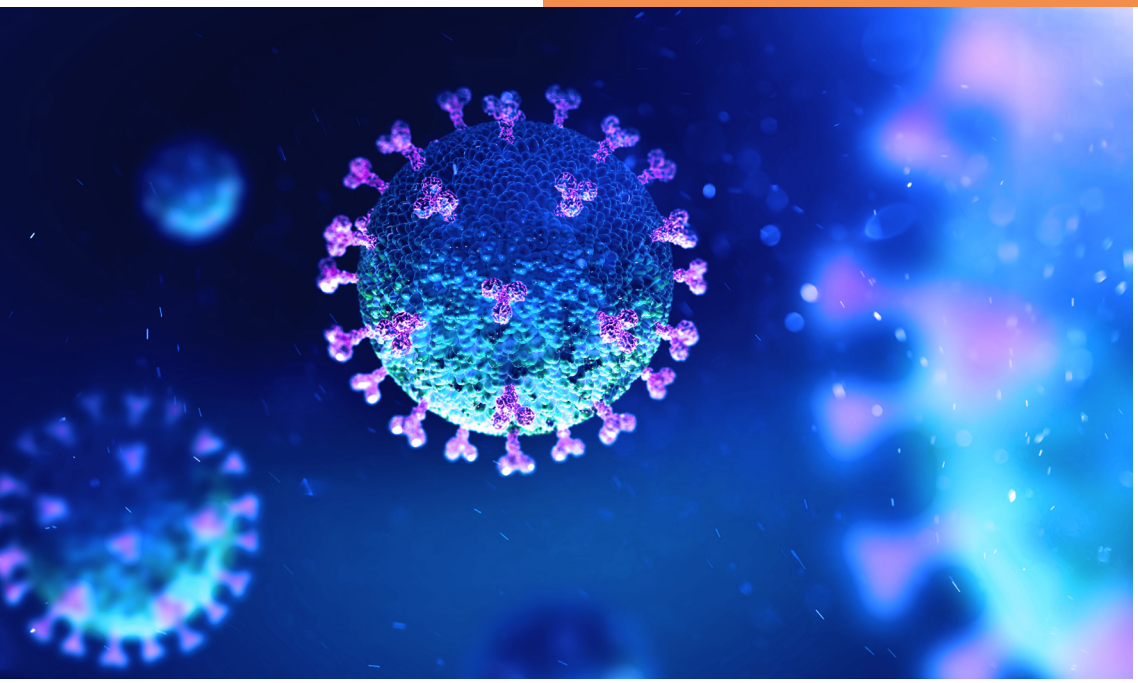
ALLIANZ GLOBAL CORPORATE & SPECIALTY®

CORONAVIRUS: TEMPORARY CARE & MAINTENANCE STATUS IN THE MINING INDUSTRY

ALLIANZ RISK CONSULTING



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INTRODUCTION

The coronavirus pandemic continues to spread globally. Most major mining companies have taken extraordinary precautions to reduce the spread of the virus while ensuring the health of employees and safe operating conditions. International travel is now mostly suspended and many mining companies are forced to take measures to comply with new local regulations of the various jurisdictions in which they operate. Many mining companies have withdrawn, or are in the process of withdrawing, most workers from their sites and temporarily transitioning mines to Care and Maintenance (C&M) status.

C&M, for the mining industry, describes the status of a site which is temporarily closed, but which could return to production mode within a relatively short time.

This type of temporary suspension is generally due to falling commodity prices but could also occur as a result of restrictions being imposed due to the coronavirus outbreak. Operating a mine may no longer be profitable or even possible and, therefore, the decision is made to suspend operations with the aim to restarting them when conditions improve.

C&M CLASSIFICATION

- **Short term or seasonal** – usually no more than 3 months.
- **Extended** – up to 24 months, or sometimes even longer.
- **Mothballing** – over 24 months, and could be indefinite.

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C&M due to coronavirus is short term at present and most sites are planning to restart as soon as governments and regulators give them the approval to do so. Mining companies had little time to prepare due to the speed of the coronavirus outbreak, but C&M is something all should be familiar with and is generally planned well in advance. Therefore, mining companies often have C&M and closure plans and procedures in place already.

The following overview shall provide our customers with some general guidance regarding considerations and actions to be taken.

All of the recommendations are technical advisory in nature from a risk management perspective and may not apply to your specific operations. Please review recommendations carefully and determine how they can best apply to your specific needs prior to implementation. Any queries relating to insurance cover should be made with your local contact in underwriting, agent and/or broker.

LOSS CONTROL MEASURES

A decision to put a mine on C&M will almost invariably have a major impact on loss control and risk control measures. The mining company should take all reasonable measures to prevent losses, such as, for example, personal injury or property damage that is reasonably foreseeable because of placing the project in a state of temporary suspension. To avoid potential losses, it is critical that actions are taken to protect the sites in a thoughtful and deliberate way.

Appropriate actions are site specific and are often regulated by local laws and jurisdiction. By no means shall the following suggestions be considered as complete or conclusive, nor are they meant to reflect or supersede any local legal or contractual requirements which might exist.

THE C&M PLAN

The C&M plan should be a formal document prepared based on the mine closure plans and demonstrating that environmental obligations will be met during the closure period. A C&M plan is very complex and should be developed prior to implementation. Coronavirus likely caught most mining companies off guard, but each site should already have had some form of closure plans in place from the initial start of operations.

IN GENERAL

1. All reasonable measures should be taken to restrict access to the site, all buildings and other structures to authorized persons only.
2. Any mine openings that are potentially dangerous should be protected against inadvertent access.
3. Electrical systems should be protected from inadvertent access.
4. All mechanical and hydraulic systems should be maintained in a no-load condition.
5. All physical, chemical and biological monitoring programs should be continued.
6. All contaminated effluents should be controlled.
7. All waste management systems and sites and petroleum products, chemicals and waste should be made secure.
8. All explosives should be disposed of or removed from the site.
9. All rock piles, overburden piles and stockpiles and all tailings, water and other impoundment structures should be maintained in a stable and safe condition.

Preservation of assets is a major concern for mining companies, financiers, shareholders and all other stakeholders involved. Storing equipment indoors, protected from the elements, is usually preferred, but not practical in most cases. Applying protective coatings such as oils or grease can help guard against corrosion. Rotating large motors, mills, kilns, etc. can help prevent damage to shafts and bearings. Regular inspection and testing of transformers should continue, and should include oil sampling and megger testing.

The C&M plan should also include procedures to restart operations. This may involve re-commissioning of large equipment, such as crushers, mills, large transformers, or entire process lines. In addition to the C&M plan, a formal emergency response action plan should be in place with clear lines of communication to ensure that any case of emergency or serious environmental harm is dealt with in a timely manner.

Good, fundamental management programs should not be weakened when the facility is under C&M. Hot work permit programs, smoking policies, fire protection equipment inspection and testing, housekeeping, security checks, and so on, should all remain in effect and improved, if deemed necessary, due to lower staff count and budget constraints.

MINING WORKS AND INFRASTRUCTURE

1. Continue geotechnical monitoring of pits or underground works.
2. Continue monitoring and auditing of tailings dams.
3. Continue dewatering and ventilation, where possible.
4. Periodic inspections for: insulation, cladding, scaffolding.
5. Maintain access to the site: roads, airstrips, railways, bridges, etc.

MECHANICAL EQUIPMENT

1. Corrosion protection – appropriate procedures for the preservation of inactive machinery. Provide corrosion protection internally and externally.
2. Process lines/tanks/equipment should be drained, cleaned and dried.
3. Lube oils should be drained.
4. Cover equipment using temporary structures.
5. Seal openings and inlets.
6. Large equipment, such as mills, fans, motors, compressors, etc. should be rotated periodically.

7. Periodic inspections for: cranes, structures, draglines/shovels.
8. High value spare parts should receive similar attention as to what the production equipment gets, including:
    a. Application of corrosion protection.
    b. Protection from the elements.
    c. Verification of adequacy of the storage conditions.
    d. Physical movement/operation in some cases.

ELECTRICAL EQUIPMENT

1. Transformers should be stored oil-filled and under a nitrogen blanket to keep moisture out. Regular dissolved gas analysis should be done on the oil.
2. Where possible, store electrical equipment indoors in a heated environment.
3. Switch rooms and electrical rooms should be kept at suitable temperature to prevent moisture.

MONITORING AND INSPECTIONS

1. Conduct regular inspections around equipment, tanks, reservoirs, etc., checking for leaks.
2. Check condition of protective films on equipment (such as for anticorrosion). Monitor cathodic protection for buried pipe and tanks.
3. Check enclosures provided around high value equipment for signs of damage, unauthorized access, exposure to the elements (rain, snow) or excessive dust, salt air, evidence of nesting rodents, birds, etc. Check operation of heaters, if so equipped.
4. Maintain fire protection equipment. Include regular inspection of water supply control valves, test alarms and fire pumps, etc., as though the site were in regular operation. Test fire detection and alarm systems and special protection systems, such as gaseous protection systems.
5. Maintain hot work permit systems.
6. Ensure fire water systems are not damaged due to exposures to freezing temperatures. Check for cracks and leaks, and that heating or heat trace systems are functioning properly.
7. Check pressure gauges on laid-up transformers for adequacy of the nitrogen blanket. Oil sampling on larger units should be done whether in use or offline.
8. Conduct regular housekeeping tours to ensure combustible materials are not collecting or being stored in a manner so as to expose important equipment or buildings to fire.
9. Keep combustibles out of electrical rooms, avoid storing large quantities of combustible liquids in high-value warehouses or adjacent to high-value equipment (mills, crushers, hoists, etc.).
10. Monitor tailings storage facilities for seepage, and check the condition of containment structures.
11. Monitor water quality for acid rock drainage.
12. Check pumps that may be operating for drainage, dewatering, water treatment facilities, etc. for proper operation.
13. Inspect the site following storm events to evaluate the impact of severe weather on buildings and infrastructure.
14. Conduct checks for site security.

RESTART/RECOMMISSIONING

1. Conduct a pre-startup safety review with recommissioning plan, inspections and tests.
2. Ensure that emergency response organization is fully operational to pre-C&M levels in order to commence hot testing and restart.
3. Ensure that fire detection and suppression system is fully operational.
4. Inspect equipment for functionality:
    a. Mechanical, electrical and instrumentation.
    b. Revert corrosion protection measures, lube oil, heating, etc.
    c. Reinstall equipment that was removed for indoor storage.

CONTACT

Laurens van Eijk

laurens.vaneijk@agcs.allianz.com

www.agcs.allianz.com/news-and-insights/risk-advisory.html

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