

June 2, 2004  
In The Matter of  
Phelps Dodge Morenci, Inc.  
Morenci Mine  
I.D. No. 02-00024

PETITION FOR MODIFICATION

Docket No. M-2003-002-M

On August 8, 2003, a petition was filed by Phelps Dodge Morenci, Inc., (Morenci) seeking a modification of the application of 30 CFR §56.6309(b) to its Morenci Mine located in Morenci, Greenlee County, Arizona. The petitioner alleged that the alternative method outlined in the petition would at all times guarantee no less than the same measure of protection for miners as afforded by the standard.

Standard 56.6309 Fuel oil requirements for ANFO, provides:

- (a) Liquid hydrocarbon fuels with flash points lower than that of No. 2 diesel oil (125 degrees Fahrenheit) shall not be used to prepare ammonium nitrate-fuel oil, except that diesel fuels with flash points no lower than 100 degrees Fahrenheit may be used at ambient air temperatures below 45 degrees Fahrenheit.
- (b) Waste oil, including crankcase oil, shall not be used to prepare ammonium nitrate-fuel oil.

MSHA investigators conducted an investigation relevant to the merits of the petition and filed a report of their findings and recommendations with the Administrator for Metal and Nonmetal Mine Safety and Health. After a careful review of the entire record, including the petition and MSHA's investigative report and recommendations, this Proposed Decision and Order is issued.

FINDING OF FACT AND CONCLUSION OF LAW

The alternative method set forth in the Petition will at all times guarantee no less than the same measure of protection afforded miners under 30 CFR §56.6309(b) by ensuring that only waste oils (hereinafter "recycled oil") meeting certain conditions will be mixed with diesel fuel oil (hereinafter "oil") and prills to form an ammonium nitrate fuel oil (ANFO) blasting agent. Compliance with this Proposed Decision and Order entitles Phelps Dodge Morenci, Inc., to a modification of the application of 30 CFR §56.6309(b) to its Morenci Mine.

ORDER

Wherefore, pursuant to the authority delegated by the Secretary of Labor to the Administrator for Metal and Nonmetal Mine Safety and Health and pursuant to Section 101(c) of the Federal Mine Safety and Health Act of 1977, 30 U.S.C. Section 811(c), it is ordered that a modification of the application of 30 CFR §56.6309(b) to the Morenci Mine, as it pertains to utilizing recycled oil in preparing ANFO blasting agents is hereby:

**GRANTED**, conditioned upon compliance with the following requirements:

1. Only recycled oil (petroleum-based, lubrication oil, from diesel equipment) at the Morenci Mine shall be used for blending with oil and conventional prills to create ANFO.
2. Prior to being blended with oil or being stored in a bulk tank, the recycled oil shall be filtered to insure it has no larger particle size than 150 microns. No other products shall be added except for oil.
3. Once mixed with oil, the recycled oil and oil (hereinafter "blended oil") shall be considered a "batch". The batch shall not exceed 50% (by volume) recycled oil.
4. The blended oil shall not be modified by heating, the addition of additives (excluding the oil), or in any other way that could change the relevant properties of the batch. High viscosity oils of 90 weight (90W) or above shall be restricted to less than 10% of the total quantity of the recycled oil in each storage tank.
5. The following tests for ethylene glycol and water shall be conducted on each tank of recycled oil and blended oil.
  - (a) The recycled oil shall be checked for ethylene glycol and water prior to blending with the oil. If present, water or ethylene glycol shall be drained prior to mixing the recycled oil with the oil.
  - (b) Tests for ethylene glycol and water content shall be made by drawing a sample from representative batches of blended oil at no less than 30 day intervals. If either substance is observed by vision or tests of the blended oil, use of the oil shall be discontinued until the ethylene glycol and/or water is drained from the blended oil.
6. Viscosity tests of the blended oil shall be taken at ambient outside temperatures before the blended oil is pumped into the ANFO truck and mixed with the prills. Use of the blended oil shall be suspended when it becomes too viscous to obtain proper absorption, at least 6 percent fuel by weight, in the

prills. Additional oil may be added to the blended oil and thoroughly mixed to obtain the proper absorption.

7. Each new batch shall be tested when combined with ammonium nitrate, prior to this mixture (ANFO) being loaded in any drill hole in accordance with the following provisions:

(a) The petitioner shall conduct one test per batch of ANFO for: (1) sensitivity of the blended oil and ammonium nitrate prills to a No. 8 strength USA detonator in accordance with UN Test 15.4.1 test 5(a). (2) cap sensitivity test substituting a number 8 USA cap as the detonator shall be the standard for this test.

(b) During the first thirty (30) days of use of blended oil, the petitioner shall perform one "glass jar test" each day for each truck containing the blended oil/prill mixture used by the petitioner that day to load holes for blasting. Records of such tests shall be maintained by the petitioner and shall be available for review by the Rocky Mountain District Manager and/or his representative and the miner's representative.

(c) If the results of the glass jar tests performed during the initial thirty (30) day period in Paragraph 7(b) are satisfactory to MSHA, one glass jar test for each batch shall be performed by the petitioner. If unsatisfactory results occur, the MSHA District Manager shall be notified to determine if additional tests will be required.

(d) A flash point test shall be done on each batch of blended oil using the open or closed cup ASTM method. Each batch shall have a minimum flash point of 100° Fahrenheit when the ambient air temperature is below 45° Fahrenheit. A minimum flash point of 125° Fahrenheit shall be maintained if the ambient air temperature is above 45° Fahrenheit.

8. A log shall be maintained for each batch of blended oil at the Phelps Dodge Morenci, Inc., Mine for 1 year following the final use of the batch and made available to an MSHA representative and the miners' representative upon request. The following information shall be recorded:

(a) The date and quantity (in gallons) of recycled oil transferred to the recycled oil bulk tank;

(b) Condition No. 7(d) - test results in degrees Fahrenheit;

(c) Condition No. 3 - blend mix the ratio of oil to recycled oil for each batch, the blending date, and the quantity (in gallons) of each batch ingredient;

- (e) Condition No. 6 - viscosity test results; absorption test results.
- (f) Condition Nos. 7(a),(b), (c) - sensitivity and blended oil/prill mixing test results including whether or not the sample detonated;
- (g) "Load" and "shot" reports - these records will note the date(s) of loading, the date(s) of blasting, quantities of ANFO or emulsions used, weather conditions, detonation methods, the borehole size(s), the use of plastic hole liners, and the number and location of any misfires within the round (shot);

Future revisions or appropriate changes to the MSHA Part 48 training plan regarding the conditions in this PDO deemed appropriate by the Petitioner shall be submitted to the MSHA District Manager for revision and approval prior to implementation by the petitioner.

/s/ Peter J. Montali for

---

Robert M. Friend  
Administrator for  
Metal and Nonmetal Mine Safety and Health