY 7	RISK & REGULATION 8	RP PLANT 9	NNR 10	DRC 11	RP MANAGER 12	**NOTES & REFERENCES**
	ORGANISATION / FUNCTION												
14.5 All maintenance on X-ray machines to be assessed by RP prior to commencement of work.				[R]					[S]				
14.6 Attach applicable visible warning signs on all X-ray machines.							[R]						
14.7 Raise a CR on any incident.	[I]						[R]					[I]	
14.8 Report any incident involving X-ray machines to the RPO (Source Control).	[I]						[R]		[I]		[I]		
14.9 Report of any incidents submitted to the DRC.	[I]					[I]	[R]				[I]	[I]	KAA-688
15 Smoke Detectors													
15.1 Inform Radiation Protection before any work is performed on smoke detectors.				[R]					[I]				NAB, Fuel Buildings and Containments.
15.2 Perform contamination survey on removed detectors.									[R]				
15.3 Dispose of old detectors in accordance with KWH-S-041.	[I]				[R]				[S]				KWH-S-041
15.4 To remove smoke detectors from site, report to RP requesting a survey of the detectors.				[R]					[S]				
15.5 Perform survey and reference serial numbers on the survey form (if available).									[R]				Do not release detectors.
15.6 Attach a copy of the survey form to form KFQ-ML-001 (KAA-640) and obtain the appropriate signatures.				[R]									For authorised signatures, refer to KWH-S-041
15.7 Release detectors only on presentation of a signed KFQ-ML-001 form.				[I]					[R]				

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Flow Path:
Main Flow Secondary Flow

ACTIVITIES	RPO (SOURCE CONTROL)	SOURCE HANDLER	RP DECON AND RADWASTE	MAINTENANCE TECHNOLOGY SERVICES	APPLICABLE GROUP / SECTION	OPERATING SHIFT MANAGER	SECURITY	RISK & REGULATION	RP PLANT	NNR	DRC	RP MANAGER	NOTES & REFERENCES
	ORGANISATION / FUNCTION												
	1	2	3	4	5	6	7	8	9	10	11	12	
16 Movement of Radioactive Sources													
16.1 Sealed Sources													
16.1.1 Complete a separate logbook form for each source.		(R)			[R]								
16.1.2 Enter the source number in the Inventory Number field.		(R)			[R]								Sources only need to be signed out if they leave the storage area.
16.1.3 Sign sources in and out on the appropriate logbook form.		(R)			[R]								
16.2 Filter Testing Sources													
16.2.1 Complete a separate logbook form for each Tc-99 and I-131 source.					[R]				[S]				
16.2.2 Enter the Packing Note number in the Inventory Number field.					[R]				[S]				
16.2.3 Write the Packing Note number on the source container.					[R]				[S]				
16.2.4 Sign out every sample drawn from a particular source on the appropriate logbook, and Destination in the destination field.					[R]				[S]				KWH-S-041
16.3 Radiography Sources and Soil Density Gauges													
16.3.1 Sign the sources in and out on the logbook.					[R]				[S]				Complete separate logbook sheet for each source and reference the container serial number as the inventory number.

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Flow Path:
Main Flow ⟷ Secondary Flow

ACTIVITIES	1 SECTION SOURCE CONTROLLER	2 SENIOR AUTHORISED PERSON (RP)	3 RPO (SOURCE CONTROL)	4 SOURCE HANDLER	5 RP DECON AND RADWASTE	6 APPLICABLE GROUP / SECTION	7 RADWASTE MANAGEMENT	8 OPERATING SHIFT MANAGER	9 SECURITY	10 RISK & REGULATION	11 RP PLANT	12 NNR	13 MR & S	NOTES & REFERENCES
ORGANISATION / FUNCTION														
17 Plant Equipment Containing Radioactive Sources														
17.1 Maintain register of equipment / sources.			[R]			[S]								KFH-HP-012 KWH-S-041
17.2 Notify RPO (Source Control) of the movement of equipment / sources.			[I]			[R]								KFH-HP-016 KWH-S-041
17.3 Notify Radiation Protection when equipment / sources leave and return to site.		[I]	[I]			[R]					[I]			KAA-640
17.4 Update Equipment / Source Inventory.			[I]			[R]								
17.5 Perform leak test on new and removed equipment / sources.			[I]								[R]			KAA-640
17.6 Annual inspection and inventory to be performed.			[I]			[R]								
18 Analysis instrumentation utilizing X-rays														
18.1 Identify the equipment.						(R)								
18.2 Notify RP Plant.						(R)					(I)			
18.3 Perform radiological surveillance on equipment when switched on, to measure emitted radiation.											(R)			KWH-S-041 KWH-S-045
18.4 Equipment must be stored under locked conditions when not in use.						(R)								
18.5 Only trained and authorised personnel may operate such equipment.						(R)					(I)			A list of the authorised personnel must be available in the responsible group/s and provided to RP.

WORK FLOW RESPONSIBILITY MATRIX	APPENDIX 1 – SOURCE CONTROL

R – Responsible
A – Approve
F – File
• – Outside Matrix Scope
Y/N or N/Y – Decision
C – Concur
I – Informed
S – Service
[ ] – Mandatory Requirement
( ) – As Appropriate/Required
Flow Path:
Main Flow ⟷ Secondary Flow

ACTIVITIES	1 SECTION SOURCE CONTROLLER	2 SENIOR AUTHORISED PERSON (RP)	3 RPO (SOURCE CONTROL)	4 SOURCE HANDLER	5 RP DECON AND RADWASTE	6 APPLICABLE GROUP / SECTION	7 RADWASTE MANAGEMENT	8 OPERATING SHIFT MANAGER	9 SECURITY	10 RISK & REGULATION	11 RP PLANT	12 NNR	13 MR & S	NOTES & REFERENCES
19 Disposal of Sources and Empty Source Containers														
19.1 Identify the source.						[R]								
19.2 Notify the RPO (Source Control).			[I]			[R]								
19.3 On disposal of primary / secondary standards derived from the supplier's standard, forward all associated paperwork to the RPO (Source Control).			[I]			[R]								
19.4 Complete / update the Source Register form.			[R]											KWH-S-041 KFH-HP-012
19.5 Dispose of the source as radioactive waste.	[I]		[I]				[I]				[R]			KWH-S-041
19.6 Disposal of unused empty source containers to be in accordance with KWH-S-041						[R]								KWH-S-041
20 Shipment of Sources														
20.1 All sources to be shipped off site in accordance with IAEA requirements.		[I]	[I]			[R]					[S]			
21. Reports														
21.1 Submit the annual report to the NNR.			[R]							[S]		[I]		Sources acquired, sources disposed of, liquid radioisotopes used and radiation incidents during the year.

APPENDIX 2

EXAMPLE OF RADIATION PROTECTION OFFICER (SOURCE CONTROL) APPOINTMENT CERTIFICATE

Eskom

Radiation Protection Officer (Source Control) Appointment Certificate

KOEBERG NUCLEAR POWER STATION

Radiation Protection Officer (Source Control) Appointment Certificate for:

Name:_____ (UN no:_____)

You are hereby appointed as Radiation Protection Officer (Source Control) in terms of Regulation R.247 (Chapter 3 Section 6) published in the Government Gazette 14596 dated, 26 February 1993, and in terms of Regulation R.1302 published in the Government Gazette 13299 dated 14 June 1991 to assist me with my duties as the Holder of Authority regarding Hazardous Substances Group IV and Group III hazardous substances (electronic products) at Koeberg Power Station.

You are hereby responsible for implementation of the Radiation Protection Officer's duties prescribed in terms of Regulation R247 (Chapter 3 Section 6) published in the Government Gazette 14596 dated, 26 February 1993, by the Eskom Radiation Protection and Safety of Radiation Sources Policy 32-227 and responsible for ensuring compliance with the following Eskom Radiation Protection Standards and KAA-633: Control of Radioactive Sources and X-Ray Equipment on the Koeberg Nuclear Power Station site.

1. 238-19: Generation Division Radiation Protection Manual.
2. 238-39: Requirements for the Safe use of Industrial Gauges containing radioactive sources.
3. 238-41: Radiation Protection Requirements for the Safe Use of Unsealed sources
4. 238-45: Radiation Protection Requirements for Soil Moisture and Density Gauges
5. 238-46: Requirements for the Safety, Security and Control of Radioactive Sources
6. 238-79: Nuclear division Medical Response to a Radiological Incident or Accident Relating to Radioactive sources.

This appointment is with effect from date of acknowledgment and will be valid until it is withdrawn in writing.

…… ……

General Manager: Koeberg Nuclear Power Station **Date**

Acceptance of Appointment

I, _____ do hereby accept the above duties and acknowledge that I understand the requirements of this appointment.

…… ……

Radiation Protection Officer (Source Control) **Date**

- ☐ Copy to RP Training for Personal file
- ☐ Authorisation Database updated
- ☐ Copy to Occupational Health and Safety

Generation Division
Radiation Protection Department
Koeberg Nuclear Power Station, Private Bag X10, Kernkraag, 7440
Tel +27 21 550 4911 Fax +27 21 550 4911 www.eskom.co.za

Eskom Holdings SOC Ltd Reg No 2002/015527/30

APPENDIX 3

EXAMPLE OF ACTING RADIATION PROTECTION OFFICER (SOURCE CONTROL) APPOINTMENT CERTIFICATE

Eskom

Acting Radiation Protection Officer (Source Control) Appointment Certificate

KOEBERG NUCLEAR POWER STATION

Acting Radiation Protection Officer (Source Control) Appointment Certificate for:

Name:_____ (UN no:_____)

You are hereby appointed as Acting Radiation Protection Officer (Source Control) in terms of Regulation R.247 (Chapter 3 Section 6) published in the Government Gazette 14596 dated, 26 February 1993, and in terms of Regulation R.1302 published in the Government Gazette 13299 dated 14 June 1991 to assist me with my duties as the Holder of Authority regarding Hazardous Substances Group IV and Group III hazardous substances (electronic products) at Koeberg Power Station, in the absence of the Radiation Protection Officer (Source Control).

You are hereby responsible for implementation of the Radiation Protection Officer's duties prescribed in terms of Regulation R247 (Chapter 3 Section 6) published in the Government Gazette 14596 dated, in terms of Regulation R.1302 published in the Government Gazette 13299 dated 14 June 199126 February 1993, by the Eskom Radiation Protection and Safety of Radiation Sources Policy 32-227 and responsible for ensuring compliance with the following Eskom Radiation Protection Standards and KAA-633: Control of Radioactive Sources and X-Ray Equipment on the Koeberg Nuclear Power Station site.

1. 238-19: Generation Division Radiation Protection Manual.
2. 238-39: Requirements for the Safe use of Industrial Gauges containing radioactive sources.
3. 238-41; Radiation Protection Requirements for the Safe Use of Unsealed source.
4. 238-45: Radiation Protection Requirements for Soil Moisture and Density Gauges.
5. 238-46: Requirements for the Safety, Security and Control of Radioactive Sources.
6. 238-79: Nuclear division Medical Response to a Radiological Incident or Accident Relating to Radioactive sources.

This appointment is with effect from date of acknowledgment and will be valid until it is withdrawn in writing.

....
General Manager: Koeberg Nuclear Power Station **Date**

Acceptance of Appointment

I, _____ do hereby accept the above assigned duties and acknowledge that I understand the requirements of this appointment.

....
Acting Radiation Protection Officer (Source Control) **Date**

- ☐ Copy to RP Training for Personal file
- ☐ Authorisation Database updated
- ☐ Copy to Occupational Health and Safety

Generation Division
Radiation Protection Department
Koeberg Nuclear Power Station, Private Bag X10, Kernkraag, 7440
Tel +27 21 550 4911 Fax +27 21 550 4911 www.eskom.co.za

Eskom Holdings SOC Ltd Reg No 2002/015527/30

APPENDIX 4

EXAMPLE OF RADIATION PROTECTION CONTROLLER (INDUSTRIAL RADIOGRAPHY) APPOINTMENT CERTIFICATE

Eskom

Radiation Protection Controller (Industrial Radiography) Appointment Certificate

KOEBERG NUCLEAR POWER STATION

Radiation Protection Controller (Industrial Radiography) Appointment Certificate for:

Name: _____ (UN:_____)

You are hereby appointed as Radiation Protection Controller (Industrial Radiography) in terms of the following Eskom Radiation Protection Standards and KAA-633: Control of Radioactive Sources and X-Ray Equipment (Radiography).

1. 238-40: Radiation Protection Requirements for Industrial Radiography
2. 238-45: Radiation Protection Requirements for Soil Moisture and Density Gauges
3. 238-79: Nuclear division Medical Response to a Radiological Incident or Accident Relating to Radioactive sources.

You are hereby responsible for ensuring that industrial radiography contractors on the Koeberg Nuclear Power Station site are in full compliance with the requirements addressed in the Eskom Standards:

1. 238-40: Radiation Protection Requirements for Industrial Radiography,
2. 238-45: Radiation Protection Requirements for Soil Moisture and Density Gauges and Koeberg procedures related to Industrial Radiography and the use of Soil Moisture and Density Gauges.

This appointment is with effect from date of acknowledgment and will be valid until it is withdrawn in writing.

…… ……..
General Manager: Koeberg Nuclear Power Station **Date**

Acceptance of Appointment

I, _____ do hereby accept the above duties and acknowledge that I understand the requirements of this appointment.

…… ……..
Radiation Protection Controller **Date**

- ☐ Copy to RP Training for Personal file
- ☐ Authorisation Database updated
- ☐ Copy to Occupational Health and Safety

Generation Division
Radiation Protection Department
Koeberg Nuclear Power Station, Private Bag X10, Kernkraag, 7440
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APPENDIX 5

JUSTIFICATION

Revision 12

1. Implement appointment letters for Radiation Protection Officer, Alternate Radiation Protection Officer, Radiation Protection Controller and Alternate Radiation Protection Controller.

2. Implement the assessment of administrative / engineering controls of storage locations.

3. Implement the responsibilities and line of communication related to the Safety and Security of radiation sources.

Revision 13

1. Scheduled review.