



Irish Concrete Federation

Safety Bulletin

SAFETY BULLETIN: QUARRY FACES

DATE: Oct 2016

Safe Management of Quarry Faces.

There have been 2 fatalities in Ireland due to quarry face collapses since 2015.

Regulation Framework

- Unstable quarry faces, (and stockpiles and lagoons) are a major safety hazard.
- Under the Safety, Health and Welfare at Work (Quarries) Regulations, operators must manage quarry faces, stockpiles and lagoons to ensure safe working conditions.
- Quarry faces, stockpiles and lagoons must undergo daily **inspections** and when required, **appraisals** and/or **geotechnical assessments**.
- The operator shall ensure that appropriate remedial measures are taken following an inspection, appraisal, site investigation or geotechnical assessment.



Inspection

- A mandatory inspection of all working faces, sides and overburden, used roads, tips and lagoons must be carried by a competent person and recorded.
- More detailed inspection may be necessary after heavy rain or blasting or following signs of ground movement.
- If an imminent risk is identified, immediate action to safeguard those at risk is required which may include suspension of work in the area, a risk assessment, an exclusion berm and warnings signs, and inform all staff of the imminent risk and preventive measures.

Appraisal

- Routine appraisals should take place at regular intervals and should include areas where no one is at risk from a collapse of part of an excavation because failure in such areas could affect the stability of other parts of the excavation.
- Appraisals of quarry faces, stockpiles, tips and lagoons by a competent person to identify hazards and failure risks is required on all proposed or existing excavations if failure would result in danger to people, premises, roads or other places.
- Records and conclusions of appraisals should be kept and included in the safety statement.

Examples of hazards include:

- Loose rock, soil, cobbles or trees on, within, or on top of the face
 - Intersecting planes of weakness
 - Quarry face height in excess of 20m
 - Sand or gravel deposits in excess of 7.5m in height with steep face angle
 - Emergence of water from face
 - Shear or sliding planes
 - Steeply dipping weakness planes (weakness planes refer to any bedding, fracture, cleavage/foliation or structural planes that may provide preferential direction for movement or failure of/within the rock mass)
 - Mineral veins or layers with differing strength and properties supporting overhead rock
 - Ponded water on surface percolating through fissures in rock exerting pressure on rock face
 - Swallow Holes or sunken or depressed geological foundations
- Where a significant or potentially significant hazard cannot be rectified immediately and safely, appropriate protective measures should be taken. All affected personnel should be informed and only work that can be carried out safely may be undertaken.
 - Where the appraisal identifies a significant hazard, a geotechnical assessment must be carried out.
 - See attached for a Sample Quarry Geotechnical Appraisal Form.



Geotechnical Assessment

- A geotechnical assessment is an assessment carried out by a competent professional geotechnical engineer or engineering geologist
- A geotechnical assessment may be preceded by a site survey and site investigation.
- The assessment should identify all hazardous factors and provide conclusions and recommendations.
- A geotechnical assessment is required where a face in excess of 20 meters' vertical height is worked or is planned to be worked.



Disclaimer: This bulletin has been prepared for the Irish Concrete Federation in consultation with the Federation's Health & Safety Committee and is issued for guidance only. Members are reminded of the requirement to have Safe Operating Procedures as per the relevant Health & Safety Regulations. Every care has been taken to ensure that the information contained herein is correct and accurate at the date of publication. However, the Irish Concrete Federation cannot accept any responsibility or liability for any errors, inaccuracies or omissions which may have occurred inadvertently.

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