	SARMA GUIDELINE	Document Number
	SAFETY, HEALTH, ROAD TRANSPORT, ENVIRONMENTAL & QUALITY STANDARD	SHE2.12-F01
		Revision Number
	LOCK-OUT AND ISOLATION	00
		Page Number
		1 of 7

LOCK-OUT & ISOLATION SYSTEM

(SARMA Audit document January 2017 version 1 reference number:

Section A, Element 2, Item 2.6.6;

Section A, Element 8, Items 8.1.2, 8.1.3 & 8.1.19;

Section B, Element 3, Items 9.3, 9.5, 9.6.2, 9.6.3 & 9.6.4)



	SARMA GUIDELINE		Document Number
	SAFETY, HEALTH, ROAD TRANSPORT, ENVIRONMENTAL & QUALITY STANDARD		SHE2.12-F01
	LOCK-OUT AND ISOLATION		Revision Number
			00
			Page Number
		1 of 7	

Table of Contents

ENTRY NUMBER	DESCRIPTION	PAGE NUMBER
1	PURPOSE.....	3
2	SCOPE.....	3
3	RESPONSIBILITY AND ACCOUNTABILITY.....	3
4	DEFINITIONS AND ABBREVIATIONS.....	3
5	LEGAL AND OTHER REQUIREMENTS	
5.1	General.....	3
5.2	Legal Reference.....	4
5.3	Other Requirements.....	4
6	RECORDS.....	4
7	PROCEDURE.....	4-7
8	ASSOCIATED DOCUMENTATION.....	7

	SARMA GUIDELINE		Document Number
	SAFETY, HEALTH, ROAD TRANSPORT, ENVIRONMENTAL & QUALITY STANDARD		SHE2.12-F01
	LOCK-OUT AND ISOLATION		Revision Number
			00
			Page Number
			1 of 7

1. PURPOSE

The purpose of this standard is to provide a formal procedure to ensure that the risk exposure to energy sources and hazardous substances are minimised, in that:


- 1.1. The correct equipment is isolated;
- 1.2. Once the equipment has been isolated that it cannot be accidentally or otherwise switched, or made "live" while persons are still working in, on or near the equipment and
- 1.3. A written procedure, permit [\[SHE2.12-F02\]](#) is available and updated. All relevant equipment will be provided with lock out facilities.

2. SCOPE

- 2.1. This standard applies to **EMPLOYERS**.

3. RESPONSIBILITY AND ACCOUNTABILITY

- 3.1. It is the overall responsibility of Section 16(2) Appointees [\[SHE5.11-F02-3\]](#) to ensure that these standards are in place and are complied with in their area of responsibility by both workers and contractors;
- 3.2. The facilities contractors, electricians and their assistants, will be the only persons allowed to work on electrical installations and portable electrical equipment at **EMPLOYERS** businesses. Should other contractors need to work on electrical installations, such contractor will be required to liaise with the facility electrician [\[SHE5.11-F02-5\]](#) regarding the work to be done. Should such contractor be allowed to proceed with his work, the facility electrician [\[SHE5.11-F02-5\]](#) must inform the Section 16(2) Appointees [\[SHE5.11-F02-3\]](#) about the arrangement;
- 3.3. The facility Section 16(2) Appointees [\[SHE5.11-F02-3\]](#) must ensure that the written lock out procedure [\[SHE2.12-F02\]](#) is available to Section 16(2) Appointees [\[SHE5.11-F02-3\]](#) and contractors, and that the procedure is updated as and when required;
- 3.4. Persons isolating plant and equipment must test the effectiveness of the isolation before work commences – zero energy;
- 3.5. It is the responsibility of the person in charge to ensure the safety of all persons, including those not associated with the work. This may require the demarcation [\[SHE1.21-F01\]](#) of the work area or any other steps that may be required;
- 3.6. Only the person who applied, the lock out may remove the isolation tags and locks. In the event of an emergency, and where this person who applied the lock out is not available, the Section 16(2) Appointees [\[SHE5.11-F02-3\]](#) may remove the lock and tag. This may only be done after all efforts to locate the person who applied the lock out were unsuccessful;
- 3.7. The person removing the lock out must first ensure that the switching on of the power or machine will not endanger anybody;
- 3.8. After locks and tags have been removed on completion of the task, the energy source will only be made live when;
 - 3.8.1. A check of the area has been completed to ensure that all tools and equipment have been removed, and that there are no persons in, upon, or in close proximity to the equipment

	SARMA GUIDELINE		Document Number
	SAFETY, HEALTH, ROAD TRANSPORT, ENVIRONMENTAL & QUALITY STANDARD		SHE2.12-F01
	LOCK-OUT AND ISOLATION		Revision Number
			00
			Page Number
		1 of 7	

that is to be made live and

3.8.2. The person activating the energy source must be satisfied that no injury or danger will be caused by the activation of the energy source.

3.9. It is the responsibility of all employees and contractors to adhere to this standard;

3.10. To effectively support the lock out procedure [SHE2.12-F02] , all switches and valves must be clearly identifiable, marked and controlled;

3.11. In addition, work instructions shall be available wherein the isolation steps are clearly specified to ensure that all persons required operating, service, repairing, maintaining or cleaning same, are able to complete such work in complete safety;

3.12. The risk of computer process control overriding physical lock out must be assessed and actioned if found inadequate and

3.13. It is the responsibility of Section 16(2) Appointees [SHE5.11-F02-3] and Supervisors to ensure that observations are conducted when lock out procedures [SHE2.12-F02] are applied and to ensure the correct application of the lock out procedure. The Section 16(2) Appointees [SHE5.11-F02-3] must assist management with this task.

4. DEFINITIONS AND ABBREVIATION

4.1. LOCK OUT

The physical switching off, isolation, closure of any switch or valve, and the locking in the off / or closed position by means of one or more identifiable padlocks, or all forms of energy (electrical, mechanical, hydraulic, chemical, pneumatics) which will prevent the accidental or unexpected starting or movement of any machine, plant, valve or equipment, or part thereof, or to permit the passage of any electric current, or the release of any fluid, gas or hazardous substance in any pipeline, valve or vessel, which could result in injury or death, to persons working in or on any motor, pump, machine, plant, equipment, or pipeline, or section thereof.

4.2. ZERO MECHANICAL STATE


The mechanical state of any machine or equipment to which all sources of electrical, kinetic and potential energy are effectively isolated, blocked, supported, retained or controlled to the extent that no energy can be accidentally or unexpectedly released to activate the machine, plant, equipment, valve, pipeline or section or part thereof, or permit the passage or emission of any electrical current, fluid, gas or harmful substance and

4.3. See manuals one to five.

5. LEGAL AND OTHER REQUIREMENTS

5.1. General

No.	Document Number	Description
5.1.1.	SHE5.03-F01	GMR 4(5) – Reasonable precautions to ensure machinery are not unexpectedly set in motion or made electrically alive

	SARMA GUIDELINE		Document Number
	SAFETY, HEALTH, ROAD TRANSPORT, ENVIRONMENTAL & QUALITY STANDARD		SHE2.12-F01
	LOCK-OUT AND ISOLATION		Revision Number
			00
			Page Number
		1 of 7	

5.1.2.	SHE5.03-F01	GMR 5 – Prohibition of working on moving or alive machinery unless competent or under supervision of shiftsman (GMR 2)
5.1.3.	SHE5.03-F01	GMR 5(3) – No loose clothing, (Schedule D notice)
5.1.4.	SHE5.03-F01	GMR 6(1) – Start / stop devices
5.1.5.	SHE5.03-F01	GMR 6(2) – Provide means to make controls inoperative while maintenance is performed
5.1.6.	SHE5.03-F01	GMR 6(3) – more than one operator – stop devices for each, audible warning device
5.1.7.	SHE5.03-F01	EMR 3 – Earthing of disconnected machinery
5.1.8.	SHE5.03-F01	EMR 6(3) – Switchgear to have door that cannot open unless switch is in “off” position
5.1.9.	SHE5.03-F01	EMR 6(5) – Tag-out
5.1.10.	SHE5.03-F01	EMR 8(5) – Check for zero potential
5.1.11.	SHE5.03-F01	GSR 2(3)(d) – Lock-out devices to be provided
5.1.12.	SHE5.03-F01	GSR 5(2)(b) – Lock-out for confined spaces – pipes and valves
5.1.13.	SHE5.03-F01	DR Annexure 2

5.2. Legal Reference.


5.2.1. Legal Register.

5.3. Other Requirements.

5.3.1. Local Authorities.

6. RECORDS

Rec. Nr	Reference Nr	Description	Storage Space	Retention Time
6.1.	EMPLOYERS [SHE5.43-F02]	Contractors Contracts		
6.2.	EMPLOYERS [SHE5.51-F02]	Job observation documents (5.51)		
6.3.	EMPLOYERS [SHE2.12-F02]	Permits to work		
6.4.	EMPLOYERS [SHE5.30-F06]	Training records on lock out procedure		

	SARMA GUIDELINE		Document Number
	SAFETY, HEALTH, ROAD TRANSPORT, ENVIRONMENTAL & QUALITY STANDARD		SHE2.12-F01
	LOCK-OUT AND ISOLATION		Revision Number
			00
			Page Number
		1 of 7	

7. PROCEDURE

7.1. LOCK OUT: SAFETY CONSIDERATIONS

7.1.1. At the facility, the main energy source to be locked-out is electricity. Consideration must however also be given to:

- 7.1.1.1. Plants;
- 7.1.1.2. Compressed air;
- 7.1.1.3. Pneumatic & hydraulic sources
- 7.1.1.4. High temperature hot water;
- 7.1.1.5. Other hazardous substances;
- 7.1.1.6. Chemical substances and
- 7.1.1.7. Uninterrupted power supplies and control boards.


7.1.2. Once all energy sources are neutralised the machine, process, equipment will effectively be in a “**ZERO MECHANICAL STATE**” (ZMS), which affords the maximum protection against unexpected/accidental movement.

7.2. ISOLATION SWITCHES

- 7.2.1. Electrical dB's must all be fitted with lock out facilities. Main switches must be accessible even when circuits are locked out and
- 7.2.2. Portable electrical equipment must be disconnected from the power supply source before commencement of any work on the equipment.

7.3. TRAINING: LOCK OUT PROCEDURES [\[SHE2.12-F02\]](#)

- 7.3.1. All employees and contractors who are required to apply lock out procedures will be effectively trained in the correct steps of the procedures before being permitted to commence with such work. Records of such training shall be retained and available;
- 7.3.2. Section 16(2) Appointees [\[SHE5.11-F02-3\]](#), assisted by the SHE Reps [\[SHE5.11-F02-8\]](#) **shall satisfy themselves that all such employees and contractors have** achieved a competent knowledge of the lock out procedures and work instructions;
- 7.3.3. Refresher training in regards to lock out procedures and applicable work instructions shall be completed on an annual basis and in cases where the need for re-training has been identified;
- 7.3.4. Section 16(2) Appointees [\[SHE5.11-F02-3\]](#) “tool box talks” [\[SHE5.14-F03\]](#) shall draw attentions to the requirements of the lock out procedures and
- 7.3.5. Job observations [\[SHE5.51-F02\]](#) must be conducted by the Section 16(2) Appointees [\[SHE5.11-F02-3\]](#) on the facility electrical contractor at least 12 monthly, to ensure that the procedures are being complied with.

 SOUTHERN AFRICA READY MIX ASSOCIATION	SARMA GUIDELINE		Document Number
	SAFETY, HEALTH, ROAD TRANSPORT, ENVIRONMENTAL & QUALITY STANDARD		SHE2.12-F01
	LOCK-OUT AND ISOLATION		Revision Number
			00
			Page Number
			1 of 7

8. ASSOCIATED DOCUMENTATION

No.	Description	Document Number
8.1.	Procedure / Permit	[SHE2.12-F02]
8.2.	Register	[SHE2.12-F03]
8.3.	Tag	[SHE2.12-F04]