# PLANT SAFETY MANAGEMENT MODEL

## SAFE OPERATOR

The Plant Safety Management Model (PSMM) identifies three key elements of a plant safety management system. This article focuses on the **SAFE OPERATOR** element of the Plant Safety Management Model when used on a construction project.

To make the coverage of issues as specific as possible, the article is based around a Civil Contracting business, however the framework can be applied to any business operating plant and equipment.


## PSMM OVERVIEW

### SAFE PLANT

**Ensure plant is safe for use**

- ✓ **Focus Area 1:** Detailed plant hazard assessment
- ✓ **Focus Area 2:** Daily inspection and fault rectification process
- ✓ **Focus Area 3:** Proactive and robust maintenance regime
- ✓ **Focus Area 4:** Standard Safe Operating Procedure (SOP)

### SAFE ENVIRONMENT

**Ensure site and task hazards are identified, assessed and controlled**

- ✓ **Focus Area 1:** Site review
- ✓ **Focus Area 2:** Project task review
- ✓ **Focus Area 3:** Prepare the WHS Management Plan
- ✓ **Focus Area 4:** Implementing high impact elements of WHS Management Plan

### SAFE OPERATOR

**Ensure the operator is competent to operate the plant and perform the task required**

- ✓ **Focus Area 1:** Operator Training and Competency Assessment
- ✓ **Focus Area 2:** General Safety System Knowledge
- ✓ **Focus Area 3:** Site Specific Procedures and Knowledge

**It is fair to say that almost every safety incident involving plant and equipment is caused or contributed to by a lack of knowledge or a failure to implement that knowledge.**

Due to the nature of the construction industry, there is inevitably a heavy reliance upon “administrative controls”, which include individual competencies, site rules, safe work procedures and so on.

The reason administrative controls are at the lower end of the hierarchy of controls is principally because of the need for people to learn and maintain competencies, and understand, remember, and follow procedures.

As we all know, this is OK if there are a limited number of competencies required and procedures to follow, however gets increasingly difficult to manage as it becomes more complex.

We will never avoid the reliance on competencies and procedures in the construction industry, however by having robust and regimented processes aimed at educating, testing and confirming competencies and knowledge we can reduce the inherent risk associated with reliance on these administrative controls.

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For details of legislative obligations relating to ensuring a safe operator, please refer to our previous paper on *Plant Safety under Harmonised Safety Legislation*.

Ensuring a "safe operator" can be divided up into 3 key focus areas of activity, graphically represented as follows:

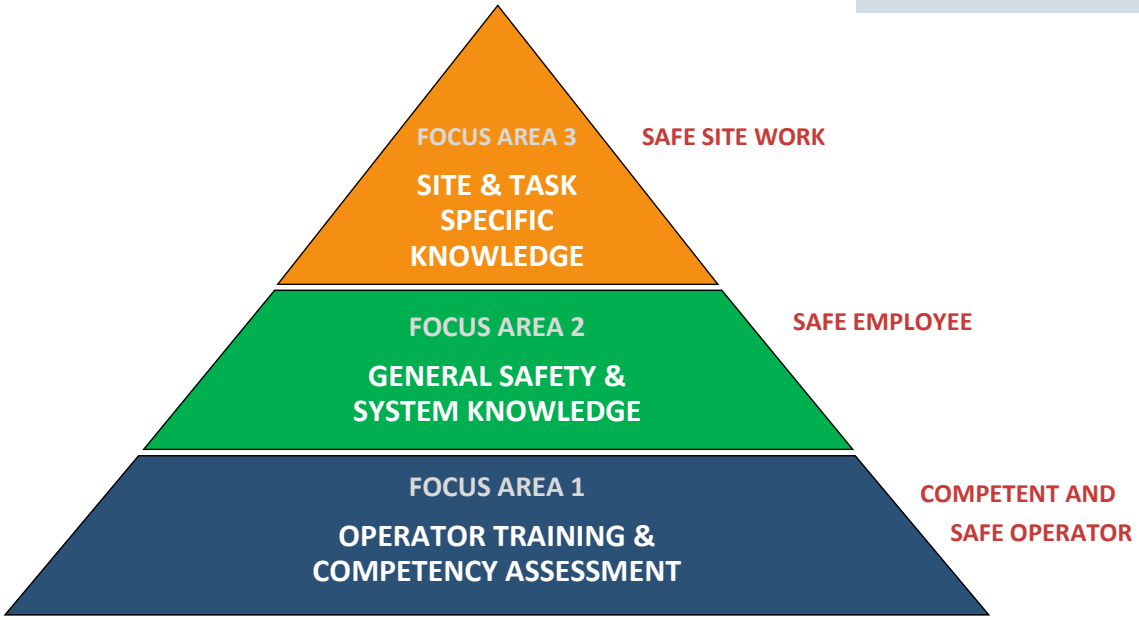


**DIAGRAM 1 CONSTRUCTION PLANT OPERATOR KNOWLEDGE PYRAMID**

In reality these three areas are inter-dependent, however it is simpler to consider these areas separately.

| Focus Area | Specifics | How to Obtain and Manage |
|---|---|---|
| **1: OPERATOR TRAINING & COMPETENCY ASSESSMENT** | a. Initial Certification of Competency to operate machine AND/OR<br>b. High risk work licence(s)<br>c. Certified operator competencies and High Risk Work Licences should be verified periodically.<br>d. Both RTO assessors and in house assessors need to have their competency to assess operators verified periodically | a. Training and certification of competency to Nationally Recognised Units of competency by RTO<br>b. Training and licencing by RTO approved to train and issue HRW Licences required<br>c. Periodic verification against the competency, by an RTO or in house assessor - needs to be recorded and auditable<br>d. RTO employee competency records should be transparent to RTO clients |
| **2: GENERAL SAFETY & SYSTEM KNOWLEDGE** | a. Construction induction (White Card)<br>b. Company induction and initial training:<br>c. Ongoing WHS Consultation process | a. By RTO approved to train and issue White Card<br>b. Initial company induction for employee<br>c. Consultation tools |
| **3: SITE & TASK SPECIFIC PROCEDURES AND KNOWLEDGE** | a. Site safety rules<br>b. SWMS for high risk work | a. Site induction<br>b. SWMS consultation, development, education and acknowledgement process |

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## FOCUS AREA 1 OPERATOR TRAINING AND COMPETENCY ASSESSMENT

Arguably the most important and onerous of the focus areas, this requires active management on an ongoing basis.

The principle behind this focus area is the need for operators to be trained and certified as competent to a transparent standard. This helps to reduce the risks associated with varying operator skill by aiming to ensure a minimum standard of competency.

**National Vocational Education & Training (VET) System**
The National VET system provides a framework to allow nationally recognised certification of training and competency assessment tailored to the needs of a broad range of industry segments including Civil Construction.

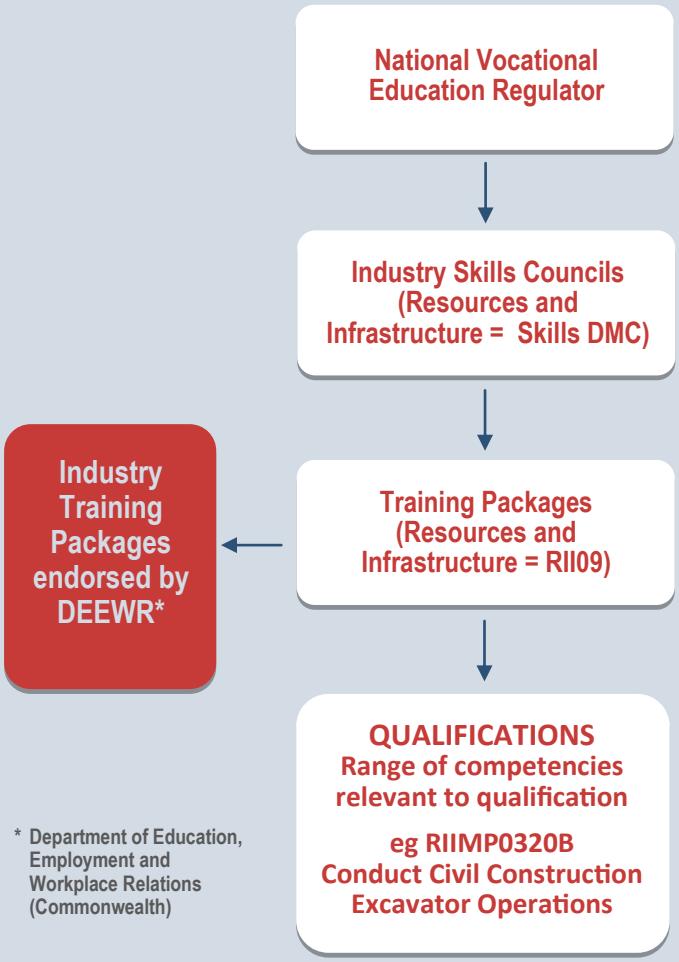
**Diagram 2** illustrates the structure of the VET system as it relates to competencies of plant operators in Civil Construction.

The Resources and Industry Training Package RII09 includes some 767 Dedicated Units of Competency and 180 Imported Units of Competency (Total 947). Details of RII09 and its components can be found here. High Risk Work Licences are included in relevant training packages.

Registered Training Organisations (RTOs) are authorised to train and certify competence against certain units of competency and qualifications under the various training packages.

In light of the VET structure, we can now consider operator training and competency assessment set out in the following table.

**DIAGRAM 2: SNAPSHOT OF NATIONAL VET SYSTEM FOR CIVIL CONSTRUCTION**




### *Choosing An RTO*

Choosing the right RTO to provide operator training and assessment is very important as the quality and thoroughness of service from RTOs can vary considerably. An RTO should be:

- Capable and reliable
- Focused on your needs
- Approved to deliver have the relevant units of competency and qualifications you require
- Able to deliver training and assessment in a flexible way that fits in with your operational and business demands

Civil Contractors will be well aware that the Civil Contractors Federation via its RTO operations (CivilTrain) is capable of offering nationally recognised training and certification tailored to the requirements of industry.

It should be noted that it is not mandatory to use an RTO to train and determine competence of operators, nor is it mandatory to use the national VET framework. Following the above recommended process is likely to maximise the acceptance of your training records as confirmation of operator competency by your clients.

# PLANT SAFETY MANAGEMENT MODEL

## FOCUS ARE FOCUS AREA 1: OPERATOR TRAINING AND COMPETENCY ASSESSMENT

| Key Area: | How? |
|---|---|
| **1. Initial Training and Certification of Competency (including High Risk Work Licencing)** | • Liaise with RTO (see section on choosing an RTO) or experienced advisor to determine appropriate matching of available units of competency and your operator training requirements<br>• Once relevant units of competency are identified, engage RTO(s) to commence the process of training and certifying operator competency. This should involve recognition of prior learning for experienced operators<br>• High Risk Work Licences are issued by State regulators following receipt of confirmation of competency issued by an RTO authorised to do so by the relevant regulator (eg WorkSafe Victoria)<br><br>**Government Incentives for VET**: There continue to be considerable Federal and State Government incentives to support employers wishing to up skill and certify their staff as trained and competent.<br><br>This funding is available for existing and new employees, and can include subsidies, payroll tax, workers compensation exemptions etc. RTOs can provide advice on these. |
| **2. Periodic Verification of Operator Competency (including High Risk Work Licencing)** | **HE'S GOT A TICKET; DOESN'T THAT MEAN HE IS COMPETENT? *NO!***<br><br>Common sense dictates that unless a competency is used on a regular basis, it is likely to fade. In addition to this, changes in machine design and capability can adversely impact upon an operator's ability to operate a machine competently.<br><br>The need to periodically verify operator competency is well recognised in some industry segments, however generally is not done well or consistently. |

**VERIFICATION OF PLANT OPERATOR COMPETENCY – WHAT DOES IT LOOK LIKE AND HOW DO I DO IT?**

### a. What am I trying to verify?

- Familiarisation with components and controls (location, name and how to use)
- The ability to complete pre-start checks (what and how to perform), start up, operate, park, shut down and secure
- The ability to load, unload and load restraint if relevant

**If VOC is being done in conjunction with specific site work:**

- **Specific safety considerations of task(s) in scope**
- **Tasks requiring unique operator competency**

### b. How do I conduct VOC?

VOC is a combination of knowledge testing and observation of operation. It is recommended to start with an initial discussion with and questioning of the operator regarding the machine, its controls, site and task requirements (if relevant). Conclude this discussion by observing the operator undertake pre-start checks.

Operation of the plant: This involves observation of the operator undertaking a defined set of actions/tasks, which align to the type of work the operator will be required to undertake.

For example, if an excavator operator is doing work on batters, digging trenches, slinging and lifting pipes, and backfilling – VOC should test these competencies as a minimum.

### c. Who can conduct VOC?

Your RTO should be in a position to verify operator competency, or alternatively you may wish to bring this function in house. If going in house, it is important to ensure internal assessors have the competency to conduct the assessment, including:

a. Competency to operate the equipment concerned including certificated competency and recent verification
b. Competency to undertake the range of tasks being assessed
c. Qualifications in training and assessment, such as a Certificate IV Training and Education

### d. How Often Should I conduct VOC?

This is a question without a black and white answer.

The period between verification will depend upon a number of logical variables including how much time the operator spends on the type of machine, their productivity and incident history.

On major projects, this will also depend upon the requirements of the principal contractor, who may require evidence of VOC (or to conduct their own assessment) prior to commencement of work.

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## FOCUS AREA 2 GENERAL AND SAFETY SYSTEM KNOWLEDGE

This focus area is principally aimed at ensuring operators have been through relevant inductions, and have a good working understanding of the safe systems of work employed by their organisation to manage safety risks, no matter where they are working. The table below sets out the two key areas of work in this focus area:

| FOCUS AREA 2: GENERAL AND SAFETY SYSTEM KNOWLEDGE | |
|---|---|
| **Key Area:** | **Aimed at Ensuring Knowledge of:** |
| **1. Initial Employee Company Induction & White Card** | WHS Organisational Structure, WHS Consultation overview and mechanisms<br>• Hazard identification, risk assessment, incident reporting and injury management process<br>• Emergency procedures<br>• Site work WHS Management overview<br>CONSTRUCTION INDUCTION "WHITE CARD" TRAINING: All workers involved in any form of construction work are required to undergo this training, resulting in issue of a "White Card". This is aimed at ensuring a minimum level of general construction industry safety knowledge. |
| **2. Ongoing WHS Consultation Process, including maintenance of Policy/Procedure Knowledge** | Ongoing consultation is essential to the maintenance of safety knowledge and employee engagement. Harmonised WHS laws require PCBUs to consult a range of issues including:<br>• Identifying work hazards and assessing risks<br>• Ways to eliminate or minimise risks<br>• Procedures for resolving health or safety issues, monitoring the health of workers or workplace conditions, information and training or consultation with workers, and<br>Guidance from Safe Work Australia on consultation is available here.<br>Common consultation arrangements, company and site safety committees, elected WHS representatives for work groups and regular toolbox meetings.<br>One of the most critical subsets of this key area is **maintaining currency and knowledge of company policies and procedures**, dealt with in the feature box below.<br>Site and task safety (including development and implementation of SWMS) are also linked to this area, however we deal with these in FOCUS AREA 3: SITE SPECIFIC PROCEDURES AND KNOWLEDGE |

## *The importance of Routine Policy and Procedure Issue, Update and Review*

The process of "tabling and review" key safe work policies procedures on a regimented basis is important to ensure workers are aware of their contents, and also to identify where procedures may be deficient and require updating for changing work circumstances.

This process may be as simple as tabling at a toolbox meeting and discussing, or may involve more detailed consultation, education, and in some cases union involvement and negotiation (such as may be encountered in the implementation in a drugs and alcohol testing policy).

It is wise to maintain a schedule for review of safety policies and procedures as part of a management review system.

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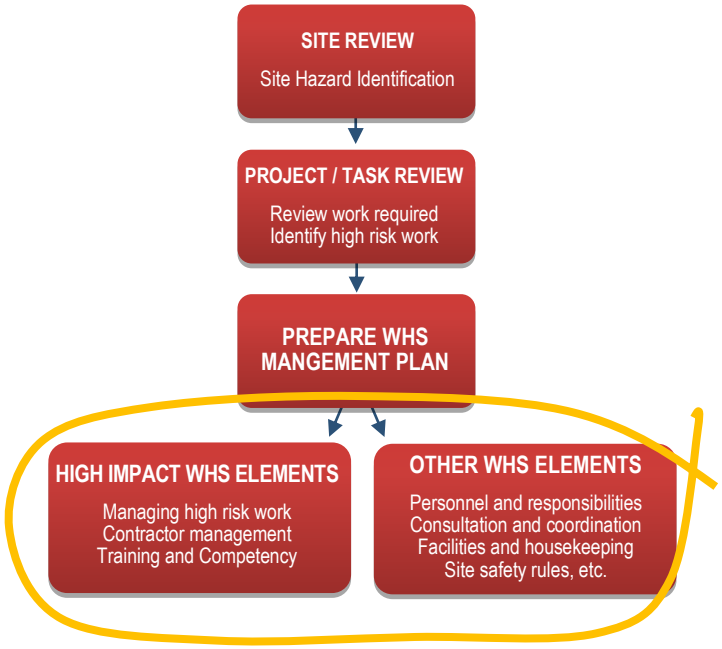
## FOCUS AREA 3 SITE SPECIFIC PROCEDURES AND KNOWLEDGE

This Focus Area relates closely to the subject of the last Plant Safety Management Model article entitled "SAFE ENVIRONMENT".

In the **SAFE ENVIRONMENT** paper, we outlined the process for ensuring site and task risks are managed on a construction project.


Ensuring a SAFE OPERATOR is concerned with making sure personnel are aware of site specific procedures and requirements for every project that they work on. The table below sets out the two key areas of work in this focus area:

**DIAGRAM 3 SAFE ENVIRONMENT REFRESHER**




| FOCUS AREA 3: SITE SPECIFIC PROCEDURES AD KNOWLEDGE | |
|---|---|
| **Key Area:** | **Aimed at Ensuring Knowledge of:** |
| **1. Site Induction and Site Safety Rules** | Site rules and requirements based upon the contents of the site WHS Management Plan, including:<br>• Key personnel and responsibilities<br>• Consultation, cooperation and coordination arrangements<br>• Provision of facilities and housekeeping<br>• Specific site safety rules – developed in light of Steps 1 and 2 (Site and Project Review)<br>• Site safety rules should include, but not be limited to:<br>◊ Housekeeping, Traffic Management, PPE<br>◊ Incident reporting & management<br>◊ First aid and emergency response<br>◊ Alcohol and drugs<br>◊ Plant and Equipment – site rules<br>◊ High risk work – management principles |
| **2. Managing High Risk Work** | Safe Work Methods Statements developed to manage risks of high risk work on site. Refer to Plant Assessor's SAFE ENVIRONMENT article relating to development of SWMS, and how to maximise the effectiveness of SWMS.<br><br>There must be a process for ensuring operators review, understand and sign off on the SWMS related to all tasks they are undertaking on a site. |

# PLANT SAFETY MANAGEMENT MODEL

## HOW DO I MANAGE THE PROCESS OF ENSURING A SAFE OPERATOR

Whilst each focus area is relatively simple in itself, managing all of them together, particularly for a large workgroup can become a big job.

Like any big job, it needs to be planned, scheduled and followed up. Project management skills are therefore important, something that civil contractors are generally required to have as a matter of course.

The planning should start with the development of a competency matrix for employees and regular contractors. This matrix should include a list of roles and/or staff on one axis, and a list of competencies/training/knowledge required on the other axis. An example of a competency matrix is set out here.

| | Hazard Identification & Risk assessment | Job Safety Analysis | Basic Working at Height Awareness | Advanced Working at Heights | Working at Height Emergency Response | Scaffolding | Scaffolding Inspection | Elevated Work Platforms | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Operate Scissor Lift - Engine | Operate Scissor Lift - Elect | Operate Cherry Picker | Operate Forklift with Mancage | Operate Power Step | Operate Man Lift - Manito |
| Manager | ✔ | | ✔ | | | | | | | | | | |
| Project Supervisor | ✔ | ✔ | ✔ | ✔ | | | | | | | | | |
| Scaffold Inspector | | ✔ | ✔ | | | ✔ | ✔ | | | | | | |
| Scaffolder | | | ✔ | | | ✔ | | | | | | | |
| Operator Equipment | | | ✔ | | | | | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ |
| Worker perform WAH works | | | ✔ | | | | | | | | | | |
| Employee | | | ✔ | | | | | | | | | | |
| Rescue Personnel | | | ✔ | | ✔ | | | | | | | | |

Once the matrix is complete, training requirements then need to be determined for each competency, along with decisions regarding periodic retraining and verification of competency.

Capturing the resulting work in a calendar helps to remind when any form of training or competency assessment is due.

As operations become larger, more resources need to be devoted to managing the process of ensuring all personnel maintain their knowledge and competency in the three key focus areas. Many larger organisations utilise learning and information management systems to assist in managing these obligations.

## SUMMARY – SAFE OPERATOR

The objective of this article is to try and demystify the process of ensuring a safe operator and safe operation of a piece of plant.

Whilst it would have been easier to focus just on training an operator and making sure they can use a machine, we have taken a holistic view of what it takes to ensure a safe employee, safe plant operator and safe site worker. This gives rise to the three key focus areas illustrated in the diagram below.


By combining the systematic process outlined in this **SAFE OPERATOR** article, with the processes described in our **SAFE PLANT** and **SAFE ENVIRONMENT** articles, development of a complete and thorough system of work becomes simpler and easier to understand.

That is not to say it is easy or takes no time, however these articles are aimed at helping you direct your resources to the appropriate areas in order to diligently manage safety risks.

From here it is our intention to develop further tools to assist you to follow the processes outlined in the Plant Safety Management Model. We welcome your feedback and ideas to assist with this process.