



# **Safe Operating Procedures for the Vermeer VX30-250 Vacuum System**

Prepared by:	Gerhard A. Hendricks (CPE)	Date:	September 16, 2011
--------------	----------------------------	-------	--------------------

## THE INTRODUCTION

### VERMEER'S RESPONSIBILITIES:

Australia incorporates a wide range of Occupational Health & Safety laws and regulations aimed directly at a wide range of parties associated with the selling, hiring and operation of plant.

Vermeer, acting as the seller, supplier or hiring agent of the plant has a number of very specific responsibilities under these OHS laws and regulations.

In fully meeting our responsibilities, Vermeer has developed this document in order to assist you (and your employees) to operate the Vermeer plant in the safest possible manner.

During the plant purchasing or handover stage Vermeer will provide you with the following documentation:

- Operator's Manual dedicated to Vermeer VX30-250 Vacuum System
- Plant Hazard & Risk Assessment dedicated to Vermeer VX30-250 Vacuum System
- Operator Safety Training & Handover Induction Training Sign Off
- Safe Operating Procedures specific to vacuuming operations

Furthermore this document takes into account the fact that the Vermeer VX30-250 Vacuum System may be required to be operated in areas where either the general public or other individuals who are not connected with vacuuming operations in any way may be present.

**THESE FACTORS SIGNIFICANTLY INCREASE THE RISK OF INJURY TO PERSONS AS THE GENERAL PUBLIC OR PERSONS NOT CONNECTED WITH THE PLANT OPERATIONS HAVE NO TRAINING WHATSOEVER!**

*Vermeer promotes the safe operation of its products and fully supports the objectives of all Australian Occupational Health & Safety laws and regulations pertaining to the safe use of plant in Australia.*

### PLANT OPERATOR(S) RESPONSIBILITIES:

As the user of this plant you also have significant responsibilities under Australian Occupational Health & Safety laws and regulations.

You must, at all times when setting up the work site, during vacuuming operations and when packing-up the work site ensure that you have applied all of the recommended safety control strategies designed to minimise the risk

of injury to all persons connected with the vacuuming operations of the plant and the general public who may be in close proximity to the plant due to the working environment.

Additionally during the plant purchasing or handover stage Vermeer will have provided you with the following documentation:

- Operator's Manual dedicated to vacuuming operations
- Plant Hazard & Risk Assessment dedicated to vacuuming operations
- Operator Safety Training & Handover Induction Training Sign Off
- Safe Operating Procedures specific to vacuuming operations

***IT IS IMPERATIVE THAT YOU READ, UNDERSTAND AND APPLY ALL RECOMMENDATIONS CONTAINED IN THESE DOCUMENTS***

Plant operators and assistants must display a high level of competency before commencing any vacuuming operations with the plant.

**This is a NON NEGOTIABLE requirement.**

Your failure to apply these recommendations will render you (and possibly you're employees) liable to significant penalties which constitute very heavy monetary based fines and possible criminal prosecution. Furthermore you may also be liable to civil litigation due to a potential public liability claim.

It is also worth noting the fact that many statutory authorities / organisations and contracting organisations will require you to have the above information on hand at all times before you can commence work.

This is due to the fact that these organisations are also aware of their legal Occupational Health & Safety obligations.

## **THE SAFE OPERATING PROCEDURES**

The following Safe Operating Procedures (SOP) for the Vermeer VX30-250 Vacuum System has been purposely designed using a systematic process throughout the entire operational stages.

The objective for the use of such a process reduces the potential for operator oversights when arriving at the work site, performing actual vacuuming operations and at the cessation of operations when the plant and work site is being packed up.

Prior to beginning vacuuming operations it is imperative that ALL users of the plant have read (and understood) the Plant Hazard & Risk Assessment document pertaining to their particular Vermeer VX30-250 Vacuum System.

It is also highly recommended that all plant operators complete a Job Safety Analysis (JSA) worksheet or similar assessment prior to operation.

**SET UP (PREPARATION) STAGE:**

- All persons involved in vacuuming operations to complete a 'site-specific' Job Safety Analysis (JSA) worksheet or similar assessment upon arrival at the site and following a site inspection.
- Completed JSA to be understood by all persons involved with vacuuming operations and signed off by all persons acknowledging risk control strategies to be applied and complied with.
- Following the site inspection, position the vacuum unit in the most convenient location taking note of any potential overhead and surface obstructions and hazards. These factors can influence where you position the plant.
- In the event where the vacuuming operations are to be performed in a public area it is important to isolate the area where all of the equipment is positioned. It is important to include the actual work area where the work group is moving about as this area will present certain hazards to the general public.

Isolation controls can include, but are not limited to, taping the exclusion area with the aid of high visibility tape, marking the area with high visibility witches hats and placing warning signage at strategic locations where the activities are being performed.

Another highly effective control strategy will include the provision of a spotter who will be charged with applying a vigilant awareness of approaching persons where the vacuuming operations are being performed.

An effective isolation zone of five (5) metres around the total work site (including the plant) constitutes a 'good rule of thumb' approach.

- Prior to commencing vacuuming operations, it is essential to ensure that the vacuum unit is securely positioned and stable in order to prevent against movement. Where the vacuum unit is permanently mounted on a trailer it is advisable to keep the trailer attached to the towing vehicle in order to maintain effective stability of the plant against potential (and unexpected) movement.

If the vacuum unit is being transported, secured to (and operated) on either a trailer / truck flat bed it is recommended that the wheels of the transporting vehicle are effectively secured by chocking or locking the wheels to prevent possible movement of the unit.

## Safe Operating Procedures for the Vermeer/McLaughlin/Vac-Tron Vacuum Systems

Further consideration regarding the method in which the vacuum unit is secured to the transporting vehicle will also need to be applied. The vacuum unit must be secured to the transporting vehicle in a manner that eliminates potential movement in any situation.

In the event where the vacuum unit is mounted on skids and designed to be operated independently from its transportation vehicle it is important to ensure that the vacuum unit is securely positioned on a stable and flat surface at all times.

- In the event where the vacuum unit is being removed from its transport vehicle extreme care must also be applied during all lifting operations. You must ensure that the safe working load (SWL) of the lifting equipment can safely accommodate the mass of the vacuum unit when the main tank of the vacuum unit is fully loaded (as a safety measure).
- Particular caution will need to be applied with respect to the control of foreign debris that can be ejected as a result of the vacuuming operations. The potential for foreign objects to be ejected at a high force as a result of vacuuming operations is very high.
- Awareness as to the potential for underground electrical cables and gas lines will also need to be given. Where possible obtain a utility site plan in the event where you suspect that underground electrical cables and / or gas lines may exist. All plant operators will need to devise an effective strategy to ensure that no contact is made with underground cables and gas lines should underground cabling or gas lines exist. Also contact your local 'Dial Before You Dig' authority if doubts exist.
- Consideration as to the surrounding terrain will also need to be applied. Consider 'marking out' or highlighting areas where holes or depressions exist in order to mitigate the potential for persons to either slip, trip and fall when standing near the vacuum unit or when handling the vacuum wand.
- Before operations are to commence with the vacuum unit ensure that the lid at the rear of the main tank is securely locked and that the locking mechanisms and tank lid are all in a good serviceable condition.
- All persons involved with vacuuming operations will need to be provided with and wear the necessary personal protective equipment (PPE). It is important to ensure that this equipment is in a good serviceable condition and correctly fitted.

PPE will include eye protection, hearing protection, gloves, hard hat, safety shoes/boots and clothing that is not loose around the body. Long hair will need to be tied up and any jewellery removed.

### **OPERATING STAGE:**

## Safe Operating Procedures for the Vermeer/McLaughlin/Vac-Tron Vacuum Systems

- Following commencement of start up and warm up procedures as per recommended Vermeer McLaughlin Vacuum System Operator's Manual instructions, ensure that all emergency shutdown activation systems are fully operational.

(In the event where one (or more) of these emergency stop systems are found to be defective they must be repaired prior to the operation of the plant).

- Throughout vacuuming operations all observers / assistants must stand at least five (5) metres away from the plant during vacuuming operations.
- During vacuuming operations check to ensure that no excessive build up of foreign objects or spoil impedes your ability to view the hole that you are creating or the work area that is being cleaned.

When foreign objects or spoil builds up to the point where it is difficult to view the work area, shut down the plant as per the required manufacturer's recommendations as outlined in the Operators' Manual and remove the hand held wand from the work area.

Remove all foreign objects and spoil with the use of a shovel and / or rake and then resume vacuuming operations.

It is important to maintain a clean area during vacuuming operations as best as possible in order to obtain a clear view of the work area and to minimise the potential for a trip and fall hazard to develop.

- Throughout the vacuuming operations it is important to ensure that the entire work site remains a NO GO ZONE for any members of the general public or observers. Continue to exercise vigilance by ensuring that all barriers remain in place and that the spotter continues to re-direct both human and vehicle traffic from the immediate work site.
- Under no circumstances must the operator of the vacuum system direct the wand towards any individual or any body parts when the unit is in operation.

The potential for serious injury to occur is high due to the existence of a high pressure water stream and / or high level of suction exists at the opening of the wand.

- In the event where the main tank has reached maximum capacity and requires emptying, it is imperative that only the plant operator and a nominated assistant who is deemed competent must be involved with this procedure.

## Safe Operating Procedures for the Vermeer/McLaughlin/Vac-Tron Vacuum Systems

- When performing main vacuuming tank emptying procedures the nominated persons must be made fully aware of the ability for the tank door to swing open when the main tank is tilted under hydraulic power.

Furthermore no individual(s) or body parts must come in contact with either the main vacuum tank door, the underside of the tilted main vacuum tank or the space between the open door of the main vacuum tank and the main vacuum tank itself as these areas are deemed as high collision and crush zones. Serious injury or death can occur if these components collide or crush and individual.

When returning the main vacuum tank to its operational (horizontal) position the above stated warning again apply as the potential for a collision / crush injury can still occur.

- When emptying all of the contents in the main vacuum tank in the event where the main vacuum tank is full the contents must be disposed of in a responsible and safe manner.

### **PACK UP STAGE:**

- Upon completion of the vacuuming operations shut down the plant as per recommended Vermeer Operator's Manual instructions.
- Ensure that all foreign objects and spoil have been thoroughly removed from the work site and that the work site has been restored to a safe and orderly standard with no obstructions or remaining hazards.
- In the event where the vacuum unit is being towed behind a vehicle (as opposed to being transported on the rear of a flat bed vehicle) check the plant towing hitch (and all of the attached safety component assemblies) to ensure that it is correctly attached to the towing vehicle including all electrical connections.

(These items of equipment can separate under extreme or unusual circumstances.....so be aware of this fact).

Should any defects relating to the towing assembly be identified they must be reported and assessed prior to leaving the work site.

### **ADDITIONAL CONSIDERATIONS:**

- Vermeer VX30-250 Vacuum Systems are engineered and manufactured to the highest possible standards in order to perform exceptional service and safe operation over the sustained life span of the plant.

In order to ensure continued performance, safe operation and reliability of the Vermeer VX30-250 Vacuum System it is imperative that the

## Safe Operating Procedures for the Vermeer/McLaughlin/Vac-Tron Vacuum Systems

plant is fully maintained in accordance with the manufacturer's instructions at all times.

In the event where questions are raised concerning the performance and subsequent operation of the plant or where the plant has been damaged in any way.....you must report these details to your Vermeer Service Department without fail.

- Under no circumstances must any person remove any guard that is designed to protect an individual from any moving parts whilst the plant is in operation or with the engine is operating. This includes (in particular) the guarding that is designed to cover the motor unit and all enclosed mechanical apparatus.
- In the event where guards are required to be removed for either inspection and / or maintenance purposes this task should only be performed by an authorised Vermeer Service Technician.
- All decals as fitted to the plant advising of safety warnings must not be removed. They must be replaced if in a damaged or worn state.

Operating plant that is not correctly maintained and / or damaged in any way what so ever constitutes an unsafe work practice and can result in a serious injury to the operator(s).

Furthermore this practice can constitute a violation to the relevant Australian Occupational Health & Safety laws and regulations.