Hazardous Manual Task Systems Thinking Assessment (HaMSTA)

User Instructions

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Introduction

HaMSTA is based on systems thinking principles and enables identification of contributory factors which could result or have resulted in an injury from hazardous manual tasks. HaMSTA uses a taxonomy to assist in this identification and enables the development of systemic controls.

HaMSTA has been developed in Microsoft Access. The basic table relationships of tables are shown in *Figure 1*. For example, for one Hazardous Manual Task (HMT) there can be multiple Aspects. Each Aspect can subsequently have multiple associated Roles or Equipment.

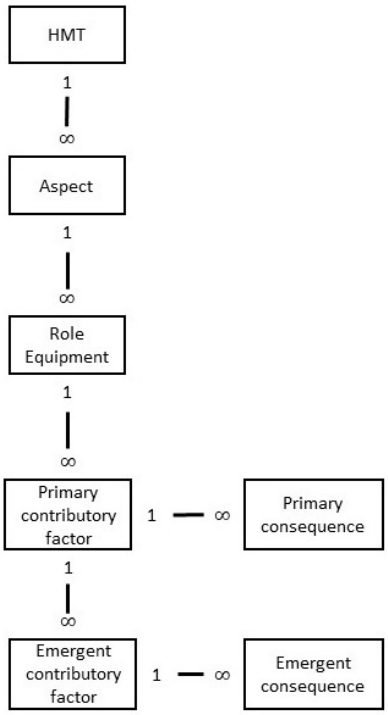

Figure 1 Basic structure of HaMSTA showing table relationships.

Note: HaMSTA has not yet been assessed for reliability or validity.

HaMSTA is a four-stage process

- Stage 1: Entering supporting information.
    - Documents
    - Roles and equipment
    - Consultation
- Stage 2: Entering HMT system data into the assessment tool.
- Stage 3: Assessment of the HMT.
- Stage 4: Recording and reporting the assessment, are included in the workflow.

Summary of Stages

The recommended order to complete HaMSTA is shown below. The HMT Description and Roles or Equipment must have information entered to enable the Assessment (5) to be started.

The HMT Description can be edited, or another entered during the Assessment (5).

The Documentation (3) and Consultation (4) can have information entered at any time during the assessment.

The Menu form is shown in *Figure 2*.

Setting up Forms

1. HMT Description – A brief description of the HMT/s to be assessed.
2. Roles or Equipment – The roles and equipment associated with the HMT.
3. Documentation – Documents relevant to the HMT .
4. Consultation – Names and roles of the people consulted or involved in the assessment.

Completing the HaMSTA

5. Assessment – The assessment of the HMT.

Reports

6. Four reporting options for: Assessment, Roles and Equipment, Documents, Consultation
   - Preview Reports – Displays the report without printing.
   - Print Reports – Prints the report.
   - Save Report as File – Saves the report as a file.
   - Mail Report – Emails the report.

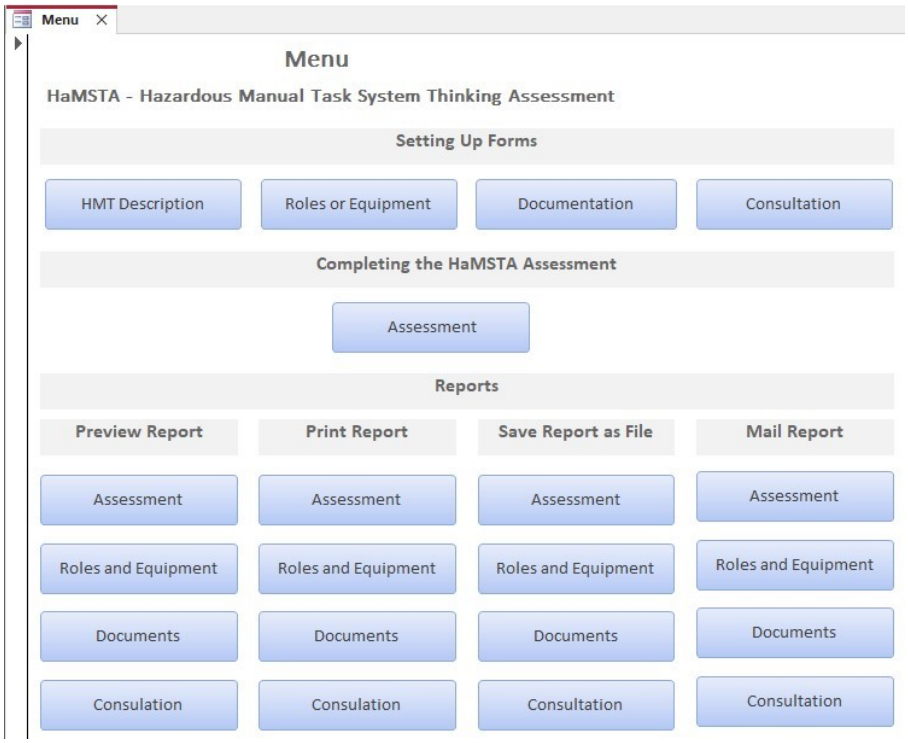

Figure 2 Menu

Setting up Forms

HMT Description

A brief description of the HMT/s to be assessed is necessary to be entered at the start of the assessment using the HMT Description form (see *Figure 3* and *Figure* 4). The description can be very brief and is able to be edited during the assessment. For example, the HMT description can be as simple as "Lifting box". It is also possible to enter more than one HMT.

Figure 3 HMT Description entry form.

When a HMT description is entered, another blank entry box appears (see *Figure 4*). If another HMT description is not needed, click on the Save and Exit button.

Figure 4 HMT Description entry form after a HMT description is entered.

Roles or Equipment

The roles and equipment associated with the HMT to be assessed is entered at the start of the assessment using the Roles and Equipment form (see *Figure 5* and *Figure 6*). The description of the roles and equipment should be accurate as they can be changed in the HMT Assessment stage.

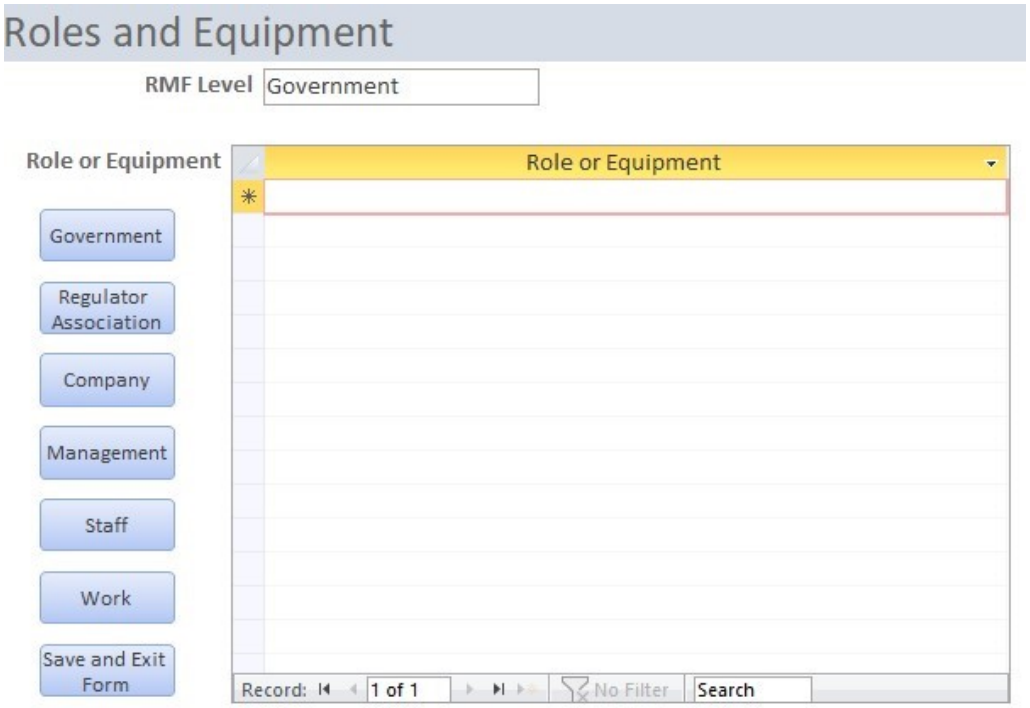

Figure 5 Roles and Equipment entry form.

The roles and equipment are entered in the relevant RMF Level (Government, Regulator/Association, Company, Management, Staff, Work). The RMF Level is selected by clicking on the relevant button on the left side of the form. After completing entry of the roles and equipment click on Save and Exit. The Roles and Equipment are available for multiple HMT Assessments i.e. they are not linked to a specific HMT Description.

If additional or editing roles and equipment is required during the HMT Assessment stage, it will be necessary to use the Roles and Equipment form. It will be necessary to close the HMT Assessment form to enable the additional or edited entries to be displayed in the HMT Assessment form.

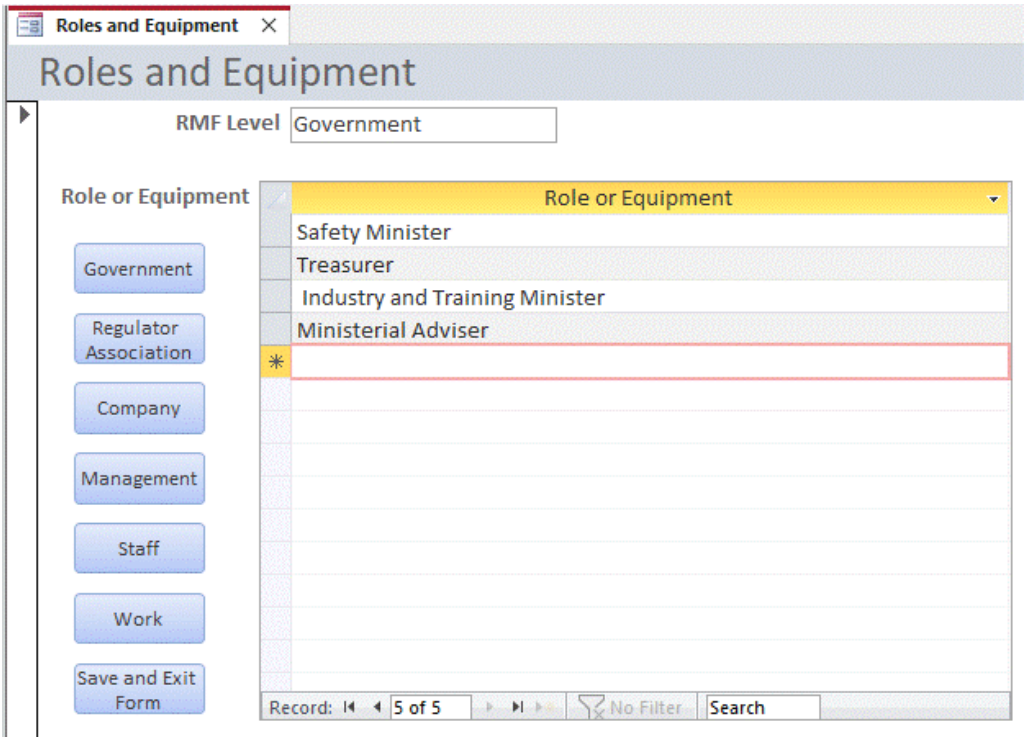

Figure 6 Roles and Equipment form showing four roles at the Government RMF level.

Documentation

Documents relevant to the HMT can be uploaded at any time during the assessment using the Document form (see *Figure 7* and *Figure 8*). The documents are specific to a specific HMT. Relevant documents may include previous assessments using other methods (Code of Practice for Hazardous Manual Task – Risk Assessment, Participative Ergonomics for Manual Tasks (PErforM), Rapid Entire Body Assessment (REBA), Rapid Upper Limb Assessment (RULA)), investigation report, injury records, organisational structure, policies, procedures, images, videos.

The right and left arrows, enable navigation to the next or previous HMT Description record.

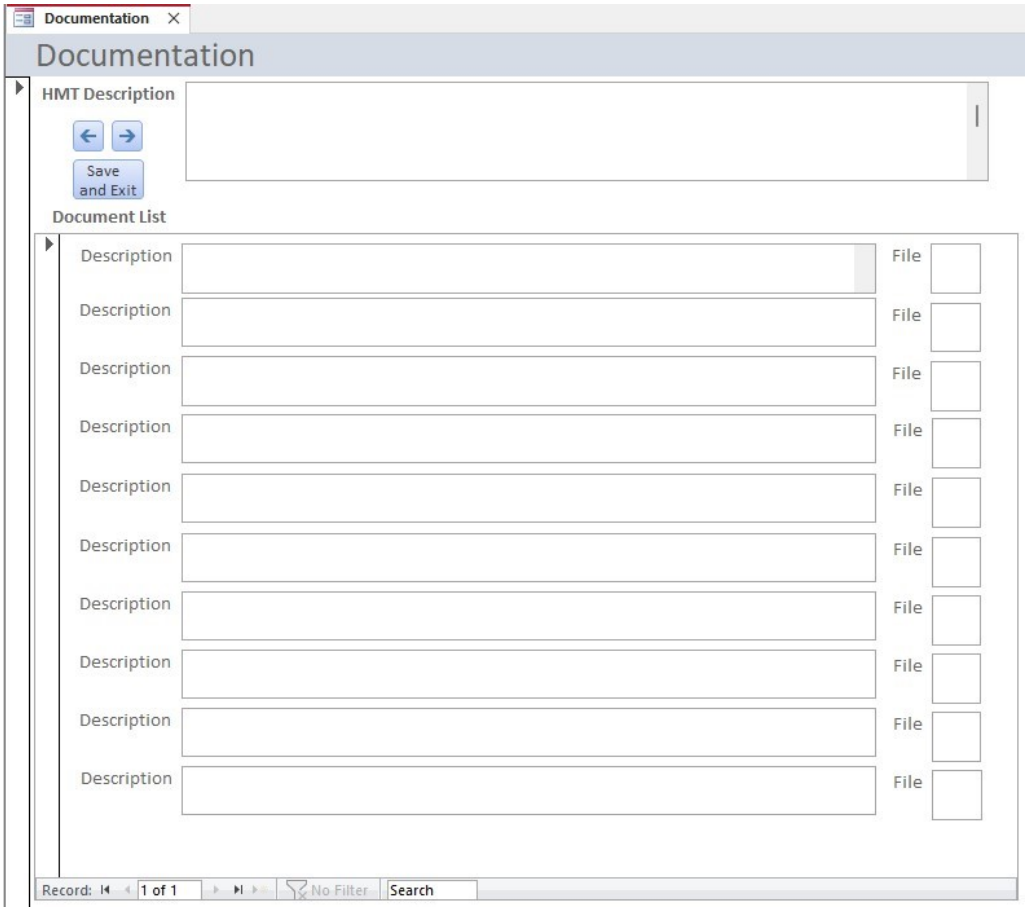

Figure 7 Documentation entry form.

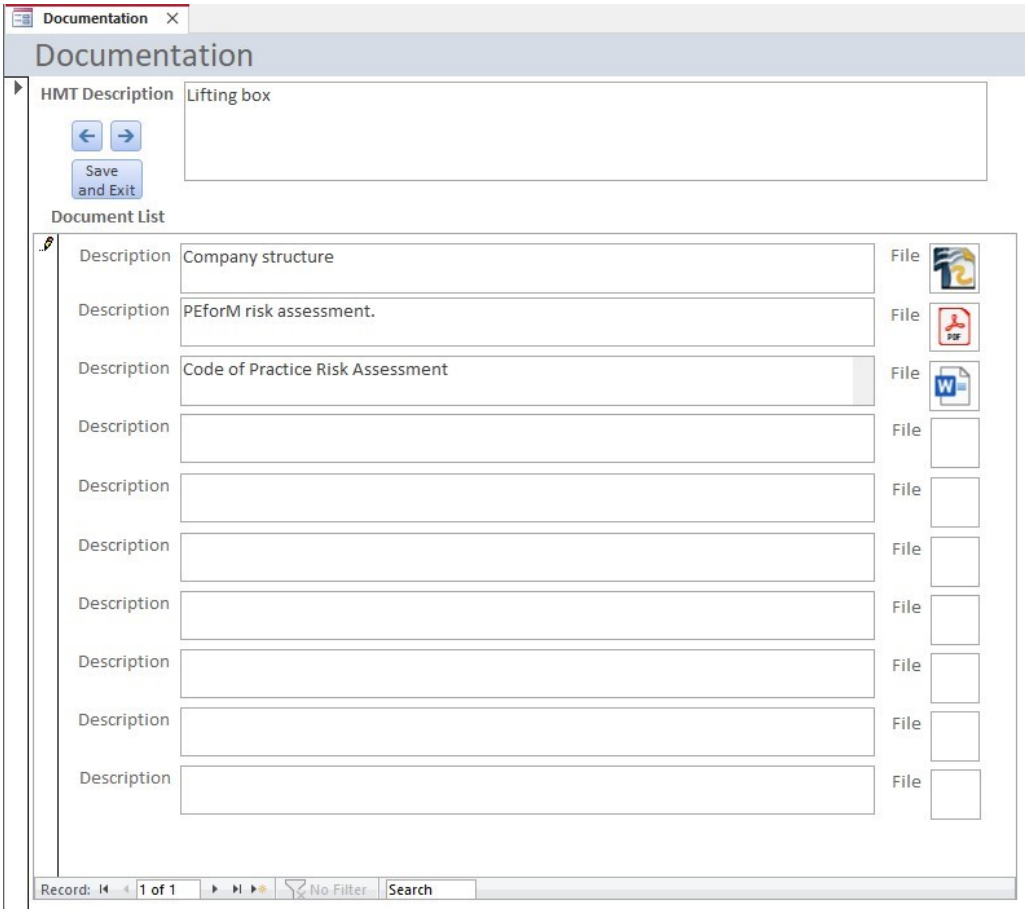

Figure 8 Documentation entry form with examples.

Consultation

The names and roles of the people consulted or involved in the assessment are recorded for each specific HMT as the people involved my change using the Consultation form (see *Figure 9* and *Figure 10*). Recording the names and roles enables other people on the organisation to know who was involved in the assessment and it is also important to be able to demonstrate to regulators that consultation was undertaken.

These can be updated at any time during the assessment.

A button is available to return to the HaMSTA Description form if an addition or edit is necessary.

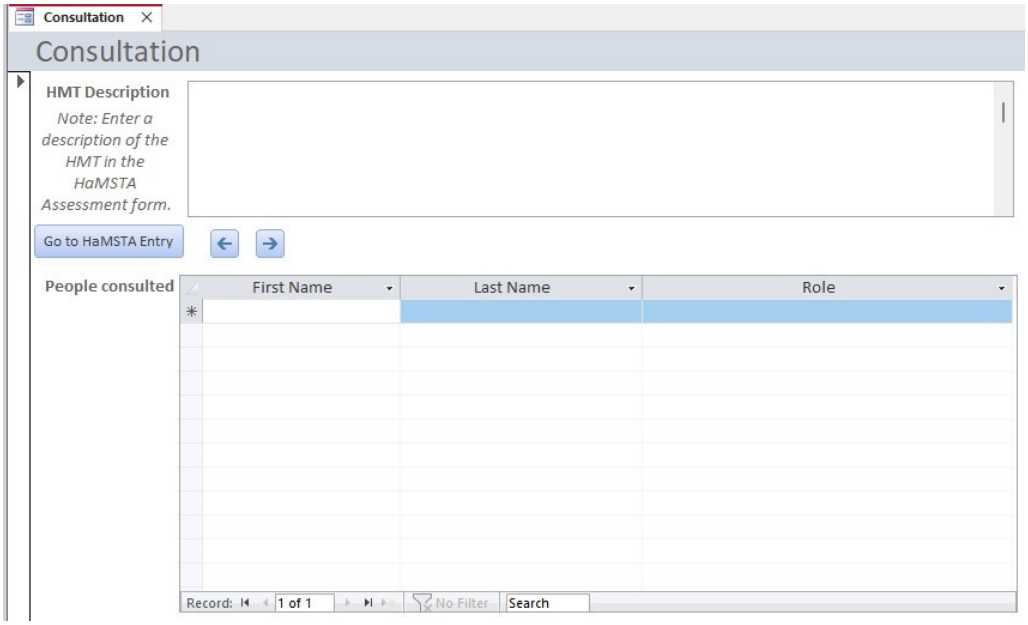

Figure 9 Consultation entry form.

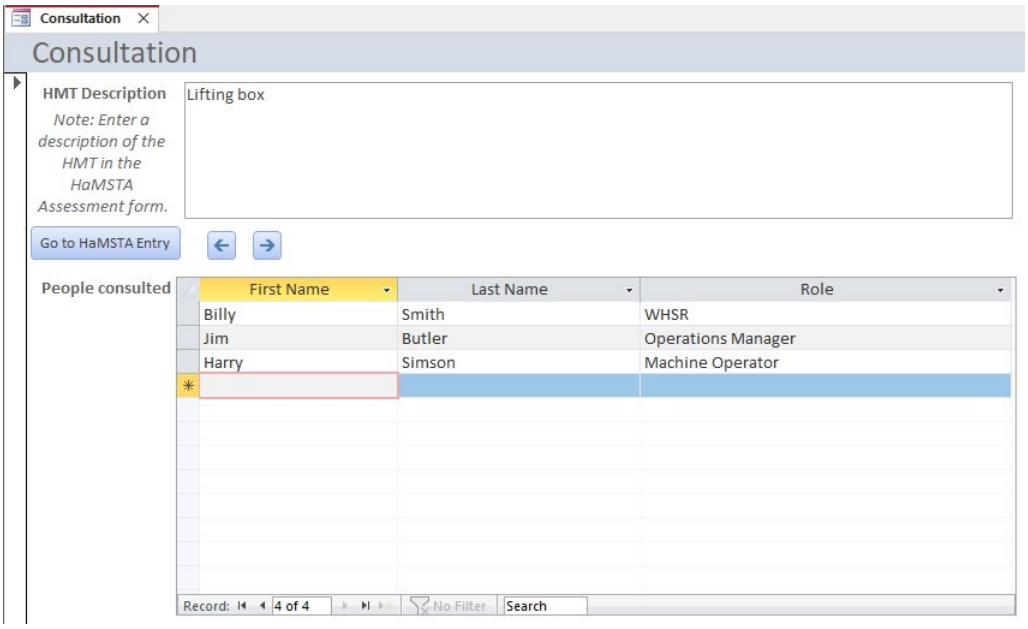

Figure 10 Consultation form with examples.

Completing the HaMSTA

Assessment

The HaMSTA Entry form is comprised of seven forms (see *Figure 11*):

a. Hazardous manual task details
b. Aspects
c. Roles and equipment
d. Primary contributory factors
e. Primary consequences

f. Emergent contributory factors
g. Emergent consequences

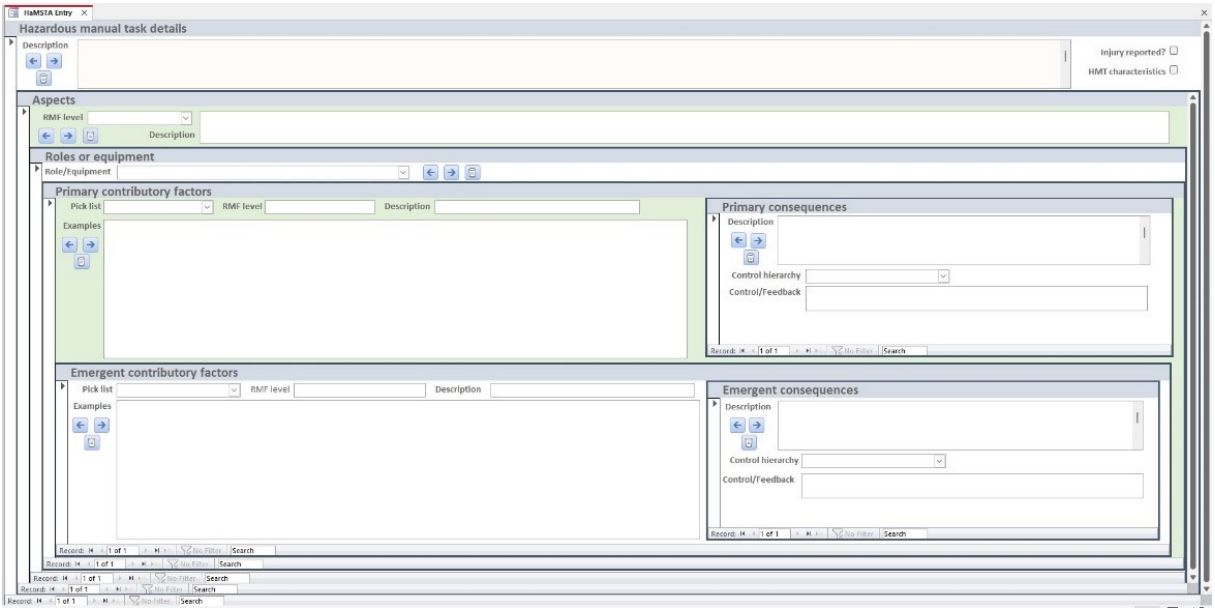

Figure 11 HaMSTA entry form showing all sub-forms.

The right and left arrows enable navigation to the next or previous record. The "trash can" deletes the record on the form and the associated sub-forms. It does not delete the record and the "upper forms" (see *Figure 12*).

Figure 12 Next and Previous record, and record deletion buttons.

Hazardous manual task details

A description of the hazardous manual task can be entered or edited on this from (see *Figure 13*). There should be sufficient detail to enable other people who receive the assessment to understand the HMT task. On the left side of the for are two tick boxes "Injury reported?" and "HMT Characteristics". For a manual task to be considered hazardous, either an injury has resulted from the task, or the task has characteristics described Australian legislation and codes of practice for hazardous manual task, for example (SafeWork SA 2011, Safe Work Australia 2018, NSW Government 2019, Work Safe Victoria 2019, Workplace Health and Safety Queensland 2021).

Figure 13 HMT task details form showing an example and an injury has been reported.

Aspects

Aspects associated with the HMT are entered into the Aspects form (see ***Error! Reference source not found.*** and *Figure 14*). Aspects can exist at all RMF levels (Government, Regulator/Association, Company, Management, Staff, Work) and should describe a specific aspect that exists within the RMF level. For example, the HMT of "Lifting box" has a Company aspect of "Company procedures for lifting boxes", another Company aspect could be "Box design does not include hand-holds". At the Government RMF level an aspect could be "Allowing the safety regulator to provide design advice on equipment".

The key to a HaMSTA Assessment is to look up and out and not down and in. This means to look for systemic aspects at the upper RMF levels and not only focus on the lower RMF levels.

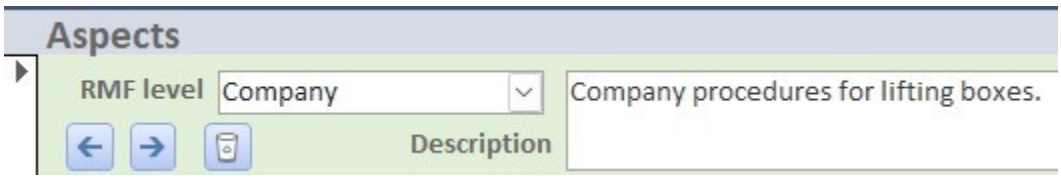

Figure 14 Aspect form with an example.

Roles and Equipment

The role or equipment relevant to the Aspect is chosen from the list that was created at the start of the assessment (see Figure 6). The list is opened in the Roles and Equipment section by clicking on the down arrow at the side of the list (see *Figure 15*) and the one relevant to the Aspect is selected. A relevant role for the Company Aspect is the Chief Executive Officer as in the organisation, the Chief Executive Officer has the ultimate responsibility for the development and communication of procedures (see *Figure 16*).

Figure 15 Roles or equipment form showing the combo box list.

Figure 16 Roles or equipment form after a selection has been made.

Primary contributory factors and primary consequences

The Primary Contributory Factors and Primary Consequences forms have a one to many relationship i.e. for one Primary Contributory Factor there can be one or more Primary Consequences (see *Figure 17*).

Figure 17 Primary contributory factors and primary consequences form.

Primary contributory factors

One or more Primary Contributory Factors can be associated with each Aspect i.e. for one Aspect there can be one or more Primary Contributory Factors. The Primary Contributory Factor relevant to the Aspect is chosen from a list showing the RMF Level, Contributory Factor, and Contributory Factor Description (see *Figure 18*).

The selected Primary Contributory Factor and examples are shown on the form (see *Figure 19*). The list of examples is not exhaustive and while they can be used a Primary Consequence, they serve to assist in the identification of primary consequences relevant to the organisation in which the HaMSTA is be undertaken.

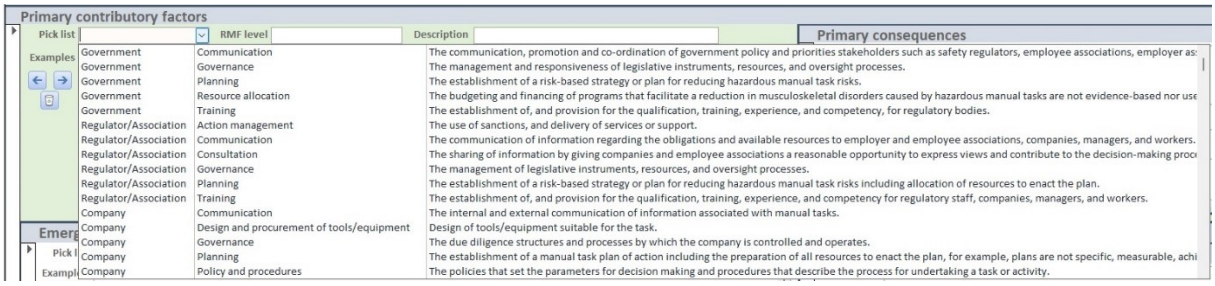

Figure 18 Primary contributory factor form showing a partial list.

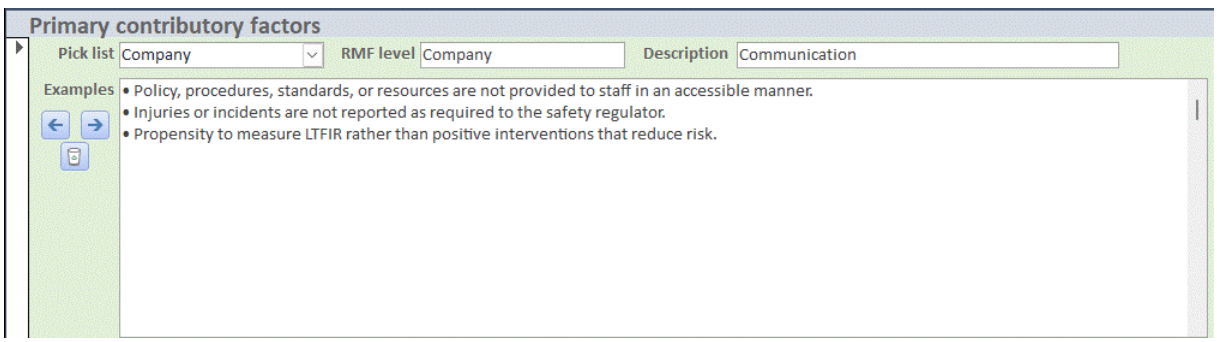

Figure 19 Primary contributory factor form after a selection has been made.

Primary consequences

The Primary Consequences form has default entries after the selection of a Primary Contributory Factors i.e. No primary consequence entered, No hierarchy entered, and No control/feedback entered (see *Figure 22*).

As one or more Primary Consequences can exist for each Primary Contributory Factor, it is good practice to have unique Primary Consequences as this then enables the Control Hierarchy and Control/Feeback to also be unique.

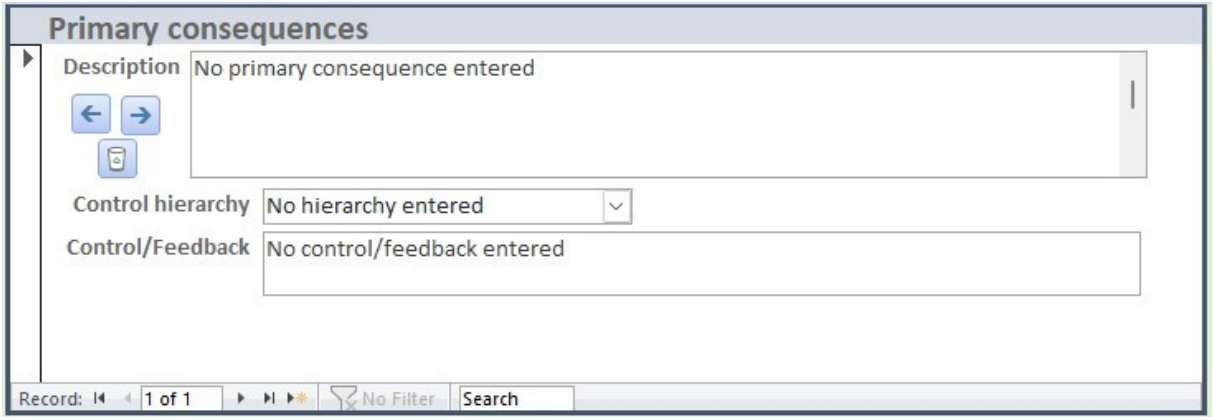

Figure 20 Primary consequences form showing no entry made.

Hierarchy of control

The "standard" Hierarchy of Control has an additional control "Systemic". The standard hierarchy (elimination, substitution, isolation, administration, personal protective equipment) are applicable to the lower RMF levels of Staff and Work, however they at necessarily useful at the upper RMF Levels. In the example shown in *Figure 22*, Administration is shown as it could be considered that developing a system to communicate procedures and confirming understanding is an administrative control. However, if the system is robust and sustainable, then the control would be Systemic even though there is an "administrative" process undertaken to develop the procedures and system.

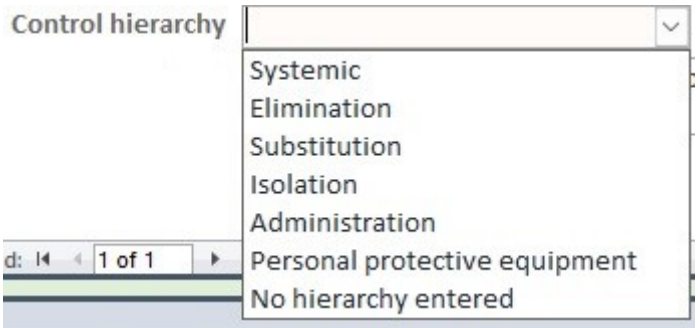

Figure 21 Hierarchy of control list.

An example Primary Consequence, Control hierarchy, and Control/Feedback is shown in *Figure 22*. In the example two controls are shown (1) a system to communicate, and (2) [system to] confirm understanding. This could be better split into two separate controls as the action required to implement each is different.

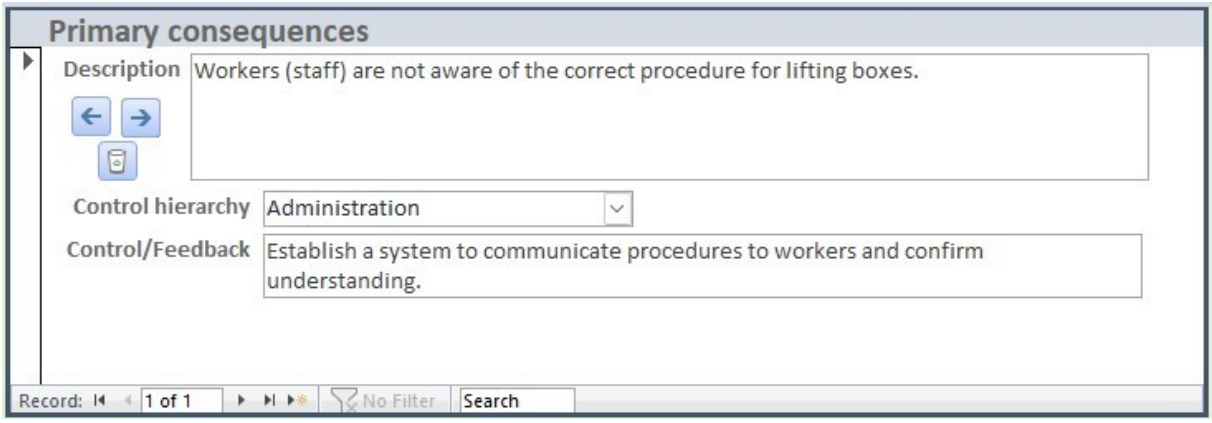

Figure 22 Primary consequences form showing an example.

Emergent contributory factors and emergent consequences

The Emergent Contributory Factors and Emergent Consequences forms have a one to many relationship i.e. for one Emergent Contributory Factor there can be one of more Emergent Consequences (see *Figure 23*).

Figure 23 Emergent contributory factors and emergent consequences form.

Emergent contributory factors

One or more Emergent Contributory Factors can be associated with each Primary Contributory Factor i.e. for one Primary Contributory Factor there can be one or more Emergent Contributory Factors. The Emergent Contributory Factor is chosen from a list that shows the RMF Level, Contributory Factor, and Contributory Factor Description (see *Figure 24*).

The selected Emergent Contributory Factor and examples are shown on the form (see *Figure 25*). The list of examples is not exhaustive and while they can be used a Primary Consequence, they serve to assist in the identification of primary consequences relevant to the organisation in which the HaMSTA is be undertaken.

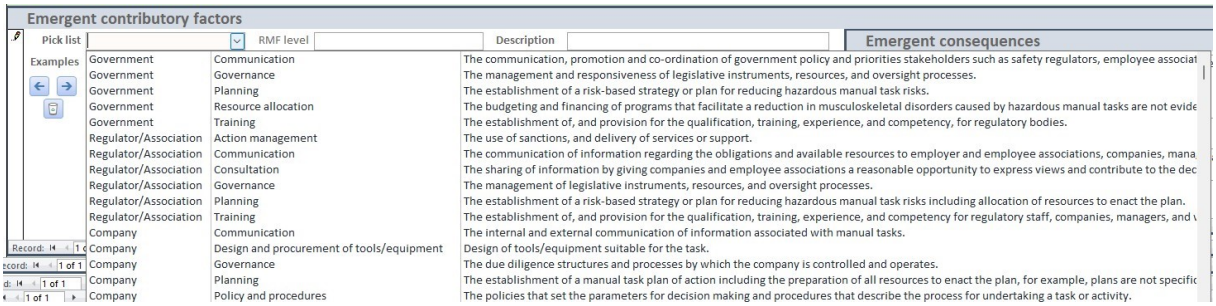

Figure 24 Emergent contributory factor form showing a partial list.

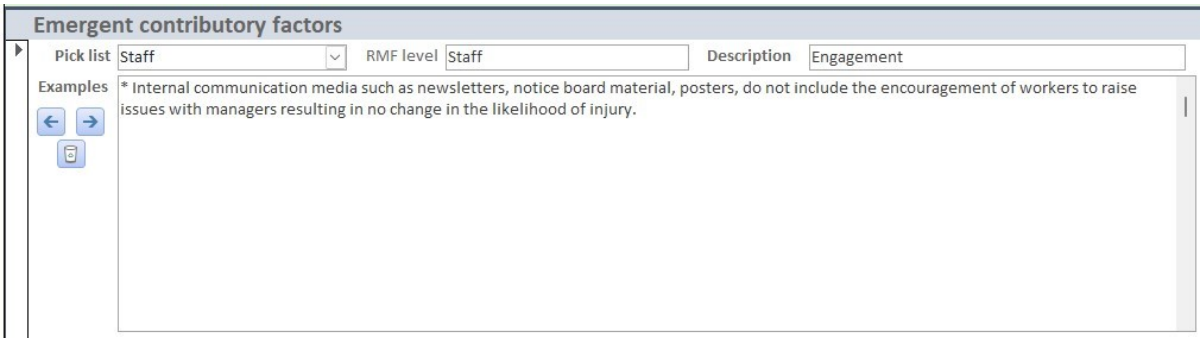

Figure 25 Emergent contributory factor form after a selection has been made.

Emergent consequences

The Emergent Consequences form has default entries after the selection of a Primary Contributory Factors i.e. No primary consequence entered, No hierarchy entered, and No control/feedback entered (see *Figure 26*).

As one or more Emergent Consequences can exist for each Emergent Contributory Factor, it is good practice to have unique Emergent Consequences as this then enables the Control Hierarchy and Control/Feeback to also be unique.

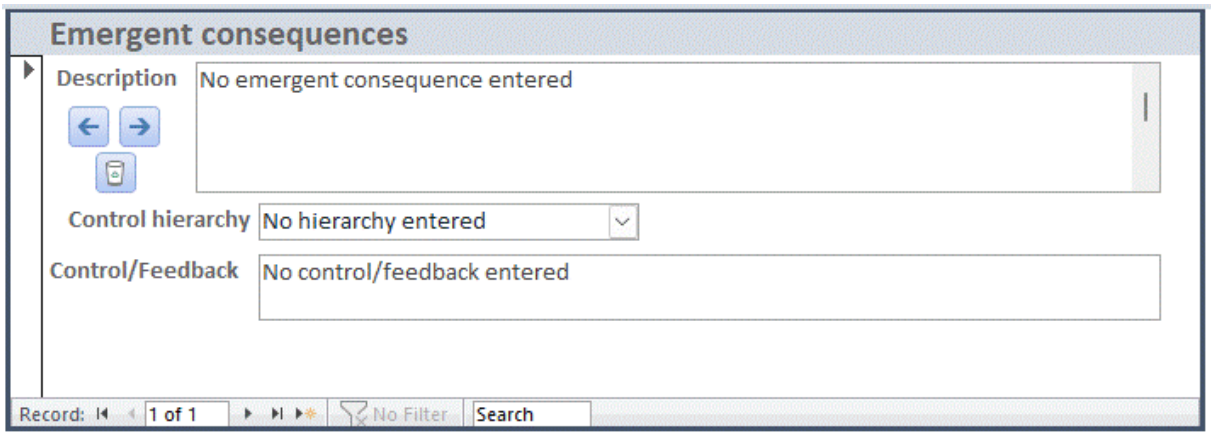

Figure 26 Emergent consequences form showing no entry made.

An example Emergent Consequence, Control hierarchy, and Control/Feedback is shown in *Figure 27* which is associated with the Emergent Contributory Factor in *Figure 25*. In the example two controls are shown (1) inclusion of procedure communication in company audits, and (2) inclusion of procedure communication in manager walk-arounds. This could be better split into two separate controls as the action required to implement each is different.

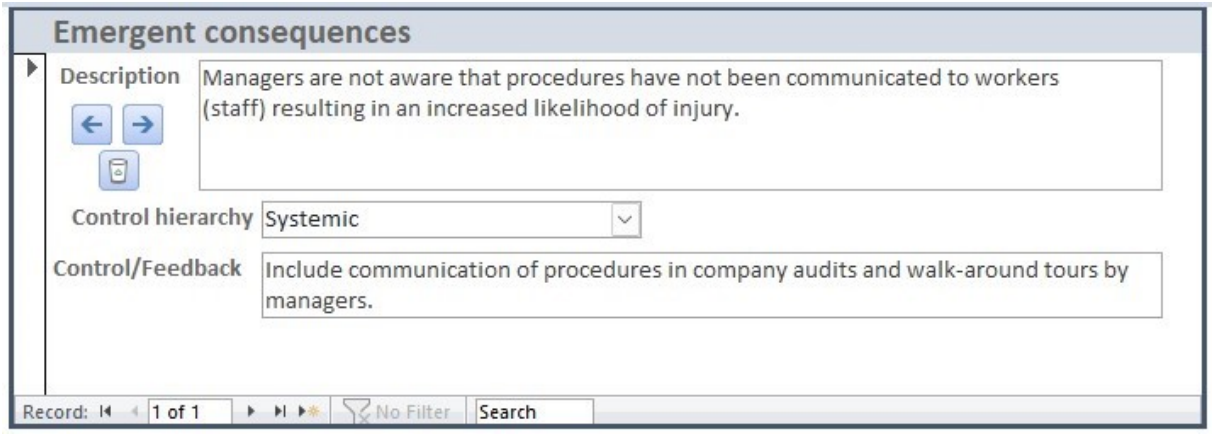

Figure 27 Emergent consequences example.

Reports

Four reporting options for: Assessment, Roles and Equipment, Documents, Consultation

- Preview Reports – Displays the report without printing.
- Print Reports – Prints the report.
- Save Report as File – Saves the report as a file.
- Mail Report – Emails the report.

The Preview Reports are shown below for the example data used above. The format of the reports is selected from the Menu.

HaMSTA Assessment report

The HaMSTA Assessment report displays the HMT Description, Aspect, Role/Equipment, Primary Contributory Factor with associated consequences and controls, and the Emergent Contributory Factor and associated consequences and controls. There were two Emergent Contributory Factors in the example which are shown under the one Primary Contributory Factor. The report groups the assessment data together (see *Figure 28*).

HaMSTA Assessment

Hazardous Manual Task Description

Lifting box

Aspect

Company — Company procedures for lifting boxes.

Role/Equipment

Company — Chief Executive Officer

Primary Contributory Factor

Communication	Company	The internal and external communication of information associated with manual tasks.	Workers (staff) are not aware of the correct procedure for lifting boxes.	Establish a system to communicate procedures to workers and confirm understanding.	Administration

Emergent Contributory Factor

Action management	Regulator/Association	The use of sanctions, and delivery of services or support.	Safework (safety regulator) issues an Improvement Notice on the Chief Executive Officer for not providing adequate instructions to manage safety and health risks.	Include communication of procedures in company audits and walk-around tours by managers.	Systemic

Emergent Contributory Factor

Engagement	Staff	Engaging with management by expressing views and contributing to consultation and decision-making processes where opportunity provided.	Managers are not aware that procedures have not been communicated to workers (staff) resulting in an increased likelihood of injury.	Include communication of procedures in company audits and walk-around tours by managers.	Systemic

Figure 28 HaMSTA Assessment report example.

Roles and equipment report

The example had 14 roles or equipment in the pick list (see *Figure 15*), however as only the Chief Executive Officer was used in the example, the report only displays the roles or equipment associated with the HMT (see *Figure 29*).

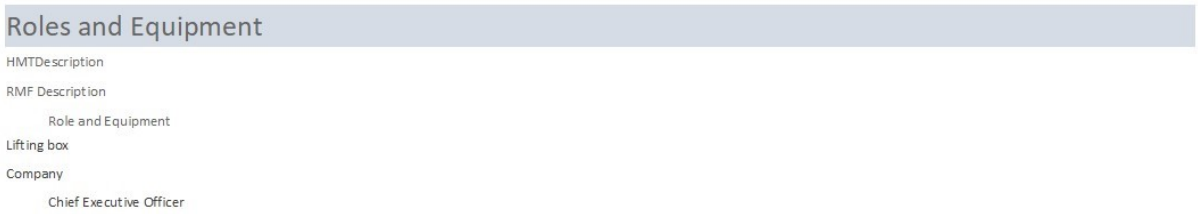

Figure 29 Roles and equipment report example.

Documents report

The Documents report includes the documents associated with the HMT (see *Figure 30*). If more than one HMT is assessed, the documents associated with the HMT will be included under each HMT Description.

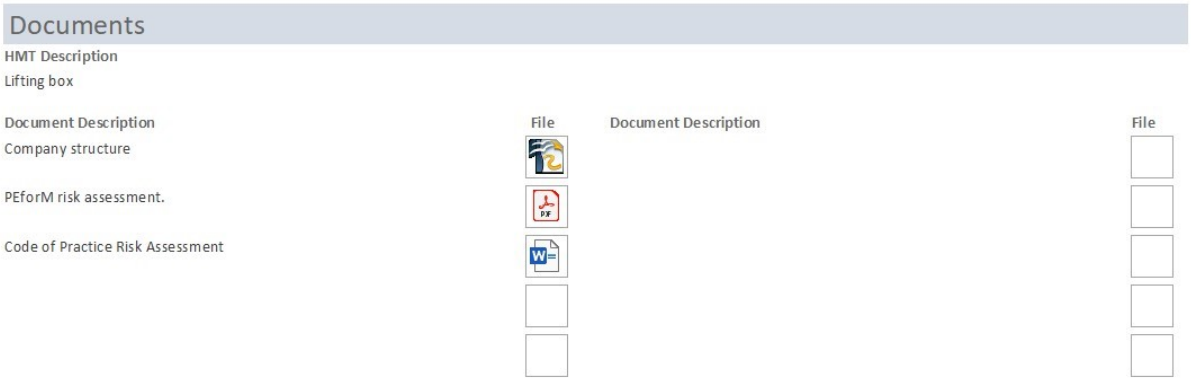

Figure 30 Documents report example.

Consultation report

The Consultation report includes the people associated with the HMT (see *Figure 31*). If more than one HMT is assessed, the people associated with the HMT will be included under each HMT Description.

Figure 31 Consultation report example.

References

NSW Government (2019). Code of Practice Hazardous Manual Tasks. S. NSW. Sydney, NSW Government.

Safe Work Australia (2018). Code of Practice Hazardous Manual Tasks. S. W. Australia. Canberra, Safe Work Australia.

SafeWork SA (2011). Hazardous Manual Tasks Code of Practice. S. SA. Adelaide, South Australia.

Work Safe Victoria (2019). Compliance Code Hazardous manual handling. W. Victoria. Melbourne, Victoria.

Workplace Health and Safety Queensland (2021). Hazardous manual tasks – Code of practice 2021. Brisbane, Office of Industrial Relations - Workplace Health & Safety Queensland.