

		WORKING PROCEDURE	Allocation Centre 38A	Reference Number KWW-TES-009	Rev 8
NNR: NO No.:	COMPACTING LOW LEVEL WASTE INTO 210 LT STEEL DRUMS				PAGE 1
KORC NO	ACCESS Nuclear Restricted	IMPORTANCE CATEGORY SR	NEXT REVIEW DATE 2027-06-28	DATE AUTHORISED 2022-06-28	

COMPILED / REVISED	REVIEWED	AUTHORISED
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U PHILANDER	M ADONIS	C LE ROUX
SENIOR TECHNICIAN RADWASTE	SENIOR OFFICIAL TECHNICAL RADWASTE	SENIOR SUPERVISOR TECHNICAL
DATE 2022-06-28	DATE 2022-06-28	DATE 2022-06-28

THIS PROCEDURE HAS BEEN SEEN AND ACCEPTED BY:

U Philander Document Custodian
E Ellis ALARA

CATEGORY 2 – PROCEDURE AT THE JOB		
FCA PROTECTION	ALARA REVIEW YES 2022-02-13	SUPERSEDES KWW-TES-009, Rev 7 dd. 2021-02-23 FULL REVIEW

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1.0 PURPOSE

- 1.1 To describe the process of compacting low level active waste into 210 litre steel drums.

2.0 SCOPE

- 2.1 Applicable to the 10-ton hydraulic press situated in N034 – 6.7 m level in the NAB.

3.0 DEFINITIONS AND ABBREVIATIONS

3.1 Definitions

N/A

3.2 Abbreviations

- 3.2.1 **LLW** – Low Level Waste
- 3.2.2 **NAB** – Nuclear Auxiliary Building
- 3.2.3 **RP** – Radiation Protection
- 3.2.4 **RPC** – Radiation Protection Certificate
- 3.2.5 **RPOO** – Radiation Protection Operations Office

4.0 REFERENCES

4.1 Referenced Documents

- 4.1.1 335-2, Rev 5: Koeberg Nuclear Power Station Management Manual
- 4.1.2 KAA-500, Rev 13: The Process for Controlled Documents
- 4.1.3 KSA-011, Rev 14: The Requirements for Controlled Documents

4.2 Applicable Documents

- 4.2.1 VLP-WAC-001: Waste Acceptance Criteria
- 4.2.2 Waste Treatment Form (LLW 13)

5.0 PREREQUISITES

5.1 This procedure can be carried out in any unit state.

6.0 PRECAUTIONS AND LIMITATIONS

6.1 The compacting of waste into 210 litre steel drums must be carried out by the Radwaste Section under a Work Order and an RPC.

6.2 RP to be in attendance for the whole duration of the compacting operation.

7.0 PRE-JOB PREPARATION

	ACTIONS AND CHECKS	SIGN
7.1	Receive the Work Order from the vertical planner and discuss the contents with the Supervisor.	
7.2	At the LLW building, select drums to receive compacted waste. Inspect each drum for soundness. Pay particular attention to conformity of shape and make sure the rubber seal and lid is undamaged.	
7.3	Transport drums from the LLW building to the NAB entrance, N265.	
7.4	Report to the RPOO for the RPC dosimetry, and check the availability of RP cover.	
7.5	Using the drum trolley and goods lift, transport the drums from the NAB entrance, N265, to the N034 compacting area.	
7.6	Confirm that the RP Monitor has set up the air sampler and that it is running.	

8.0 INSTRUCTIONS

8.1 Compact Waste into 210 Litre Steel Drums

ACTIONS AND CHECKS		IDENTIFICATION	OBSERVATIONS	SIGN
8.1.1	Check that electrical control panels are energised.	Breaker inside 502 AR	505 LA and 504 LA lit	
8.1.2	Carry out lamp test of 501 AR electrical panel.	511 TO black pushbutton	501 LA, 502 LA, 503 LA lit	
8.1.3	Unlock emergency stop button.	Use key to unlock 503 TO red hand-pump type button		
8.1.4	Check hydraulic oil tank level.	Inside electrical panel 502 AR	Sight glass full	
8.1.5	Start hydraulic unit and check for leaks	501 TO black pushbutton	501 LA lit	
CAUTION: 1. Hydraulic unit must be run for 30 minutes before compacting commences, to warm up hydraulic oil. 2. Do not activate breakers or fuses inside electrical panels. Inform supervisor who will notify EMS. 3. Use torch to improve visibility when checking oil level.				
8.1.6	Select a 210 litre steel drum and do a final check for drum soundness.			
8.1.7	Place drum minus lid on compactor trolley and secure centralising strap around drum.			
8.1.8	Pour in enough vermiculite to cover base of drum with layer approximately 100 mm thick. Use 5 litre plastic measuring jug.		Vermiculite is added as an absorbent for any wet waste in the bags to be compacted.	
8.1.9	Request RP to perform a doserate survey (using a Teletector) on each bag before placing it in the steel drum.		Any object with doserates > 2 mSv/h must be removed and placed in storage in N030. This must be done under RP supervision.	
8.1.10	Feel bag for any metal or non-compactable objects and if clear, place the bag in a 210 litre steel drum. Remove any metal or non-compactable objects from the bag. Use metal detector		These could cause personal injury to the operator, or damage the compactor whilst under pressure.	
8.1.11	Slit the bag several times so that the air can be expelled during compaction. (a) Repeat steps 8.1.9 to 8.1.11 until drum is full.			

ACTIONS AND CHECKS	IDENTIFICATION	OBSERVATIONS	SIGN
8.1.12 Open door of compactor and push the trolley with the drum into compactor, and close compactor door.			
8.1.13 Check compactor hood is in a high position.	510 TO black pushbutton	Hood top limit switch is made.	
8.1.14 Put trolley into retracted position.	505 TO black pushbutton	502 LA lit	
8.1.15 Start automatic press sequence by SIMULTANEOUSLY pressing both black pushbuttons.	506 TO and 507 TO Black pushbuttons	503 LA lit	
NOTE: The compacting piston starts to lower automatically as soon as the compactor hood is in contact with the drum. It will automatically rise as soon as the 10 ton pressure is obtained. Reaching its high position will also control the rising of the hood from the drum. Hood in high position will extinguish 503 LA.			
8.1.16 Bring trolley to high position.	504 TO black pushbutton	502 LA extinguished	
8.1.17 Open compactor door.			
8.1.18 Pull trolley out of the press. a) Repeat steps 8.1.9 to 8.1.15 until final 10 ton pressure is reached and drum is full after compacting sequence is finished.			
NOTE: Visually inspect the steel drum for any damage such as deformation and denting during the process of compaction before the placement of additional bags.			
8.1.19 Open compactor door and fill any space above compacted waste and brim of drum with vermiculite.		No air space when lid is fitted.	
8.1.20 Place the drum lid under the hood and secure it via the three telescopic pins.			
8.1.21 Place the lid locking ring around the drum.			
8.1.22 Make sure that the ring does not impede the movement of the drum.			
8.1.23 Close the compactor door.			
8.1.24 Control lowering of the hood with attached drum lid onto drum, by SIMULTANEOUSLY pressing both black pushbuttons.	505 TO and 506 TO	503 LA lit	
NOTE: As soon as hood and lid are in contact with drum the compacting piston will start to lower automatically. Its movement will stop when it bears on the drum lid with a force of 500 kg. When this value is reached the hood will rise and 503 LA will be extinguished.			

ACTIONS AND CHECKS	IDENTIFICATION	OBSERVATIONS	SIGN
8.1.25 Open compactor door and slide up lid locking ring into position and tighten the nut and bolt combination. Either the 10 Nm or 30 Nm closing ring can be used.			
8.1.26 Visually confirm that there is no significant bending of the lugs.		Bending of lugs containing the closing bolt are not deformed and that the welds are fully formed and intact.	
8.1.27 If 8.26 are not met, the seal ring should be replaced and the "failed" ring be quarantined for further evaluation/testing, clearly labelled.			
8.1.28 Raise an EWR for each failed spot weld connection.			
8.1.29 Close compactor door.			
8.1.30 Take compacting piston back to its high position.	509 TO black pushbutton.		
8.1.31 Bring trolley to its high position.	504 TO black pushbutton	502 LA extinguished	
8.1.32 Open compactor door and pull out the trolley.			
8.1.33 Release centralising strap from around drum and slide finished drum down roller ramp to temporary storage area. Radiation survey to be conducted and recorded.			
8.1.34 Inspect the steel drum for any defects caused during compaction of waste.			
8.1.35 Raise a CR if a drum is found to be damaged after compaction. CR must contain the following information: • Date of occurrence • Drum number • New drum number used for repacking • Reason for damage			
8.1.36 Push trolley back into compactor.			
8.1.37 Close the compactor door.			
8.1.38 Stop hydraulic unit by depressing 502 TO.	502 TO red pushbutton.	501 LA extinguished	
8.1.39 Push in emergency stop button.	503 TO red hand pump type button.	To eliminate unauthorised use of compacting press.	

9.0 ACCEPTANCE CRITERIA

N/A

10.0 RECORDS

10.1 Documentation generated must be retained as permanent records.

11.0 ATTACHMENTS

Appendix 1 – Compactable Waste

Appendix 2 – Justification

APPENDIX 1

COMPACTABLE WASTE

1. ACCEPTABLE NCW INVENTORY

- Plastic
- Paper
- Swipes
- Contaminated clothes
- Insulation
- HEPA filters
- Pre-filter material
- Bags of tissues
- Cardboard

2. NON-ACCEPTABLE COMPACTABLE WASTE

- Grease or oil
- Sludge
- Pressurised containers
- Explosive or pyrophoric materials
- Hazardous or toxic materials

APPENDIX 2

JUSTIFICATION

Revision 5

1. Page 8, para 8.1.32: Instruction “Raise a CR if a drum is found to be damaged after compaction” added to address GA 37849 for comments made by NNR in letter k24512.1N.

Subsequent paragraphs re-numbered

Safety Screening S2018/0608

Revision 6

1. Page 8, para 8.1.26: Added “Visually confirm that there is no significant bending of the lugs to address recommendations in letter EC-20-034”
2. Page 8, para 8.1.27: Added “If 8.26 are not met, the seal ring should be replaced and the “failed” ring be quarantined for further evaluation/testing, clearly labelled to address recommendations in letter EC-20-034”

Subsequent paragraphs re-numbered

3. Page 10, App 1: Appendix 1 added to correctly align all materials placed into steel drums defined as compactable waste.

Safety Screening S11300

Revision 7

1. Added “Raise a EWR for each failed spot weld connection” to address CR 117375-001 CA on page 8 paragraph 8.1.28.

Safety Screening S11427

Revision 8

1. Page 8, para 8.1.25 Added “Either the 10 Nm or 30 Nm closing ring can be used” to address GA 40917 and TAR 11/2016.

Safety Screening S12291