Eskom	WORKING PROCEDURE	Allocation Centre 38A	Reference Number KWH-S-021	Rev 28
NNR: NO No.:	ACCESS CONTROL			PAGE 1

KORC	ACCESS	IMPORTANCE CATEGORY	NEXT REVIEW DATE	DATE AUTHORISED
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S TAFENI	NV ZUMA	T KARSTEN
RADIATION PROTECTION SERVICES MANAGER (ACTING)	SENIOR RADIATION PROTECTION ASSISTANT	RADIATION PROTECTION MANAGER
DATE 2023-01-30	**DATE** 2023-02-07	**DATE** 2023-02-16

THIS PROCEDURE HAS BEEN SEEN AND ACCEPTED BY:

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CATEGORY 3 – PROCEDURE FOR REFERENCE

FCA	ALARA REVIEW	SUPERSEDES
PROTECTION	YES 2023-01-25	KWH-S-021 Rev 27 dd. 2019-06-26 FULL REVIEW

PAGE STATUS INDEX

	REVISION							
Page	27	28						
1	x	x						
2	x	x						
3	x	x						
4	x	x						
5	x	x						
6	x	x						
7	x	x						
8	x	x						
9	x	x						
10	x	x						
11	x	x						
12	x	x						
13	x	x						
14	x	x						
15	x	x						
16	x	x						
17	x	x						
18	x	x						
19	x	x						
20	x	x						
21	x	x						
22	x	x						
23	x	x						
24	x	x						
25	x	x						
26	x	x						
27	x	x						
28	x	x						
29	x	x						
30	x	x						

	REVISION							
Page	27	28						
31	x	x						
32	x	x						
33	x	x						
34	x	x						
35	x	x						
36	x	x						
37	x	x						
38	x	x						
39	x	x						
40	x	x						
41	–	x						
END								

CONTENTS **PAGE**

1.0 PURPOSE

1.1 To describe the process for access to radiological controlled zones.

2.0 SCOPE

2.1 Applicable to:

- Computerised and manual process of access control.
- Self and assisted access.
- Restriction and unrestriction of workers.
- Issuing and return of all types of additional dosimetry.
- Reporting and handling of EPD alarms.
- Reporting and handling of lost, damaged or suspect EPD readings.
- Reporting and handling of lost, damaged or contaminated legal dosimetry.
- Issuing and return of all types of respiratory equipment.
- Linking workers to RPCs.
- Update ALARA pre-job briefing indicator.
- Handling of access related queries, alarms and warning notices.
- Change RPC at airlock.
- Issuing of TLDs and EPDs for emergency entries into controlled zones.
- Maintaining the RadPro EPD Database.

3.0 DEFINITIONS AND ABBREVIATIONS

3.1 Definitions

3.1.1 **Argos** – Portal Contamination monitor at exit from controlled zone.

3.1.2 **Assisted Access** – Access control performed by an RP Person using the LDM 3000 access control reader.

3.1.3 **Cask Storage Area** – An area inside the LLW Cask Storage Building barricaded by RP and signposted accordingly.

3.1.4 **Direct Reading Dosemeter** – Refers to an EPD.

3.1.5 **DMC 2000 GN** – MGP I Neutron EPD

3.1.6 **DMC 2000 S** – MGP I – EPD

3.1.7 **DosiGui** – Dosiserv Global User Interface

3.1.8 **DOSIMASS** – MGP Dosimeter Maintenance and Setup Software

3.1.9 **Dosiserv** – Dosimetry Management Services

3.1.10 **LDM 2000** – MGPI access Control Reader

3.1.11 **LDM 3000** – LDM 220 reader with associated software on PC (Assisted Access Control).

3.1.12 **Legal TLD** – A dosemeter used for assessing a person's legal dose which will be recorded on the Radiation Workers Dose Register. The legal dosemeter at Koeberg is the Thermoluminescent dosemeter (TLD).

3.1.13 **Passage** – A single entry into or exit from the controlled zone.

3.1.14 **QTD Remaining** – Remaining allowable dose (WB) for current quarter. [Quarterly limit - (QTD TLD + monitoring period EPD)]

3.1.15 **Radiation Gradient** – An increase in the ambient dose rate by a factor greater than 5 over a distance of one metre.

3.1.16 **RadPro** – Radiation Protection Computerised System

3.1.17 **SABS Number** – A number assigned by the South African Bureau of Standards. This number must be recorded on all Thermoluminescent dosemeters (TLDs).

3.1.18 **Self-Access** – Computerised access control done by a worker at a LDM 2000 access control reader.

3.1.19 **Special Person** – A person who, under exceptional circumstances and for reasons approved by the Power Station Manager, or his deputy, required entry to a Controlled Zone, but does not meet the criteria specified for a radiation worker.

3.1.20 **TLD Number** – A unique number assigned to each TLD.

3.1.21 **Tracerco EPD** – Intrinsically safe Electronic Personal Dosemeter which can be used in a potentially explosive environment.

3.1.22 **Visit** – An entry into the controlled zone together with its corresponding exit.

3.2 Abbreviations

3.2.1 **ALARA** – As Low As Reasonably Achievable

3.2.2 **AP(RP)** – Authorised Person (RP)

3.2.3 **Cal Lab** – Calibration Laboratory

3.2.4 **CR** – Condition Report

3.2.5 **CZ** – Controlled Zone

3.2.6 **DoE** – Department of Energy

3.2.7 **DRD** – Direct Reading Dosemeter

3.2.8 **DWS** – Decon Workshop

3.2.9 **ESL** – Environmental Survey Laboratory

3.2.10 **EPD** – Electronic Personal Dosemeter

3.2.11 **ISI** – In-service Inspection

3.2.12 **IAEA** – International Atomic Energy Agency

3.2.13 **LLW** – Low Level Waste

3.2.14 **MGPI** – MGP Instruments

3.2.15 **QTD** – Quarter-to-date

3.2.16 **RP** – Radiation Protection

3.2.17 **RPC** – Radiation Protection Certificate

3.2.18 **RPDOS** – Radiation Protection Dosimetry

3.2.19 **RPM** – Radiation Protection Monitor

3.2.20 **RPOO** – Radiation Protection Operations Office

3.2.21 **SAP(RP)** – Senior Authorised Person (RP)

3.2.22 **SG** – Steam Generator

3.2.23 **SI** – International System

3.2.24 **SRPA** – Senior Radiation Protection Assistant

3.2.25 **TLD** – Thermoluminescent Dosemeter

3.2.26 **VIP** – Very Important Visitor, i.e. member of parliament

3.2.27 **WB** – Whole Body

3.2.28 **YTD** – Year to Date total. This applies to TLD total dose for current year and monitoring period EPD

4.0 REFERENCES

4.1 Referenced Documents

4.1.1 115170EN-F: DMC 2000 User Manual

4.1.2 117905EN-G: DOSIMASS Software User Manual

4.1.3 132616EN-B: DMC 2000GN User Manual

4.1.4 238-54, Rev 0b: Radiological Protection Licensing Requirements for Koeberg Nuclear Power Station

4.1.5 335-2, Rev 5: Koeberg Nuclear Power Station Management Manual

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

4.1.7 KAA-637, Rev 6: Access Control to Radiological Controlled Zones

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

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

4.1.10 KWH-B-015, Rev 7: External Dosimetry Control

4.1.11 KWH-S-025, Rev 17: Containment Entries At Red Zone Or Radiation Protection Locked Zone Conditions Including Emergency Entries Into All Controlled Zones

4.2 Applicable Documents

4.2.1 KAA-583: The Provision and Application of First Aid and Emergency Care

4.2.2 KFH-HP-026: Manual Data Entry / Exit Form

4.2.3 KFH-HP-045: Neutron Dosimetry TLD Issue Form

4.2.4 KFH-HP-046: Extremity TLD Issue

4.2.5 KFH-HP-055: EPD Reporting Form

4.2.6 KFH-HP-056: Lost, Damaged or Contaminated Legal Dosimetry

4.2.7 KFH-HP-100: Special Person Controlled Zone Pass

4.2.8 KFH-HP-114: Manual Assignment of Equipment when DosiGui Application is Unavailable

4.2.9 KFH-SR-002: Full Face Mask Inspection Check-Off List

4.2.10 KSH-001: The Administration and Quality Control of Radiation Dosimetry

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

4.2.12 KWH-I-090: Operation and use of the Tracerco EPD

4.2.13 MGPI Doc No. 141381: Dosiserv Add-on User's Manual

4.2.14 MGPI Doc No. 35031: Dosiserv User's Manual

5.0 PREREQUISITES

5.1 The Radiation and Chemistry management, as well as any other person authorised by the Radiation Protection Manager, are responsible for controlling all Controlled Zone access. Only authorised personnel must perform assisted access control to radiological controlled zones.

5.2 For each individual requiring entry into the CZ the individual must:

5.2.1 Be in possession of his / her legal TLD and an EPD, i.e. DMC 2000 type MGP I.

5.2.2 Be linked to the RPC he / she want to use for the entry.

5.3 Radiation workers perform self access or report to the RP desk for assistance for the following reasons:

- Pre-job briefing required.
- Linking to RPC required.
- Issue of additional dosimetry or respiratory equipment.
- Access criteria not met e.g. incorrect TLD, expired certification, not enough dose credit for entry etc.
- Special Persons.
- Issue of Neutron TLDs or EPDs.
- Issue of Tracerco EPDs.

5.4 When performing assisted access, the access control person must:

5.4.1 Determine the reason for a worker reporting for assisted access i.e. which of the points in 5.3 is required.

5.4.2 If additional dosimetry and / or respiratory equipment need to be issued, view the RPC to determine the requirements.

5.4.3 Check that the assisted access needed criteria are fulfilled by placing a tick mark in the appropriate block.

5.5 For a worker having a Work Order /PTW without an RPC number on the Work Order, the worker must report to the Duty SRPA who will assign an RPC and link the worker to the RPC if required.

5.6 Workers without a Work Order (see note below) must book in on the relevant RPC. If they are uncertain which RPC is to be used, they must report to the duty SRPA who will assign the appropriate RPC, based on the work to be performed. Workers must be linked to the RPC they use.

NOTE: *Work not normally covered by a Work Order:*

- *Routine work – RP, Operating, Chemistry, Security;*
- *Visual pre-job inspections;*
- *Training (non-intrusive);*
- *Management / supervisors' walk-about.*

5.7 Maintaining EPD database (function of the RP Logistics Section) – if EPD's are required to be taken away for battery changes or repairs, it's status on the radpro must be changed to "OOS" (out of service) if it cannot be repaired the same day. Change the status back to "IS" (In Service) if successfully repaired. Change status to "DEF" when defective. If the defect is known (e.g. screen, battery compartment or speaker), enter status as DEF SCR, DEF BAT or DEF SPR. If an EPD is missing, change its status to "MISS" and back to "IS" when accounted for. This will ensure effective searching for the IS status of EPD's to indicate the availability of EPD's at a given time.

5.8 For responsibilities and actions for first aid response and the emergency care of sick and injured personnel and the care of deceased personnel in a Radiological Controlled Zone, refer to KAA-583.

5.9 In accordance with KAA-583, an Emergency takes preference over contamination control, the ARGOS and GEM 5 units may be bypassed but a follow up survey must be done following the event.

5.10 For any other case where a Radworker needs to exit the controlled zone rapidly (e.g. responding to an emergency outside of the controlled zone, toilet or body emergency etc.), the Radworker must contact RPOO from the nearest phone to help with rapid exit to help bypass existing queues. The use of the ARGOS and GEM 5 units should still be used.

6.0 PRECAUTIONS AND LIMITATIONS

6.1 When an RP person performing assisted access control duties is requested to fulfil the “assisted access needed” criteria, you must always verify to ensure that there were no changes that were made to the RPC that requires assisted access. For example, if the pre-job brief is required to be fulfilled, verify to ensure that the RPC was not revised and why was it revised.

NOTE: *If the RPC was revised, before fulfilling the pre job briefing indicator, the RP person performing assisted access control must ensure that everyone attempting to work on that specific RPC was briefed on the new revision and that the pre job briefing on the new revision was documented.*

6.2 In a case where the network communication between RadPro PCs, the Argos-6 unit and the server has been interrupted, the following will happen:

6.2.1 All assisted access RadPro PC’s will temporarily store the access data of a radworker and the EPD’s will be switched on.

6.2.2 The Argos-6 unit PC’s will also temporarily store the information of a radworker exiting the controlled zone and the EPD will be switched off.

NOTE: *During a network interruption, default values of the dose and dose rate alarms will be assigned to the EPD, not those of the RPC. The default values are programmed as follows:*
Dose Alarm: 200 μSv
Dose Rate Alarm: 1000 μSv/h

7.0 PROCEDURE

7.1 Self Access

7.1.1 Place EPD in LDM 2000 EPD slot (EPD number is automatically read by the reader).

7.1.2 Enter your access code (scan permit barcode or type in on keypad).

7.1.3 Scan your TLD.

7.1.4 Enter RPC number (type in on keypad).

NOTE 1: *Last four numbers (eight digit RPC number) and last five numbers (nine digit RPC number).*

NOTE 2: *Do not enter on an RPC that is compiled for a gamma EPD (DMC 2000G) with a neutron EPD (DMC 2000GN). The EPD will alarm when switched on.*

7.1.5 Confirm that RPC requirements are understood.

7.1.6 Remove EPD from the EPD slot, when access is granted. Check that the EPD is switched on and proceed to enter the controlled zone.

NOTE: *If an EPD start to alarm immediately after it was switch on at access control, switch it off with dosimass. Verify if any dose was assigned to the Radworker. Request ALARA to remove the passage. Alternatively, the dose may be corrected. Refer to Appendix 2, How to correct an Exit Passage.*

7.1.7 Remove EPD from the EPD slot and report to the RP desk in the case where access is denied.

NOTE: *Access will be denied when the RPC calls for assisted access (e.g. additional, neutron, extremity dosimetry or respiratory protection required) or the entry is not approved due to access criteria not met, worker require pre job briefing or worker is not linked to the RPC.*

7.1.8 Hold the EPD against the unlatching reader installed at the NAB, ISI, CHEM and DWS turnstile / door entrances to unlatch (unlock/open) the entrances to the CZ.

NOTE: *The turnstile or doors will only unlatch (unlock/open) upon detection of a switched on functional EPD.*

7.2 Assisted Access

7.2.1 Open LDM 3000 and DosiGui applications.

7.2.2 Perform access on the LDM 3000 in accordance with the Dosiserv User's Manual.

7.2.3 Use DosiGui application to assign equipments.

7.2.3.1 Issue of Extremity TLD's

- The requirement to issue extremity TLDs will be specified on the RPC.
- Assign extremities to the worker in the equipment tab of the worker information in DosiGui.

NOTE: *The issuing of extremity TLDs must be to the extremity (hand or foot) that is expected to receive the highest dose, or both as defined by the RPC. Based on radiological conditions, the issuing of extremity TLD's may be waivered at the discretion of RP.*

- Select EXTREMITY TLD type and the applicable TLD number.

NOTE: *If the TLD number that is selected is not available on DosiGui, do not issue the TLD, put it aside and forward the TLD to RP dosimetry.*

- In the comments field write where the extremity will be worn (hand or feet).
- Complete the Extremity TLD Issue form KFH-HP-046 for all Extremity TLDs issued.

NOTE: *It must be clearly indicated on the form when an extremity TLD has been lost or damaged.*

- If extremities need to be re-used for the same RPC, the form, together with the TLD's shall be stored at Access Control. The RP person must control it with the storage tray system, or according to RP instruction.
- The completed form, with the accompanying TLDs, is to be forwarded to RP Dosimetry at the completion of the job that required the use of the additional extremity TLD.
- At the monthly change-over, RPDOS will withdraw all extremity TLD's from RPOO (issued and unused) and replace the stock with annealed extremity TLD's.

NOTE: *RP Dosimetry will return extremity TLD's on the DosiGui system.*

7.2.3.2 Issue of Additional Whole Body TLDs

- An additional whole body TLD may be assigned to an individual by the RPOO under the following circumstances:
  - When an individual has lost or damaged his monthly wearing period TLD and RP Dosimetry is not available;
  - When an individual's entry is authorised as a Special Person and RP Dosimetry is not available;
  - If required by the RPC.
- Assign in the Equipment tab of the Worker Information in DosiGui.
- Select additional whole body TLD type and the applicable TLD number. Additional whole body TLDs are obtained from the additional whole body TLD stock.
- The newly assigned additional whole body TLD number must be recorded on the Special Person Controlled Zone Pass form KFH-HP-100, Lost, Damaged or Contaminated Legal Dosimetry form KFH-HP-056 or the Extremity TLD Issue form KFH-HP-046 as applicable.
- The completed forms with the accompanying TLDs are to be forwarded to RP Dosimetry.
- At the monthly change-over, RP Dosimetry will withdraw all additional whole body TLD's from RPOO (issued and unused) and replace the stock with annealed additional whole body TLDs.

NOTE: *RP Dosimetry will return TLDs on the DosiGui system.*

7.2.3.3 Issue of Neutron Dosemeters (Panasonic)

- Neutron dosemeters must be issued under the following conditions:
  - Reactor building entries when reactor at power or critical;
  - All other entries into areas where neutron exposure equal or greater than 100 micro Sievert (μSv) for the entry is expected.
- Due to the potential for radiation gradients, multiple neutron dosemeters must be issued for entry into the following areas in the reactor buildings at power:
  - Primary loop rooms, i.e. pump rooms and/or steam generator rooms; and rooms adjacent to the loop rooms;
  - 20 metre level adjacent to the reactor cavity;

- Any other high dose areas in which radiation gradients are possible.

NOTE 1: *For multiple badging, neutron dosemeters must be placed on the head, chest, back and on both ankles.*

NOTE 2: *RP Dosimetry must be informed well in advance of the number of neutron dosemeters required for multi-badging.*

- Assign neutron dosemeters to the worker in the Equipments tab of the Worker Information in DosiGui.
- Select neutron TLD and the applicable number.
- The issue of neutron dosemeters must be recorded on the Neutron Dosimetry TLD Issue form KFH-HP-045. For multi-badging, one form per person must be used. The location on the body where dosemeters will be placed must be indicated on the form.

NOTE: *For multi-badging enter the location where dosemeters will be worn in the comments field.*

- The individual's monthly worn legal dosemeter must be withdrawn and kept at Access Control. After completion of the task, the legal dosemeter must be handed back to the radworker.
- The completed form together with the dosemeters must be forwarded to RP Dosimetry.

NOTE: *RP Dosimetry will return dosemeters on the DosiGui system.*

7.2.3.5 Issue of Tracerco EPDs

- The Tracerco EPD and software are not interfaced with the RadPro Access System. Refer to KWH-I-090.
- A DMC EPD is still required to access a controlled zone but must be removed before entering a designated potential explosive area.
- Perspex holders are fixed against the wall near the Argos portal monitors (CZ side) and shall be utilized to store an individual's assigned DMC EPD after entering the CZ.
- Upon exiting the CZ via the Argos portal monitor with his/her assigned DMC EPD, obtained from the perspex holder, the individual shall then report to RPOO front desk and hand over his/her assigned Tracerco EPD to a qualified RP person who will record any dose accrued. Refer to Appendix 2, How to correct an Exit Passage.

7.2.3.6 Issue of Additional Dosimetry when uneven Exposure to the Whole Body is predicted:

- In the case where uneven exposure to the whole body is expected or the highest dose location on the whole body is not known, additional TLDs should be worn on those parts of the whole body that might receive the highest dose. Refer to KSH-001.

- The highest dose recorded by the TLDs will be assigned as the whole body dose.

- Additional TLDs should always be issued when the following applies: Radiation gradient ≥ 1,5 and Dose rates in the general work area exceed 1000 μSv/hr.

NOTE: *Special suits are available for SG jumpers for proper placement of dosimetry.*

- Assign the TLDs to the worker in the Equipment tab of the Worker Information in DosiGui.

- If high dose jobs are identified and require additional Dosimetry, it will be specified on the applicable RPC.

- Select additional whole body TLD type and the applicable TLD number (TLD's are obtained from the additional whole body TLD stocks).

- Enter the body location where the additional whole body TLD will be worn in the comments field.

- Return all TLD's to RP Dosimetry after use.

NOTE: *RP Dosimetry will return TLD's in the DosiGui system.*

7.2.3.7 Issue of Respiratory Protection

- Assign any respiratory protection device to the radworker in the Equipments tab of the Workers Information in the DosiGui.

- Select the applicable respirator type and serial number of the respirator.

NOTE 1: *The selected respirator has to be one of those required by the RPC and the radworker must be trained and qualified in the use of the specified types of respirators.*

NOTE 2: *The issue of respiratory protection devices may be overridden; this will be at the discretion of RP.*

7.2.4 Update Assisted Access Needed Criteria

7.2.4.1 After issuing of equipments and providing assisted access to a worker, the Assisted Access Needed criteria must be fulfilled before the worker can book into the controlled zone.

7.2.4.2 This is performed in the Worker Information screen, Access tab, by clicking the ASSISSTEDACCESSNEEDED, fulfilled box.

7.2.5 Use DosiGui Application to Link a Worker to an RPC and to Fulfil Pre-job Briefing Indicator

7.2.5.1 The linking of a worker to an RPC is performed in the Search for a Worker or Worker Detail screen, RPC authorisation subtab in the Tasks/Areas/RPC tab.

NOTE: *The linking of a worker to an RPC means that the worker has the right to work on the RPC.*

7.2.5.2 The pre job briefing indicator is fulfilled by clicking on the tick box in the briefed column next to the applicable assigned RPC.

NOTE: *For each assigned RPC that requires a pre job briefing, the worker must be briefed and the briefed tick updated. Before fulfilling the pre job briefing indicator, the RP person performing assisted access must verify to ensure that the RPC was not revised recently and if it was; ensure that everyone attempting to book on that RPC was briefed on the new revision and the pre job briefing on the new revision was documented.*

7.2.6 Use DosiGui Application to Query for Access Criteria not met

7.2.6.1 Open the List of passages from the Visit/Passages submenu in the Worker menu on the navigational panel.

7.2.6.2 Find the applicable denied passage for the worker.

7.2.6.3 The reason for access denied is displayed in the error messages group of columns. (…)

7.2.7 Use DosiGui Application to Query Equipment History

7.2.7.1 Assignments of all additional dosimetry and respiratory equipment can be viewed in the Equipment History submenu in the Equipment menu in the Configuration section.

7.2.7.2 To determine to whom equipment e.g. extremity TLDs, neutron dosemeter (Panasonic), neutron EPD, etc. is or was assigned, locate the equipment type and number in the list.

7.2.8 Special Persons

7.2.8.1 Verify that the Special Person is in possession of a signed Special Person Controlled zone Pass (pages 1-3 of KFH-HP-100 must be completed) and is accompanied by an escort.

7.2.8.2 Verify that the Special Person is escorted by the person that signed as the escort and completed page 3 of the Special Persons Controlled Zone Pass.

NOTE 1: *If a new escort is required ensure that the new escort has completed and signed page 3 of the Special Person Controlled Zone Pass.*

NOTE 2: *For VIP visitors pages, 1-3 of KFH-HP-100, must be completed. An alternative briefing page, i.e. group briefing, may be used to replace page 2 of KFH-HP-100.*

NOTE 3: *For IAEA, DoE and State inspectors only page 1 of Special Person Controlled Zone Pass needs to be completed as they are governed by a specific protocol.*

7.3 Access When System is Unavailable

7.3.1 Network or Server down

7.3.1.1 In the event of the network or server being unavailable, the self access readers will not be available, so entry must be performed on the assisted access LDM 3000 reader.

NOTE 1: *Access validations cannot be performed and the DosiGui application is also not available. Assisted access entries is stored on the local PC and uploaded to the server once the network and/or server becomes available.*

NOTE 2: *Inform the RP Manager and raise a CR.*

7.3.1.2 When a person requires entry to the controlled zone:

- Do not perform entries unless approval has been given by the Duty SRPA.
- Ascertain from the current exposure listing printout whether the individual meets the requirements necessary to permit entry i.e. all certifications valid, worker in possession of correct TLD and access code, worker dose available, worker linked to RPC and briefed if applicable.
- View the RPC to determine any special requirements on the RPC.

7.3.1.3 Continue to perform assisted access entries on the LDM 3000 reader.

7.3.1.4 Due to the DosiGui application being unavailable, the issue of any additional dosimetry and/or respiratory protection must be recorded on the Manual Assignment of Equipment when DosiGui Application is Unavailable form KFH-HP-114 and assigned to the worker once the system becomes available again.

7.3.2 All Systems Down

7.3.2.1 In the event of all systems being unavailable (network or server and assisted access PCs), no entries can be performed on the assisted access LDM 3000 reader.

7.3.2.2 EPDs must be switched on at an alternative location, where either an assisted access PC or PC with Dosimass, is available.

7.3.2.3 Record any access control entries or issue of equipment on Manual Data Entry/Exit form KFH-HP-026 and Manual Assignment of Equipment when DosiGui Application is Unavailable form KFH-HP-114 as applicable.

7.3.2.4 All information must be entered once the Radpro system becomes available again.

7.4 Cancelling an Entry

7.4.1 You can only cancel an Access entry passage record if the radworker has not yet entered the Controlled Zone.

7.4.2 To cancel the entry passage, go to the List of passages in DosiGui.

7.4.3 Find the applicable passage and delete the record.

7.5 Creating a Manual Visit (Entry plus Exit)

7.5.1 A visit can be created for a worker by using the Visit Fast Entry function on the list of visits screen.

7.5.2 Relevant entry and exit information is entered and a manual visit created.

7.6 Exit through Argos Portal Monitors

7.6.1 Place EPD in EPD slot inside the portal. The Argos sequence will start.

7.6.2 If clear, wait for the EPD to switch off. You are now booked out of the Controlled Zone.

7.6.3 Remove your EPD and exit the portal as normal.

7.6.4 Return your EPD to the access control tray where RP will survey the EPD and return it to the EPD storage racks.

7.6.4.1 Return your TLD to the specific number, corresponding with own TLD, at the TLD storage racks.

***NOTE**: Any additional dosimetry issued and Special Person TLDs are handed back at the RP access control Desk.*

7.6.5 If you are contaminated, remove your EPD and exit the portal back into the Controlled Zone and call RP to assist you. Your EPD will not be switched off and you will not be booked out of the Controlled Zone.

7.6.6 Once declared clean by RP, follow steps 7.6.1 to 7.6.4 above.

7.7 Creating a Manual Exit Record

7.7.1 A manual exit record can be created when a situation occurs where the worker does not pass through an Argos Portal monitor to be booked out of the controlled zone.

***NOTE**: The LDM 3000 assisted access readers at the entry to the NAB, ISI and DWS controlled zones can function as an entry and exit reader. The reader automatically functions based on the status of the EPD i.e. EPD switched on or off.*

7.7.2 Book the worker out (create manual exit record) by using the LDM 3000 assisted access reader.

7.8 Changing an RPC at the Airlock

7.8.1 Bring EPD within close proximity of the LDM 3000 reader until the EPD is switched off.

7.8.2 Refer to 7.2.2 and enter the new RPC number when prompted.

7.8.3 View the RPC for requirements.

***NOTE:** Any RPC requirements can be fulfilled by using the DosGui as normal.*

7.9 Radworker Restriction

7.9.1 Non-Compliance

7.9.1.1 Inform the Radworker (if he/she is on site) that he/she has been restricted and the reason for the restriction.

7.9.1.2 Inform the Radworker's Manager (alternatively the Section Head) that the individual has been restricted and the reason for the restriction. (Via email, if not immediately available).

7.9.1.3 Fill in the individual's name on the **Index page** of the Restriction File. Initial (signature) in the "Restricted" column.

7.9.1.4 Fill in the top section of the restriction form stating the reason for the restriction (ensure that all the information is filled in).

7.9.1.5 Sign and date the form.

7.9.1.6 Restrict the individual and enter the reason for the restriction on RADPRO:

- Select search for a Worker in the Worker section.
- Locate the Worker and open the Worker Information Screen.
- Select the Access Control Criteria subtab, from the Access tab.
- Click on the Controlled area access blocked.
- Enter a reason and save.

NOTE: *Only SRPA (AP) or SAP (RP) is authorised to perform this function.*

7.9.1.7 Post or fax a copy of the restriction form to Dosimetry.

7.9.1.8 Make a log entry of the restriction.

7.9.2 Anomalies and Certification Expiries

7.9.2.1 Restrict the individual and enter the reason for the restriction on RADPRO by following the steps in section 7.9.1.6.

NOTE*: RP Dosimetry staff may perform these restrictions.*

7.9.2.2 Certification Expiry

(1) Restrict individual on RADPRO system.

7.9.2.3 Medicals Not Approved

(1) Upon the receipt of a Health Register, restrict individual on RADPRO system.

(2) Inform RPOO to remove TLD from rack and manually update certification file to indicate that the individual's medical is not approved.

7.9.2.4 Failed Radiation Worker Training

(1) Upon receipt of radiation worker training record, restrict individual on RADPRO system.

(2) Inform RPOO to remove TLD from rack and manually update certification file to indicate that the individual failed the radiation worker training.

7.10 Radworker Unrestriction

7.10.1 Non-Compliance

7.10.1.1 Get approval from the RP Manager or RP Senior Supervisor (HOS) prior to lifting the restriction.

7.10.1.2 Fill in the bottom section of the restriction form.

7.10.1.3 **Fully** state the **reason** for lifting the restriction.

7.10.1.4 Attach supporting documentation i.e. letter/email from the Line Manager recommending that the restriction be lifted and proof that a CR was raised.

7.10.1.5 Sign and date the restriction form.

7.10.1.6 Initial in the unrestricted column on the **Index page** of the Restriction File.

7.10.1.7 Unrestrict the individual on RADPRO.

- Select search for a Worker in the Worker section.
- Locate the worker and open the Worker Information Screen.
- Select the Access Control Criteria Subtab from the Access tab.
- Enter a reason then click on Controlled Area Access Blocked to lift the restriction.
- Save the change.
- Highlight the entire reason (restriction and unrestriction) on Radpro screen.
- Copy and paste to comments section on the information page.
- Press OK and save.

NOTE: *Only SRPA (AP) or SAP (RP) is authorised to perform this function.*

7.10.1.8 Post or fax a copy of the restriction form to Dosimetry (4968).

7.10.1.9 When RADPRO is not available, check the Radworker status file and restriction file before granting access via manual entry.

7.10.2 Anomalies and Certification Expiries

7.10.2.1 Unrestrict the individual on RADPRO by following the steps in section 7.10.1.7.

7.10.2.2 For certification expiries, check that the individual is fully authorised.

NOTE*: Only RP Dosimetry staff may perform these unrestrictions.*

7.11 Restriction History

7.11.1 The restriction history of a worker can be viewed in the History subtab of the Access tab on the Worker Information Screen.

7.12 Reporting of Lost, Damaged or Contaminated Legal Dosimetry, Lost EPDs, or Malfunctioning EPDs

7.12.1 Any individual, on leaving the CZ, must report to RP if they have lost their legal TLD or EPD, or if the EPD is malfunctioning.

7.12.2 Prevent the individual from re-entering the Controlled Zone until an assessment has been done, and the individual is in possession of the required dosimetry again.

7.12.3 The relevant form for Lost, Damaged or Contaminated Legal Dosimetry, KFH-HP-056 or the EPD Reporting form KFH-HP-055 must be completed and forwarded to RP Dosimetry or RP ALARA as applicable for further processing.

7.12.4 For lost EPDs, if the calculated exposure is greater than 2 mSv or on discretion of SRPA, the individual's TLD must be withdrawn for processing.

NOTE: *If at any time, it is suspected that the loss of either the TLD or EPD could, or has, compromised the Foreign Material Exclusion control, the Duty SRPA is to inform the relevant Control Room and/or the Outage Control Centre, as appropriate.*

7.13 Reporting of Alarming EPD

7.13.1 Any individual must report to RP if their EPD is alarming or has alarmed. In the case of a Radworker reporting to RP with an alarming EPD, the following actions must be taken.

7.13.1.1 Alarm during Jobs not Covered by RP

(1) Verify whether it is a dose or dose rate alarm.

NOTE: *Only dose alarm will be sustained. Rate alarms will clear once you leave the area.*

(2) Check whether the worker is on the correct RPC by verifying the work location and work practices followed by the Radworker.

(3) Verify that the dose and dose rate settings on the EPD are set as specified on the RPC that the individual is booked in on.

(4) Restrict the individual, if required, for non-compliance to RP rules.

(5) For a dose rate alarm:

a) Verify the actual dose rate in the area.

b) Revise the RPC (if it is a generic problem), or change to an appropriate RPC, if applicable.

c) Reset the EPD and exit and re-enter the Radworker on the Access Control Program.

d) Record unexpected or abnormal alarms on the EPD Reporting form KFH-HP-055 and forward it to the ALARA section for trending purposes.

(6) For a dose alarm:

a) Read the EPD to determine the actual dose reading on the EPD.

b) Book the person out with the recorded dose. (Automatic when worker exits the portal).

c) If the dose was received in a period of time not expected in terms of the known dose rate in the area, then dose rates in the work area must be verified.

d) Determine if work can be continued or must be stopped and re-assessed in terms of anticipated dose for the job or individual.

e) If work can continue, reset the EPD and re-enter the Radworker on the Access Control Program.

f) If work is stopped, instruct the worker to inform his/her supervisor of the incident.

g) A reassessment of the work and dose implications must be performed before work is allowed to continue.

h) Record all dose alarms on the EPD Reporting form KFH-HP-055 and forward it to the ALARA Section for trending purposes.

i) If the calculated exposure is greater than 2 mSv or on discretion of SRPA, the individual’s TLD must be withdrawn for processing.

7.13.1.2 Alarm during Jobs Covered by RP

(1) For a dose rate alarm:

a) Verify the dose rates in the area and identify the cause.

b) Instruct workers to move away from the high dose rate areas, as applicable.

c) Stop the job if a higher than normal dose rate is found or if a continuous alarm situation arises.

d) Re-assess the job, revise the RPC, or change to an appropriate RPC, as applicable.

e) Record unexpected or abnormal alarms on the EPD Reporting form KFH-HP-055 and forward it to the ALARA Section for trending purposes.

(2) For a dose alarm:

a) Stop the job.

b) Instruct the worker to report to the appropriate RP access control point.

c) Read the EPD to determine the actual dose reading on the EPD.

d) Book the person out with the recorded dose (Automatic when worker exits the portal).

e) Review the radiological conditions in the work area and dose accrued by the worker and decide whether the work must be stopped or can continue in terms of anticipated dose for the job or individual.

f) If work can continue, reset the EPD and re-enter the Radworker on the Access Control Program.

g) If work is stopped, instruct the worker to inform his/her supervisor of the incident.

h) Reassessment of the work and dose implications must be performed before work is allowed to continue.

i) Record all dose alarms on the EPD Reporting form KFH-HP-055 and forward it to the ALARA Section for trending purposes.

j) If the calculated exposure is greater than 2 mSv or on discretion of SRPA, the individual’s TLD must be withdrawn for processing.

(3) Exceptions

a) If an individual's EPD alarms whilst engaged in an emergency, or continuous work activity with personnel or plant safety implications, the RP person covering the job may approve a continuance based on ALARA considerations and acceptable dose projections versus risk of terminating the work.

NOTE: *Life threatening situations only.*

b) Record the alarm on the EPD Reporting form KFH-HP-055.

7.14 Exposure Listing Printout

7.14.1 Every week, a printout of current exposure listing for reference shall be generated. In the event of the computer facility becoming unavailable at any time during the subsequent 24 hours / 7 day period, this source of reference will provide the Access Control Points with the necessary details and current status of every qualified Radiation Worker at Koeberg Nuclear Power Station.

7.15 View Daily Entries

7.15.1 Every afternoon, the RP Plant shift must perform a validation on the return of all dosimetry during the day.

7.15.1.1 Current entries in the controlled zone can be viewed in the Worker Tracking list.

7.15.1.2 Workers still inside the controlled zone are indicated with a trefoil icon in the In Area column.

7.15.1.3 If an EPD is not returned by the end of the day, shift staff try to locate the individual concerned and retrieve the EPD.

7.15.1.4 To view when an EPD or a Radworker last entered the CZ, the Worker Tracking list or list of visits can be used.

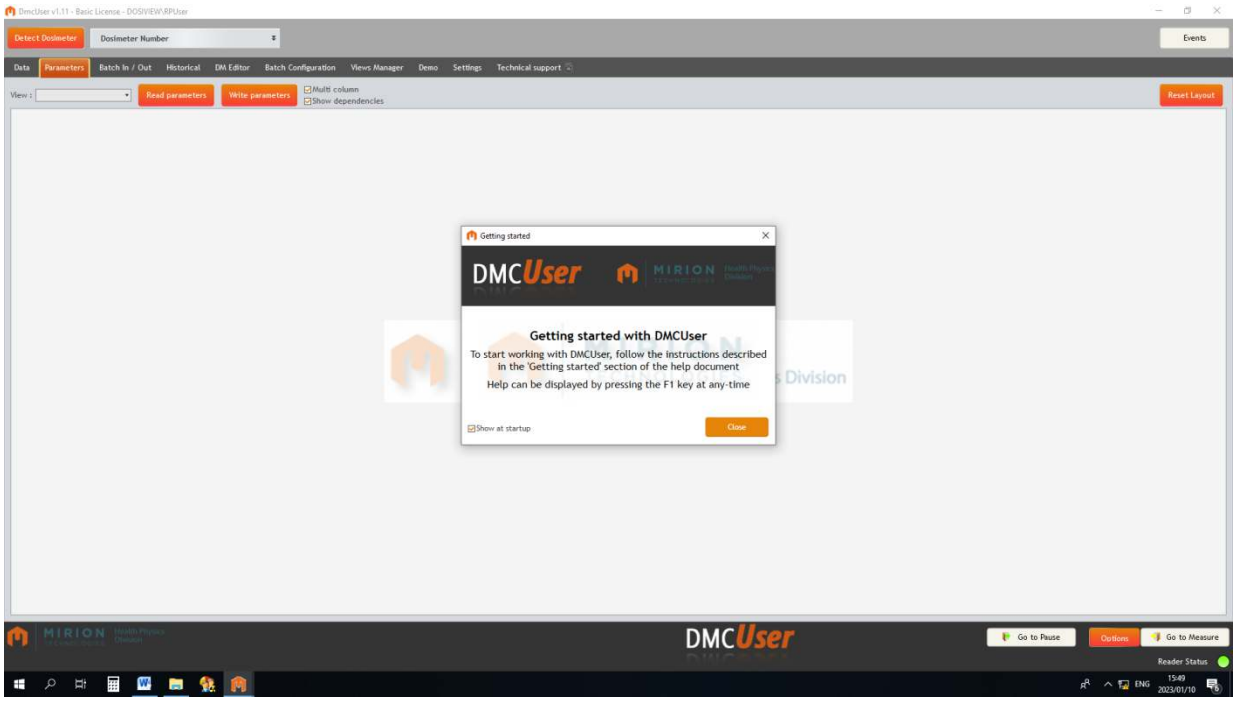
7.16 Using the DMC User Software

NOTE: *This software must be used in conjunction with the manual data entry/exit form (KFH-HP-026) when self access or dosigui systems are not available.*

7.16.1 First ensure LDM 3000 software is closed to avoid interference with DMC User.

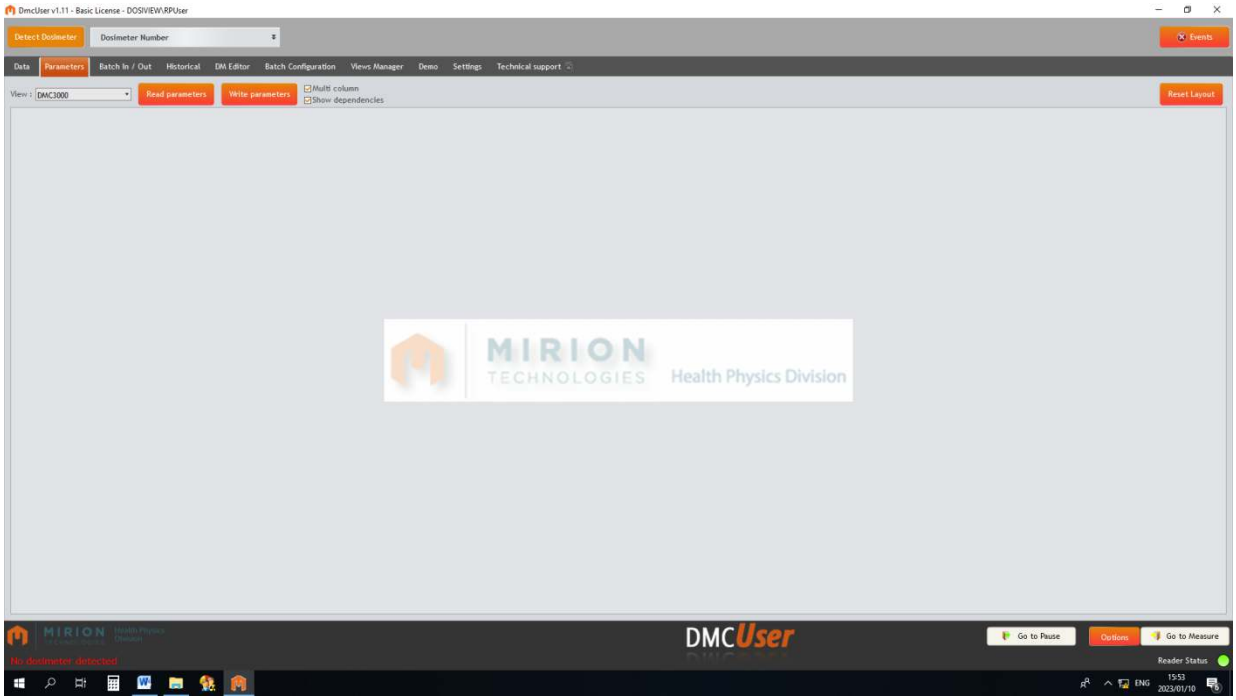
7.16.2 To open the DMC User software, double click on the DMC User icon on the RadPro/Access control PC desktop.

7.16.3 The following window appears:



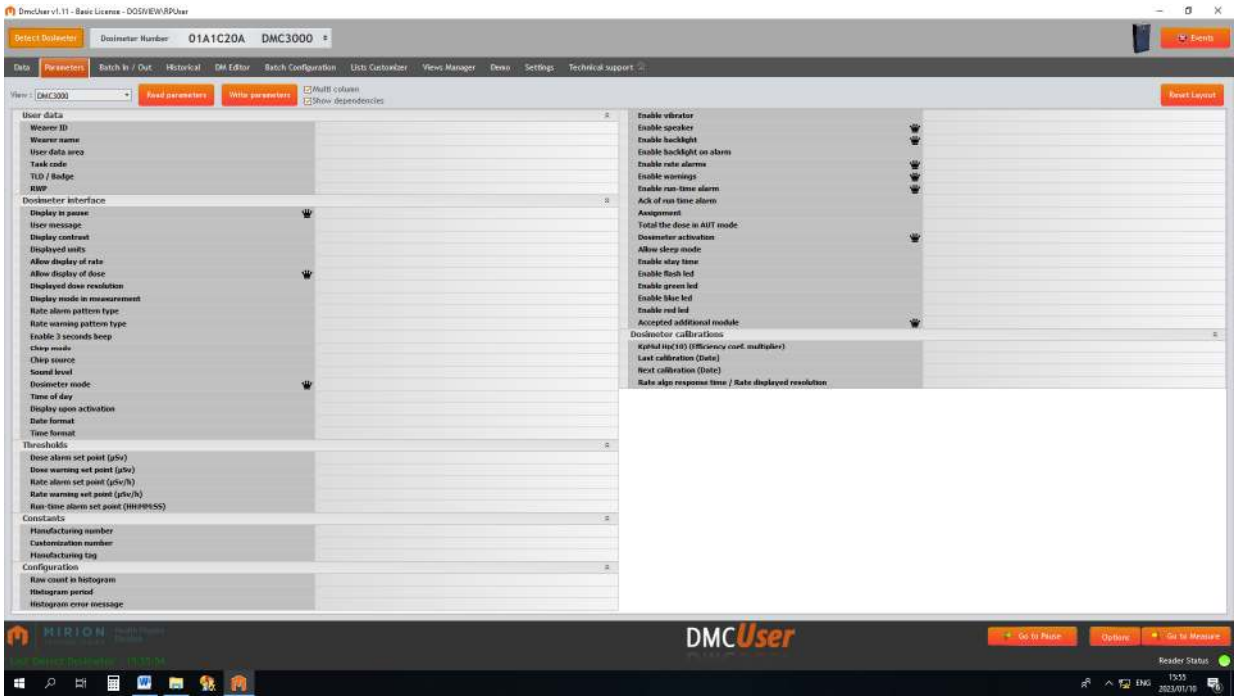
7.16.4 Click on Close.

7.16.5 The main window of the DMC User software will appear as below.



7.16.6 Insert EPD into the reader and click Detect Dosimeter.

7.16.7 The screen below will appear, with EPD number displayed:



7.16.8 Click Read parameters.

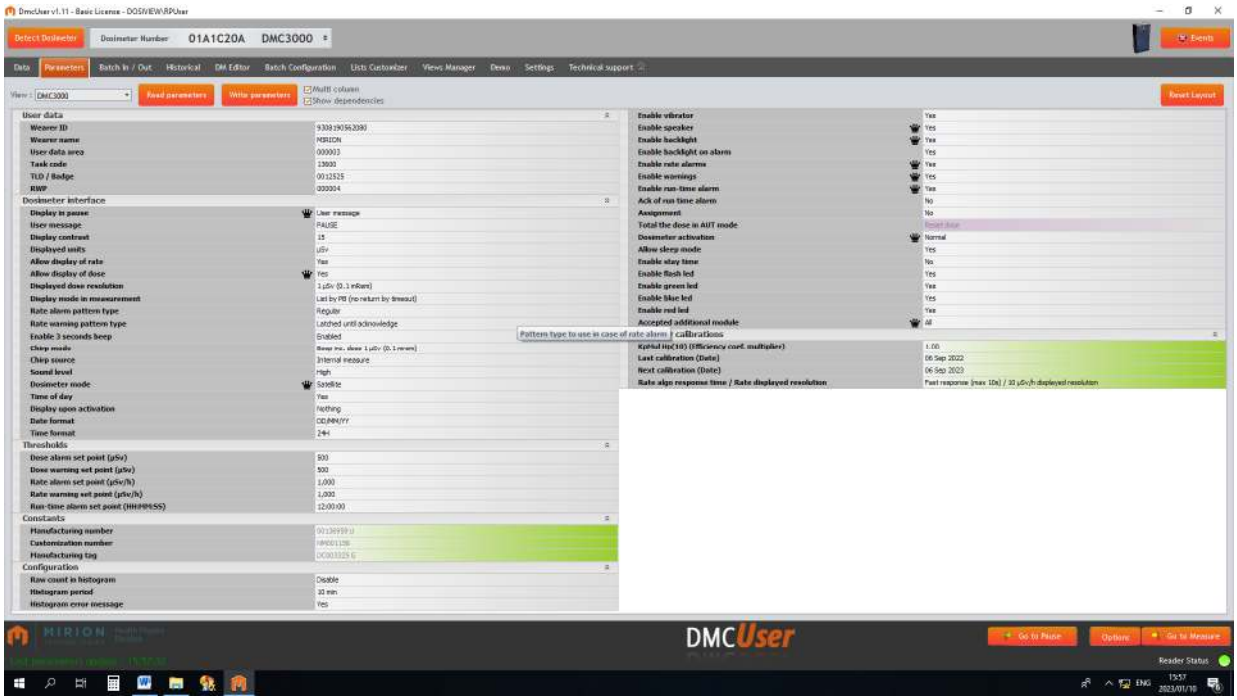
7.16.9 The screen below will appear, with previous EPD user and settings details:

7.16.10 Update **User data** (Wearer ID, Wearer name, RWP, etc.)

7.16.11 Update **Thresholds** (in accordance with the relevant RPC dose and dose rate settings).

NOTE 1: *Alarm setpoints and warning setpoints to be set the same.*

NOTE 2: *Do not change any parameters under headings **Dosimeter interface**, **Constants**, **Configuration** and **Dosimeter calibrations**.*



7.16.12 Click Write parameters.

7.16.13 Click Go to Measure (located at bottom right corner of the screen).

7.16.14 Wait for EPD to display **0µSv**, then remove EPD and proceed to CZ.

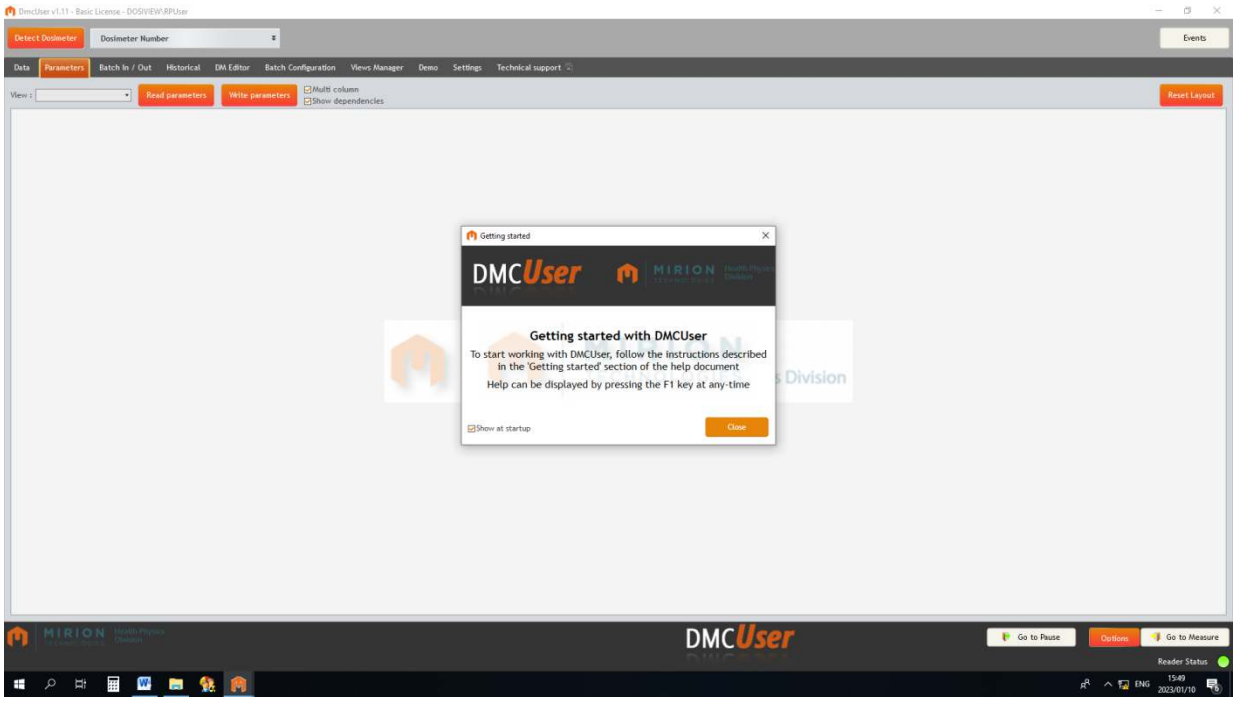
7.16.15 Booking out EPD on job completion.

IMPORTANT: *Make note of EPD dose reading before proceeding.*

7.16.16 Open DMC User software from desktop as indicated above, if close after previous use. Otherwise proceed to 7.16.20.

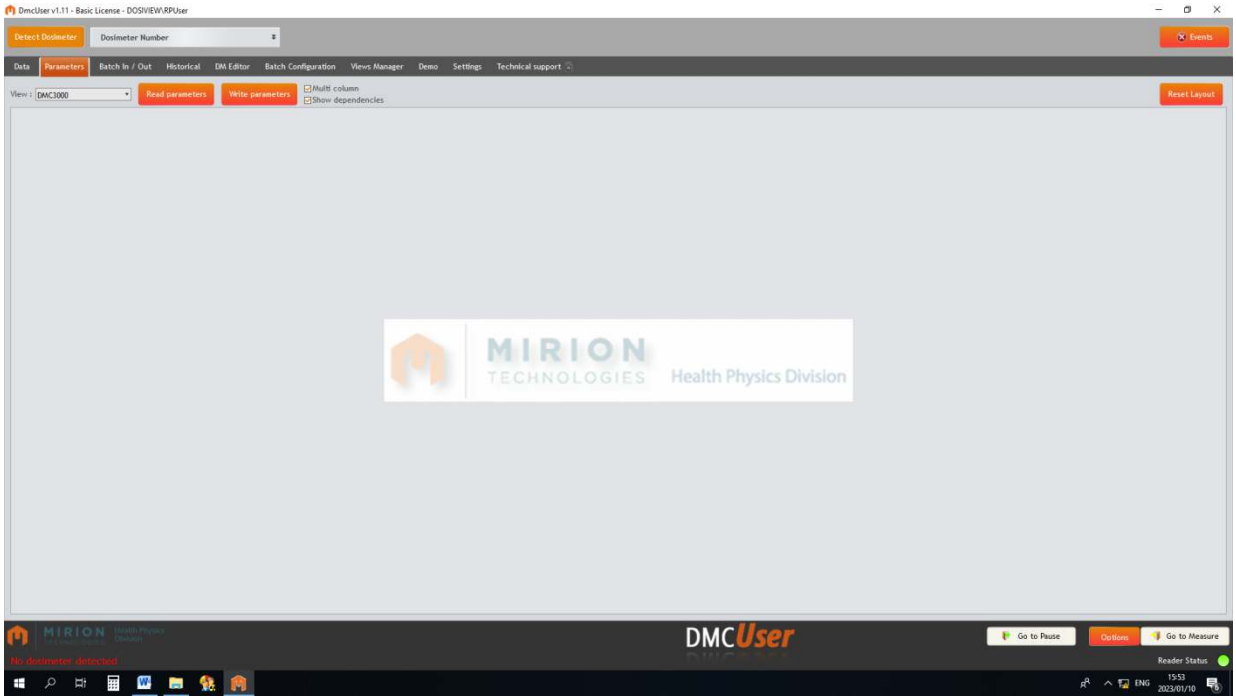
NOTE: *Remember do close LDM 3000 first.*

7.16.17 The screen below will appear.



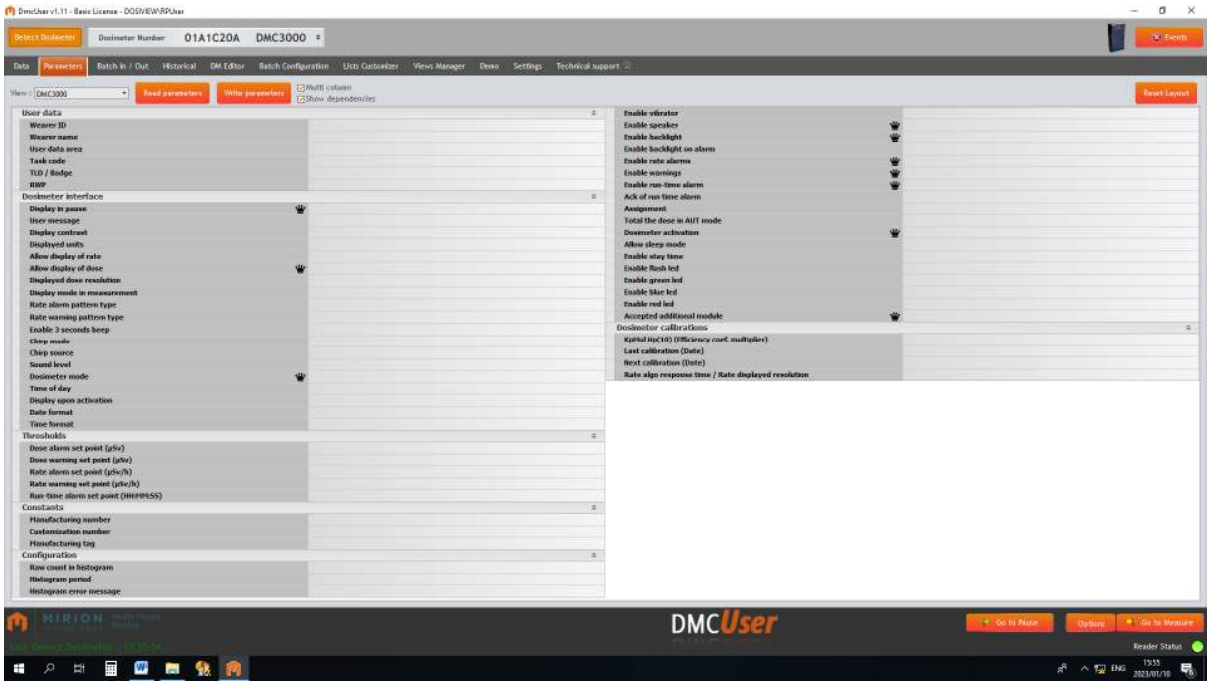
7.16.18 Click on Close.

7.16.19 The main window of the DMC User software will appear as below.



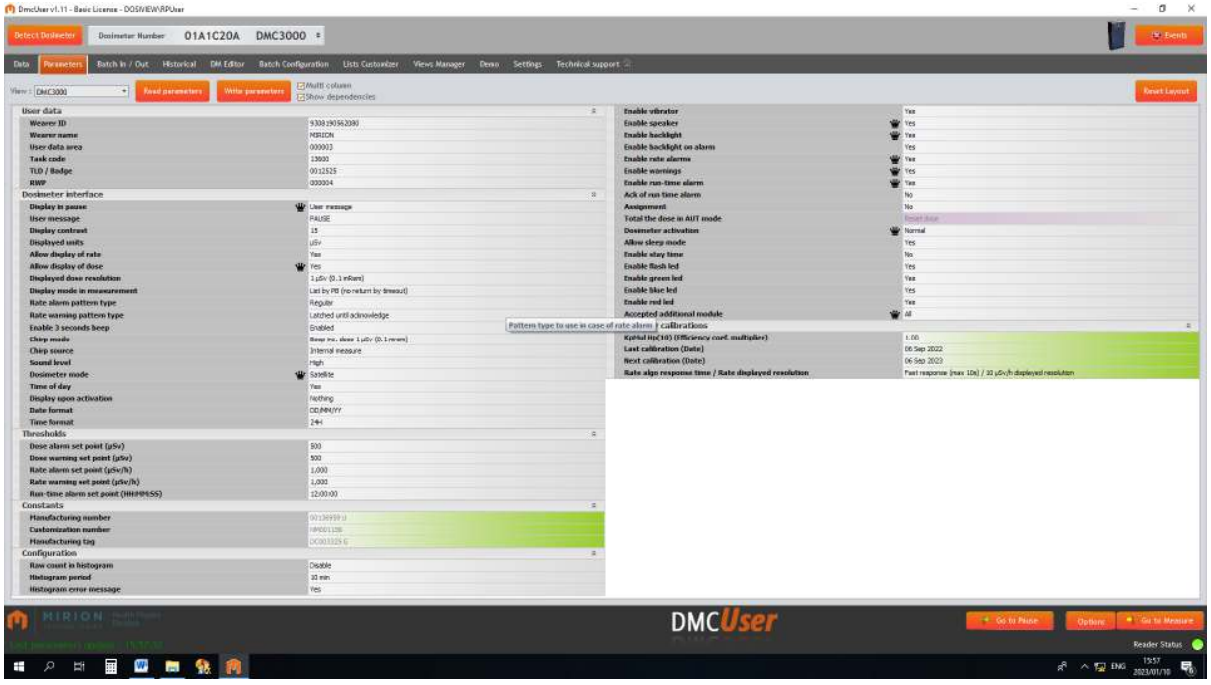
7.16.20 Insert EPD into the reader and click Detect Dosimeter.

7.16.21 The screen below will appear, with EPD number displayed:



7.16.22 Click Read parameters.

7.16.23 The screen below will appear, with EPD user and settings details:



7.16.24 Before proceeding to the next step ensure that the EPD dose has been noted down.

7.16.25 Click Go to Pause to place EPD into “PAUSE” mode.

7.16.26 Remove EPD, and close DMC User.

7.17 Emergency Entries

7.17.1 Setup of an emergency EPD on Radpro

- An emergency worker profile was created on Radpro with the following details. Name: Emergency Worker 1, TLD Number, 0010661 and Entry Code: RP001.

- A multi configuration file, named Emergency, was created on Dosimass, with the following data: RPC 1999006, RP002, time (99h 59min) and threshold settings as per RPC to set up the EPDs for the first time. Refer to Appendix 1, How to set up an EPD in Permanent Fast Entry Mode for Emergency Entries.

NOTE: *Close the LDM 3000 reader on the assisted access PC before opening Dosimass.*

- Configure EPDs for emergency use to be in permanent fast entry mode. The EPD will display “enter” instead of “Pause”. Refer to Appendix 1, How to set up an EPD in Permanent Fast Entry Mode for Emergency Entries.

- Check batteries regularly and replace when required.

- If a designated emergency EPD was switched on, but not used to enter a controlled zone, use Dosimass to switch it off.

7.17.2 Emergency team members are issued with emergency EPDs and TLDs at the access control of the affected controlled zone.

7.17.3 A Manual Data Entry/Exit form KFH-HP-026 to be completed by the RP person(s) that accompanied the emergency team, either in the controlled zone or upon exit.

7.17.4 Press the button on the EPD to switch the EPD on.

7.17.5 The EPD will be switch off at the Argos upon exit from the controlled zone.

NOTE 1: *Dose data of each EPD is written to Emergency Worker 1, because there is no entry, the system will regard this as a conflict.*

NOTE 2: *When the Emergency worker exits via the Argos or EPD is switched off at assisted access control PC, a conflict exit will be created on RPC 19990006.*

7.17.6 Obtain dose data of each EPD from Emergency Worker 1 passages and enter the dose on the Manual Data Entry/Exit form.

7.17.7 Forward form to ALARA who will capture the Emergency dose on DosiGui, using “Fast Entry” and clearing the conflict.

7.17.8 Alternatively Emergency dose data may be obtained from RPC 19990006 visits after conflicts exit have been cleared.

NOTE 1: *Emergency EPDs must be clearly labelled (e.g. NAB (or ISI/DWS) Emergency) and EPD number. These EPDs are not for operational use.*

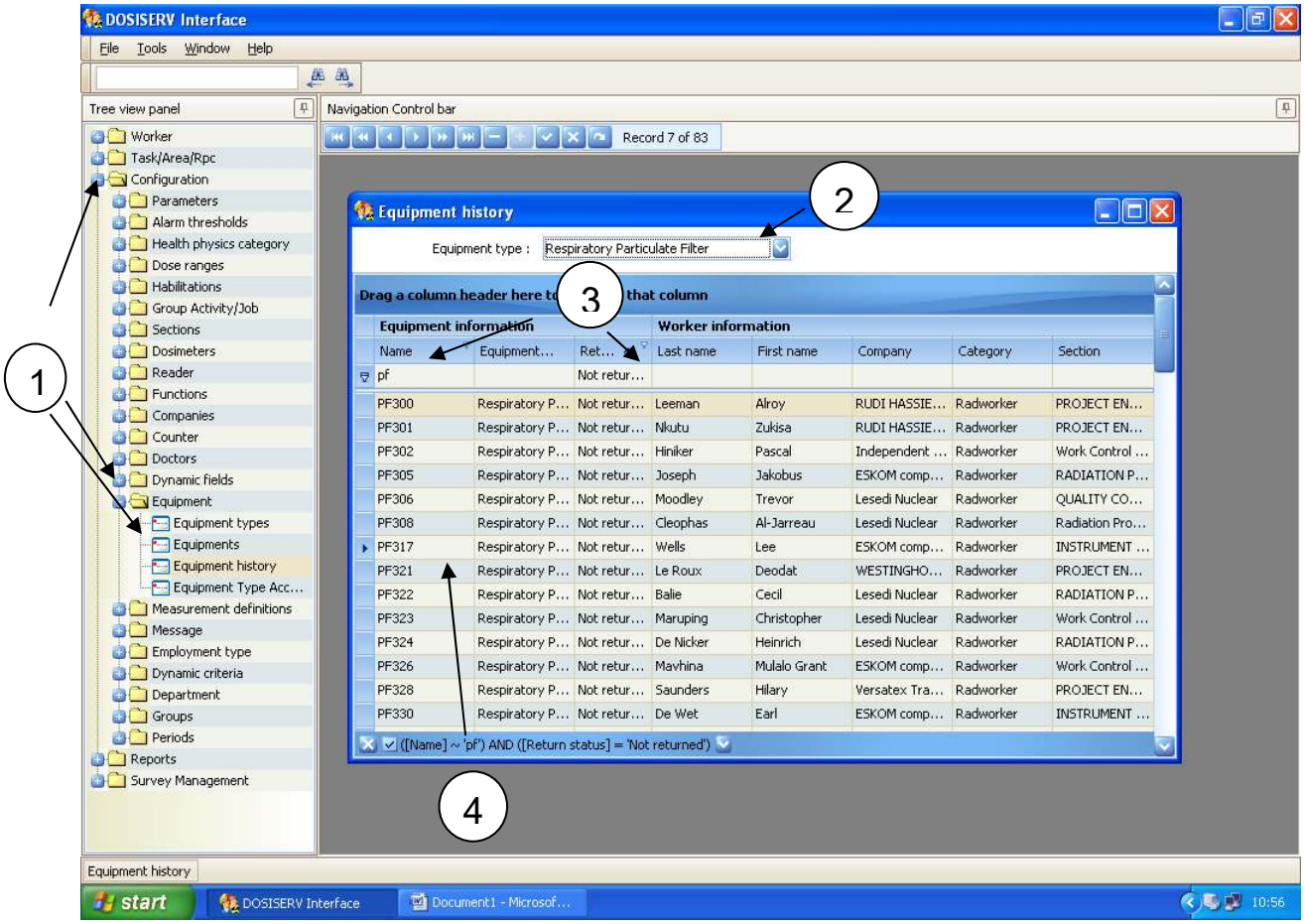
NOTE 2: *Special storage racks to be available in RPOO, DWS and ISI. Designated emergency EPDs to be placed in these racks after the emergency team members have returned it.*

7.18 Returning Filter Respirators for Re-issue

7.18.1 When filter respirators are returned to the Hot Laundry after used, it is washed, sanitized, sealed and a new expiry date assigned.

7.18.2 These respirators and a Full Face Mask Inspection Check-Off List KFH-SR-002 are sent to RPOO and have to be made available on the RadPro system before it can be assigned to a Radworker again.

7.18.3 The following steps to be followed:

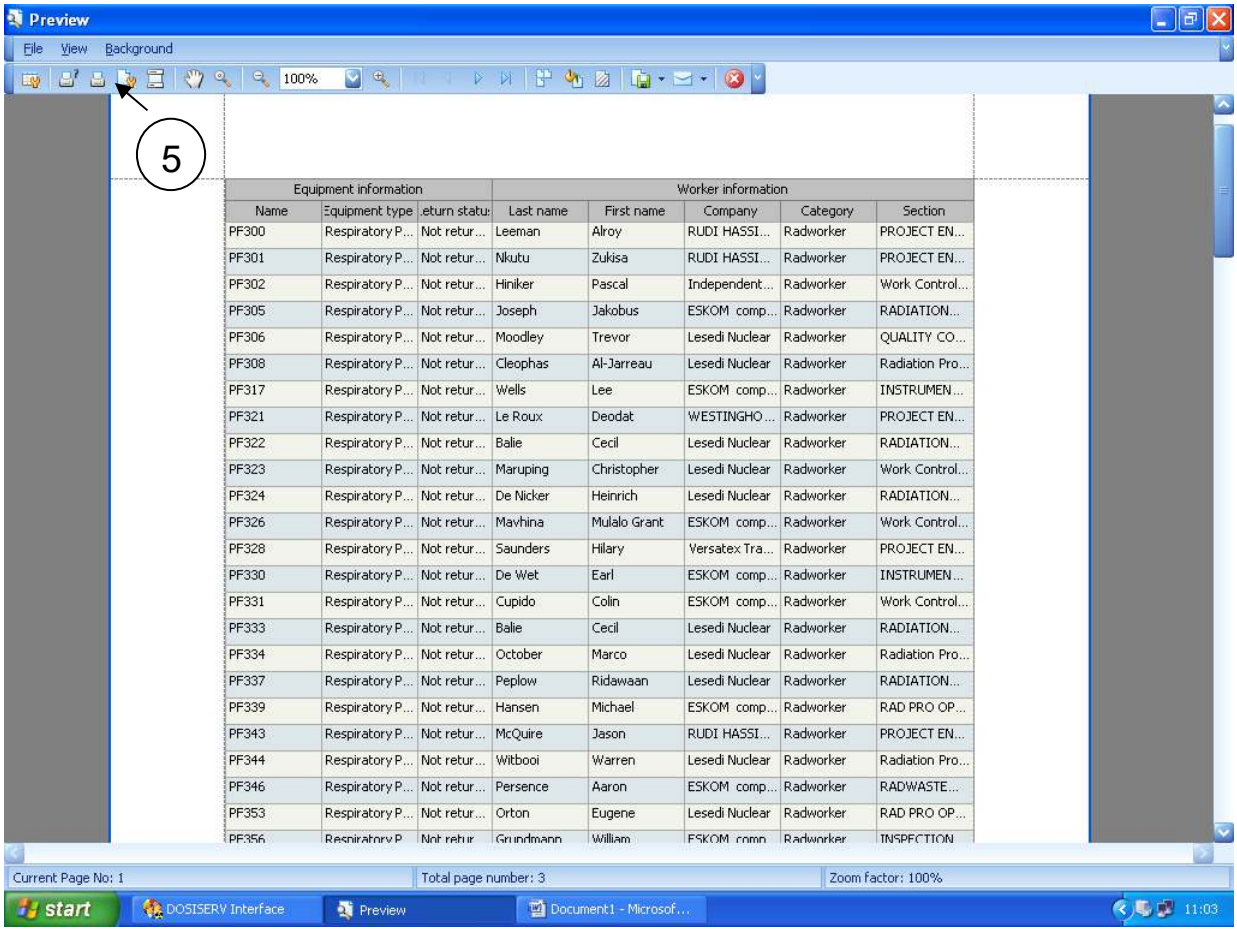


1. Open Dosiserv interface, select configuration/equipment/equipment history.

2. Select “Respirator Particulate Filter” or “Respirator Full Face Welding Mask” as Equipment type.

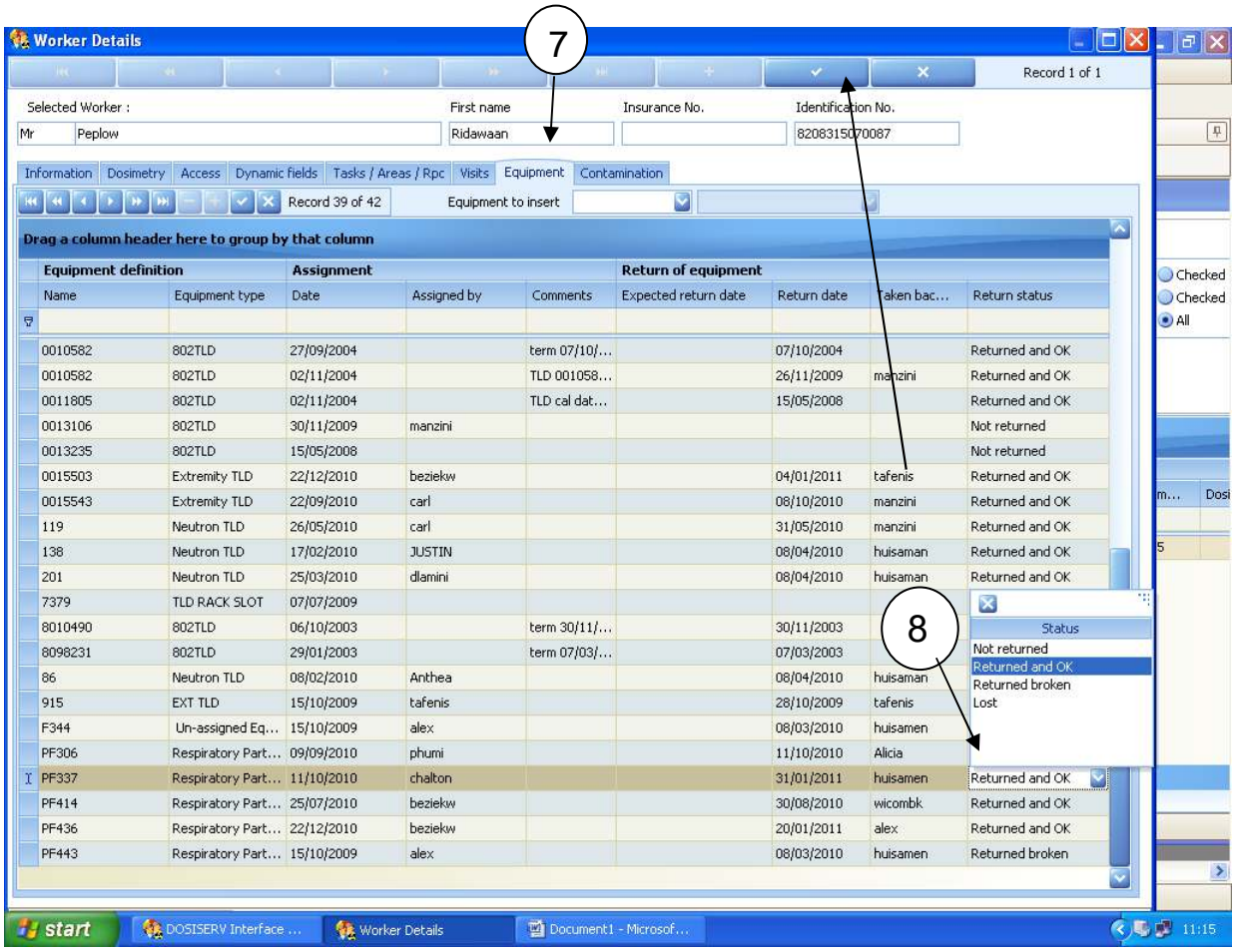
3. Search ([Name] ~ ‘PF’ or “W”) AND ([Return Status] = ‘Not Returned’) to display only the filter respirators not returned on RadPro.

4. Right click with mouse inside window and select print pre-view.



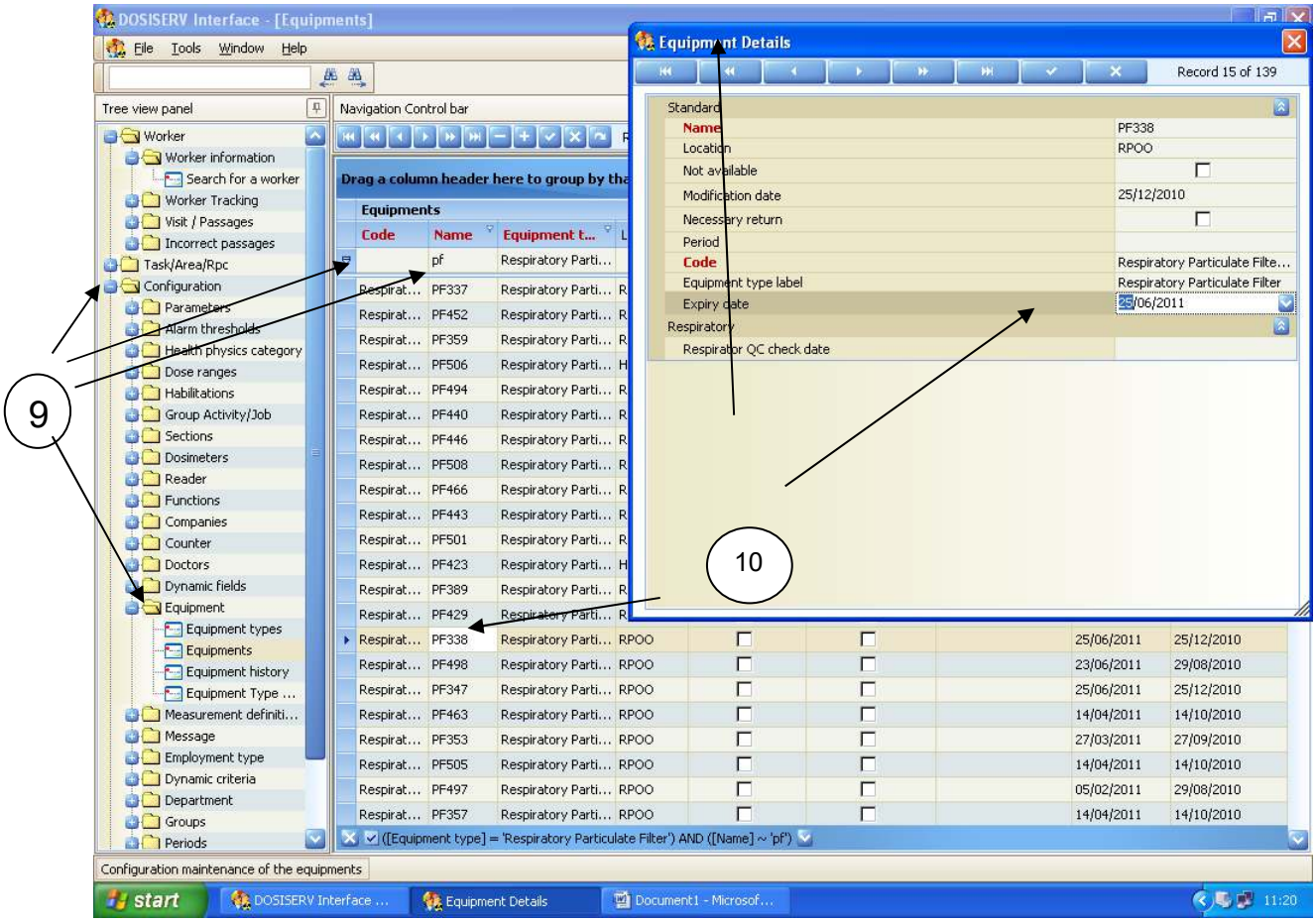
5. Click on print icon to print list.

6. Verify the list from Hot Laundry against the printout to verify to which Radworker a specific respirator was assigned to.



7. Search for Radworker open worker details and select the equipment tag to display all equipment assigned.

8. Select return status of respirator to be returned and select “Returned and “OK” and save.



9. Go back to Equipments and search ([Equipment Type] = ‘Respirator Particulate Filter’) AND ([Name] ~’PF’) to display the filter respirators only.

10. Select (double click) respirator returned to open Equipment Details, update details and expiring date as per list received from Hot Laundry and save.

11. Close all applications.

8.0 RECORDS

8.1 Records generated by this procedure:

- Manual Data Entry / Exit, KFH-HP-026 (non-permanent);
- Neutron Dosimetry TLD Issue, KFH-HP-045 (permanent);
- Extremity TLD Issue, Appendix 1 (permanent);
- Lost, Damaged or Contaminated Legal Dosimetry (permanent), KFH-HP-056;
- EPD Reporting, KFH-HP-055 (permanent);
- Manual Assignment of Equipment when DosiGui Application is Unavailable, KFH-HP-114 (non-permanent);
- Full Face Mask Inspection Check-Off List, KFH-SR-002 (non-permanent).

8.2 These records must be handled in accordance with KSH-008 requirements.

9.0 ATTACHMENTS

Appendix 1 – How to set up an EPD in Permanent Fast Entry Mode for Emergency Entries

Appendix 2 – How to correct an Exit Passage

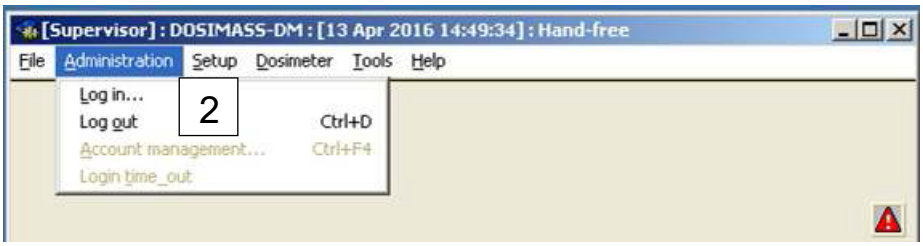
Appendix 3 – Justification

APPENDIX 1

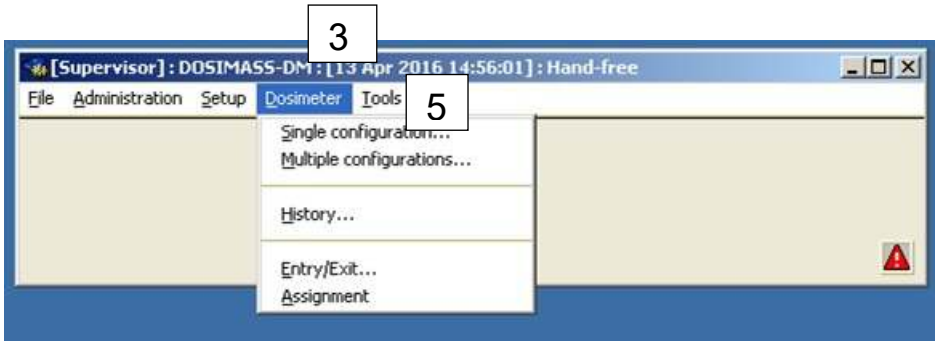
HOW TO SET UP AN EPD IN PERMANENT FAST ENTRY MODE FOR EMERGENCY ENTRIES

1. Open Dosimass on RadPro PC RP002 in RPOO.

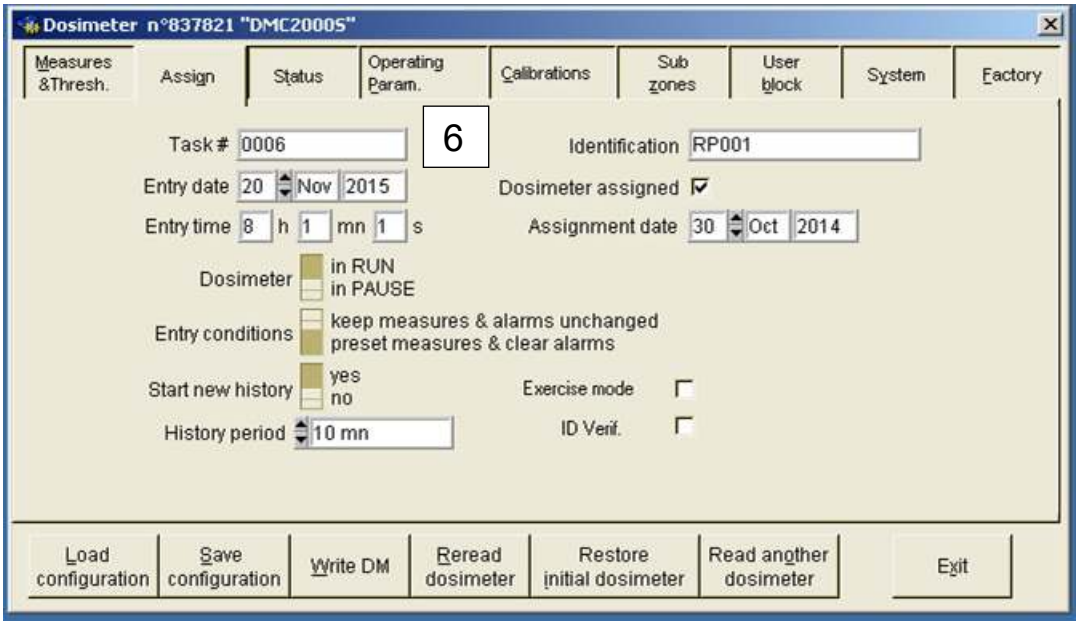
NNR Act 47, Section 51, PAIA 38(b). Redacted login and password as this is sensitive information



3. Select the Dosimeter tab.
4. Place EPD in front of reader.
5. Select “Single configuration” and then the Assign Tab.



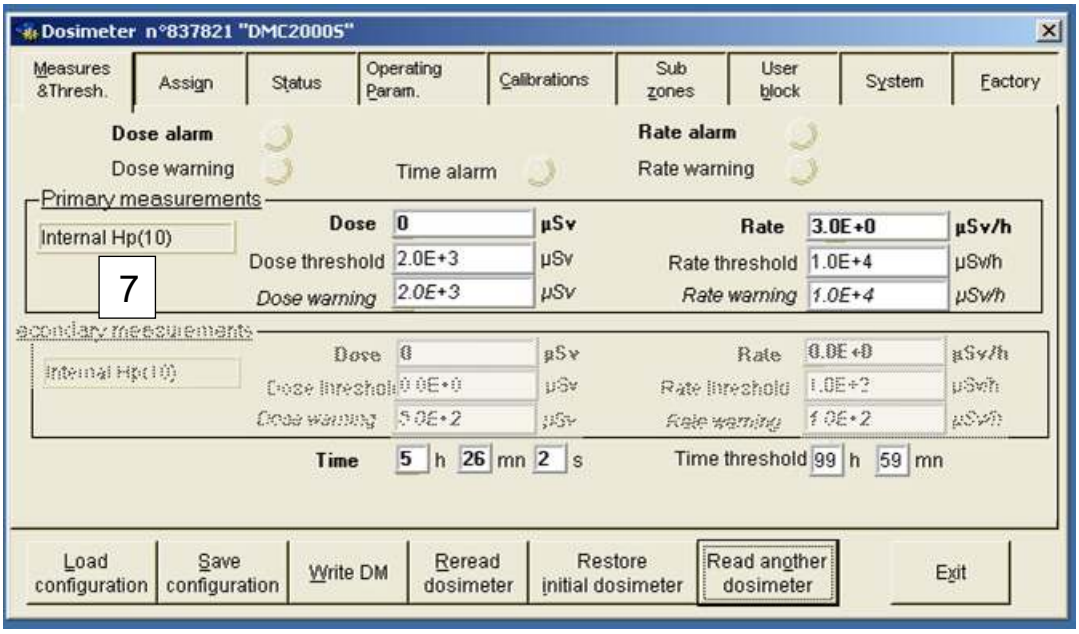
6. Enter 006 in the Task # and RP001 in the Identification field and select the Measures & Thresh Tab.



APPENDIX 1 (continued)

HOW TO SET UP AN EPD IN PERMANENT FAST ENTRY MODE FOR EMERGENCY ENTRIES

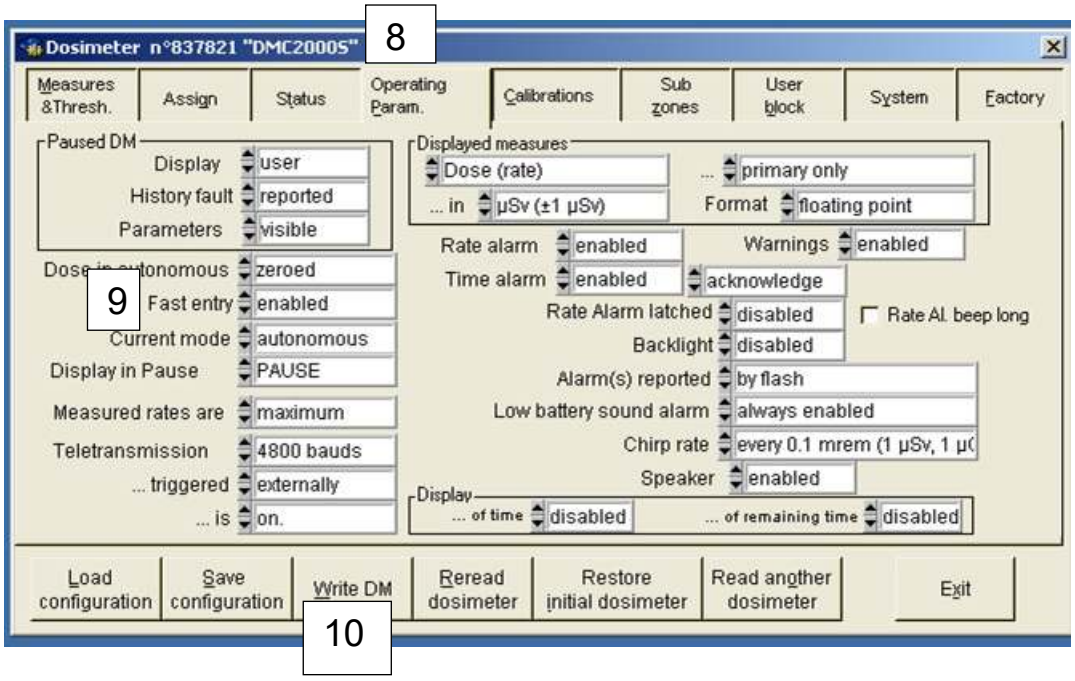
7. Change Primary measurements (Internal Hp10) as in picture (RPC 19990006).



8. Select the Operating Param Tab.

9. Enable Fast Entry and select satellite for Current mode.

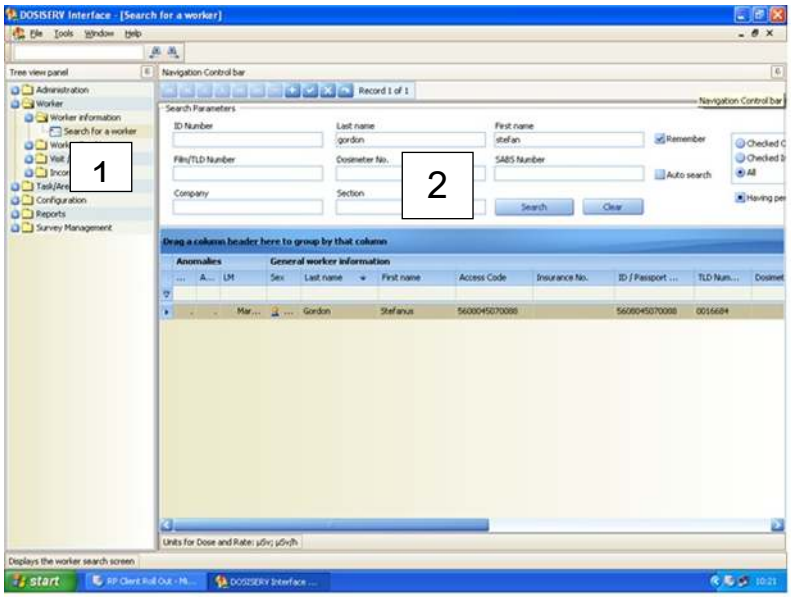
10. Press Write DM tab and exit upon completion.



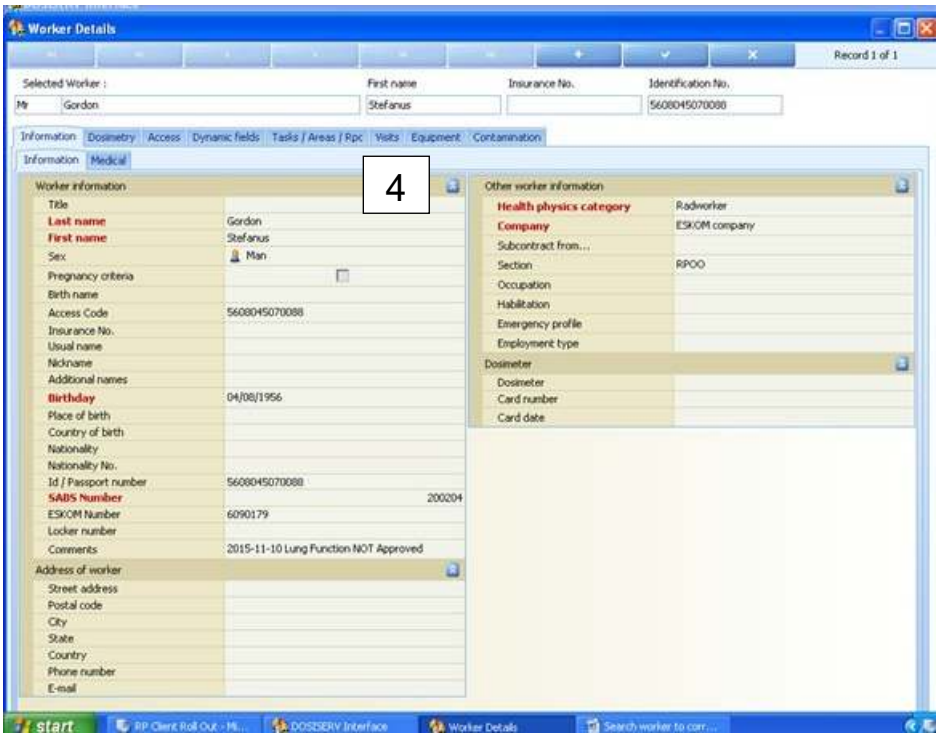
APPENDIX 2

HOW TO CORRECT AN EXIT PASSAGE

1. Open DosiGui and click “Search for Worker” to open the following window.
2. Enter name and search for the worker.
3. Double click on the ID number in the “Access Code” field to open the Worker Detail window.



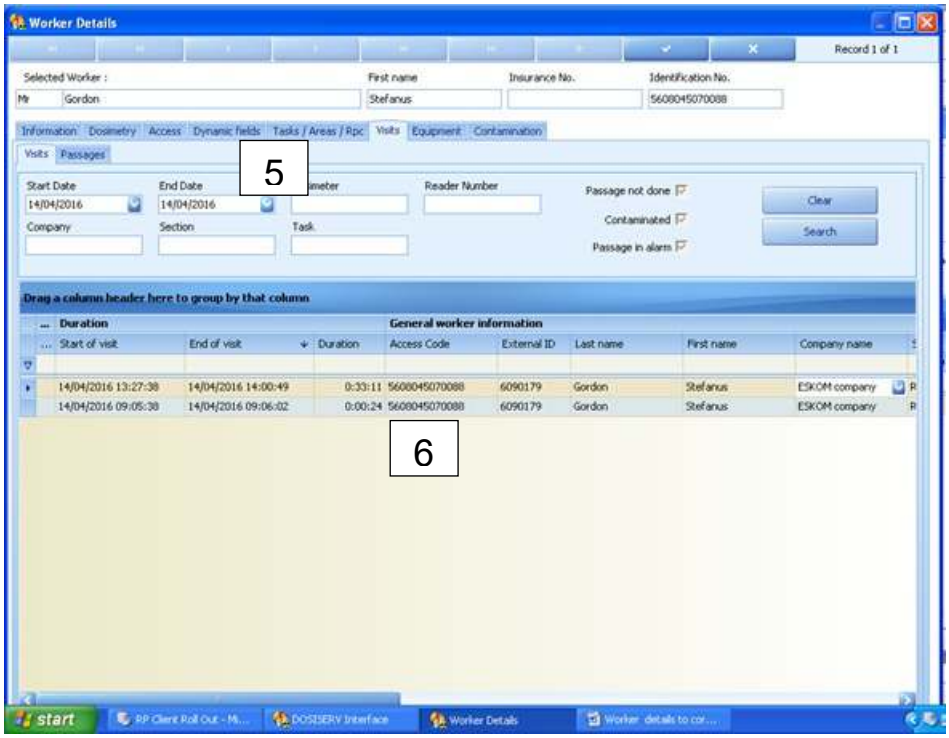
4. Select the “Visits” tab to open window.



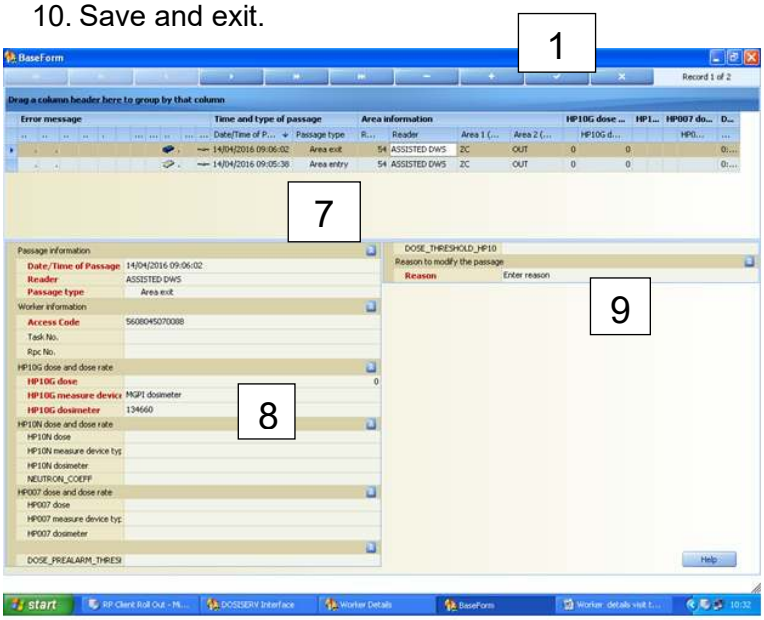
APPENDIX 2 (continued)

HOW TO CORRECT AN EXIT PASSAGE

5. Enter date of passages to be corrected and press search.
6. Select the ID in the “Access Code” field of the passage to be changed.



7. Select “Area Exit” in the “Passage Type” field.
8. Change gamma and/or neutron dose.
9. Provide a reason for changes.
10. Save and exit.



APPENDIX 3

JUSTIFICATION

Revision 27

1. 3-Yearly revision due.

2. Add to para 3, Cask Storage Area – An area inside the LLW Cask Storage Building barricaded by RP and signposted accordingly.

3. Para 7.2.3.4, All entries into the barricaded fuel cask storage area located in the LLW Cask Storage Building - All entries into the barrier area set up around the cask when performing cask loading, cask transfer and cask placement activities. No neutron EPD is required outside of the barrier area. For other activities not listed above, entries to areas where total estimated neutron dose for the entry >100 µSv/h.

4. Minor changes to para 7.9, Anomalies and Certification Expiries.

5. Minor changes to Appendix 1.

6. Guidelines added in Prerequisites for exiting the CZ for personal emergency or an event that may require a quick exit from the CZ. CR 105287-002 CA

Revision 28

1. Full review.

2. Para 7.2.3.3 bullet 2 sub-bullet 3, All other entries into areas where neutron exposure are expected - All other entries into areas where neutron exposure above 100 micro Sievert for the entry is expected.