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ISSUE/REVISION INDEX

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Issue Codes: RC = Released for Execution, RD = Released for Design, RF = Released for Fabrication, RI = Released for Information, RP = Released for Purchase, RPA = Released for Permit Application, RQ = Released for Quotation, RR = Released for Review and Comments.



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1.0 PURPOSE & SCOPE

This procedure for the NAPG Projects provides direction to protect workers from hazards associated with excavations, trenching and breaking through walls and floors. The intent of this procedure is to establish the minimum requirements, measures, and actions to be taken for these activities on NAPG project sites.


In addition to surface excavation and trenching activities, this procedure applies to all cases where a floor (such as concrete) or wall is to be broken through.

2.0 INSTRUCTIONS

2.1 Pre-requisites for Excavation Trench & Breakthrough (ETB) Permit

Contractor shall obtain:

1. Clean AER Permit to Work
2. Clean AER Excavation and Breakthrough Permit
 - a) A Permit to Work must be issued for the specified excavation in the specific location before work commences; and
 - b) It shall identify whether supplementary permits (e.g., ETB permit) are required. The Permit to Work **will not** be issued until all supplementary permits have been approved.
 - c) Some brown field situations within existing plant facilities may require **other** Vale permits **in addition to** the NAPG Permit to Work. These situations are to be identified during the PHR, JHA, and Work Method review.
3. Clean AER Excavation and Breakthrough Permit
 - a) Where identified as a requirement on the Permit to Work, an ETB Permit shall be issued before work commences; The ETB Permit shall define the conditions and the area in which the Excavation will be carried out.;
 - b) Approved ETB Permits shall be attached to the Permit to Work and cross-referenced.
4. Requirements for Excavation Permit
 - a) The NAPG Project Records shall be maintained showing the location of concealed cables, pipelines, services and foreign material and contaminated ground. (As built drawings, Existing drawings, NAPG project locates and survey data to be used as record/reference materials.) An ETB Permit **SHALL NOT** be issued without reference to these records. In the case of floors and walls to be broken through, knowledge of the area is required which may include drawings indicating the location of services or other obstacles.
 - b) Where the location of cables and pipes is not known or where detailed drawings do not exist checks using meters or other means shall be carried out to identify the locations of pipes and cables where/when possible – prior to issue of the ETB

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Permit. These records are maintained as a reference document in NAPG Project Engineering file. All reasonable and or practical measures to minimize the risk to those carrying out the work shall be utilized.

These shall at a minimum include:

- o identifying and determining the depth of buried or concealed pipelines and services
- o Marking their location;
- o Isolating or protecting them; and
- o Identifying chemical, radioactive, asbestos or other contamination
- c) The ETB Permit shall specify the control measures to prevent damage to buried pipelines and services and the action to be taken in the event of damage. It shall also state the contamination hazards likely to be encountered.
- d) It must be understood by both the Permit to Work Issuer and Receiver;
- e) It must be reviewed, understood and complied with by those doing the work;


NAPG HSE advisor shall provide notification to the Ministry of Labour when required.

2.2 Request and Authorization of an Excavation Trench & Breakthrough Permit

The excavation contractor supervisor shall request an ETB permit including

- a) Completing the permit form
- b) Attach underground services drawing for the area, drawing or sketch of the job containing
- c) detailed information on the location of all existing services (and any new services to be installed). This is to include Work Method and accepted Task Specific JHA (and procedure if the job is complex); and
- d) Permit and supporting documentation is then to be reviewed and accepted by NAPG Construction Coordinator or Designate;
- e) Upon acceptance, permit and supporting documentation is to be reviewed, accepted and authorized by NAPG HSE Advisor.

Two working days should be allowed for authorization. Excavation Contractor Supervisor shall notify the responsible NAPG Construction Coordinator of the approved and completed ETB Permit including supporting documentation no less than 24 hours before the intention to start work.

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2.3 Administration and Application of Permit to Work Process

Contractor Management must ensure excavation permit requests and performance of work to be completed by competent persons. This is to include any required training documentation.

The Contractor shall make The Permit to Work and the ETB Permit readily available while the work is being performed.


- a) A copy of the ETB Permit shall be attached to the Permit to Work, located in the Contractor's Project Office;
- b) The original shall be maintained at the excavation location by the person (recipient), authorized to perform the work;

Using Form NAPG-SAF-FRM-0016; the contractor shall inspect Excavations and trenches daily prior to work commencing to identify hazards or changing conditions; Upon completion of the inspection, work shall be performed as per the conditions of issue.

When the work is completed, the ETB Permit will be closed out, submitted and filed with the NAPG office.

2.4 Duration

ETB permits are valid for a maximum period of 30 days as of the permit issue date.

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2.5 Trench Operations

In all instances the following requirements must be complied with:

Slope Requirement

Excavations and trenches deeper than 1.2 m (4 ft) that require entry by workers must:

- Not be sloped less than 45° from the vertical, or
- Have temporary structures installed that will protect the worker.

Temporary Protective Structures

When shoring must be installed in trenches or excavations less than 3 m (10 ft) in depth. This shoring must be installed from a working from the top down and be removed working from the bottom up.

Trenches or excavations that may affect the stability of a foundation or other support structure must have a temporary supporting structure installed that is designed, constructed and installed in accordance with the specifications of a professional engineer. This structure must be installed prior to proceeding with the work.

Trenches or excavations deeper than 3 m (10 ft) must have temporary protective structures designed, constructed and installed in accordance with the specifications of a professional engineer.

Spoil Pile

Spoil piles must be placed so that:

- They are kept at least 1m from the edge of the excavation; and
- The slope of the spoil pile is at an angle not less than 45° to the vertical.


Access/Egress

All excavations and trenches must be provided with a safe means of access/egress such as ladders/ramps.

Access/egress must be placed so that workers inside are never further than 8 m (25 ft) away.

If ladders are used they must:

- Be secured;
- Be blocked or installed to allow one foot clearance behind the rungs for safe climbing; and
- Extend a minimum of 1 m (3 ft) above the top of the excavation.

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Trench Operation continued:
Barricades/Warnings

All excavations shall have hard barricades and proper signage to warn workers of the hazard. Any excavation in proximity to vehicular traffic shall identify barricading requirements and standoff distances.

Protective berms shall be constructed with a minimum height equal to half the diameter of the largest tire among equipment that travel on the surface mining areas:

Confined Space

The work method / risk assessment will identify any potential confined space situations complete with appropriate controls. Consider where there is potential for the introduction of hazardous products from existing facilities, or excavating is being done in contaminated soils. Reference confined space procedure.

Buried or Concealed Services

Before any excavating or break through work starts, the location of any buried or concealed services must be established and identified for the area of work including ground excavation, floor break through and wall break through.

When excavating within 1 m (3 ft) of an existing buried service, a competent worker must hand expose the service. Care must be taken to not use tools that could damage the service.


Buried services that are undermined in the excavating operation must be adequately blocked or supported to ensure the undermining does not create a hazard to personnel or the service.

3.0 ATTACHMENT

- NAPG-SAF-FRM-00016 Daily Trench and Excavation Inspection
- NAPG-SAF-FRM-0005 Excavation Trench & Breakthrough Permit
- NAPG-SAF-FRM-0004 Permit to Work Permit

4.0 REFERENCE

- 507763-000-0000-68AG-0014 AER Excavation and Break Through
- PTP-00813 Critical RAC activity RAC03
- Local (host site) ZES (Isolation Lockout and Tagging)

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NAPG-SAF-SPI-0005	H&S policy
NAPG-SAF-SPI-0011	Permit to Work Procedure
NAPG-SAF-SPI-0023	Excavation Trench & Breakthrough Procedure
Local (host site)	Confined Space Entry program
NAPG-SAF-SPI-0017	Surface Barricading Procedure

DOCUMENT END