

Metrics that Matter: A Case Review of a FRMS Implementation Process in the Oil and Gas Sector

10th International Conference on Managing Fatigue



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FRMS Case Study: Mid Stream O&G

- Company X identified a need to develop a more comprehensive approach to managing fatigue and alertness with operators
- Management Myths
 - Sleep is controllable by workers
 - Equating sleep with laziness or not caring
 - Worried about perceptions (we can't pay people to sleep at work!)

Part of the problem was...



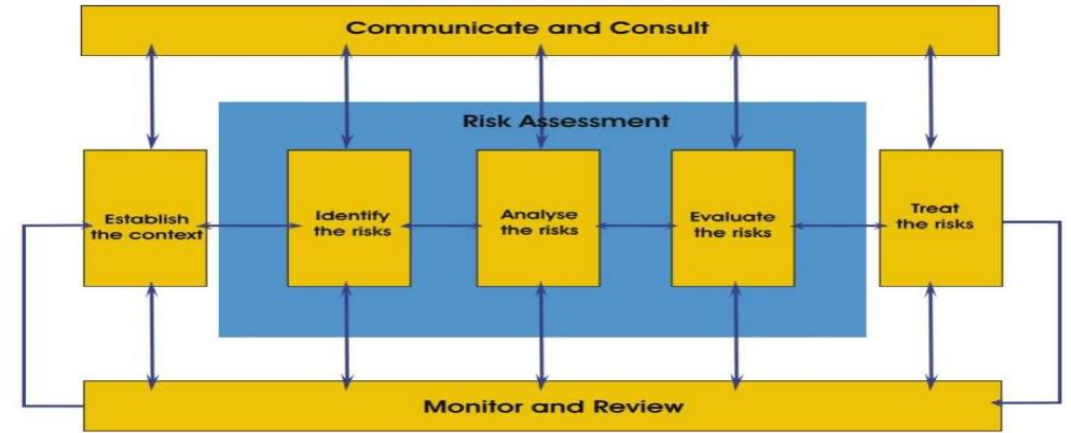
- Employees afraid to admit or talk about it
- Employees never been asked
- Managers and shift schedulers who've never worked shift work are often in control of shift work activities
- No data /metrics

Objectives

- Evaluate current fatigue risk management system (FRMS) in place via needs assessment/gap analysis (NAGA)
- Conduct fatigue risk assessment of current shift design and physical/mental demands of job tasks
- Establish metrics

Reference Standards

OHS	CSA Z1000/1002	Safety/Risk Management Systems
	ISO 18001 (45001) & 31000	
Oil & Gas	ANSI API RP 755	Fatigue Prevention Guidelines for the Refining and Petrochemical Industries
	IPIECA/OGP	Performance Indicators For Fatigue Risk Management Systems
	ENFORM	Fatigue Risk Management Guiding Principles



Fatigue Risk Management System

Organizational Culture, Commitment, Engagement

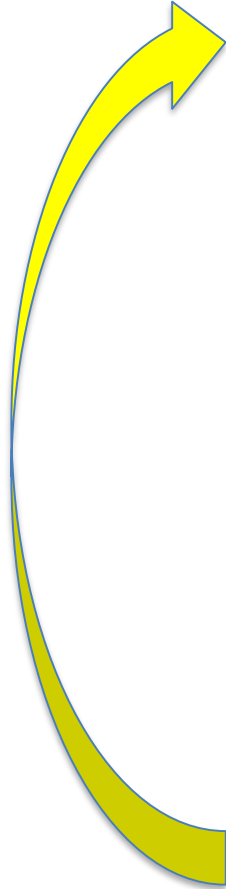
Strategic Plan

Hazard ID and Risk Assessment

Risk Control Selection and Implementation

Evaluation and Corrective Actions

Management Review & Continuous Improvement



Needs Assessment / Gap Analysis (NAGA)

Shift Work, Health and Lifestyle Survey

As part of (company) (project) strategy to ensure the safety and wellbeing of its employees, your support in completing this survey will help us to determine what resources are needed toward the provision of a healthy and fit future. All responses will remain confidential.

Completed surveys will be returned to SIX Safety Systems Inc., an independent consulting firm, for analysis and summarizing. Should you have any questions or concerns regarding the survey, please do not hesitate to contact them directly at 1-888-963-7365, or by email at info@sixsafety.com.

Position: _____ Department: _____
Gender: Male Female Age: _____

A) Sleep / Fatigue Survey

	Years	Months
1. How long have you worked on your present shift system?		
2. How long altogether have you been working shifts?		

On average, how long does it take you to travel between work?

	To Work	From Work
3. Day shift?		
4. Night shift?		

Please rate your workload on each shift that you work:

	Very Light	Light	Average	Heavy	Very Heavy
5. Day shift					
6. Night shift					

7. The posting of the job is:

	Entirely outside my control	Somewhat under my control	Entirely under my control
7. The posting of the job is:			

At what time do you typically fall asleep (and necessarily when you go to bed) and wake up? Please use 24 hr clock e.g. 12:00

	Fall Asleep	Wake Up
8. Between two successive day shifts?		
9. Before your first night shift?		
10. Between two successive night shifts?		
11. After your last night shift?		
12. Between two successive days off?		

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How do you feel about the amount of sleep you normally get.	scarcely near enough	could do with a bit more	could do with a bit more	I get the right amount
13. Between successive day shifts?				
14. Between successive night shifts?				
15. Between successive days off?				

	Extremely busy	Quite busy	Moderately busy	Quite well
16. Between successive day shifts?				
17. Between successive night shifts?				
18. Between successive days off?				

	never	Rarely	Sometimes	Frequently	Almost always
19. Between successive day shifts?					
20. Between successive night shifts?					
21. Between successive days off?					

	never	Rarely	Somewhat frequently	Very much so
22. Between successive day shifts?				
23. Between successive night shifts?				
24. Between successive days off?				

	never	Rarely	Sometimes	Frequently	Almost always
25. Between successive day shifts?					
26. Between successive night shifts?					
27. Between successive days off?					

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Highlights of the Gap Analysis

- No evidence of
 - Leadership commitment or recognition of the impact of fatigue on performance
 - Defined roles and responsibilities
 - Assessment tools used to identify and analyze fatigue related risks
 - Training of supervisors in the risk assessment process
 - Policies or procedures established for mitigating fatigue risk
 - Targets or objectives related to mitigating risks
 - Supporting circadian factors in schedule design
- Minimal efforts in
 - Employee education and training
 - Recovery opportunities

Evaluating the FRMS

1. Organizational Culture, Commitment and Engagement (21Q)
 - Culture and Commitment by Sr Mgmt
 - Defining of Roles and Responsibilities
 - Participation of Employees
2. Strategic Plan (19Q)
 - Objectives, Targets and Legal Requirements
 - Policies
 - Procedures and Practices
3. Hazard ID & Risk Assessment (12Q)
 - Hazard ID
 - Risk Analysis Techniques
4. Fatigue Risk Controls (42Q)
 - Preventative and Proactive Measures
 - Fatigue Countermeasures
 - Competency and Training
 - Communication and Awareness
 - Design and Procurement
 - Management of Change
5. Risk Evaluation and Corrective Actions (14Q)
 - Monitoring and Measurement
 - Preventative and Corrective Actions
6. Management Review and Continuous Improvement (14Q)
 - Audits and Reviews
 - Continual Improvement

Company X Scorecard

Category	Points Available	Points Awarded
Organizational Culture, Commitment and Engagement	42	
Strategic Plan	38	
Hazard ID and Risk Assessment	24	
Implementation of Risk Controls	84	
Evaluation & Corrective Action	28	
Management Review & Continuous Improvement	28	
Overall Score	244	

Fatigue Risk Management System

Organizational Culture, Commitment, Engagement

Strategic Plan

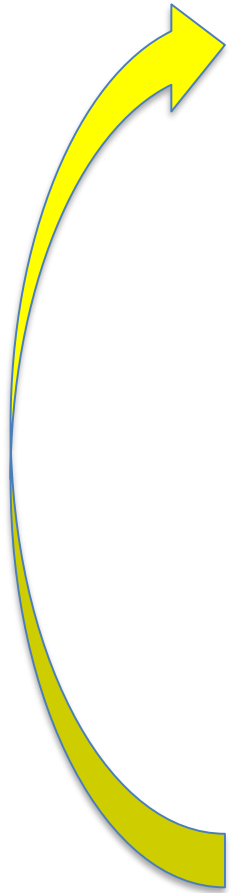
Hazard ID and Risk Assessment

Risk Control Selection and Implementation

Risk Evaluation and Corrective Actions

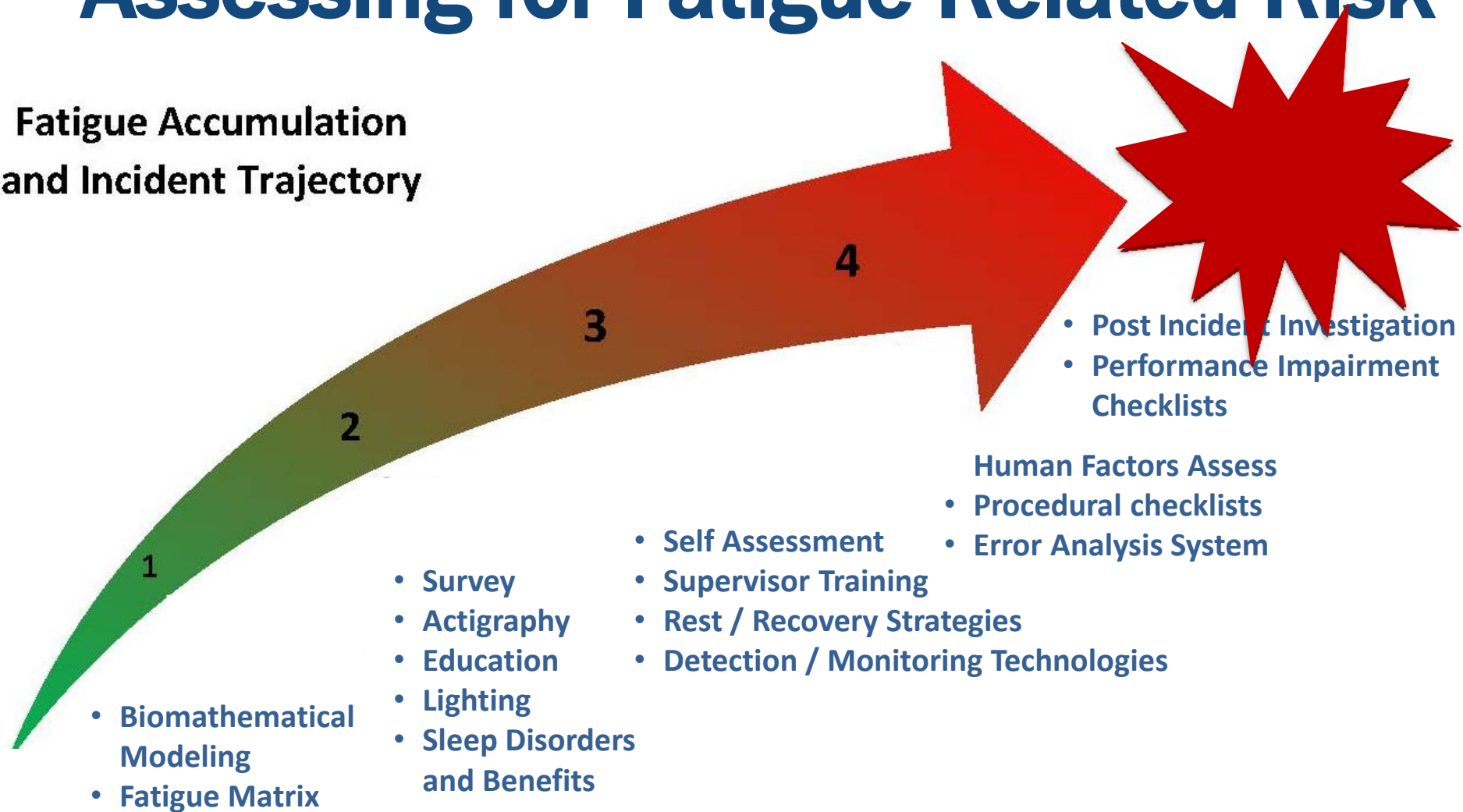
Management Review & Continuous Improvement

Fatigue Risk Assessment Tools and Technologies (Tactical Approach)



Assessing for Fatigue Related Risk

Fatigue Accumulation and Incident Trajectory



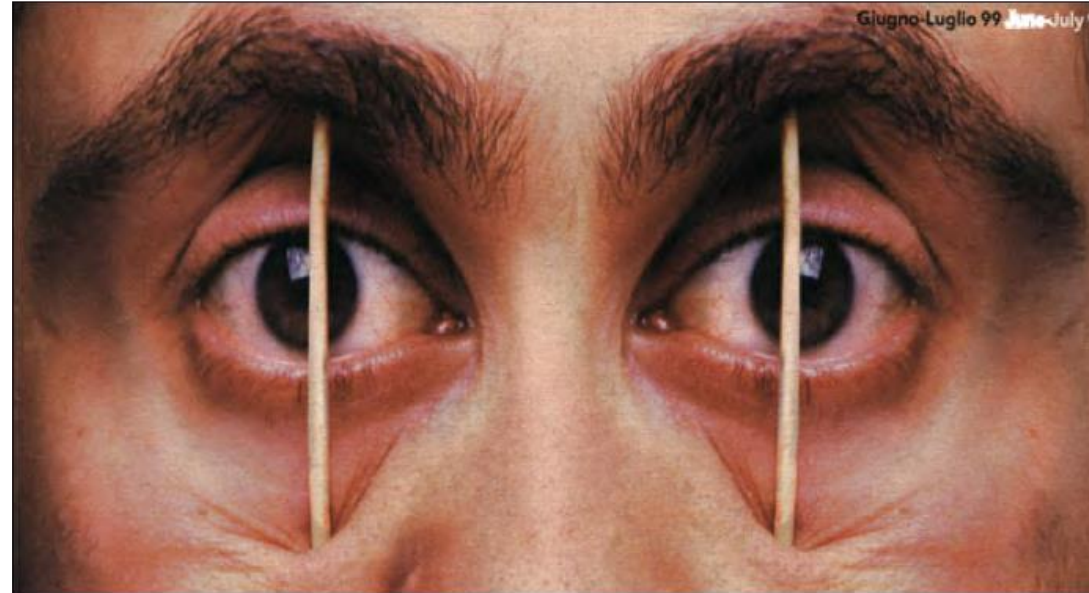
Where We Are at Today

- Formation of Fatigue Risk Management Committee (FRMC)
- Preliminary draft of a FRMS guideline document ready (strategic framework)
- Selection and Implementation of Level 1-5 Risk Controls (tactical elements)
- Expansion into a Corporate-wide initiative

Company X Scorecard - 2016

Category	Points Available	Oct 2014	June 2016
Organizational Culture, Commitment and Engagement	42	15	
Strategic Plan	38	10	
Hazard ID and Risk Assessment	24	15	
Implementation of Risk Controls	84	6	
Evaluation & Corrective Action	28	0	
Management Review & Continuous Improvement	28	0	
Overall Score	244	46	
		(19%)	

Fatigue is Multi-faceted



**...and therefore requires multiple,
overlapping controls**

Thank You!



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