Eskom	WORKING PROCEDURE	Allocation Centre 38A	Reference Number KWH-S-041	Rev 15
NNR: NO No.:	RADIATION PROTECTION SOURCE CONTROL			PAGE 1

KORC	ACCESS	IMPORTANCE CATEGORY	NEXT REVIEW DATE	DATE AUTHORISED
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T KARSTEN	Y KONTSIWE	K BALOYI
RADIATION PROTECTION MANAGER	SENIOR RADIATION PROTECTION ASSISTANT	RADIATION PROTECTION SERVICES MANAGER (ACTING)
DATE 2024-03-05	**DATE** 2024-03-08	**DATE** 2024-03-11

THIS PROCEDURE HAS BEEN SEEN AND ACCEPTED BY:

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CATEGORY 3 – PROCEDURE FOR REFERENCE

FCA	ALARA REVIEW	SUPERSEDES
PROTECTION	YES 2024-01-04	KWH-S-041, Rev 14 dd. 2019-09-05 FULL REVIEW

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1.0 PURPOSE

1.1 To provide guidelines to Radiation Protection personnel for the registration, handling and control of radioactive sources and X-ray apparatus at Koeberg Nuclear Power Station.

2.0 SCOPE

2.1 Applicable to radioactive sources, X-ray units and sources brought on-site by contractors.

2.2 Not applicable to Nuclear Fuel and Radiography sources.

3.0 DEFINITIONS AND ABBREVIATIONS

3.1 Definitions

3.1.1 **Acting Radiation Protection Officer (Source Control)** – A person who has been authorised by the employer to assist the Radiation Protection Officer with execution and administration obligations in respect of radioisotopes and listed electronic products at a certain site. Acting as the RPO (Source Control).

3.1.2 **Calibration Certificate** – This document must contain as a minimum, the isotope, activity and the date of manufacture.

3.1.3 **Group III Hazardous Substance** – Any electronic product, which emits radiation when in operation as defined in the Hazardous Substances Act 1973 (Act No. 15 of 1973).

3.1.4 **Group IV Hazardous Substance** – Any radioactive material, which exceeds limits defined in the Hazardous Substances Act 1973 (Act No. 15 of 1973).

3.1.4.1 **Radioactive Sources** that meet the following requirements are classified as Sources:

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

NOTE: *The fire 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).

3.1.5 **Listed Electronic Products** – Electronic equipment which in operation, emit radiation when activated, such as X-ray machines and other products declared as **Group III hazardous substances**.

3.1.6 **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.

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

3.1.8 **Radioactive Sources** – Sealed or unsealed sources declared Group IV hazardous substances.

3.1.9 **Sealed Source** – A **Group IV hazardous substance** that is firmly bonded within solid inactive material or sealed in an inactive capsule of sufficient mechanical strength to exclude the possibility of contact with such substance and of the distribution into the environment.

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 **Transport Index** – For the purposes of this procedure, it is the doserate at 1m from the external surface of the package in microSieverts per hour divided by 10.

3.1.12 **Unsealed Source** – Any **Group IV hazardous substance** that is not a **sealed source**.

3.2 Abbreviations

3.2.1 **ACP** – Access Control Point

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

3.2.3 **Bq** – Becquerel

3.2.4 **ESL** – Environmental Survey Laboratory

3.2.5 **FFD** – Fitness for Duty

3.2.6 **IAEA** – International Atomic Energy Agency

3.2.7 **I&T** – Inspection and Test

3.2.8 **ISI** – In-Service Inspection

3.2.9 **KRT** – Plant Radiation Monitoring System

3.2.10 **MR & S** – Materials Reliability and Sciences

3.2.11 **NAB** – Nuclear Auxiliary Building

3.2.12 **NNR** – National Nuclear Regulator

3.2.13 **RCZ** – Radiation Controlled Zone

3.2.14 **RP** – Radiation Protection

3.2.15 **RPC** – Radiation Protection Certificate

3.2.16 **RPM** – Radiation Protection Monitor

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

3.2.18 **RPOO** – Radiation Protection Operations Office

3.2.19 **SAHPRA** – South African Health Products Regulatory Authority

3.2.20 **SAP** – Senior Authorised Person

3.2.21 **SRPA** – Senior Radiation Protection Assistant

3.2.22 **TLD** – Thermolumiscent Dosimeter

4.0 REFERENCES

4.1 Referenced Documents

4.1.1 238-54, Rev 1: Radiological Protection Licensing Requirements for Koeberg Nuclear Power Station

4.1.2 240-97662724, Rev 2: Operation of INNOV-X Systems X-ray Fluorescence Spectrometer at Koeberg Nuclear Power Station

4.1.3 32-226, Rev 2: Requirements and Rules for Radiation Protection and Safety of Radiation Sources

4.1.4 32-227, Rev 3: Radiation Protection and the Safety of Radiation Sources

4.1.5 335-2, Rev 6: Koeberg Nuclear Power Station Management Manual

4.1.6 Government Regulation R246, Government Gazette 14596, 26 February 1993

4.1.7 Government Regulation R247, Government Gazette 14596, 26 February 1993

4.1.8 Hazardous Substances Act 1973 (Act No. 15 of 1973)

4.1.9 KAA-500, Rev 14: The Process for Controlled Documents

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

4.1.11 KFH-HP-020, Rev 7: Appointment as Section Radioactive Source Controller

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

4.1.13 KSA-049, Rev 10a: Koeberg Training Standard

4.1.14 KSH-011, Rev 11: Radiation Protection Certificate (RPC) Programme Requirements

4.1.15 KWH-S-033, Rev 21: Processing and Administration of Solid Radwaste

4.1.16 KWH-S-037, Rev 15: Classification of Solid Radioactive Materials and the Acceptable On and Off-site Packaging Requirements for such Materials

4.2 Applicable Documents

4.2.1 IAEA SSR-6: Regulations for the Safe Transport of Radioactive Material, 2018 Edition

4.2.2 KAA-633: Control of Radioactive Sources and X-ray Equipment

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

4.2.4 KAA-688: The Corrective Action Process

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

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

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

4.2.8 KFH-HP-016: Source Logbook

4.2.9 KFH-HP-017: Weekly Source Checks

4.2.10 KFH-HP-081: Purchase of Radioactive Isotopes

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

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

4.2.13 KWH-AL-004: Radiation Protection Formal ALARA Programme Criteria, Actions and Documentation

4.2.14 KWH-S-001: Radiation and Surface Contamination Surveys

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

4.2.16 KWH-S-045: Radiation Protection Requirements for Industrial Radiography On Site

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

4.2.18 Technical Assessment Report (TAR) – 65/01 (Document No. 772552R)

5.0 PREREQUISITES

5.1 The RPO (Source Control), the ARPO (Source Control), the appointed RP Section Source Controllers and all RP authorised Source Handlers must ensure that the functional responsibilities for their positions as specified in procedure KAA-633 are implemented.

5.2 All personnel required to use or handle radioactive sources must have successfully completed the source handlers course.

5.3 All RP instrumentation used for the surveillance of radioactive source control must be checked for correct operation before use and verified to be within specifications and within valid calibration dates.

5.4 Only a Senior Authorised Person (RP) shall be allowed to authorise the receipt and shipment of nuclear hazardous material to and from the site.

6.0 PRECAUTIONS AND LIMITATIONS

6.1 Principal dosimetry (TLD) must be worn at all times when using or handling radioactive sources. Direct Reading dosemeter to be worn in accordance with the RPC.

6.2 Source Handlers must conform to all the relevant RPC requirements when using or handling radioactive sources.

6.3 Source Handlers must not directly handle unsealed radioactive sources but make use of tweezers, tongs or extension handles.

6.4 Source Handlers must put into practice the ALARA principles when using or handling radioactive sources (KWH-AL-004).

6.5 Radioactive sources must not be left unattended unless they are stored in an authorised source store or are normally inaccessible by being contained in a plant system, e.g. KRT and Reactor start-up sources.

6.6 Any loss, spillage, damage, or loss of shielding containment to radioactive sources during handling or use must be immediately reported to the RPO (SC) or the ARPO (SC) (KAA-633).

6.7 Consideration must be given to all the legal and safety aspects involved when the acquisition of additional radionuclides is being considered.

6.8 Damaged sources should under no circumstances be repaired. Damaged sources must be immediately reported to the RPO (SC) or the ARPO (SC) (KAA-633) who will advise on the discarding of the damaged source, as applicable.

7.0 PROCEDURE

7.1 Purchase of Radioactive Sources

7.1.1 When the need to purchase a new or replacement source is identified the RPO (SC) must be notified.

7.1.2 The RPO (SC) will determine whether the need can be satisfied from the existing source inventory. If no suitable sources are available, the RPO (SC) or ARPO (SC) will inform the requestor of the decision.

7.1.3 When approval has been granted a requisition for the purchase of radioactive isotopes (KAA-633, form KFH-HP-081) must be completed and sent to the RPO (SC).

7.2 Receipt of Radioactive Sources

7.2.1 Radioactive sources may only be received at ACP and the Site Stores. The user on site to inform Security of the anticipated date of source arrival. Upon arrival at the ACP or Site Stores, Security will immediately inform the duty SRPA of the arrival of the source (KAA-633).

7.2.2 The receipt of the source must be arranged by the duty SRPA. When RP is not the end user of the source, the Section Source Controller or the end user will be contacted to assist with the transfer of the source from the ACP. However, for safety reasons, if the end user cannot be contacted or is unable to assist, then RP must take the responsibility for the transfer of the source from the ACP.

7.2.3 Before proceeding to the ACP to receive the radioactive source, the delegated RPM must select the appropriate surveillance instrumentation and equipment (KWH-S-001).

7.2.4 On arrival at the ACP, the RPM must perform the following tasks:

(1) Locate the package containing the radioactive source.

(2) Ensure that the source and/or container has been labelled with a radioactive trefoil, type of nuclide and activity.

(3) Perform a radiation doserate survey at a distance of 1 m from the package to ensure compliance with transport index.

NOTE: *Radioactive sources with an activity of 4000 Bq and above, which do not meet the criteria as specified in points 2 and 3, will not be allowed on site.*

Radioactive sources below 4000 Bq do not have to meet these requirements.

(4) When no leakage is evident open the outer cardboard packaging and remove the source container.

(5) Perform a radiation doserate survey on contact and at 50 cm from all external surfaces of the source container.

NOTE*: All alpha emitting sources must be surveyed for neutron emissions upon arrival on site.*

(6) Perform a surface contamination survey by smear on all external surfaces of the source container.

(7) Evaluate and quantify surveillance results.

(8) Ensure the source container meets the radiological leakage acceptance criteria as listed in section 8.0. If the acceptance criteria are not met, see section 8.0 of this procedure.

(9) When the acceptance criteria are within specification, sign the delivery invoice, give the copy to the carrier who delivered the source. The end user to send the copy to site stores to update SAP system.

(10) Place the source container back in the cardboard packaging.

(11) Request Security to supply a sniffer dog or use X-ray machine so that the source can be cleared to come on site.

(12) If the end user Source Handler is in attendance, hand over source package to the end user for transfer in accordance with KAA-633.

(13) When the end user Source Handler is not in attendance or RP is the end user, transport packaged source to an authorised RP source store (N040 / NAB).

(14) Enter source details in the source store logbook.

NOTE*: Enter the source serial number in the inventory column of the source logbook. The source serial number will serve as a temporary Koeberg source inventory number until such time that the RPO (SC) issues a permanent Koeberg inventory number for the source.*

(15) Inform the duty SRPA of source storage location.

(16) Write a surveillance report and send a copy of the report and the original calibration certificate to the RPO (SC). The end user is responsible for submitting the delivery note and invoice to Site Stores and Accounts Payable respectively.

7.2.5 The duty SRPA must record source receipt details in the SRPA logbook and inform the end user and the RPO (SC) of the receipt of the source.

7.2.6 The RPO (SC) must enter the details of the source receipt in the source register KFH-HP-012.

***NOTE**: The RPO (SC) must send the permanent Koeberg source inventory number to the respective Section Source Controller. The Section Source Controller must ensure that the permanent Koeberg inventory number is entered in the inventory column of the source logbook, to replace the source serial number.*

7.3 Disposal of Sources and Empty Source Containers

7.3.1 Sealed Sources

7.3.1.1 Details concerning the method and place of disposal must be entered by the RPO (SC) on the source register form (KFH-HP-012), if the source is not disposed of at Koeberg Nuclear Power Station. This form must be treated as a permanent record.

***NOTE:** Sources will only be classified as disposed of once it has been placed in an appropriate radwaste container.*

7.3.1.2 RP Radwaste Section to notify the RPO (SC) and the relevant Section Source Controller of the disposal.

7.3.1.3 Transuranic sources, e.g. Am-241, may only be disposed of on approval by SAHPRA.

7.3.2 Unsealed Sources

7.3.2.1 Users of unsealed sources must inform the Radiation Protection RPO (SC) when such a source is discarded, used up or has decayed to zero activity (KAA-633).

***NOTE:** In the event of a spillage of an unsealed source, the RPO (SC) must be informed as soon as possible. Both the user and the RPO (SC) must amend their source inventories and the NNR must be notified of the occurrence, in accordance with KAA-688.*

7.3.2.2 On notification, the RPO (SC) will note the details in the Source Register and treat it as a permanent record..

7.3.2.3 All secondary sources must be controlled and handled as radioactive sources.

7.3.3 Empty Source Containers

7.3.3.1 Ensure that all source identification markings (source reference number, activity, radionuclide name and radioactive trefoil) are removed from all empty source containers before disposal or reuse.

7.3.3.2 Store all empty lead containers in N040 for reuse. The filter efficiency test source containers that need to be reused are to be kept in the RP Source store in the NAB for decay. After decay, the containers without radioactivity are stored in the I&T store awaiting final clearance and shipment back to the manufacturer.

7.4 Use of Radioactive Sources

7.4.1 Radioactive Source Handlers

7.4.1.1 Only personnel that have successfully completed the Source Handlers course are permitted to handle radioactive sources.

7.4.1.2 The Radiation Protection Dosimetry Section must update the Source Handlers status on the RadPro data base.

7.4.1.3 The use of sealed and unsealed sources at Koeberg will be controlled in terms of normal Radiation Protection requirements, with respect to controlled zone classification, RPCs and contamination control.

7.5 Storage and Issue of Sealed and Unsealed Sources

7.5.1 The following source storage areas have been approved by the RPO (SC):

7.5.1.1 Sources must only be stored in the following locations:

(1)

(2)

(3)

(4)

(5)

(6)

(7)

(8)

(9)

(10)

(11)

(12) Additional areas approved by the RPO (SC) and where the appropriate controls are put in place (refer to IAEA – Tecdoc – 1355).

NNR Act 47, Section 51, PAIA 38(b).Specific source storage locations have been redacted for security reasons.

7.5.1.2 Movement of sources into or out of the various RP storage locations must be recorded in the Source Logbooks at the time of movement, KFH-HP-016. The Responsible Person must also sign the logbook when RP is not the end user.

NOTE 1: *The movement of radioactive sources from one room to another room within the same building does not have to be recorded in the logbook.*

NOTE 2: *All sources removed from the RP source store (NAB) must be logged out when leaving the storeroom.*

7.5.1.3 Source Handlers must assume full responsibility for any sources in their custody.

7.6 Accountability of Sources

7.6.1 RP Section Source Controllers must ensure an inventory of the sources which is kept in each of the RP storage areas and permanently posted at these locations. A complete inventory of all Koeberg sources is also posted in Room N040.

7.6.2 A check of the sources in all RP source storage locations, except N040, must be performed on a weekly basis by the RP Section Radioactive Source Controllers, who must record the source verifications in the Weekly Source Check Register, KFH-HP-017.

NOTE*: The oncoming Duty Shift SRPA must ensure that a physical verification of the sources in the RP Source Store (NAB) on his/her shift, is performed and recorded in the SRPA Shift Logbook.*

7.6.3 Each section holding sources must carry out a monthly physical verification on all sources and containers for any signs of damage, KFH-HP-013 and KFH-HP-014. Dose rate readings are to be performed on high activity sources to indicate that they are present. High activity sources are regarded as sources that would normally not be handled due to the high dose rates or access is restricted due to the composition of the source.

7.6.4 All sources must be checked to ensure that they have, as a minimum, the following identification: radioactive trefoil, type of nuclide and activity.

7.6.5 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.

7.7 Unsealed Radioactive Sources (Consumable)

7.7.1 Users of consumable sources must provide the RPO (SC) with a monthly status report, KFH-HP-014.

7.8 Radioactive Source Registers

7.8.1 The Radioactive Source Registers must be maintained by the RPO (SC) and comprises:

7.8.1.1 Files containing the source registration forms, KFH-HP-012 calibration certificates and any other documents concerning each source.

7.9 Short Half-Life Isotopes for Filter Testing

7.9.1 After reception by RP, these sources may be handed directly to the user. If the Source is not going to be used immediately, it must be removed from its packaging material, surveyed, and shielding requirements assessed, prior to storage in the RP Source Store (NAB) and signed in the Source Logbook for short half-life isotopes. When removed, they must be signed out by an approved Source Handler (KAA-633).

NOTE: *To effectively control Tc-99 and I-131 sources a separate logbook sheet must be completed for each source. The Packing Note number (top right corner – first six digits) must be entered in the Inventory Number field on the logbook, KFH-HP-016. Also write the Packing Note number on the source container. Every sample drawn from a particular source must be signed out on the appropriate logbook and the destination in the Destination field. Dispose of any residual source in N030 after completion of filter testing.*

7.9.2 The source must be registered by the RPO (SC) on form, KFH-HP-012, but must not be assigned a permanent number. The source is identified by nuclide, activity, and activity date.

7.9.3 Any unused source material must be disposed of as radwaste by Radiation Protection.

7.9.4 All gaseous and volatile sources must be stored in an approved source store before use. If the source is not disposed of after use, the Duty SRPA shall approve the storage location, provided that all necessary signposting is in place and a log entry is made to that effect.

7.10 Eskom baggage X-ray Units on Koeberg Site (Electronic Products)

7.10.1 All X-ray units are potentially harmful, and they may only be operated in accordance with approved operating procedures.

7.10.2 All X-ray units on site are required to be licensed by the SAHPRA (KAA-633).

7.10.3 Applications for an Electronic Products licence, and for the use of X-ray units on site, are to be made to Share through the applicable process.

7.10.4 Applications for the disposal or modification are to be made to SAHPRA through the applicable process.

7.10.5 All requirements laid down in the Electronic Product licence must be adhered to. Should a unit be replaced, prior application must be made for a licence variation. The RPO (SC) must be notified when any X-ray machine is moved to a new location (KAA-633).

7.10.6 Any incident involving an X-ray unit must be reported immediately to the RPO (SC) who will furnish SAHPRA and the NNR with a written report of the incident. (In this context, “incident” is defined as a confirmed or suspected exposure of an individual or misuse of the equipment) (KAA-633).

7.10.7 Any keys that are required to operate X-ray equipment must be securely locked away when the equipment is not in use. Exception is given to Security X-ray machines; in which case a Security Officer is required to be in attendance at all times. Control of the keys is implemented by means of Security hand-over procedures (KAA-633).

7.10.8 A Radiation Protection Certificate is required for maintenance work on X-ray machines, unless exception is given by the duty SRPA depending on the type of work on the X-ray machine.

7.10.9 All X-ray machines must have the following warning signs:

(1) Caution X-rays produced when energised.

(2) To be used by Authorised Persons only.

(3) Do not insert any part of the body when system is energised - X-ray hazard (both access points).

On arrival of new X-ray machines, Security will provide these warning signs and must ensure the maintenance thereof, (KAA-633).

7.11 Analysis Instrumentation Utilising X-rays

7.11.1 The end users must notify RP Operations when equipment arrives on site.

7.11.2 RP Operations must perform radiological surveillance on the equipment when switched on, to measure emitted radiation to verify that the analyser does not generate energies higher than designed or maybe due to damage.

7.11.3 End users must ensure that the equipment is stored under locked conditions when not in use.

7.11.4 Only trained and authorised personnel may operate such equipment (a list of the authorised personnel must be available in the responsible group/s and provided to RP).

7.11.5 Electronic Personal Dosimeters and TLD’s must be worn when using the equipment.

7.11.6 Radiological controls must be implemented if the general area radiation levels exceed 7.5 µSv/h when in use (refer to procedure KWH-S-046).

7.11.7 KWH-S-045 to be in force / implemented if the analyser operates by means of a radioactive source.

7.12 Lost / Missing Radioactive Sources

7.12.1 The RPO (SC), SAP (RP), Security and Shift Manager must be notified as soon as a source is found to be missing. Notify the NNR by means of a Condition Report (KAA-688).

7.12.2 The RPO (SCl) must ensure that immediate steps are taken to recover or locate the lost or missing source.

7.12.3 If the source is recovered, the RPO (SC) must submit a full report to the NNR, describing the condition of the source and its container and detailing the circumstances pertaining to the incident.

7.12.4 If the source is not recovered, the RPO (SC) must submit a full report to the NNR as required by KAA-688.

7.13 Leak Tests

7.13.1 The RPO (SC) must ensure that:

7.13.1.1 Leak tests on all sealed sources are carried out on an annual basis.

7.13.1.2 Exemption is given in the case of KRT and Incore sources which, because of their incorporation into equipment, are leak tested when internal access is made to the individual units.

7.13.1.3 Sources which are permanently retained inside equipment must be leak tested every two years. Alternatively, if the source is not readily accessible, a smear can be taken in an accessible area in proximity to the source location.

NOTE: *Leak tests are not required on any sources with an activity lower than 4000 Bq.*

7.14 Succession of RPO (SC)

7.14.1 In the event of the RPO (SC) changing his/her position for whatever reason, the responsibilities must be transferred to a successor. The NNR and SAHPRA are required to be informed of the appointments formally.

NOTE: ***Any*** *forms enabling the process must be obtained from SAHPRA and the NNR respectively.*

7.14.2 If the Acting RPO (SC) is changed, the NNR and SAHPRA must be notified formally.

7.15 Ionisation Smoke Detectors

7.15.1 All new ionisation smoke detectors must be less than the activity limits specified by Government Gazette 14596, notice R246:

Krypton 85 (in gaseous form) – 260 MBq

Radium-226 – 90 kBq

Americium-241 – 90 kBq

7.15.2 Maintenance personnel must inform Radiation Protection before any work is performed on ionisation smoke detector heads (KAA-633).

7.15.3 When changing ionisation smoke detectors inside Control Zones, Radiation Protection must perform a contamination survey on the removed ionisation smoke detectors.

7.15.4 The RPO (SC) must be notified by the Maintenance Department of the movement of ionisation smoke detectors, as well as the date it was performed (KAA-633).

7.15.5 When any ionisation smoke detector is removed, it must be handed to Radiation Protection, who must then assume responsibility for disposal, either by removing and disposing the source or the whole unit as radioactive waste (see Technical Assessment Report – 65/01).

7.15.6 Contaminated ionisation smoke detectors must be bagged, tagged, and taken to RP source store (NAB) for temporary storage. Maintenance Technical Services in conjunction with RP Operations will remove the sources. The sources must be surveyed for loose contamination and if clean, taken to N040 for final storage. The remainder of the ionisation casings must be checked out by a small article monitor and disposed of as radioactive or domestic waste, respectively.

7.15.7 Ionisation smoke detectors stored in N040 for disposal will be dismantled by Maintenance Technical Services in conjunction with RP Operations and RP Decon on a periodic basis to avoid a build-up of sources. Casings will be disposed of as domestic waste and the sources stored in N040.

7.15.8 Ionisation smoke detectors stored in N040 for refurbishment must be stored in the designated area.

7.15.9 Ionisation smoke detectors that are released for re-use or repair, must be released to a person from Maintenance Technology Services only. An unconditional release certificate must be handed to the Maintenance Technology Services person who must take immediate possession and responsibility of the ionisation smoke detectors.

7.15.10 The individual wishing to remove an ionisation smoke detector from site shall report to RP requesting a survey of the detector.

7.15.11 RP shall survey the ionisation smoke detector and provide a copy of the survey to the individual. The survey must reference the serial numbers of the ionisation smoke detector (if available).

***NOTE**: The ionisation smoke detector may not be released at this point.*

7.15.12 The individual wishing to remove the ionisation smoke detectors must attach a copy of the survey form to KFQ-ML-001 and have the form signed by a RPO (SC) and an SAP (RP).

7.15.13 Only on presentation of a signed KFQ-ML-001 form (KAA-640) may RP release the ionisation fire detectors.

7.15.14 Faulty ionisation smoke detectors can remain with the supplier for disposal.

8.0 ACCEPTANCE CRITERIA

8.1 Leakage

8.1.1 A leaking source is defined as giving rise to any level of detectable activity when tested as described in procedure KWH-S-007.

8.1.2 Should this limit be exceeded, Radiation Protection must seal the package in a suitable manner and move it to an approved location for temporary storage pending the following actions:

(1) The end user will sign the delivery note but must immediately inform the supplier that the source is being held.

***NOTE:** The suppliers or their agents must immediately liaise with NNR / SAHPRA concerning the removal or disposal of the leaking or contaminated source.*

(2) The RPO (SC) must be informed immediately. The Duty SRPA must take appropriate steps to dispose of any contamination which may have been caused by the incident.

(3) Radiation Protection will survey the delivery vehicle. If contaminated, the vehicle will be decontaminated before leaving Koeberg.

9.0 RECORDS

9.1 The following records generated will be maintained in accordance with KSH-008:

- Source Register (KFH-HP-012; permanent record)
- Monthly Sealed Source Status Report (KFH-HP-013; non-permanent record)
- Monthly Unsealed Source Status Report (KFH-HP-014; non-permanent record)
- Source Logbook (KFH-HP-016; non-permanent record)
- Weekly Source Check Register (KFH-HP-017; non-permanent record)
- Annual Report (permanent record)
- Appointment of RPO (SC) / ARPO (SC) / Section Source Controllers and RPC (Radiography) (permanent record)

10.0 ATTACHMENTS

Appendix 1 – Justification

APPENDIX 1

JUSTIFICATION

Revision 14

1. Close-out of action in CR 107120-004 CA: Update Procedure KWH-S-041 to state that sources may not be repaired but must be discarded. Include the requirement to perform an inspection of the source integrity and source container during the monthly source status review.

Revision 15

1. Address QA finding documented in CR 144057 and associated corrective action 144057-001 by including ISI, Whole body count room at FFD and Low Background building as permanent source storage locations.

2. Update procedure to indicate correct titles and groups (RP Operations).

3. Changed applicable government department responsible for sources.