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WP 04-AU2000

Revision 0

Tramming Continuous Miner

Technical Procedure

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APPROVED FOR USE

TABLE OF CONTENTS

INTRODUCTION..... 3

REFERENCES..... 3

EQUIPMENT..... 4

PRECAUTIONS AND LIMITATIONS 4

PREREQUISITE ACTIONS..... 5

PERFORMANCE 6

1.0 PRIOR TO MOVING THE CONTINUOUS MINER..... 6

2.0 TRAMMING OPERATION AND COMPLETION TASKS 8

INTRODUCTION^{1, 2, 3, 4}

This procedure provides instructions for tramming continuous miners from one location to another in the underground at the Waste Isolation Pilot Plant (WIPP). It outlines the requirements for personnel and equipment to ensure safe tramming operations for any of the continuous miners in use at WIPP.

The operation is performed in a convoy-fashion with the continuous miner leading and towing a cable skid (at the discretion of qualified personnel and Manager) with the miner's trailing cable secured to the skid. A tractor follows towing a diesel generator used to power the continuous miner. The trailing cable is run from the miner to the skid then over the tractor in engineered cable attachments to the generator. Excess cable is coiled in a figure eight style and is located on the skid.

Qualified personnel operate the continuous miner and tractor. Spotters are used to monitor progress, warn the operators about potential obstructions and hazards and control access in the vicinity of the tramming operation.

REFERENCES

BASELINE DOCUMENTS

- Title 30 *Code of Federal Regulations* (CFR) Part 57, "Safety and Health Standards – Underground Metal and Nonmetal Mines"
- 29 CFR Part 1926, "Safety and Health Regulations for Constructions"
- DOE/WIPP-07-3372, Waste Isolation Pilot Plant Documented Safety Analysis
- DOE/WIPP-07-3373, Waste Isolation Pilot Plant Technical Safety Requirements.
- Manufacturer's Operation and Maintenance Manuals
- WP 04-AD3013, Underground Access Control
- WP 04-AU1007, Underground Openings Inspection Procedure
- WP 10-AD3005, Control and Use of Maintenance Locks
- WP 12-IS.01, Industrial Safety Program
- WP 13-1, Washington TRU Solutions LLC Quality Assurance Program Description
- WP 14-TR.01, WIPP Training Program

REFERENCED DOCUMENTS

WP 04-AD3011, Equipment Lockout/Tagout

WP 04-AD3030, Pre-job and Post-Job Reviews

EQUIPMENT

- Continuous Miner/Roadheader
- Cable skid
- Mobile diesel generator (to power miner)
- Tractor with attachments configured for handling cable
- Approved cable handling devices
- Rigging equipment (slings, shackles, etc.)
- Tie-down devices (ropes, tie-downs, etc.)
- Bi-folds or warning signage
- Other equipment deemed necessary and approved by the Underground Mine Manager (UMM)

PRECAUTIONS AND LIMITATIONS

- Only qualified personnel or designated personnel in training that are operating under the direction of a skilled Subject Matter Expert (SME) shall perform work as identified in this procedure.
- The order of completion of this work may be modified or sections may be performed in parallel, provided that proper lockout/tagout, if required, is observed and that precautionary actions associated with Warning statements are not bypassed.
- If it is necessary to de-energize equipment or facilities, the requirements of WP 04-AD3011 shall be followed.
- Any employee who has a concern for employee safety, the safety of environment, or the quality of the activity has the responsibility and authority to suspend the performance of that activity.
- Work shall be stopped when procedure steps cannot be performed, when field conditions change or additional job hazards are identified.

- The Technical Safety Requirements (TSRs) manual contains Limiting Conditions for Operation (LCOs) and Specific Administrative Controls (SACs) which provide specific preventative or mitigative limits and require actions for identified accident scenarios.
- Failure to comply with LCOs or SACs and their required actions constitutes a violation which must be immediately reported to the Facility Shift Manager (FSM).
- Failure to complete a surveillance requirement (SR) within its specified frequency SHALL constitute a violation of the associated LCO and must be immediately reported to the FSM.
- If barriers are required for this work , they will be constructed and installed in a manner that will ensure their integrity throughout the expected duration of use and environmental conditions.
- When equipment is energized or running, appropriate hearing protection shall be worn by involved personnel.
- Job Hazard Analysis PROD-26 is related to this procedure.

PREREQUISITE ACTIONS

- 1.0 Personnel performing the work shall review this procedure prior to beginning work.
- 2.0 Cognizant Underground Mine Manager (UMM) or Underground Mine Superintendent (UMS), designate a qualified operator to operate the continuous miner, a qualified operator to operate the tractor, and at least two qualified spotters (one to monitor progress and watch for problems/clearance in front of the convoy as well as controlling traffic involving non-involved personnel; and one spotter to monitor the trailing cable). Additional spotters may be assigned and used as necessary depending on the route and complexity (e.g. clearances) of the move.
- 3.0 UMM/UMS, conduct and document a pre-job safety meeting (see WP 04-AD3030, Pre-job and Post-job Reviews) with involved personnel. The safety meeting shall include a review of the job hazard analysis for tramming continuous miners and ensure that the Craft understand their responsibilities and roles. The process is to STOP if a hazard or problem is recognized or concern(s) arise that may adversely affect the process.
- 4.0 UMM/UMS and Craft, review the route to be taken for the move and mitigate or remove any obstructions or hazards that are identified. Ensure that the route is clear of equipment, non-involved personnel, and work activities that could conflict with the move. Perform ground control checks and bolt or scale the route, as necessary, before tramming commences.

- 5.0 UMM/UMS/Craft, contact and provide Underground Services with planned route, to coordinate transiting through air locks, and ensure proper facility ventilation is maintained for the tramming and for continued plant operations.
- 6.0 UMM/UMS/Craft, ensure materials and equipment are available.
- 7.0 UMM/UMS/Craft, ensure that the tractor has cable handling attachments installed on the front and rear to allow the cable to rest on during the move to protect the cable from contacting the tractor tires and tractor operator.
- 8.0 UMM/UMS/Craft, ensure that the continuous miner trailing cable is coiled (figure eight configuration) and secured on a cable skid behind the continuous miner prior to commencing the tramming operation.
- 9.0 UMM/UMS/Craft, contact Waste Handling Operations to coordinate moves of the continuous miner in waste handling areas of the underground.

PERFORMANCE

WARNING

To prevent injury to personnel or damage to equipment, personnel must be aware of tripping hazards in areas that are poorly lighted and have uneven floor.

WARNING

Personnel must observe proper lifting techniques when handling cable or other heavy loads to prevent back or muscle strain.

1.0 PRIOR TO MOVING THE CONTINUOUS MINER

- 1.1 Craft, gather and stage required equipment and materials near the continuous miner to be moved.
- 1.2 Prior to energizing, nip the cable into the generator.
- 1.3 Perform preoperational checks on the generator, tractor, and continuous miner.

WARNING

Electrical shock hazards exist. Failure to properly handle energized cables may result in electrical shock or electrocution.

- 1.4 Start and operate the generator, as appropriate, for positioning the continuous miner for tramming.
- 1.5 Stop and de-energize the generator, as appropriate, for positioning the tractor, generator, and trailing cable for the tramming operation.

WARNING

Pinch points hazards exist. To prevent injury to personnel, hands or other body parts must not be positioned in locations where equipment may crush them. Personnel must not stand or walk between pieces of moving equipment and ribs without adequate clearance.

- 1.6 Line or position equipment such that the continuous miner is in the lead, a cable skid is properly connected behind for towing, the tractor is positioned approximately 10 – 20 feet behind the miner's tailboom, and the generator is last in line and hitched to the tractor and ready for towing.
- 1.7 Position trailing cable from the cable skid over the tractor in the cable handling attachments to the generator.
- 1.8 Coil excess cable into the figure eight loop and secure on the cable skid.
- 1.9 UMM/UMS, ensure that the cable configuration on the portable cable skid is appropriate for tramming the continuous miner and the cable is secured (with tie downs, rope, or the equivalent) to keep the cable on the skid coiled safely in place during the move.

WARNING

To prevent injury to personnel or damage to equipment, bi-folds and warning signage must be moved, as appropriate, as the tramming operation progresses.

- 1.10 UMM/UMS or Craft, install bi-folds and signage to restrict access of non-involved personnel in the vicinity of the tramming operation.

2.0 TRAMMING OPERATION AND COMPLETION TASKS

- 2.1 Craft, start and operate the generator, the continuous miner and tractor and tram the continuous miner in convoy fashion to its desired location following the planned route.
- 2.2 Stop and de-energize the generator.
- 2.3 Disconnect the trailing cable from the generator and stow the cable in a safe location (e.g., out of the travel path, against the rib).
- 2.4 Demobilize by using the tractor to transport generator to a storage location, disconnecting the cable skid from the continuous miner, and returning signage and materials to their proper storage location.