

Working Around Open Voids Procedure

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RISK LEVEL: HIGH

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1. Introduction

1.1 Purpose Statement

The purpose of this procedure is to ensure that all relevant personnel fully understand the safety and operational requirements when working in proximity to abandoned open voids, including pits, shafts, and costeans.

1.2 Activity Risks

This procedure controls the risks identified in the risk assessment indicated below:

Risk Category	Risk Details
Health and Safety	Risk associated collapse of ground, or falling into voids resulting in injury
Damage	Damage to equipment due to unstable ground or unnoticed voids

1.3 Scope

This procedure covers WESCEF personnel and contractors conducting work proximal to abandoned open voids.

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2. Responsibilities

2.1 Summary of Responsibilities

The roles identified in this table hold specific responsibilities in relation to this activity.

Role title	Summary of Responsibilities
Exploration Manager	Is ultimately responsible for ensuring that all work activities conducted in or around abandoned open voids are carried out in a safe, efficient, and compliant manner in accordance with this procedure. Additionally, provides immediate support and assistance in the event of an emergency or SOS situation.
Supervisors	Comply with this procedure in full. Make changes to the procedure when required and re-publish. Ensure training is provided with verification of competency. Provide any technical advice to staff conducting work near abandoned open voids. Be able to coordinate and/or assist with any assistance or SOS call outs.
All Personnel	Comply with this procedure in full. Understand the hazards associated with working around open voids and ways to manage the risk. Ask questions and seek clarification if unsure of any aspect of this procedure.

3. Precautions and Limitations

3.1 Hazards

These are the potential hazards that apply to the entire procedure and have potential to cause loss of life, severe injury, otherwise adversely affect people (i.e. an abnormal situation or emergency).

Hazard	Potential Consequence	Safeguard
Geotechnical and structure instability	Collapse of ground adjacent to void, loss of life and equipment	Geotechnical assessment, barricading, and exclusion zones
Inrush and Subsidence	Inrush of mud/water into nearby void causing subsidence and ground instability	Geotechnical assessment, barricading, and exclusion zones
Unstable mine workings	Mine workings are always potentially unstable and can cave in at any time. The effects of blasting and weathering can destabilise strong rock. Work to stabilise rock walls may become less effective over time.	Geotechnical assessment, barricading, and exclusion zones. Maintain a safe distance, assess ground for cracks.
Falling down voids	Falling down vertical or near-vertical openings in abandoned mines has the potential to cause serious injury or death. Weathered rock at the edge of an opening can break away and	Geotechnical assessment, barricading, and exclusion zones. Pre-plan your work and check for old workings in your work area.

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Hazard	Potential Consequence	Safeguard
	slide into the open hole under a person's weight.	Situational awareness when in the field
Slips, Trips and Falls	Strain or sprain injury.	Situational awareness. Ensure footwear is in good condition.

4. What is Needed

4.1 Personal Protective Equipment

You need the personal protective equipment listed below to do this activity.

Items
Hard Hat
Safety Glasses
Hearing Protection
Gloves
Steel Cap Boots

4.2 Tools and Equipment

You need the tools and equipment listed below to do this activity.

Items	Description
Hazard and red flagging	Tape to cordon off areas of risk
Star pickets and fencing supplies	Fencing supplies for more permanent barricading
Mallet or Star Picket Dropper	The mallet must only be used for wooden stakes and is not appropriate for hammering star pickets. A star picket driver must be used for star pickets.
GPS enabled maps	Avenza Maps, Q-Field, GPS map enabled InReach
Satellite communication	Garmin InReach, must be tested before use.
Radio	UHF and/or VHF Radio

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Items	Description
First Aid Kit	Fully stocked and in date

4.3 Performance Documents and Systems

You need the documents listed below to do this activity.

Title	Document Number
Geo Hazard Checklist	WCEF-RA-HSE-0004
Job Safety Analysis	WCEF-PD-HSE-0017

5. Prerequisite Conditions

Prior to commencing field activities, once the scope and nature of the work are clearly defined, it is essential to conduct a desktop assessment of potential hazards associated with open voids. For instance, the shapefiles located at [Wesfarmers Chemicals, Energy & Fertilisers\WesCEF Exploration - General\02. Projects\2.2 Davyhurst\12 GIS\07 Misc\Historic Workings](#) provides data on all known historical workings, including predominantly historic shafts. An appropriate shapefile or map must be loaded onto inReach or other GPS-enabled device or apps, such as Q-Field or Avenza Maps.

Note: Working in and around open pits/voids ranks highly in the Exploration risk, therefore two or more workers must be present at all times.

Before initiating any work in proximity to open voids, personnel must ensure that the **GEOHAZARD CHECKLIST** is completed and signed. This checklist is designed to evaluate the risk level associated with geotechnical hazards, including open pits, historic workings, and costeans.

Work may only proceed once all potential geotechnical hazards have been identified and assessed as NOT significant. In such cases, the checklist can be signed off, and field activities may continue. However, if a significant hazard is identified, all work must cease immediately, and the supervisor must be notified.

The level of risk will vary depending on the specific task being undertaken. For example, the risks associated with drilling adjacent to an open pit may differ from those involved in mapping within an open pit. Regardless of the specific task, the **GEOHAZARD CHECKLIST** must be completed and signed for all activities.

6. Operating in the Vicinity of Open Voids

6.1 Preparatory Actions

6.1.1 Work zone demarcation

Mark out a safe working zone around the edge of open pits, shafts, and other voids. This should be at least 5 metres from the edge, or more, depending on the specific hazards identified during the

GEOHAZARD ASSESSMENT. Ensure all personnel are briefed on the boundaries of the safe work zone before starting any activity.

6.1.2 Ground stability

Avoid working directly adjacent to any unstable areas. Do not enter old mine shafts under any circumstances. Costeans and open pits can only be entered if a Geohazard Checklist has been completed and no significant hazards identified, and all relevant personnel have completed OBM's working in an inactive pit induction. Regularly inspect the ground conditions near all open voids, paying particular attention to signs of subsidence, cracks, or shifting material.

6.1.3 Vehicle and equipment use

Ensure vehicles are parked at a safe distance from any open voids. Never drive vehicles over unstable ground or too close to edges. Avoid heavy equipment operation near unstable areas unless proper stabilizing measures (e.g., ground reinforcement) are in place.

6.2 Open Pits

6.2.1 Visual Inspection for Surface Cracks

Conduct a thorough inspection of the area for any surface cracks radiating from or running parallel to the edges of the open pit or mine shaft within the proposed work area. The inspection should extend a minimum of 30 metres from the outer base edge of the safety bund or windrow (see Figure 1).

Note: Do not cross the safety bund or climb onto the material surrounding the shaft or pit.

6.2.2 Action if Cracks or Failure Zones are Identified

If any cracks or failure zones are detected, immediately leave the area and notify your supervisor.

6.2.3 Safety Bund Evaluation

Inspect the safety bund (windrow) for both height and condition. The bund must be at least the mid-wheel height of the largest vehicle expected to be used in the area (e.g., backhoe, drill rig, light vehicles).

- If the bund meets the height and condition requirements, work may proceed.
- If the bund is inadequate or in poor condition, work must not continue until the bund is modified to meet the required specifications.

6.2.4 Hazard Marking

Mark the safety bund with hazard tape (or, if unavailable, pink/red flagging tape) to delineate the restricted zone and indicate No Entry.

If available, place a Danger - No Entry sign or similar signage facing the working area (see Figure 2).

Ensure that all personnel operating within the work area are informed of these restricted zones.

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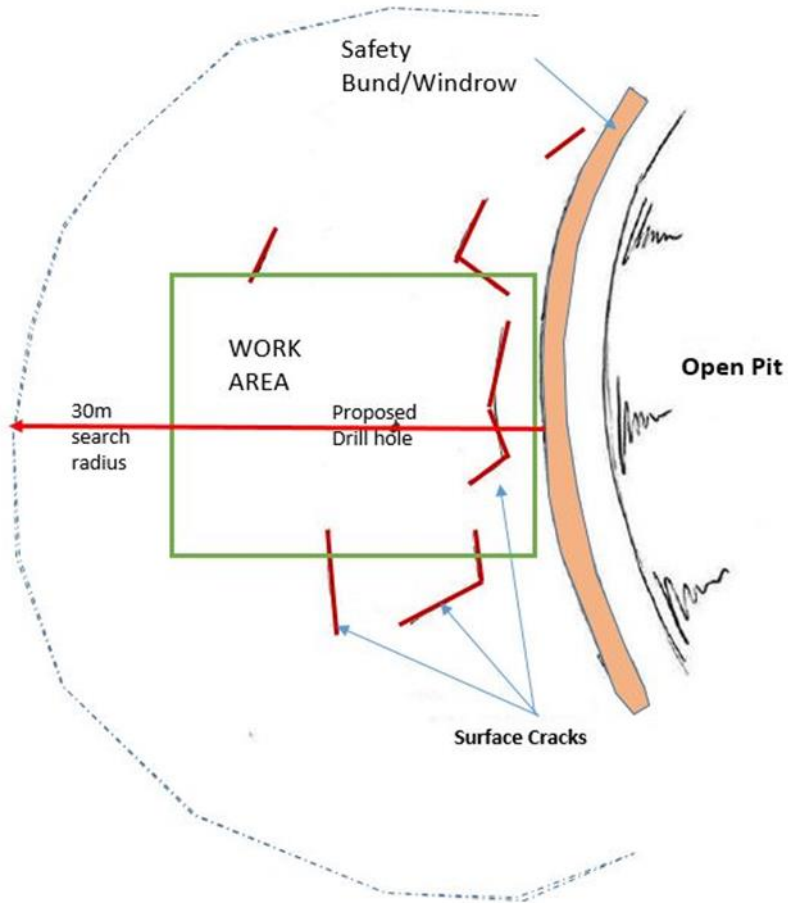


Figure 1: Example of a drill pad layout that fails to meet the above safety criteria.

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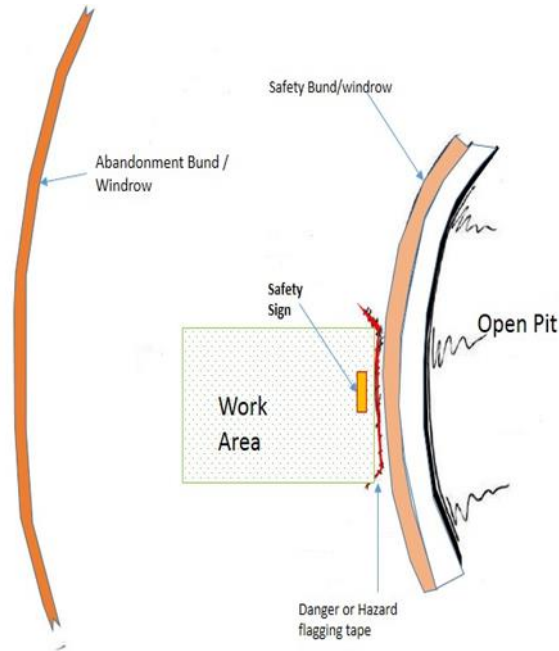


Figure 2 Secured work area adjacent to open pit



Figure 3 Appropriate Types of Hazard Tapes

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6.3 Small open shafts / costeans

6.3.1 Hazard Zone Marking

Place hazard tape or, if unavailable, pink/red flagging tape around all small shafts or costeans within the operational area. The barrier should be 20 metres where practicable and no less than 5 metres from the work zone.

6.3.2 Communication of Restricted Zones

Inform all personnel operating within the work area of the designated restricted zones to ensure awareness and compliance.

6.3.3 Post-Work Procedure

Upon completion of work in the area, promptly remove all signage and hazard tape.

7. Post-completion Activities

These are the post-completion steps that you need to complete.

Step	Action
1	Once work in the area is complete, remove all hazard tape and signage. Ensure that all markers are taken down and properly stored after the work is finished.
2	GEOHAZARD CHECKLISTS need to be retained in case of any investigation following an accident or incident.
END	

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8. References

8.1 Reference Documents

These documents were used to develop this procedure:

Title	Document Number
Geo-Hazard Checklist	WCEF-RA-HSE-0004
Job Safety Analysis	WCEF-PD-HSE-0017

9. Attachments

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9.1 Geo-Hazard Checklist:

Geo-Hazard Checklist				
	GREEN; LEVEL 1	YELLOW; LEVEL 2	ORANGE; LEVEL 3	RED; LEVEL 4
Rainfall	G1 No rainfall recorded in area in the last 48 hours	Y1 Minor rainfall recorded in last 48 hours <50mm - no water observed pooling on pit crest, berms or ramps	O1 Significant rainfall recorded in last 48 hours >50mm -shallow water observed pooling on pit crest, berms or ramps.	R1 Significant rainfall recorded in last 48hrs large / deep pooling water on pit crest, berms or ramps
Wall Failure (e.g. rockfalls, slope failure, raveling, wedge failure)	G2 No wall failures	Y2 Isolated small failures sub-batter scale with no material on ramps /near work area.	O2 Intermediate scale failure-batter scale failures with no material on ramps / work area	R2 Large / significant failures Multi-batter failures. Failures which intersect ramps or pit crests. Material from failures impacted ramps or work areas.
Wall / crest deterioration	G3 No visual sign of deterioration	Y3 Small cracks (<50mm) may be seen around pit crests behind windrow/ bunding. Not above work areas or ramps	O3 Small cracks (<50mm) may be seen around pit crests behind windrow / bunding. Cracking may be seen on in pit berms outside ramps or work areas.	R3 Significant cracking (>50mm) seen on ramps / pit crests and / or in the vicinity of proposed work area.
Highwall condition	G4 No / minor instances of loose rocks or hung up material (e.g. undercuts)	Y4 Loose rocks present on highwall not above ramps or work areas.	O4 Loose rocks present on highwall as well as open structures forming planes or wedges may be observed but not above ramps or work areas	R4 Significant loose rocks or open structures forming R4R4R planes or wedges observed on highwall around ramps and work areas
Work Area Changes	G5 No visual changes from last pit / area entry	Y5 Minor changes / deterioration away from ramps and work areas	O5 Minor changes / deterioration away from ramps and work areas	R5 Pit wall deterioration observed around ramps and work R5 areas
RESPONSE	Sign off on existing JHA or complete new JHA and have signed by supervisor - Complete Take 5 - Proceed with task	Sign off on existing JHA or complete new JHA and have signed by supervisor - Complete Take 5 - Contact Supervisor if unsure - Proceed with task	Sign off on existing JHA or complete new JHA and have signed by supervisor - Inform Supervisor - Proceed with task if risk assessed as low as reasonably practicable (ALARP)	Sign off on existing JHA or complete new JHA and have signed by supervisor - Inform Supervisor - DO NOT proceed with task without Geotechnical assessment
Identified risk level				
Comments				
This form is to be completed EVERY time before entering a historic open pit.				Geologist Name:
Only ONE geohazard has to be present in a column to influence the risk level. For example, if all but one of the hazard rows have a risk level of 1, then the response must correspond to that higher risk level.				Geologist Signature:
				Date:

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