FREEPORT-McMoRan COPPER & GOLD

Department of Health & Safety Guideline	GUIDELINE NO.	FCX -06
	REVISION NO.	
	SUPERSEDE	NAOM 002-01
HOT WORK & PERMIT GUIDELINES	TASK CLASSIFICATION	Highly Critical / Critical / Non-Critical
APPROVAL DATE – NOVEMBER 5 2009	**ORIGINAL DATE** – JULY 22, 2009	**RELEVANT SOPS** –

1. PURPOSE

The purpose of this standard is to provide guidelines to ensure that appropriate measures have been taken to prevent fire and /or explosion during hot work activities being performed at areas not normally designed as "Fire Safe".

2. SCOPE

This standard applies to employees and other individuals (including temporary employees and contractor personnel), company's visitors, or other person(s) who work and/or are present in the workplace. Contract employees that have a hot work policy may use that policy as long as it meets or exceeds the protections provided in this guideline.

3. DEFINITIONS

Hot work –Work that has the potential of creating or becoming a source of ignition. This includes grinding, welding, thermal or oxygen cutting or heating, and other related heat or spark producing operations.

Permit – A document used to authorize hot work activity after necessary precautions have been taken to minimize the risk of adverse consequences associated with the work.

Authorized Personnel – Qualified persons who have been given the authority to approve and authorize hot work permits. The authorized personnel may delegate the responsibility for conducting the pre-hot work inspection to another qualified person but cannot delegate his/her accountability for the overall OH&S of the work being performed.

Qualified Personnel – Individuals with the knowledge, training, and experience to recognize, evaluate, and ensure adequate control of the hazards associated with hot work.

4. PROCEDURE

Required Areas

4.1. A hot work permit is required for hot work operations on or near operational processes or within 35 feet of flammable/combustible materials. Greater distances of up to 50 feet may be required where flammable gases or vapors may be present. Exceptions to the Hot Work Program may be allowed in areas designated as "fire safe". A fire safe designated area is an area specifically designed for hot work, such as welding shops, which are free of exposed combustibles. However, consideration must be given to those areas which may be in proximity to materials or processes which may migrate into the working area (such as flammable vapors or combustible dusts.) Where that potential exists, appropriate safety measures must be implemented (such as work stoppage or monitoring, or other effective means) Operations' department personnel may identify and document fire safe areas and tasks. Those areas, their identified tasks and associated SOPs will be kept on file.

4.2. Operational areas that have known, but not obvious, combustibles should be posted with signage requiring application of the Hot Work Permit. Examples of these areas could be electrical installations, conveyor galleries, or machinery that contains rubber or plastic products. Departments should periodically survey the operational areas for hot work requirements.

4.3. High hazard areas such as fuel storage areas or explosive magazines have statutory requirements that must be followed when conducting hot work operations. Consult your safety department prior to beginning hot work operations in high hazard areas.

4.4. Areas that may require a Hot Work Permit include, but are not limited to:

4.4.1. Within 100 ft. of powder magazine or explosive or blasting storage area

4.4.2. Dust collectors, ductwork, and other areas where rubber linings or combustible dust exists

4.4.3. Public commercial buildings, warehouses, assay labs

4.4.4. SX/EW plants and related work areas

4.4.5. Above or adjacent to cable trays or electrical cables

4.4.6. Inside vessels or confined spaces

4.4.7. Hot work on vehicle fuel system or fuel tank regardless of location

4.4.8. Heavy equipment including haul trucks, shovels, drills, graders, dozers regardless of location where sparks or hot metal could contact combustible materials

4.4.9. Within 35 ft. of:

4.4.9.1. Fuel storage areas or distribution lines

4.4.9.2. Battery storage or charging areas

4.4.9.3. Cooling towers

4.4.9.4. Reagent storage

4.4.9.5. Oxygen storage areas

4.4.9.6. Sewer and septic systems

4.4.9.7. Conveyor belting

4.4.9.8. Tire storage areas

4.4.9.9. Mobile fuel and lubrication trucks

4.4.9.10. Storage/materials handling areas where combustible or flammable materials are present

Training

4.5. Individuals involved with hot work are trained in fire prevention and extinguisher use during initial training and refreshed annually. Additionally, individuals will be appropriately task trained for the work being conducted.

Precautionary Measures

4.6. Flammable and combustible materials within 35 ft. of hot work must be removed, covered with a fire-resistant/insulating material or otherwise protected. This includes combustible flooring and combustible debris on the floor.

4.7. Openings or cracks in the walls, floors, or ducts that are potential travel passages for sparks, heat and flames must be covered or otherwise protected.

4.8. A fire extinguisher of the appropriate size and type must be provided at the site in addition to the normal placement of fire extinguishers.

4.9. In cases where the combustibles cannot be removed to provide at least 35 ft. of separation or other requirement cannot be completed, a control method must be described in the Alternative Means of Control section of the permit. Alternative control measures must provide equal or greater precautions to prevent fires. Standard Operating Procedures or JSA's should be developed for frequent tasks where alternative means of control is required (Examples: welding on lined ducts, welding on haul truck). The approved SOP/JSA is considered an alternative means of control.

4.10. When working near smoke detectors, alarm sensors or sprinkler systems, do not deactivate the entire alarm or sprinkler system. Isolate the detectors, sensors or sprinkler heads in the affected area to prevent false alarms or sprinkler system activation. At the completion of the work, ensure the device(s) is (are) returned to normal service conditions

4.11. A Fire Watch with knowledge of incipient stage fire fighting techniques must be appointed during performing hot work and for the duration 30 minutes after termination. Fire Watch is required when combustibles remain within 35 feet of the hot work and have not been controlled to eliminate the possibility of ignition. Each person assigned as Fire Watch must sign and date the permit.

NOTE: The work location must be assessed to determine where the fire risk may exist. A fire risk may result on the opposite side of a wall (or floor, etc.) due to heat transfer. Ensure that possible consequences are considered and that they are monitored by the Fire Watch as necessary to prevent a fire.

4.12. As the work progresses, periodic checks should be conducted to observe for fire, dust accumulation, adequate ventilation, atmospheric testing, or other hazardous conditions that could endanger the safety of the workers. If adverse conditions are observed, correct the hazards prior to continuing hot work. These checks should be made hourly, at a minimum.

4.13. Where there is a reasonable possibility of that flammable gases/vapors or excessive oxygen exist, atmosphere testing must be conducted by trained personnel as part of the permit process. Additionally, periodic checks should be conducted throughout the hot work process.

4.13.1. Lower Explosive Limit (LEL) or Lower Flammable Limit (LFL) must be below 10%

4.13.2. Oxygen (O_2) measurement must be between 19.5% and 23%

4.14. Containers holding flammable or combustible liquids or gasses must be purged, cleaned, and filled with inert liquid or gasses and tested to ensure that the LEL /LFL is below 10%

4.15. Do not conduct hot work operations until precautionary measures have been taken control the risk of unintended ignition.

Permit Issuance

4.16. Hot Work Permit process is initiated prior to beginning hot work by those who will be performing the work. Other precautionary policies must be considered in conjunction with hot work; such as LOTOTO, Confined Space Entry, etc. When the precautionary measures have been taken and the affected employees have signed the permit, the Authorized Person will sign the permit authorizing the work to proceed as described on the permit.

4.17. Persons involved with the hot work or assisting with the hot work must sign the permit. Changes to the work environment or conditions affecting the hot work must be noted on the permit. The hot work permit must be kept at the job site until 30 minutes after the job is complete.

4.18. A Hot Work Permit is valid for one work shift and one task. The permit becomes invalid when the hot work is delayed for 90 minutes or more. Permits must be kept for at least 1 year or until released by an auditor for disposal or as directed by the records retention policy.

NOTE: The fire watch must ensure that a fire potential does not exist at the end of the mandatory 30 minute watch period. If material is perceptibly hot, is still glowing or otherwise providing indication of residual heat, the surface must be cooled by appropriate means, or the watch extended until such time as the risk has abated.

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Before signing this permit, think through the entire task and identify, evaluate and control energy sources. Safety precautions described in the *Hot Work Policy* must be followed. Every line on both sides must be completed. Not valid if work is delayed for 90 minutes or more.

Good for one shift only_____
date

WO No. _____

From_____AM/PM.To_____AM/PM

Bldg. or Area _____Dept._____
Floor_____

Work to be done _____

_____

_____

Work performed by_____

_____

_____

_____

Fire watch assigned? ☐ Yes ☐ No
Required, if uncovered combustibles remain within 35 feet.

Name (s) of fire watch_____

_____

_____

Time area is released by the Fire Watch:_____AM/PM

I verify that the work site has been inspected.

_____
Signatures of Persons Performing Work

_____
Signature of Area Supervisor or Designee

Emergency numbers/ Radio Channels

PH # _____

Comments

_____

_____

_____

_____

_____

_____

Work Area Evaluation

HOT WORK ON CONTAINERS & FUEL TANKS
Containers holding flammable or combustible liquids or gases have been purged, cleaned, and filled with inert liquid or gases and tested for %LEL/LFL.
_____ Initial when reading is taken and tested to verify an LEL/LFL less than 10%

HOT WORK IN ALL AREAS, INCLUDING THE ABOVE

1. Person completing "Hot Work Permit" understands hazards in the hot work zone.
   ☐ Yes ☐ No
2. Flame or spark-producing equipment to be used has been inspected and found to be in good repair.
   ☐ Yes ☐ No
3. Sprinklers and fire water, where provided, are in working condition and will remain in service while this work is being done.
   ☐ Yes ☐ No
4. Portable fire extinguishers are available, are appropriate for the fire hazard, and personnel have been trained to use them.
   ☐ Yes ☐ No
5. All combustibles have been relocated 35 feet from the hot work, and the remainder protected with flame-proof curtains or covers.
   ☐ Yes ☐ No
6. All voids and openings leading to other areas (rooms, floors) have been covered.
   ☐ Yes ☐ No
7. All appropriate SOPs and good work practices are being followed.
   ☐ Yes ☐ No
8. Do you have the proper personal protective equipment including welding shields, respirators, hearing protection for the job?
   ☐ Yes ☐ No
9. A method for contacting emergency responders is in place.
   ☐ Yes ☐ No

IF ANY ANSWER IS *NO*, LIST ALTERNATIVE MEANS OF CONTROL:

_____

_____

AIR TESTING REQUIRED FOR WORK NEAR FLAMMABLE LIQUIDS AND GASES

Oxygen level_____% LEL____% Time_____

Oxygen level_____% LEL____% Time_____

Oxygen level_____% LEL____% Time_____

Work must not proceed if oxygen level is above 23%, or the LEL is greater than 10% (note that oxygen must be above 19.5% in order to accurately measure LEL/LFL).

COMPLETE THIS SECTION AT END OF JOB.

Work completed Date & Time:_____
I verify the area has been monitored for the absence of fire for 30 minutes after the last cut.
Final Inspection by:_____
Time:_____