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**MANDATORY CODE OF PRACTICE FOR RISK
BASED FATIGUE MANAGEMENT AT THE GTL
REFINERY**



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MHSA and Legislation (Section 3)

A COP is used by PetroSA to manage Health and Safety and other risks on its mines.

Section 9 of the MHSA stipulates that PetroSA may implement a code of practice on any matter affecting the health and safety of employees.

Section 9(2) stipulates that an employer must implement a COP if the Chief inspector requires it.

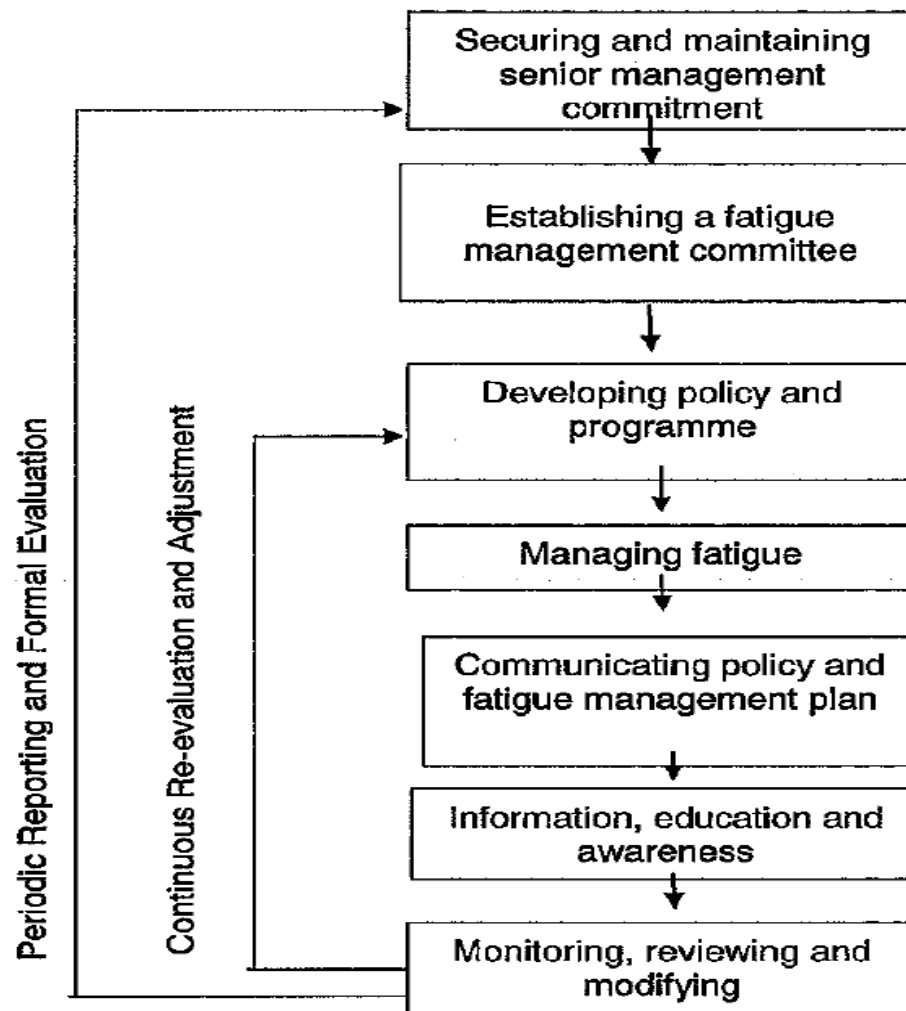
Section 9(3) Stipulates that any Mandatory COP **must** comply with the Guidelines supplied by the Chief inspector (DMR).

Section 9(4) H&S Committee & Labor org must be consulted in drafting any COP required by the Chief inspector (DMR).

Section 9(5) Employer must deliver a copy of any mandatory COP to the Chief inspector of Mines.

The COP is a legal document and is audited by the DMR to ensure compliance.

Fatigue management plan (FMP) development





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Main causes of Fatigue

Fatigue can occur as a result of various factors that may be work-related, lifestyle-related or a combination of the two.

Work- Related Factors	Non- work related factors
Working time	Inadequate or poor quality of sleep due to sleep disorders (for example, sleep apnoea)
Emergency work	Chronic fatigue syndrome
Scheduling and planning	Medical conditions and treatment
Inadequate rest breaks	Family responsibility
Lengthy periods of being awake	Substance abuse
Environmental Conditions	Health and wellbeing



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Hazard Identification / Risk Management

Fatigue- Means reduced mental and physical functioning caused by sleep deprivation that may be attributed to sleep disorders, insufficient opportunities to sleep; long working hours at a high work rate or medical conditions and treatment that result in sleep disruption.

- PetroSA is committed to identify fatigue hazards utilising the Health Risk Assessment and Process Hazard Analysis processes and to limit fatigue by prevention as far as reasonably practical.
- All possible relevant information e.g. ergonomic studies, research reports, manufactures specifications is used to assist in the fatigue risk assessment process.
- The Health, Hygiene & Safety Risks Identified is used to create a OREP for the occupations that is used for Medical surveillance. OREP's is updated with hygiene reports, research information and incidents.
- Issue based fatigue assessments and continuous monitoring.
- This COP is reviewed after any serious fatigue related incident in terms of the Health & Safety programs.



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Current Controls Implemented

- Limiting and monitoring overtime work as far as reasonably practical. Standard on working hours.
- Task risk assessment required for physical arduous work (Work rest cycles)
- Fatigue awareness training as part of the Internal communications toolbox talks and hygiene awareness training programme.
- Medical certificate of fitness as a prerequisite (Based on OREP).
- One center of control at the CCR that helps to ensure operators do not fall asleep.
- Wellness programme.



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Compliance and Access to the COP's

Compliance with the COP Fatigue

Regular internal management inspections & incident investigation are used to:

- Drive towards full compliance of the requirements as described in this document.
- Leading to prompt corrective action when a breach of any of these requirements identified.

Access to the COP Fatigue

Free access to the COP will be guaranteed by the following measures;

- The company will ensure that a signed copy of the COP and related documents are kept on register on SAP.
- Employees are regularly reminded of, and informed about the sections of the COP relevant to their respective areas of responsibility through Safety Inductions, presentations and discussions on area SHE meetings and circulated awareness.
- The fatigue assessment tool will be available under the General templates of the Intranet library.

Fatigue Evaluation Tool Use

Application of the fatigue monitoring / risk assessment tool must be used:

- When employee recognize the risk and reports it to any supervisor.
- When a supervisor identify symptoms of fatigue on any employee.
- When extended shift work is required to safely operate the plant (More than normal working hours).
- When a certificate of fitness indicates the need.
- In every injury investigation to evaluate levels of fatigue (Root cause analysis) contributing to the event (This is part of the IOD Checklist)
- Copy of the completed assessment forms will be forwarded to Hygiene section for data interpretation and risk assessment purposes.

Appendix 1: Fatigue Evaluation Tool (Risk Assessment)

Employee Name / Position				Department		Area								
Date		Time		Task Description										
Shift Pattern: Record shift type (D = Day, N = Night) and hours worked each day, include last 24 hours (full day off O break between shifts).														
	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Hours Worked														
Shift Type														
What initiated the assessment														
Incident			Routine Observation (Every 2 years)		Shift extends beyond normal / Shutdown			Other						
N Hit	MI	DI												
No.			Describe:											

FATIGUE IDENTIFICATION

Signs	Select Rating	Description
Feels active, energetic, wide awake, good coordination	①	Highly Alert
Functioning normally.	②	Alert
Awake, but relaxed, responds to things as required.	③	Relaxed
Eyes tired, long eye blinks (1 0 2 seconds) difficulty focusing eyes, yawning, trouble understanding instructions, effort to stay awake.	④	Mildly Fatigued
Long eye blinks (2 seconds), slurred speech, trouble holding conversation, groggy, want to lie down.	⑤	Very Fatigued
Fixed staring, has to force eyes open, difficulty remaining awake, head falls forward – “nod off”.	⑥	Extremely Fatigued



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Fatigue Evaluation Tool

RISK ASSESSMENT

Assessment Criteria		Fatigue Risk Evaluation (Tick the answer box)					
		Low Risk (L)		Medium Risk (M)		High Risk (H)	
Fatigue Observation / Self-Assessment Rating (Part A above)		1 – 2	☐	3	☐	4 - 6	☐
How many hours of sleep did you have prior to your last shift?		More than 7 hrs	☐	6 – 7 hrs	☐	Less than 6 hrs	☐
How many hours sleep have you had in the last 48 hours (2 days)?		More than 14 hrs	☐	12 – 14 hrs	☐	Less than 12 hrs	☐
How many alcoholic drinks did you drink before your last sleep?	Male	0 – 4	☐	5 – 6	☐	More than 7 hrs	☐
	Female	0 - 2	☐	3 - 4	☐	More than 5	☐
Are you taking medication that could make you drowsy, contribute to fatigue?		No	☐			Yes	☐
Are you feeling affected by any other additional contributing factors, such as stress, noise, vibration, heat/cold, working alone, repetitive tasks etc.		No	☐			Yes	☐

Night shift the previous shift or shift being worked now.	No	☐			Yes	☐
	Total number of (L) x 1		Total number of (M) x 2		Total number of (H) x 3	
Combined Total = (L x 1) + (M x 2) + (H x 3)						
Fatigue Risk Evaluation						
Fatigue is a low risk or not a contributing factor to the incident or potential risk to the individual.					≤10	☐
Low risk, but consider alternative duties with continued monitoring of individual. Fatigue probably played a contributing role in incident.					10 – 11	☐
Medium risk, provide alternative duties with continued monitoring of individual. Fatigue played a contributing role to incident.					12 – 13	☐
High risk, provide alternative duties with continued monitoring of individual. Fatigue played a major role in incident.					≥14	☐

Implementation or Improvement plan

The Committee must ensure the FMP is implemented:

Area Managers:

- Ensure all employees are aware of this COP by adding it to the POE training files
- Monitor the levels of fatigue (Use of assessment tool) when risk is identified.
- Refer all high risk cases to the clinic for medical verification (Except if overtime).
- No overtime work for medium and high risk employees.

Supervisors:

- Identify high risk occupations and do an evaluation (Work hours or work rate as well as other factors)
- Notify the manager if employees are fatigued, especially in overtime conditions.
- Send fatigued employees after assessments to the clinic for medical verification.

Employees:

- Declare sleeping disorders to the medical station and report when fatigued.
- Adhere to supervisor instructions related to fatigue.

Forward a copy of all fatigue assessments to the Hygiene section for risk assessment purposes.