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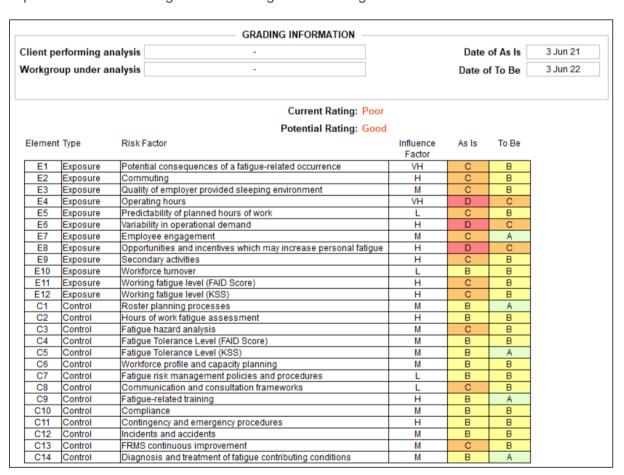
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# 1. GRAID FRMS Introductory Notes

Developed by InterDynamics and Integrated Safety Support, GRAID FRMS is an organisational fatigue risk-grading tool, used to rate the adequacy of current and future safeguards, making up an organisation's Fatigue Risk Management System (FRMS). Twenty six fatigue grading elements or risk factors, assigned varying levels of importance, are reviewed. At the end of the review an overall grading is determined, providing feedback on the level of protection of the organisation's FRMS against fatigue-related risks. This systematic assessment tool gives participants the opportunity to express their views on fatigue-related exposures and risks that are grounded both in objective data as well as participants' experience.

InterDynamics and Zurich Risk Engineering have developed the organisational fatigue risk grading system to provide senior and operational managers of organisations a systematic methodology to ascertain the quality of their organisational risks associated with fatigue. Information from the grading process can be used to enhance the development and implementation of the organisation's fatigue risk management initiatives.



Applied as a benchmarking tool, GRAID FRMS can be used at a later stage to compare current and past results to document any achievements and changes in the organisation's FRMS.

### 1.1. External Resources

GRAID FRMS utilises FAID Quantum analysis results in its grading process.

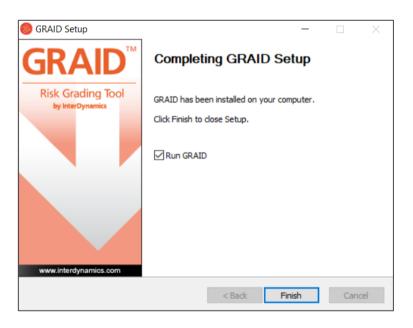
## 2. Introduction

This User Guide incorporates all the functionality of GRAID FRMS.

### 2.1. Set up

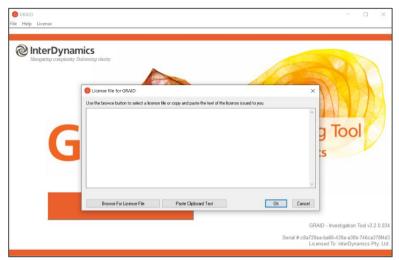


The first time a user loads GRAID, the user will be taken through GRAID Setup. Follow the prompts, read the license agreement and choose which features of GRAID to install.



### 2.2. First Time User Instructions

Once setup up is complete and GRAID first loads:



- 1. A valid license must be submitted. When entering the license file for GRAID the user can either:
  - a. Use the Browse For License File button to select a license file, or
  - b. Copy and Paste the text via the **Paste Clipboard Text** button.



2. Once the user has submitted a valid license, select **Enter**.

### 3. Control Panel



The user can navigate around the GRAID FRMS sections via the orange 'control panel' on the left hand side by simply clicking on the appropriate section to be navigated to it's screen.

The process of completing an FRMS grading follows the control panel from top to bottom.

The tab that is active is highlighted by black outline.

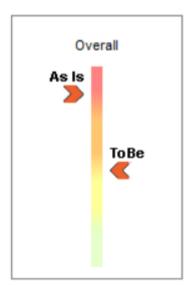
# 3.1. Navigation

At any time, the user can view the current scorecard by selecting the **Scorecard** tab. The user can click any element in the scorecard to be taken directly to that element.

In each of the **Element (Exposure/Control)** tabs, the back and forth arrows can be used to navigate between Elements.



### 3.2. Grading Scale



The Overall Grading Scale appears on the left in the control panel in each of the grading stages and in the Scorecard.

The scale automatically adjusts as the user makes selections through the Elements.

### 3.3. Editing

In the **Scorecards** tab, the control panel provides **Editing** options; Open, Save, Copy to Clipboard.

### 3.3.1. Open GRAID Scorecard

To open a saved GRAID Scorecard, select **Open GRAID Scorecard**, select the file (graid File) and Open.

### 3.3.2. Save GRAID Scorecard

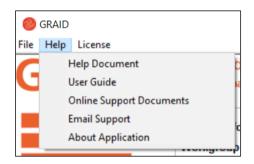
To save a GRAID Scorecard, select **Save GRAID Scorecard**, name the file (graid File) and Save.

### 3.3.3. Copy Scorecard to Clipboard

To copy GRAID Scorecard to clipboard, select **Copy Scorecard to Clipboard**, and select Okay. The information can then be pasted in Excel or other application as required.

### 3.4. Help

Help can be accessed via the **Help** Menu in the top left corner (second tab from the left).



The Help Menu provides access to:

- A Help Document (includes detailed information regarding terms, concepts and process steps),
- User Guide (internet access required),
- Online Support Documents (internet access required),
- Email Support (internet and email account required),
- About Application information relating to the Application such as version and serial number

# 3.5. License



The **License** tab can be found in the top left corner (third tab from the left).

The License Menu provides access to read in a License Key file via the **Get License Key** selection.



A browse for license file display will appear.

When entering the license file for GRAID the user can either:

- a. Use the **Browse For License File** button to select a license file, or
- b. Copy and Paste the text via the **Paste Clipboard Text** button.

### 4. Information

The first tab, **Information**, provides information regarding GRAID FRMS, its purpose and use.



Risk Grading Tool by InterDynamics

### Information

The Fatigue Risk Management System (FRMS) GRAIDING system is based on predetermined Fatigue Risk Management System (FRMS) definitions for each identified risk element and relative risk level influence, resulting in a systematic assessment of an organisations fatigue-related risk incorporating multiple grading elements.

The purpose of this system is to provide a more objective rating of the adequacy of current and future FRMS safeguards/treatments/controls to protect against identified fatigue exposures.

#### GRADING

The grading tool is for risk assessment. It is made up of the various risk elements that constitute an organisations Fatigue Risk Management System (FRMS) resulting in an overall Grading that indicates the quality of the risk and the effectiveness of the FRMS.

#### WHO USES THE GRADING?

The grading system should be used by risk engineering professionals.

#### WHY USE GRADING?

The benefits of risk gradings include a consistent world wide risk assessment, benchmark data on risk levels, cost benefit comparisons and prioritization of risk reduction investments.

Purpose of grading for risk professionals

- \* Performing the risk assessment process in a structured way.
- \* Supporting risk managers with given risk factors and defined risk assessment criteria.
- \* Increasing consistency.
- \* Providing results which are transparent to customers.
- \* Providing results that can be used for underwriting purposes.

#### RELATIVE vs ABSOLUTE ASSESSMENTS

The grading is built on the principle of relative assessment. This means that the risk assessment criteria are different for each type of industry.

#### GRADING CALCULATION

The result of the Grading is called "Overall Grading". It is calculated based on the assessment results of a set of risk factors. Risk factors are determined by a risk factor based on risk assessment criteria.

New Grading

# 5. Settings

The **Settings** tab allows the user to add details for a new grading.

To fill in the details of **Client performing analysis** and **Workgroup under analysis**, select the box to the right and type in details.

To fill in the **Date of As Is** and **Date of To Be**, select the box to the right and select date from drop down calendar or type in date.



# 5.1. Grading Type

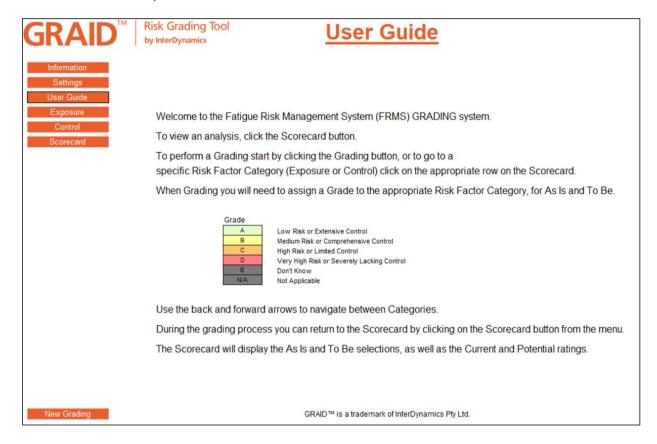
If the user is licensed for GRAID FRMS & GRAID IT, the user will have the option to change the grading type. In the settings tab, an option will be available to select grading type.



Click the drop down and select the grading type. The selected grading type will load.

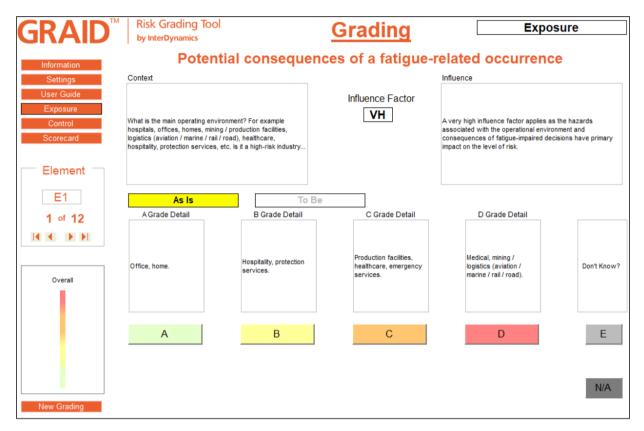
### 6. User Guide

The User Guide tab provides brief details of how to use GRAID FRMS.



# 7. Exposure





## 7.1. Exposure Elements

The **Exposure** tab takes the user through 12 elements. These are:

- 1. Potential consequences of a fatigue-related courrence
- 2. Commuting
- 3. Quality of employee provided sleeping environment
- 4. Operating hours
- 5. Predictability of planned hours of work
- 6. Variability in operational demand
- 7. Employee engagement
- 8. Opportunities and incentives which may increase personal fatigue
- 9. Secondary activities
- 10. Workforce turnover
- 11. Working fatigue level (FAID Score)
- 12. Working fatigue level (KSS)

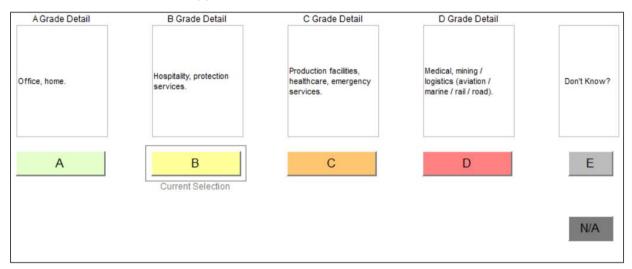
The Context box provides further context/details for each element.

The **Influence** box provides information on the influence factor of each element. L = Low, M = Medium, H = High, VH = Very high

### 7.2. Completing Exposure Elements

The user can select between 3 options when completing an Exposure element:

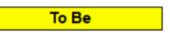
- The user can select the applicable box **A**, **B**, **C** or **D**. Details are provided to define selections. (Element E2 and E6 present a grid matrix with details on the X and Y to define selection.)
- If the element is not known, the user can select
- If the element is not applicable to the context, the user can select



When the user first navigates to an element, a yellow box will be highlighted **As Is**. This indicates that the selection being made relates to the current situation.

As Is

Once a selection has been made, the yellow highlighted box will move to **To Be.** The user can then enter a selection to record the target grade.



At any time, the user can navigate between **As Is** and **To Be** by selecting the appropriate box.

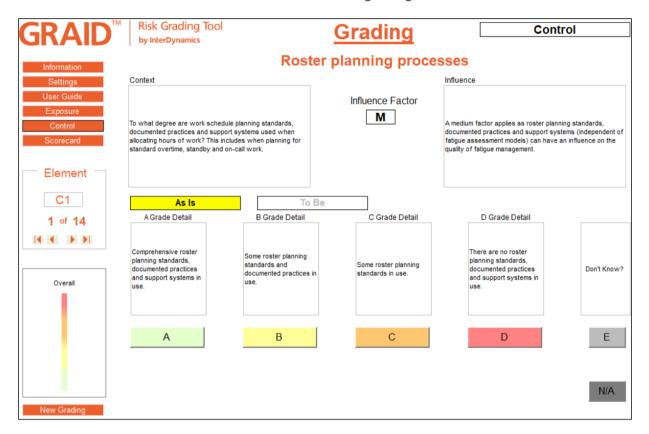
Once a selection is made, the display will automatically move on to the next element.

### 7.3. FAID Quantum Hours of Work Assessment

To complete Element E11 & E12, the user must first complete a FAID Quantum fatigue assessment. See <u>FAID Quantum Software</u> and <u>What You Need To Know About FAID Quantum</u>.

### 8. Control





### 8.1. Control Elements

The **Control** tab takes the user through 14 elements. These are:

- 1. Roster planning processes
- 2. Hours of work fatigue assessment
- 3. Fatigue hazard analysis
- 4. Fatigue Tolerance Level (FAID Score)
- 5. Fatigue Tolerane Level (KSS)
- 6. Workforce profile and capacity planning
- 7. Fatigue risk management policies and procedures
- 8. Communication and consultation framewrks
- 9. Fatigue-related training
- 10. Compliance
- 11. Contingency and emergency procedures
- 12. Incidents and accidents
- 13. FRMS continuous improvement
- 14. Diagnosis and treatment of fatigue contributing conditions

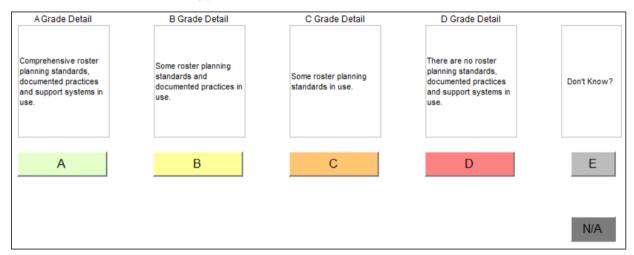
The **Context** box provides further context/details for each element.

The **Influence** box provides information on the influence factor of each element. L = Low, M = Medium, H = High, VH = Very high

### 8.2. Completing Control Elements

The user can select between 3 options when completing an Exposure element:

- The user can select the applicable box A, B, C or D. Details are provided to define selections.
- If the element is not known, the user can select
- If the element is not applicable to the context, the user can select



When the user first navigates to an element, a yellow box will be highlighted **As Is**. This indicates that the selection being made relates to the current situation.

As Is

Once a selection has been made, the yellow highlighted box will move to **To Be.** The user can then enter a selection to record the target grade.



At any time, the user can navigate between **As Is** and **To Be** by selecting the appropriate box.

Once a selection is made, the display will automatically move on to the next element.

### 8.3. FAID Quantum Hours of Work Assessment

To complete Element C4 & C5, the user must first complete a FAID Quantum fatigue assessment. See <u>FAID Quantum Software</u> and <u>What You Need To Know About FAID Quantum</u>.

### 9. Scorecard

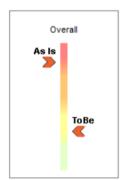
The **Scorecard** tab allows the user to review the grading. The Scorecard may be viewed at any time.

	Current Rating: Poor						
		Potential Rating: Good					
Elemen	t Type	Risk Factor	Influence Factor	As Is	To Be		
E1	Exposure	Potential consequences of a fatigue-related occurrence	VH	С	В		
E2	Exposure	Commuting	Н	С	В		
E3	Exposure	Quality of employer provided sleeping environment	M	С	В		
E4	Exposure	Operating hours	VH	D	O		
E5	Exposure	Predictability of planned hours of work	L	С	В		
E6	Exposure	Variability in operational demand	Н	D	O		
E7	Exposure	Employee engagement	M	С	Α		
E8	Exposure	Opportunities and incentives which may increase personal fatigue	Н	D	C		
E9	Exposure	Secondary activities	Н	С	В		
E10	Exposure	Workforce turnover	L	В	В		
E11	Exposure	Working fatigue level (FAID Score)	Н	С	В		
E12	Exposure	Working fatigue level (KSS)	Н	С	В		
C1	Control	Roster planning processes	M	В	Α		
C2	Control	Hours of work fatigue assessment	Н	В	В		
C3	Control	Fatigue hazard analysis	M	С	В		
C4	Control	Fatigue Tolerance Level (FAID Score)	M	В	В		
C5	Control	Fatigue Tolerance Level (KSS)	M	В	Α		
C6	Control	Workforce profile and capacity planning	M	В	В		
C7	Control	Fatigue risk management policies and procedures	L	В	В		
C8	Control	Communication and consultation frameworks	L	С	В		
C9	Control	Fatigue-related training	Н	В	Α		
C10	Control	Compliance	M	В	В		
C11	Control	Contingency and emergency procedures	Н	В	В		
C12	Control	Incidents and accidents	М	В	В		
C13	Control	FRMS continuous improvement	M	С	В		
C14	Control	Diagnosis and treatment of fatigue contributing conditions	M	В	Α		

From the Scorecard, the user can:

- View the Current Rating and Potential Rating
- Clicking an Element on the Scorecard to take the user back to the relevant element section.
- Edit the Grade Selection for any element by clicking the 'As Is' or 'To Be' column for an element. A drop down will appear, allowing the user to reselect a Grade.

# 9.1. Overall Grading



Throughout the grading process, the user can view 'Overall Grading' via the Scorecard and via the scale in the control panel.

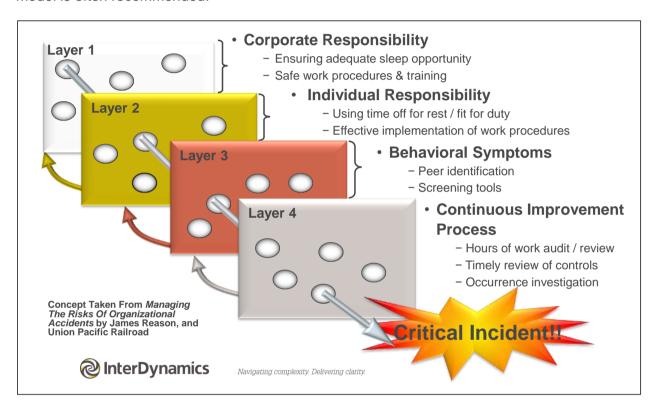
These scales will continually adjust as the grading elements are completed.

**NOTE**: The rating given is not indicative of the overall grading until all grading elements have been considered and completed.

# **Appendix A: InterDynamics' Methodology**

Many organisations faced with the challenge of managing fatigue can easily become daunted by the prospect. Impairment associated with fatigue can be difficult to detect, and harder still, is judging the level of impairment that could present a danger. Added to the complexity of individual differences in experiencing fatigue is the context for individuals (e.g. job type, activities, environment, time of day, etc.) and the degree to which this is vulnerable to fatigue.

Given the diverse factors needing to be taken into account in managing work-related fatigue, a risk-based approach that gives consideration to models like James Reason's 'Swiss Cheese' model is often recommended.



The Defences-in-Depth model (Dawson & McCulloch, 2005) applies James Reason's model to the fatigue context, targeting prevention through a series of barriers, safeguards, and defences. InterDynamics has included these concepts and ideas in its Risk-Based Approach to managing fatigue, summarised in the diagram *Our Risk-Based Approach to Managing Fatigue* at the end of this Appendix.

InterDynamics' approach recognises the development of an appropriately informed plan to manage fatigue (a Fatigue Management Plan) as foundational to the effective implementation and on-going improvement of a Fatigue Risk Management System (FRMS). Staff engagement and consultation is key to a smooth FRMS implementation, as cultural change is often required for the organisation to transition its perception and management of fatigue in line with the organisation's fatigue policy commitment.

Our experience assisting clients of all sizes across various industries and circumstances has brought insights into the most effective organisational team structures and project plans for successful implementation.

The aim of the Risk-Based Approach is to provide our clients with the best possible tools and resources to manage fatigue risks. It is founded on four pillars: consultation, staff engagement, shared responsibility and effective risk management.

This comprehensive methodology includes three key steps:

- 1. **Determining** the fatigue risk profile of the organisation
- 2. **Protecting** against unacceptable fatigue-related risks
- 3. Reviewing systems to ensure protection measures remain adequate

Suggested FRMS Scope and Implementation activities are outlined in the second & third columns of the diagram, respectively. The last column presents supporting InterDynamics services and products that facilitate the FRMS journey. Deliverables and findings from each implementation activity give additional insight into the organisation's specific requirements for managing fatigue effectively, as well as providing valuable input into the Fatigue Management Plan and supporting Work Procedures.

InterDynamics' Risk-Based Approach to managing fatigue targets improved safety and performance as key outcomes of the FRMS.

InterDynamics and Zurich Risk Engineering have developed an organisational fatigue risk grading system (GRAID™) to provide senior and operational managers with a systematic methodology to ascertain the quality of their organisational risks associated with fatigue. In conducting FRMS reviews, InterDynamics can provide a valuable third-party perspective on the depth, breadth and relevance of your Fatigue Risk Management System.

# Our Risk-Based Approach to Managing Fatigue

**Managing Work-Related Fatique Risks** 

1. Determine:

**Fatique Risk Profile** 

Scope

**Risk Profile of Hours of Work** 

planned, unplanned / overtime. actual hours, standby

Risk Profile of Individual

commuting to/from work, sleep disorders, lifestyle

Risk Profile of Job Type / Role

time on task, environment, demand of task

2. Protect: **Against Fatique Risk**  Adequate treatments / controls

Prepare for emergencies & unplanned work. Fatigue risk assess changes

3. Review: **System & Occurrences** 

Fatigue occurrences, Causal & risk factors. Work plans and procedures, New information

Navigating complexity. Delivering clarity.

### **Implementation**

Diagnostics of planned & actual Hours of Work

Review individual experience and self reports of fatigue

Risk Assessment of day-to-day activities in the context of fatigue

Fatigue Management Policy, Plans. Procedures & operational work instructions

Supporting supervisory, team & individual management strategies

Review / investigate fatique reports. existing controls, business processes & changes

### **Supporting InterDynamics** Services & Products

FAID® Quantum Diagnostic Reports, Implementation of FAID Tools,

Staff Surveys, Sleep Studies, Discussion group facilitation, Fatique assessment / monitoring

Fatigue Hazard Analysis (FHA) Risk Assessment Workshops & Reports

Transition planning & support, Managing Fatigue education, **Facilitation of Fatigue Management** Policies, Plans & Procedure development. FAID Quantum Roster Tool / Shared Object Library

FRMS Review & Grading (GRAID FRMS), A&I Investigation (GRAID IT), FAID Quantum Hours of Work Audits

