

# Falling Supervisor Workload Management Issues Phase I

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*Report Version 2.0*

**September 2010**

**Melanie Walls and Dean McGeough**

Note that appendices are included only in the full report. If you are reading the abbreviated version without appendices and would like the full report, please request a copy from the BC Forest Safety Council (contact details on page 37).

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### Acknowledgements

A large number of people and organizations have contributed time and expertise in order to support this initiative of the BC Forest Safety Council. This project is intended as a starting point to address the coroner's recommendations to understand and address workload management issues, and it is hoped that when this work is completed the many individuals who have supported this project will feel the outcome is worthwhile, and that they have played a part in reducing the workload management issues facing falling supervisors throughout BC.

Particular thanks go to the 10 supervisors, 10 organizations and many individuals, both fallers and supervisors, who generously allowed us to be a part of their day and to see their hard work first hand. Many thanks also to the 89 supervisors who travelled long distances and gave up their time in order to participate in the July 23<sup>rd</sup> falling supervisor workshop, and to their supporting organizations.

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The contents of this report were prepared by Melanie Walls and Dean McGeough. Contact details for the authors and BC Forest Safety Council representatives are on page 37.

Please address all requests for copies of this report to BC Forest Safety Council.

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### Executive Summary

The BC Forest Safety Council ('the Council') commissioned a study of falling supervisor workload analysis in 2010. This report outlines the results of the study. The purpose of the study was to "Conduct a small scale study as the first stage of addressing coroner's recommendations". This included a recommendation: *"to develop a better understanding of these workload management issues and identify tools and strategies for facilitating effective supervision."*

In order to achieve this, ten site visits were conducted, to a variety of operations including Vancouver Island and sites from Northern to Southern mainland BC. A workshop was also conducted, attended by 89 falling supervisors from across BC.

The following factors were identified as key causes of high workload:

- Documentation requirements

Supervisors expressed concerns that documentation may create the appearance of safety, whilst actually decreasing time spent with the fallers in the field.

- Economic pressures

Volume based payment was frequently referred to as an issue that impacts on safety.

- The challenges and complexities inherent in falling

The progression into cutblocks with complex falling plans, remote and challenging terrain means fallers need more support and supervision.

- Planning that does not focus on faller safety

Supervisors feel they lack the authority to influence planning decisions, and may be left with a layout that makes it difficult to position fallers safely and hazards in the cutblock.

- Congestion and multiphase projects

Congestion was repeatedly highlighted as an issue, particularly for multiphase projects.

- Large amounts of time spent in transit

Supervisors frequently spend hours driving, in addition to their working day. This is often very early in the morning when fatigue issues are maximized.

Data from both the site visits and the workshop suggested that supervisors are working long days with very few breaks. After working a long day in the field, supervisors then spend considerable time in the evenings on administrative tasks and documentation. 10 – 12 hour days are the norm, with some

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supervisors working over 14 hours on a typical working day. During the course of these long days, supervisors take very minimal breaks. Data from the site visits and the workshop suggested that 10 – 30 minutes throughout the day is the norm.

It is not clear that the demands placed on supervisors are the result of any one task. The impact of falling timber while supervising was discussed during the workshop, and supervisors identified both positive and negative impacts of this practice. For example, supervisors who fall are able to keep their skills up to date, but may experience production pressure.

However, 'supervision only' supervisors also have additional demands on their time. For example, some take responsibility for supervising non-fallers. There were also indications that 'supervision only' supervisors typically supervise a larger number of fallers.

One concern, raised during the workshop, is that supervisors who also fall may be distracted by their supervisory duties, and so be more at risk of injury themselves.

Another potential source of risk is fatigue. The long days, coupled with short breaks and early mornings, are likely to lead to problems with fatigue that will accumulate over the course of a multi-day shift. This is likely to decrease effectiveness of supervision, and also impact the supervisor's own safety when falling or driving, or simply walking in a high hazard environment.

Supervisors in the workshop identified the following ways in which workload could impact on safety:

- General reduction in supervisor performance, leading to less effective supervision
- Reduction in planning time and time spent walking the block
- Missing out tasks or rushing them

In addressing workload issues, different options for creating guidelines and recommendations were explored.

Data from the site visits and the workshop revealed that supervisor days are extremely variable, so any guidelines or regulations based on generalizations are likely to be a poor fit in many cases.

Workshop feedback also indicated that the number of fallers who can be safely supervised is extremely variable, and depends on a large number of factors. Developing this kind of guidance would therefore be extremely challenging.

Discussions based on frequency of inspection were more fruitful. Supervisors showed broad consensus about frequency of inspections, with recommended frequency varying depending on the type of faller being inspected (e.g. problem versus experienced). This suggests that guidelines on inspection frequency should take into account the faller being inspected.

Based on the data collected during this study, the following recommendations were made:

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- Investigate ways to reduce the amount of time supervisors spend on documentation
- Ensure supervisors are involved in the planning process for multi-phase operations, with the authority to influence decisions in order to ensure faller safety
- Provide support for supervisor risk assessment
- Investigate means of encouraging near miss investigations in the Industry
- Investigate options to ensure investment in safety does not disadvantage companies during the bidding process, and that safety plans are complied with once work commences
- Investigate opportunities for delegation of some supervisory tasks
- Provide supervisors with decision support, memory aid and checklists to reduce supervisor mental workload

The study also identified areas where more information is required in order to maximize the impact of any interventions intended to reduce workload management issues and increase the effectiveness of supervision:

- Verify the relationship between causal factors (e.g., workload) and safety outcomes (e.g., near misses), and identify which factors have the greatest impact on safety
- Investigate differences between supervisors who fall and those who do not
- Investigate whether fatigue is having an impact on safety outcomes for supervisors
- Investigate and categorize near misses
- Investigate whether distraction is impacting safety for supervisors who also fall trees

This study has collected a large volume of rich data, with value that extends beyond the scope of this report. It provides evidence-based data about the tasks performed by falling supervisors, and valuable insight into workload and supervision from a large number of supervisors.

There is potential for developing some of these insights into training materials or guidance, and also for providing supervisors with a yardstick for assessing their own operation.

Whilst only the first step in addressing workload management issues and enhancing effective supervision in BC's forestry industry, this study has been valuable in laying the groundwork for the future.

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### Introduction

#### Purpose

The BC Forest Safety Council ('the Council') commissioned a study of falling supervisor workload analysis in 2010. This report outlines the results of the study. The purpose of the study was to: "Conduct a small scale study as the first stage of addressing coroner's recommendations". The coroner's recommendations referred to are reproduced below:

#### **That the Council consider leading a study into falling supervisor workload management issues.**

*Chair's Comment: The Panel acknowledged that the level of supervision and its effectiveness varies greatly across the industry. Falling supervisors who are responsible for their own production quota, and even dedicated supervisors who may be directing the work of fallers spread out over distant operations, may be facing workload challenges which interfere with effective supervision, especially as it relates to ensuring a safe work environment for fallers. The Panel identified the need to develop a better understanding of these workload management issues and identify tools and strategies for facilitating effective supervision.*

In order to complete the study, the Council engaged two consultants to undertake ten site visits, one workshop, and produce a written report. The site visits covered a variety of operations including Vancouver Island and sites in Northern and Southern mainland BC. The workshop was attended by 89 falling supervisors from across BC.

One of the consultants was a Human Factors professional with experience in workload analysis, specializing in safety critical industries, and the other was a Registered Professional Forester (RPF) with years of operational experience in the forestry industry, specializing in risk assessment and faller safety.

#### Objectives:

The objectives of this study were as follows:

- **Develop an understanding of how supervisors spend their time through field observations**

This was achieved through the site visits (see page 25: 'How much time does it take to do the job?' and also page 41: 'Appendix B – Site Visit Data')

- **Collect data about the workload associated with supervisory tasks**

This was achieved through the site visits, and also through collection of data at the workshop (see page 14: 'Workload assessment in this study', page 28: 'How much time does it take to do the job?', and also page 22: 'Task timing data from the workshop').

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- **Identify, through workload analysis, which combinations of supervisory and falling tasks lead to excessive workload**

This was achieved through workshop data (see page 30: 'Which situations or scenarios lead to particularly high workload and/or are particularly challenging from a supervisory point of view?') and site visits (see page 27: 'How may task conflict and overload be experienced when multi-tasking?').

- **Develop understanding of factors impacting on supervisor workload through a workshop**

This was achieved through the workshop (see page 30: 'Which situations or scenarios lead to particularly high workload and/or are particularly challenging from a supervisory point of view?')

- **Analyze and evaluate data to support the understanding of workload management issues facing supervisors**

This was achieved through analysis and evaluation of data from the site visits and the workshop (discussed throughout the report).

- **Provide recommendations on the most effective tools and strategies to facilitate effective supervision based on workshop data**

This was achieved through the workshop (see page 30: 'Which tools and strategies do supervisors feel will be most effective in addressing supervisory and workload issues?' and also page 31: 'Recommendations').

## Method

The Human Factors specialist familiarized herself with background to the project by reviewing documents provided by the Council, and also accompanied the RPF on two of the site visits. The remainder of site visits were conducted by the RPF. A data collection template was developed, and workload analysis methodologies were reviewed.

During each of the ten site visits, an individual supervisor was observed for the full time in the field, and where possible during morning preparation and in the evening. Supervisors were briefed to ignore the observer(s) as much as possible, and to conduct themselves as if it were a normal working day. Information was also collected in interviews during or shortly after the site visits to establish context for the data – such as timber type, type of crew, worksite layout, job title of supervisor, and whether it had been a 'typical' working day. Data from the sites was compiled, and tasks were classified using the DACUM Research Chart for Falling Supervisors (available from the Council), and a second task categorization developed specifically for this study. The results, as reported in Appendix B – Site Visit Data (page 41), provide data about how much time it took to perform various tasks, and a breakdown of how supervisors spend their days.

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Note: see page 38: 'Appendix A - Notes on methodology' for further discussion of methods and a table showing the categorization used to classify tasks.

The following table provides an overview of the sites visited:

Site name	Location	Crew type	Crew size <sup>1</sup>	Access	Notes
Site A	Island	Union	Medium	Road	Supervisor responsible for individuals falling (hand + mechanical) and also yarding/ loading/ etc.
Site B	Island	Contractor	Medium	Road	Working BB
Site C	Island	Contractor	Large	Boat	Working BB
Site D	Island	Union	Large	Road	Salary BB
Site E	Island	Contractor	Large	Road	Supervisor responsible for mechanical + hand falling
Site F	Mainland/ Mid coast	Contractor	Large	Helicopter	Helicopter operation
Site G	Mainland / South coast	Contractor	Small	Road	Working BB
Site H	Mainland/ South	Contractor	Medium	Road	Supervisor responsible for individuals falling (hand + mechanical) and also yarding/ loading/ etc.
Site I	Mainland/ North coast	Contractor	Small	Road	Working BB
Site J	Island	Contractor	Small	Road	Training site

<sup>1</sup> Crew size is rated based on average company set up, not size on day of visit

Small Crew: <5 fallers; Medium Crew: 5 - 10 fallers; Large Crew: >10 fallers

The sites were selected in order to survey a range of operations. However, in order to capture the diversity of BC's falling sector a far larger number of visits would have been required than was possible. A workshop was therefore conducted to collect data from a wider cross-section of industry. See page 36 for a discussion of 'Pros and cons of further site visits'.

On July 23, 2010 the Council sponsored a workshop in Nanaimo, attended by 89 supervisors. The supervisors were divided into six groups supported by six facilitators. Each facilitator led their group through a series of semi-scripted exercises to collect data on topics relating to supervision and workload. Data from the six groups were combined, and the results provide information based on a wide variety of operations and geographical locations to complement the ten in-depth site visits. Key points from each of the groups were also captured, based on workshop data and interviews with the facilitators.

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### Research questions

The data from the workshop and site visits is intended to answer the following questions:

- What workload management issues do supervisors experience?
- How much time does it take to do the job?
- Is falling timber while supervising likely to lead to unacceptable workload?
- How may task conflict and overload be experienced when multi-tasking?
- How much time is spent on task vs. on secondary tasks?
- Are supervisors having their breaks?
- Does workload have an impact on safety?
- Which situations or scenarios lead to particularly high workload and/or are particularly challenging from a supervisory point of view?
- Which factors affect the safe ratio of supervisors to fallers?
- Which tools and strategies do supervisors feel will be most effective in addressing supervisory issues?

### Report structure

The remainder of the report is structured as follows:

- Background
- Summary of task timing data
- Answers to research questions drawing on both workshop and site visit data
- Conclusions and recommendations
- Appendix A: Comments on methodology
- Appendix B: Site visit data for the ten sites
- Appendix C: Workshop data for the six groups

Note that appendices are included only in the full report. If you are reading the abbreviated version without appendices and would like the full report, please request a copy from the BC Forest Safety Council or report authors (contact details on page 36).

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### Background

#### Workload - theoretical background

Overload, or excessive workload, occurs when individuals feel they have too many tasks to do and too little time to do them. Workload is a characteristic of an individual and a situation – the same situation may be acceptable, in terms of workload, for one individual, but lead to an overload for another individual. Often this is related to skills and experience in completing the task in question. For example, a novice faller would find it challenging to safely fall the same trees as an experienced faller during the course of a day, and would be very likely to experience excessive workload if he attempted to do so.

Humans respond to workload in a number of different ways. If workload is too low, they may begin to engage in secondary tasks, productivity and arousal may decrease, and in extreme cases they may fall asleep. At a moderate level of workload, performance is optimized. At high levels of workload, individuals begin to use coping strategies in an attempt to maintain performance despite the high workload.

One coping strategy for high workload is increasing effort (working harder), which may be sufficient to maintain performance at the same level. This has a cost, however. It accelerates the onset of fatigue (in the short term) also leading to stress (in the long term). Another coping strategy is task shedding. When this occurs, tasks that are judged to be less important are missed out altogether. For example, many supervisors do not take a lunch break (this 'task' has been shed).

However, these coping strategies cannot maintain performance in the face of continuing increases in workload. There is a limit to how hard an individual can work, and once a supervisor has cut breaks and social discussions to a minimum, he has no choice but to extend his day and/or shed work-related tasks.

The impact of high workload can include:

- Making decisions based on less information or without considering all of the options
- Using rules of thumb instead of working things out systematically
- Use of techniques that save time but are less effective or safe

For example, some supervisors at the workshop reported that they don't have enough time to walk every block and place every faller. This means that their decisions and actions are based on less information, and is also an example of a technique (cutting back on pre-work) that saves time but can be less effective and safe.

High workload also has cumulative effects. Extended periods of excessive workload can lead to a condition known as 'burnout' where performance (and health) can be impaired for long periods of time.

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High workload has been associated with an increase in injuries and incidents in other industries, both because of the impact on job performance (increasing risk because job performance is impaired) and also because of impacts on the individual themselves (such as injuries due to fatigue).

### Workload assessment in this study

This study used two different approaches to explore workload management issues. The first was by developing an understanding of tasks performed by supervisors throughout the day, and how long these tasks take to complete. Total time required to complete all tasks (i.e. length of day) was used as an indicator of the job demands placed on supervisors, and hence of workload (see page 38: 'Appendix A - Notes on methodology' for further discussion).

Information about time taken to perform daily tasks was collected during both the site visits and also during the workshop. During site visits this was achieved by recording every observable task the supervisor did throughout the day, and how long it took. This data was almost all based on visual observation. However, in some cases, when safe visual observation was not possible, it was achieved by monitoring the radio and clarifying with the supervisor afterwards where necessary.

During the workshop, participants were asked questions about the time taken to perform various tasks. The data for individual tasks and the length of day reported by workshop participants were consistent with the data collected from the site visits. This increases confidence in both sets of data – it suggests that site visits are broadly representative of the wider falling community, and also that supervisors were not obviously over- or under-estimating the time taken for various tasks during the workshop.

There were wide variations in the time taken for similar tasks, however. These were seen both during the course of a single day with the same supervisor (who might do inspections varying from 20 minutes to nearly two hours) and when comparing different supervisors talking about the same task (e.g. workshop participants gave estimates of time required for pre-work varying from 30 minutes to a full day). Discussions with supervisors during the site visits and the workshop support the view that task timings are genuinely extremely changeable, depending on a large number of factors (e.g., length of inspections depend on: type of inspection, number of issues, faller experience), so this variability is likely a true reflection of the situation rather than just reflecting inaccurate measurement or estimates.

The second approach to understanding workload management issues used in this study was to collect extensive data about the supervisor perceptions of the causes, consequences, and management of workload. This information was collected during the workshops, and provided more in depth information about:

- Supervisor perceptions of workload management issues
- Supervisor's experiences of the impact of workload on effective supervision
- Supervisor's recommendations for improving workload management issues (amongst other topics).

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Information from subjective research techniques such as workshops is inevitably shaped by the personal beliefs and experiences of the participants, but with 89 falling supervisors attending, their collective view represents the insights and feelings of a wide cross section of the community, and as such is extremely valuable for gaining and insight into workload from falling supervisors' point of view.

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### Summary of task timing data

This section contains key data on task times, from the 10 site visits and workshop. Further data is provided in Appendix B – Site Visit Data (page 41) and Appendix C – Workshop Data (page 125).

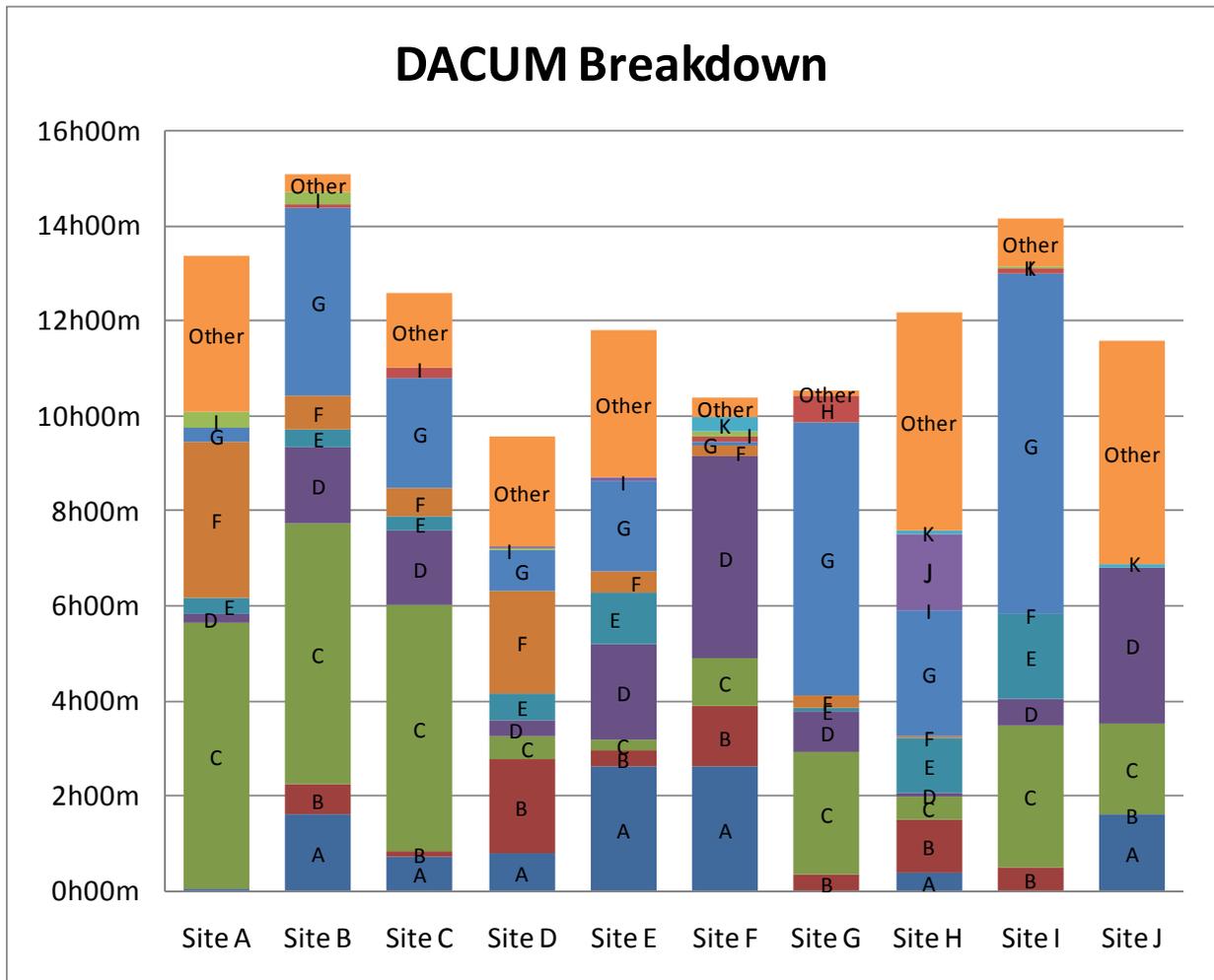
### Task timing data from site visits

#### DACUM breakdown

The graph on the following page shows time spent on different DACUM categories throughout the day. 'Other' is used for tasks which did not fall under a DACUM category, including breaks and supervision of individuals who are not fallers. Transit by vehicle (truck/ boat/ helicopter) is classified as C9: Drive crew to work.

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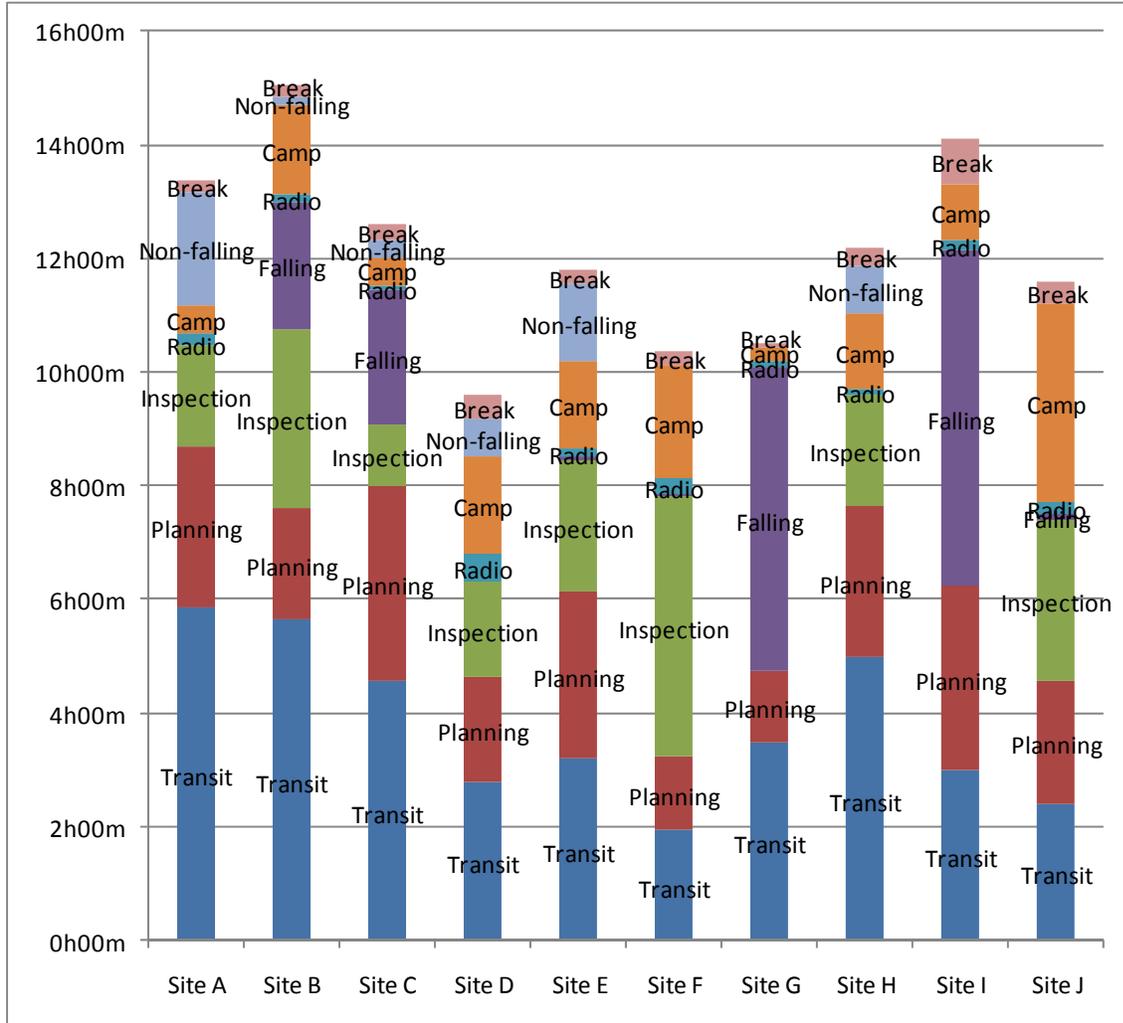
Category	DACUM Description
A	Conduct inspections on fallers
B	Control falling activity on the worksite
C	Ensure adequate tools to do the job are available
D	Develop a block falling plan
E	Coordinate with other phases
F	Manage people
G	Manage the business
H	Maintain block falling plan
I	Manage environment
J	Participate in safety program
K	Train workers
Other	Not classified

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### High Level Category Breakdown

This shows time by category, using categories developed specifically for this study.



Category descriptions are listed below:

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High level category (used for color coding)	Term used in diagrams	Detailed categories	Term used in diagrams
<b>Transit</b>	Transit	Walking block/ hazard plan	Walking
		Car/ helicopter/ boat	Vehicle
<b>Falling related planning/ organization</b>	Planning	Weather monitoring/ discussion	Weather
		Waiting	Waiting
		Supplies	Supplies
		Briefing/ tailgate/ discuss plans with fallers/ organize fallers	Organize
		ERP related activities	ERP
		Pre-work site inspection	Pre-work
		Vehicle maintenance	Maintenance
<b>Faller inspection</b>	Inspection	Documentation (in field)	Doc (field)
		Quality control/ bucking specs	Quality
		Measure stumps	Stumps
		Observe faller working (incl. Discussion)	Observe
		Review area/ worksite	Worksite
		Discussion with faller	Discuss
<b>Falling</b>	Falling		Falling
<b>Radio communication</b>	Radio	Used when other categories don't apply (e.g. man check). Planning over the radio would be classified as planning.	Radio
<b>Documentation/ administration (in camp)</b>	Camp		Camp
<b>Phase planning/ supervision of other phases</b>	Non-falling		Non-falling
<b>Breaks/ social discussions</b>	Break		Break

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#### Site comparison

The table below summarizes data from the site visits

Site name	Location Access	Crew type Crew size <sup>1</sup>	Notes	Number of inspections and average duration	Length of day	Time spent falling
Site A	Island Road	Union Medium	Supervisor responsible for falling (hand + mechanical) and also yarding/ loading	2 (average 0h59m)	12h59m	None
Site B	Island Road	Contractor Medium	Working BB	4 (average 0h56m)	14h58m	2h13m
Site C	Island Boat	Contractor Large	Working BB	3 (average 0h28m) One inspection was the supervisor being inspected by the owner	12h33m	1h31m
Site D	Island Road	Union Large	Salary BB	4 (average 43m)	9h12m	None
Site E	Island Road	Contractor Large	Supervisor responsible for mechanical + hand falling	2 (average 1h15m)	11h41m	For demonstration / assistance 0h4m
Site F	Mainland Helicopter	Contractor Large	Helicopter operation	5 (average 1h14m)	10h23m	For demonstration/ assistance 0h2m
Site G	Mainland / Southern BC Road	Contractor Small	Working BB	0	10h06m	5h20m
Site H	Mainland Road	Contractor Medium	Supervisor responsible for falling (hand + mechanical) and also yarding/ loading	4 (average 37m)	12h00	None
Site I	Mainland/ Northern BC Road	Contractor Small	Working BB	0	13h02m	5h54m
Site J	Island Road	Contractor Small	Training site	N/A continuous inspection (training site)	10h05m	For demonstration / assistance 0h7m

<sup>1</sup> Crew size is rated based on average company set up, not size on day of visit

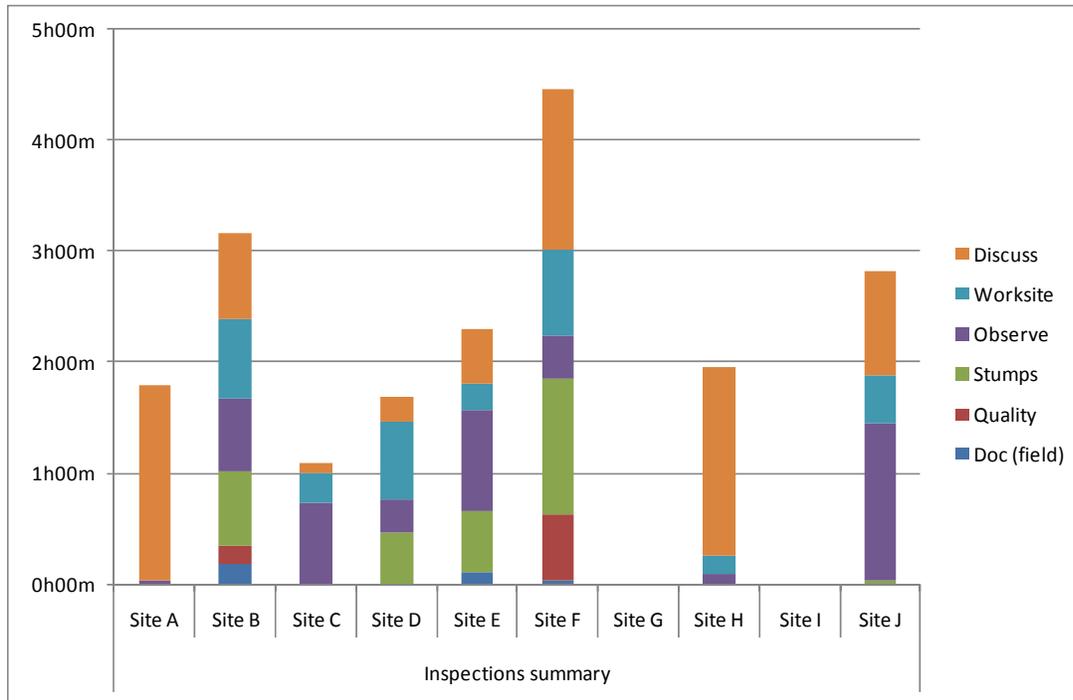
Small Crew: <5 fallers; Medium Crew: 5 - 10 fallers; Large Crew: >10 fallers

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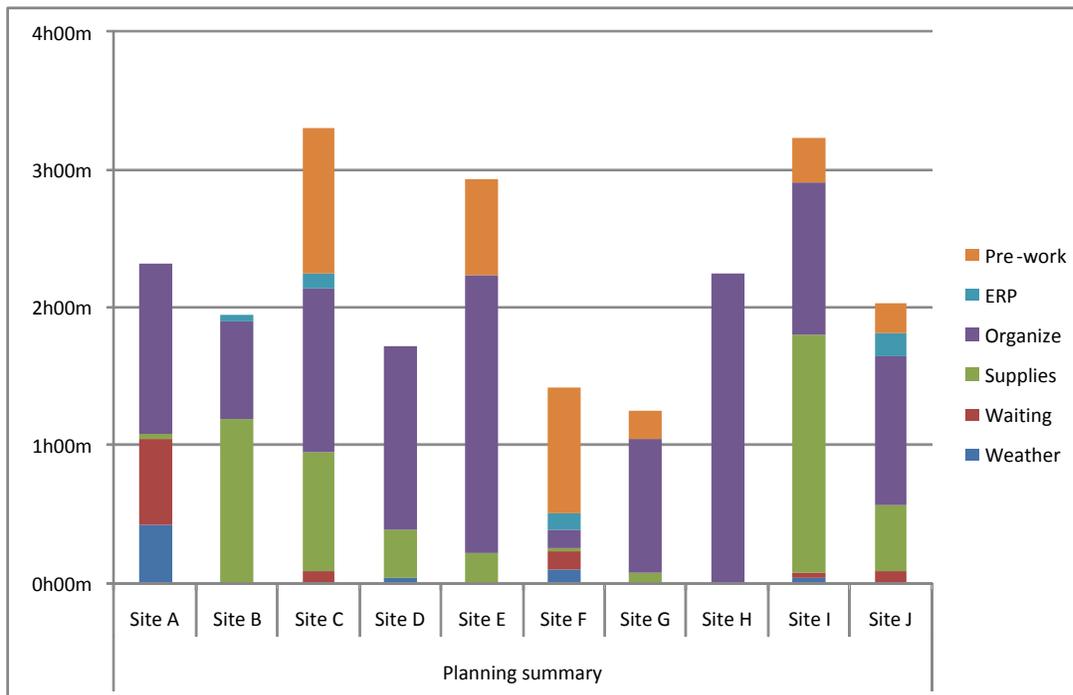
### Inspections

The following graph shows a breakdown of time spent during inspections



### Planning

The following graph shows how planning time was spent



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### Task timing data from the workshop

#### How long do the following tasks typically take?

Task description	Typical duration	Notes
Pre-work planning/ hazard plan (before the faller is on site, walk block, identify hazards)	30 mins – 1 day	For each <b>worksite</b>
Paperwork (that is filled in 'at the camp') relating to safety or faller management	2 – 8 hours	For each <b>week</b>
Paperwork and coordination (that is completed 'at the camp') relating to finding new business, organizational/ general management	2 – 4 hours	
Falling independently (actively falling yourself)	2 hours → more than 8 hours	
New faller training, providing support to inexperienced fallers (in the field and at the camp)	1 – 2 hours → more than 8 hours	
Safety meetings	30 mins – 1 hour	
Daily preparation (oil and gas, supplies, vehicle maintenance)	10 – 30 mins	For each <b>day</b>
Transit to the worksite (from camp)	1 – 2 hours	
Transit between fallers (from block to block)	1 – 2 hours	
Breaks (Lunch, rest breaks. Total all breaks.)	10 – 30 mins	

#### How often do you do the following?

Task description	Typical frequency
Fall a tree yourself to help a faller with a problem tree	Several times a week OR every few months
Provide for alternative methods (e.g., blasting, helping fallers with non standard means of removing danger trees)	Every few months. In some cases more often, up to several times a week.
Give advice on tackling particular trees (falling plan).	Once a week → several times a week
Watch a faller fall a tree	Several times a day → several times a week
Watch a faller buck a tree	Several times a week

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#### How long does a typical faller inspection take? What is the minimum and maximum time?

Includes time spent writing up paperwork back in the camp, but not travel time to and from the block.

Type of inspection	Notes	Minimum	Average/ typical	Maximum
Informal inspections. Used when there are no particular issues, just checking up.	For each inspection	15 minutes	30 minutes	30 minutes – 1.5 hours
Formal inspections (e.g. including the stump audits, or the 23 pager).	For each inspection	1 hour	1.5 hours (some reported up to half a day)	2 hours – ½ day

#### How many inspections are typically done in a day?

**Informal:** 2 per day up to 4 – 6 per day

**Formal:** 1 – 3 per day up to 4 per day

#### During a typical inspection, how much time is spent on the following tasks?

Task description	Formal inspection Average/ typical time (minutes)	Informal inspection Average/ typical time (minutes)
Walking block, looking for problems, noticing danger and problem trees that will need to be tackled, monitoring man check.	½ hour – ½ day	½ – 1 hour
Inspecting faller's equipment	2 – 5 mins	2 – 5 mins
Discuss emergency response plan	10 – 20 mins	1 – 10 mins
Reviewing faller's quarter, identifying danger trees, snags, fall of wood, checking trail	10 -30 mins	5 – 10 mins
Measuring and examining stumps	20 mins – 1 hour	5 – 15 mins
Measuring bucked logs and reviewing quality	10 – 30 mins	5 – 15 mins
Observing faller bucking and falling	10 – 30 mins up to ½ day	5 – 20 mins
Giving advice/ feedback, discussing inspection with faller	5 – 30 mins	5 – 15 mins
Paperwork (that is filled in 'in the field' relating to inspection or notes on the block, supplies etc.)	15 mins – 4 hrs (for some groups already covered by previous items)	1 – 10 mins
Paperwork (that is filled in 'at the camp' relating to inspection or notes on the block, supplies etc.)	30 mins up to 2 hours	5 – 10 mins

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### Answers to research questions

This section lists each research question that this study was intended to address, and draws on site visit and workshop data to give answers. It should be noted that workshop data is based on opinions, and site visit data is based on a small number of sites. However, the opinions are those of a large number of experienced supervisors and the site visits involved the collection of extensive data, so the answers are as complete and reliable as the current study allows.

### What workload management issues do supervisors experience?

The following factors were identified as key causes of high workload:

- **The requirement to document everything in order to cover themselves in case of legal issues**

Several supervisors commented that documentation focuses on creating a paper trail, to protect themselves from liability in case of an incident. They expressed doubts that safety was really being improved by the documentation, whilst the time it takes reduces time available to spend in the field with fallers, increases the length of the supervisor's day, or both.

- **Economic pressures**

Supervisors reported that economic pressures lead to workload management issues by forcing bid prices down. Pricing which is based on timber volumes (m<sup>3</sup>) of timber results in a focus on production that appears to have minimal allowance for the increasing costs associated with supervision. The result is difficulty finding the money, and hence the time, for good effective supervision. Supervision is perceived by the contractor community to be a necessary duty, but also an expensive overhead burden. If a company makes this investment they may lose out to lower bidders. Supervisors reported pressure to balance the need for effective supervision with the need to fall timber in order to improve production, and thereby stay competitive. In turn this means supervisors who also fall are under pressure to meet their quota as well as complete their supervisory duties.

- **The challenges and complexities inherent in falling (hazards, nature of worksite)**

The progression into cutblocks with complex falling plans, remote and challenging terrain means fallers need more support and supervision. These factors also reduce the number of fallers a supervisor can effectively supervise. However, decisions may be made on supervision requirements during the bidding phase when there is not always enough information to make the right decision.

- **Planning that does not focus on faller safety**

Supervisors often pay the price for engineering decisions. Aggressive timber chasing can compromise faller safety requirements, and planners may prescribe treatments that do not account for safety in the falling/ bucking process (e.g., corridors that are too narrow for the size of trees, or layouts that make it difficult to arrange assistance within 10 minutes). This makes it difficult for the supervisors to position fallers safely, and also leads to inefficiency and hazards in the cutblock. Supervisors also feel they lack the authority to influence planning decisions.

- **Congestion and multiphase projects**

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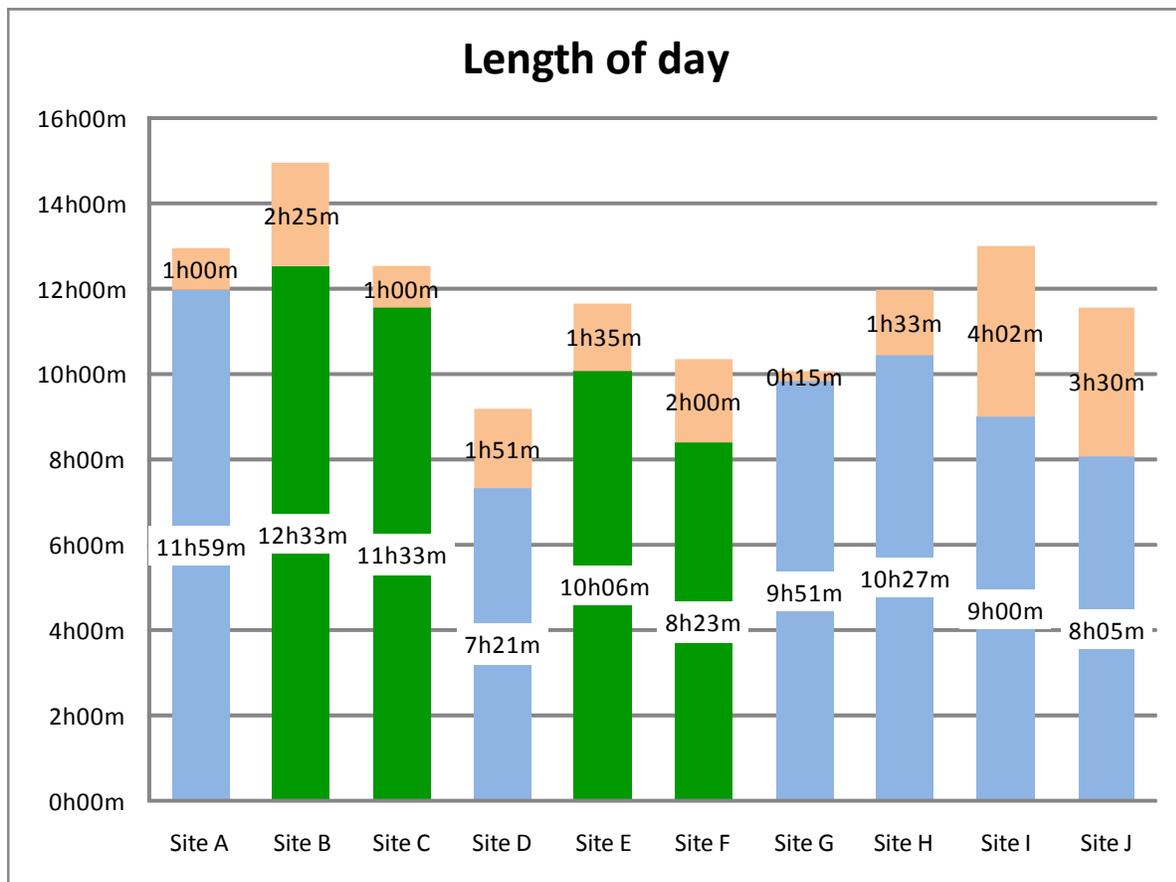
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Multiphase projects suffer from conflicts and congestion as several work groups attempt to get their tasks done within a limited amount of time. For example, fallers and supervisors may find themselves falling before the road crews have finished.

- Large amounts of time spent in transit (see page 28)

### How much time does it take to do the job?

Data from the ten site visits is shown below.



From the site visit data summarized above, it can be seen that supervisors are working long days in the field, and then spending considerable time in the evenings on administrative tasks and documentation. Data from supervisors who fall trees during the site visit is shown in green, and data from supervisors who did not spend time on the saw, or who fall trees only for demonstration or assistance is shown in blue. Administrative time in the evening is shown in orange.

Note: Site D had a shorter working day than usual due to a seasonal shut down, and work also finished slightly early at Site J due to the observer's transportation arrangements.

Data from the workshop confirmed that 10 – 12 hour days are the norm, with some supervisors working over 14 hours on a *typical* working day.

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Even though work often occurs in shifts (e.g. 10 days on followed by a few days off) rather than continuing like this throughout the year, these figures still give cause for concern, from both an individual and a wider safety standpoint. When individuals work long days over a period of time, a number of negative side effects occur, including loss of productivity, stress, poor health, home life impact, and an increase in human error. This final impact has the potential to lead to incidents and accidents for the supervisor himself, as the supervisor's judgment is impaired.

A survey of the length of working day combined with shift length would be valuable to assess the extent to which cumulative fatigue is a problem (see page 36: 'Future Research'). From a broad safety perspective, the long days are indicative of excessive workload, and strongly suggest that some tasks will be missed (termed 'task shedding') in order to fit everything in (see page 29: 'Does workload have an impact on safety?'). It would be useful to validate the relationship between length of day/ shift and safety by investigating whether they are related to safety outcomes such as injuries and near misses (see page 36: 'Future Research').

### Is falling timber while supervising likely to lead to unacceptable workload?

This is not a simple question to answer. The site visit data revealed no clear difference in length of day between supervisors who spent time on the saw, compared to supervisors who didn't fall at all, or who only fall for demonstration purposes/ assistance. Of the supervisors who fall trees, two didn't conduct any worker inspections during the site visit. However, both of these were small crews so inspections would not be expected every day. By contrast on site B the supervisor conducted 4 inspections, as well as spending over 2 hours on the saw. He did, however, have the longest working day of any of the sites. Two of the 'supervision only' supervisors (Site A and Site H) spent a large amount of time in discussions during inspections, as compared to the other sites where more time was spent on stumps and observations, but there was no obvious difference in the duration of inspections between supervisors who did and did not fall trees. However, these observations are not conclusive. The sample size is too small for statistical analysis (See Appendix A, page 38), and the length of day and amount of time spent on different tasks is very variable. Therefore, comparisons of supervisors who fall versus those who do not can only be achieved using a survey method with a larger sample size.

In one sense, any task that requires time is going to increase demands on the supervisor, and there are indications that supervisors are already overloaded. However, workload can be managed in various ways. Several of the workshop groups indicated that 'supervision only' supervisors are able to supervise a larger number of fallers, suggesting that supervisors who spend time on the saw may have reduced workload because they supervise fewer fallers. In this case falling timber would not necessarily lead to unacceptable workload. In addition, 'supervision only' supervisors may have additional duties such as supervising non fallers. It wasn't possible to determine whether supervisors who fall do, in fact, supervise fewer fallers, although the site visit data did support this view.

Some supervisors also commented that supervisors who also fall can conduct inspections more efficiently, for example by reviewing a cutblock as they walk through it in the morning. They may also spend more time with the crew in transit, enabling them to have discussions on the way to and from

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worksites. Supervisors at the workshop and on site visits also commented that falling trees is important in order to keep skills current, to enable them to demonstrate, and is also motivational and enjoyable for them. Negative side effects of working on the saw whilst supervising include increased potential for distraction. Distraction could lead to decreased safety for the supervisor himself, and potentially lower performance on supervisory tasks. The supervisor's 'partner' may also be unable to continue falling if the supervisor is called away to deal with an issue.

In summary, falling timber whilst supervising is likely to lead to excessive workload and/or task shedding (such as missing inspections/ planning) under the following conditions:

- Workload is already excessive or near to excessive even when the supervisor does not fall trees
- Adjustments are not made to take account of the time spent falling (e.g. supervising fewer fallers) and opportunities for efficiency gains (e.g. checking blocks on the way to falling) are limited

### How may task conflict and overload be experienced when multi-tasking?

Task conflict occurs when two incompatible tasks are attempted at the same time. One approach considered was to use multiple resource workload analysis scales to assess the workload arising from various combinations of supervisory tasks. However, this approach proved to be unsuitable, in part because supervisor tasks appeared to be conducted sequentially rather than in parallel (discussed further in Appendix A). The nature of supervision (e.g., the need to be in a particular physical location to conduct an inspection) means that workload issues related to consecutive (rather than concurrent) tasks pre-dominate. In other words, the problem is not with conducting many tasks in parallel, but with having enough time to perform all of the necessary tasks one after another. At no point did any of the 99 supervisors (89 workshop participants + 10 field visits) involved in the study complain that they had too many things to think about at one time, which again suggests that although the job involves considerable multi-tasking, the supervisors in the study felt able to cope with that aspect of workload.

The workload problems identified related to length of day, amount of time taken to complete the necessary tasks, and fatigue issues, rather than any one task or combination of tasks being difficult. Rather than workload analysis scales, the contribution of different tasks to overall workload has been assessed using task duration. The following remarks are based on observation and discussion with supervisors rather than formal analysis.

Incompatibility due to limited verbal and auditory capacity (e.g. two tasks loading the auditory channel at the same time) did not appear to be an issue, perhaps because of a tendency to pause falling when a radio call comes in, and because the nature of the Push to Talk "PTT" radio button means only one call can be made or received at a time.

In terms of physical conflict, operating the chainsaw is a complex task requiring a high degree of skill and concentration (particularly in challenging worksites). Consequentially, falling was not conducted at the same time as other physical tasks, as this would be impractical and unsafe. Other physical tasks (e.g.,

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walking, writing, driving) were conducted one after the other. Geographical conflict (supervisor responsibilities being geographically separated) was definitely an issue.

Task conflict due to cognitive effort involved in switching between falling and supervisory tasks was mentioned as an issue that could impact the supervisor's own safety. The site visit data also showed the frequency with which supervisors were interrupted with various radio calls throughout the day. The impact of distraction and interruptions on the safety of supervisors who actively fall is an area that should be investigated further.

### How much time is spent on task vs. on secondary tasks?

Falling Supervisor Regulation 26.22.1 states that supervisors: "must not undertake or be assigned activities which interfere with performance of duties under section 2".

When analyzing the site visit data, each 'inspection' time segment was analyzed for activities that were not directly inspection related. This includes planning tasks and radio checks. In general the time spent on non inspection related activities (during inspections) was very small, and unlikely to have a significant impact on other duties.

Transit is necessary for supervisors to complete their tasks, but it not valuable in itself, and reduces the time available for other tasks. Transit is therefore considered to be a secondary task. Time spent in transit is significant, both during inspections and during the working day in general. Transit times (including walking and vehicle) were around 3 – 5 hours for the majority of the site visits. This is higher than the 2 – 4 hours estimated by workshop participants. Much of this driving occurs at times of the day (e.g., very early in the morning) when alertness is low due to circadian rhythms.

Unfortunately, transit times are largely beyond the control of the supervisor. There may be potential for block planning and block layout to be made more efficient in order to reduce transit times, and if this is possible there is potential to achieve significant efficiencies for the operation in general. The impact of transit times should certainly not be underestimated, from a workload or from an economic point of view, when planning the operation.

Time spent on multiphase coordination during site visits was minimal for most of the supervisors who fall trees, and around 1 hour for 'supervision only' supervisors. This probably reflects the larger size of the operations. Much of this time was spent co-ordinating falling with other activities.

Some supervisors also supervised non-fallers. For example, at Site A, the supervisor also supervised non-fallers including road crew/ processor operator/ hoe chucker and spent nearly 2 hours on these activities. Supervision of non fallers could be considered to be a secondary activity from the point of view of 'falling supervision'.

When considering a supervisor's duties, falling could be considered to be a secondary activity which could potentially interfere. Two of the supervisors who spent time on the saw did not conduct any inspections. However, given the size of their crews, they would not be expected to conduct inspections

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every day, based on a weekly inspection of each faller. Of the other supervisors who also fall trees, there was no obvious difference in length or number of inspections. It was not possible to draw firm conclusions due to the small number of site visits, and this topic is recommended for further investigation (see page 35: Future Research).

Very little time was spent on secondary tasks such as breaks and social discussions (discussed in more detail below).

### Are supervisors having their breaks?

In a word – no. Workshop participants reported an average of 10 – 30 minutes per day, and this was born out by the site visit data. For 8 out of 10 visits, despite the long days, breaks ranged from 13 to 26 minutes. One visit (Site G) included only 4 minutes of break time throughout the day. This included all the time taken for eating, comfort breaks, and social discussions. It is possible that the supervisor in question also took some breaks whilst refueling, as he spent several hours falling. On another site the supervisor appeared to take 48 minutes of breaks, but 33 minutes of this time was a break in the evening after finishing in the field. While fallers are restricted to a 6.5 hour day in the field, and may take breaks when refueling, supervisors on the whole do not get these natural breaks.

The long days, coupled with short breaks and early mornings, are likely to lead to significant problems with fatigue, which will be cumulative over the course of a multi-day shift. This is likely to decrease safety whilst falling, and also when driving home at the end of the day. Human Error is also significantly increased by fatigue, and can mimic inebriation when individuals get sufficiently tired. This data suggested that supervisor performance may be significantly impaired, and potentially impacting on safety, due to fatigue.

### Does workload have an impact on safety?

Workload impacts safety in the following ways (based on workshop data).

- The supervisor's performance is reduced, leading to less effective supervision
- Supervisors may reduce planning time and time spent walking the block (one workshop group reported that it was 'impossible' to walk all of the blocks and place all of the fallers)
- Supervisors may report having done things that haven't actually been done
- Tasks may be rushed or not completed
- Supervisors did not report cutting down on the frequency of inspections or on the length of inspections as a result of workload. This may be because they cut other things first (like planning, or breaks) or may be due to social desirability (when an individual gives answers that will present them in a good light). An anonymous survey could be a useful way of identifying whether this happens, and if so how frequently.

It would be useful to verify the link between workload and safety with quantitative data relating workload with safety outcomes such as near misses and incidents. Workshop participants identified

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a number of other factors that also impact safety, and although high on the list, it isn't clear that workload is the most important factor.

### Which situations or scenarios lead to particularly high workload and/or are particularly challenging from a supervisory point of view?

Based on workshop data:

- Assessing new fallers
- Poor planning and congestion in multiphase operations
- Volume of paperwork, lack of standardization and amount of redundancy in documentation
- Economic pressures to bid low and get the job done quickly
- The factors listed in response to the next question also impact workload

### Which factors affect the safe ratio of supervisors to fallers?

Based on workshop data the following factors decrease the number of fallers that can be effectively supervised:

- Characteristics of worksite – small, fragmented, poorly planned, cut blocks; long travel times; challenging terrain and hazards; poor quality timber/ specialty logging; town based (as opposed to camp)
- Environmental issues – extreme weather, fires, poor visibility
- Organizational and economic issues (especially aspects outside their control) – low bid rates, time pressure, multiphase congestion, engineering complications and conflicts, and documentation requirements
- Other responsibilities – organizing supplies and equipment, managing their business and other types of worker, quality of timber, coupled with limited availability of qualified support available
- Crew – low morale, union issues, unstable industry, inexperienced fallers, drugs and alcohol problems
- Supervisor characteristics – experience and organizational ability

### Which tools and strategies do supervisors feel will be most effective in addressing supervisory and workload issues?

- More integrated planning for multi-phase operations; involving supervisors in the decision making process and giving them the authority they need to make changes to cutblock timing and resolve layout and tree retention issues
- Support for documentation requirements; streamlining and time saving devices to help documentation
- Matching the effort (and documentation) to the need, especially for inspections and incident investigations
- Bidding processes that take into account the cost of safety, coupled with enforcement of safety plans once work starts

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- Opportunities to delegate

### Recommendations

The following recommendations are based on data collected during the course of this study. However, they have not been developed into detailed approaches, or assessed for effectiveness or practicality in the context of the forestry industry. This should be a first stage before implementation proceeds.

### Documentation

#### To the Council:

Investigate ways to reduce the amount of time supervisors spend on documentation

- Implement an initiative to reduce the amount of documentation required and to reduce redundancy and repetition in documentation
- Identify forms and documents that require a long time to complete and objectively compare their effectiveness to shorter versions
- Identify or develop tools and support that will enable supervisors to complete their documentation more quickly (e.g., voice recorders, voice activated forms, electronic devices)
- Require new documentation to be assessed and justified in terms of safety impact, taking into account the possible negative impact of an increase in workload. Consider implementing a 'one in one out' policy on documentation whereby new documentation requirements must be accompanied by a comparable reduction in existing documentation.
- Provide support (e.g., templates, sample forms, data packs) to reduce the amount of time companies spend creating documentation, particularly smaller operators
- Investigate means of increasing standardization across companies
- Implement a feedback loop to ensure forms and documents reflect the needs of industry
- Consider whether documentation can be replaced by other approaches (e.g., field guides that a supervisor can use as a memory aid, but which don't require completion of a form), or whether supervisors can limit themselves to recording problems rather than documenting aspects that are acceptable

### Planning of multi-phase operations

#### To the Industry:

Ensure supervisors are involved in the planning process for multi-phase operations, with the authority to influence decisions in order to ensure faller safety

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- Identify the decision points for multi-phase operations
- Review common conflicts and issues that arise during multi-phase operations
- Engage supervisors to identify which decisions should have falling supervisor input
- Identify means of exerting authority (other than the right to refuse unsafe work)

### To WorkSafeBC and the Council:

Support industry in achieving the above objectives. Consider providing guidance on safe and effective planning of multi-phase operations.

### Risk assessment

Supervisors appear to be generally confident in their ability to assess the level of risk when falling, but are less confident of their ability to fully understand what is required by regulation. For example, regulation states that inspections are to be done according to the risk. However, supervisors do not appear to be confident in their ability to make this assessment and may be doing more than is required in some cases.

### To the Council:

- Provide guidance so that supervisors are aware of their options for adjusting inspection frequency and documentation requirements based on individual faller needs
- Break down inspections into component parts, and provide guidance on the optimum frequency of each part (e.g., should a supervisor observe a faller every week, or are stump measurements sufficient?)
- Provide examples of acceptable strategies for conducting inspections (e.g., spreading them over several visits)
- Provide guidance on regulations for fallers and supervisors who work for several different companies (e.g., is a 23 page assessment required for every company?)
- Provide supervisors with access to assistance in risk assessment and decision making
- Encourage knowledge sharing so supervisors can assess where they are relative to their peers (e.g., are they spending too long on documentation and if so, why?)
- Consider developing a definition of effective supervision that is based on supervision as experienced by the faller, rather than factors such as frequency, or ratio of fallers to supervisors (e.g., does the faller get support and advice when he needs it)

### Incident investigation

Supervisors commented that incident investigation effort appears to be determined by the severity of the injury rather than the value of the investigation. For example, some slips, trips and falls which lead

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to severe injuries are heavily documented, even though there is little to be learnt from it, and near misses with no injuries are not investigated, even though they might potentially reveal more serious issues.

### To WorkSafeBC and the Council

- Investigate means of encouraging near miss investigations in the Industry, if possible without increasing documentation
- Investigate whether a streamlined process for slips, trips and falls is practical/ possible whilst still capturing the data needed to reduce injuries

### Economic pressures

Investing in safety should not cause companies to lose out on contracts. However, the perception amongst supervisors was that this did happen. In addition, some supervisors commented that safety plans that were submitted during the bidding process were not always adhered to afterwards.

### To the Council:

- Investigate options to ensure investment in safety does not disadvantage companies during the bidding process

### To WorkSafeBC:

- Review methods for ensuring compliance with safety plan (supervisors do not appear to be convinced that the current documentation based approach is effective in monitoring compliance)

### Delegation and supervisor role definition

The definition of a supervisors role includes a very broad set of tasks, including many that fall outside a narrow 'falling supervisor' definition (e.g., supervising non-fallers). Delegation was identified as an effective strategy by supervisors at the workshop.

### To the Council:

- Identify tasks performed by falling supervisors that are not captured by the DACUM
- Review DACUM activities and other tasks in detail and identify tasks that could be delegated without impacting on safety.
- Consider alternative role definitions and re-allocation of tasks that could reduce supervisor workload by re-defining the supervisor role (and other roles within the crew/ company).
- Provide supervisors with guidance on tasks that are appropriate for delegation
- Consider whether alternative role definitions are required for supervisors who have duties other than supervising fallers

### Decision support

Supervisors are required to make many complex decisions, based on a large number of variables. This kind of decision making is extremely challenging, yet supervisors make many of these decisions with no support other than their own experience.

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### To the Council:

- Identify which decisions supervisors find particularly challenging, or where supervisors appear to be making non optimal decisions at times
- Investigate the most effective means of providing decision support (e.g., is it required in the field? Does it need to be used under time pressure?)
- Develop decision support 'tools' (this could include a wide range of options, from online resources to a pocket sized lookup card)

Some examples of decisions that may benefit from support:

- How often should I inspect a particular faller?
- How challenging is the supervisory task for this bid? How much effort should I allocate to supervision?
- How do I know if a faller is suffering from personal problems? At which point do I send him home?

### Checklists/ field guides/ memory aids

Checklists and memory aids are known to be effective in reducing mental workload, and also reduce human error. Supervisors may benefit from this support, particularly when performing tasks that rely on memory or which involve a number of steps.

### To the Council:

- Identify which tasks involve remembering information or performing a number of steps
- Investigate the most effective means of providing support
- Develop checklist and memory aids (as with decision support tools, this could include a wide range of options)
- Identify whether there is potential for some of the documentation used by supervisors to be replaced with a memory aid, to ensure every point is covered, and a short sign off when there are no issues

Some examples of tasks that might benefit from support:

- Briefings
- Informal inspections

### Effective faller supervision and safety impact

There is a great focus on conducting and documenting inspections in the Industry, but there is little information about what elements of these practices make them effective or indeed whether they have a

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measurable impact on safety outcomes. It is possible that effort is being focused on areas that have little safety impact, at the expense of areas that would be more effective.

### To the Council:

- Review suggestions for future research
- Conduct investigations to ensure effort is directed in the most effective manner, with the greatest safety impact

## Future Research

The following research questions have been identified during the course of this study as providing information that will be important in determining the most effective intervention strategies. In making these recommendations, specific techniques have not been identified (e.g., questionnaire versus workshop). This is because the selection of the most appropriate technique will in most cases require an assessment of practical constraints and an assessment of the optimal approach to ensure the data is reliable and valid. In some cases a general methodology has been mentioned (e.g., survey, denoting data gathering from a wide audience).

### **Verify the relationship between causal factors and safety outcomes, and identify which factors have the greatest impact on safety**

There is an assumption, in some cases backed up by anecdotal evidence, that the following factors are related to safety outcomes. However, this relationship has not (as far as this author is aware) been validated by relating the factors to safety outcomes such as near misses and incidents. It would also be useful to identify which factors have the greatest impact, so effort can be allocated appropriately.

- Perceived effectiveness of supervision
- Perceived workload
- Frequency and duration of inspections
- Use of documentation as opposed to informal review during inspections
- Length of day (including travel time and evening work as well as time in the field) and shift length for fallers and supervisors
- Quantity and quality of paperwork
- Standard of fallers equipment maintenance
- Stump quality/ conformance to regulations
- Use of particular items of equipment (radio headsets, safety chain)
- Availability of alternative means of overcoming falling difficulties (e.g. blasting, ability to make area deletions, substitution options for pre-defined leave trees)

### **Investigate differences between supervisors who fall and those who do not**

The sample size was too small to enable a statistical comparison of supervisors who fall and those who do not. Workshop data indicated that the number of fallers that could be supervised would be smaller if the supervisor also fall trees. Site visit data is also suggestive that this is the case. In assessing whether

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working on the saw has an impact on workload, it would be useful to collect data to answer the following questions:

When comparing supervisors who fall to those who don't:

- Does one group experience higher workload than the other?
- Does the number of fallers being supervised differ?
- Do fallers being supervised experience a different frequency of safety outcomes?
- Do inspections differ?
- Are distraction and interruptions more of an issue for one group than another?

### Investigate whether fatigue is having an impact on safety outcomes for supervisors

There were indications that supervisors work long days, and the impact of this on fatigue will tend to be cumulative over the course of a shift. In order to assess the impact of fatigue it would be useful to answer the following questions:

- Do supervisors show symptoms of sleep deprivation or fatigue?
- What is a typical length of day for supervisors?
- How many days in a row do supervisors work?
- Is fatigue related to safety outcomes for supervisors?

### Investigate and categorize near misses

Near miss data is often more informative than incident data. This is because the frequency of near misses is higher, and factors that prevented the near miss becoming an incident can better be reviewed. It would be useful to collect and review data about near misses, to help understand causal factors, and to identify the most effective interventions for preventing both near misses and incidents.

### Investigate whether distraction is impacting safety for supervisors who fall

During the workshop, supervisors commented that supervisors who also fall may become distracted by their supervisor duties, leading to an increase in risk. There may also be issues of skill fade for supervisors who only fall occasionally.

### Pros and cons of further site visits

The initial proposal for this study included 4 site visits, with an additional 6 added later (giving a total of 10). Even within a single site, with the same supervisor, data is very varied (e.g., inspections range from 20 minutes to over 2 hours). Because of the small number of sites, and the variability of the data, it is not possible to draw conclusions about the impact of site characteristics (e.g., union versus contractor, or supervisors who fall trees versus those who do not), on factors such as length of day and length of inspections. Additional site visits would increase the amount of data available, but the variability of the data is such that there is no guarantee statistical comparison would be possible even if 20 or 30 sites were visited. If this kind of comparison is desired, a large scale survey method is likely to be more appropriate. This is not to say that additional site visits would not provide valuable data, only that the purpose of the additional visits should be clearly defined.

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### Conclusions

This study has collected a large volume of rich data, with value that extends beyond the scope of this report. It provides evidence-based data about the tasks performed by falling supervisors, and valuable insight into workload and supervision from a large number of supervisors.

There is potential for developing some of these insights into training materials or guidance, and also for providing supervisors with a yardstick for assessing their own operation.

This is only the first step in addressing workload management issues and enhancing effective supervision in BC's forestry industry, but it has been valuable in laying the groundwork for the future.

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Note that appendices are included only in the full report. If you are reading the abbreviated version without appendices and would like the full report, please request a copy from the BC Forest Safety Council.

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### Appendix A - Notes on methodology

#### Site visits

Although supervisors were instructed to go about their working day as normal, it is likely that being observed had some impact on behavior for at least some of them. In particular, discussions during some of the inspections may have been longer than usual, as the project was discussed. Partly in order to minimize the impact of the observation, the majority of the visits were conducted by the RPF alone.

The RPF logged supervisor behavior, but in order to avoid discussion and distraction (which could have been a safety issue, and would also have affected the data) it was not possible to stop the supervisor and question him on his activities. Task data from the site visits is therefore limited to behavior that was visually observable.

#### Statistical analysis

Statistical analysis has not been performed on site visit data. This is because the sample size is small, the data is highly variable, and the sample itself is neither random nor proportionally representative of the industry as a whole. As a result statistical analyses would be misleading. There may be potential for the use of statistical analysis at the level of individual tasks.

#### Observation technology

It should be noted that data collected during site visits does not necessarily include short blocks of a few seconds. For example, where supervisors jot down notes whilst performing another task (e.g. observing bucking) the whole 1 – 2 minute task is classified as ‘observing bucking’ rather than 50s observing bucking and 10s field documentation. Where supervisors spent a longer time taking notes this was recorded as a separate task. In addition, the record of man checks should not be taken as complete, as very short radio calls may have been omitted.

The observation goes to the level of 1 minute tasks, and in some cases 30s, but it was not practical to record shorter time periods with the basic equipment available for field observations. Observation technology offers the potential to record timing more precisely, and to capture smaller time intervals. Observation technologies were investigated, and several different alternatives were reviewed. The majority of software available is intended for use in a classroom setting, and requires a full laptop, which is obviously not practical in a field setting with frequent walking and extreme slopes. An iphone application was investigated (and a second hand itouch purchased for this purpose) but the software proved to be too basic, and there were also concerns about the robustness and battery life of the itouch in a forestry setting. A more sophisticated software option that came on a handheld device was also investigated but quotations came back at several thousand dollars, which would have fallen outside the budget available for the project. A LiveScribe pen was also purchased, and this proved more successful, enabling audio recordings of conversation and also functioning as a pen. However, the most effective method in the end proved to be a basic writing pad and a pen, wielded by an RPF with in depth

# Falling Supervisor Workload Management Issues: Phase I

## Report Version 2.0

knowledge of the industry. For the type of analysis required by this project, this approach was found to be adequate and is recommended for any future site visits.

### Selection of workload analysis methodology

A review of workload analysis methodologies led initially to the selection of the VACP (Visual, Auditory, Cognitive, Psychomotor) psychometric workload scales (Keller, 2002). These were selected due to the inclusion of physical workload, the well known nature of the scales, and also due to the concrete nature of the rating scales (each scale has descriptions of different points). The scale descriptions were adapted to simplify the language, as the original descriptors were judged to be too academic in tone for the intended audience. Input on the adapted scales and methodology was sought from other Human Factors professionals, to provide additional support for their validity.

The VACP scales are based on multiple resource theory, and are designed to enable multi-tasking to be analyzed. However, it became clear through the observations and from the output from the workshop that the majority of workload issues do not result from doing too many things at one time (multi tasking), but from having too many things to do during the day as a whole (serial processing).

A pilot interview using the VACP scales also found that there was very little variation in ratings between tasks, as the majority involved at least some discussion and at least some documentation, meaning the data suffered from ceiling effects and low variance between tasks. This means diagnostic capability would be minimal. The interview was also very time-consuming and unlikely to be acceptable to the supervisors who had been involved in the site visits.

Observation and workshop feedback also suggested that serial task performance is more of an issue than multi tasking (or at least, that serial task performance is masking any multitasking issues that may exist, and should remain the focus until serial workload issues are significantly reduced). The combination of these factors leads to the recommendation that multiple resource workload analysis is not used for this project.

The focus of analysis therefore shifted to categorizing and analyzing the observed tasks, assessing workload on a 'time-on-task' basis. This was assessed using a simple index of length of day, with the assumption that long working days will be associated with high workload.

The relationship between length of working day and workload is based on the assumption that supervisors will tend to increase effort (and hence subjective workload) in order to reduce the length of their day rather than reduce effort and extend their days. This is supported by the observation that supervisors engage in almost no tasks which aren't job related during the course of their day, and also by workload ratings completed by one supervisor which indicated that supervisor tasks are typically relatively demanding. Cumulative fatigue will also reduce the capacity to perform work, and hence to cope with a given workload, as the day goes on.

# Falling Supervisor Workload Management Issues: Phase I

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### Categorization scheme developed for this study

Categorization of observed tasks was performed using a categorization scheme developed for this project, based in part on the DACUM, and reviewed by project stakeholders. There is scope for refining the categorization for future projects, but the categories (shown below) proved both robust and useful in analyzing the data from all ten site visits, and are recommended for any future site visits.

High level category (used for color coding)	Term used in diagrams	DACUM categories	Detailed categories	Term used in diagrams	DACUM categories
<b>Transit</b>	Transit		Walking block/ hazard plan	Walking	D2, D3, H3
			Car/ helicopter/ boat	Vehicle	C9
<b>Falling related planning/ organization</b>	Planning		Weather monitoring/ discussion	Weather	I1, I2, I3, I4
			Waiting	Waiting	
			Supplies	Supplies	C2, C3, C7, C10, C11
			Briefing/ tailgate/ discuss plans with fallers/ organize fallers	Organize	B1, B2, B10, D6, E5, E6
			ERP related activities	ERP	A6, D5, H1, K7
			Pre-work site inspection	Pre-work	D1
<b>Faller inspection</b>	Inspection	A7, D9, F3, F6, F7, F13, F14, F15, J1, J2, J10, K4	Vehicle maintenance	Maintenance	C8
			Documentation (in field)	Doc (field)	F16, G13
			Quality control/ bucking specs	Quality	B5, B6, B7,
			Measure stumps	Stumps	A5
			Observe faller working (incl. Discussion)	Observe	A2, A3, F8
			Review area/ worksite	Worksite	B3, C5
<b>Falling</b>	Falling	G15	Discussion with faller	Discuss	A1, A4, B4, B8, B9, D7, F9, H2
				Falling	
<b>Radio communication</b>	Radio	D8	Used when other categories don't apply (e.g. man check). Planning over the radio would be classified as planning.	Radio	
<b>Documentation/ administration (in camp)</b>	Camp	C1, C12, D10, F1, F2, F4, F5, F17, G3, G4, J9, J11, J12		Camp	
<b>Phase planning/ supervision of other phases</b>	Non-falling	D11, E1, E2, E3, E4, G7, H4, H5		Non-falling	
<b>Breaks/ social discussions</b>	Break			Break	

# Falling Supervisor Workload Management Issues: Phase I

## Appendix B – Site Visit Data

### Site A

This site visit was non-typical compared to other site visits. The crew knew that either today or tomorrow they would be shut down. The first faller ‘inspection’ was a lengthy discussion/ morale booster where the project and issues in the falling industry were discussed. This continued while the supervisor was waiting to collect the next hourly weather readings and consider the shut down.

### Background and site description

<b>Job title</b>	Foreman/ bull bucker
<b>Crew type</b>	Union crew
<b>Layout/ crew size</b>	Crew can ramp up to 7 2 active site; 3 fallers at one and 4 in other (1.5 hours apart); supervisor manages 2 grapple yarder crews, 2-3 loaders/hoe chucks; 2 processors; 7-8 trucks; 1 deact hoe, grade crew (2 people); 2 bunchers; NOTE - sometimes double shifting loaders, bunchers and processors During visit - only 3 fallers visited; 4 others under other supervisor (from Location A - last day today).
<b>Typical day</b>	Faller day 6.5 hrs + travel Supervisor estimates 20% of time on fallers. Rest on yarding, loading, grade, deactivation, trucks <b>Note: this was not a normal production day. The visit occurred on the verge of a seasonal shut down. A fire-weather crossover occurred (temperature 30 degrees, relative humidity &lt;30%).</b>
<b>Timber type</b>	Fd (Douglas Fir) Hw (Hemlock) Cw (Red Cedar) "Old growth" site - minimal ground vegetation/ light brush Slopes 30 - 80% Trees average 50cm (20in) up to 170cm (67 in)
<b>Production goals</b>	150,000 m3
<b>Mode(s) of transport</b>	Truck
<b>Falling during site visit?</b>	No

### Comparative length of day

Length of day	Site A	Site B	Site C	Site D	Site E	Site F	Site G	Site H	Site I	Site J
<b>Start time</b>	4:15 AM	4:00 AM	5:00 AM	5:32 AM	6:00 AM	7:07 AM	4:45 AM	5:30 AM	3:50 AM	6:12 AM
<b>End time</b>	4:14 PM	4:33 PM	4:33 PM	12:53 PM	4:06 PM	3:30 PM	2:36 PM	3:57 PM	12:50 PM	2:17 PM
<b>Field time (incl. transit)</b>	11h59m	12h33m	11h33m	7h21m	10h06m	8h23m	9h51m	10h27m	9h00m	8h05m
<b>Evening work</b>	1h00m	2h25m	1h00m	1h51m	1h35m	2h00m	0h15m	1h33m	4h02m	3h30m
<b>Total</b>	12h59m	14h58m	12h33m	9h12m	11h41m	10h23m	10h06m	12h00m	13h02m	11h35m
<b>Falling?</b>	No	Yes	Yes	No	No	No	Yes	No	Yes	No

### Summary of inspections

<b>Number of inspections completed</b>	2
<b>Total duration of inspections<sup>1</sup></b>	1h58m
<b>Time spent on inspection activities during inspections</b>	1h47m

# Falling Supervisor Workload Management Issues: Phase I

## Annex B – Site Visit Data

## Site A

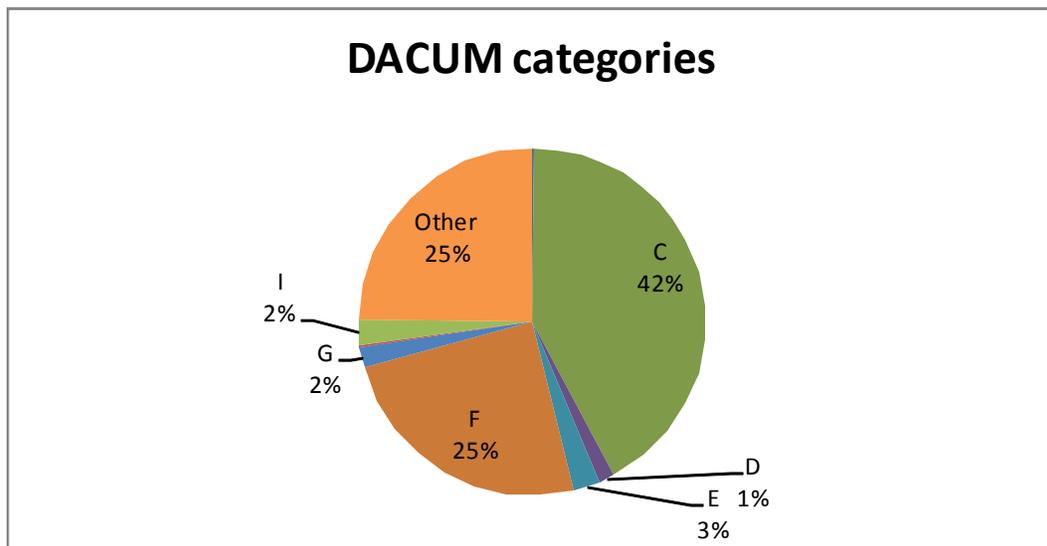
Time spent walking during inspections	0h08m
Time spent on other activities (not inspection related/ walking) during inspections	0h03m
Average inspection duration <sup>1</sup>	0h59m
Median inspection duration <sup>1</sup>	N/A (two data points)

<sup>1</sup> Includes walking but not vehicle transit

### Day breakdown (high level DACUM categories)

Category	DACUM Description	Total	%
A	Conduct inspections on fallers	0h02m	0%
B	Control falling activity on the worksite	0h00m	0%
C	Ensure adequate tools to do the job are available	5h37m	42%
D	Develop a block falling plan	0h11m	1%
E	Coordinate with other phases	0h20m	2%
F	Manage people	3h18m	25%
G	Manage the business	0h16m	2%
H	Maintain block falling plan	0h01m	0%
I	Manage environment	0h19m	2%
J	Participate in safety program	0h00m	0%
K	Train workers	0h00m	0%
Other	Not classified	3h19m	25%
		<b>Total</b>	<b>13h23m</b>

Note: 'Other' includes time spent supervising non fallers (e.g. road crew). C: 'Ensure adequate tools to do the job are available', includes C9: 'Drive crew to work', which was used for all driving-related activities.



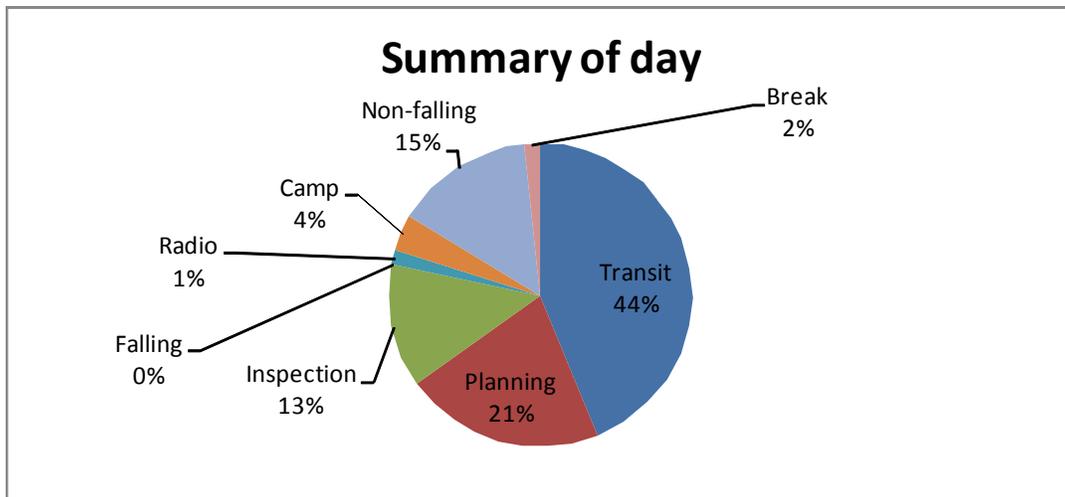
# Falling Supervisor Workload Management Issues: Phase I

## Annex B – Site Visit Data

## Site A

### Day breakdown (high level categories)

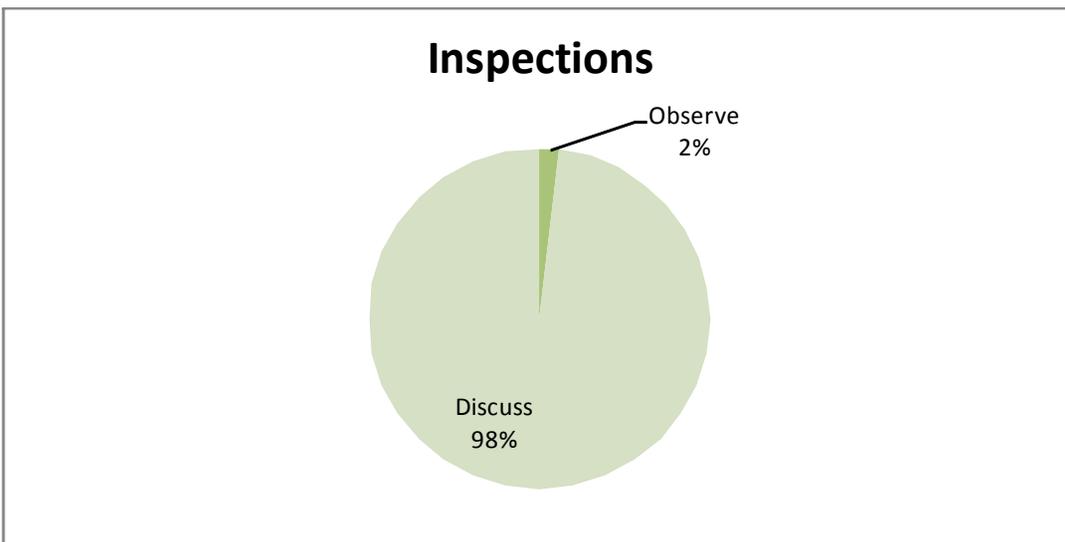
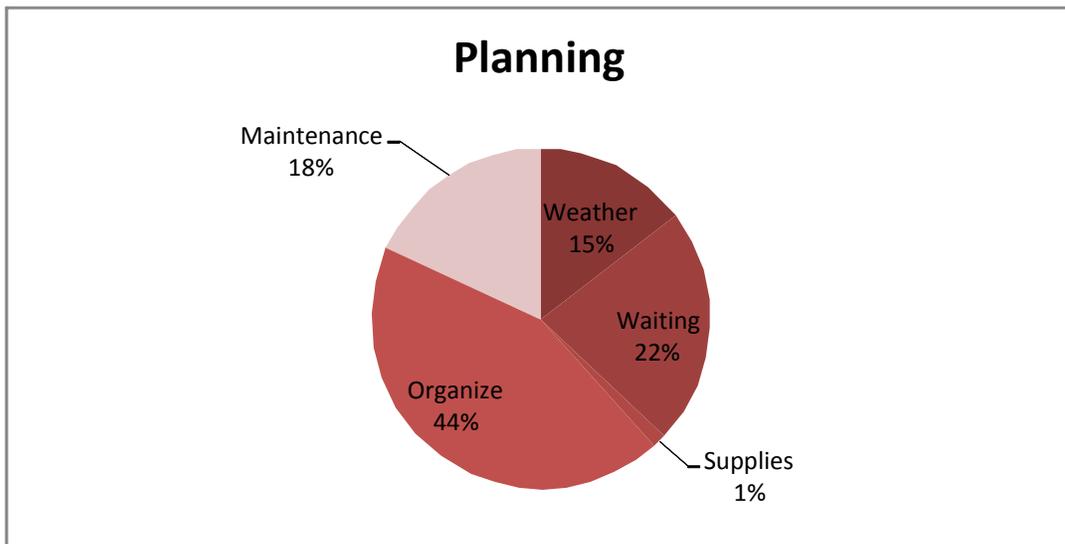
High level					
category	Total	Description	Label	Total	%
<b>Transit</b>	5h52m	Walking block/ hazard plan	Walking	0h08m	1%
		Car/ helicopter/ boat	Vehicle	5h44m	43%
<b>Planning</b>	2h50m	Weather monitoring/ discussion	Weather	0h25m	3%
		Waiting	Waiting	0h38m	5%
		Supplies and equipment	Supplies	0h02m	0%
		Briefing/ tailgate/ discuss plans with fallers/ organize fallers	Organize	1h14m	9%
		ERP related activities	ERP	0h00m	0%
		Pre-work site inspection	Pre-work	0h00m	0%
		Vehicle maintenance	Maintenance	0h31m	4%
<b>Inspection</b>	1h47m	Documentation (in field)	Doc (field)	0h00m	0%
		Quality control/ bucking specs	Quality	0h00m	0%
		Measure stumps	Stumps	0h00m	0%
		Observe faller working (incl. Discussion)	Observe	0h02m	0%
		Review area/ worksite	Worksite	0h00m	0%
		Discussion with faller	Discuss	1h45m	13%
<b>Falling</b>	0h00m	Falling	Falling	0h00m	0%
<b>Radio</b>	0h12m	Radio (where not otherwise classified)	Radio	0h12m	1%
<b>Camp</b>	0h30m	Camp	Camp	0h30m	4%
<b>Non-falling</b>	1h59m	Multiphase co-ordination and supervision of other phases	Non-falling	1h59m	15%
<b>Break</b>	0h13m	Breaks/ social discussions	Break	0h13m	2%
<b>Total</b>				13h23m	



# Falling Supervisor Workload Management Issues: Phase I

## Annex B – Site Visit Data

### Site A



# Falling Supervisor Workload Management Issues: Phase I

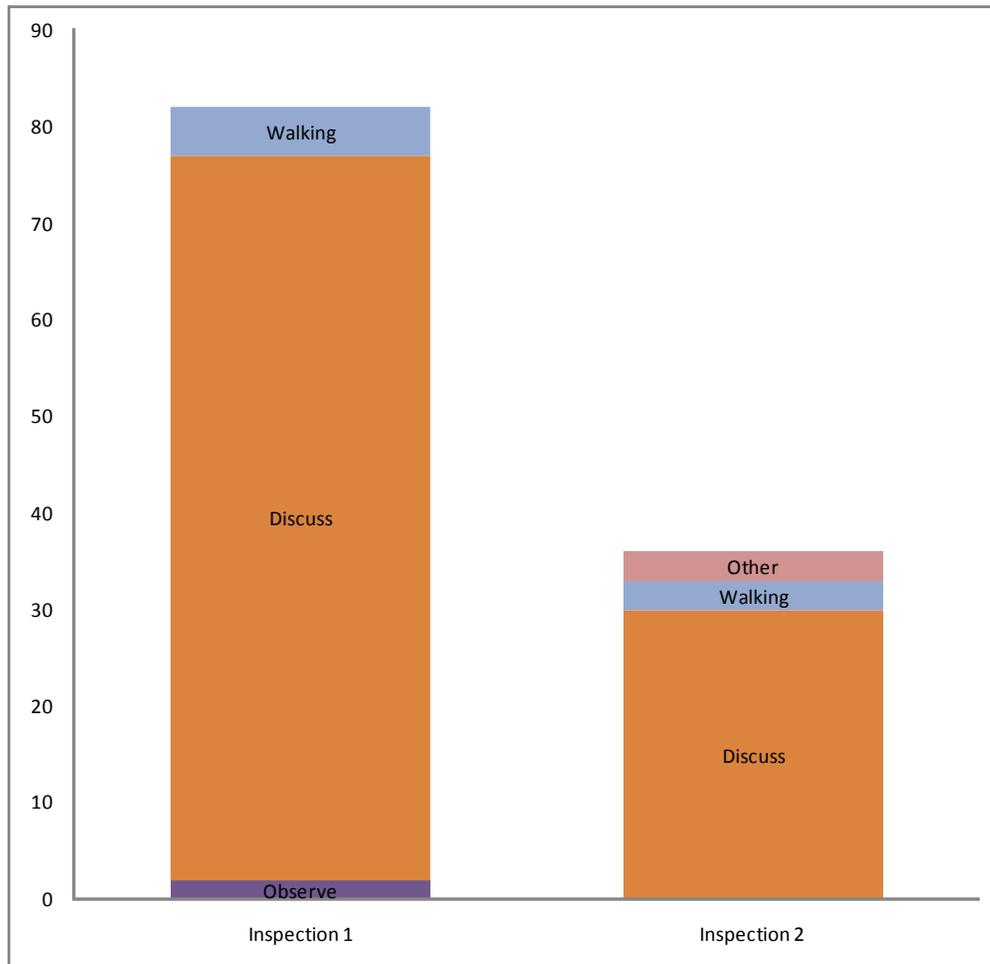
## Annex B – Site Visit Data Inspections

## Site A

### Duration of inspections

Time spent on inspection related activities and other activities during inspections (including walking but excluding vehicle travel).

Inspections	Inspection 1	Inspection 2	Total		
<b>Doc (field)</b>	0h00m	0h00m	<b>0h00m</b>	Inspecting	<b>1h47m</b>
<b>Quality</b>	0h00m	0h00m	<b>0h00m</b>		
<b>Stumps</b>	0h00m	0h00m	<b>0h00m</b>		
<b>Observe</b>	0h02m	0h00m	<b>0h02m</b>		
<b>Worksite</b>	0h00m	0h00m	<b>0h00m</b>		
<b>Discuss</b>	1h15m	0h30m	<b>1h45m</b>		
<b>Walking</b>	0h05m	0h03m	<b>0h08m</b>	Walking	<b>0h08m</b>
<b>Other</b>	0h00m	0h03m	<b>0h03m</b>	Other	<b>0h03m</b>
<b>Total</b>	<b>1h22m</b>	<b>0h36m</b>	<b>1h58m</b>		



'Other' includes walking and other activities not directly related to the inspection (e.g., radio calls)

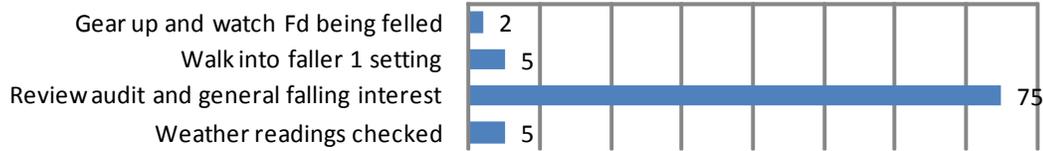
# Falling Supervisor Workload Management Issues: Phase I

## Annex B – Site Visit Data

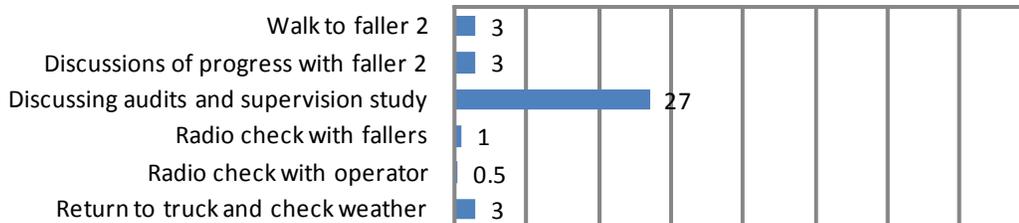
## Site A

### Inspections - detailed descriptions

#### Inspection 1 - 1h22m



#### Inspection 2 - 36m



# Falling Supervisor Workload Management Issues: Phase I

## Annex B – Site Visit Data

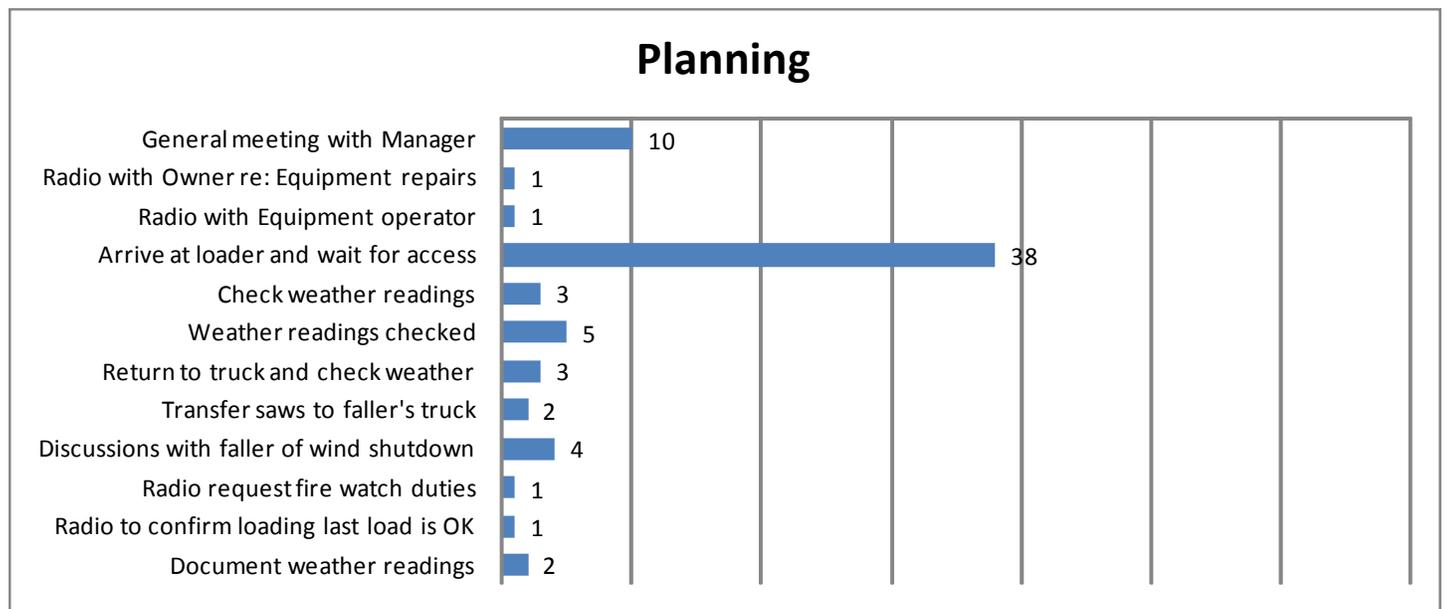
## Site A

### Planning breakdown

<b>Planning</b>	Weather monitoring/ discussion	Weather	0h25m
	Waiting	Waiting	0h38m
	Supplies	Supplies	0h02m
	Briefing/ tailgate/ discuss plans with fallers/ organize fallers	Organize	1h14m
	ERP related activities	ERP	0h00m
	Pre-work site inspection	Pre-work	0h00m
	Vehicle maintenance	Maintenance	0h31m
	<b>Total</b>		<b>2h50m</b>

### Planning – detailed descriptions

This chart shows all activities categorized as ‘planning’ throughout the day



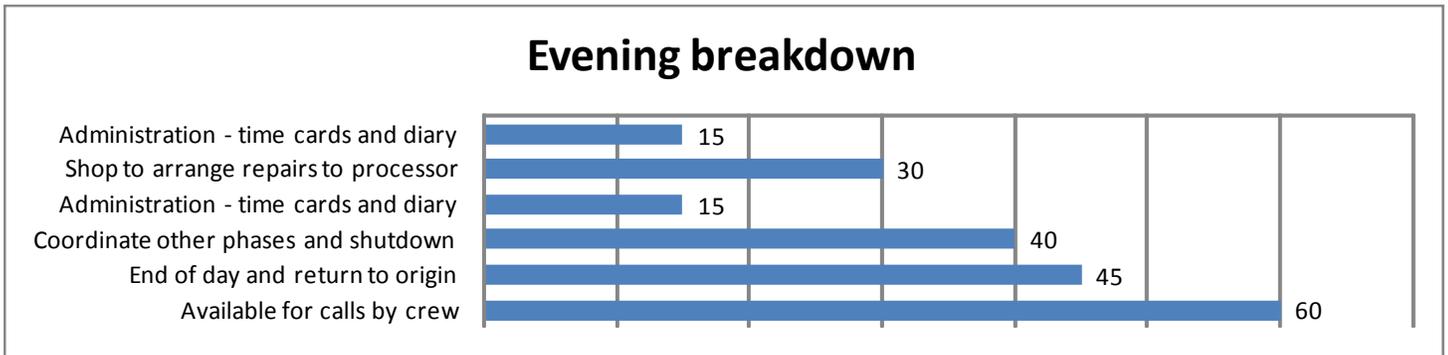
# Falling Supervisor Workload Management Issues: Phase I

## Annex B – Site Visit Data

## Site A

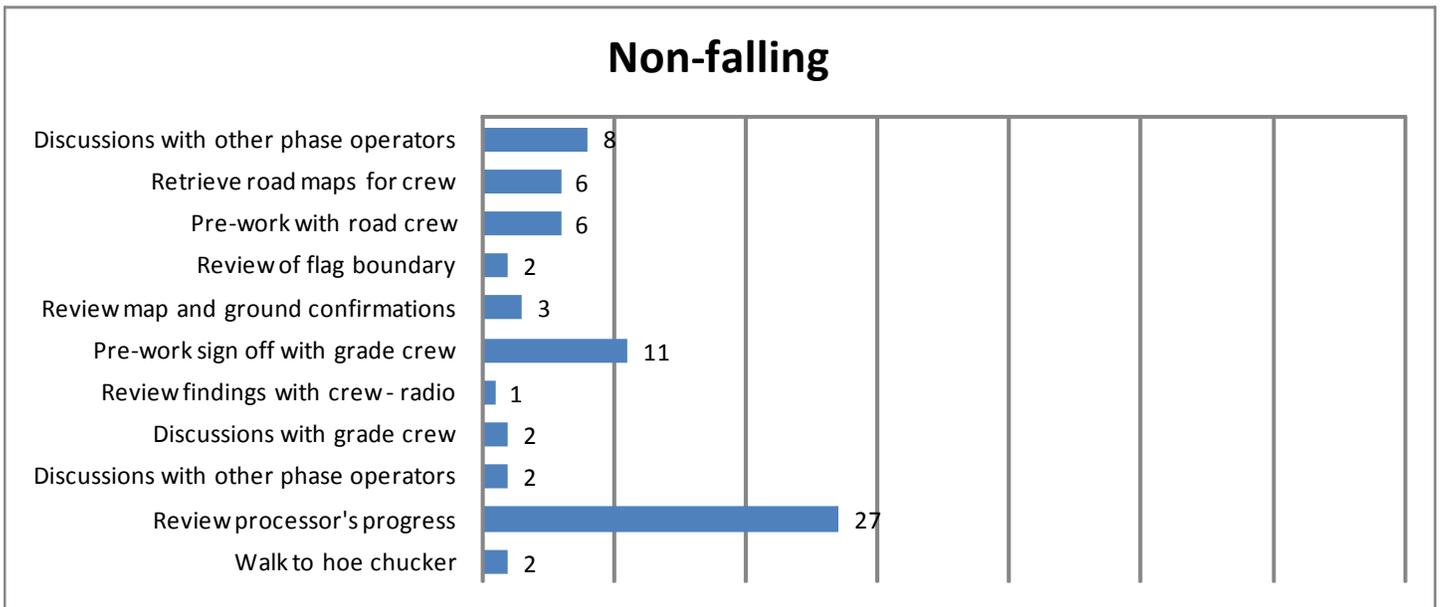
### Evening work – detailed descriptions

This chart shows all activities performed after returning to camp



### Multi-phase coordination and supervision of other phases

As a large part of this supervisor's time was spent supervising and coordinating with other phases (termed 'non-falling in graphs), time spent on these activities has also been reported in detail.



## Falling Supervisor Workload Management Issues: Phase I

### Annex B – Site Visit Data

#### Site B

The supervisor set up a faller in a new area, and checked on another who was leaving the operation. A total of 4 inspections were completed. Once all fallers were in place the supervisor then spent the rest of the day falling. This supervisor does faller inspections (e.g. the 23 page inspection) progressively, collecting data over time. This supervisor had the longest working day of all the site visits.

#### Background and site description

<b>Job title</b>	Falling supervisor
<b>Crew type</b>	Contract crew
<b>Layout/ crew size</b>	Contract crew can ramp up to 7 (10 is max) Working a 10 day shift 1 active site; changing to take on some right-of-way later in week (2nd block) Crew size: 4 plus supervisor; this visit was an 'average' day; one faller returns to Location A after today, 2 were on vacation
<b>Typical day</b>	1.5 hrs travel time to sites; 6:00am to 1:00pm falling
<b>Timber type</b>	CwHw Old growth site - abundant decadence & snags Slopes 10 - 40% Trees average 70cm (27in) up to 200cm (79in) Irregular ground, creeks Thick brush
<b>Production goals</b>	90,000 to 120,000 m3
<b>Mode(s) of transport</b>	Truck
<b>Falling during site visit?</b>	Yes – 2h13m

#### Comparative length of day

Length of day	Site A	Site B	Site C	Site D	Site E	Site F	Site G	Site H	Site I	Site J
<b>Start time</b>	4:15 AM	4:00 AM	5:00 AM	5:32 AM	6:00 AM	7:07 AM	4:45 AM	5:30 AM	3:50 AM	6:12 AM
<b>End time</b>	4:14 PM	4:33 PM	4:33 PM	12:53 PM	4:06 PM	3:30 PM	2:36 PM	3:57 PM	12:50 PM	2:17 PM
<b>Field time</b>										
<b>(incl. transit)</b>	11h59m	12h33m	11h33m	7h21m	10h06m	8h23m	9h51m	10h27m	9h00m	8h05m
<b>Evening work</b>	1h00m	2h25m	1h00m	1h51m	1h35m	2h00m	0h15m	1h33m	4h02m	3h30m
<b>Total</b>	12h59m	14h58m	12h33m	9h12m	11h41m	10h23m	10h06m	12h00m	13h02m	11h35m
<b>Falling?</b>	No	Yes	Yes	No	No	No	Yes	No	Yes	No

#### Summary of inspections

<b>Number of inspections completed</b>	4
<b>Total duration of inspections<sup>1</sup></b>	3h45m
<b>Time spent on inspection activities during inspections</b>	3h10m
<b>Time spent walking during inspections</b>	0h29m
<b>Time spent on other activities (not inspection related/ walking) during inspections</b>	0h06m
<b>Average inspection duration<sup>1</sup></b>	0h56m
<b>Median inspection duration<sup>1</sup></b>	0h45m

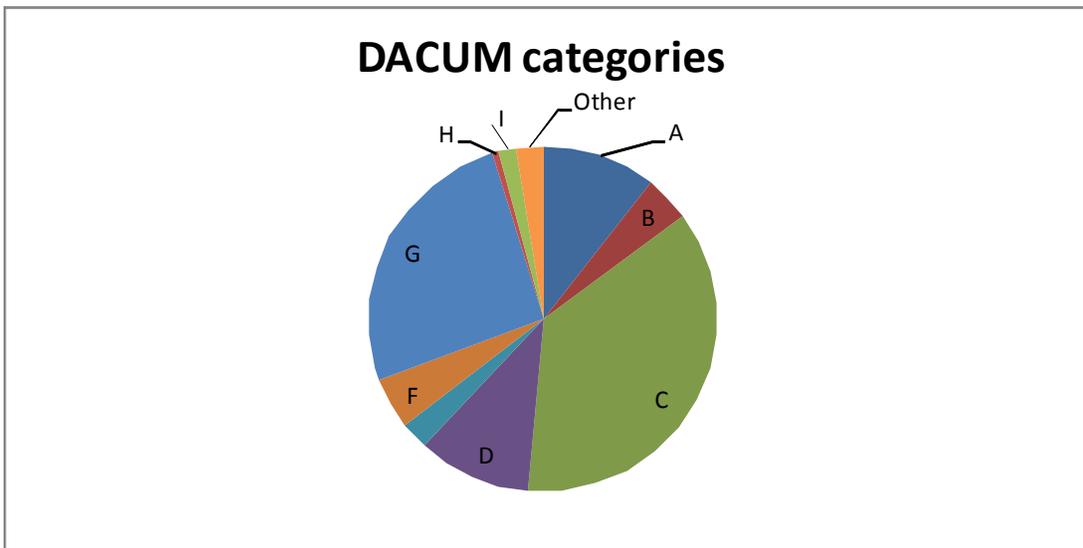
<sup>1</sup> Includes walking but not vehicle transit

# Falling Supervisor Workload Management Issues: Phase I

## Annex B – Site Visit Data Site B

### Day breakdown (high level DACUM categories)

Category	DACUM Description	Total	%
A	Conduct inspections on fallers	1h36m	11%
B	Control falling activity on the worksite	0h38m	4%
C	Ensure adequate tools to do the job are available	5h31m	37%
D	Develop a block falling plan	1h35m	11%
E	Coordinate with other phases	0h23m	3%
F	Manage people	0h43m	5%
G	Manage the business	3h56m	26%
H	Maintain block falling plan	0h05m	1%
I	Manage environment	0h15m	2%
J	Participate in safety program	0h00m	0%
K	Train workers	0h00m	0%
Other	Not classified	0h22m	2%
<b>Total</b>		<b>15h04m</b>	



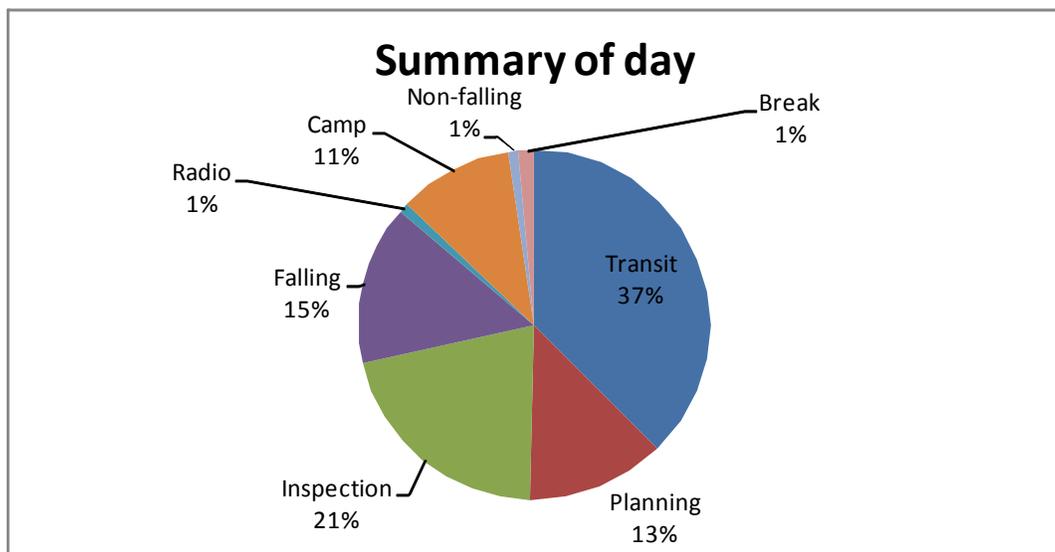
# Falling Supervisor Workload Management Issues: Phase I

## Annex B – Site Visit Data

## Site B

### Day breakdown (high level categories)

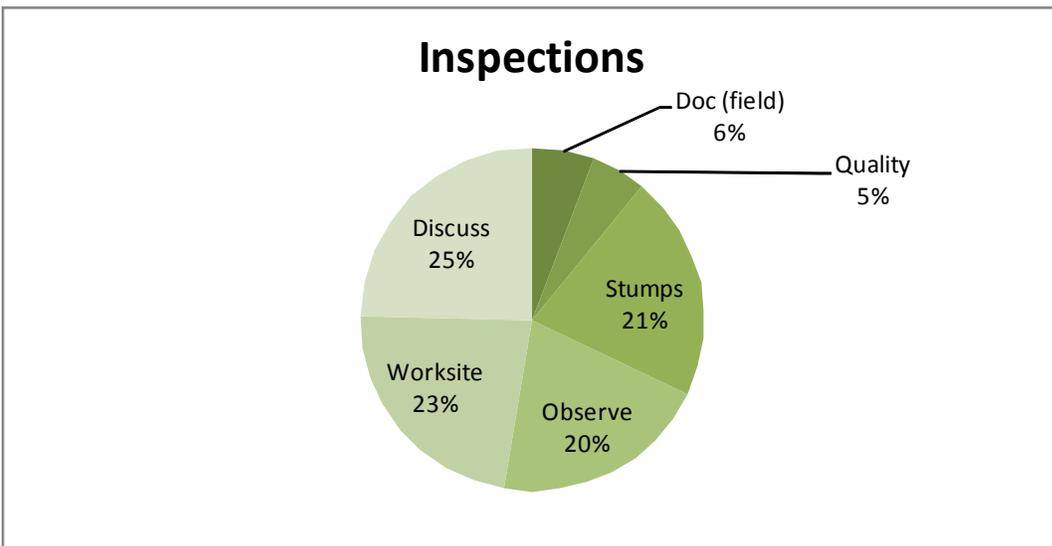
High level category	Total	Description	Label	Total	%
<b>Transit</b>	5h39m	Walking block/ hazard plan	Walking	0h54m	6%
		Car/ helicopter/ boat	Vehicle	4h45m	32%
<b>Planning</b>	1h57m	Weather monitoring/ discussion	Weather	0h00m	0%
		Waiting	Waiting	0h00m	0%
		Supplies and equipment	Supplies	1h11m	8%
		Briefing/ tailgate/ discuss plans with fallers/ organize fallers	Organize	0h43m	5%
		ERP related activities	ERP	0h03m	0%
		Pre-work site inspection	Pre-work	0h00m	0%
		Vehicle maintenance	Maintenance	0h00m	0%
<b>Inspection</b>	3h10m	Documentation (in field)	Doc (field)	0h11m	1%
		Quality control/ bucking specs	Quality	0h10m	1%
		Measure stumps	Stumps	0h40m	4%
		Observe faller working (incl. Discussion)	Observe	0h39m	4%
		Review area/ worksite	Worksite	0h43m	5%
		Discussion with faller	Discuss	0h47m	5%
<b>Falling</b>	2h13m	Falling	Falling	2h13m	15%
<b>Radio</b>	0h08m	Radio (where not otherwise classified)	Radio	0h08m	1%
<b>Camp</b>	1h35m	Camp	Camp	1h35m	11%
<b>Non-falling</b>	0h09m	Multiphase co-ordination and supervision of other phases	Non-falling	0h09m	1%
<b>Break</b>	0h13m	Breaks/ social discussions	Break	0h13m	1%
<b>Total</b>				15h04m	



# Falling Supervisor Workload Management Issues: Phase I

## Annex B – Site Visit Data

### Site B



# Falling Supervisor Workload Management Issues: Phase I

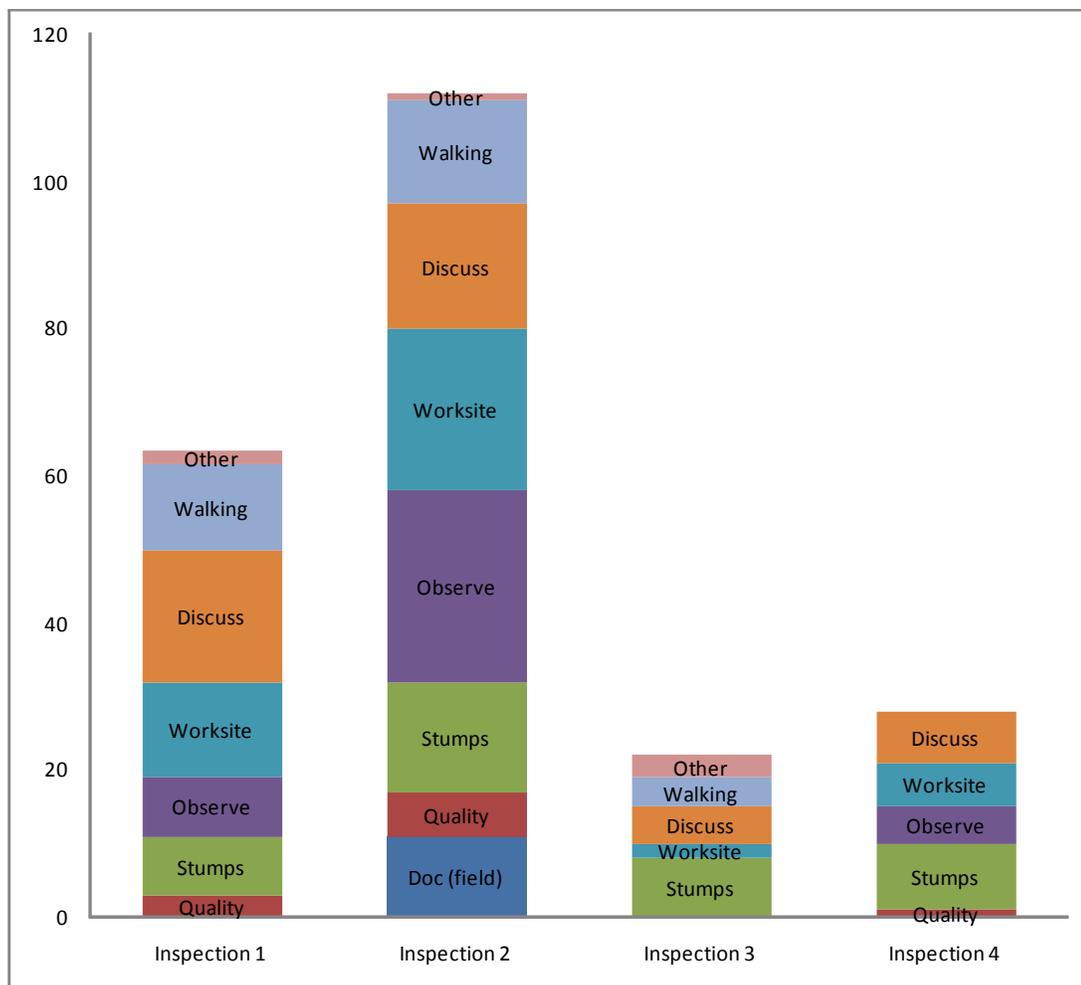
## Annex B – Site Visit Data Inspections

## Site B

### Duration of inspections

Time spent on inspection related activities and other activities during inspections (including walking but excluding vehicle travel).

Inspections	Inspection 1	Inspection 2	Inspection 3	Inspection 4	Total		
<b>Doc (field)</b>	0h00m	0h11m	0h00m	0h00m	<b>0h11m</b>	Inspecting	<b>3h10m</b>
<b>Quality</b>	0h03m	0h06m	0h00m	0h01m	<b>0h10m</b>		
<b>Stumps</b>	0h08m	0h15m	0h08m	0h09m	<b>0h40m</b>		
<b>Observe</b>	0h08m	0h26m	0h00m	0h05m	<b>0h39m</b>		
<b>Worksite</b>	0h13m	0h22m	0h02m	0h06m	<b>0h43m</b>		
<b>Discuss</b>	0h18m	0h17m	0h05m	0h07m	<b>0h47m</b>		
<b>Walking</b>	0h11m	0h14m	0h04m	0h00m	<b>0h29m</b>	Walking	<b>0h29m</b>
<b>Other</b>	0h02m	0h01m	0h03m	0h00m	<b>0h06m</b>	Other	<b>0h06m</b>
<b>Total</b>	<b>1h03m</b>	<b>1h52m</b>	<b>0h22m</b>	<b>0h28m</b>	<b>3h45m</b>		



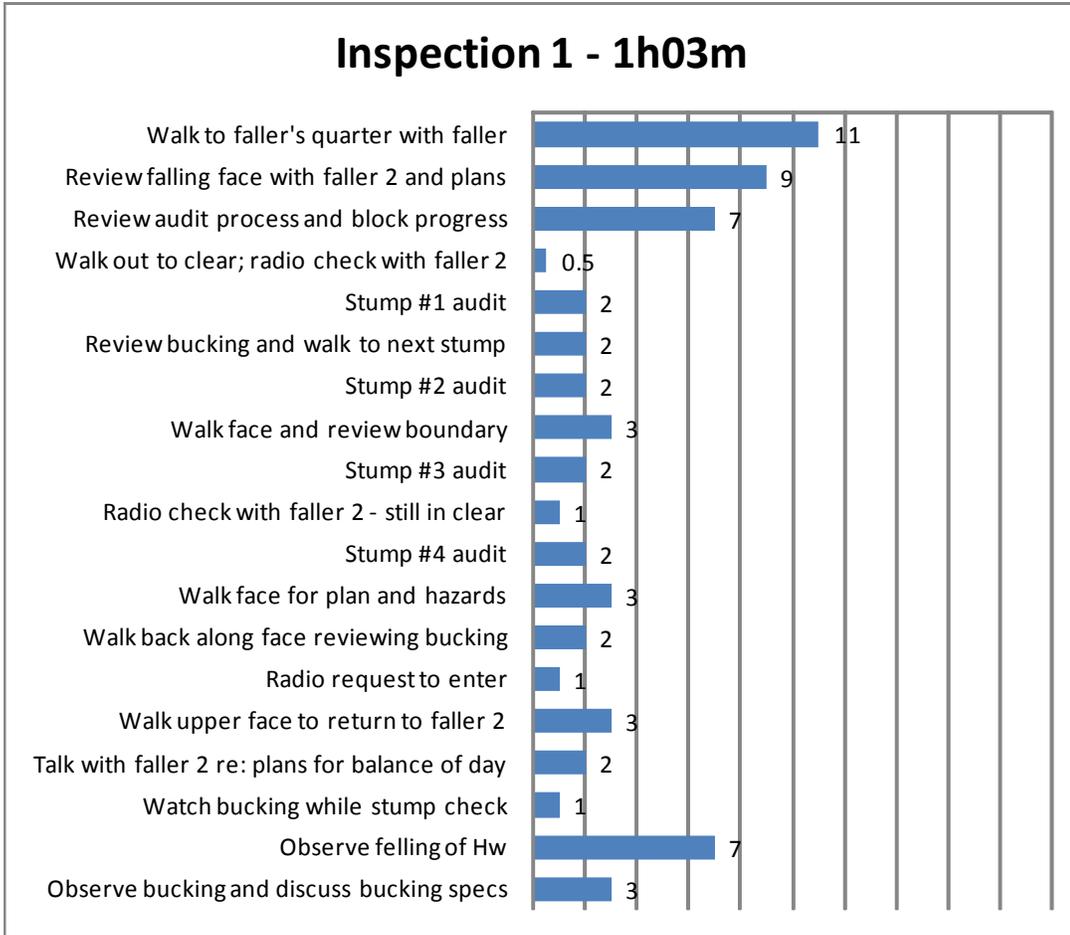
# Falling Supervisor Workload Management Issues: Phase I

## Annex B – Site Visit Data

## Site B

'Other' includes walking and other activities not directly related to the inspection (e.g., radio calls)

### Inspections - detailed descriptions

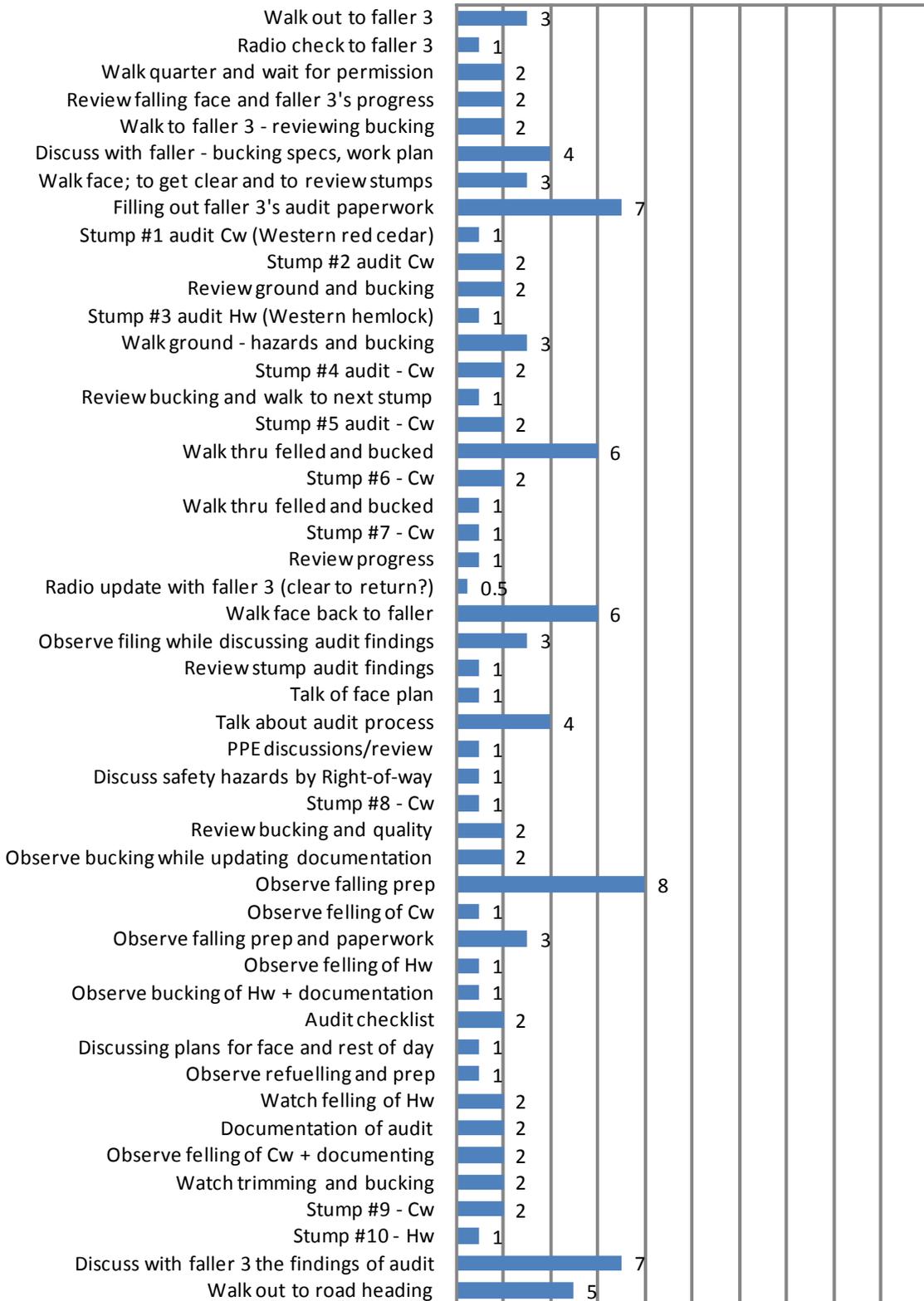


# Falling Supervisor Workload Management Issues: Phase I

## Annex B – Site Visit Data

## Site B

### Inspection 2 - 1h52m

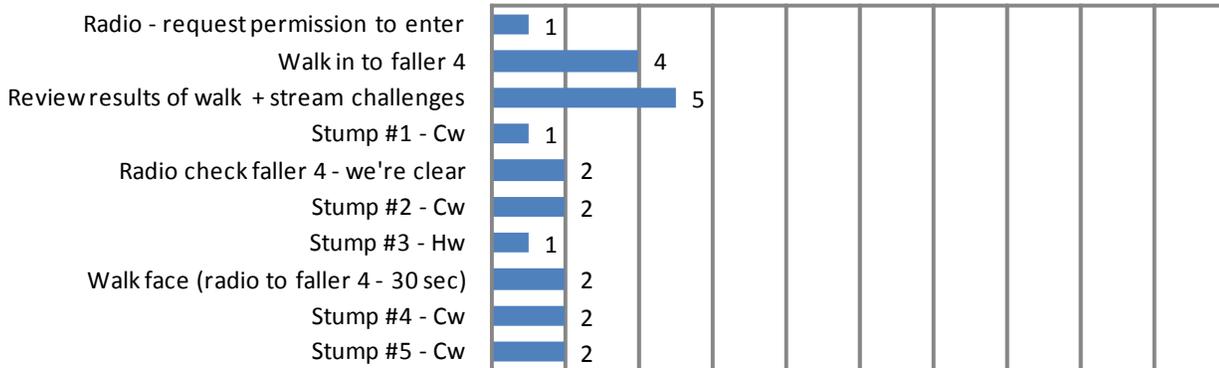


# Falling Supervisor Workload Management Issues: Phase I

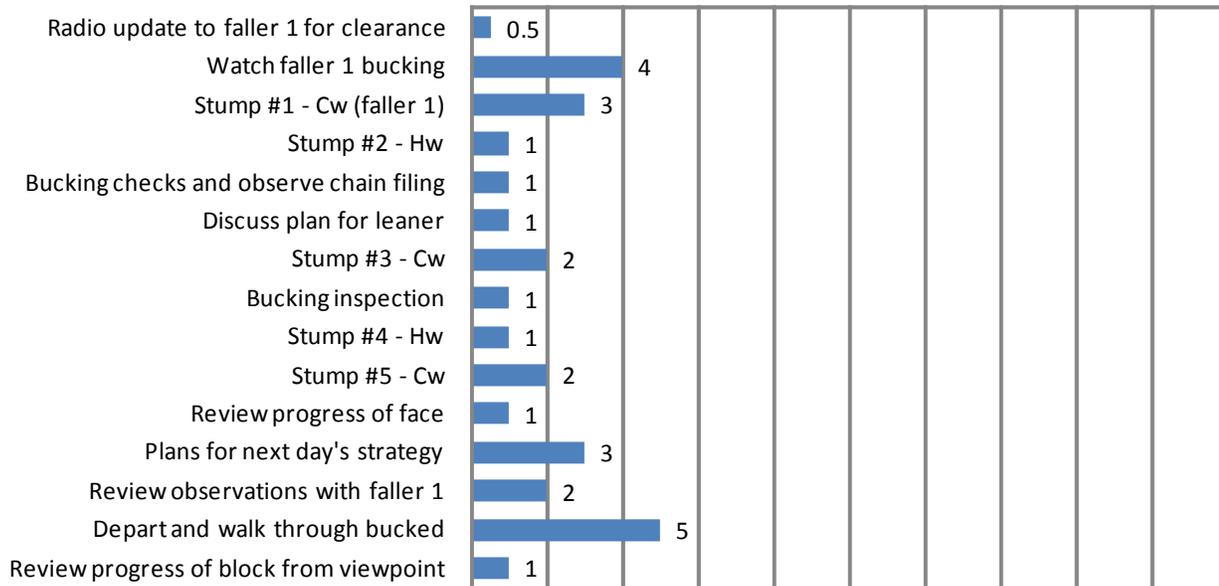
## Annex B – Site Visit Data

## Site B

### Inspection 3 - 22m



### Inspection 4 - 28m



# Falling Supervisor Workload Management Issues: Phase I

## Annex B – Site Visit Data

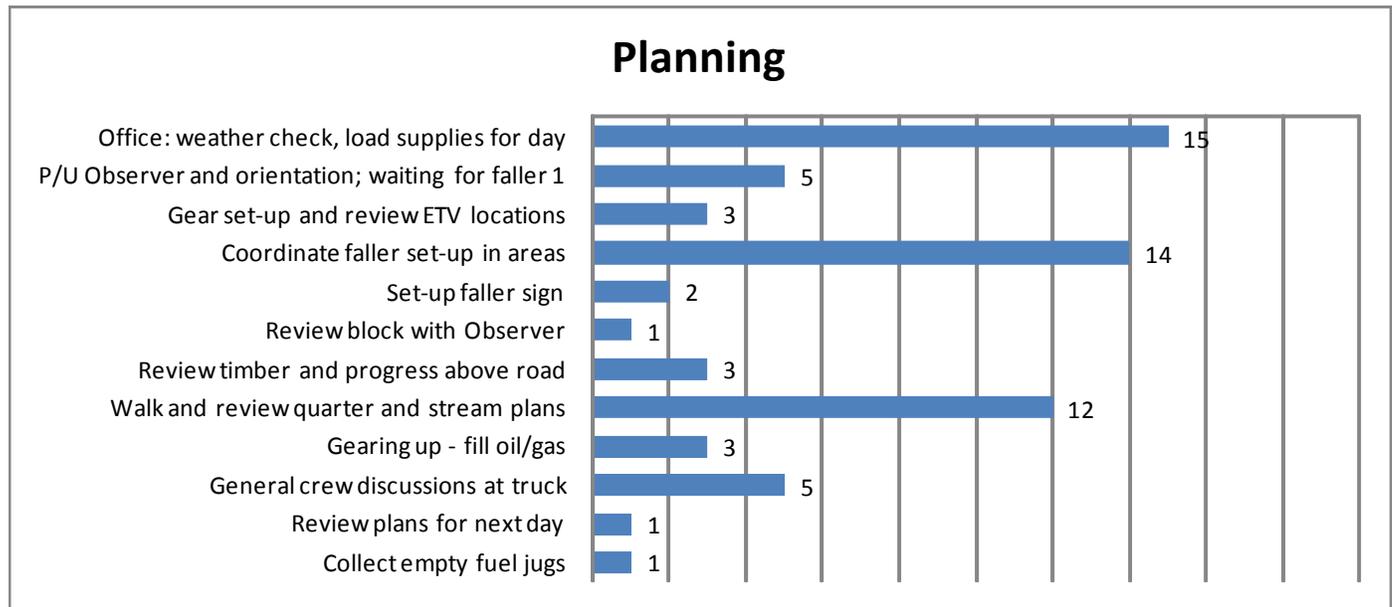
## Site B

### Planning breakdown

<b>Planning</b> Weather monitoring/ discussion	Weather	0h00m
Waiting	Waiting	0h00m
Supplies	Supplies	1h11m
Briefing/ tailgate/ discuss plans with fallers/ organize fallers	Organize	0h43m
ERP related activities	ERP	0h03m
Pre-work site inspection	Pre-work	0h00m
Vehicle maintenance	Maintenance	0h00m
	<b>Total</b>	<b>1h57m</b>

### Planning – detailed descriptions

This chart shows all activities categorized as ‘planning’ throughout the day



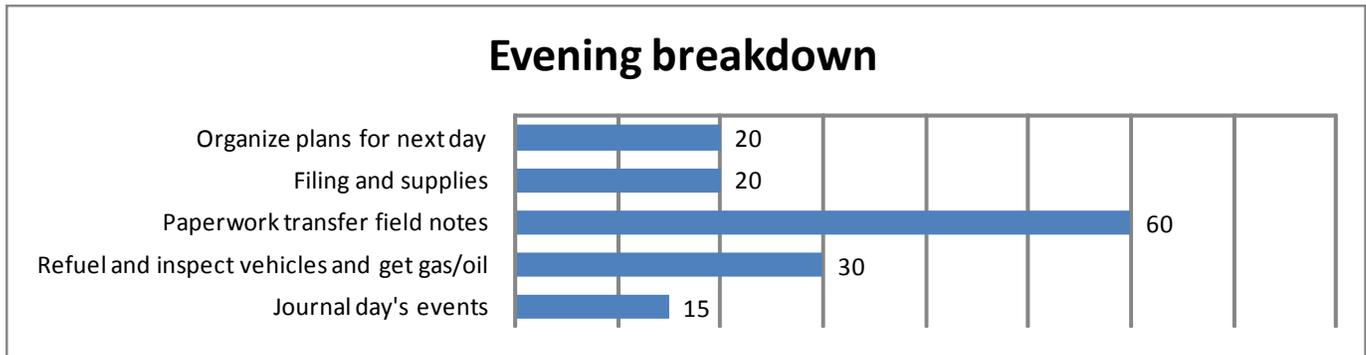
# Falling Supervisor Workload Management Issues: Phase I

## Annex B – Site Visit Data

## Site B

### Evening work – detailed descriptions

This chart shows all activities performed after returning to camp



## Falling Supervisor Workload Management Issues: Phase I

### Annex B – Site Visit Data

#### Site C

This was not a typical **work** day as the crew size was small and the Council were doing an audit. However, it was a typical **falling** day. The owner guided the Council representative, and then did an ‘inspection’ of the supervisor, who was falling trees, to demonstrate to the Council. The supervisor also conducted two inspections.

#### Background and site description

<b>Job title</b>	Falling supervisor
<b>Crew type</b>	Contract crew
<b>Layout/ crew size</b>	Contract crew can ramp up to 18 Average crew size of 14 During visit - only 3 fallers active (this was a ‘slow day’) 1 active site; other owner was doing Safe Certification Site Audit during this visit
<b>Typical day</b>	Faller day at dock 6:45 am to 3:30pm plus travel to Location C
<b>Timber type</b>	CwHw Old growth site - abundant decadence & snags Slopes 10 - 40% Trees average 80cm (31in), up to 200cm (79in) Thick brush
<b>Production goals</b>	70,000 to 80,000 m3
<b>Mode(s) of transport</b>	Truck + Boat
<b>Falling during site visit?</b>	Yes – 1h31m

#### Comparative length of day

Length of day	Site A	Site B	Site C	Site D	Site E	Site F	Site G	Site H	Site I	Site J
<b>Start time</b>	4:15 AM	4:00 AM	5:00 AM	5:32 AM	6:00 AM	7:07 AM	4:45 AM	5:30 AM	3:50 AM	6:12 AM
<b>End time</b>	4:14 PM	4:33 PM	4:33 PM	12:53 PM	4:06 PM	3:30 PM	2:36 PM	3:57 PM	12:50 PM	2:17 PM
<b>Field time (incl. transit)</b>	11h59m	12h33m	11h33m	7h21m	10h06m	8h23m	9h51m	10h27m	9h00m	8h05m
<b>Evening work</b>	1h00m	2h25m	1h00m	1h51m	1h35m	2h00m	0h15m	1h33m	4h02m	3h30m
<b>Total</b>	12h59m	14h58m	12h33m	9h12m	11h41m	10h23m	10h06m	12h00m	13h02m	11h35m
<b>Falling?</b>	No	Yes	Yes	No	No	No	Yes	No	Yes	No

#### Summary of inspections

<b>Number of inspections completed</b>	3 (one inspection was the supervisor being inspected by the owner)
<b>Total duration of inspections<sup>1</sup></b>	1h24m
<b>Time spent on inspection activities during inspections</b>	1h05m
<b>Time spent walking during inspections</b>	0h30m
<b>Time spent on other activities (not inspection related/ walking) during inspections</b>	0m
<b>Average inspection duration<sup>1</sup></b>	0h28m
<b>Median inspection duration<sup>1</sup></b>	0h24m

<sup>1</sup> Includes walking but not vehicle transit

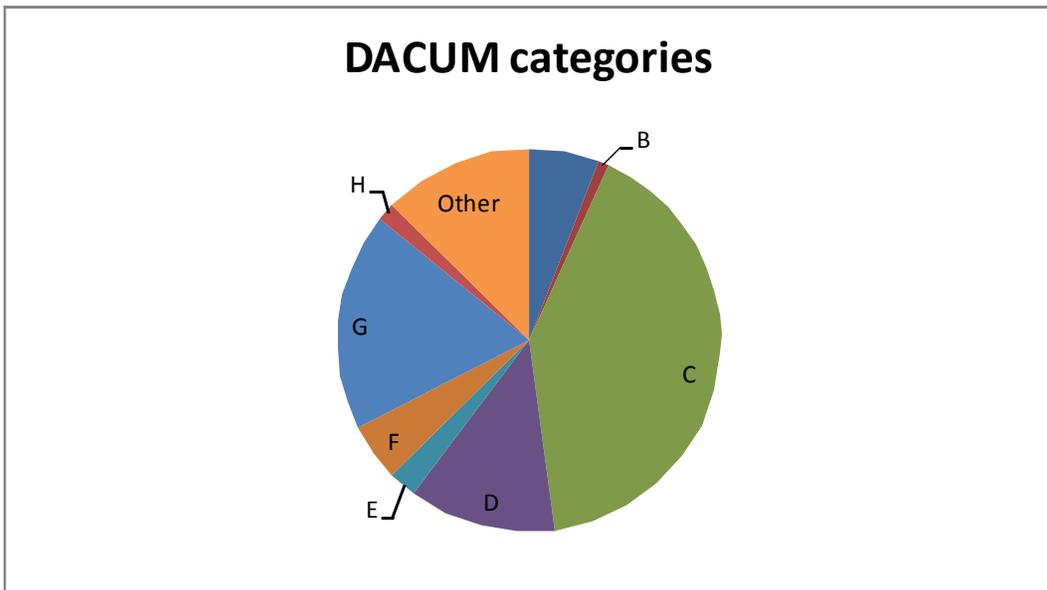
# Falling Supervisor Workload Management Issues: Phase I

## Annex B – Site Visit Data

## Site C

### Day breakdown (high level DACUM categories)

Category	DACUM Description	Total	%
A	Conduct inspections on fallers	0h44m	6%
B	Control falling activity on the worksite	0h07m	1%
C	Ensure adequate tools to do the job are available	5h10m	41%
D	Develop a block falling plan	1h34m	12%
E	Coordinate with other phases	0h18m	2%
F	Manage people	0h36m	5%
G	Manage the business	2h19m	18%
H	Maintain block falling plan	0h12m	2%
I	Manage environment	0h00m	0%
J	Participate in safety program	0h00m	0%
K	Train workers	0h00m	0%
Other	Not classified	1h35m	13%
		<b>Total</b>	<b>12h35m</b>



# Falling Supervisor Workload Management Issues: Phase I

## Annex B – Site Visit Data

## Site C

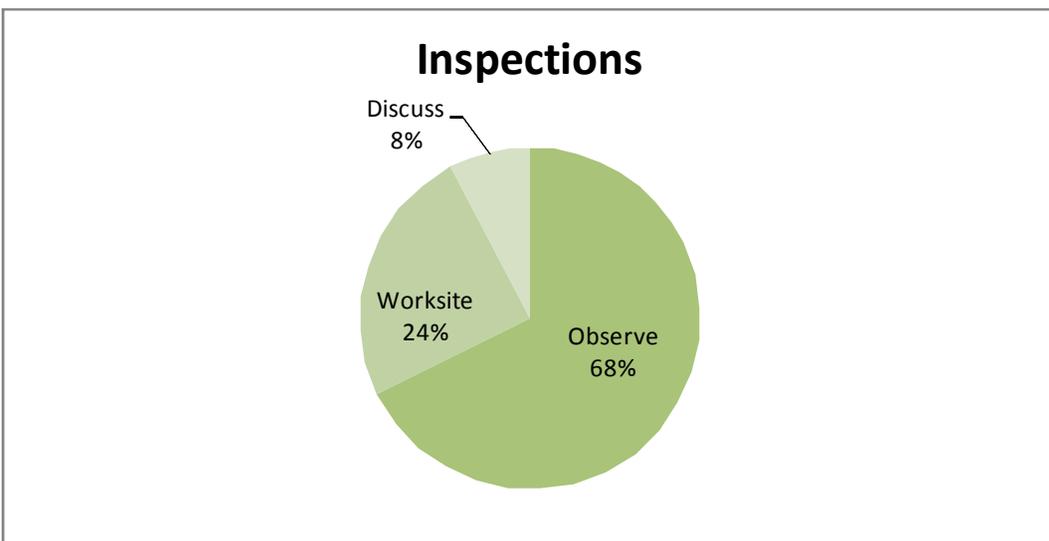
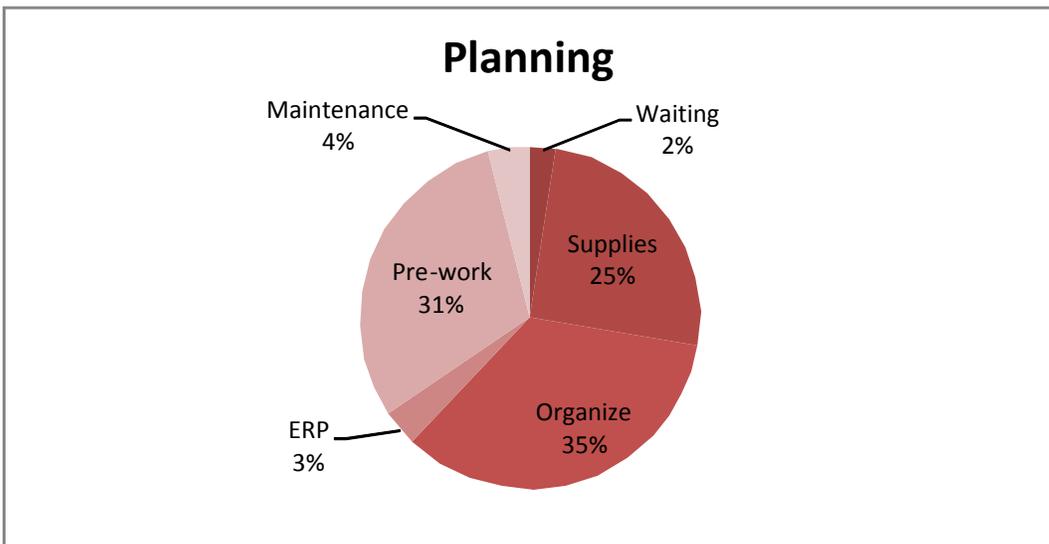
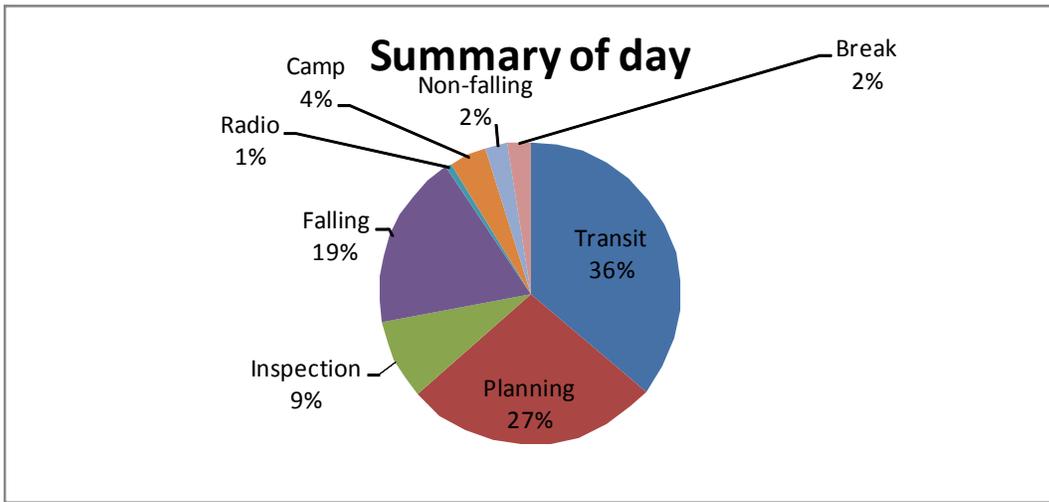
### Day breakdown (high level categories)

High level category	Total	Description	Label	Total	%
<b>Transit</b>	4h34m	Walking block/ hazard plan	Walking	0h22m	3%
		Car/ helicopter/ boat	Vehicle	4h12m	33%
<b>Planning</b>	3h26m	Weather monitoring/ discussion	Weather	0h00m	0%
		Waiting	Waiting	0h05m	1%
		Supplies and equipment	Supplies	0h52m	7%
		Briefing/ tailgate/ discuss plans with fallers/ organize fallers	Organize	1h11m	9%
		ERP related activities	ERP	0h07m	1%
		Pre-work site inspection	Pre-work	1h03m	8%
		Vehicle maintenance	Maintenance	0h08m	1%
<b>Inspection</b>	1h05m	Documentation (in field)	Doc (field)	0h00m	0%
		Quality control/ bucking specs	Quality	0h00m	0%
		Measure stumps	Stumps	0h00m	0%
		Observe faller working (incl. Discussion)	Observe	0h44m	6%
		Review area/ worksite	Worksite	0h16m	2%
		Discussion with faller	Discuss	0h05m	1%
<b>Falling</b>	2h21m	Falling	Falling	2h21m	19%
<b>Radio</b>	0h05m	Radio (where not otherwise classified)	Radio	0h05m	1%
<b>Camp</b>	0h30m	Camp	Camp	0h30m	4%
<b>Non-falling</b>	0h18m	Multiphase co-ordination and supervision of other phases	Non-falling	0h18m	2%
<b>Break</b>	0h18m	Breaks/ social discussions	Break	0h18m	2%
<b>Total</b>				12h37m	

# Falling Supervisor Workload Management Issues: Phase I

## Annex B – Site Visit Data

### Site C



# Falling Supervisor Workload Management Issues: Phase I

## Annex B – Site Visit Data Inspections

### Site C

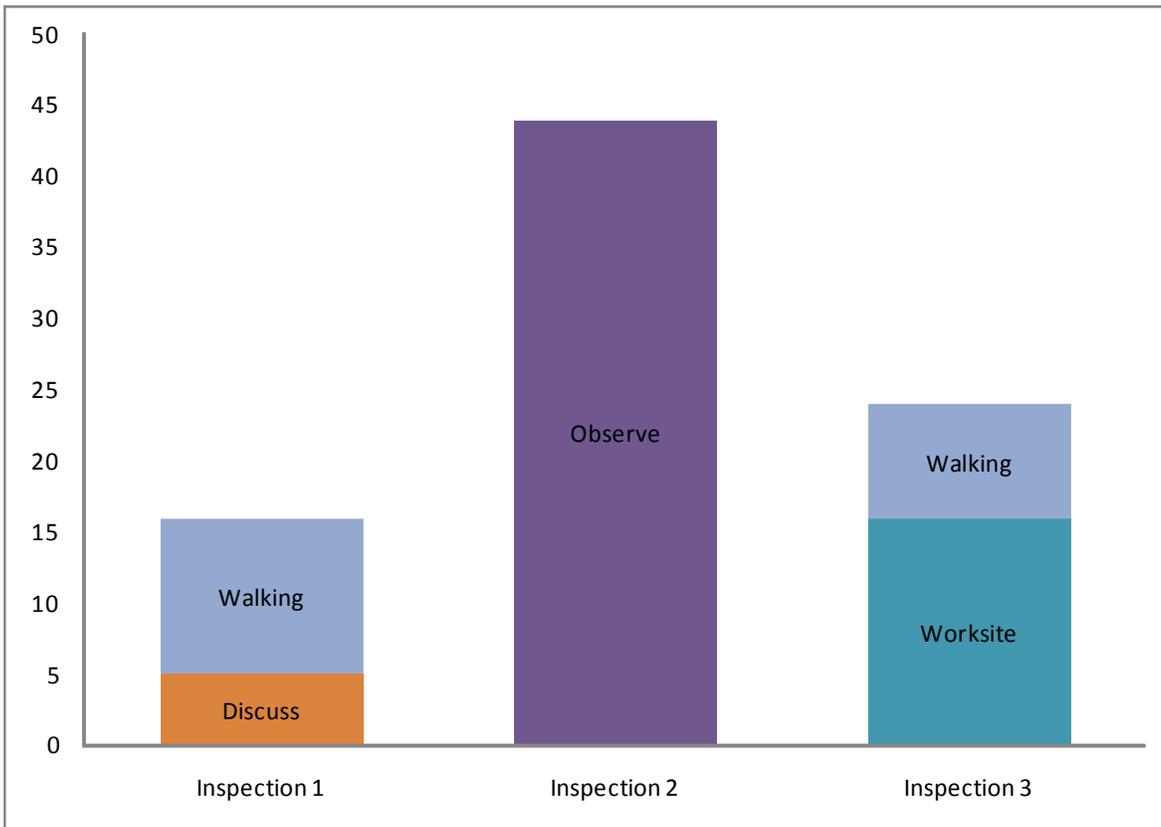
#### Duration of inspections

Time spent on inspection related activities and other activities during inspections (including walking but excluding vehicle travel to and from inspection). ‘Other’ includes activities not directly related to the inspection (e.g., radio calls/ planning).

Note: inspection 2 was the supervisor being inspected by the owner.

Inspections Inspection 1 Inspection 2 Inspection 3 **Total**

<b>Doc (field)</b>	0h00m	0h00m	0h00m	<b>0h00m</b>	Inspecting
<b>Quality</b>	0h00m	0h00m	0h00m	<b>0h00m</b>	
<b>Stumps</b>	0h00m	0h00m	0h00m	<b>0h00m</b>	
<b>Observe</b>	0h00m	0h44m	0h00m	<b>0h44m</b>	
<b>Worksite</b>	0h00m	0h00m	0h16m	<b>0h16m</b>	
<b>Discuss</b>	0h05m	0h00m	0h00m	<b>0h05m</b>	
<b>Walking</b>	0h11m	0h11m	0h08m	<b>0h30m</b>	Walking
<b>Other</b>	0h00m	0h00m	0h00m	<b>0h00m</b>	Other
<b>Total</b>	<b>0h16m</b>	<b>0h44m</b>	<b>0h24m</b>	<b>1h24m</b>	



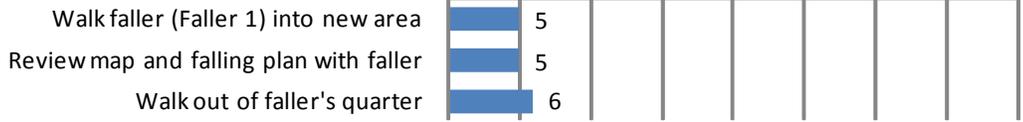
# Falling Supervisor Workload Management Issues: Phase I

## Annex B – Site Visit Data

## Site C

### Inspections - detailed descriptions

#### Inspection 1 - 16m



#### Inspection 2 - 44m



#### Inspection 3 - 24m



# Falling Supervisor Workload Management Issues: Phase I

## Annex B – Site Visit Data

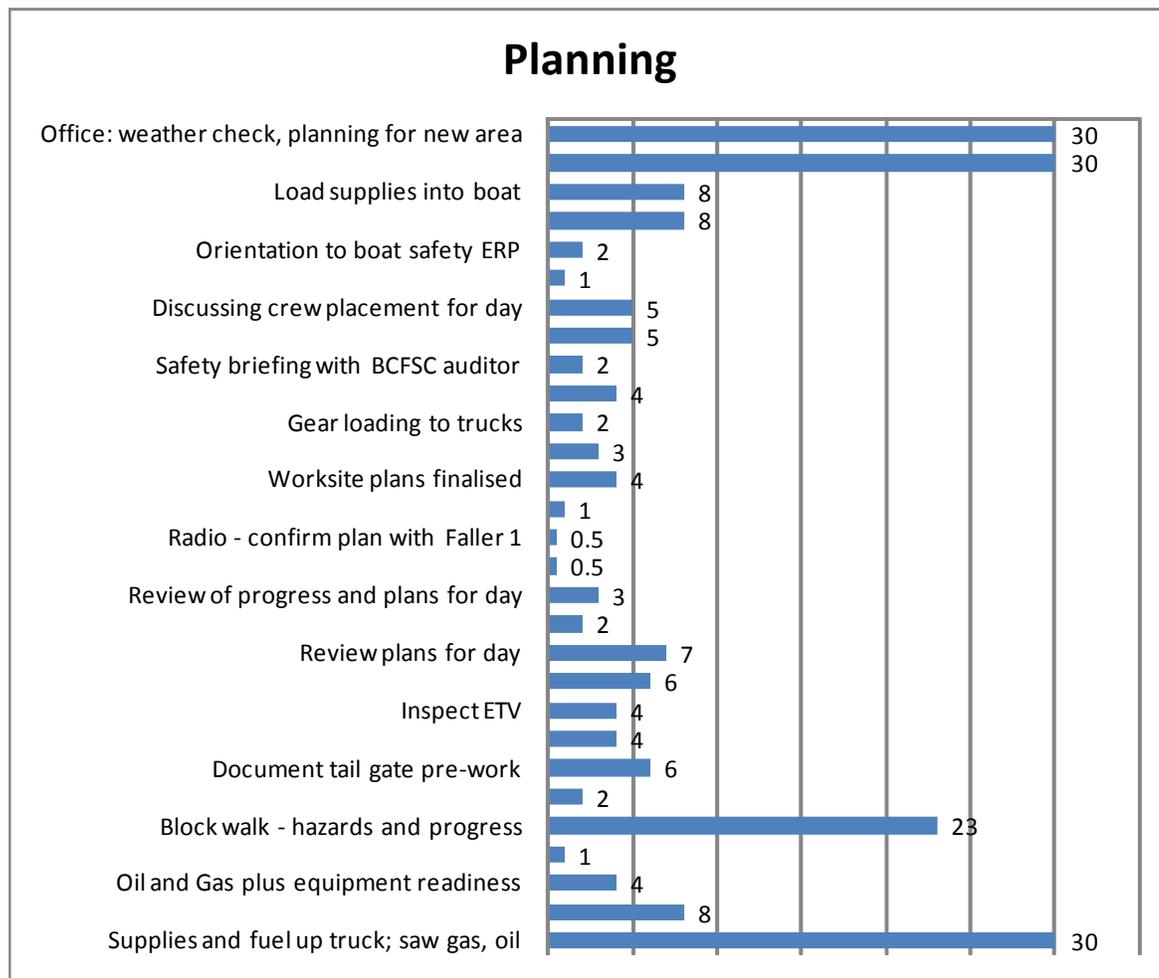
## Site C

### Planning breakdown

<b>Planning</b> Weather monitoring/ discussion	Weather	0h00m
Waiting	Waiting	0h05m
Supplies	Supplies	0h52m
Briefing/ tailgate/ discuss plans with fallers/ organize fallers	Organize	1h11m
ERP related activities	ERP	0h07m
Pre-work site inspection	Pre-work	1h03m
Vehicle maintenance	Maintenance	0h08m
	<b>Total</b>	<b>3h26m</b>

### Planning – detailed descriptions

This chart shows all activities categorized as ‘planning’ throughout the day



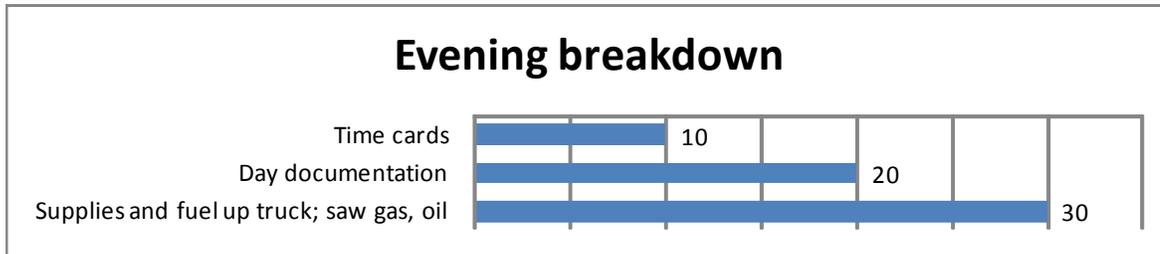
## Falling Supervisor Workload Management Issues: Phase I

### Annex B – Site Visit Data

### Site C

#### Evening work – detailed descriptions

This chart shows all activities performed after returning to camp



## Falling Supervisor Workload Management Issues: Phase I

### Annex B – Site Visit Data

#### Site D

This was a large company operation, although with some crew down. It was a union crew with a salaried supervisor (who was the individual being observed) and assistant supervisor. In addition to supervising fallers, the supervisor also has responsibility to ‘manage’ right-of-way contractors and mechanical harvesting, although he did not do so during the visit.

#### Background and site description

<b>Job title</b>	<b>Bullbucker - staff position plus a Chargehand</b>
<b>Crew type</b>	Union crew
<b>Layout/ crew size</b>	4 Active sites; 22 fallers as well as 2 mechanical harvesters and 1 ROW contractor
<b>Typical day</b>	Faller day of 7:00am to 1:30pm in field
<b>Timber type</b>	HwBa(Yc (Yellow Cedar) Cw) Old growth sites - abundant decadence & snags Slopes 30 - 65% Trees average 80cm (31in), up to 140cm (55in) Moderate to light brush
<b>Production goals</b>	380,000
<b>Mode(s) of transport</b>	Truck
<b>Falling during site visit?</b>	No

#### Comparative length of day

Length of day	Site A	Site B	Site C	Site D	Site E	Site F	Site G	Site H	Site I	Site J
<b>Start time</b>	4:15 AM	4:00 AM	5:00 AM	5:32 AM	6:00 AM	7:07 AM	4:45 AM	5:30 AM	3:50 AM	6:12 AM
<b>End time</b>	4:14 PM	4:33 PM	4:33 PM	12:53 PM	4:06 PM	3:30 PM	2:36 PM	3:57 PM	12:50 PM	2:17 PM
<b>Field time (incl. transit)</b>	11h59m	12h33m	11h33m	7h21m	10h06m	8h23m	9h51m	10h27m	9h00m	8h05m
<b>Evening work</b>	1h00m	2h25m	1h00m	1h51m	1h35m	2h00m	0h15m	1h33m	4h02m	3h30m
<b>Total</b>	12h59m	14h58m	12h33m	9h12m	11h41m	10h23m	10h06m	12h00m	13h02m	11h35m
<b>Falling?</b>	No	Yes	Yes	No	No	No	Yes	No	Yes	No

#### Summary of site visits

<b>Number of inspections completed</b>	4
<b>Total duration of inspections<sup>1</sup></b>	2h53m
<b>Time spent on inspection activities during inspections</b>	1h41m
<b>Time spent walking during inspections</b>	1h09m
<b>Time spent on other activities (not inspection related/ walking) during inspections</b>	0h3m
<b>Average inspection duration<sup>1</sup></b>	43m
<b>Median inspection duration<sup>1</sup></b>	41m

<sup>1</sup> Includes walking but not vehicle transit

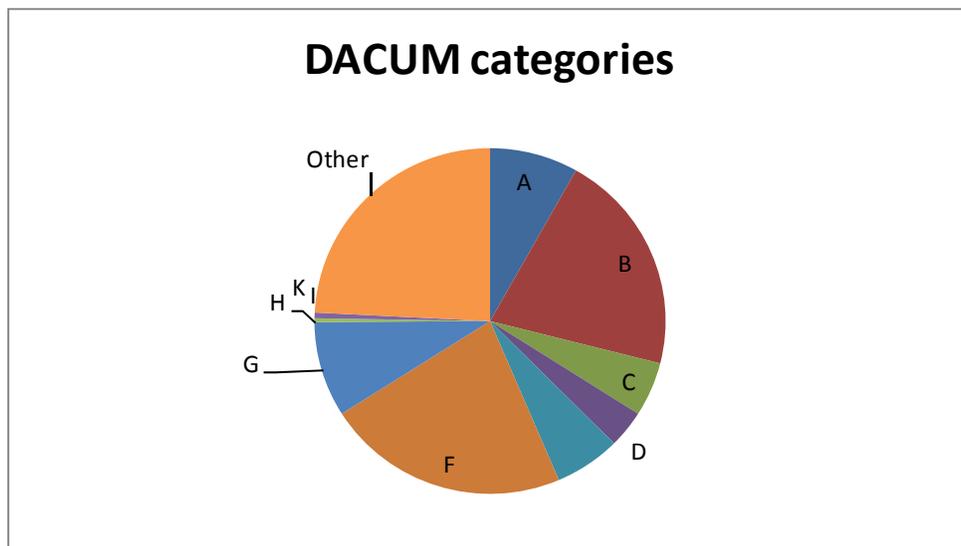
# Falling Supervisor Workload Management Issues: Phase I

## Annex B – Site Visit Data

## Site D

### Day breakdown (high level DACUM categories)

Category	DACUM Description	Total	%
A	Conduct inspections on fallers	0h47m	8%
B	Control falling activity on the worksite	1h59m	21%
C	Ensure adequate tools to do the job are available	0h29m	5%
D	Develop a block falling plan	0h20m	3%
E	Coordinate with other phases	0h35m	6%
F	Manage people	2h09m	22%
G	Manage the business	0h51m	9%
H	Maintain block falling plan	0h00m	0%
I	Manage environment	0h02m	0%
J	Participate in safety program	0h03m	1%
K	Train workers	0h00m	0%
Other	Not classified	2h19m	24%
<b>Total</b>		<b>9h34m</b>	



## Falling Supervisor Workload Management Issues: Phase I

### Annex B – Site Visit Data

### Site D

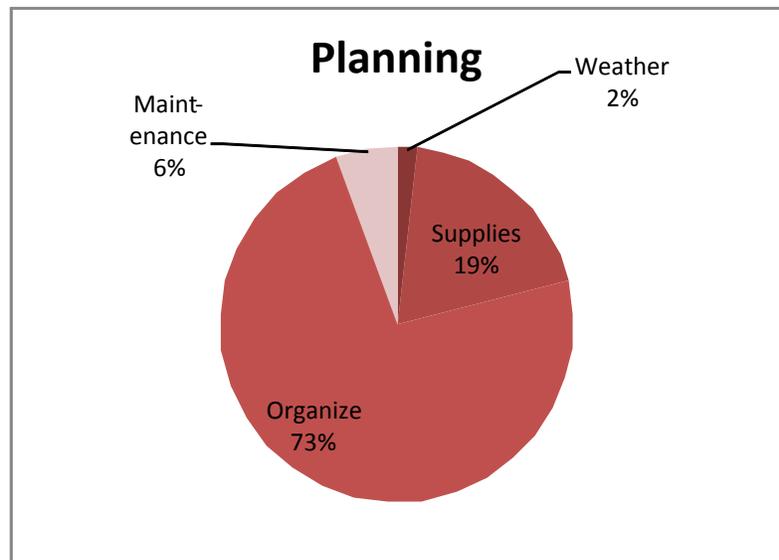
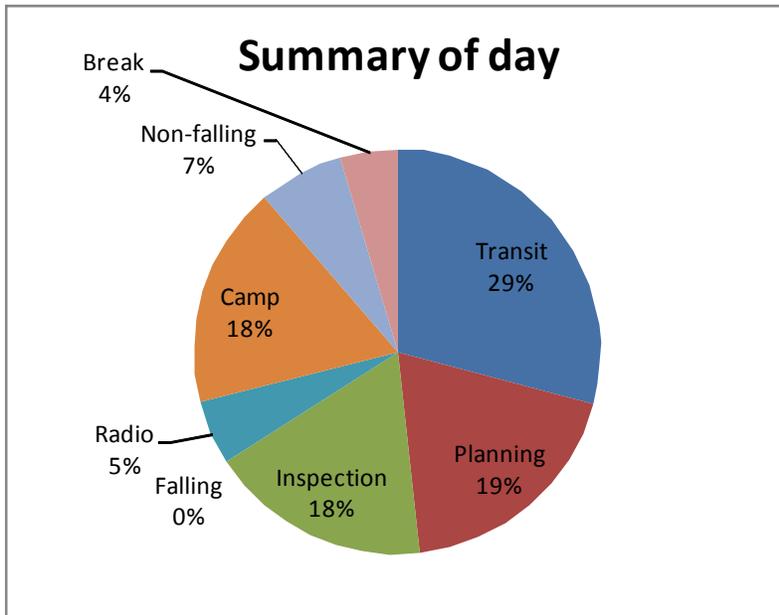
#### Day Breakdown – high level categories

High level						
category	Total	Description	Label	Total		
<b>Transit</b>	2h48m	Walking block/ hazard plan	Walking	0h46m		
		Car/ helicopter/ boat	Vehicle	2h02m		
<b>Planning</b>	1h50m	Weather monitoring/ discussion	Weather	0h02m		
		Waiting	Waiting	0h00m		
		Supplies	Supplies	0h21m		
		Briefing/ tailgate/ discuss plans with fallers/ organize fallers	Organize	1h20m		
		ERP related activities	ERP	0h00m		
		Pre-work site inspection	Pre-work	0h00m		
		Vehicle maintenance	Maintenance	0h06m		
		<b>Inspection</b>	1h41m	Documentation (in field)	Doc (field)	0h00m
				Quality control/ bucking specs	Quality	0h00m
Measure stumps	Stumps			0h28m		
Observe faller working (incl. Discussion)	Observe			0h18m		
Review area/ worksite	Worksite			0h42m		
Discussion with faller	Discuss			0h13m		
<b>Falling</b>	0h00m	Falling	Falling	0h00m		
<b>Radio</b>	0h30m	Radio (where not otherwise classified)	Radio	0h30m		
<b>Camp</b>	1h42m	Camp	Camp	1h42m		
<b>Non-falling</b>	0h39m	Multiphase co-ordination and supervision of mother phases	Non-falling	0h39m		
<b>Break</b>	0h26m	Breaks/ social discussions	Break	0h26m		
			<b>Total</b>	<b>9h36m</b>		

# Falling Supervisor Workload Management Issues: Phase I

## Annex B – Site Visit Data

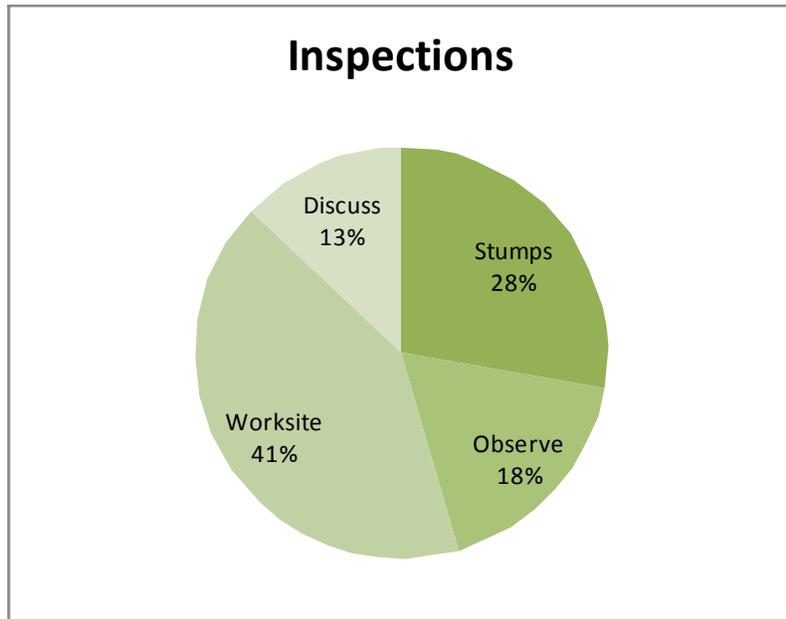
### Site D



# Falling Supervisor Workload Management Issues: Phase I

## Annex B – Site Visit Data

### Site D



## Inspections

### Duration of inspections

Time spent on inspection related activities and other activities during site visits (including walking but excluding vehicle travel)

Inspections Inspection 1 Inspection 2 Inspection 3 Inspection 4 Total

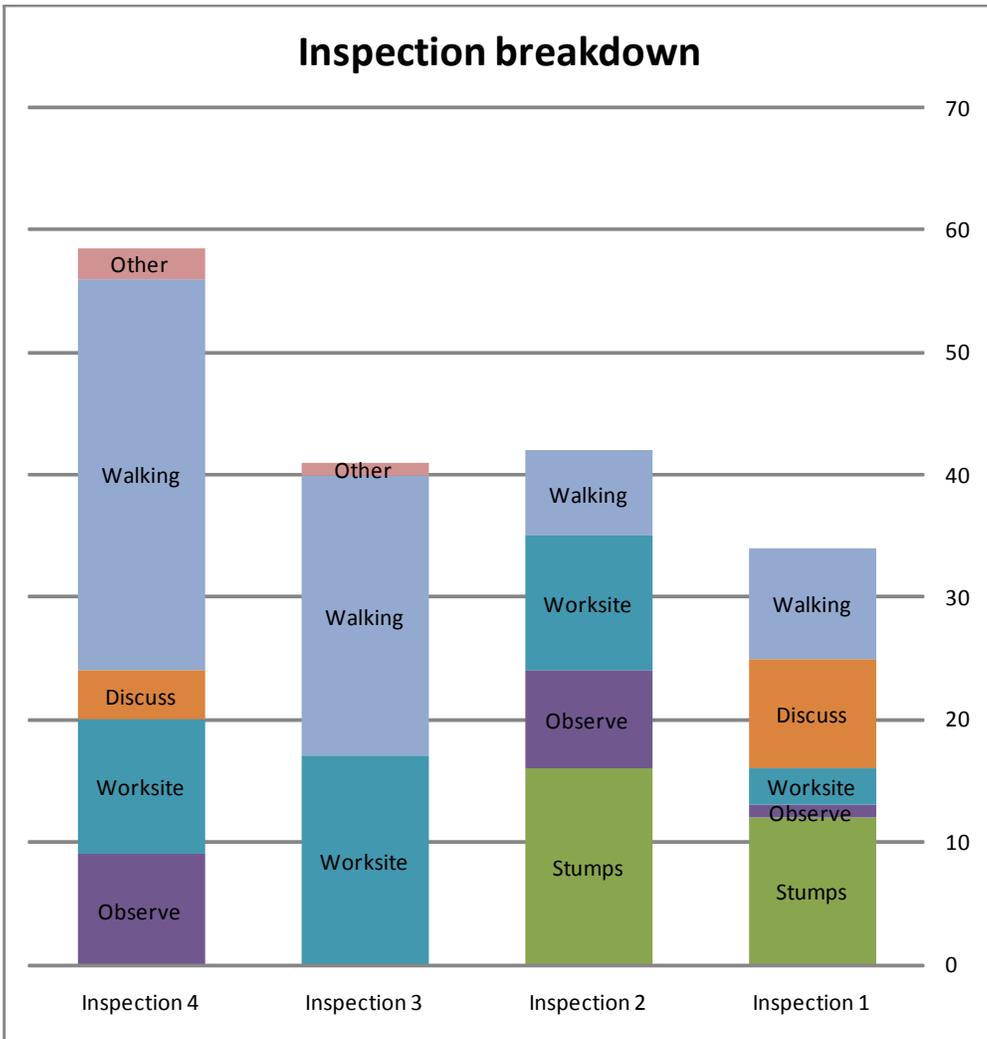
Inspections	Inspection 1	Inspection 2	Inspection 3	Inspection 4	Total		
<b>Doc (field)</b>	0h00m	0h00m	0h00m	0h00m	<b>0h00m</b>	Inspecting	<b>1h41m</b>
<b>Quality</b>	0h00m	0h00m	0h00m	0h00m	<b>0h00m</b>		
<b>Stumps</b>	0h12m	0h16m	0h00m	0h00m	<b>0h28m</b>		
<b>Observe</b>	0h01m	0h08m	0h00m	0h09m	<b>0h18m</b>		
<b>Worksite</b>	0h03m	0h11m	0h17m	0h11m	<b>0h42m</b>		
<b>Discuss</b>	0h09m	0h00m	0h00m	0h04m	<b>0h13m</b>		
<b>Walking</b>	0h07m	0h07m	0h23m	0h32m	<b>1h09m</b>	Walking	<b>1h09m</b>
<b>Other</b>	0h02m	0h00m	0h00m	0h01m	<b>0h03m</b>	Other	<b>0h03m</b>
<b>Total</b>	<b>0h34m</b>	<b>0h42m</b>	<b>0h40m</b>	<b>0h57m</b>	<b>2h53m</b>		

1. Excl. vehicle travel, incl. walking

# Falling Supervisor Workload Management Issues: Phase I

## Annex B – Site Visit Data

## Site D



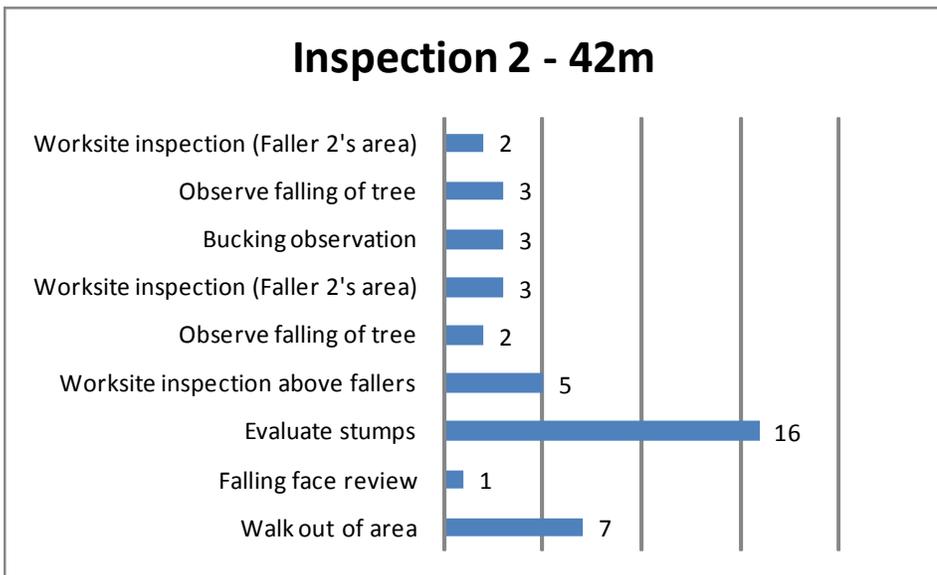
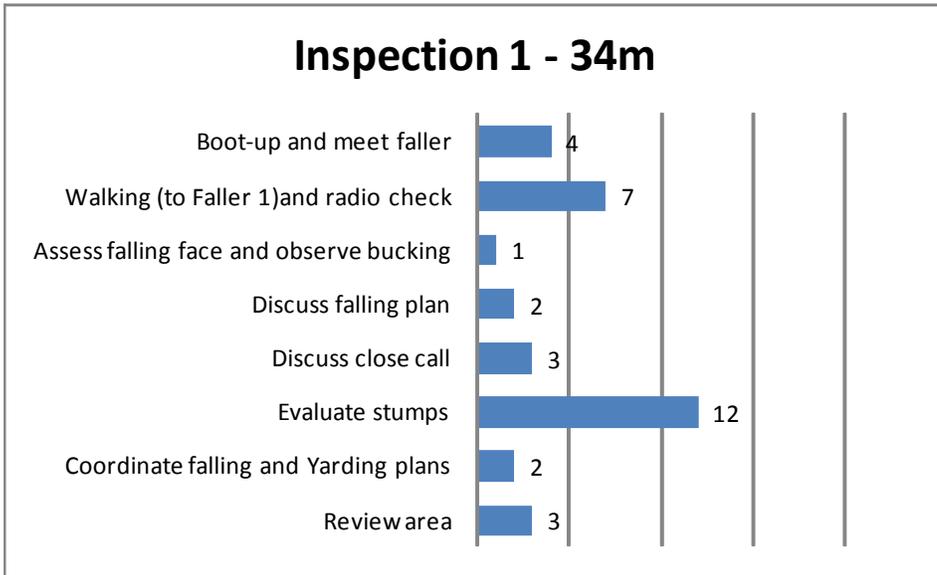
'Other' includes walking and other activities not directly related to the inspection (e.g., radio calls)

# Falling Supervisor Workload Management Issues: Phase I

## Annex B – Site Visit Data

## Site D

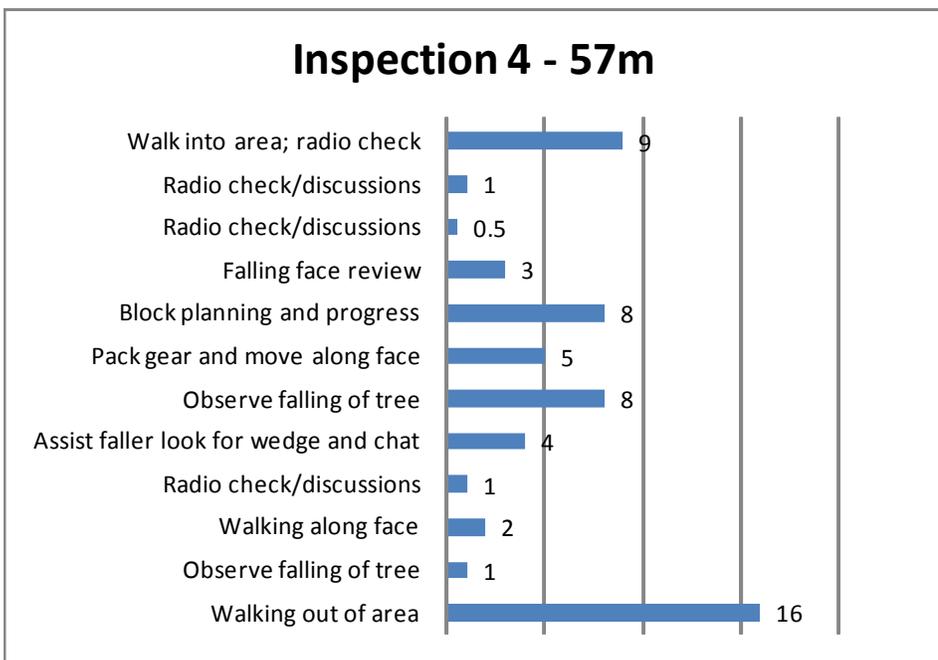
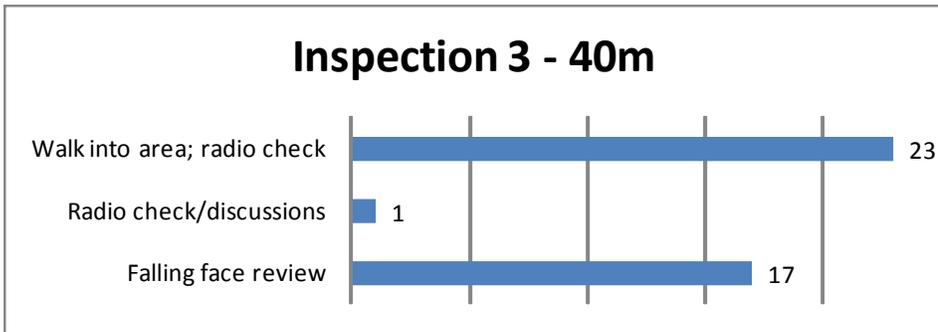
### Site visits descriptions



# Falling Supervisor Workload Management Issues: Phase I

## Annex B – Site Visit Data

## Site D



# Falling Supervisor Workload Management Issues: Phase I

## Annex B – Site Visit Data

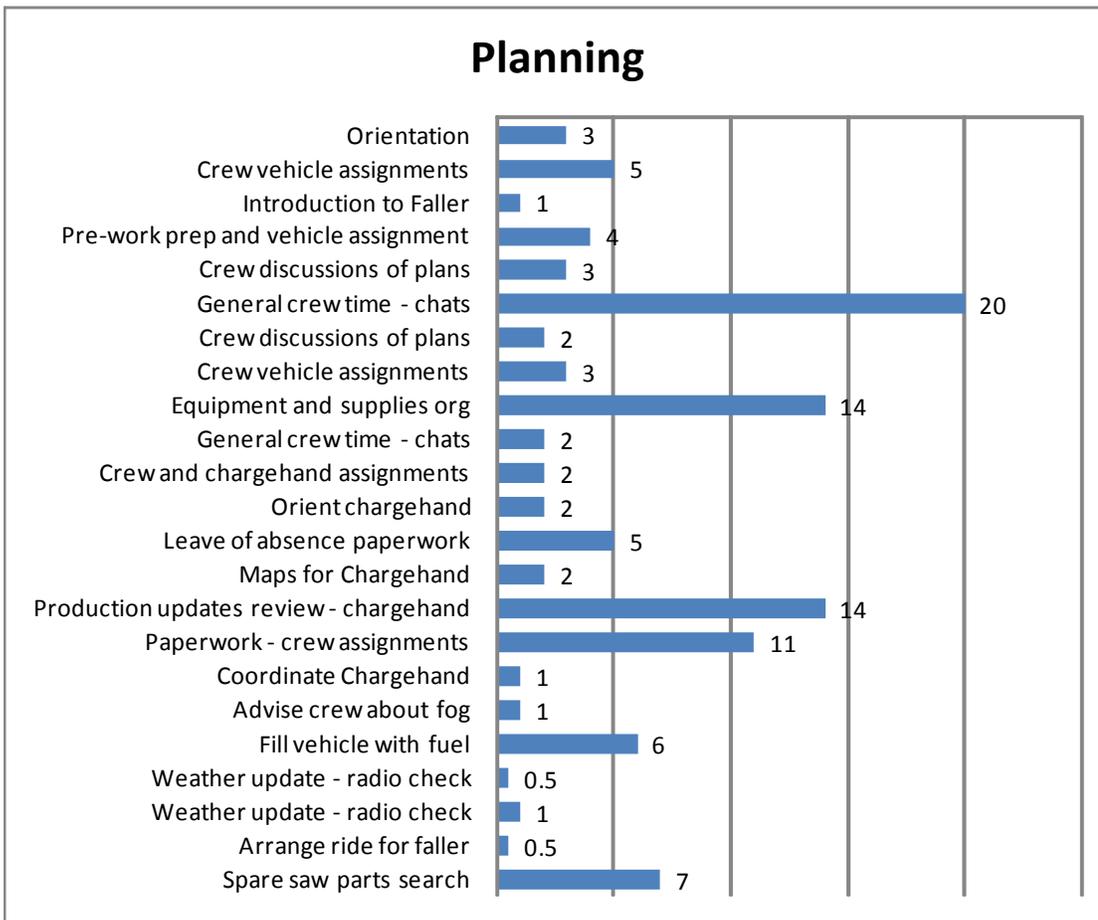
## Site D

### Planning breakdown

<b>Planning</b> Weather monitoring/ discussion	Weather	0h02m
Waiting	Waiting	0h00m
Supplies	Supplies	0h21m
Briefing/ tailgate/ discuss plans with fallers/ organize fallers	Organize	1h20m
ERP related activities	ERP	0h00m
Pre-work site inspection	Pre-work	0h00m
Vehicle maintenance	Maintenance	0h06m
	<b>Total</b>	<b>1h49m</b>

### Planning – detailed descriptions

This chart shows all activities categorized as ‘planning’ throughout the day.



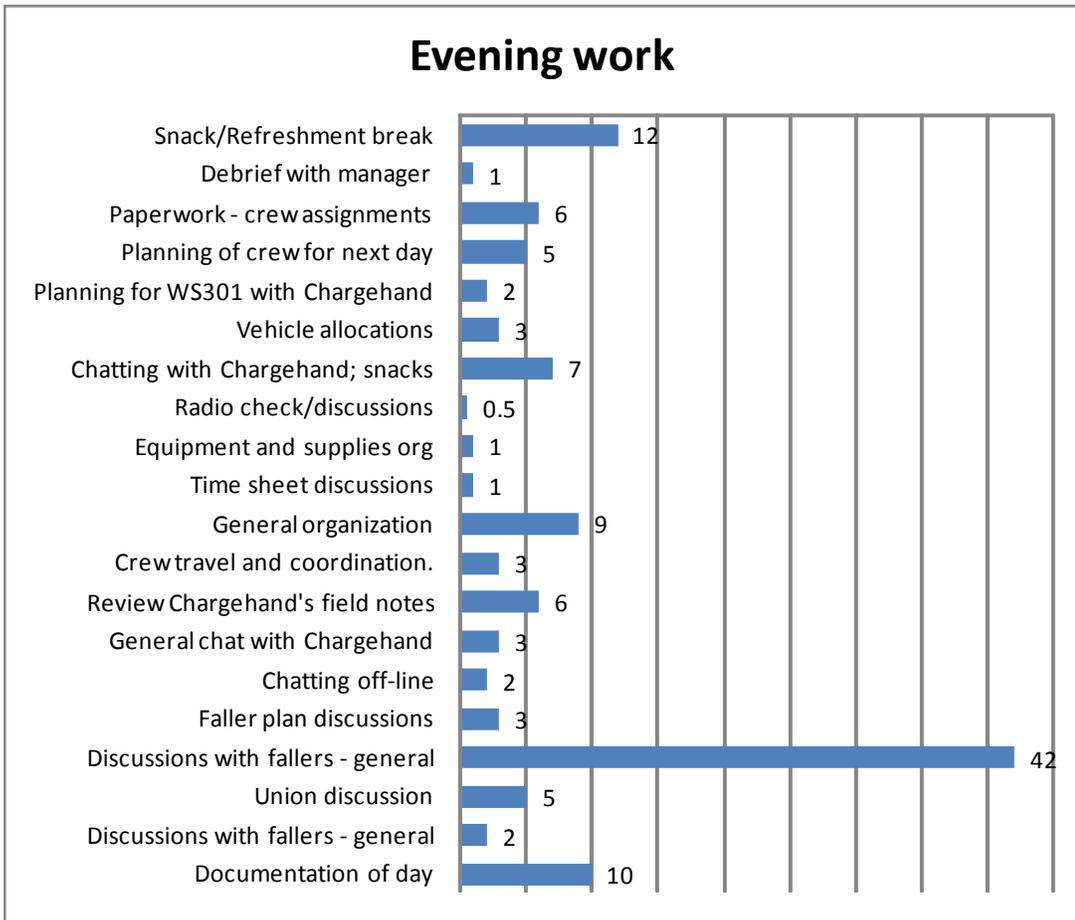
# Falling Supervisor Workload Management Issues: Phase I

## Annex B – Site Visit Data

## Site D

### Evening work – detailed descriptions

This chart shows all activities performed after returning to camp



## Falling Supervisor Workload Management Issues: Phase I

### Annex B – Site Visit Data

#### Site E

This was a large operation with contract fallers, and the supervisor is also responsible for mechanical harvesting. This was a typical day, although the individual being supervised was a substitute hired by the owner/ supervisor in order to enable him to take some time off.

#### Background and site description

<b>Job title</b>	Bullbucker - contractor
<b>Crew type</b>	Contract crew
<b>Layout/ crew size</b>	TFL 6 Site E Operation: 5 Active sites 10 fallers as well as 3 mechanical harvesters; plus 3 fallers in Location A BC timber sales block
<b>Typical day</b>	Faller day of 7:00am to 1:30pm in field
<b>Timber type</b>	Cedar + Hemlock forest with minor Balsam Old growth sites - abundant decadence and snags Slopes 20 - 65% Trees average 75cm (29in), up to 200cm (79in) Thick brush
<b>Production goals</b>	N/A (too changeable to say)
<b>Mode(s) of transport</b>	Truck
<b>Falling during site visit?</b>	For demonstration/ assistance purposes only - 0h04m

#### Comparative length of day

Length of day	Site A	Site B	Site C	Site D	Site E	Site F	Site G	Site H	Site I	Site J
<b>Start time</b>	4:15 AM	4:00 AM	5:00 AM	5:32 AM	6:00 AM	7:07 AM	4:45 AM	5:30 AM	3:50 AM	6:12 AM
<b>End time</b>	4:14 PM	4:33 PM	4:33 PM	12:53 PM	4:06 PM	3:30 PM	2:36 PM	3:57 PM	12:50 PM	2:17 PM
<b>Field time (incl. transit)</b>	11h59m	12h33m	11h33m	7h21m	10h06m	8h23m	9h51m	10h27m	9h00m	8h05m
<b>Evening work</b>	1h00m	2h25m	1h00m	1h51m	1h35m	2h00m	0h15m	1h33m	4h02m	3h30m
<b>Total</b>	12h59m	14h58m	12h33m	9h12m	11h41m	10h23m	10h06m	12h00m	13h02m	11h35m
<b>Falling?</b>	No	Yes	Yes	No	No	No	Yes	No	Yes	No

#### Summary of inspections

<b>Number of inspections completed</b>	2
<b>Total duration of inspections<sup>1</sup></b>	2h31m
<b>Time spent on inspection activities during inspections</b>	2h18m
<b>Time spent walking during inspections</b>	0h9m
<b>Time spent on other activities (not inspection related/ walking) during inspections</b>	0h4m
<b>Average inspection duration<sup>1</sup></b>	1h15m
<b>Median inspection duration<sup>1</sup></b>	N/A (two data points)

<sup>1</sup> Includes walking but not vehicle transit

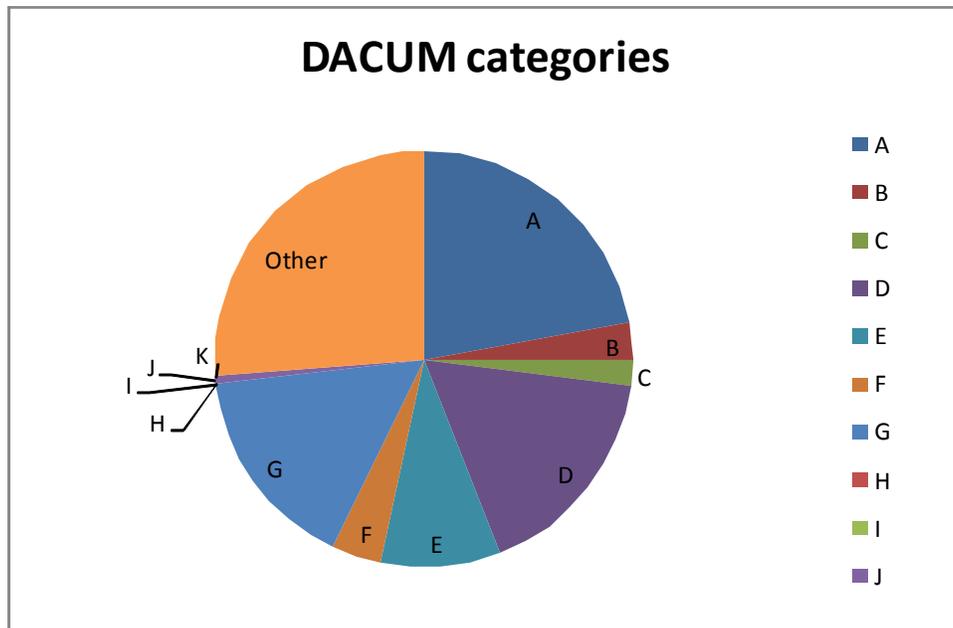
# Falling Supervisor Workload Management Issues: Phase I

## Annex B – Site Visit Data

## Site E

### Day breakdown (high level DACUM categories)

Category	DACUM Description	Total	%
A	Conduct inspections on fallers	2h37m	22%
B	Control falling activity on the worksite	0h21m	3%
C	Ensure adequate tools to do the job are available	0h13m	2%
D	Develop a block falling plan	2h01m	17%
E	Coordinate with other phases	1h05m	9%
F	Manage people	0h27m	4%
G	Manage the business	1h54m	16%
H	Maintain block falling plan	0h00m	0%
I	Manage environment	0h00m	0%
J	Participate in safety program	0h04m	1%
K	Train workers	0h00m	0%
Other	Not classified	3h06m	26%
<b>Total</b>		<b>11h48m</b>	



# Falling Supervisor Workload Management Issues: Phase I

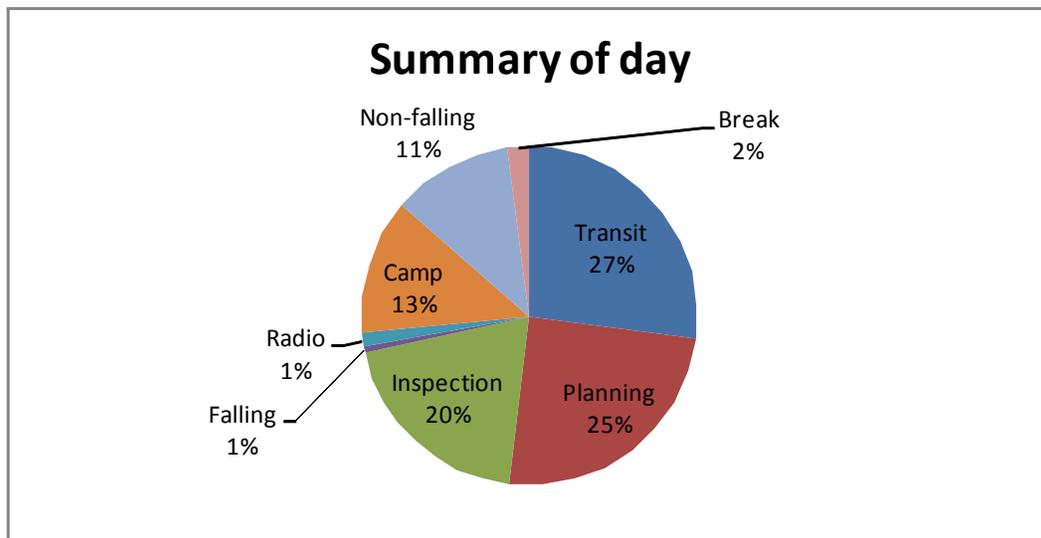
## Annex B – Site Visit Data

## Site E

### Day breakdown (high level categories)

#### High level

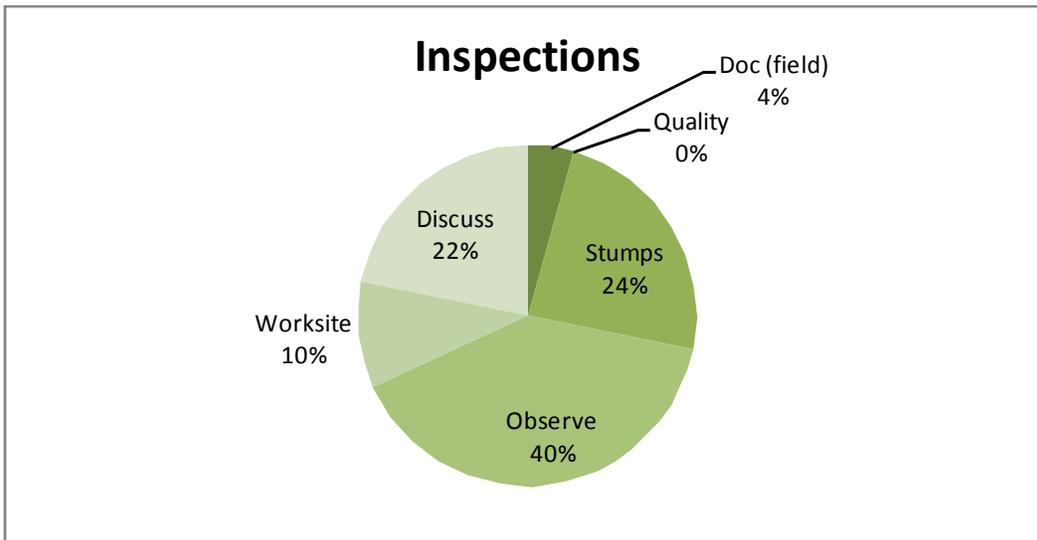
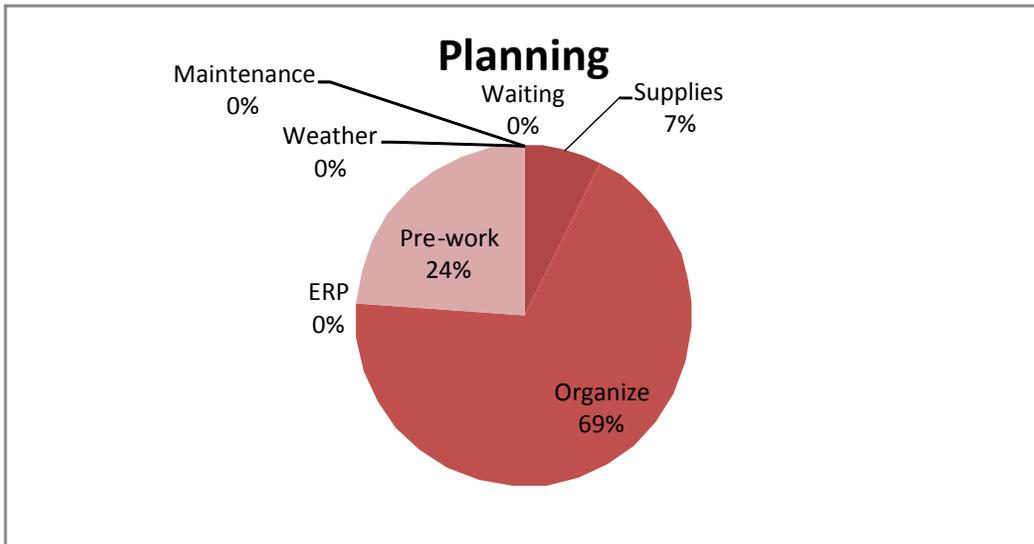
category	Total	Description	Label	Total	%		
<b>Transit</b>	3h12m	Walking block/ hazard plan	Walking	0h18m	3%		
		Car/ helicopter/ boat	Vehicle	2h54m	25%		
<b>Planning</b>	2h56m	Weather monitoring/ discussion	Weather	0h00m	0%		
		Waiting	Waiting	0h00m	0%		
		Supplies and equipment	Supplies	0h13m	2%		
		Briefing/ tailgate/ discuss plans with fallers/ organize fallers	Organize	2h01m	17%		
		ERP related activities	ERP	0h00m	0%		
		Pre-work site inspection	Pre-work	0h42m	6%		
		Vehicle maintenance	Maintenance	0h00m	0%		
		<b>Inspection</b>	2h18m	Documentation (in field)	Doc (field)	0h06m	1%
				Quality control/ bucking specs	Quality	0h00m	0%
Measure stumps	Stumps			0h33m	5%		
Observe faller working (incl. Discussion)	Observe			0h55m	8%		
Review area/ worksite	Worksite			0h14m	2%		
Discussion with faller	Discuss			0h30m	4%		
<b>Falling</b>	0h04m	Falling	Falling	0h04m	1%		
<b>Radio</b>	0h10m	Radio (where not otherwise classified)	Radio	0h10m	1%		
<b>Camp</b>	1h32m	Camp	Camp	1h32m	13%		
<b>Non-falling</b>	1h21m	Multiphase co-ordination and supervision					
		of other phases	Non-falling	1h21m	11%		
<b>Break</b>	0h15m	Breaks/ social discussions	Break	0h15m	2%		
<b>Total</b>				<b>11h48m</b>			



# Falling Supervisor Workload Management Issues: Phase I

## Annex B – Site Visit Data

### Site E



# Falling Supervisor Workload Management Issues: Phase I

## Annex B – Site Visit Data

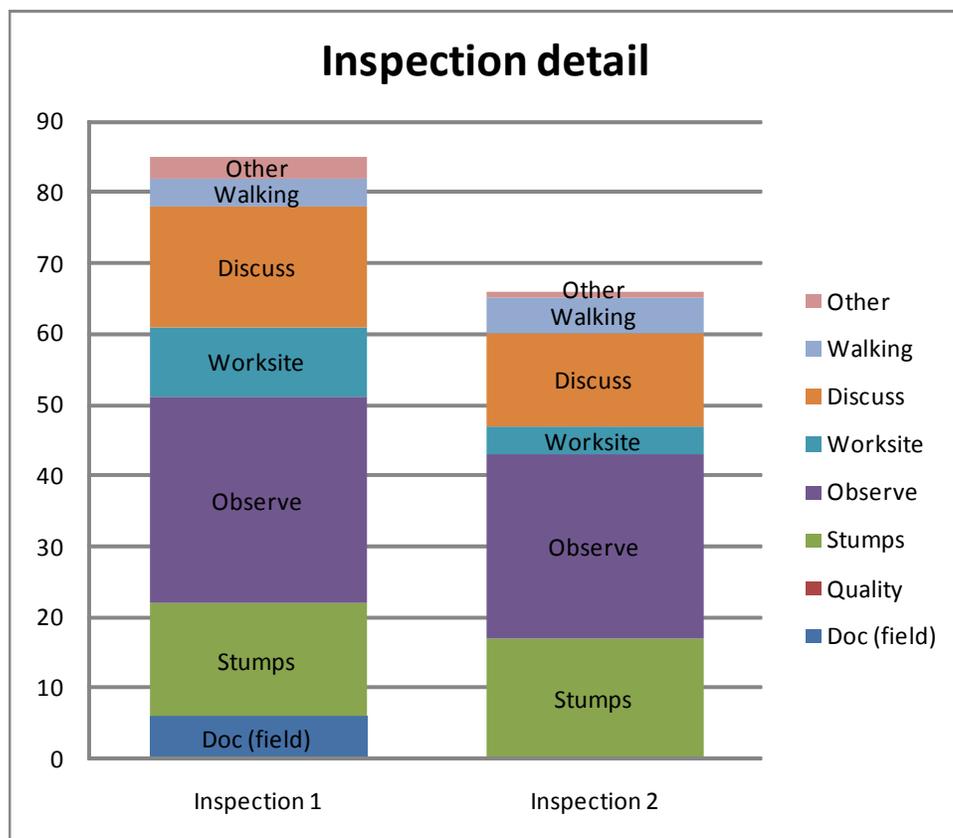
## Site E

### Inspections

#### Duration of inspections

Breakdown of inspection time (excluding vehicle travel, but including walking time). ‘Other’ includes activities not directly related to the inspection (e.g., radio calls).

Inspections	Inspection 1	Inspection 2	Total		
<b>Doc (field)</b>	0h06m	0h00m	<b>0h06m</b>	Inspecting	<b>2h18m</b>
<b>Quality</b>	0h00m	0h00m	<b>0h00m</b>		
<b>Stumps</b>	0h16m	0h17m	<b>0h33m</b>		
<b>Observe</b>	0h29m	0h26m	<b>0h55m</b>		
<b>Worksite</b>	0h10m	0h04m	<b>0h14m</b>		
<b>Discuss</b>	0h17m	0h13m	<b>0h30m</b>		
<b>Walking</b>	0h04m	0h05m	<b>0h09m</b>	Walking	<b>0h09m</b>
<b>Other</b>	0h03m	0h01m	<b>0h04m</b>	Other	<b>0h04m</b>
<b>Total</b>	<b>1h25m</b>	<b>1h06m</b>	<b>2h31m</b>		

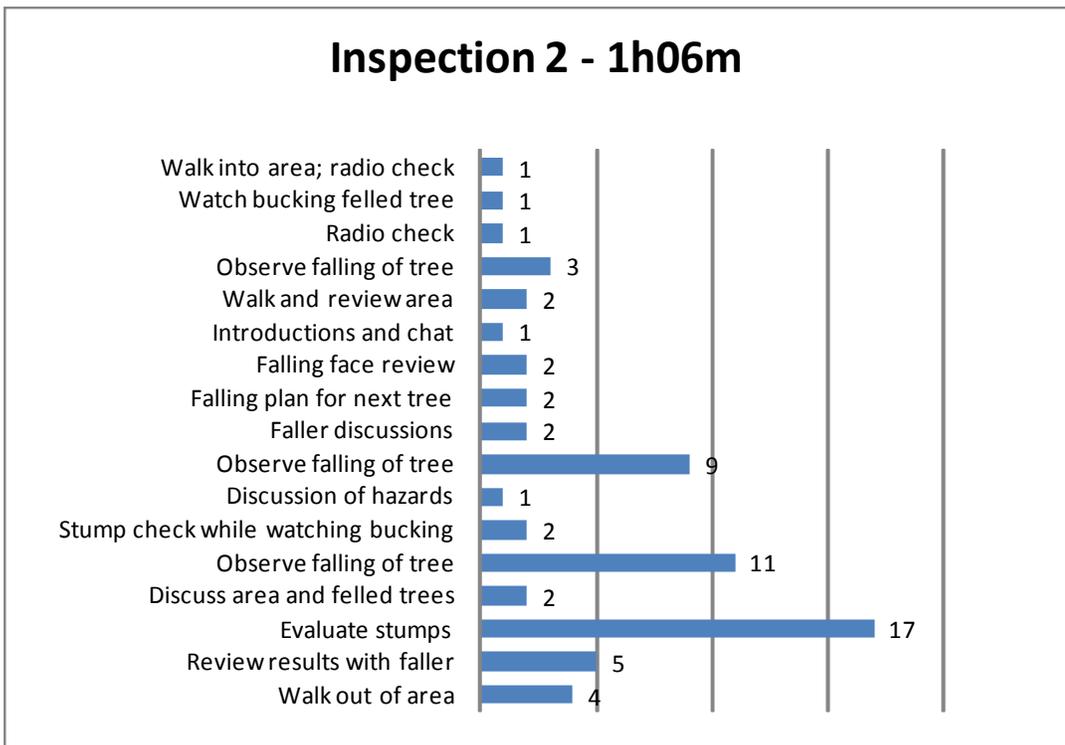
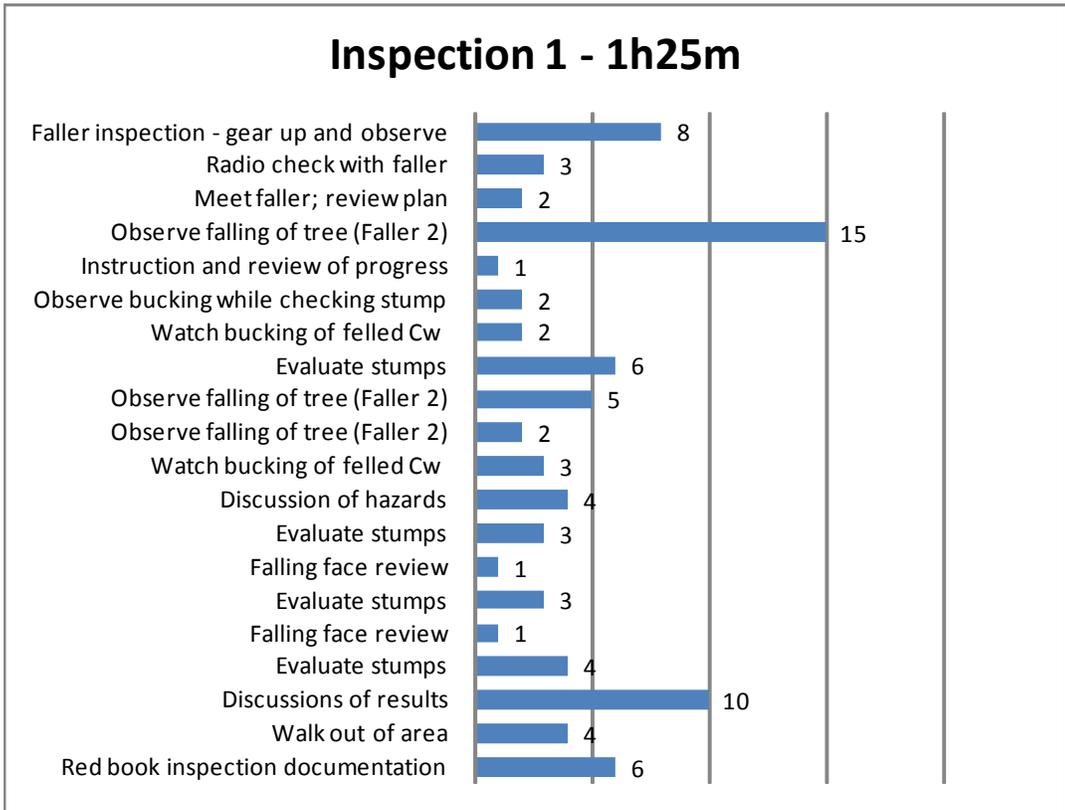


# Falling Supervisor Workload Management Issues: Phase I

## Annex B – Site Visit Data

## Site E

### Inspections – detailed descriptions



# Falling Supervisor Workload Management Issues: Phase I

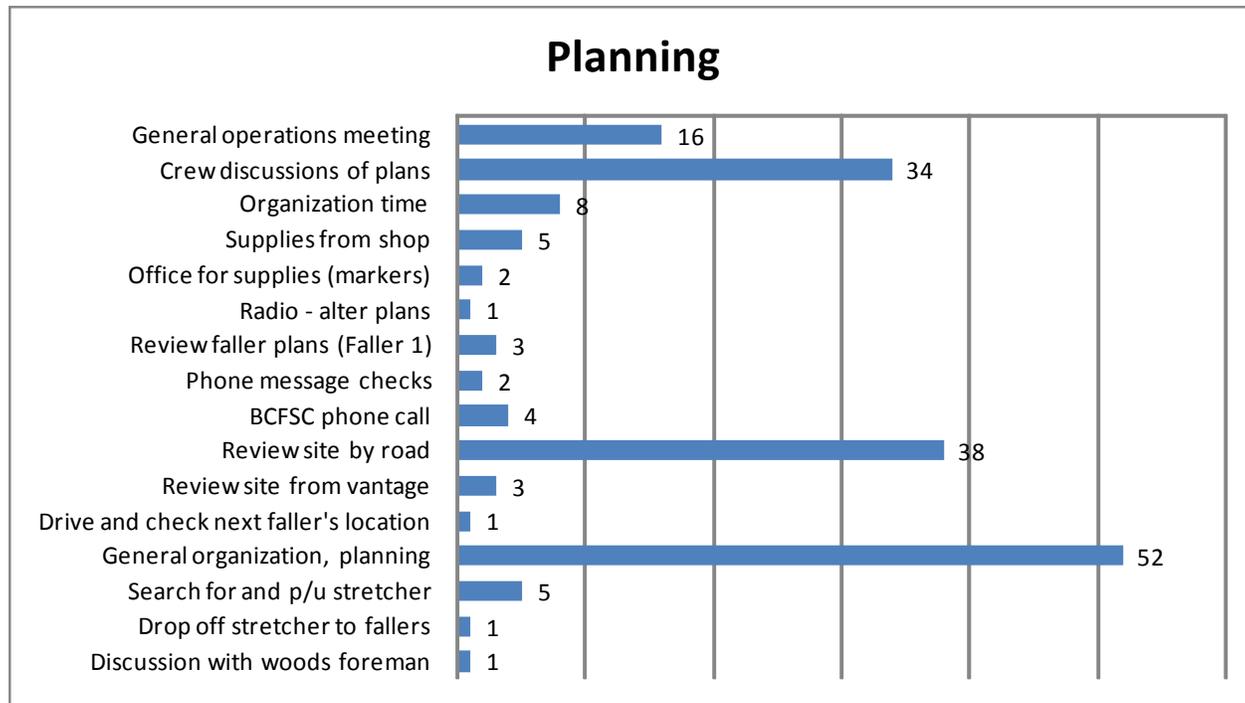
## Annex B – Site Visit Data

## Site E

### Planning – detailed descriptions

This chart shows all activities categorized as ‘planning’ throughout the day

<b>Planning</b>	Weather monitoring/ discussion	Weather	0h00m
	Waiting	Waiting	0h00m
	Supplies	Supplies	0h13m
	Briefing/ tailgate/ discuss plans with fallers/ organize fallers	Organize	2h01m
	ERP related activities	ERP	0h00m
	Pre-work site inspection	Pre-work	0h42m
	Vehicle maintenance	Maintenance	0h00m
		<b>Total</b>	<b>2h56m</b>



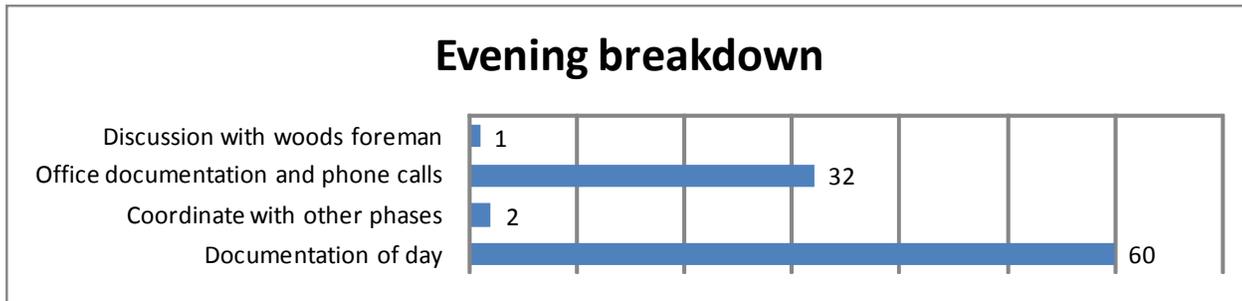
# Falling Supervisor Workload Management Issues: Phase I

## Annex B – Site Visit Data

## Site E

### Evening work – detailed descriptions

This chart shows all activities performed after returning to camp



## Annex B – Site Visit Data

### Site F

This site was accessed by helicopter. The first inspection was approximately 30 minutes longer than usual due to the presence of the observers, and discussions of the project. Otherwise the day was typical, except that coordination with other phases generally requires a reasonable amount of time and did not occur on the day of the site visit.

#### Background and site description

<b>Job title</b>	Company supervisor
<b>Crew type</b>	Contract fallers
<b>Layout/ crew size</b>	14 at time of site visit, can ramp up to over 20
<b>Typical day</b>	Note: inspection 2 was 20 minutes longer than usual due to observation. Some walking times slightly higher.
<b>Timber type</b>	Cedar, hemlock, Douglas-fir, minor Balsam and Sitka spruce Old growth sites - abundant decadence and snags Slopes up to 115% Trees average 75cm (29in), up to 200cm (79in) Moderate brush, challenging ground
<b>Production goals</b>	60,000
<b>Mode(s) of transport</b>	Helicopter/ boat/ truck
<b>Falling during site visit?</b>	For demonstration/ assistance purposes only - 0h02m

#### Comparative length of day

Length of day	Site A	Site B	Site C	Site D	Site E	Site F	Site G	Site H	Site I	Site J
<b>Start time</b>	4:15 AM	4:00 AM	5:00 AM	5:32 AM	6:00 AM	7:07 AM	4:45 AM	5:30 AM	3:50 AM	6:12 AM
<b>End time</b>	4:14 PM	4:33 PM	4:33 PM	12:53 PM	4:06 PM	3:30 PM	2:36 PM	3:57 PM	12:50 PM	2:17 PM
<b>Field time</b>										
<b>(incl. transit)</b>	11h59m	12h33m	11h33m	7h21m	10h06m	8h23m	9h51m	10h27m	9h00m	8h05m
<b>Evening work</b>	1h00m	2h25m	1h00m	1h51m	1h35m	2h00m	0h15m	1h33m	4h02m	3h30m
<b>Total</b>	12h59m	14h58m	12h33m	9h12m	11h41m	10h23m	10h06m	12h00m	13h02m	11h35m
<b>Falling?</b>	No	Yes	Yes	No	No	No	Yes	No	Yes	No

#### Summary of site visits

<b>Number of inspections completed</b>	5
<b>Total duration of inspections<sup>1</sup></b>	6h14m
<b>Time spent on inspection activities during inspections</b>	4h28m
<b>Time spent walking during inspections</b>	1h09m
<b>Time spent on other activities (not inspection related/ walking) during inspections</b>	0h37m
<b>Average inspection duration<sup>1</sup></b>	1h14m
<b>Median inspection duration<sup>1</sup></b>	1h24m

<sup>1</sup> Includes walking but not vehicle transit

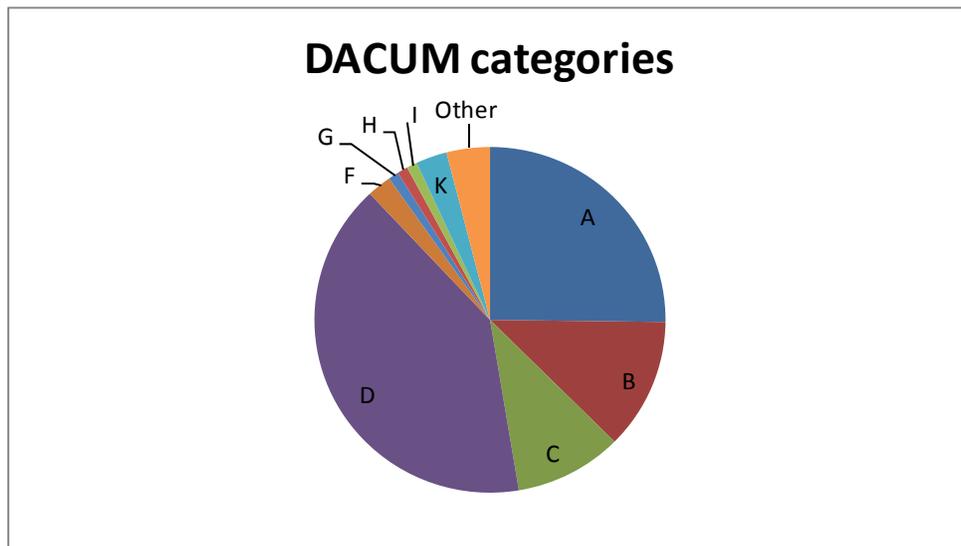
# Falling Supervisor Workload Management Issues: Phase I

## Annex B – Site Visit Data

## Site F

### Day breakdown (high level DACUM categories)

Category	DACUM Description	Total	%
A	Conduct inspections on fallers	2h37m	25%
B	Control falling activity on the worksite	1h16m	12%
C	Ensure adequate tools to do the job are available	1h02m	10%
D	Develop a block falling plan	4h13m	41%
E	Coordinate with other phases	0h00m	0%
F	Manage people	0h14m	2%
G	Manage the business	0h06m	1%
H	Maintain block falling plan	0h06m	1%
I	Manage environment	0h06m	1%
J	Participate in safety program	0h00m	0%
K	Train workers	0h18m	3%
Other	Not classified	0h25m	4%
<b>Total</b>		<b>10h23m</b>	



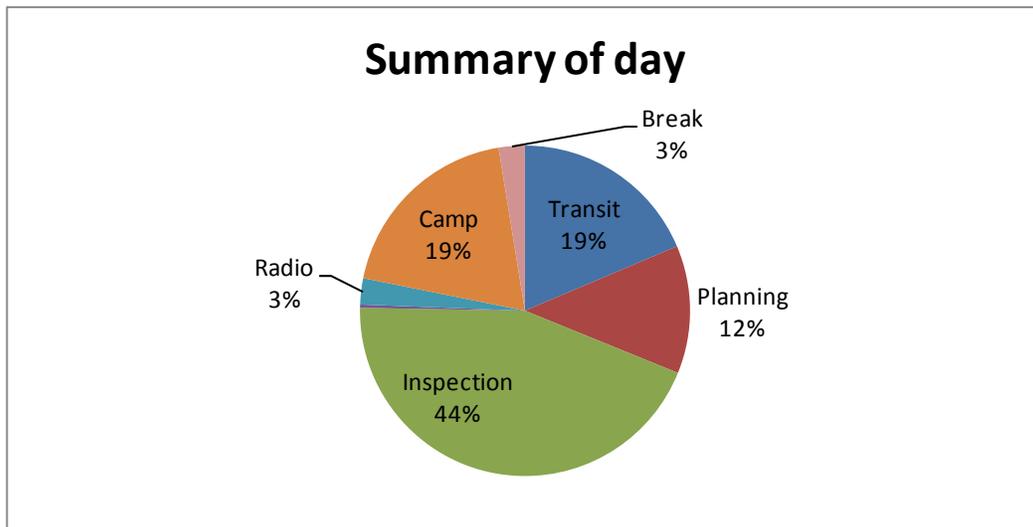
# Falling Supervisor Workload Management Issues: Phase I

## Annex B – Site Visit Data

## Site F

### Day Breakdown – high level categories

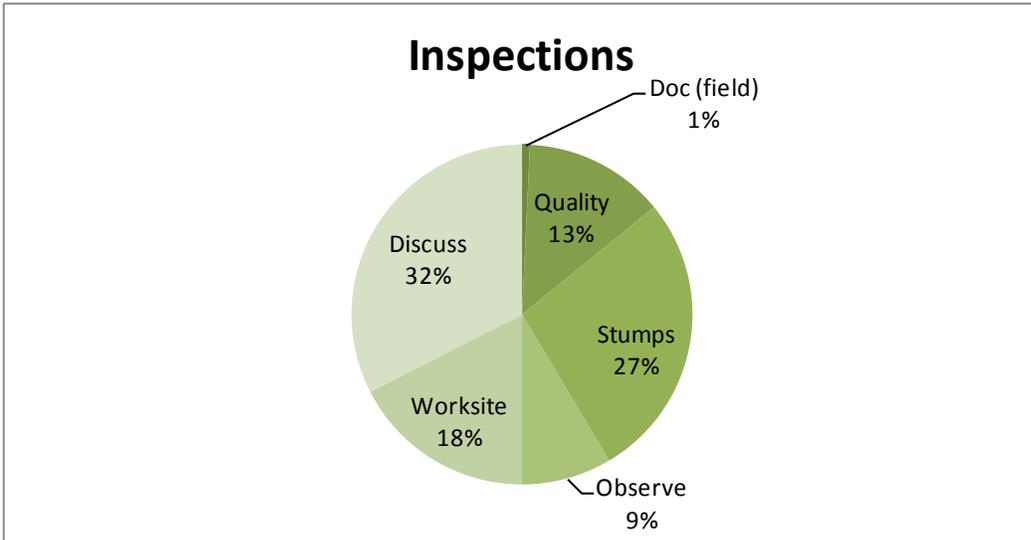
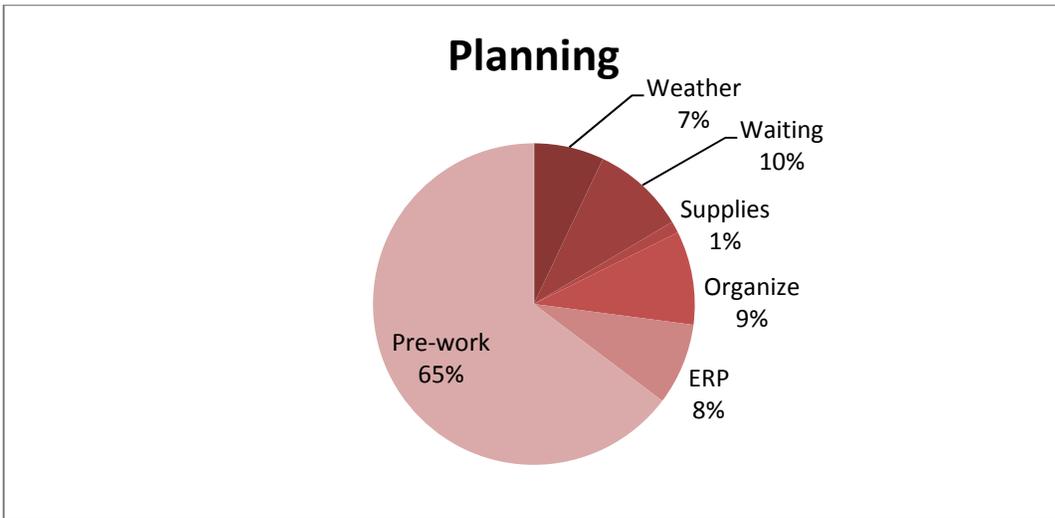
High level category	Total	Description	Label	Total	%
Transit	1h56m	Walking block/ hazard plan	Walking	1h09m	11%
		Car/ helicopter/ boat	Vehicle	0h47m	8%
Planning	1h18m	Weather monitoring/ discussion	Weather	0h06m	1%
		Waiting	Waiting	0h08m	1%
		Supplies and equipment	Supplies	0h01m	0%
		Briefing/ tailgate/ discuss plans with fallers/ organise fallers	Organise	0h08m	1%
		ERP related activities	ERP	0h07m	1%
		Pre-work site inspection	Pre-work	0h55m	9%
		Vehicle maintenance	Maintenance	0h00m	0%
Inspection	4h35m	Documentation (in field)	Doc (field)	0h02m	0%
		Quality control/ bucking specs	Quality	0h36m	6%
		Measure stumps	Stumps	1h13m	12%
		Observe faller working (incl. Discussion)	Observe	0h23m	4%
		Review area/ worksite	Worksite	0h47m	8%
		Discussion with faller	Discuss	1h27m	14%
Falling	0h02m	Falling	Falling	0h02m	0%
Radio	0h16m	Radio (where not otherwise classified)	Radio	0h16m	3%
Camp	2h00m	Camp	Camp	2h00m	19%
Non-falling	0h00m	Multiphase co-ordination and supervision of other phases	Non-falling	0h00m	0%
Break	0h16m	Breaks/ social discussions	Break	0h16m	3%
<b>Total</b>				<b>10h23m</b>	



# Falling Supervisor Workload Management Issues: Phase I

## Annex B – Site Visit Data

### Site F



# Falling Supervisor Workload Management Issues: Phase I

## Annex B – Site Visit Data Inspections

## Site F

### Duration of inspections

Time spent on inspection related activities and other activities during site visits (including walking but excluding vehicle travel)

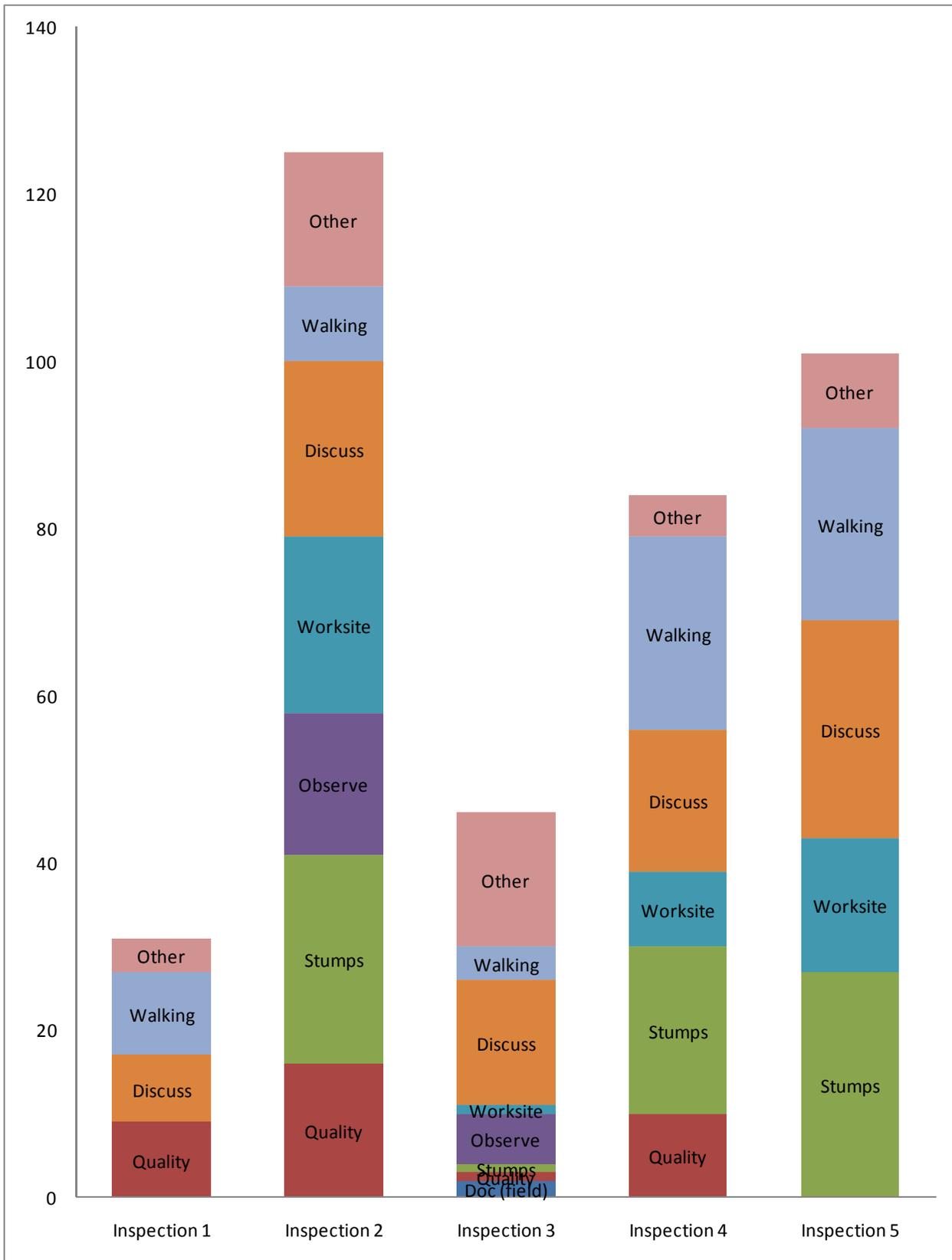
Inspections	Inspection 1	Inspection 2	Inspection 3	Inspection 4	Inspection 5	Total		
<b>Doc (field)</b>	0h00m	0h00m	0h02m	0h00m	0h00m	<b>0h02m</b>	Inspecting	<b>4h28m</b>
<b>Quality</b>	0h09m	0h16m	0h01m	0h10m	0h00m	<b>0h36m</b>		
<b>Stumps</b>	0h00m	0h25m	0h01m	0h20m	0h27m	<b>1h13m</b>		
<b>Observe</b>	0h00m	0h17m	0h06m	0h00m	0h00m	<b>0h23m</b>		
<b>Worksite</b>	0h00m	0h21m	0h01m	0h09m	0h16m	<b>0h47m</b>		
<b>Discuss</b>	0h08m	0h21m	0h15m	0h17m	0h26m	<b>1h27m</b>		
<b>Walking</b>	0h10m	0h09m	0h04m	0h23m	0h23m	<b>1h09m</b>	Walking	<b>1h09m</b>
<b>Other</b>	0h04m	0h16m	0h03m	0h05m	0h09m	<b>0h37m</b>	Other	<b>0h37m</b>
<b>Total</b>	<b>0h31m</b>	<b>2h05m</b>	<b>0h33m</b>	<b>1h24m</b>	<b>1h41m</b>	<b>6h14m</b>		

1. Excl. vehicle travel, incl. walking

# Falling Supervisor Workload Management Issues: Phase I

## Annex B – Site Visit Data

## Site F



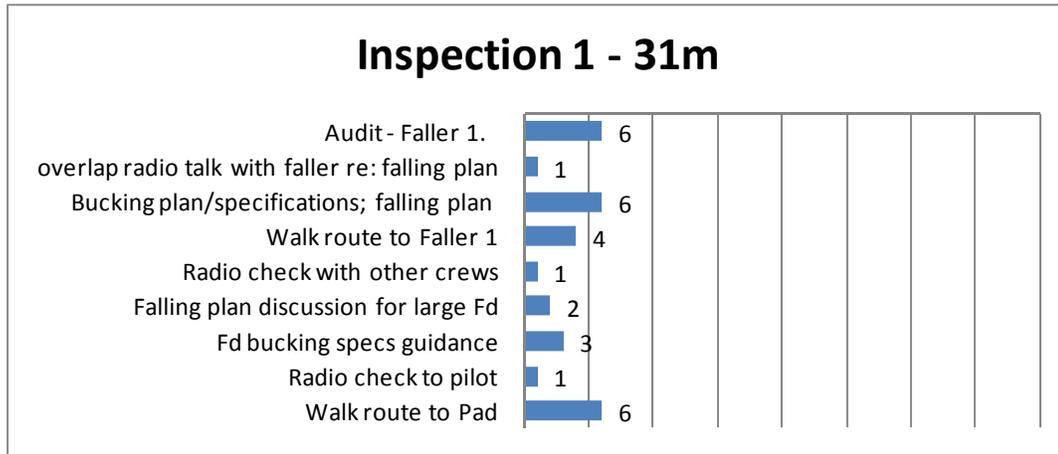
# Falling Supervisor Workload Management Issues: Phase I

## Annex B – Site Visit Data

## Site F

'Other' includes walking and other activities not directly related to the inspection (e.g., radio calls)

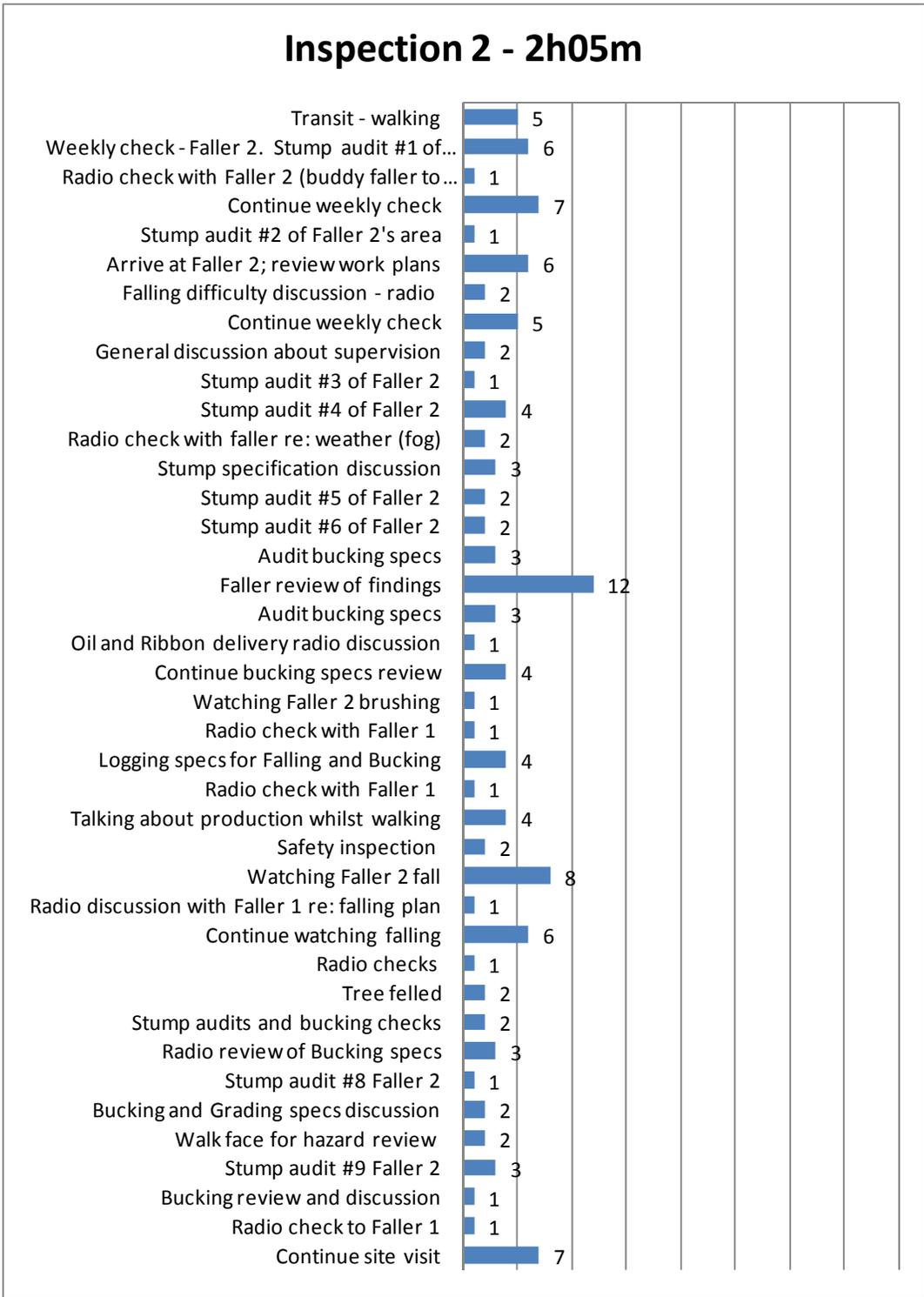
### Site visits descriptions



# Falling Supervisor Workload Management Issues: Phase I

## Annex B – Site Visit Data

## Site F

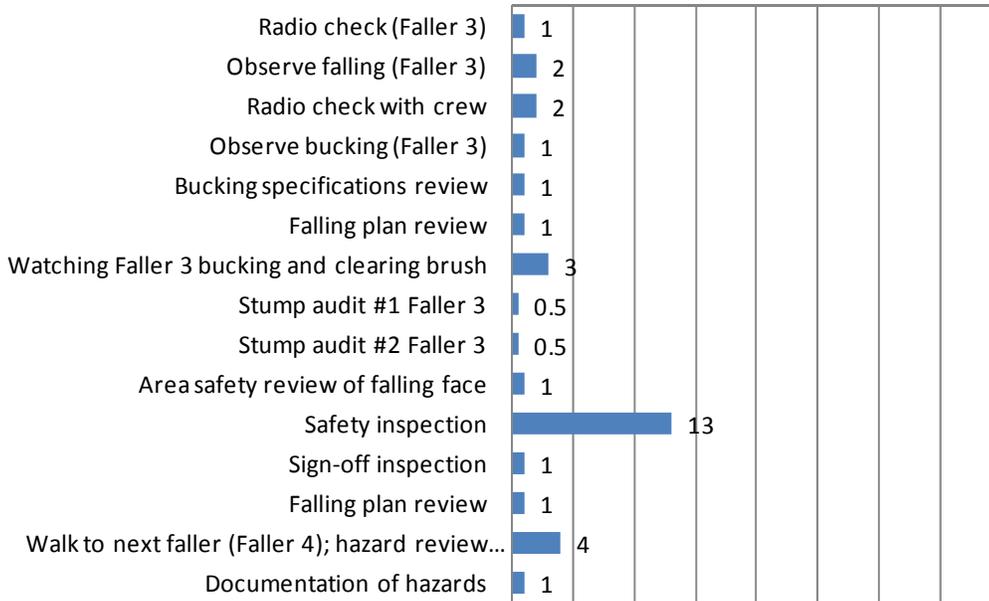


# Falling Supervisor Workload Management Issues: Phase I

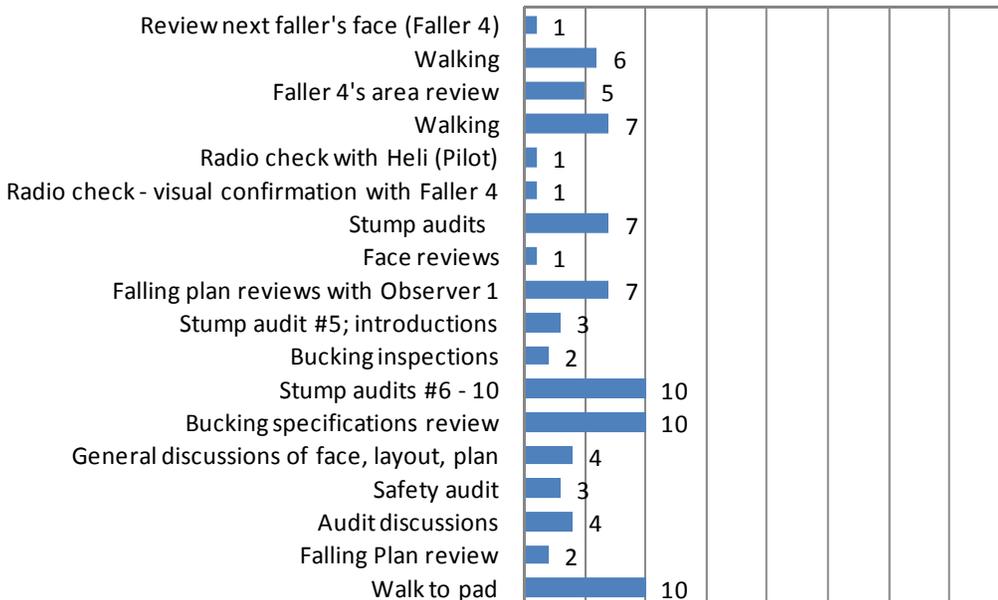
## Annex B – Site Visit Data

## Site F

### Inspection 3 - 0h33m



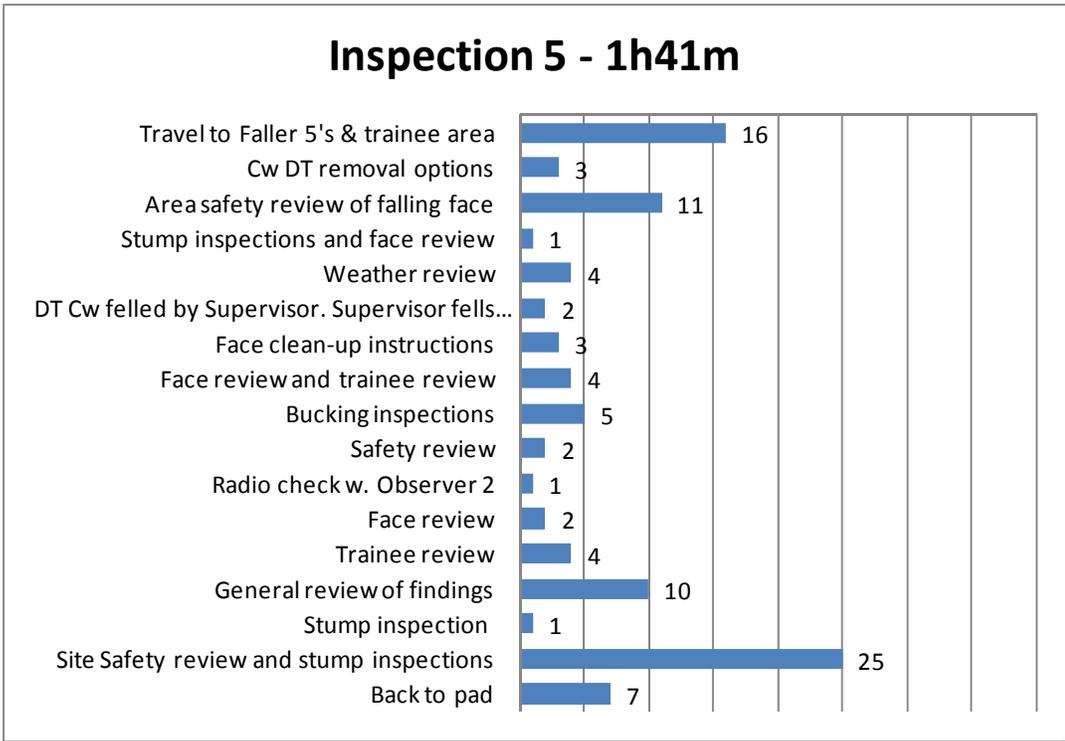
### Inspection 4 - 1h24m



# Falling Supervisor Workload Management Issues: Phase I

## Annex B – Site Visit Data

## Site F



# Falling Supervisor Workload Management Issues: Phase I

## Annex B – Site Visit Data

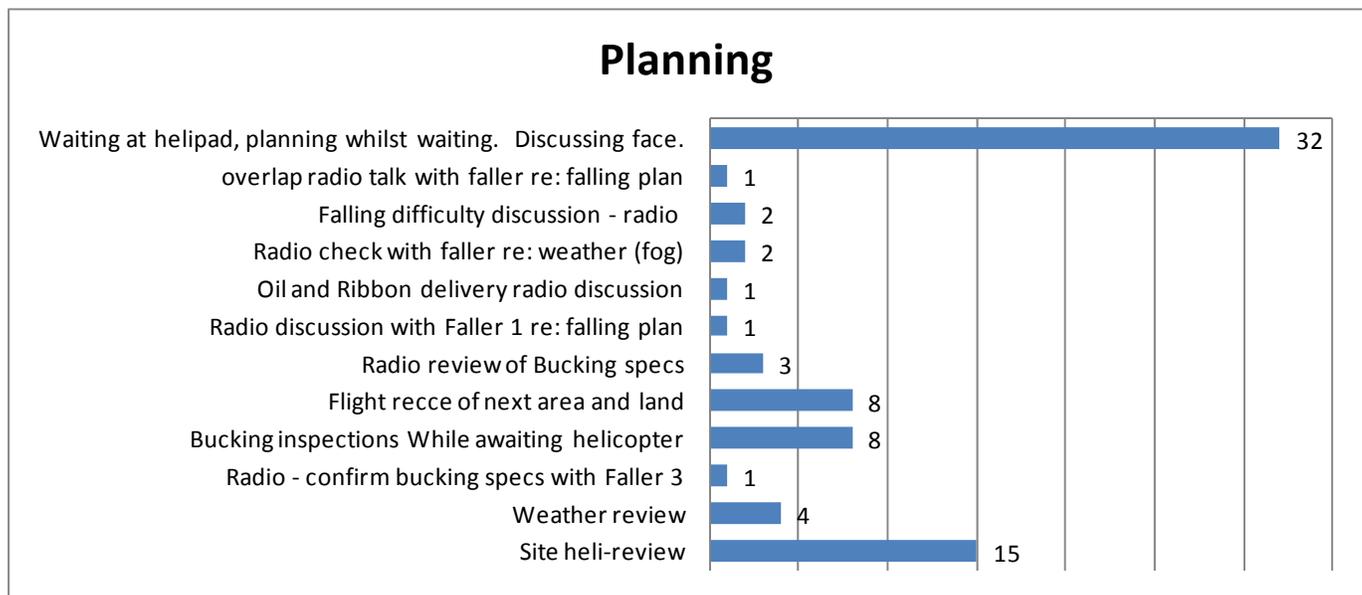
## Site F

### Planning breakdown

<b>Planning</b>	Weather monitoring/ discussion	Weather	0h06m
	Waiting	Waiting	0h08m
	Supplies	Supplies	0h01m
	Briefing/ tailgate/ discuss plans with fallers/ organize fallers	Organize	0h08m
	ERP related activities	ERP	0h07m
	Pre-work site inspection	Pre-work	0h55m
	Vehicle maintenance	Maintenance	0h00m
		<b>Total</b>	<b>1h25m</b>

### Planning – detailed descriptions

This chart shows all activities categorized as ‘planning’ throughout the day.

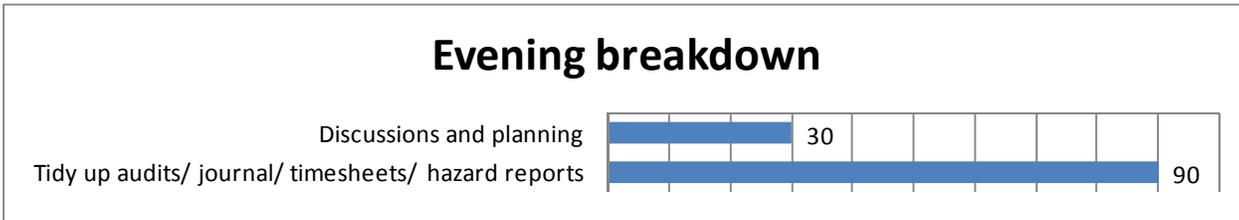


# Falling Supervisor Workload Management Issues: Phase I

## Annex B – Site Visit Data

## Site F

### Evening work – detailed descriptions



## Falling Supervisor Workload Management Issues: Phase I

### Annex B – Site Visit Data

#### Site G

This was a typical small contractor who was a combined owner/ faller/ supervisor with two hired fallers.

#### Background and site description

<b>Job title</b>	Contract supervisor
<b>Crew type</b>	Contract crew
<b>Layout/ crew size</b>	Contract crew of 3. Working Supervisor and 2 fallers; occasionally only 2 fallers.
<b>Typical day</b>	Early shift during visit (fire risk) - 4:45am until 2:30pm
<b>Timber type</b>	HwBa(FdYc) Old growth site - variable decadence & snags Brush moderate to light Slopes 40 - 110% Broken topography Trees average 70cm (28in), up to 150cm (59in)
<b>Production goals</b>	70,000 m3
<b>Mode(s) of transport</b>	Truck
<b>Falling during site visit?</b>	Yes – 5h20m

#### Comparative length of day

<b>Length of day</b>	Site A	Site B	Site C	Site D	Site E	Site F	Site G	Site H	Site I	Site J
<b>Start time</b>	4:15 AM	4:00 AM	5:00 AM	5:32 AM	6:00 AM	7:07 AM	4:45 AM	5:30 AM	3:50 AM	6:12 AM
<b>End time</b>	4:14 PM	4:33 PM	4:33 PM	12:53 PM	4:06 PM	3:30 PM	2:36 PM	3:57 PM	12:50 PM	2:17 PM
<b>Field time</b>										
<b>(incl. transit)</b>	11h59m	12h33m	11h33m	7h21m	10h06m	8h23m	9h51m	10h27m	9h00m	8h05m
<b>Evening work</b>	1h00m	2h25m	1h00m	1h51m	1h35m	2h00m	0h15m	1h33m	4h02m	3h30m
<b>Total</b>	12h59m	14h58m	12h33m	9h12m	11h41m	10h23m	10h06m	12h00m	13h02m	11h35m
<b>Falling?</b>	No	Yes	Yes	No	No	No	Yes	No	Yes	No

#### Summary of inspections

<b>Number of inspections completed</b>	0
<b>Total duration of inspections<sup>1</sup></b>	N/A
<b>Time spent on inspection activities during inspections</b>	N/A
<b>Time spent walking during inspections</b>	N/A
<b>Time spent on other activities (not inspection related/ walking) during inspections</b>	N/A
<b>Average inspection duration<sup>1</sup></b>	N/A
<b>Median inspection duration<sup>1</sup></b>	N/A

<sup>1</sup> Includes walking but not vehicle transit

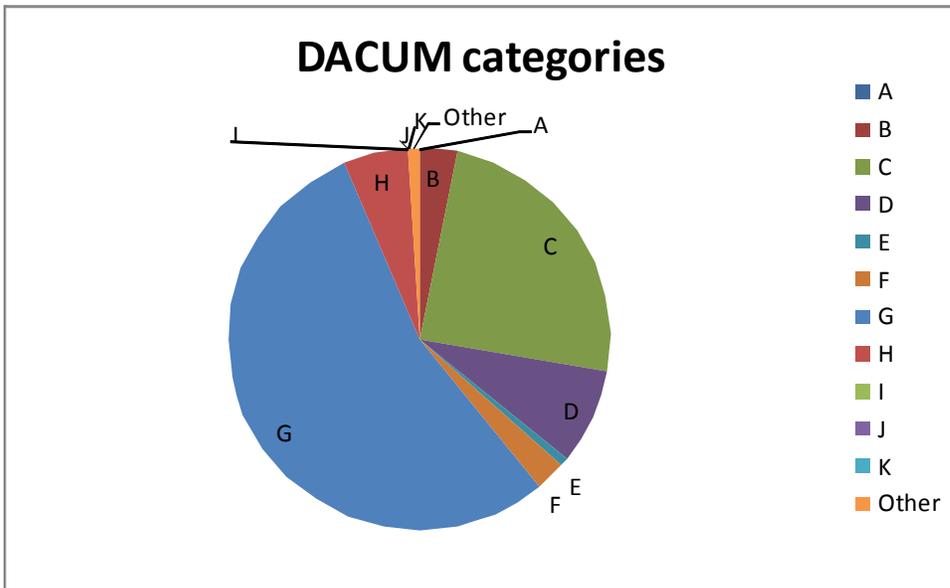
# Falling Supervisor Workload Management Issues: Phase I

## Annex B – Site Visit Data

## Site G

### Day breakdown (high level DACUM categories)

Category	DACUM Description	Total	%
A	Conduct inspections on fallers	0h00m	0%
B	Control falling activity on the worksite	0h20m	3%
C	Ensure adequate tools to do the job are available	2h35m	25%
D	Develop a block falling plan	0h51m	8%
E	Coordinate with other phases	0h05m	1%
F	Manage people	0h17m	3%
G	Manage the business	5h43m	54%
H	Maintain block falling plan	0h35m	6%
I	Manage environment	0h00m	0%
J	Participate in safety program	0h00m	0%
K	Train workers	0h00m	0%
Other	Not classified	0h06m	1%
<b>Total</b>		<b>10h32m</b>	



# Falling Supervisor Workload Management Issues: Phase I

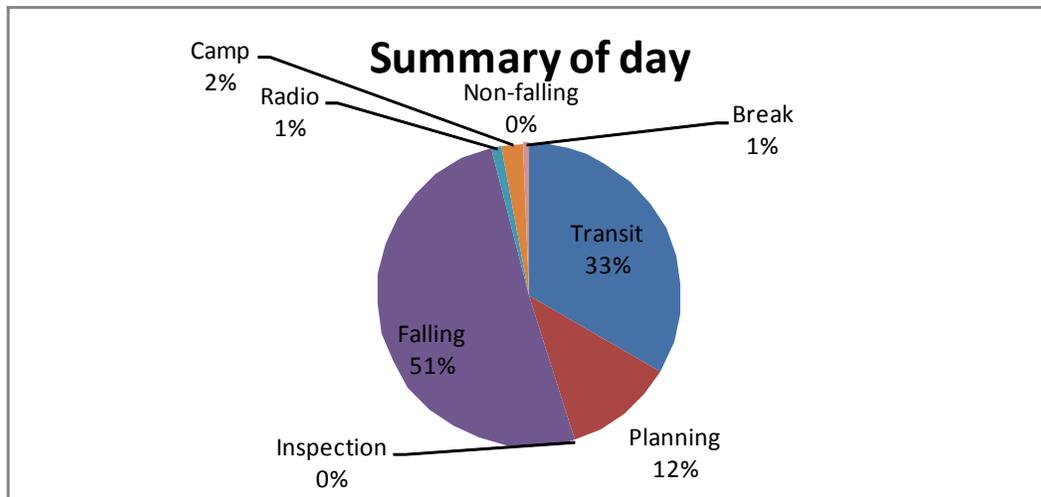
## Annex B – Site Visit Data

## Site G

### Day breakdown (high level categories)

#### High level

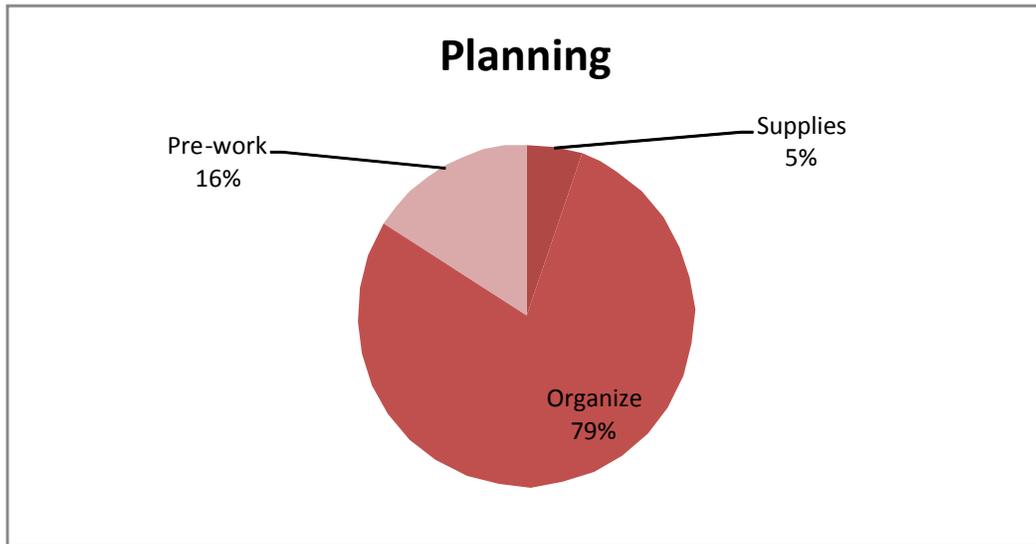
High level category	Total	Description	Label	Total	%
<b>Transit</b>	3h30m	Walking block/ hazard plan	Walking	0h30m	5%
		Car/ helicopter/ boat	Vehicle	3h00m	29%
<b>Planning</b>	1h15m	Weather monitoring/ discussion	Weather	0h00m	0%
		Waiting	Waiting	0h00m	0%
		Supplies and equipment	Supplies	0h04m	1%
		Briefing/ tailgate/ discuss plans with fallers/ organize fallers	Organize	0h59m	9%
		ERP related activities	ERP	0h00m	0%
		Pre-work site inspection	Pre-work	0h12m	2%
		Vehicle maintenance	Maintenance	0h00m	0%
		<b>Inspection</b>	0h00m	Documentation (in field)	Doc (field)
		Quality control/ bucking specs	Quality	0h00m	0%
		Measure stumps	Stumps	0h00m	0%
		Observe faller working (incl. Discussion)	Observe	0h00m	0%
		Review area/ worksite	Worksite	0h00m	0%
		Discussion with faller	Discuss	0h00m	0%
<b>Falling</b>	5h20m	Falling	Falling	5h20m	51%
<b>Radio</b>	0h07m	Radio (where not otherwise classified)	Radio	0h07m	1%
<b>Camp</b>	0h15m	Camp	Camp	0h15m	2%
<b>Non-falling</b>	0h00m	Multiphase co-ordination and supervision of other phases	Non-falling	0h00m	0%
<b>Break</b>	0h04m	Breaks/ social discussions	Break	0h04m	1%
<b>Total</b>				10h31m	



# Falling Supervisor Workload Management Issues: Phase I

## Annex B – Site Visit Data

## Site G



Inspections - N/A (no inspections)

# Falling Supervisor Workload Management Issues: Phase I

## Annex B – Site Visit Data

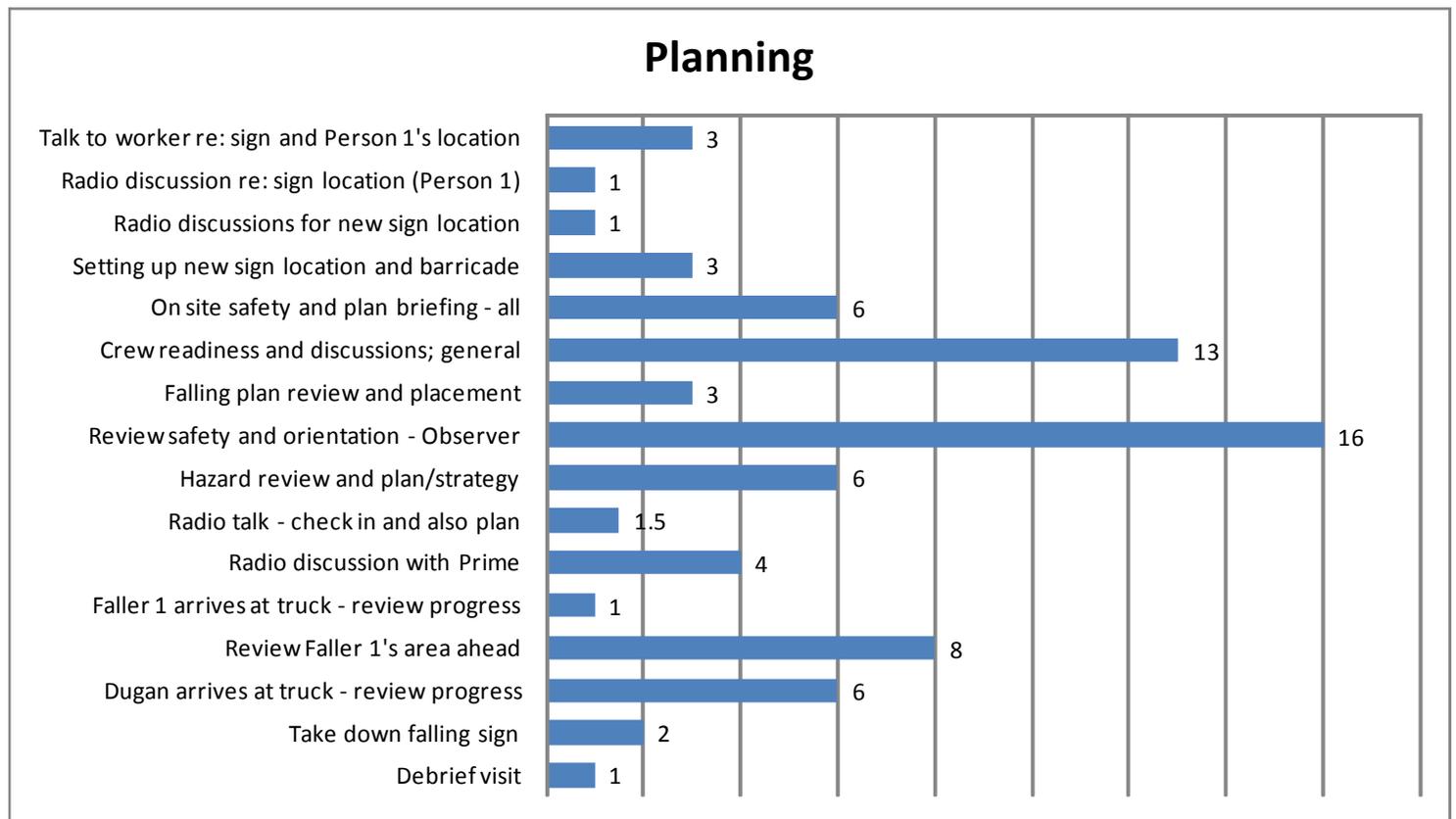
## Site G

### Planning breakdown

<b>Planning</b> Weather monitoring/ discussion	Weather	0h00m
Waiting	Waiting	0h00m
Supplies	Supplies	0h04m
Briefing/ tailgate/ discuss plans with fallers/ organize fallers	Organize	0h59m
ERP related activities	ERP	0h00m
Pre-work site inspection	Pre-work	0h12m
Vehicle maintenance	Maintenance	0h00m
	<b>Total</b>	<b>1h15m</b>

### Planning – detailed descriptions

This chart shows all activities categorized as ‘planning’ throughout the day



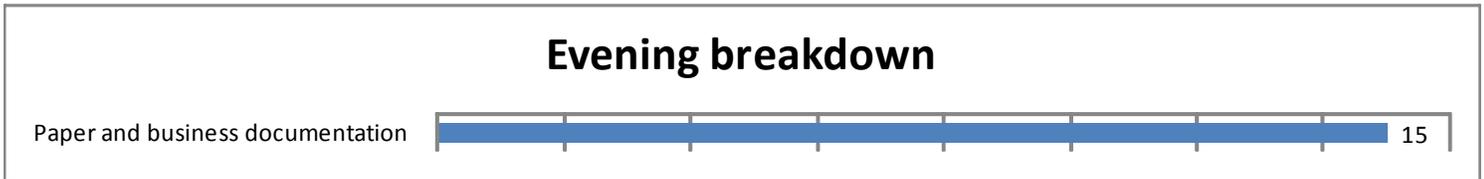
# Falling Supervisor Workload Management Issues: Phase I

## Annex B – Site Visit Data

## Site G

### Evening work – detailed descriptions

This chart shows all activities performed after returning to camp



## Falling Supervisor Workload Management Issues: Phase I

### Annex B – Site Visit Data

#### Site H

The supervisor at this site is actually a woods foreman – as well as supervising fallers he also supervises yarding, loading, hauling and road crew. This day was atypical in that he had already visited the fallers, so the ‘inspections’ were more of a replication of a day he had already had, to show the observer what ground the fallers were on, and to brief them on the study and get feedback. Visits were dominated by discussions about the study and faller certification process. This day may be more typical of accompanying a visitor than a supervisor on his own, and shows the potential impact of, e.g., a WorkSafeBC or Council visitor.

#### Background and site description

<b>Job title</b>	Logging Superintendent - Contractor
<b>Crew type</b>	Contract crew
<b>Layout/ crew size</b>	Crew can ramp up to 10 2 union fallers During visit - only 6 fallers active.
<b>Typical day</b>	Faller day 7:00 am to 2:00pm plus travel
<b>Timber type</b>	HwBa Old growth site - abundant decadence and snags Slopes 40 - 70% Trees average 70cm (28in), up to 140cm (55in)
<b>Production goals</b>	350,000 to 375,000 m <sup>3</sup>
<b>Mode(s) of transport</b>	Truck
<b>Falling during site visit?</b>	No

#### Comparative length of day

Length of day	Site A	Site B	Site C	Site D	Site E	Site F	Site G	Site H	Site I	Site J
<b>Start time</b>	4:15 AM	4:00 AM	5:00 AM	5:32 AM	6:00 AM	7:07 AM	4:45 AM	5:30 AM	3:50 AM	6:12 AM
<b>End time</b>	4:14 PM	4:33 PM	4:33 PM	12:53 PM	4:06 PM	3:30 PM	2:36 PM	3:57 PM	12:50 PM	2:17 PM
<b>Field time (incl. transit)</b>	11h59m	12h33m	11h33m	7h21m	10h06m	8h23m	9h51m	10h27m	9h00m	8h05m
<b>Evening work</b>	1h00m	2h25m	1h00m	1h51m	1h35m	2h00m	0h15m	1h33m	4h02m	3h30m
<b>Total</b>	12h59m	14h58m	12h33m	9h12m	11h41m	10h23m	10h06m	12h00m	13h02m	11h35m
<b>Falling?</b>	No	Yes	Yes	No	No	No	Yes	No	Yes	No

#### Summary of inspections

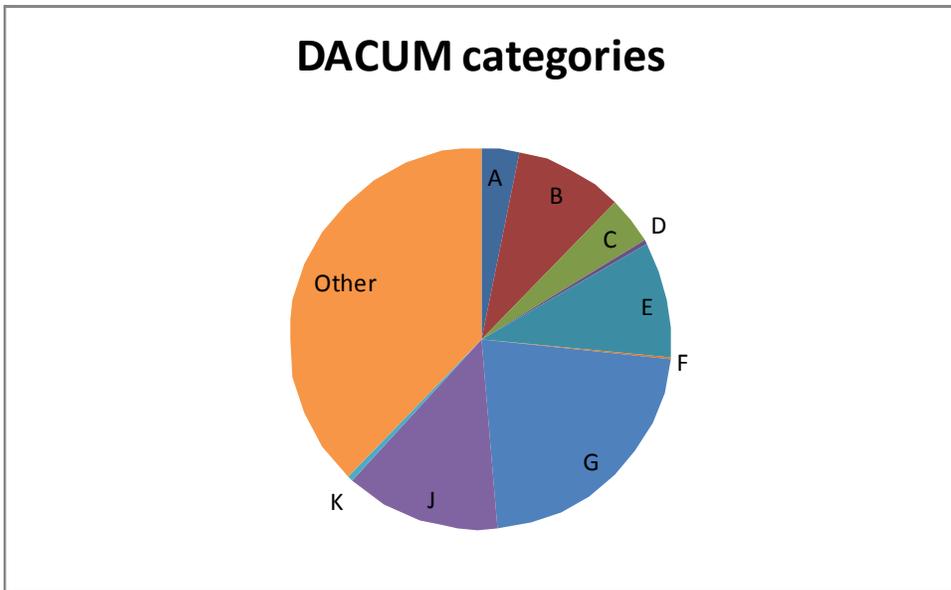
<b>Number of inspections completed</b>	4
<b>Total duration of inspections<sup>1</sup></b>	2h29m
<b>Time spent on inspection activities during inspections</b>	1h57m
<b>Time spent walking during inspections</b>	0h30m
<b>Time spent on other activities (not inspection related/ walking) during inspections</b>	0h2m
<b>Average inspection duration<sup>1</sup></b>	0h37m
<b>Median inspection duration<sup>1</sup></b>	0h37m

<sup>1</sup> Includes walking but not vehicle transit

## Falling Supervisor Workload Management Issues: Phase I

### Annex B – Site Visit Data Site H Day breakdown (high level DACUM categories)

Category	DACUM Description	Total	%
A	Conduct inspections on fallers	0h24m	3%
B	Control falling activity on the worksite	1h07m	9%
C	Ensure adequate tools to do the job are available	0h28m	4%
D	Develop a block falling plan	0h04m	1%
E	Coordinate with other phases	1h11m	10%
F	Manage people	0h02m	0%
G	Manage the business	2h39m	22%
H	Maintain block falling plan	0h00m	0%
I	Manage environment	0h00m	0%
J	Participate in safety program	1h36m	13%
K	Train workers	0h04m	1%
Other	Not classified	4h36m	38%
<b>Total</b>		12h11m	



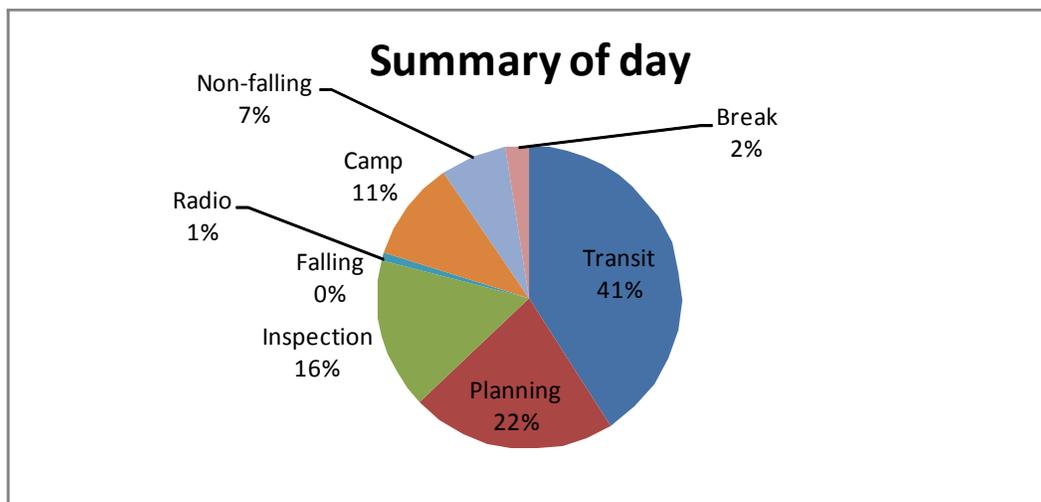
# Falling Supervisor Workload Management Issues: Phase I

## Annex B – Site Visit Data

## Site H

### Day breakdown (high level categories)

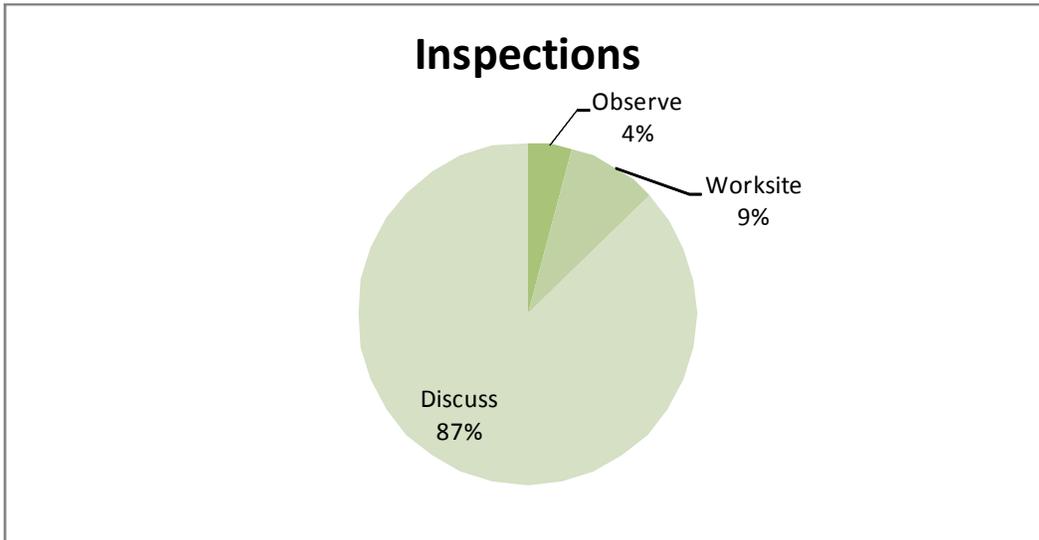
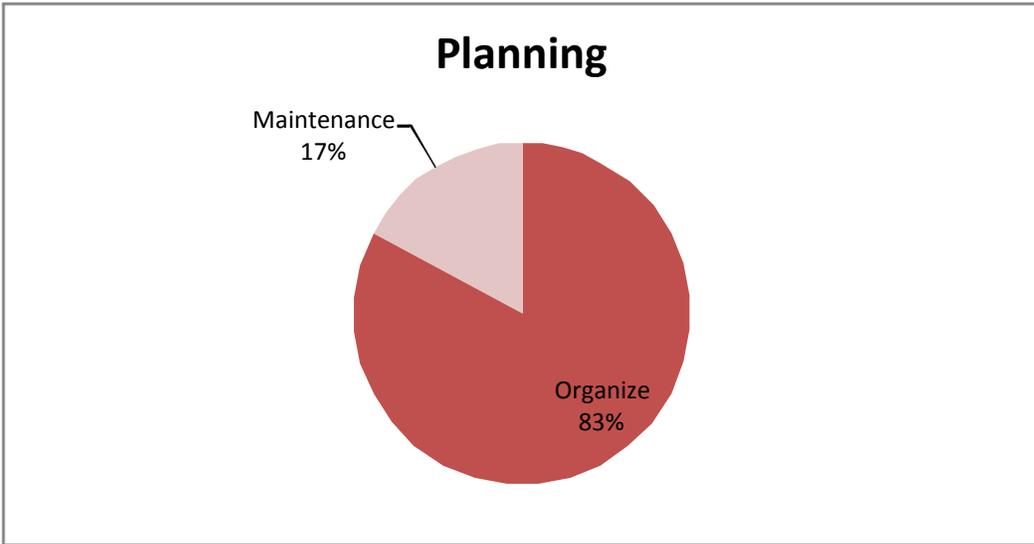
High level category	Total	Description	Label	Total	%
<b>Transit</b>	4h59m	Walking block/ hazard plan	Walking	0h30m	4%
		Car/ helicopter/ boat	Vehicle	4h28m	37%
<b>Planning</b>	2h40m	Weather monitoring/ discussion	Weather	0h00m	0%
		Waiting	Waiting	0h00m	0%
		Supplies and equipment	Supplies	0h00m	0%
		Briefing/ tailgate/ discuss plans with fallers/ organize fallers	Organize	2h15m	18%
		ERP related activities	ERP	0h00m	0%
		Pre-work site inspection	Pre-work	0h00m	0%
		Vehicle maintenance	Maintenance	0h28m	4%
<b>Inspection</b>	1h57m	Documentation (in field)	Doc (field)	0h00m	0%
		Quality control/ bucking specs	Quality	0h00m	0%
		Measure stumps	Stumps	0h00m	0%
		Observe faller working (incl. Discussion)	Observe	0h05m	1%
		Review area/ worksite	Worksite	0h10m	1%
		Discussion with faller	Discuss	1h42m	14%
<b>Falling</b>	0h00m	Falling	Falling	0h00m	0%
<b>Radio</b>	0h07m	Radio (where not otherwise classified)	Radio	0h05m	1%
<b>Camp</b>	1h18m	Camp	Camp	1h18m	11%
<b>Non-falling</b>	0h52m	Multiphase co-ordination and supervision of other phases	Non-falling	0h52m	7%
<b>Break</b>	0h18m	Breaks/ social discussions	Break	0h18m	2%
<b>Total</b>				<b>12h11m</b>	



# Falling Supervisor Workload Management Issues: Phase I

## Annex B – Site Visit Data

### Site H



# Falling Supervisor Workload Management Issues: Phase I

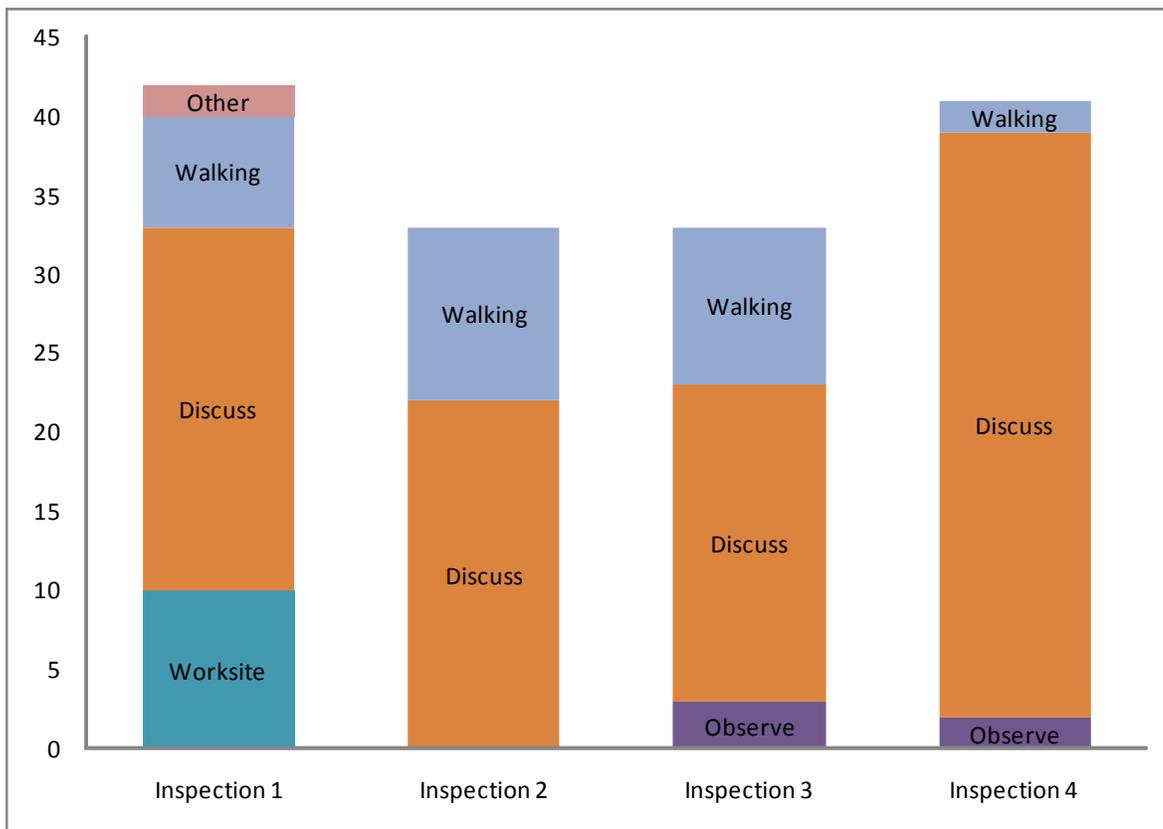
## Annex B – Site Visit Data Inspections

### Site H

#### Duration of inspections

Time spent on inspection related activities and other activities during inspections (including walking but excluding vehicle travel).

Inspections	Inspection 1	Inspection 2	Inspection 3	Inspection 4	Total		
<b>Doc (field)</b>	0h00m	0h00m	0h00m	0h00m	<b>0h00m</b>	Inspecting	<b>1h57m</b>
<b>Quality</b>	0h00m	0h00m	0h00m	0h00m	<b>0h00m</b>		
<b>Stumps</b>	0h00m	0h00m	0h00m	0h00m	<b>0h00m</b>		
<b>Observe</b>	0h00m	0h00m	0h03m	0h02m	<b>0h05m</b>		
<b>Worksite</b>	0h10m	0h00m	0h00m	0h00m	<b>0h10m</b>		
<b>Discuss</b>	0h23m	0h22m	0h20m	0h37m	<b>1h42m</b>		
<b>Walking</b>	0h07m	0h11m	0h10m	0h02m	<b>0h30m</b>	Walking	<b>0h30m</b>
<b>Other</b>	0h02m	0h00m	0h00m	0h00m	<b>0h02m</b>	Other	<b>0h02m</b>
<b>Total</b>	<b>0h42m</b>	<b>0h33m</b>	<b>0h33m</b>	<b>0h41m</b>	<b>2h29m</b>		



'Other' includes walking and other activities not directly related to the inspection (e.g., radio calls)

# Falling Supervisor Workload Management Issues: Phase I

## Annex B – Site Visit Data

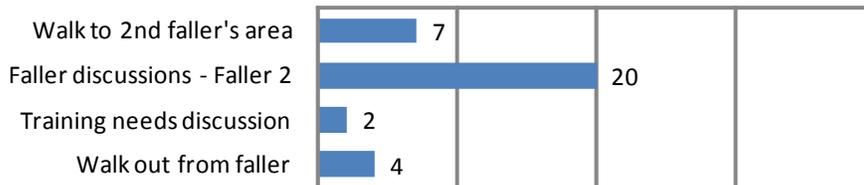
## Site H

### Inspections - detailed descriptions

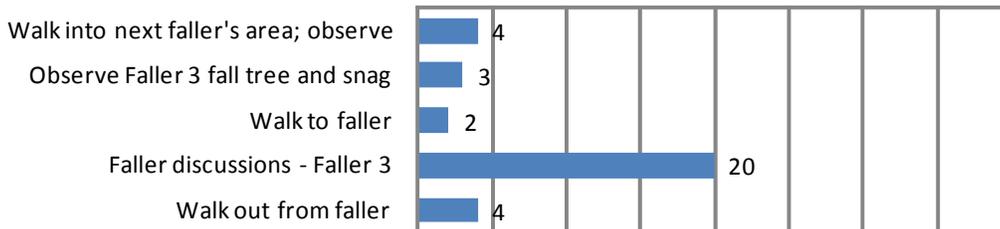
#### Inspection 1 - 42m



#### Inspection 2 - 33m



#### Inspection 3 - 33m



#### Inspection 4 - 41m



# Falling Supervisor Workload Management Issues: Phase I

## Annex B – Site Visit Data

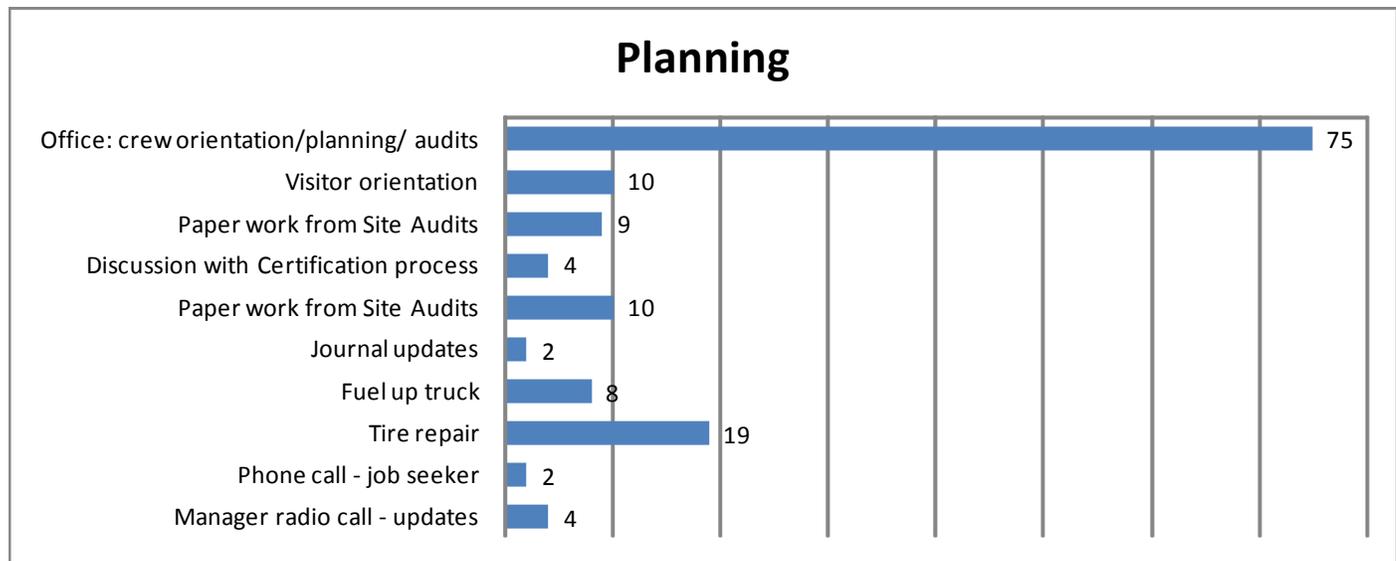
## Site H

### Planning breakdown

<b>Planning</b>	Weather monitoring/ discussion	Weather	0h00m
	Waiting	Waiting	0h00m
	Supplies	Supplies	0h00m
	Briefing/ tailgate/ discuss plans with fallers/ organize fallers	Organize	2h15m
	ERP related activities	ERP	0h00m
	Pre-work site inspection	Pre-work	0h00m
	Vehicle maintenance	Maintenance	0h28m
	<b>Total</b>		<b>2h43m</b>

### Planning – detailed descriptions

This chart shows all activities categorized as ‘planning’ throughout the day



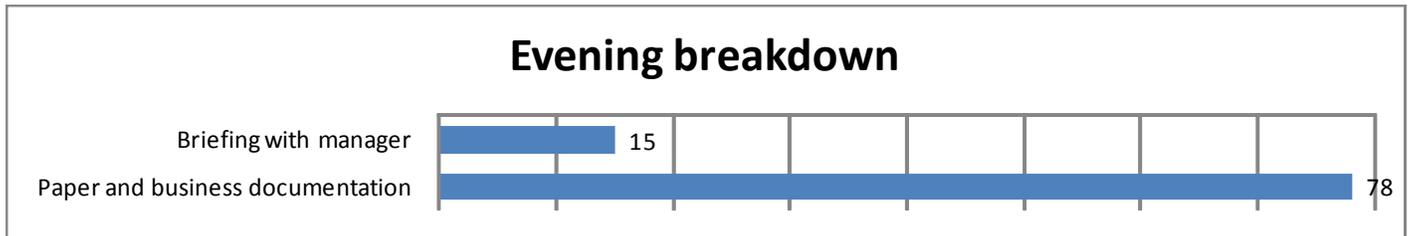
## Falling Supervisor Workload Management Issues: Phase I

### Annex B – Site Visit Data

### Site H

#### Evening work – detailed descriptions

This chart shows all activities performed after returning to camp



## Falling Supervisor Workload Management Issues: Phase I

### Annex B – Site Visit Data

#### Site I

This was a smaller crew, with 2 fallers taking the day off. Planning, loading and yarding were all located in a small block. One faller became separate from the other two (for space) and was instructed to perform his man checks with the yarding crew due to radio dead zones. No inspections were done – there were only two fallers and the supervisor. The supervisor spent the day falling and coordinated the other fallers. He also liaised with the prime to resolve the congestion.

#### Background and site description

<b>Job title</b>	Bullbucker - Contractor
<b>Crew type</b>	Contract crew
<b>Layout/ crew size</b>	1 active site; 3 fallers (2 were on time off) - includes working supervisor
<b>Typical day</b>	Faller day of 3:50am to 2:30pm
<b>Timber type</b>	HwBa Old growth site - abundant decadence & snags Brush moderate to light Slopes 20 - 65% Trees average 65cm (25in), up to 120cm (47in)
<b>Production goals</b>	4 fallers + supervisor; 165,000 m3
<b>Mode(s) of transport</b>	Truck
<b>Falling during day?</b>	Yes – 5h54m

#### Comparative length of day

Length of day	Site A	Site B	Site C	Site D	Site E	Site F	Site G	Site H	Site I	Site J
<b>Start time</b>	4:15 AM	4:00 AM	5:00 AM	5:32 AM	6:00 AM	7:07 AM	4:45 AM	5:30 AM	3:50 AM	6:12 AM
<b>End time</b>	4:14 PM	4:33 PM	4:33 PM	12:53 PM	4:06 PM	3:30 PM	2:36 PM	3:57 PM	12:50 PM	2:17 PM
<b>Field time</b>										
<b>(incl. transit)</b>	11h59m	12h33m	11h33m	7h21m	10h06m	8h23m	9h51m	10h27m	9h00m	8h05m
<b>Evening work</b>	1h00m	2h25m	1h00m	1h51m	1h35m	2h00m	0h15m	1h33m	4h02m	3h30m
<b>Total</b>	12h59m	14h58m	12h33m	9h12m	11h41m	10h23m	10h06m	12h00m	13h02m	11h35m
<b>Falling?</b>	No	Yes	Yes	No	No	No	Yes	No	Yes	No

#### Summary of inspections

<b>Number of inspections completed</b>	0
<b>Total duration of inspections<sup>1</sup></b>	N/A
<b>Time spent on inspection activities during inspections</b>	N/A
<b>Time spent walking during inspections</b>	N/A
<b>Time spent on other activities (not inspection related/ walking) during inspections</b>	N/A
<b>Average inspection duration<sup>1</sup></b>	N/A
<b>Median inspection duration<sup>1</sup></b>	N/A

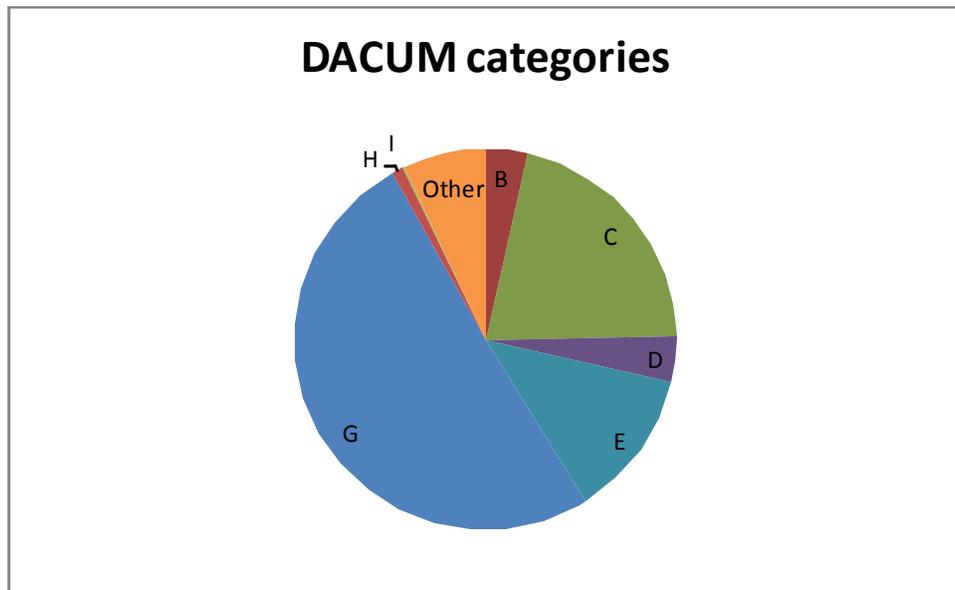
<sup>1</sup> Includes walking but not vehicle transit

## Falling Supervisor Workload Management Issues: Phase I

### Annex B – Site Visit Data Site I

#### Day breakdown (high level DACUM categories)

Category	DACUM Description	Total	%
A	Conduct inspections on fallers	0h00m	0%
B	Control falling activity on the worksite	0h31m	4%
C	Ensure adequate tools to do the job are available	2h59m	21%
D	Develop a block falling plan	0h32m	4%
E	Coordinate with other phases	1h47m	13%
F	Manage people	0h00m	0%
G	Manage the business	7h10m	51%
H	Maintain block falling plan	0h08m	1%
I	Manage environment	0h02m	0%
J	Participate in safety program	0h00m	0%
K	Train workers	0h00m	0%
Other	Not classified	0h59m	7%
<b>Total</b>		<b>14h08m</b>	



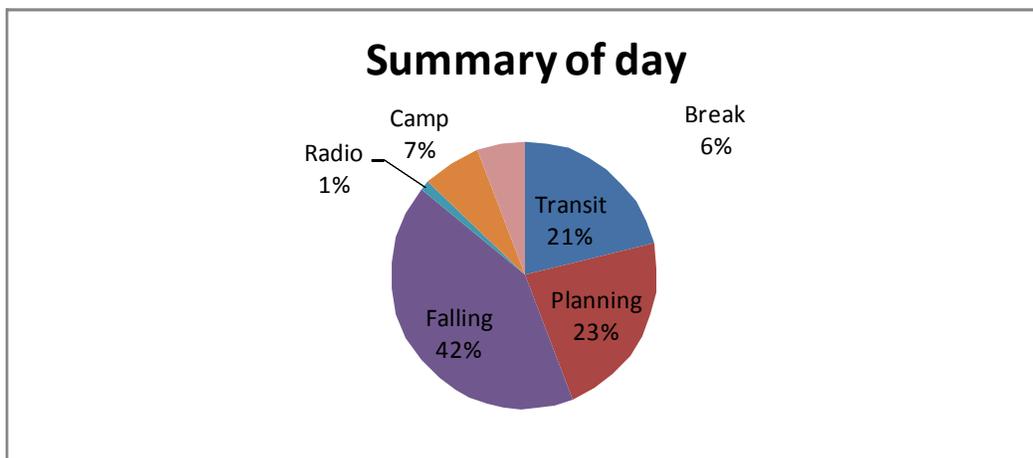
# Falling Supervisor Workload Management Issues: Phase I

## Annex B – Site Visit Data

## Site I

### Day breakdown (high level categories)

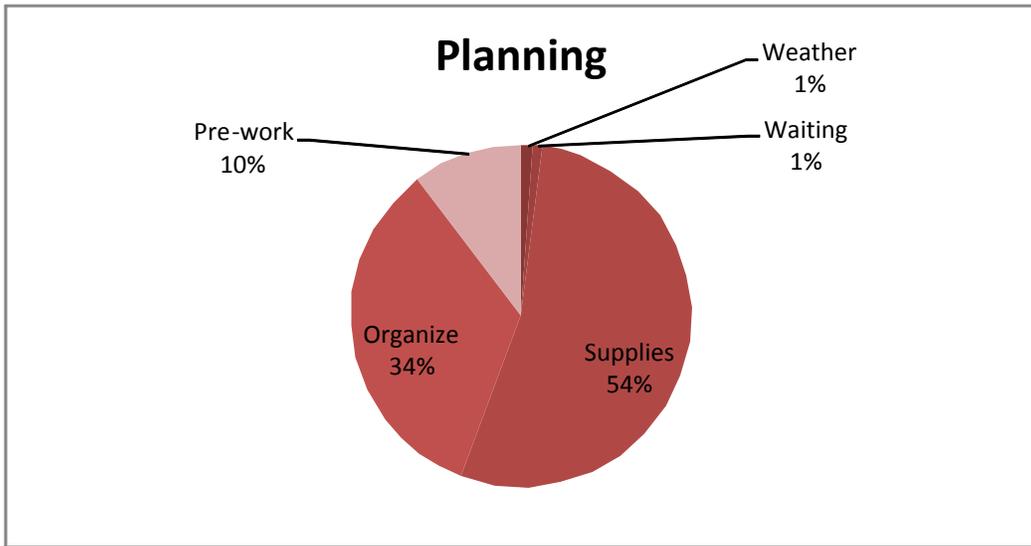
High level category	Total	Description	Label	Total	%
<b>Transit</b>	3h00m	Walking block/ hazard plan	Walking	0h00m	0%
		Car/ helicopter/ boat	Vehicle	3h00m	21%
<b>Planning</b>	3h14m	Weather monitoring/ discussion	Weather	0h02m	0%
		Waiting	Waiting	0h02m	0%
		Supplies and equipment	Supplies	1h44m	12%
		Briefing/ tailgate/ discuss plans with fallers/ organize fallers	Organize	1h06m	8%
		ERP related activities	ERP	0h00m	0%
		Pre-work site inspection	Pre-work	0h20m	2%
		Vehicle maintenance	Maintenance	0h00m	0%
		Documentation (in field)	Doc (field)	0h00m	0%
<b>Inspection</b>	0h00m	Quality control/ bucking specs	Quality	0h00m	0%
		Measure stumps	Stumps	0h00m	0%
		Observe faller working (incl. Discussion)	Observe	0h00m	0%
		Review area/ worksite	Worksite	0h00m	0%
		Discussion with faller	Discuss	0h00m	0%
		<b>Falling</b>	5h54m	Falling	Falling
<b>Radio</b>	0h11m	Radio (where not otherwise classified)	Radio	0h11m	1%
<b>Camp</b>	1h00m	Camp	Camp	1h00m	7%
<b>Non-falling</b>	0h00m	Multiphase co-ordination and supervision of other phases	Non-falling	0h00m	0%
<b>Break</b>	0h48m	Breaks/ social discussions	Break	0h48m	6%
			<b>Total</b>	14h07m	



## Falling Supervisor Workload Management Issues: Phase I

### Annex B – Site Visit Data

### Site I



**Inspections – N/A (no inspections)**

# Falling Supervisor Workload Management Issues: Phase I

## Annex B – Site Visit Data

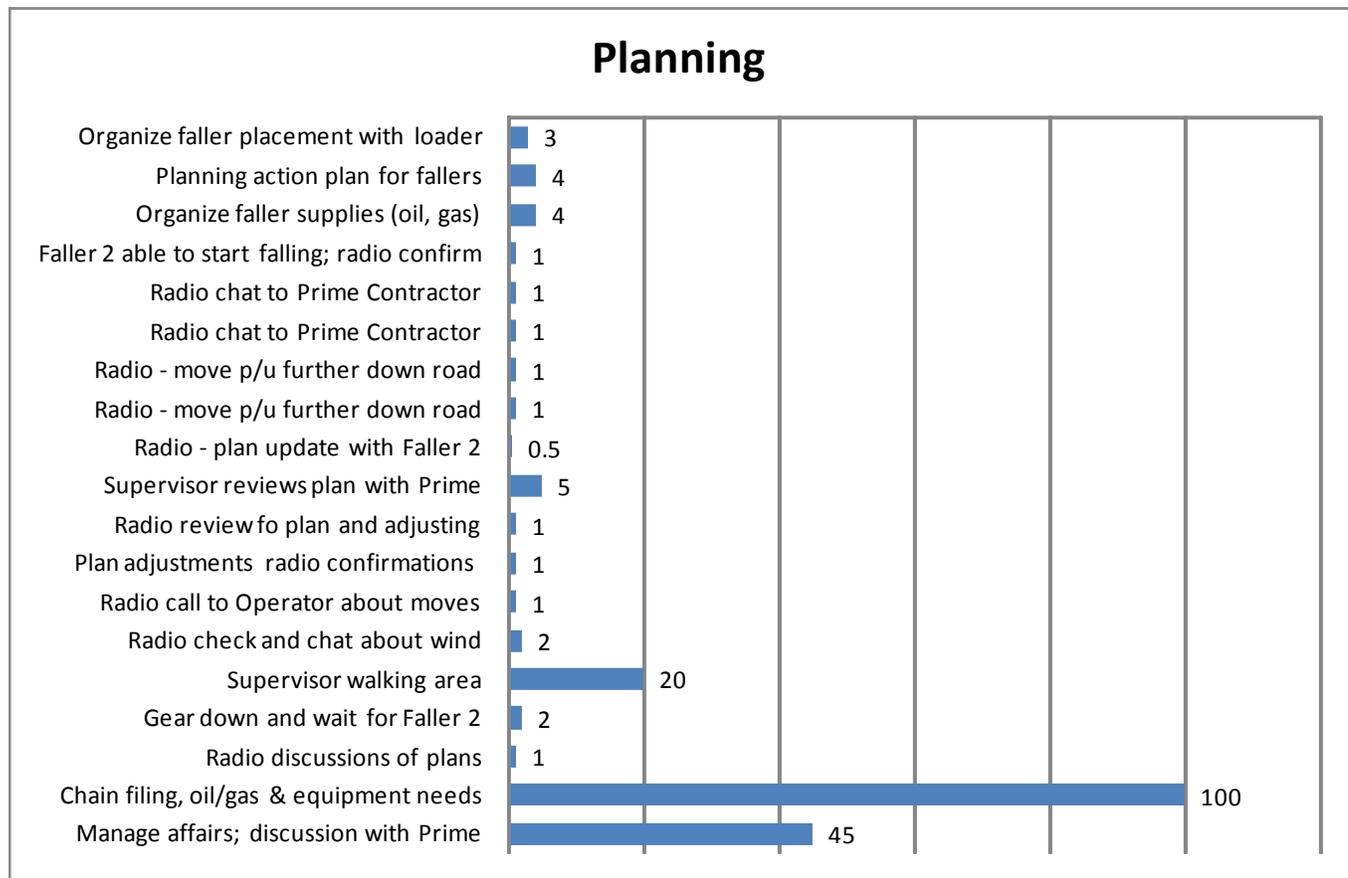
## Site I

### Planning breakdown

<b>Planning</b>	Weather monitoring/ discussion	Weather	0h02m
	Waiting	Waiting	0h02m
	Supplies	Supplies	1h44m
	Briefing/ tailgate/ discuss plans with fallers/ organize fallers	Organize	1h06m
	ERP related activities	ERP	0h00m
	Pre-work site inspection	Pre-work	0h20m
	Vehicle maintenance	Maintenance	0h00m
	<b>Total</b>		<b>3h14m</b>

### Planning – detailed descriptions

This chart shows all activities categorized as ‘planning’ throughout the day



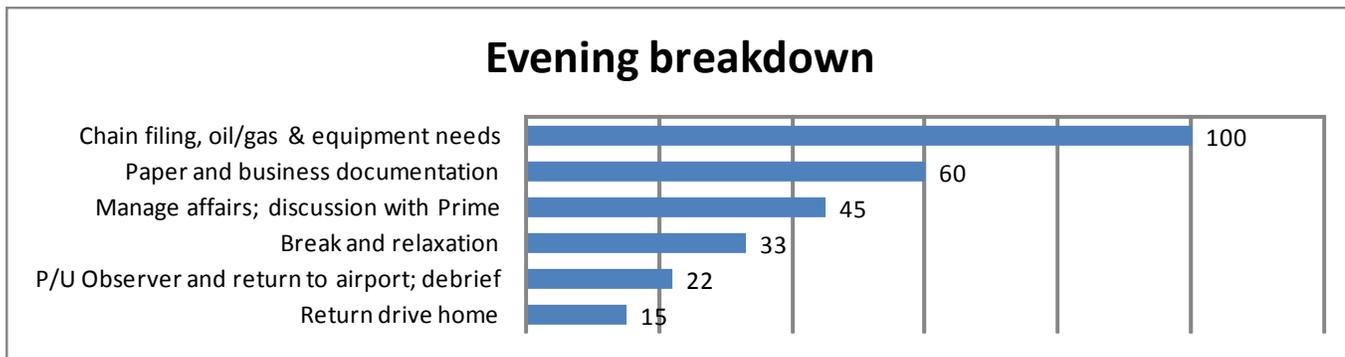
# Falling Supervisor Workload Management Issues: Phase I

## Annex B – Site Visit Data

## Site I

### Evening work – detailed descriptions

This chart shows all activities performed after returning to camp



## Falling Supervisor Workload Management Issues: Phase I

### Annex B – Site Visit Data

#### Site J

This was a training site, so trainees were being continuously inspected. The day ended slightly early due to the observer’s transportation arrangements.

#### Background and site description

<b>Job title</b>	QST
<b>Crew type</b>	Trainees
<b>Layout/ crew size</b>	3 trainees, 2 QSTs (2 trainees supervised by QST being observed)
<b>Typical day</b>	Faller day 6.5 hours
<b>Timber type</b>	Hemlock/ balsam 30cm (11in) to 180cm (71in) Slope 10 – 30% Moderate brush
<b>Production goals</b>	N/A
<b>Mode(s) of transport</b>	Truck
<b>Falling during site visit?</b>	For demonstration/ assistance purposes only - 0h07m

#### Comparative length of day

Length of day	Site A	Site B	Site C	Site D	Site E	Site F	Site G	Site H	Site I	Site J
<b>Start time</b>	4:15 AM	4:00 AM	5:00 AM	5:32 AM	6:00 AM	7:07 AM	4:45 AM	5:30 AM	3:50 AM	6:12 AM
<b>End time</b>	4:14 PM	4:33 PM	4:33 PM	12:53 PM	4:06 PM	3:30 PM	2:36 PM	3:57 PM	12:50 PM	2:17 PM
<b>Field time</b>										
<b>(incl. transit)</b>	11h59m	12h33m	11h33m	7h21m	10h06m	8h23m	9h51m	10h27m	9h00m	8h05m
<b>Evening work</b>	1h00m	2h25m	1h00m	1h51m	1h35m	2h00m	0h15m	1h33m	4h02m	3h30m
<b>Total</b>	12h59m	14h58m	12h33m	9h12m	11h41m	10h23m	10h06m	12h00m	13h02m	11h35m
<b>Falling?</b>	No	Yes	Yes	No	No	No	Yes	No	Yes	No

#### Summary of inspections

Due to the nature of the supervision of the trainees (effectively continuous inspection), the day has not been split into separate inspections. Times below relate to the whole day.

<b>Number of inspections completed</b>	N/A
<b>Total duration of inspections<sup>1</sup></b>	N/A
<b>Time spent on inspection activities <i>throughout day</i></b>	2h49m
<b>Time spent walking <i>throughout day</i></b>	1h12m
<b>Time spent on activities other than walking and inspections <i>throughout day</i></b>	4h04m
<b>Average inspection duration<sup>1</sup></b>	N/A
<b>Median inspection duration<sup>1</sup></b>	N/A

<sup>1</sup> Excludes vehicle transit

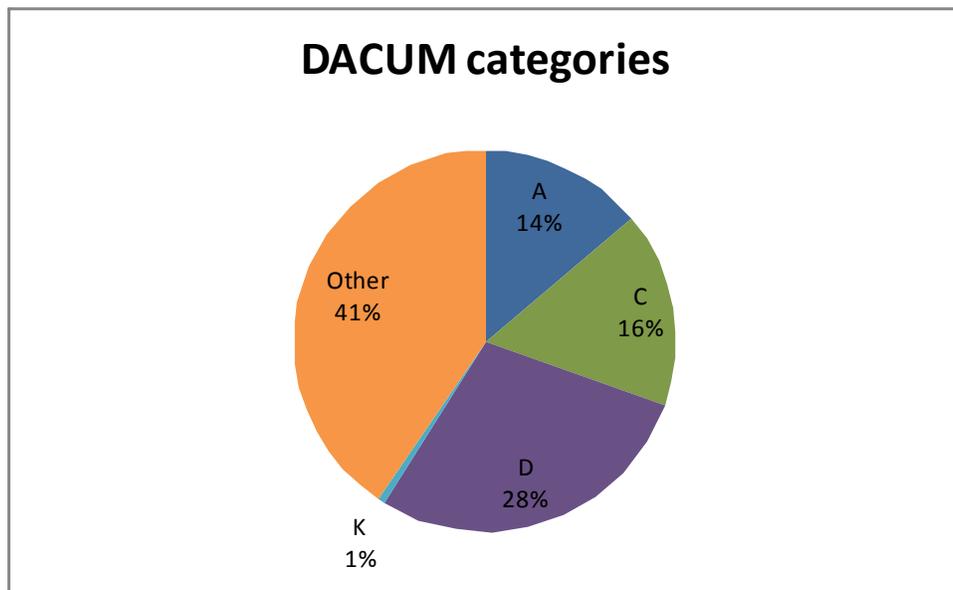
## Falling Supervisor Workload Management Issues: Phase I

### Annex B – Site Visit Data Site J

#### Day breakdown (high level DACUM categories)

Note that the whole of the day could arguably be classified as ‘K’ – train workers. Instead tasks have been classified as if fallers were not trainees for greater comparability with other site visits.

Category	DACUM Description	Total	%
A	Conduct inspections on fallers	1h37m	14%
B	Control falling activity on the worksite	0h00m	0%
C	Ensure adequate tools to do the job are available	1h55m	17%
D	Develop a block falling plan	3h17m	28%
E	Coordinate with other phases	0h00m	0%
F	Manage people	0h00m	0%
G	Manage the business	0h00m	0%
H	Maintain block falling plan	0h00m	0%
I	Manage environment	0h00m	0%
J	Participate in safety program	0h00m	0%
K	Train workers	0h04m	1%
Other	Not classified	4h42m	41%
		<b>Total</b>	<b>11h35m</b>



## Falling Supervisor Workload Management Issues: Phase I

### Annex B – Site Visit Data Site J

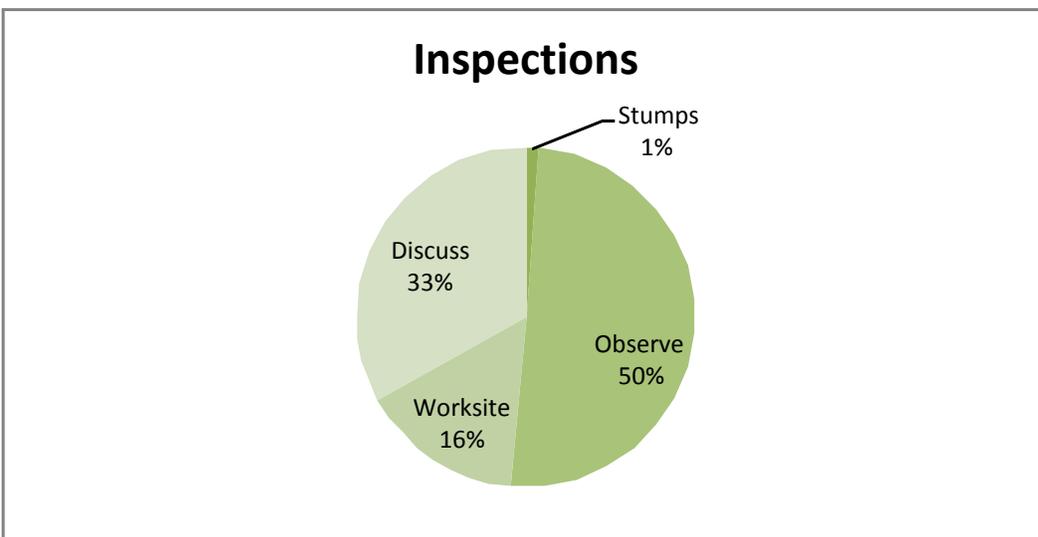
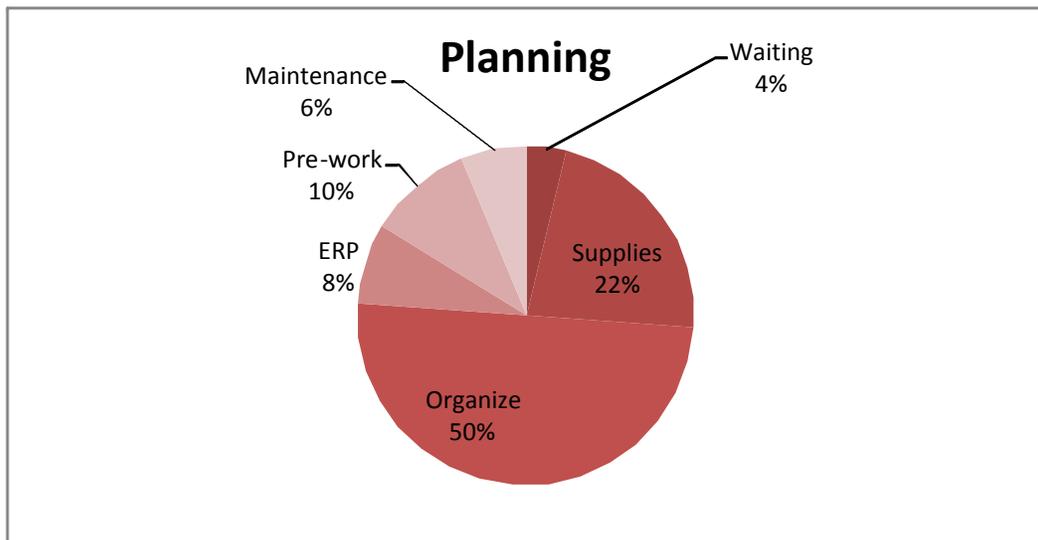
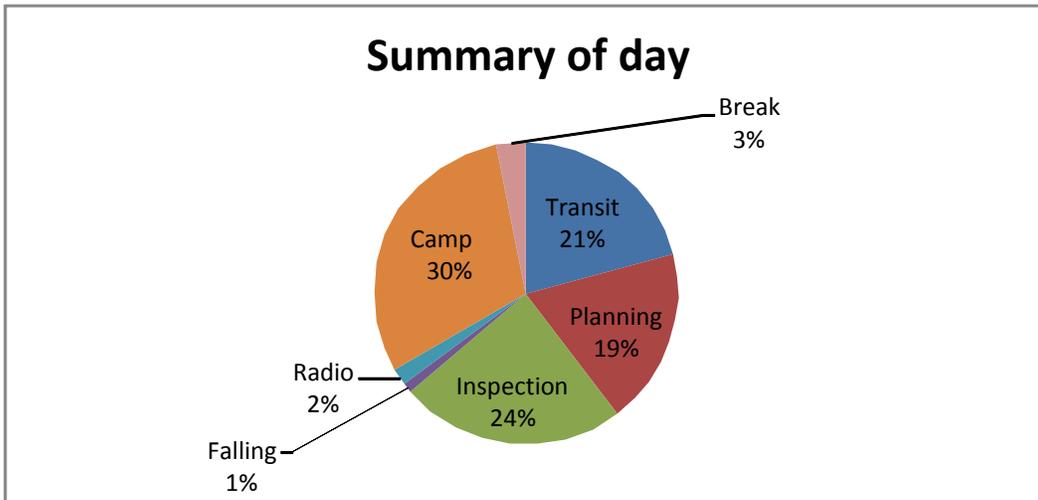
#### Day breakdown (high level categories)

High level category	Total	Description	Label	Total	%
<b>Transit</b>	2h25m	Walking block/ hazard plan	Walking	1h12m	10%
		Car/ helicopter/ boat	Vehicle	1h13m	11%
<b>Planning</b>	2h10m	Weather monitoring/ discussion	Weather	0h00m	0%
		Waiting	Waiting	0h05m	1%
		Supplies and equipment	Supplies	0h29m	4%
		Briefing/ tailgate/ discuss plans with fallers/ organize fallers	Organize	1h05m	9%
		ERP related activities	ERP	0h10m	1%
		Pre-work site inspection	Pre-work	0h13m	2%
		Vehicle maintenance	Maintenance	0h08m	1%
		<b>Inspection</b>	2h49m	Documentation (in field)	Doc (field)
Quality control/ bucking specs	Quality			0h00m	0%
Measure stumps	Stumps			0h02m	0%
Observe faller working (incl. Discussion)	Observe			1h25m	12%
Review area/ worksite	Worksite			0h26m	4%
Discussion with faller	Discuss			0h56m	8%
<b>Falling</b>	0h07m	Falling	Falling	0h07m	1%
<b>Radio</b>	0h12m	Radio (where not otherwise classified)	Radio	0h12m	2%
<b>Camp</b>	3h30m	Camp	Camp	3h30m	30%
<b>Non-falling</b>	0h00m	Multiphase co-ordination and supervision of other phases	Non-falling	0h00m	0%
<b>Break</b>	0h22m	Breaks/ social discussions	Break	0h22m	3%
			<b>Total</b>	11h35m	

# Falling Supervisor Workload Management Issues: Phase I

## Annex B – Site Visit Data

### Site J



## Falling Supervisor Workload Management Issues: Phase I

### Annex B – Site Visit Data

### Site J

#### Inspections

##### Duration of inspections

Breakdown of inspection time (excluding vehicle travel, but including walking time) over the course of the day. Note that in some cases documentation in the field is classified under other headings (e.g. documentation completed during observations is classified as 'observe').

Inspection Total			
Doc (field)	0h00m	Inspecting	2h49m
Quality	0h00m		
Stumps	0h02m		
Observe	1h25m		
Worksite	0h26m		
Discuss	0h56m		
Walking	1h12m	Walking	1h12m
<b>Total</b>	<b>2h49m</b>		

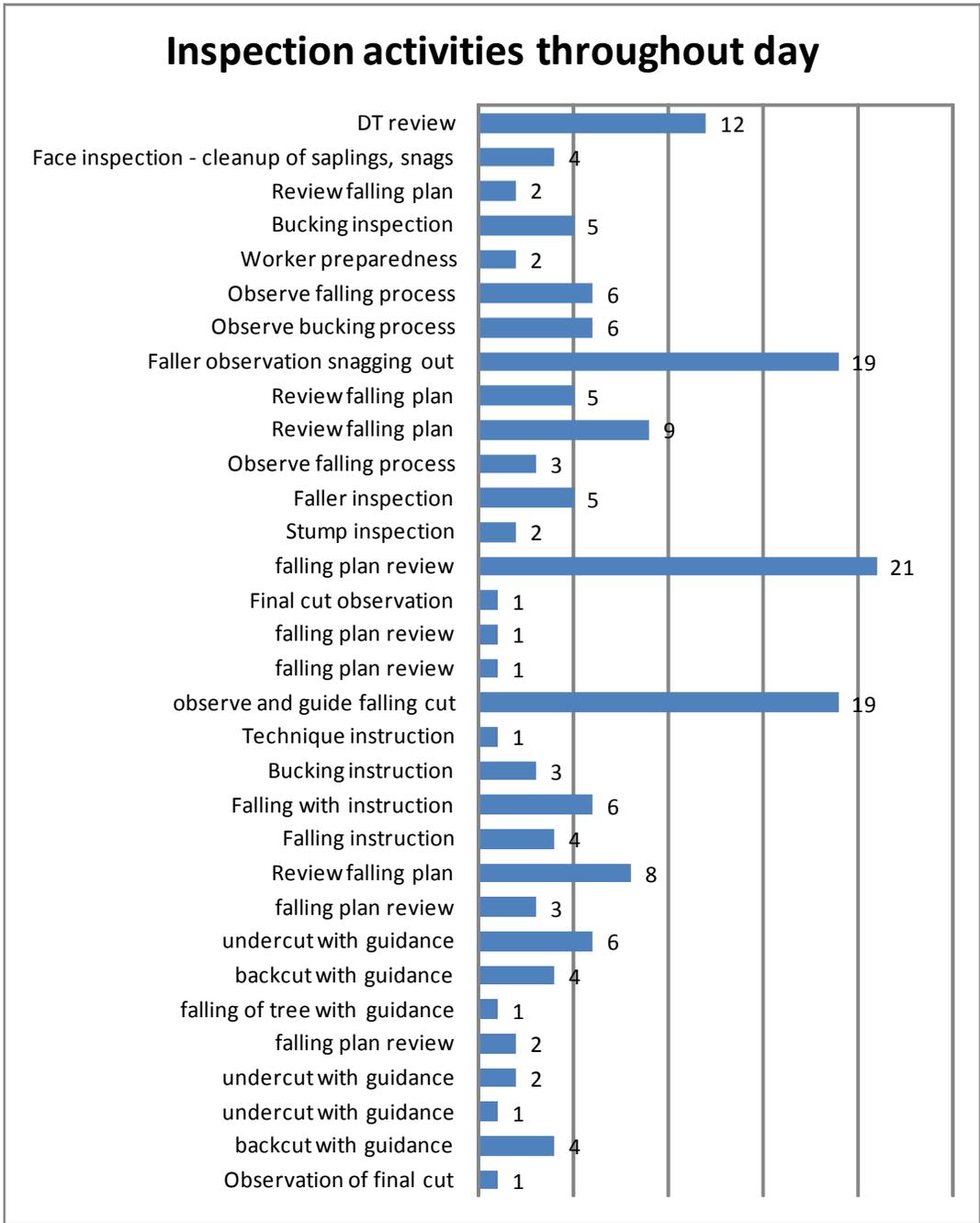
Inspections have not been broken down into individual visits. See pie chart on previous page for graph of inspection breakdown.

# Falling Supervisor Workload Management Issues: Phase I

## Annex B – Site Visit Data

## Site J

### Inspections – detailed descriptions



# Falling Supervisor Workload Management Issues: Phase I

## Annex B – Site Visit Data

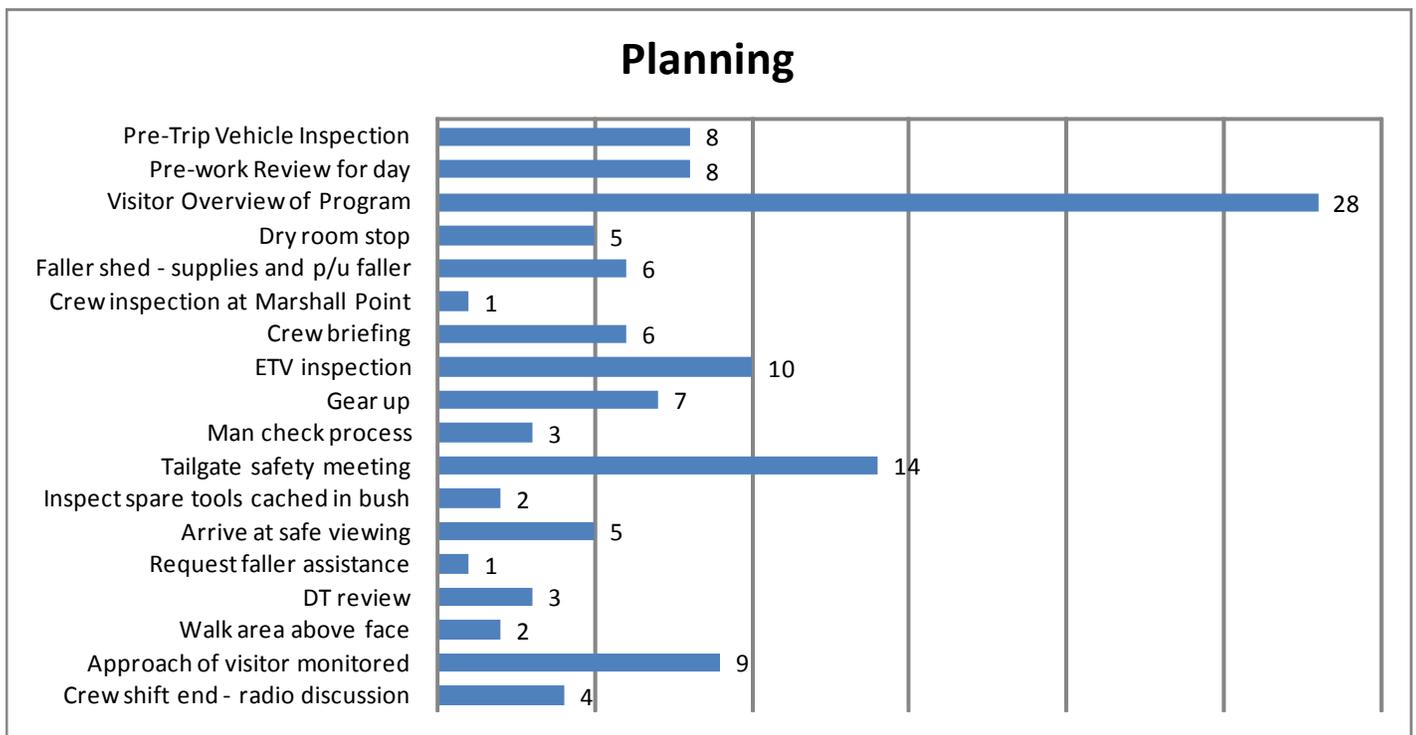
## Site J

### Planning breakdown

<b>Planning</b> Weather monitoring/ discussion	Weather	0h00m
Waiting	Waiting	0h05m
Supplies	Supplies	0h29m
Briefing/ tailgate/ discuss plans with fallers/ organize fallers	Organize	1h05m
ERP related activities	ERP	0h10m
Pre-work site inspection	Pre-work	0h13m
Vehicle maintenance	Maintenance	0h08m
	<b>Total</b>	<b>2h10m</b>

### Planning – detailed descriptions

This chart shows all activities categorized as ‘planning’ throughout the day

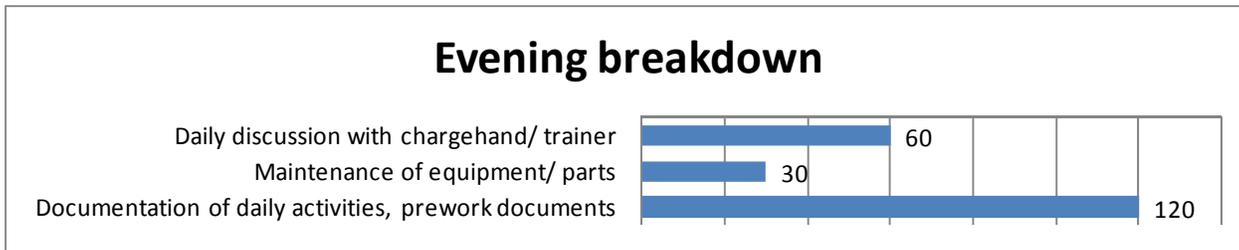


# Falling Supervisor Workload Management Issues: Phase I

## Annex B – Site Visit Data

## Site J

### Evening work – detailed descriptions



## Falling Supervisor Workload Management Issues: Phase I

### Appendix C – Workshop Data

#### Task timing worksheets

##### How long do the following tasks typically take?

Task description	Typical duration	Notes
Pre-work planning/ hazard plan (before the faller is on site, walk block, identify hazards)	30 mins – 1 day	For each <b>worksite</b>
Paperwork (that is filled in ‘at the camp’) relating to safety or faller management	2 – 8 hours	For each <b>week</b>
Paperwork and coordination (that is completed ‘at the camp’) relating to finding new business, organizational/ general management	2 – 4 hours	
Falling independently (actively falling yourself)	2 hours → more than 8 hours	
New faller training, providing support to inexperienced fallers (in the field and at the camp)	1 – 2 hours → more than 8 hours	
Safety meetings	30 mins – 1 hour	
Daily preparation (oil and gas, supplies, vehicle maintenance)	10 – 30 mins	For each <b>day</b>
Transit to the worksite (from camp)	1 – 2 hours	
Transit between fallers (from block to block)	1 – 2 hours	
Breaks (Lunch, rest breaks. Total all breaks.)	10 – 30 mins	

# Falling Supervisor Workload Management Issues: Phase I

## Annex C - Workshop Data      Task Timing Worksheets

### How often do you do the following?

Task description	Typical frequency
Fall a tree yourself to help a faller with a problem tree	Several times a week OR every few months
Provide for alternative methods (e.g., blasting, helping fallers with non standard means of removing danger trees)	Every few months. In some cases more often, up to several times a week.
Give advice on tackling particular trees (falling plan).	Once a week → several times a week
Watch a faller fall a tree	Several times a day → several times a week
Watch a faller buck a tree	Several times a week

### How many fallers are you typically responsible for supervising?

1 – 10
3
4 – 18
4 – 18
6
7 – 12
7 – 12
8
10
10 – 15
12
12
12 – 30

## Falling Supervisor Workload Management Issues: Phase I

### Annex C - Workshop Data      Task Timing Worksheets

#### How long does a typical faller inspection take? What is the minimum and maximum time?

Includes time spent writing up paperwork back in the camp, but not travel time to and from the block.

Type of inspection	Notes	Minimum	Average/ typical	Maximum
Informal inspections. Used when there are no particular issues, just checking up.	For each inspection	15 minutes	30 minutes	30 minutes – 1.5 hours
Formal inspections (e.g. including the stump audits, or the 23 pager).	For each inspection	1 hour	1.5 hours (some reported up to half a day)	2 hours – ½ day

#### How many inspections are typically done in a day?

Informal: 2 per day up to 4 – 6 per day

Formal: 1 – 3 per day up to 4 per day

#### During a typical inspection, how much time is spent on the following tasks?

Task description	Formal inspection Average/ typical time (minutes)	Informal inspection Average/ typical time (minutes)
Walking block, looking for problems, noticing danger and problem trees that will need to be tackled, monitoring man check.	½ hour – ½ day	½ – 1 hour
Inspecting faller's equipment	2 – 5 mins	2 – 5 mins
Discuss emergency response plan	10 – 20 mins	1 – 10 mins
Reviewing faller's quarter, identifying danger trees, snags, fall of wood, checking trail	10 -30 mins	5 – 10 mins
Measuring and examining stumps	20 mins – 1 hour	5 – 15 mins
Measuring bucked logs and reviewing quality	10 – 30 mins	5 – 15 mins
Observing faller bucking and falling	10 – 30 mins up to ½ day	5 – 20 mins
Giving advice/ feedback, discussing inspection with faller	5 – 30 mins	5 – 15 mins
Paperwork (that is filled in 'in the field' relating to inspection or notes on the block, supplies etc.)	15 mins – 4 hrs (for some groups already covered by previous items)	1 – 10 mins
Paperwork (that is filled in 'at the camp' relating to inspection or notes on the block, supplies etc.)	30 mins up to 2 hours	5 – 10 mins

# Falling Supervisor Workload Management Issues: Phase I

## Annex C – Workshop Data

### Ratio of fallers to supervisor

**What factors affect the ideal number of fallers for each supervisor? What is the ideal and maximum number of fallers for each supervisor for particular scenarios?**

The intent of this question was to identify which aspects of falling lead to a requirement for a greater number of supervisors, and to specify acceptable ratios of supervisors to fallers for particular scenarios in order to provide a baseline for comparison.

**Factors that decrease the ideal number of fallers for each supervisor (i.e. more supervisors will be needed for a given number of fallers)**

#### *Characteristics of the cutblock/ worksite*

- **Fragmented cutblock/ number of separate units**
- Smaller cutblocks and/or smaller openings within a cutblock
- Challenging terrain and hazards within the cutblock (e.g., creeks, gullies, blowdowns, snags per hectare)
- Ground conditions (brush, slope)
- Location/ layout (Large distances to travel)
- The need for blasting (meaning fallers need to be moved out of the area)
- Helicopter logging (as opposed to ground based systems)
- Shape of cutblock (irregular shapes and ‘fingers’ chasing timber)
- Timber types (e.g., Culturally Modified Trees)
- Type of transport available (e.g. availability of support helicopters)
- **Town** (as opposed to camp)
- Need for special falling techniques
- The need for pre-work with fallers when they move to new quarters
- Poor timber quality
- Volume<sup>3</sup> of setting (when chasing poor quality timber volume is lower. Production pressure may increase if there are errors in volume estimates)

#### *Organizational*

- **Production payout rate**
- Frequently moving quarters
- **Tight deadlines to get the wood down**
- Prime expectations (high quality of wood/ specialty logs)
- Congestion, other phases getting in the way
- The need to co-ordinate multiple contractors
- Disorganization and lack of planning in the overall company
- Detailed company safety policies
- Lots of documentation required
- Redundant documentation
- Number of safety issues

## Falling Supervisor Workload Management Issues: Phase I

### Annex C - Workshop Data      Ratio of fallers to supervisor

- Stability of plans and specifications
- Operational requirements (e.g., overlap with other phases, requirement to take on Prime role)
- Multiphase operation in one location
- Size of project (affects overall number of supervisors, but not ratio)
- Insufficient pay
- Poor mapping and information from licensee
- 'Just in time' logging (timing)

#### *Other responsibilities of the supervisor/ availability of support*

- No assistance with supervisor duties (especially with a large crew)
- Availability of chargehand
- Supervisor who also fells trees
- Supervisor has other responsibilities (in addition to supervising fallers)
  - o Supervising other types of workers
  - o Responsibility for supplies, equipment, etc.
  - o **Quality control**

#### *Crew*

- Crew is less stable/ not worked together for long
- Supervisor has not worked with crew before (especially in the first week)
- Frequent changes in personnel
- Less experienced fallers (especially in the first few days)
- New fallers in need of daily assessment
- Less competent fallers
- Shortage of qualified fallers
- Unreliable fallers not showing up (leading to re-planning)
- Lack of supervisors within the crew, meaning fallers need to be clustered with supervisors
- Low crew morale/ poor attitude
- Union crew
- Fallers that ask for help rather than fixing things themselves

#### *Environmental*

- Fire
- Exposure to weather (wind/ fog/ snow/ heat/ rain/ any extreme)
- Time of year (e.g., rainfall and heat shutdowns)
- Weather patterns

#### *Supervisor*

- Less experienced supervisor
- Supervisor with poor organizational skills
- Supervisor with slow walking speed

## Falling Supervisor Workload Management Issues: Phase I

### Annex C - Workshop Data      Ratio of fallers to supervisor

#### *Economic*

- Cost effective log markets

#### Ratios:

#### Group A:

Scenario	Ideal no. Of fallers	Max no. Of fallers
<b>Low number of fallers</b> <ul style="list-style-type: none"> <li>- Supervisor runs excavator</li> <li>- Small block size</li> <li>- Salvage</li> <li>- Patches of blowdown</li> <li>- Steep gully</li> <li>- Unstable crew</li> </ul>	2 – 4	2 – 8
<b>High number of fallers</b> <ul style="list-style-type: none"> <li>- Not doing audits</li> <li>- Stable/ experienced crew</li> <li>- Close together</li> <li>- Supervisor knows their skill level</li> <li>- Placed properly</li> <li>- Good morale</li> <li>- Self starting crew</li> </ul>	8 – 12	13 - 18

#### *Group B:*

'Ideal' 6 – 8 with an experienced crew and a working bullbucker.

#### *Group C:*

Scenario
<b>30,000m<sup>3</sup> 2 - 5 blocks conventional logging</b> <b>15,000 – hand fall</b>
<b>Non-working bullbucker 7 – 12</b> <b>Working bullbucker 2 – 6</b>

#### *Group C:*

8 fallers

#### *Group D:*

In a 'perfect' world, 6 – 10 fallers.

## Falling Supervisor Workload Management Issues: Phase I

### Annex C - Workshop Data      Ratio of fallers to supervisor

#### *Summary:*

A large number of factors were identified which impact the number of fallers a supervisor can effectively supervise. The workshop participants found it difficult to suggest a number of fallers that can be effectively supervised, as 'it all depends'. Some groups refused to do the exercise, saying it was impossible to give a number. Based on the results of this exercise, guidelines based on the ratio of supervisors to fallers would not be an easy task, and would be unlikely to be accepted by the falling supervisors. Alternative approaches (such as specifying frequency of inspections) are likely to be more useful.

## Falling Supervisor Workload Management Issues: Phase I

### Annex C – Workshop Data Frequency of inspections

#### In your organization, how often do you conduct inspections on your fallers? How frequently *should* supervisors inspect different types of faller?

This question was intended to identify whether there was a gap between the ‘ideal’ frequency of inspections, as determined by the supervisors themselves, and the actual frequency of inspections. As had been anticipated, social desirability played a strong part in answering this question, and the data should be treated with some caution for this reason.

#### Group A

Type of faller	Ideal	Actual
<b>Inexperienced (certified but new)</b>	Daily	Pretty close to daily. Might miss a day. Another faller would always be close by.
<b>Trainee (not certified)</b>	At least daily, up to continuous	This is what happens in most places. Also talk at night.
<b>Problem faller</b>	Daily. More if required.	People stay on top of it (mostly). A problem faller would need to show improvement quickly to avoid being terminated.
<b>Average</b>	Once or twice a week	Once a week or less. Up to once a month
<b>Experienced</b>	Weekly but would chat in camp	In reality less. Every 2 – 3 weeks

#### Group B:

Ideally inspections would happen every 3 – 4 days if money wasn’t limited. Inspections are conducted once per week in reality.

Frequency depends on:

- Whether the faller is new to the job
- If corrective action is ongoing
- If the faller is a trainee
- If there is a history with the supervisor (relationship)
- If a ‘flag’ is identified during the tailgate
- If hazards are coming up
- If the wood is marginal or higher grade
- Extent of production planning (e.g., checking quality)

Individual answers:

- Once or more per week
- Only until history is established
- 5 – 8 times per month, plus weekly tailgates
- Experienced faller at least weekly in his quarter, for training daily

## Falling Supervisor Workload Management Issues: Phase I

### Annex C - Workshop Data      Frequency of inspections

- Daily, but not all fallers depending on the number. Some of them daily on the stump.

#### Group C:

General comments:

Weekly inspections (the minimum you are supposed to do). If issues come up the frequency would increase. Would also do inspections if they are in the area anyway (e.g. if Q.C. or a foreman want to go in, or if they are there to check on someone else).

BCFSC/ WorkSafeBC want documentation of the stump. However, the group felt monthly stump audits are a waste of time 'pretty stumps don't save lives'. They felt there should be a quick visual check rather than measurement. Inspections are easier when you know the faller, when you have built rapport and can tell when things are going well or badly. There is a huge difference between supervision of a trainee and a new hire. For a trainee they would always stay with him until ready.

Type of faller	Frequency
New faller	Would check when he comes in initially, then weekly. Might check twice a week more for human factors.
Inexperienced	Every day, or right with him
Experienced	Once per week for a short time

#### Group D:

Informal inspections: once a week

Formal: once a month

General comments:

Inspections would happen more often in high risk falling blocks, and at the bullbucker's discretion for questionable work. The group requested streamlined stump inspections.

Individual answers:

In reality

- Visually daily, written weekly. Stump audit once per shift or more (every 2 weeks)
- At least weekly. Monthly stump audit. At least one stump audit on small projects lasting one month.
- 1 – 3 times per week. Monthly stump audit.
- Daily to weekly. Monthly inspections. People are asking questions all the time.
- Daily if working with the fallers, weekly if not working with them.
- Every 3 – 5 days depending on the number of fallers and specifics of timber type/ conditions.
- Own crew – 5 days a week. Province wide – once a season. Or when there is a fire.

## Falling Supervisor Workload Management Issues: Phase I

### Annex C - Workshop Data      Frequency of inspections

- Every 7 – 10 days on a steady crew. Every 3 – 4 days for a new crew. More frequently in high hazard areas or areas with complicated falling decisions required.
- Weekly or semi-weekly depending on what is found (x 2)
- Weekly plus a monthly stump audit
- Once a week

Type of faller	Ideal
Inexperienced	Daily (ranging from hourly to twice a week)
Trainee	At least daily
Problem faller	Daily until the problem is resolved/ faller is terminated (ranging from hourly to twice a week)
Average	Weekly or twice a week
Experienced	Weekly (ranging from twice weekly to every two weeks)

#### Group E:

In reality

Formal: monthly, or twice a month

Informal: weekly or twice a week. Daily discussions in the shop.

Type of faller	Ideal
Inexperienced	Depends on the location. Would place with an experienced faller and check weekly.
Trainee	Verbally daily, would check every 3 days.
Problem faller	Daily until resolved/ faller is terminated
Average	Monthly formal, weekly informal
Experienced	Monthly formal, weekly informal

#### Summary

There were some differences between the groups, and there was also discussion about what was meant by 'inexperienced' and 'trainee' fallers. The following table is based on all of the groups.

<b>Inexperienced (certified but new)</b>	At least daily. If placed with an experienced faller inspections might be less frequent.
<b>Trainee</b>	Would be continuously with a more experienced faller. Would check daily.
<b>Problem faller</b>	Daily until issue is resolved or faller is terminated. Might check more or less often depending on severity of issue.
<b>Average faller</b>	Weekly informal inspections, a monthly audit
<b>Experienced faller</b>	Once a week or less provided performance is

## Falling Supervisor Workload Management Issues: Phase I

### Annex C - Workshop Data      Frequency of inspections

	maintained
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#### Summary

When reality is compared to the ideal, on the whole supervisors inspected fallers more than once a week if they were trainees, inexperienced, or problem fallers. For average and experienced fallers, supervisors aimed to comply with the requirement for weekly inspections, but in reality inspections might occur less often, or might be rather brief. It is likely that the data in this topic over-estimates the frequency of inspections for average and experienced fallers, as informal discussion suggested that inspections may actually happen less often than once a week. Guidelines for frequency of inspections are likely to be more effective than guidelines relating to ratio of fallers to a supervisor. However, guidelines should differentiate between different types of faller.

## Falling Supervisor Workload Management Issues: Phase I

### Annex C – Workshop Data

#### What is the impact of falling timber whilst supervising?

Some supervisors also fall trees, whilst others are 'supervision only' supervisors. When a supervisor falls trees this means that there are other demands on the individual's time, potentially increasing workload. However, there are also advantages to falling whilst supervising. This question was intended to identify the benefits and disadvantages of falling trees whilst supervising.

#### Benefits of falling trees whilst supervising

##### *Effectiveness of supervision*

- Skill levels and fitness are maintained
- The supervisor can demonstrate and fall a problem tree himself if required
- The supervisor can lead by example, enhancing credibility and respect
- It is easier to understand block hazards and relate to issues faced by fallers
- The supervisor can place himself on the face to be near problems
- Better relationships with crew members
- Increased availability (may be able to stay in a central location)
- Opportunities for 'unofficial' interaction with fallers e.g., when riding out and during marshalling
- Opportunities to work with the entire crew not just one faller, e.g., by pairing up with different crew members
- More efficient as supervisor knows what is going on

##### *Financial*

- Production is increased
- Lower costs, affecting rates for work
- With small crews there may not be enough work for a full time supervisor

##### *Individual motivation*

- Fallers enjoy falling trees and do not want to be full time supervisors
- Full time supervision may become boring for some

#### Disadvantages of falling trees whilst supervising

##### *Effectiveness of supervision*

- There is less time for supervising
- The supervisor himself is working unsupervised ('you can't audit yourself')
- Not readily available/ supervision less effective when falling more than one area ('only 1 crummy, they know you won't be coming to see them')
- There may not be time to watch fallers work, just look at stumps and watch a faller if he has problems
- Future planning may suffer
- A full time supervisor can manage a larger crew

## Falling Supervisor Workload Management Issues: Phase I

### Annex C - Workshop Data      Falling whilst supervising *Conflicting demands*

- Less available to make decisions on other areas
- Union crews may complain if the supervisor fells trees
- Pricing is competitive so the supervisor needs to keep production up, but if he doesn't supervise the prime may view that as non conformance to the terms of the contract
- Switching between falling and supervising may impact concentration
- Pressure from the prime to get your (the supervisor's) share done
- The supervisor isn't supervising when he is falling
- Informal audits may be used as the supervisor needs to work

### *Workload*

- It leads to a longer day
- Fatigue may be a problem
- It is easy to get behind on paperwork
- In a small company the paperwork can be a major burden
- The supervisor also needs to look for more work

### *Impact on supervisors own safety*

- Distraction may mean the safety of the supervisor himself is reduced
- Loss of focus on your (the supervisor's) falling practices

### *General notes and comments*

- Supervisory duties are completed before going on the saw
- Supervisors should allow a certain amount of time to be on the saw
- It is important to incorporate supervision into the bid, factoring in time to deal with issues
- If Industry was willing to put money on the table for not working, that would mean we could supervise more

### *Summary*

Supervision by a full time supervisor is not necessarily better, as a supervisor who also falls has a number of advantages due to his day to day falling experience. However, workload issues and conflicting demands may lead to supervisors who fall becoming overloaded and distracted. In turn this may impact their own safety and their ability to complete the necessary tasks, especially paperwork. Financial pressures tend to favor supervisors who fall, but may also mean they work long days to compensate for time spent on the saw.

## Falling Supervisor Workload Management Issues: Phase I

### Annex C – Workshop Data

#### What is the impact of high workload?

This topic investigates the impact of high workload, addressing the questions: ‘what will happen if workload issues are not addressed?’ and ‘how serious is the impact of high workload?’.

#### Impact on supervisor

- Fatigue
- Stress
- Working late
- Fast driving
- Alcoholism
- Injury
- Mood swings
- Pressure
- Worry
- Physically sore
- Mind not on the task when falling
- Personal issues on and off the job

#### Impact on fallers/ quality of supervision

- Missing problems
- Avoiding responsibility (‘Passing the buck’)
- Failure to complete ‘official’ requirements
- Shorter visits
- Less attention
- Shortness of temper or lack of patience in communicating with crew
- Tasks not completed or not done properly
- Too tired to do proper inspections
- Less time available to spend with fallers
- Not enough time to complete documentation properly
- Poor morale in the work crew
- Crew are neglected
- Workers end up making decisions that they shouldn’t
- Minimum time spent with supervisor
- Less time is spent looking ahead at new areas and pre-planning
- Poor decision making (not enough time to evaluate and plan)
- Small issues get ignored or overlooked so the supervisor can focus on problem areas
- Lower quality supervision
- Unable to properly supervise each crew member
- Duties are delegated
- It becomes unrealistic to walk every cutblock or place every faller
- Regulations aren’t followed
- Supervisors sign off on things they haven’t done
- Hazards are missed
- Crew are not well matched to the site, or faller to faller
- Faller avoid contacting supervisor (‘he will be too busy anyway’)
- When walking the cutblock the focus changes from hazards to pricing

## Falling Supervisor Workload Management Issues: Phase I

### Annex C - Workshop Data      Impact of high workload

- If the supervisor does visit a faller more often, he assumes something is wrong, and feels pressure to 'move on' or worries that he might get fired

#### Impact on the supervisors' family and friends

- May lead to family problems
- Lack of personal time with family and friends
- Stress outside of work
- Family comes second
- Short temper
- Community loses out e.g., coaching children

#### Impact on the organization

- Lower production
- Higher risk factors
- Poor planning
- Lack of communication
- Decrease in safety
- Loss of future work
- More chance of accident or fatality due to lack of supervision, which could lead to fines
- Drop in productivity/ production
- Poor quality work
- Reduction in cost-effectiveness
- Reduced costs (in the short term)

#### General notes and comments

- Supervision isn't a 9 – 5 job (it should pay more)
- A lot of other factors take time, such as filling gas
- The Council should pay for documentation
- Organizing takes a lot of time, but can be rewarding if done well
- Delegation can help with a good crew

#### Summary

Workload may primarily appear to be a problem for the individual; however the impact on fallers being supervised and on the organization is also significant. This topic identifies some of the mechanisms whereby workload can impact safety and the quality of supervision.

## Falling Supervisor Workload Management Issues: Phase I

### Annex C – Workshop Data

#### Does workload impact faller safety? How is important is workload (as opposed to other factors) in affecting safety?

Workload has an impact on safety, as identified in other topics. However, that doesn't necessarily mean it is the most important factor. This exercise sought to identify the relative importance of workload, as compared to other factors. The data is based on two groups, as other groups did not rank the factors (data from other groups has been integrated into other topics).

#### Rankings of factors impacting on safety, in order of importance (group A):

1. Money: if money is constrained, this leads to increased workload
2. Continuity of work
3. The culture of the crew (buy-in of the crew and the office)
4. Multi phase operation bottlenecks
  - a. Operating windows (timing – no lead time)
  - b. Certification and training load

#### Rankings of factors impacting on safety, in order of importance (group B):

Impact on safety	Impact relative to workload	Factors (not ordered within cells)
High	More than workload	Terrain Skills and experience Congestion/ multiphase worksites Number of danger trees/ snags Drugs and alcohol Planning Training Focus/ mind on task/ attitude
High	Same as workload	Fatigue Rest Economics/ money Production pressure Number of workers on site Location of worksite Workload Time available Communication Leadership Timber type
High	Less than workload	Lack of alternative methods Rushing Frustration Company policies Relationships Personal problems Equipment

## Falling Supervisor Workload Management Issues: Phase I

### Annex C - Workshop Data      Impact on safety

		Supervision
<b>Low</b>	Less than workload	Hydration Respect Weather (wind, fog) Fire + smoke Wildlife Hours of operation Proper size saw + bar length for timber Sharp caulks Having a sharp chain

#### Summary

Workload is not necessarily the most important factor impacting faller safety. However it is one of the factors with a high impact. Some of the factors (e.g. sharp caulks) may be easier to address but will have less impact. In some cases similar items were placed in different categories, indicating blurred boundaries.

## Falling Supervisor Workload Management Issues: Phase I

### Annex C – Workshop Data

#### What is good falling supervision?

In order to improve supervision, it is important to know what ‘good’ supervision looks like. This question explored supervisors’ experiences of providing good supervision, answering the question ‘how does a good supervisor prevent accidents?’, and their views on what good supervision means.

#### Examples of providing effective supervision (‘good catches’)

- Pointed out a hazard – if the faller had left it there was a good chance he’d have been hit by a leaning snag
- Noticed fallers getting too close to machines and other fallers and stopped them
- Found two fallers fighting. Talked to them and showed a video on violence in the workplace. This turned them around.
- Whilst doing a daily inspection, found fallers trespassing. They had forgotten their map. Told them where they should be.
- Sent someone home for drinking/ being unfit for work
- Gave advice to fallers about the dangers of a fire burning inside a tree, what might happen if they cut into it, and what to look out for.
- Saw a faller wearing no ear protection, and provided him with ear protection
- Noticed a faller working his way towards his partner and getting too close to him. Was able to warn him in time to avoid being hit by a tree.
- Stopped a faller with 19 cut up trees, {planning to} domino.

#### What is needed for good supervision?

##### Effective communication and social skills

- Providing clear and concise instruction, explaining in a way that is easy to understand
- Treating fallers with respect and listening to them
- Building a rapport with fallers
- Praise and acknowledgement (in public) of good work
- Balance criticism with positive points, and keep negative communication and discipline private
- Diplomatic

##### Technical skills

- Good understanding of the regulations
- Know what to do, able to demonstrate safe working procedures
- Not just focusing on stumps
- Qualified

##### Organizational skills

- Able to dedicate enough time to supervision (not just the individual – the company also plays a part in this)
- A good planner, organized, detail oriented
- Makes realistic commitments and goals

## Falling Supervisor Workload Management Issues: Phase I

### Annex C - Workshop Data      What is good falling supervision?

- Worksite organization (an organized worksite promotes productivity and safety)

#### Leadership and decision making skills

- Consistent and fair
- Make opportunities for 'one on one' time with fallers
- Maintain authority without resorting to physical means
- Matching people with the right jobs
- Approachable
- Flexible decision maker
- Good people management skills
- Motivational
- Objective decision maker

#### Safety commitment

- Able to withstand pressure from others to do things that might impact safety (e.g., pressure from the prime, licensee, or fallers to work in marginal conditions)
- Demonstrate concern for safety in day to day activities, not just during safety meetings
- Willing to do what is necessary, even when it is awkward or embarrassing (e.g. dealing with personal issues)
- Lead by example – rather than holding the crew to higher standards than yourself
- Bid appropriately even if there is a risk of losing the contract

#### Responds appropriately to safety issues

- Ensure fallers are working on an area that is within their ability (taking into account minor injuries, ramp up time after a period of no work, etc.)
- Know when to discipline crew members, and when it is appropriate to shut someone down
- Aim for zero lost time incidents and zero close calls
- Take time to understand each situation before reacting
- Encourage the reporting of close calls/ near misses
- Take constructive action on close calls – e.g. bringing the crew to the site
- Foster a culture where it is OK for a faller to 'say no'
- Progressive discipline that is appropriate to the situation

#### Peer support

- Encourage crew members to watch out for each other's safety
- Discourage secrecy or 'keeping it in the crew' where safety is concerned

#### Personal issues

Have some knowledge of how to deal appropriately with personal issues

Be aware of the potential for personal issues to lead to safety issues

## Falling Supervisor Workload Management Issues: Phase I

### Annex C - Workshop Data      What is good falling supervision?

#### Ask for help

Willing to ask for help when needed, e.g. WSBC, BCFSC, other people in the company

#### Identify – understand – respond – learn

An effective way for supervisors to respond to safety issues, consolidated from group comments:

1. Identify

Actively look for issues, and indications of reduced safety. Monitor unsafe acts, close calls, and near misses for patterns.

2. Understand

Spend time understanding the causes of the issue from the faller's perspective, and test his understanding of the hazards and the reasons for concern.

3. Respond

Respond consistently, objectively and appropriately to the issue. Set achievable goals with the faller, and follow up afterwards. Ensure whatever action you take will reduce the likelihood of re-occurrence, but won't drive the issue underground.

4. Learn

Document what has happened, and try to identify improvements or changes that could help in the future.

#### Summary

Effective falling supervision requires a number of skills, and is a challenging activity. Support and training for supervisors should include soft skills, in particular response to safety issues and conflicts relating to safety, as well as technical skills. Human Factors training may be useful to help supervisors identify causes of human error, and to understand the difference between errors and violations.

## Falling Supervisor Workload Management Issues: Phase I

### Annex C – Workshop Data

#### What makes falling supervision difficult? What are the barriers to good falling supervision?

One of the aims of the workshop was to identify ways in which the effectiveness of supervision could be improved. This topic is intended to help identify barriers to effective supervision.

##### Number one barrier

###### *Documentation/ paperwork*

Many supervisors feel overburdened by the amount of paperwork. Some commented that the amount of paperwork is not always appropriate to the need. For example, there might be potential to use a streamlined form when assessing an experienced faller who the supervisor knows well. In addition, paperwork is not consistent from one company to the next and the evaluation sheet is perceived to be over-complicated and to have redundancies.

##### Important/ critical barriers

###### *Low contract prices*

'It all comes out of the stump' – supervision is a cost, and the perception is that contracts are awarded and rates are decided on the basis of cost per m<sup>3</sup> rather than safety. This means that a safety conscious outfit with good supervision may lose out on work due to higher costs. The end result is that there is a lack of money available for supervision; supervisors feel they are not paid adequately for the job (and responsibility) they are taking on; and production pressure can over-ride safety. 'We work for 10 – 14 hours whilst being paid for 6.5.'

###### *Too little time*

Pressure to get the job done quickly, and particularly to get started quickly when there has been a delay in getting permits, means there is often not enough time for the supervisor to walk the blocks to identify hazards and place fallers individually. The supervisor may arrive at the same time as the fallers, and delaying fallers in starting work is not seen as practical or acceptable. When the job is ongoing, supervisors feel they don't have enough time to get all of their tasks done, and end up working late to finish off paperwork.

###### *Poor communication*

Communication is frequently mentioned as a key part of effective supervision. Poor communication either within the crew, or within the wider organization, is seen as a major barrier to effective supervision.

###### *Congestion, poor planning, and multi phase operations*

In some cases falling begins before other phases (such as the road crews) have finished. This makes planning and coordination difficult, and also means it is hard to organize falling in an efficient manner. Bad phase planning can lead to phase conflicts, as well as making it difficult to position fallers safely. Supervisors may have little control over the planning process and timing of other phases. Other phases may lack of awareness of what faller do, and in turn fallers may have a lack of awareness of other

## Falling Supervisor Workload Management Issues: Phase I

### Annex C - Workshop Data      Barriers to good falling supervision

phases. Unexpected changes in the logging plan make supervision difficult. Mistakes by engineers can lead to a poor layout and hazards in the cutblock.

#### Other factors that make supervision difficult

##### *Worksite related*

- Geographical area and terrain
- Large work area
- Travel/ walking time
- Poor layout and location of workers
- Ground and timber conditions

##### *Organizational*

- High personnel turnover (especially when there is a period without work)
- Large number of workers
- Direction from client/ upper management/ company that is inconsistent with supervisory and safety goals
- Lack of support from company
- Changing priorities
- Confusion over prime contractor responsibilities
- Changes to the bucking specification
- Lack of stability and difficulty of establishing a system due to lurch logging
- The supervisor may have limited authority to make important decisions (e.g. about disciplining the crew)

##### *Crew related*

- Poor cooperation
- Fallers attitudes (dealing with prideful people and people used to looking after themselves)
- Clashing personalities
- Drugs and alcohol
- Town work vs. camp work (camp based operation makes it easier to manage fallers)
- Lack of a tracking system for poor workers

##### *Other*

- Weather
- Unionization
- Poor camp conditions
- Family problems
- BCFSC being slow
- Changing expectations of workforce ('young people expect to have a job')
- The high potential for injury
- Lack of respect from crew

## Falling Supervisor Workload Management Issues: Phase I

### Annex C - Workshop Data      Barriers to good falling supervision

- Lack of clarity in job description

#### Summary

This topic is one of the most important, as it identifies the key barriers that supervisors face in providing effective supervision. Interestingly documentation and paperwork were strongly identified as one of the most critical problems, and were felt to be one of the key sources of workload issues. Supervisors are working longer days to finish off paperwork, and as a result are spending less time in the field supervising fallers. Many comments were made about the 'paper trail' which is useful when liability becomes an issue, but which many felt contributed little to day to day safety. Economic pressures were also highlighted, as the economic benefits of safety may seem distant when the immediate problem is winning a contract. Lack of time and multiphase operations were also identified as key issues. Many of these issues are interlinked – paperwork and multiphase operations lead to lack of time, made worse by bidding practices that are largely price based.

## Falling Supervisor Workload Management Issues: Phase I

### Annex C – Workshop Data

#### What tips and techniques have you found to help with effective falling supervision? Do you use any tools that help to make your supervision more effective?

This question is intended to identify ways in which the Council, or the industry as a whole, can learn from falling supervisors and help them to improve the effectiveness of their supervision.

#### Tips and techniques:

##### Organization and documentation

- Collect together the documentation for each worksite, put it in a dust proof binder, and keep it in the crummy. As well as ensuring all the information is to hand when needed, this also helps with WorkSafeBC audits.
- Write things down to help keep the fallers organized (e.g. which crummy are they in) so you have a reference when they forget.
- Pre-print documents you will need.
- Use a pre-work checklist for briefings, and to ensure nothing gets forgotten when you start work.
- Plan in advance. Spend some time doing research while waiting for approvals (although not in too much detail as things are likely to change).
- Hire someone to type notes, catalogue photos/ videos etc... One disadvantage is that the knowledge of what needs doing is often inside the supervisors head.
- Use forms that are worker-friendly. Keep it simple for the fallers, with yes/no answers.

##### Inspections

- Use a tape recorder or Dictaphone to record observations in the field, then transfer to paper
- Use streamlined audit forms. Visually assess stumps if you know the faller well. If the trees are laid out nicely, measuring is less relevant. Go back to measuring if there is a problem.

##### Leadership behavior

- Be a role model for the fallers. Practice what you preach.
- The best way to get respect is to give it.
- Pay attention to what the fallers say, and give credit for good ideas. Production will go up.
- Deal with issues right away – don't procrastinate. Otherwise the list gets too long.
- Learn to delegate and get members of the crew to help you out. The insight into what you do can increase their respect for you.
- Have good lead hands, and use them to your advantage.
- Let go of the reins a bit – don't micromanage.
- Socialize with the fallers over a beer after work, but be the first to leave.
- Fallers input into the falling plan
- Delegate tasks to faller to free up supervisor – team work – trust
- Treat fallers as equals and treat everyone with the same respect

## Falling Supervisor Workload Management Issues: Phase I

### Annex C - Workshop Data      Tips, techniques and tools

- Take fast action to connect problems, and follow up on issues no matter how small
- Don't override a faller's safety decision

#### Briefings and communication

- Give recognition for good performance in front of the crew, and criticism in private.
- Point out the positive before the negative.
- Use good, clear communication.
- Use checklists for tailgates and briefings pre and post work.
- If you don't know the answer to something, be honest and say you will go and find out.
- Ensure your crew is well informed. Have a meeting every morning.

#### Time management

- Give yourself enough time to make decisions
- Don't try to accomplish everything at once

#### Hazards and safety

- Re-evaluate for danger trees after every weather incident
- Match the terrain to the faller's ability.

#### Tools and equipment:

##### Documentation and paperwork

- Voice recognition software
- Video
- Camera as tool for documenting
- Daily journal/ log book/ diary
- Computer or laptop
- Scanner to scan changes in documents
- Software that enables you to fill out forms and push a button to send/ file
- Electronic forms
- Pocket recorders/ tape recorders – are better than writing
- Handheld audit

##### Communication and navigation

- GPS coordinates for important locations (ERPS, heli pads)
- A good map with hazards and important locations marked on it, including time and distance to town, the direct line and closest road.
- GPS for finding the right area
- Satellite phone
- Hand held radios or radio headsets

## Falling Supervisor Workload Management Issues: Phase I

### Annex C - Workshop Data      Tips, techniques and tools

A portable repeater (this works well in the helicopter) so everyone can communicate with the helicopter

- Cell phone and cell phone boosters to increase the range. Wire works better than wireless.

#### Other

- A flare gun in a floater coat when on the crew boat
- Weather channel
- Handheld weather station
- Clinometers
- Bucking cards
- A good saw shop in camp
- Blasting ticket
- Danger tree assessment certification
- Hip chain
- Trail ribbon
- Info flips

#### Summary

The supervisors in the workshop provided a number of useful ideas for improving supervision. A handout or poster listing some of the best tips and techniques could be useful as material to be distributed to supervisors. It would be especially useful if documentation could be streamlined and workload reduced using some of the ideas for tools, particularly during inspections.

## **Falling Supervisor Workload Management Issues: Phase I**

### **Annex C – Workshop Data**

#### **How do you encourage fallers to be safe when you aren't there?**

Even with a small crew, it is impossible for a supervisor to be present at all times, or even for the majority of the time. An important part of supervision is therefore motivating fallers to behave safely even when they aren't being watched. This topic reviews supervisor's approaches to what is, in effect, creating a safety culture amongst fallers.

#### **Education and training**

Create awareness among the fallers of the consequences if they don't work safely. Review a fatality and encourage them to think about the family impact.

#### **Encourage open sharing of safety issues**

Ensure fallers know they can come to you with safety concerns or mistakes, and they will be listened to rather than punished. Communicate that it is a good thing when they call in the supervisor 'that's what we're here for'. Maintain confidentiality where possible, and don't discuss a faller's faults with others, or you will drive issues underground. On the other hand, promote the view that 'we've all been there' and help fallers to learn from each other.

#### **Make safety part of the hiring process**

Check references with former employers, and use a screening process when hiring new workers.

#### **Enforce safety policies consistently**

Breaking the rules can easily become a habit. Consistently enforce safety rules and regulations, and ensure fallers know you will follow through on violations.

#### **Train a chargehand**

Ensure there is a qualified and trained chargehand who can take over when you are away, and encourage members of the crew to develop their skills by delegating tailgates when you are present. Plan for your absence and ensure the fallers know what to do next, and that hazards are properly handed over.

#### **Don't be too predictable**

Conduct inspections when the fallers aren't there, and notice if they appear nervous. Do a fly by in the heli and check on a faller if you have doubts. Look at stumps from a few days ago whilst walking the block.

#### **Self policing - involve the crew**

Encourage everyone to look at each other, and promote the view that what you do impacts the whole crew. Self policing may be preferred by the crew as they can correct things without the supervisor being involved, but ensure they are still encouraged to go to the supervisor. Make sure other types of peer pressure (that might decrease safety) are discouraged. Encourage each faller to police himself.

## Falling Supervisor Workload Management Issues: Phase I

### Annex C - Workshop Data      Encouraging fallers to behave safely

#### Summary

Encouraging openness about safety issues, whilst also enforcing safety rules and regulations (which can call for disciplinary action) is a difficult balance. One approach which is sometimes taken by safety professionals is to distinguish between errors and violations. Errors are unintentional, and may be due to lack of training, a lapse of memory, or a misjudgment of the situation. Violations occur when the individual knows that they are breaking a rule, but chooses to do so anyway. Often the motivation is not selfish, but may be related to helping out a fellow crew member, getting more done in less time, or making do with inadequate equipment or supplies because of delays or difficulties in obtaining what is needed. In general, the most constructive approach to an error is to remove the conditions that made the error possible or likely (e.g. provide a visual reminder or checklist if something has been forgotten) and the most constructive approach to a violation is to enforce the policy and change the culture of non compliance that led the worker to feel it was acceptable. If the organization as a whole is sending mixed messages (e.g., that production is more important than safety) violations will tend to increase as a result.

## Falling Supervisor Workload Management Issues: Phase I

### Annex C – Workshop Data

#### What could improve supervision and reduce workload?

This topic has some overlap with tips, tools and techniques for effective supervision. However, it is more focused on changes which are outside the supervisor's direct control. Topic 17 (improve supervision) has been combined with topic 18 (reduce workload). This is because there was considerable overlap in the two topics (in other words, most of the suggested improvements to supervision are achieved through reducing workload).

#### Planning

- Planning of the block should include all parties, and should minimize inter-phase hazards due to everything starting at the same time (as a result of permits and start-ups).
- Minimize deviation from the plan

#### Supervisor authority

- Supervisors should be able to use their authority to refuse to go into congested situation, and this should be respected
- Employer should give supervisors more authority (e.g. the ability to pull a faller's certification for unsafe practices)

#### Paperwork and standardization

- One tiny form
- Less weight on the paper trail for protection and more on improving safety
- Standardized forms used by all contractors/ licensees and provided by the company
- Supervisors encouraged to use their judgment, rather than just focusing on the paper trail
- Streamline paperwork
- Less redundancy and repetition
- Standardize audits and forms
- Volume of paperwork that makes it feasible to get it done during the day (rather than in the evenings)
- Introduction of the handheld device (as described at the workshop) for short inspections and the 23 page inspection
- Consistent policy followed by industry, the government and contractors
- A filing system for organizing the paperwork

#### Appropriateness of effort

- The amount of paperwork (for incident investigations) is related to how much the faller is hurt not whether it is worthy of investigation. Some non incidents should be investigated. A different way is needed of determining what paperwork is necessary.
- Less paper work for some incidents, e.g. slipping when walking

## Falling Supervisor Workload Management Issues: Phase I

### Annex C - Workshop Data      Improving supervision and reducing workload

- When inspecting a faller who has been inspected many times before, provide a streamlined version which can be used unless there is cause for concern
- More time spent watching fallers, and less time filling in paperwork
- Supervisors are more likely to do {paperwork} if it is easy.
- Use a handheld reporting and management system with a built in GPS and cameras.
- Use a handheld radio with GPS so the supervisor can find the fallers wherever they are

### Economics

- Prioritize managing the resource rather than short term goals
- Provide the money needed to do a proper job
- Ensure there is a reasonable profit margin
- Change the industry focus from volume to safety
- Allocated money for safety would be good, but would be hard to police
- Ensure solutions work for smaller operations and are not just aimed at corporate structures.

### Supervisor workload

- Don't give supervisors more than they can handle.
- Employers could ensure responsibilities on supervisors are not too great a burden
- Provide supervisors with an administration assistant (but this often requires the supervisor to do the thinking)
- Support delegation of supervisory duties (e.g. the daily tailgate)
- Provide qualified help in areas of expertise, e.g., truckers can look after themselves.
- Supervisors should make use of times when they see fallers incidentally/ when they are passing anyway
- Take the numbering system out of the stump audit
- Ensure supervisors have time to watch the fallers (e.g., looking at their habits)

### Training

Useful training courses:

- **Blasting course**
- **5 day Falling Supervisor training course (FSC)**
- Level 3 first aid
- Time management
- Computer training
- Conflict resolution
- Provide training money and access to licensee training sessions
- Reduce the effort required for training site set up (should not be difficult to set up the course)
- Enable 'us' to train a faller (not a business model) therefore BCFSC standard and regulation is in the way (BCFSC's new faller training is only a start in a long process – it still requires up to 180

## Falling Supervisor Workload Management Issues: Phase I

### Annex C - Workshop Data      Improving supervision and reducing workload

days of training experience to get certified and up to 5-7 years before an individual is a fully experienced faller).

- Provide training and/or support in mentoring
- Government subsidy option for trainers
- Provide Human Factors training to help understand why people do what they do
- Make it easier to find out which courses are available.
- Don't increase the amount of training – fallers are already overloaded with training
- Stick to plan from BCFSC (e.g., a supervisor might believe they need to snag the whole cutblock, but this is a misinterpretation. In reality BCFSC only expect fallers to deal with the hazards in their immediate area rather than removing snags for the whole cutblock).
- Train the licensee

### Equipment

- Handheld
- Headsets
- Falling pants with Kevlar
- Build in the Emergency Transportation Vehicle with the crew transport vehicle
- Saws
- Dictaphone
- Voice recognition (for form filling)
- Digital recorder
- Pre-work checklist
- Reminders (what the supervisor needs to talk about)
- Checklists for watching fallers

### Misc.

- A more comprehensive Professional Liability insurance that actually 'comes through'.
- Greater knowledge of the falling requirements and standard by other employers (written expectations) to avoid being pulled in many directions by WCB, BCFSC and the licensee
- Increased presence of BCFSC advocates
- Licensee recognition
- A system that enables learning and progress on safety issues