

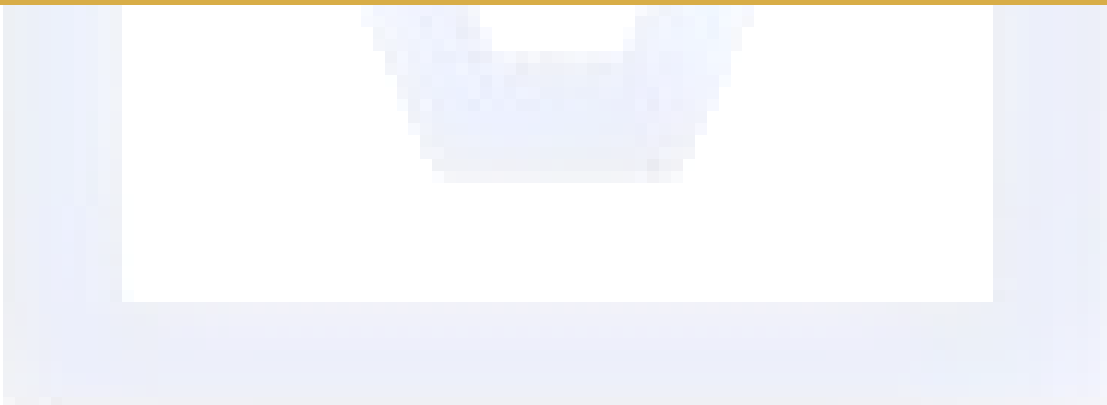


VULCAN MINE



Standard Operating Procedure

Discharging Loads from Fixed and Mobile Plant



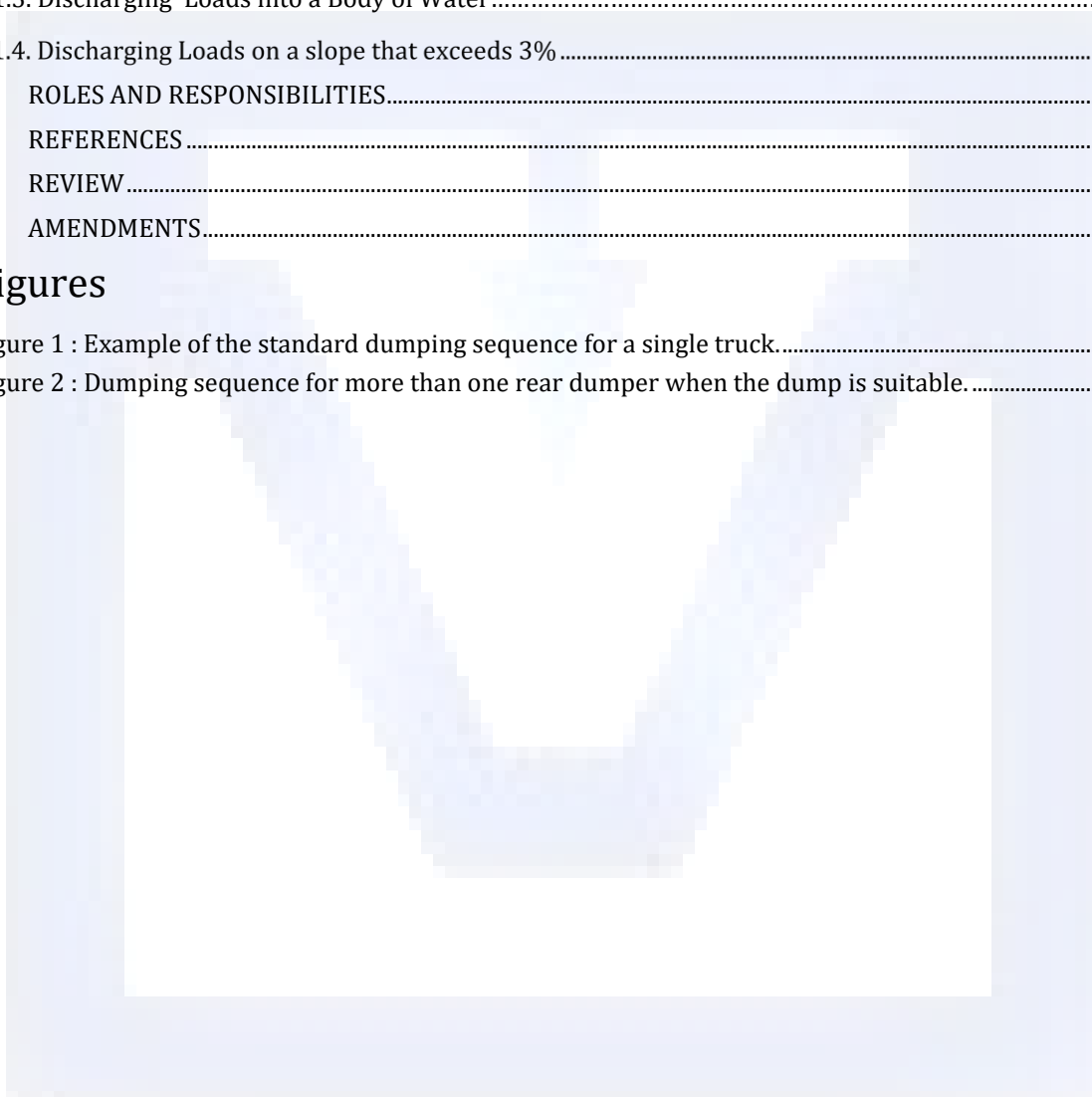


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1. PURPOSE

- The purpose of this procedure is to describe requirements and to effectively manage hazards and risks associated with the discharge of loads at the Vulcan Mine from fixed and mobile plant and ensure compliance to sections 133 & 139 of the Coal Mining Safety and Health Regulation 2017 (Qld)

2. SCOPE

This procedure is applicable to all persons at the Vulcan Mine including employees, contractors and visitors.

The controls within this procedure are mandatory.

3. DEFINITIONS

Authorised Person	A person who has the required competencies and who has been appointed by the Site Senior Executive to carry out a designated scope of duties.
Body	The main mass and depth of a safety bund.
CMW	Coal Mine Worker.
Competent Person	Competence for a task at a coal mine is the demonstrated skill and knowledge required to carry out the task to a standard necessary for the safety and health of persons.
Dump	Designated area for waste material to be placed.
Exclusion Zone	No equipment or personnel shall enter this area at any time unless under a specific risk assessment.
FOPS	Falling Object Protection System.
Fundamentally Stable	A condition where a vehicle will not move from its parked position in the absence of brakes.
HME	Heavy Mobile Equipment.
JHA	Job Hazard Analysis.
OCE	Open Cut Examiner.
PHMP	Principal Hazard Management Plan.
ROP	Roll Over Protection.
Berm / Bund	An earthen barrier large enough to prevent vehicles driving off vertical edges
SHMS	Safety and Health Management System.
SSE	Site Senior Executive.
Take 5	Personal Risk assessment.
TARP	Trigger Action Response Plan.

4. PROCEDURE

4.1. Discharging Loads from Haul Trucks

When designing and setting up the work area, due consideration shall be given to the following:

- 50 metre separation shall be maintained between all equipment on dumps, unless the HME is in the process of actively discharging its load. If the need to pass behind any other mobile plant arises, positive communication must be established to declare intent and permission granted.
- A minimum of two loads separation must be maintained between the tracked dozer working on the dump and the Haul Truck discharging its load (**see Figure 1**)
- When side cutting the dump face, the integrity of the bund must be maintained and not be reduced to below 5.5m in width at the base.



- Whenever a vertical drop of more than 0.5m is present, an earthen bund shall be established that is equal to or greater than half the height of the tyre of the largest vehicle using the dump.
- Tip-head must be kept square wherever possible to ensure both sets of rear wheels contact the safety berm simultaneously. If this is not possible, Haul Trucks must tip their loads short of the tip head (i.e., in the corners of the dumps).
- When entering the tip-head/commencing their turn haul trucks must remain 10m from the toe of the bund.
- Minimum designed tip-head width of 35m. JHA to be completed for tip-heads <35m.
- The requirement to complete a JHA includes situations when two loads of separation cannot be maintained for any other reason.
- Maximum grades to be traversed by equipment should be governed by the manufacturer's recommendation or site standard (refer to VUL-SOP-128-Design and Construction of Mine Roads).
- A risk assessment shall be conducted before haul trucks dump wet material onto active tip heads or dump over water. The risk assessment must take into account the potential for wet material or standing water to affect the integrity of the dump.
- Tip dozers are to maintain a minimum safety berm/rill height of half the wheel height of the largest machine to ensure safe operations.
- The dozer operator at the dump face shall have control over the dump area at all times. Where the dump dozer is required to leave the dump area, the operators shall follow standard dumping sequence unless instructed otherwise.
- Trucks must stop on the edge of a berm and are not to use the berm as a 'stop block'.
- Trucks dumping at a tip head should always dump from right to left to avoid interaction with the dump dozer.
- Truck operators are to continually monitor the tip head, particularly when the dump dozer is not present. If concerned about the integrity of the tip head, truck operators are to dump short.
- If truck operators are required to travel behind the dump dozer then positive communications shall be established.
- Truck operators shall maintain a safe distance from tip head, e.g. truck width when turning.
- Dumping on corners – trucks shall dump short as directed by the dozer and the dozer is to reestablish the bunding once 2 load separation can be achieved. This is done to take into consideration the possibility of rill bund deterioration.

An example of the standard dumping sequence is shown in Figure 1 below.

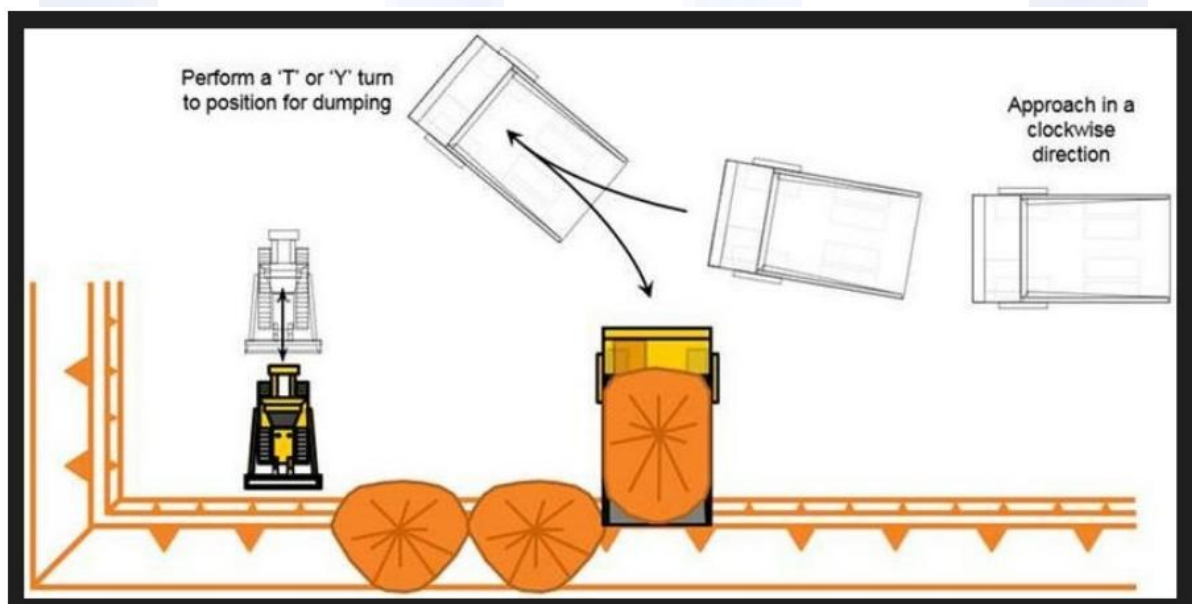


Figure 1 : Example of the standard dumping sequence for a single truck.



The following additional rules apply when a tip head allows for more than one truck to dump at a time:

- two truck widths shall be maintained between trucks dumping at the tip head at all times;
- where a dump is narrow or congested, loaded trucks shall give way to trucks on the tip head, allowing them to dump and leave the tip head before positioning to at the tip head; and
- only one truck to dump at one time on slumping or cracked dumps.

An example of the standard dumping sequence is shown in Figure 2 below.

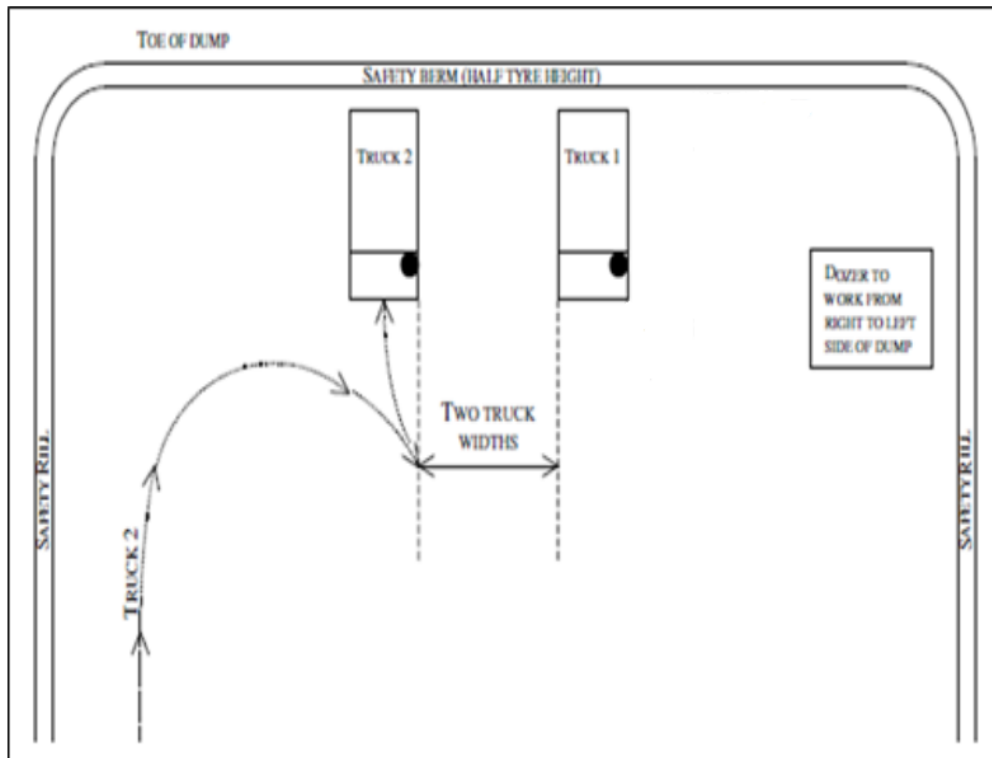


Figure 2 : Dumping sequence for more than one rear dumper when the dump is suitable.

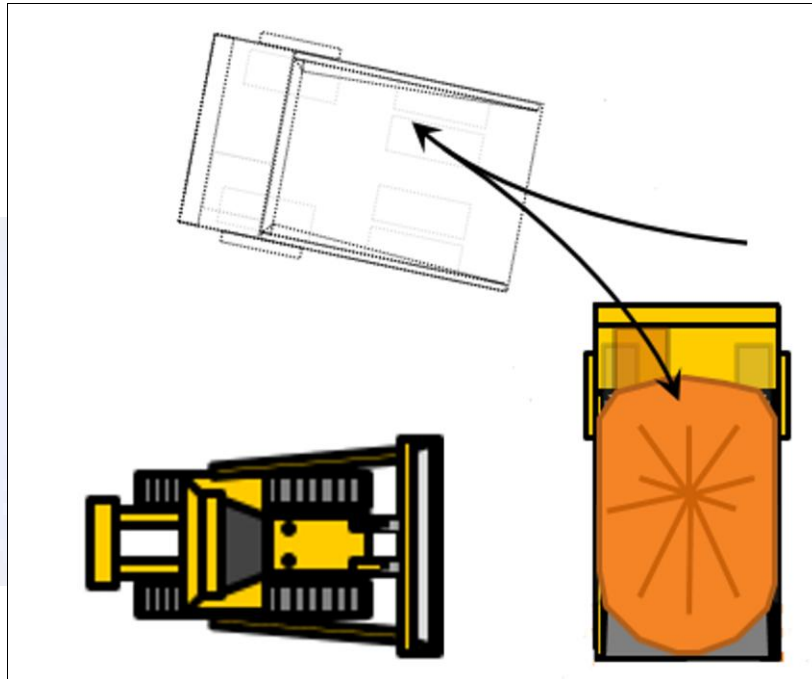
4.1.1. Directing a Haul Truck into position

If the need to guide a haul Truck into a specific location arises, the following shall apply:

- Haul Truck must be positioned parallel to the Tracked Dozer's blade.
- The dozer operator must make positive communication with the haul truck operator to communicate the need to deviate from the standard dumping sequence.
- The Tracked Dozer must remain on the onside (cab side) of the Haul Truck whilst it is guiding Haul Truck into position.
- A minimum of 5m separation must be maintained between the Tracked Dozer's blade and the onside of the Haul Truck.
- Positive communication must be established and maintained throughout the task.
- Whilst the Haul Truck is discharging its load, the Tracked Dozer must have either neutral or reverse gear engaged.



Figure 3: Example of the standard operating procedure for directing a Haul Truck into position.



4.1.2 Discharging incompetent material

If the need discharge incompetent material arises, the following shall apply:

- Incompetent material (e.g. water laden material) must not be discharged over a tip-head. Alternate paddock dump location to be found for material.
- Work area inspections to be increased at the OCEs discretion to ensure excess water from loads does not pose an unacceptable risk to other operations in the vicinity.

4.1.3 Discharging loads into a body of water

The practice of discharging material into a body of water should only occur if all reasonable steps are taken to eliminate the hazard and a JHA has been completed that includes the following controls as a minimum.

- Emergency Response Personnel to be included in the cross section when developing the JHA.
- Haul trucks must not to reverse to within 5m of tip-head if there is water below.
- A v-drain must be established a minimum of 5m from the tip face to demarcate where the truck is to discharge its load. The load must then be pushed over the edge with a tracked dozer.
- Ensure an emergency access is maintained below the active tip-head should the tip-head fail resulting in person/s falling over edge.
- Work area inspections to be increased at the OCEs discretion to ensure displaced water from loads does not pose an unacceptable risk to other operations in the vicinity.
- If the risk of a person drowning exists, ensure a Personal Floatation Device (PFD) is made available.



4.1.3. Managing Slumping or Cracked Dumps

Where the tip head is slumping or cracking, the following rules apply:

- When dealing with unstable dumps or stockpiles, ensure any berm or tip heads are constructed in such a manner that the berm or tip head has adequate body and width, not just height, e.g. half the height of the largest tyre on dump.
- Track dozers shall be used when dumps or stockpiles are slumping.
- Slumping dumps and stockpiles are under the control of the dozer operator. Dozer operators determine how haul trucks access the dump or stockpile and in what order.
- If dumping short is required, a form of demarcation must be used, e.g., guideposts, v-drain, ripper mark, spotter.
- Where a stockpile or dump commences slumping, the dozer operator may have to cut down the dump and reform tip head.
- Cracks may appear in the running surface in front of, or in, the berm. Truck operators are to immediately notify the OCE if cracks are observed.
- If a tip head is not in use a berm shall be established a safe distance from the cracked or slumping area, as determined by the OCE/supervisor and the dozer operator. Signage must be placed in front of the hazardous area that is not live. Signage is a soft barrier and should be used as an interim measure only.
- Once the safety berm is established, the dozer then proceeds behind the berm to cut down cracks or slumps to a desired grade, as determined by the dozer operator and the OCE/supervisor.

4.1.4. Discharging Loads on a slope that exceeds 3%

- Where possible, a flat pad shall be maintained to ensure that Haul Trucks are not tipping perpendicular to the slope of a ramp.
- When discharging loads on cross fall grade that exceeds 3%, Haul Trucks must approach the bund at a 45° angle with the front of the Haul Truck facing the direction of the slope (downhill).
- Haul trucks must not turn on a ramp that exceeds 10% cross fall.



5. ROLES AND RESPONSIBILITIES

SSE	Shall review and approve this procedure.
HST Superintendent	Shall ensure that all provisions of this procedure are implemented, and that compliance is achieved.
Managers/Superintendents	Shall be responsible for their area of operations and the implementation and application of this procedure; Provide adequate training, information, structure and supervision to ensure that this procedure is implemented; Carry-out a periodic review of activities to ensure the appropriate application and understanding of this procedure; and Ensure immediate and appropriate steps are taken to investigate and rectify any risks to health and safety arising from these activities.
Supervisors	Ensure all CMWs are familiar with, have access to and comply with the requirements set out in this procedure.
All CMWs (including visitors and contactor)	Shall comply with the requirements of this procedure.
Dozer Operators	Dozer operators are to be the primary controller of the dump.

6. REFERENCES

- Coal Mining Safety and Health Act 1999 (Qld)
- Coal Mining Safety and Health Regulation 2017 (Qld)
- Safety Alert 77 Dumping over tip heads
- Safety Alert 97 Restricting access to hazardous areas
- Safety Alert 247 Trucks tipping over the edge
- Safety Bulletin 35 Excavation edge protection
- Significant Incident 17 Dump truck with unbalanced load becomes unstable
- Significant incident 26 Dumping overburden near coal crew operations
- Significant Incident 40 Truck falls backwards over tipping edge
- Significant Incident 42 Rollover of rear dump truck
- Significant Incident 46 Haul truck reverses over quarry bench
- Coal Periodical August 2022
- VUL-SOP-128-Design and Construction of Mine Roads

7. REVIEW

This document shall be reviewed as follows:

- when there is a change of method and/or technology and/or legal or other requirement that may affect the accuracy of this document;
- when operational changes occur that effect the currency of the document;
- when there has been a significant event to which this document was relevant; and
- as a result of relevant audit findings.

8. AMENDMENTS

Version	Date	Description	Document Controller
01	16.02.2021	Initial draft	Rachael Dacker
02	30/04/2021	Review and formatting	Nicole Davey
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04	11/07/2023	Review and formatting	Clayton McLeod
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