



## VUL-SWP-076(2)- Haul Truck Operations

| STANDARD WORK PROCEDURE (SWP)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                       |                                                                              |                    |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|------------------------------------------------------------------------------|--------------------|
| Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Haul Truck Operations |                                                                              |                    |
| Site                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Vulcan Mine           |                                                                              |                    |
| Department                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Operations            |                                                                              |                    |
| PPE Required                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                       | Job Step Analysis Reference                                                  |                    |
| <div><br/>Safety helmets must be worn in this area</div> <div><br/>Ear protection must be worn</div> <div><br/>Protective footwear must be worn</div> <div><br/>Protective gloves must be worn</div> <div><br/>High visibility clothing must be worn in this area</div> <div><br/>Eye protection must be worn</div> |                       |                                                                              |                    |
| VUL SOP / PRO Reference                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                       | Other Relevant Information                                                   |                    |
| VUL_MOP_35 Emergency Management<br>VUL_SOP_73 Checking Mobile Plant<br>VUL_SOP_76 Using Mobile Plant<br>VUL_SOP_94 Check, Examine & Restrict Work Area<br>VUL_SOP_117 Spoil Dumps, Excavated Faces & Discharge<br>VUL_MOP_128 Design & Construction of Mine Roads<br>VUL_SOP_133 Discharge Loads<br>VUL_SOP_144 Lighting<br>VUL_TAR_003 Geotechnical Failure                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                       | <input type="checkbox"/> Relevant OEM instructions & specification available |                    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                       | <input type="checkbox"/> Permit Required – number:                           |                    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                       | <input type="checkbox"/> Pre-start meeting                                   |                    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                       | <input type="checkbox"/> OCE Report                                          |                    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                       |                                                                              |                    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                       |                                                                              |                    |
| People, Equipment, Materials and Tools Required                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                       |                                                                              |                    |
| People                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Equipment             | Materials                                                                    | Tools              |
| Production Supervisor                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Dozer's               |                                                                              | Prestart checklist |
| Open Cut Examiner                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Service Cart          |                                                                              | Take 5             |
| Dozer Operator                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Light Vehicles        |                                                                              |                    |
| Emergency Response Team                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Rescue Vehicles       |                                                                              |                    |
| Service Cart Operator                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Water Cart            |                                                                              |                    |
| Water Cart Operator                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Grader                |                                                                              |                    |
| Grader Operator                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Lighting Plants       |                                                                              |                    |
| Excavator Operator                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Excavator             |                                                                              |                    |
| Truck Operator                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Haul Truck            |                                                                              |                    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                       |                                                                              |                    |



## 1. Area Inspection

- 1.1 Area inspection must be carried out to determine the suitability and required actions to take to improve operating conditions and achieve an acceptable level of risk.
- 1.2 Review all Geotechnical hazard alerts in your work area and ensure controls are in place before commencing work. Consult OCE for any additional information required or if new hazards are identified.

## 2. General Operations

- 2.1 Complete a Take 5 as a minimum prior to undertaking any work.
- 2.2 Before any operator begins to perform a pre-start on the plant, they must isolate at the master isolation point and place their personal isolation lock and tag.
- 2.3 A prestart check and or walk around inspection must be carried out in accordance in *VUL-SOP-073-Checking Mobile Plant*
- 2.4 The operator shall report any defects immediately to the Production supervisor and/or Maintenance department. Maintenance will determine if the machine is to be stood down or can keep on running. The defect is to be documented in the machine pre-start book and handed in at the end of the shift.
- 2.5 Requirements of *VUL-TAR-003-Geotechnical Failure* must be complied with
- 2.6 During the hours of darkness ensure there is adequate lighting in area of operations
- 2.7 Equipment must be parked in a suitable location for a prestart inspection and service as per *VUL-SOP-076-Using mobile plant.*
- 2.8 Mounting/dismounting equipment always face the machine, climb all the way to the ground (don't jump) and use the three points contact method ensuring that three of your four limbs are in contact with the equipment at all times. This provides you with support and reduces risk of falling
- 2.9 Emergency access must be always available during operation and operations must cease if there is poor visibility e.g., excessive dust exposure.

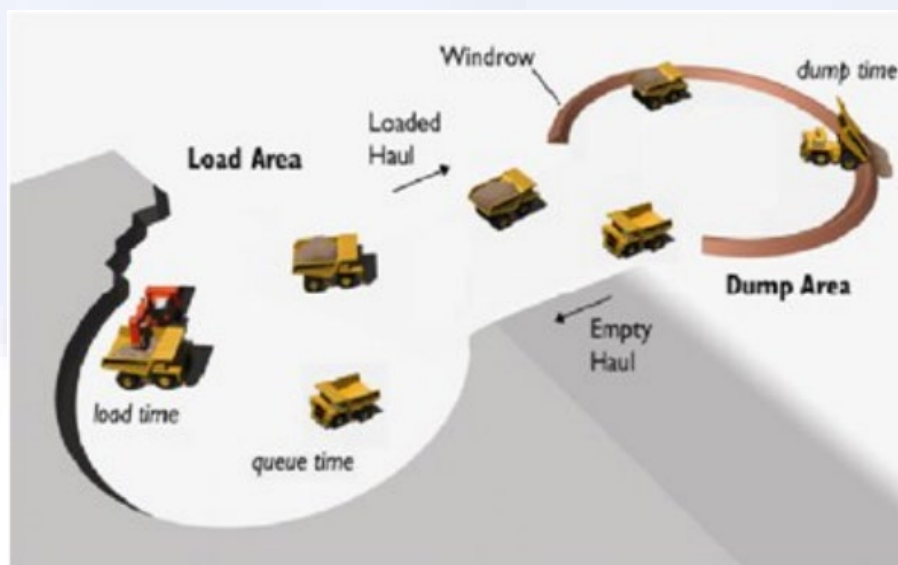




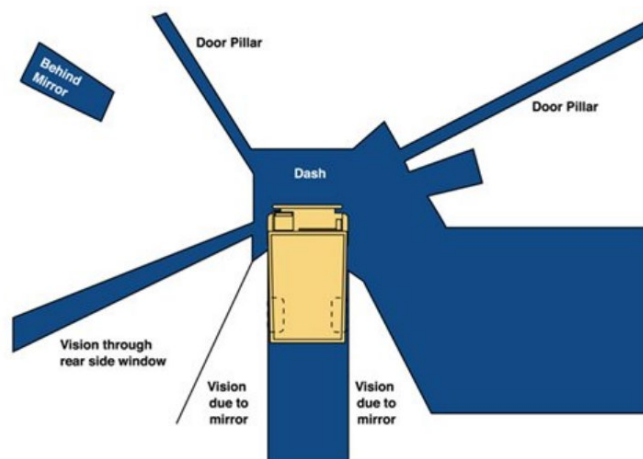
**2.10** In a haul circuit the following operations can take place:

- queuing
- loading
- loaded hauling
- dumping
- empty hauling

Conditions can constantly change, so a haul truck operator must always monitor the conditions during all operations.



**2.11** The following diagram identifies the areas surrounding the haul truck where the operator has clear visibility and no visibility (blue shaded areas). The procedures for moving off (e.g., sounding the horn), positive communication (e.g., call up on the mine radio) are designed to reduce the potential for personnel or equipment to be in an operator's blind spot when the haul truck is moving off. To ensure the safety of others, it is important to check vision in all mirrors and adhere to site's procedures when moving off.

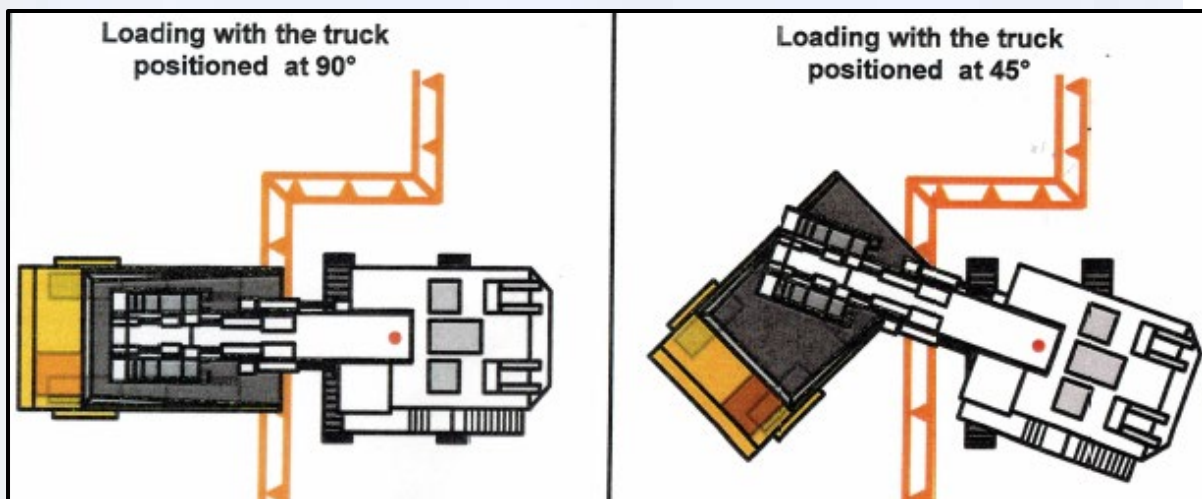




### 3. Single Benching

**3.1** For Single benching the optimum truck position is at 45° with the cab side of the truck aligned with the end of the excavator track. Always confirm with excavator operator if unsure.

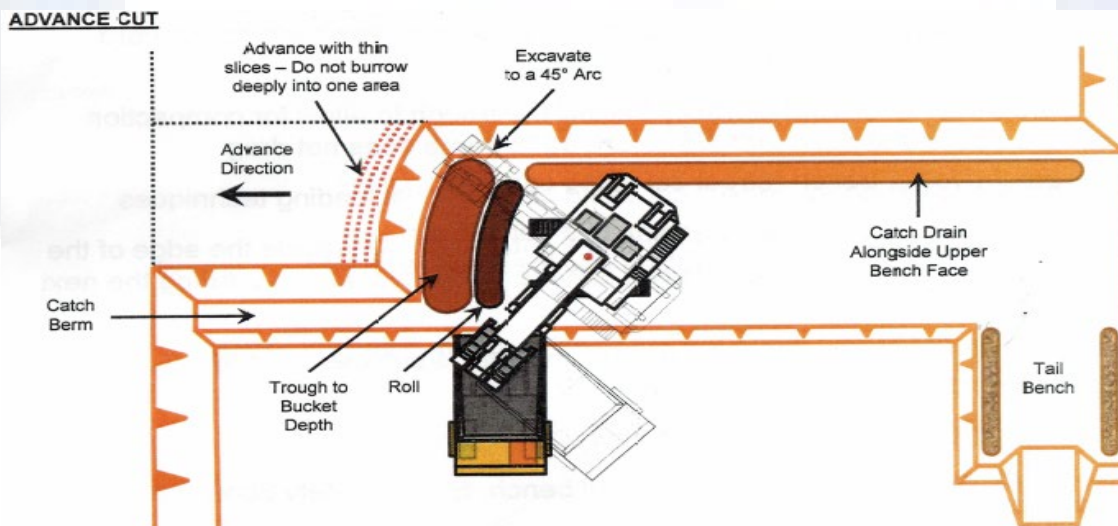
- This load position minimises excavator lift and slew functions and facilitates 'T' turns when trucks are self-spotting.
- 90° loading should be utilised in situations where 45° positioning cannot be achieved. Ensure truck circuits are setup to achieve a clockwise traffic flow.



### 4. Double Benching

**4.1** For Double Benching the optimum truck position is 90° (square to bench) with the cab side of the truck aligned with the front idler further down the track. Always confirm with excavator operator if unsure.

- This load position allows the excavator to make arc cuts into the upper advancing dig face and facilitates 'T' turns when trucks are self-spotting.
- Once the Excavator starts the retreat cut back along the bench, the loading technique should change back to a single benching forty-five-degree (45°) technique.

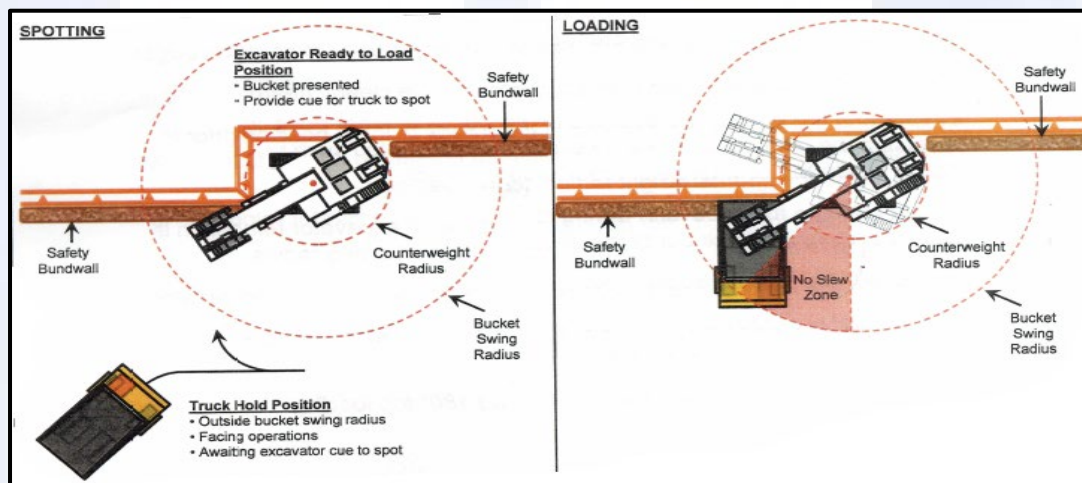




## 5. Top Loading

**5.1** Top loading operations result in significantly lower productivities than conventional bench loading practices along with a higher probability of excavator to truck interaction. As a result, it is extremely important to minimise situations where top loading is required.

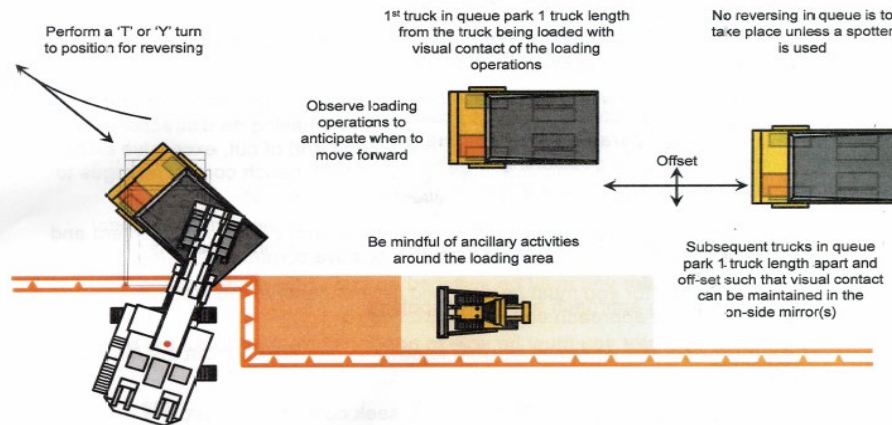
- Trucks are not to self-spot during top loading.
- Ensure an appropriate bund wall is maintained along open excavation edges.
- Trucks being loaded must be on-side (truck cab) to the excavator.
- The excavator must present the bucket in the “ready to load” position prior to haul trucks reversing.
- The bucket must be presented so trucks will not be inside the counterweight radius during loading.



## 6. Trucks Queuing

**6.1** Ensure trucks are queuing at an appropriate location in preparation for spotting.

- The first truck in queue should be positioned approximately one (1) truck length from the truck being loaded with visual contact of the loading operations.
- Subsequent trucks in queue area are positioned at least one truck length behind the truck in front.
- Subsequent trucks in queue are off-set so visual contact can be maintained in the on-side mirror(s)
- No reversing in queue is to take place unless a spotter is used and positive communication is established:-
  - Where applicable, ensure trucks are utilising “T” turns or “Y” turns to position for reversing under the excavator
  - Ensure trucks are not reversing up to the face



## 7. Self-Spotting

**7.1** Trucks are to utilize self-spotting to position under the excavator only when operating in a 'routine loading environment'.

- A 'routine loading environment' involves working to an established dig sequence with consistent truck positioning and having no distractions to the loading operation.
- Excavator operators are to be proactively controlling the commencement and completion of the self-spotting process with positive communications.
- Ensure self-spotting is not being undertaken during top loading operations.

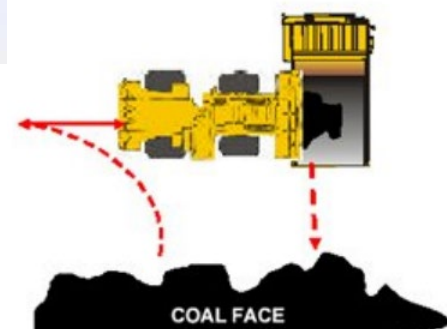
## 8. Loading Truck by Front End Loader

**8.1** For on-side loading, the truck shall reverse with the side of the tray aligned under the bucket pivot point, this approximately 1 meter away from the front tyres of the loader.

**8.2** The window may need to be opened slightly to hear the loading unit's horn. The window shall be closed again to avoid dust egressing into the cab.

**8.3** If vision is impaired while reversing the truck operator must stop immediately establish positive communications and receive direction before moving the truck

**8.4** Off-side loading shall not take place during loader operations.





## 9. Hauling

**9.1** Give way as per site traffic rules.

**9.2** Traffic on terminating roads must stop and give way as per site traffic rules.

**9.3** Emergency vehicles have right of way over all other vehicles (when flashing lights and sirens are operating)

**9.4** Working dozers on dumps have right of way over all vehicles.

**9.5** Working dozers and graders on haul roads should be approached with caution – they may be overtaken if positive radio contact is made with the dozer or grader operator and verbal clearance is given.

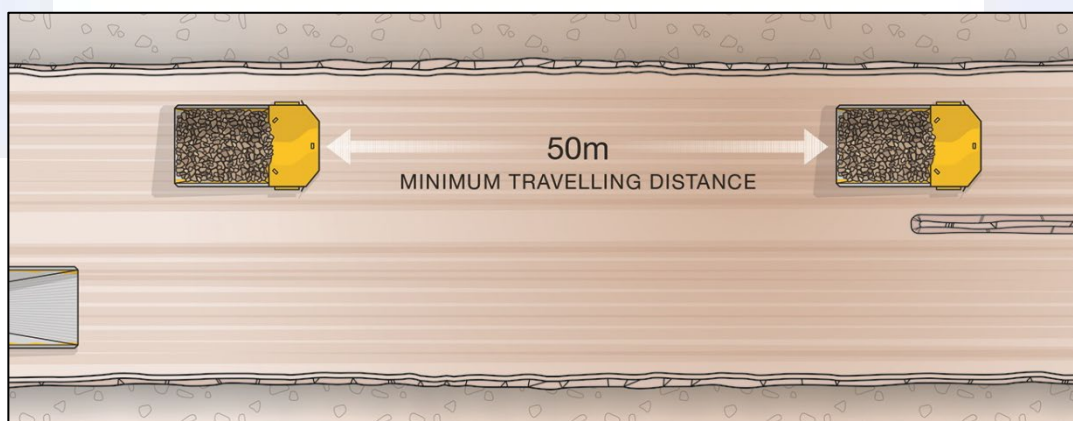
**9.6** When hauling in the pit be alert for hazards posed by:

- Road and pit surface conditions
- Spillage
- Other equipment and vehicles
- High-walls and faces



**9.7** Truck operators shall adhere to the speed limits on site. These maximum speeds are guides only, truck operators shall operate to the prevailing floor, road and dump conditions.

**9.8** Each Dump truck operator shall ensure they have 50 meters separation in dry conditions, in wet conditions this will increase to 100m separation when traveling on haul roads.





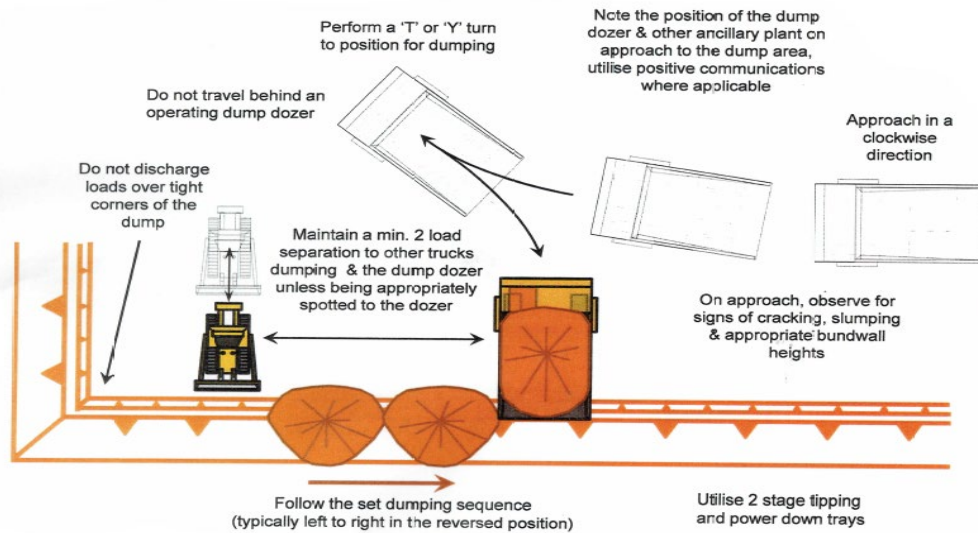
## 10. Dumping

- 10.1** Truck operators are dumping in accordance with the set dumping sequence as per *VUL-SOP-133 Discharge Loads*
- 10.2** Truck and ancillary plant operators are effectively communicating.
- 10.3** Truck operators are maintaining two (2) load separation to other trucks and the dump dozer.
- 10.4** All tip heads must have a safety bund of at least half the wheel height of the largest truck on the circuit.
- 10.5** There must be three (3) degree rise to the bund to assist with minimising the impact with the safety bund.
- 10.6** Always enter the dump in a clockwise direction.
- 10.7** Keep the dump edge on the operator's side of the truck.
- 10.8** Maintain a minimum distance of 10 meters from the dump edge as this material is not completely compacted and increases likelihood of the edge failing.



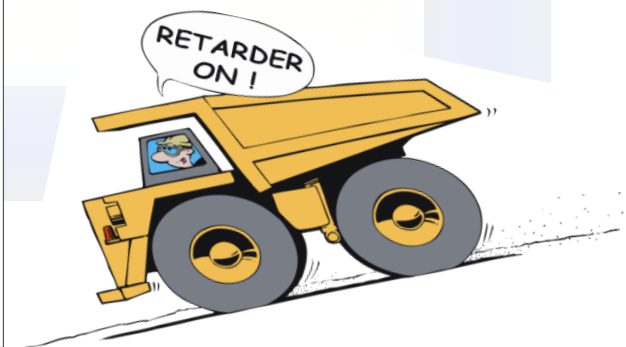
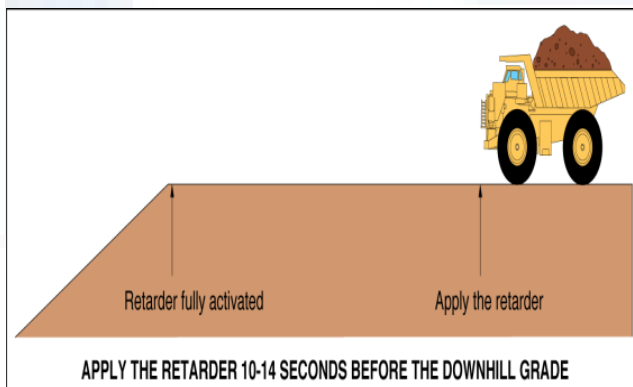


- 10.9** Where applicable, truck operators are utilizing 'T' or 'Y' turns to position for dumping.
- 10.10** Truck operators are reversing square to the bund and not using it as a brake.
- 10.11** Truck operators tip loads off as efficiently as possible and powering down trays before moving off.
- 10.12** If required to complete a "U" turn, ensure the truck speed shall not exceed 10km/h



## 11. Ramps

- 11.1** The operator shall control their decent speed using the retarder, do not exceed the recommended engine RPM.
- 11.2** If the truck is descending at an unsafe speed and the retarder has failed to slow down the truck, apply the secondary brakes to bring the truck to a controlled speed.
- 11.3** Once the truck has completely stopped, use hazard lights, inform other circuit users you are stopped and inform workshop and await further instructions.
- 11.4** Mechanical trucks will be locked into gear to prevent gear changes ascending the ramp and when descending the ramp truck will be locked into second gear if loaded or fourth gear unloaded.





## 12. Over-loads

- 12.1** Report all overloads to the loading unit operator immediately and await instructions for where the load is to be dumped.
- 12.2** If the truck cannot lift a heavy load at the tip head, move forward approximately 1m and try again.
- 12.3** If this is unsuccessful inform the dozer operator, who will direct the truck to a safe area to cut a V-drain and try tipping the load off. The practice of throwing the load is strictly prohibited.
- 12.4** If the tray stops after partially lifting the load, lower the tray with caution to avoid causing injury to the operator and damage to equipment, if this occurs contact Supervisor and Maintenance department to diagnose fault.
- 12.5** Where an over-load does not register until the truck has left the dig floor, the operator shall inform the shift supervisor and other circuit users of the over-loaded truck location. This may impact circuit flow.



## REVIEW, APPROVAL AND NATURE OF CHANGES

- Evidence of review, approval, revision of this work procedure are found in INSERT LOCATION.
- The nature of changes to this work procedure shall be identified when it is published as current in INSERT LOCATION.

## WORKER SIGN-OFF

I confirm that I have read and understood the Safe Work Procedure for **VUL-SWP-076(2)-Haul Truck Operations** which is available to me, and I will follow in the event of undertaking this task.

|                |  |                   |  |
|----------------|--|-------------------|--|
| <b>Name</b>    |  |                   |  |
| <b>Company</b> |  | <b>Job Title:</b> |  |
| <b>Date:</b>   |  | <b>Signature:</b> |  |