



Development of a methodology for the assessment of human factors issues relative to trips, slips and fall accidents in the offshore industries

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Development of a methodology for the assessment of human factors issues relative to trips, slips and fall accidents in the offshore industries

S Mason BSc (Hons) MSc FErgS EurErg MIOSH
Health, Safety and Engineering Consultants Ltd
70 Tamworth Road
Ashby-De-La-Zouch
Leicestershire
LE65 2PR
United Kingdom

The project initially aimed to produce a tool for Health and Safety Executive Field Inspectors to use offshore to consider those factors likely to increase the incidence of slip, trip and fall (STF) incidents. The focus of the project changed throughout the life of the project as feedback from various trial stages was obtained. The final tool was developed to be capable of being easily applied by the workforce and supervision. It was also developed to be action orientated.

This report presents an overview of the development stages of the tool throughout the project before describing the final product. A further project is planned to refine the tool for general publication.

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EXECUTIVE SUMMARY

The project initially aimed to produce a tool for HSE Field Inspectors to use offshore to consider those factors likely to increase the incidents of slip, trip and fall (STF) incidents. The focus of the project changed throughout the life of the project as feedback from various trial stages was obtained. The final tool was developed to be capable of being easily applied by the workforce and supervision. It was also developed to be action orientated.

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1.0 INTRODUCTION

The HSE identified the need for a simple tool to highlight the slip, trip and fall risks on offshore installations. It was not clear, however, the most appropriate form for such a tool as this would have to consider aspects of the equipment and processes used offshore and be easy to use. An initial application of a checklist and questionnaire was considered appropriate, based on a similar tool developed by the HFRG for another application (see reference 1). However, the nature of the tool, its objectives and its intended users changed as a result of the benefit of feedback from three trials.

The basic description of three versions of the tool; the feedback from these trials; and any subsequent changes to the tool objectives are summarised below:

1.1 INITIAL OBJECTIVES

The project was initiated to develop a new paper based tool that offshore HSE field inspectors could use during their inspection visits to assess the human factors issues associated with slip, trip and fall (STF) accidents and thereby help reduce the numbers of these incidents. It was then envisaged that the Inspector could discuss key findings with the duty holders. The findings could also provide information that would allow a subsequent strategic review of the potential risk factors by the HSE.

A seminar/training package for the field inspectors was to be developed to enable them to reliably apply the tool.

It was essential that the tools should be capable of addressing STF risks on specific parts of the installations. By applying the tool to a specific work area on the rig, the tool should be capable of identifying any localised problems as well as any general problems on the installations.

It was important that the application of the tool required some involvement of those working on the installation to develop ownership of many of the factors that increase slip, trip, fall risk; and secondly to encourage the workforce to fully consider the implications of risk factors present in their work area

The tool had to be very simple to apply and address the wide range of factors that could increase slip, trip and fall incidents.

Where possible, the information generated should facilitate immediate improvements to be made at the time of the actual assessment to reduce STF risk.

It was envisaged that the tool would also provide useful feedback information for use in toolbox talks.

1.2 LITERATURE REVIEW

Literature was reviewed at the libraries of HSEC Ltd and Loughborough University and discussions held with an academic expert in this area. The review identified wide-ranging information in the conventional 'physical' factors that influence STF but very little information on the 'softer' human factors issues concerning the attitudes to risk and some organisational factors.

2.0 TOOL DEVELOPMENT

A number of developments occurred with the STF tool as a result of feedback from trials. The main stages of this work are summarised below.

2.1 INITIAL TOOL

It was not considered possible to address the wide range of factors by a checklist alone. A two-part tool was therefore developed to reflect that used by the HFRG sub-group (reference 1). An Inspectors' checklist determined the assessor's views of impact of various physical features on the slip, trip & fall risk (eg floor condition). A workforce questionnaire then addressed the behavioural and organisational factors that may further increase any risks. The questionnaire also determined the workforce's ratings on the impact of selected physical features affecting risks to enable the operators' views to be compared to the Inspector's checklist.

A rating system was being considered to enable the scores for one rig to be compared to other rigs (see later).

Many questionnaires adopt the 'Likert Scale' to determine the amount of agreement or disagreement with a number of statements, for example, "the floor surface is smooth and clean". An alternative style was developed for this project. The questions sought the degree to which a range of hazards would increase the likelihood of a STF incident, for example, whether the condition of the floor surface would result in a low, medium or high likelihood of a person slipping, tripping or falling. This question style therefore required the respondents to consider in greater detail the relative importance of each factor than if a Likert Scale was used.

A question set was developed to focus on how a number of factors would influence the likelihood of a STF incident, but not the resulting risk. As the consequence of a STF incident could be highly variable in any work area, it was decided that such a rating would have little value. The tool essentially therefore assumed that any STF incident could have roughly equal severity and therefore that a rating that reflected the likelihood of a STF incident would accurately reflect the wider aspects of risk.

The questionnaire contained 34 questions. The checklist contained 47 factors. A crib sheet was also produced to assist those completing the checklist.

The checklist and questionnaire addressed the following:

- Physical aspects of the walkways and stairs
- Environmental aspects
- The nature of the work being undertaken
- Organisational & cultural aspects.

The latter are rarely addressed in this context but clearly have a potential influence on the numbers of slips, trips and fall incidents. The organisational issues addressed included:

- Clear roles & responsibilities
- Housekeeping
- Standard of supervision
- Pressure to work fast
- Inexperienced workforce
- Poor perceptions of risks
- System for reporting problems

- Health & Safety tour agenda/audit
- Permit to Work checks and ‘sign off’ following completion of work.

Copies of this initial trial tool are given in Appendix 2.

2.2 TRIAL FEEDBACK (1ST TOOL)

The initial tool was trialled offshore by an Inspector in January 2002. The Inspector introduced the tool to a number of rig operators. After the participants completed a walk round of the rig it became apparent that the wording of some of the questions was insufficiently specific.

Participants were uncertain as to whether their ratings reflected the actual conditions. For example, the likelihood of a STF as a result of the actual features at that work area – (correct interpretation) or whether it reflected the reduction in likelihood of a STF incident if the feature being addressed was improved (incorrect interpretation). The two very different interpretations prevented meaningful analysis of the initial results.

Feedback showed that the tool was too complicated to apply and that some form of initial training or briefing would be needed before reliable results could be achieved. The crib sheet was considered too wordy and difficult to read by some of the workforce.

It was also felt that the ordering of some of the questions could be improved to better assist participant’s focus on the issues in a complex environment. The initial ordering reflected factors affecting risk rather than the order with which factors are viewed when conducting an inspection – eg items at floor level before considering items at higher levels.

Participants found some difficulty in dealing with locations where a feature was (say) generally good but where there were some poor features in a small part of the site being investigated.

The tool, which was developed for A4 paper, was also found to be impractical for the wind speeds encountered on the platforms. An A5 size booklet was suggested.

Although there were clearly many problems with the initial tool, positive feedback was obtained in relation to how completing the checklist and questionnaire heightened people’s awareness to some of the STF hazards. Completing the tool was said to have stimulated discussion. Furthermore, some participants actually took ownership of certain problems identified and addressed and removed certain STF hazards while they were taking part in the exercise.

The positive findings confirmed the initial tool was fulfilling several of the major objectives, however, its complexity detracted from its suitability for widespread use. Significant modifications were therefore required while maintaining the successful aspects of the initial tool.

2.3 MODIFIED OBJECTIVES

Although the initial tool was developed for Inspectors, feedback suggested that a tool could be developed primarily for the rig management. Although the Inspectors could review the findings, they would not have a major role in the application of the tool. In order to fulfil this new role, the tool would need to address those issues under the control of management that could affect risk and also to reflect, as far as possible, a practical safety management process.

The revised tool would benefit from a greater involvement of the workforce. The separate checklist and questionnaires were therefore discarded and the issues combined to a new questionnaire for the workforce.

The revised tool aimed to provide offshore workers with the means to assess the STF hazards which exist in their own work areas and to provide a mechanism whereby any hazards identified can be effectively reduced or eliminated. Staff were invited to consider each of the issues contained in the checklist to determine any areas where that issue is not considered safe, or where any problems identified could not be fixed at the time of the assessment. For example, it is expected that objects lying on the floor would be removed rather than the assessor indicate the problem and hoping that others will remove that hazard later. Where any hazards were found (and cannot be removed), staff were asked to indicate the extent of the resulting risk. There is the option to give two ratings. There may be instances where the overall risks are generally small, but where a specific location has a much higher risk level. In such cases staff are asked to estimate the overall risk and then the higher risks at specified locations. Treating the general work area and any 'worst case' locations will help prioritise the actions to reduce the overall risks on the installation.

A number of draft questionnaires were developed. Some were developed to be part of the safety management loop described in HSG (65) (reference 2). Others were more limited in their scope.

The questions were presented in an order to help users 'navigate' around the checklist. For example, attention was directed initially at floor conditions before any trip/snag risks below knee height (but above floor level). This was then followed by any head strike hazards etc. Environmental aspects were then considered. Finally, any organisational factors were addressed.

Users are initially asked to state whether any of the features in the checklist presented any STF risks. If not, they are asked to indicate that they have assessed that hazard as 'safe'. If they consider that some form of risk was present then they are asked to assess the likelihood of it contributing to an incident and also the likely underlying source of the problem (e.g. lack of maintenance, poor methods of working, supervision, or poor design).

Where a feature could generally be good but less good in a particular location, separate details are obtained for the worst-case location(s).

Participants are invited to act and remove any hazards wherever possible. An entry is provided where participants have removed (or 'fixed') each problem.

2.4 FEEDBACK (INTERIM TOOL)

The HSE identified an onshore site for the second pilot. Two versions were selected for evaluation by the researchers and by the Company safety manager, quality manager and a laboratory assistant.

The company manufacture adhesives and employ approximately 80 people. They have won several awards for safety. The company has plant possessing several physical features that could be similar to offshore platforms (e.g. vessels, walkways, steps, pipes).

The second pilot trial was intended to specifically address the following issues:

- To consider the tool users' ability to conceptualise the slip, trip and fall hazards in an actual large work area. It was not known whether the tool users could use the tool after an initial walk through the selected work area or whether they would need to repeat the walk through for groups of questions. Feedback showed that the users did not need to repeat their walk through to address each of the issues on the checklist
- To improve the ease of use of the questionnaire/checklist. The new tool presented a list of questions in a more structured order. Feedback confirmed that the basic structure was easy to follow, however, the identification of temporary and permanent hazards was dropped as were hazards located in walkways and work areas.
- To improve the clarity of the instructions. Some instructions were improved following feedback.

- To evaluate a rating system to determine priorities for action – see below.

2.5 SCORING SYSTEM

Scoring systems were devised for the above tools but were not used in practice. The scoring reflected ‘general problems’ with additional scores for further ‘worst location’ higher risks. Independent ratings were provided for the ‘traditional’ STF risk factors and the ‘organisational’ risk factors covered in the final section of the tool.

It was thought that such scoring would provide benchmark indications for use within a company and also that they could be used as targets for improvement in selected work areas.

Discussions with the HSE concluded that such a scoring system was unnecessary, as any critical issues identified would be reviewed to determine whether it could be fixed immediately. Where this could not be achieved then it was considered that action priority would be determined following the discussion of the issues between those taking part in the STF assessment. No further development of the scoring system was undertaken by the project.

2.6 FINAL TOOL

The final (third) version was issued as a ‘stand alone’ tool to a small number of staff on two rigs. Feedback was generally very positive.

Consideration was given to the suggestion to replace the risk rating with a rating to address the priority for action. This was, however, not adopted as it was felt that rating risks was necessary before any consideration was given to the priority for action. For example, without such a step it is more likely that priority for action will be overly dictated by ease with which changes can be made and the cost of such changes.

2.7 FEEDBACK (FINAL TOOL)

A minority of questions needed to be changed. Many of those filling in the questionnaire/checklist would be more remote from senior management than originally envisaged. Some senior management questions were therefore considered inappropriate for the tool users. Some questions were subsequently modified to address ‘supervision’ as this enabled a more accurate rating to be determined. Perception of management’s commitment to safety is, however, important and one question remains to address this issue.

The final version of the handbook, containing user instructions is shown in Appendix One.

3.0 CONCLUSIONS

The final technique developed by the project, has the potential to reduce the risk of slip, trips and falls incidents on offshore installations. Its use raises slip, trip and fall (STF) issues amongst both workforce and supervision, and introduces a number of organisational and human factors into the assessment of STF hazards.

The final tool was discussed with the HSE where it was subsequently considered that the tool could be developed into a HSE publication, suitable for general industry application, either as part of a wider safety management process, or as a stand-alone application. Any further development of this tool for general industry is not part of this current project.

4.0 ACKNOWLEDGMENTS

The authors acknowledge the continued assistance and feedback provided by the HSE Offshore Safety Division and also to Mike Purchase of Apollo Adhesives and the management of HRL for their invaluable assistance in piloting prototype techniques.

5.0 REFERENCES

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Successful Health & Safety Management, HSG65, HSE Books, ISBN 0 7176 1276 7

APPENDIX 1
FINAL HANDBOOK
(A4 Version of Original A5 Booklet)

HSEC LTD

OFFSHORE
CHECKLIST

SLIP, TRIP AND FALL
HAZARDS

Date:

Name:

Site:

Exact Location:

Supervisor's Signature (Optional):

Background:

26% of all injuries offshore reported under the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (RIDDOR) in the period between, 1998 – 1999 can be attributed to slips, trips and falls (STF). Of these STF incidents 37% resulted in major injuries as defined by RIDDOR.

Checklist:

The purpose of this checklist is, primarily, to give workers in the offshore industry the means to evaluate their own workplace for hazards that are known to contribute to slip, trip and fall (STF) incidents.

Once potential hazards have been identified it may then prove possible to either remove these potential dangers, or to reduce them to acceptable levels.

Other benefits of this checklist are as follows:

- Raising awareness in the workforce to the STF hazards
- Providing information for ‘toolbox talks’
- Providing a checklist of features for Health & Safety representatives to use in audits
- Providing management and staff with the means to effectively communicate and resolve safety issues
- Providing management with a means to prioritise safety improvements

Use of the Checklist:

Staff are invited to consider each of the issues and features contained in the checklist to determine the frequency/probability of slip, trip and fall incidents occurring in their place of work.

Column One:

If you think the feature or issue is safe or does not pose a risk circle 'S'. Where the feature is not applicable circle 'N/A'. Then proceed to the next question.

Column Two:

If you think the feature or issue does pose a risk, use the rating scale below to assess its 'likelihood' of causing/contributing to a STF incident.

In instances where there is a particularly bad/hazardous feature or issue, you can use the second box to record that additional rating for this worst location.

Rating System for Column Two:

Please rate each feature or issue listed in the checklist, using the scale below in relation to the likelihood of it contributing to a slip, trip, fall incident.

Rating Scale	
<i>Rating</i>	<i>Classification</i>
1	Low Likelihood
2	Medium Likelihood
3	High Likelihood

Column Three:

This column seeks to identify the underlying reasons/causes behind the problem such that the best remedial action can be considered.

You can tick more than one box.

- o **Maintenance** - a tick in this box would indicate that the level of maintenance is inadequate.
- o **Work System** - a tick in this box would show that the method of organising the work is inefficient or unsuitable.
- o **Supervision** - if a tick is placed in this box it would indicate that the hazard is the result of the supervision not ensuring these issues and features are thoroughly addressed or enforced.
- o **Design** - a tick in this box would indicate that the hazard is caused by bad design of facilities, equipment or workstation.

Column Four:

The space in this column should be used to indicate:

- o Suggestions on possible remedial actions needed to reduce the likelihood of STF incidents.
- o Any actions you may have taken to reduce/eliminate problems you have highlighted.
- o The location(s) of the most significant hazard(s).

Column Five:

If hazards are identified that can be put right at the time of the assessment, it is expected that the user of the checklist take the appropriate corrective measures and then record the measures used in column four. Following these corrective measures this feature/hazard can now be circled 'yes' as Fixed in column five. When immediate action cannot be taken to fix a feature/hazard please record the subsequent action priority level by circling either high (HP) or low (LP) in column five.

(NB This is not a requirement in Section 5 of the checklist.)

Comments:

There is provision at the end of the booklet for any comments on all features included in the checklist/questionnaire. This space can also be used to bring to the attention of the management any subjects which have been omitted regarding slips, trips and falls in the booklet and any other issues or concerns relating to Health and Safety in your workplace.

		1	2		3			
			Rating		Underlying Causes			
1. HAZARDS AT FLOOR LEVEL/BELOW KNEE		Safe/Not Applicable	Overall Rating	Worst Location	Maintenance	Work System	Supervision	Design
1.	Condition of floor surface(s)	S N/A						
2.	Permanent trip hazards below knee height	S N/A						
3.	Visibility of small differences in floor level eg bunding ridges and platforms	S N/A						
4.	Visibility of other trip hazards	S N/A						
5.	Standard of drainage at sites frequently contaminated with fluids	S N/A						
6.	Presence of dust or powder contamination on floors	S N/A						
7.	Temporary trip hazards below knee height	S N/A						
8.	General use of barriers and warnings	S N/A						
9.	Suitability of footwear for floor conditions	S N/A						

Rating Scale	
Rating	Classification
1	Low Likelihood
2	Medium Likelihood
3	High Likelihood

4

5

Location of Worst Hazard/Actions Required/Actions Taken

*Fixed
High-Low
Priority*

Y/HP/LP

Y/HP/LP

Y/HP/LP

Y/HP/LP

Y/HP/LP

Y/HP/LP

Y/HP/LP

Y/HP/LP

Y/HP/LP

		1	2		3			
			Rating		Underlying Causes			
2. HAZARDS ABOVE KNEE AND HEAD STRIKE HAZARDS		Safe/Not Applicable	Overall Rating	Worst Location	Maintenance	Work System	Supervision	Design
1.	Presence of permanent head strike and above knee height hazards	S N/A						
2.	Presence of temporary head strike and above knee height hazards	S N/A						
3.	Visibility of permanent head strike and above knee hazards	S N/A						
4.	Visibility of temporary head strike and above knee height hazards	S N/A						

Rating Scale	
<i>Rating</i>	<i>Classification</i>
1	Low Likelihood
2	Medium Likelihood
3	High Likelihood

4

5

Location of Worst Hazard/Actions Required/Actions Taken

*Fixed
High-Low
Priority*

Y/HP/LP

Y/HP/LP

Y/HP/LP

Y/HP/LP

		1	2		3			
		Safe/Not Applicable	Rating		Maintenance	Work System	Supervision	Design
3. HAZARDS ON MEZZANINE FLOORS/STAIRWAYS/RAMPS/LADDERS			Overall Rating	Worst Location				
1.	Provision of guard/handrails on mezzanine floors, stairs, ramps and access ways	S N/A						
STAIRWAYS								
2.	Condition of stairway treads - eg worn, ripped, cracked, contaminated	S N/A						
3.	Width of stairway(s) - considering numbers and frequency of users	S N/A						
4.	Uniformity/evenness of step size - rise and going	S N/A						
LADDERS								
5.	Condition of ladder(s)	S N/A						
6.	Uniformity of ladder step height - ie consistent rung-to-rung spacings	S N/A						
7.	Gates and/or chains to protect openings at the top of ladders	S N/A						
RAMPS								
8.	Ramp gradient(s) - considering types of contamination and usage	S N/A						
9.	Condition of ramp surface(s)	S N/A						

Rating Scale -see overleaf

4

5

Location of Worst Hazard/Actions Required/Actions Taken

**Fixed
High-Low
Priority**

Y/HP/LP

Y/HP/LP

Y/HP/LP

Y/HP/LP

Y/HP/LP

Y/HP/LP

Y/HP/LP

Y/HP/LP

Y/HP/LP

		1	2		3			
			Rating		Underlying Causes			
4. ENVIRONMENTAL/LIGHTING HAZARDS		Safe/Not Applicable	Overall Rating	Worst Location	Maintenance	Work System	Supervision	Design
1.	Slip hazards caused by rain, ice, wind etc	S N/A						
2.	Trip hazards caused by accumulated waste in work areas	S N/A						
3.	Trip hazards caused by the presence of unnecessary supplies and equipment	S N/A						
LIGHTING								
4.	The lighting levels in work areas	S N/A						
5.	The lighting levels in non-work areas, eg gangways and mess rooms	S N/A						
6.	The presence of glare or dazzle hazards	S N/A						
7.	The standard of maintenance and cleanliness of light fittings	S N/A						

Rating Scale	
<i>Rating</i>	<i>Classification</i>
1	Low Likelihood
2	Medium Likelihood
3	High Likelihood

4

5

Location of Worst Hazard/Actions Required/Actions Taken

**Fixed
High-Low
Priority**

Y/HP/LP

Y/HP/LP

Y/HP/LP

Y/HP/LP

Y/HP/LP

Y/HP/LP

Y/HP/LP

5. JOB/ORGANISATIONAL ISSUES		1	2 Rating		3 Underlying Causes			
		Safe/Not Applicable	Overall Rating	Worst Case Rating	Maintenance	Work System	Supervision	Design
1.	Inability to use handrails due to carrying objects using both hands	S N/A						
2.	Loss of balance due to tasks requiring pulling, pushing or overreaching	S N/A						
3.	Inattention or distraction while: working or moving about the rig, using stairs etc	S N/A						
4.	Levels of fatigue and/or stress	S N/A						
5.	Workmates' appreciation of workplace hazards	S N/A						
6.	Process pressures requiring employees to work fast and rush about	S N/A						
7.	Pressure to work fast and rush about	S N/A						
8.	Accountability for standards of housekeeping	S N/A						
9.	Accountability for reporting and dealing with leaks and spills	S N/A						
10.	Adequacy of current systems for reporting hazards/problems	S N/A						
11.	Speed with which problems are reported and fixed	S N/A						
12.	How people who work unsafely are dealt with	S N/A						
13.	Effectiveness of supervision	S N/A						

Rating Scale - see overleaf

Worst Hazard/Actions Required/Actions Taken

Please Turn Over

Comments:

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Thank You For Your Help

APPENDIX 2

INITIAL TRIAL TOOL (Not the final version)

CHECKLIST

Assessor..... Rig..... Location..... Date.....

What effect could the following factors have on the numbers of Slip, Trip or Fall (STF) incidents occurring at this location?

Key: None - Never/Not Applicable Very small - Once every two or three tours Small - Once a tour Medium - Two or three times a tour High - Once a shift Very High - Two or three times a shift	None & N/A	Very Small	Small	Medium	High	Very High
Suitability of FLOOR surface for use/conditions						
Surface state of repair (cracks, bumps, worn through)						
Changes in floor level (steps): prominence of marking						
Prominence of changes in floor type demarcation						
Drain holes and other irregularities at floor level						
Presence of fluid flowing over the floor						
STAIRWAY Tread: uniformity of step size						
Prominence of nosing						
Stairways width matching the amount of traffic						
Pitch of the stairs						
Sufficient landings & changes of direction						
Condition of stairway (e.g. worn, cracked, nosing missing)						
Provision of HAND/GUARDRAILS where necessary						
Installation at the correct height						
Hand/Guardrail design (e.g.size, height)						
Condition of hand/guardrails						
LADDERS : uniformity of the risers						
Installation of a suitable fall arrest system						
The clearance behind the ladder for ease of climbing						
Top access' protection: e.g. gate or safety chain						
Condition of ladders repair						
Ramp GRADIENT						
The surface of the ramp considering the usage						
Condition of ramps						
Overhead CLEARANCE : sufficient for safety						
Visibility markings denoting head strike hazards						
Visibility of protrusions below knee height						
Visibility of protrusions above knee height						
Prominence of Slip, Trip, Fall WARNING SIGNS						
LIGHTING levels/positioning suitability for use						
Presence of glare or dazzle						
Condition of lighting (e.g. broken, dirty, non-functioning)						
General HOUSEKEEPING standard						
Facility for drainage						
Ease of cleaning floor						
Waste disposal facilities						
Storage facilities						
PPE restricting vision						
PPE restricting movement						
Suitability of footwear to conditions						
TASKS requiring use of both hands						
Men moving about the rig with hands in pockets						
Amount of necessary carrying in selected area						
Amount of pulling / pushing						
Current SYSTEMS for reporting problems						
Extent to which STF are covered in H&S tour audit						
Extent to which STF risks checked before PTW's signed off						

QUESTIONNAIRE

Rig..... Location..... Date.....

What effect could the following factors have on the numbers of Slip, Trip or Fall (STF) incidents occurring at this location?

None - Never /Not Applicable Very small - Once every 2 or 3 tours Small - Once a tour Medium - 2 or 3 times a tour High - Once a shift Very High - 2 or 3 times a shift	None	Very Small	Small	Medium	High	Very High
Lighting levels in work areas and transit ways						
Glare or dazzle at specific times of day						
Standard of lighting maintenance						
Floor surface conditions on stairs and transit ways						
Floor surface conditions in work areas						
Condition of guard and handrails						
Maintenance standard on transit ways						
The standard of drainage at frequent contamination sites						
General housekeeping standard in work areas						
General housekeeping standard in non-work areas						
Clear responsibility for cleaning and housekeeping						
Clear responsibility for the reporting of spillages and leaks						
Clear accountability for tidying area on task completion						
Standard of supervision						
Pressure to work fast and rush about						
Fatigue and/or stress						
Inattention and/or distraction						
Workmate's understanding of the factors causing STF incidents						
Level of offshore experience of personnel						
Extent to which people are aware of STF risks						
Speed with which managers respond to reported problems						
How management deal with people who do not work safely						
Adequacy of storage facilities to minimise obstructions						
Supply of cleaning equipment/materials						
Space in work area						
Footwear and other PPE being worn						
Hazard warnings – provision and prominence						
Provision & effectiveness of temporary barriers around hazards						

What impact would each of these accident reduction methods have on reducing Slip, Trip and Fall (STF) accidents?	Not Applicable	Very Small	Small	Medium	High	Very High
Comprehensive no blame system for reporting problems						
Near miss system for reporting accidents						
New safety hazards being covered at shift handover briefings						
STF hazards checked before PTW's are signed off						
STF hazards regularly addressed in Safety Inspections and audits						
Publication of recent industrial accident statistics						

Have you any comments as to how best slip, trip and fall accidents can be reduced in places of work?

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CRIB SHEET FOR CHECKLIST:

FLOOR:

Floor Type – Is the floor surface suitable for the designated use? Does the floor retain surface integrity or slip resistance when contaminated? Does the surface facilitate ease of cleaning? Where necessary and/or appropriate, is there facility for drainage of contaminants? Are there toe plates installed (minimum 15 cm) on all walkways and platforms?

Changes in Flooring – Are changes in floor surface clearly delineated/highlighted? Are changes in floor level surface clearly marked? Are changes in flooring surface sufficiently illuminated (minimum 150 lux)?

Condition of Floor – Is floor surface worn, damaged or in some way in need of repair?

STAIRWAY:

Stairway Tread – Are the 'risers' and 'goings' uniform in size? Is the stairway wide enough for the frequency of movement or number of users? Is the tread surface sufficiently slip resistant when clean and dry? Does the tread surface retain slip resistance when contaminated? Are suitable 'nosings'(edges) installed? Does the bottom step create a trip hazard by encroaching/projecting into the landing space?

Stairway Angle – Is the 'pitch'(angle) of the stairs appropriate for the level of use? (Recommended range between 15°-55° from the horizontal) Are there sufficient landings? Ideally one change of direction of the stairs every 16 steps, or maximum allowable (before a change in direction) every 22 stairs, if unavoidable.

Condition of Stairway Tread – Are the risers worn, damaged or missing? Are nosings on tread edge missing or in need of repair?

HAND/GUARDRAILS:

Handrails & Guard rails – Are there two handrails installed (one sufficient on stairs less than 1m wide) on all stairs, walkways and platforms? Is the handrail between 4.5-5 cm in diameter? Are the handrails continuous between floors? Are handrails continuous/uniform in height? Is there sufficient clearance around the handrail to allow hand access? Is handrail height within 84 cm-100 cm range above floor/stair level? Are there additional guard/knee rails on all stairs, walkways and platforms?

Condition of Hand/Guardrails – Are any handrails missing? Are handrails free of jagged/sharp edges? Is there any severe oxidisation//rusting evident?

LADDERS:

Ladders – Are risers on successive/subsequent flights uniform in size (range 22.5-25.5 cm)? Are existing access points protected by self-closing gates or chains? Does the ladder create a trip hazard by projecting in to the landing space? Is there a fall arrest system in place on ladders where users could fall over 2 m?

Condition of Ladders – Are ladders securely fastened? Are there any rungs missing or damaged on ladders? Are there any sharp/jagged edges? Are safety cages in good repair? Is there any severe rusting/corrosion evident?

GRADIENTS:

Are gradients on ramps less than 15°? Are ramps sufficiently slip resistant for designated use?

CLEARANCE:

Headroom – Is the head clearance on stairways more than the recommended minimum of 1.5 m from stair pitch? If stairs have less than 3 risers is the head clearance a minimum of 1.8 m? On ladders is the lowest safety cage a minimum of 2.5 m above floor surface?

WARNING SIGNS:

Warning Signs – Are fixed warning signs appropriate for the existing/present hazards? Are warning signs clearly/prominently displayed? Are signs clean and illuminated at night?

LIGHTING:

Lighting Levels – Are the lighting levels provided sufficient for work accuracy and safety? Are the stairways and other transit ways suitably and uniformly lit (minimum 150 lux)? Are there areas of deep shadow observable in critical areas?

Glare - Are lighting fixtures suitably shielded to prevent glare? Are shiny surfaces treated to reduce glare?

Lighting Maintenance – Are broken luminaries/bulbs easy to replace? Are light fittings easy to clean? Are all or most luminaries functional?

HOUSEKEEPING:

Ease of Cleaning – Is the area designed to facilitate cleaning? Is there a drainage point available? Is there a waste disposal facility conveniently positioned?

Storage Facilities – Are there means to conveniently store tools and equipment without causing obstruction of movement? Are there storage facilities for cleaning gear in the work area?

PERSONAL PROTECTIVE EQUIPMENT:

Restricted Vision – Do the workers need to wear goggles, hoods or helmets which restrict vision?

Footwear – Do the workforce wear appropriate footwear in the work area? Are the work shoes/boots in good repair? Is there provision to change footwear on entering the accommodation facilities?

TASKS:

Both Hands Needed – Are there tasks, which necessitate movement around the rig while using both hands (eg Carrying equipment)? Are there tasks that involve heavy pulling or pushing of tools or materials around the rig? Are men moving about the rig with their hands in their pockets?

SYSTEMS:

System of Reporting Problems - Is there a proven system of reporting damage, hazards, and cleanliness issues? Is there an proven 'Near Miss' reporting system in operation?

Permit To Work – Does the PTW system include a Health & Safety check of the work areas after completion of job?



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