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Department of Energy
Washington, D.C. 20545

ACTION MEMORANDUM

TO: Secretary

THRU: Under Secretary

Acting Assistant Secretary for Defense Programs

FROM: Major General J. K. Bratton, USA
Director of Military Application

SUBJECT: IMPACT ON THE WEAPONS PROGRAM OF THE PROPOSED OSHA STANDARD ON BERYLLIUM

Issue

Whether the DOE should join with the DOD in joint letters to the Department of Labor (DOL) and the Department of Health, Education, and Welfare (DHEW) advising the departments of the impact that the proposed Occupational Safety and Health Administration (OSHA) standard for occupational exposure to beryllium will have on the national security and requesting that DOL withhold issuance of the revised standard until the underlying government (National Institute for Occupational Safety and Health (NIOSH)) study can be reevaluated.

Background

Beryllium metal and oxide are materials which are essential to the national defense. The beryllium is necessary for DOE nuclear weapons and could not be replaced in current and future nuclear weapons systems without unacceptable performance, safety, or cost penalties. Redesign of weapons systems would require nuclear testing to verify performance and, in some cases, full-yield testing would be necessary. Beryllium is also essential to the DOD for missile components, inertial guidance systems, and other components. Continuing sources of domestic supply must be maintained.

In October 1975, OSHA issued a proposed rule change to the current OSHA beryllium exposure standard (29 CRF Part 1910). Under the direction of Military Application, the Manager of Albuquerque Operations Office (AL) established a special task group in January 1978 to investigate the impact of the proposed standard on the beryllium industry and upon the nuclear weapons program. The study found that the new standard will have a significant impact on the supply and cost of beryllium metal and oxide for the weapons program and could preclude the availability of these materials. An executive summary of the task group report is at Tab A.

OSHA Standard (Tab A - page 1)

The current standard is the American National Standard Institute (ANSI) national consensus standard which has been adopted by OSHA and has become law. The basis for the proposed beryllium standard is a study by the NIOSH which concluded that beryllium is a carcinogen for humans. The NIOSH study is being strongly contested by the beryllium industry and members of the scientific community.

The current permissible exposure limit for airborne beryllium in the workplace is 2.0 micrograms per cubic meter (2.0 $\mu g/m^3$) averaged over an 8-hour work shift of a 40-hour workweek. A ceiling concentration of 5 $\mu g/m^3$ is not to be exceeded except that a peak concentration of 25.0 $\mu g/m^3$ is acceptable for a period not to exceed 30 minutes.

The proposed standard exposure is 1.0 $\mu g/m^3$ averaged over an 8-hour work shift of a 40-hour workweek. A peak limit of 5.0 $\mu g/m^3$ must not be exceeded--as averaged over a maximum sampling time of 15 minutes.

Discussion

Impact on the Weapons Program (Tab A, page 2)

The loss of beryllium would have a major impact on the weapons program, particularly under a Comprehensive Test Ban (CTB). The existing stockpile weapons could not be remanufactured with substitute materials without nuclear testing to verify performance; in some cases, full-yield testing would be necessary. Beryllium also is contained in ten weapons currently under development and would have to be redesigned to exclude beryllium components. The redesign of weapons in stockpile or those in development would incur penalties of increased weight, reduced yields, increased use of special nuclear materials, and a potential one-point safety problem.

DOD Requirements (Tab A, page 3)

Beryllium is also essential to the DOD for production of weapons systems, missile components, inertial guidance systems, electronic devices, and other applications.

Industry Response to Proposed Standard (Tab A, page 3)

There are two primary producers in the beryllium industry--Brush Wellman Inc. (BWI) and Kawecki Berylco, Inc. (KBI). Both producers do not yet

meet the current standard in some steps of the production process, especially in the beryllium metal process. The proposed OSHA standard for beryllium will have a serious, adverse impact on those processes supporting defense needs for beryllium metal and, to a lesser extent, oxides. The primary beryllium industry and their engineering consultants have stated that the new standard is neither technically nor economically feasible in private industry's production operations for defense programs. The AL task group agreed with this assessment. Both corporations have stated that, due to the new OSHA standard, the need for significant capital investment, underutilized capacity, and minimum profits, the government work would probably be discontinued.

Other Courses of Action (Tab A, page 5)

Other courses of action have been considered:

There is a provision in the OSHA Act which provides that the Secretary of Labor may allow an exemption from the standard for up to 6 months to avoid serious impairment of the national defense. However, a 6-month exemption, which may be subject to injunction, becomes moot if upon implementation of the OSHA beryllium standard the primary beryllium industry terminates its production of beryllium for national defense programs.

GSA maintains a national stockpile of strategic materials including about 229 tons of beryllium metal which is available to the DOE and DOD only upon a determination by the President that a national emergency exists. Access to the stockpile would provide but a short-term solution until the stockpile is depleted and would require the operation of the beryllium metal industry to rework the stockpile to meet current material specifications.

The industry, which does not now meet the current OSHA standard, must spend approximately $22.5M to achieve near compliance. About $150M additional funding would be required to achieve as low as feasible occupational exposure to beryllium; however, this would not achieve the proposed standard in all operations.

If an in-house DOE capability to produce beryllium for all defense needs is designed and constructed to achieve the proposed standard, it is estimated to cost $200M to $300M. Annual operating costs for the in-house capability are estimated to be $10M.

The weapon design laboratories have concluded that, in view of the heavy dependence on beryllium and the pending CTB, beryllium must be available in the foreseeable future to support weapons production and the national defense. The joint letters will provide DOL and DHEW with the results of our study and will identify an impact far greater than that noted by

OSHA when the new standard was proposed. The letters also support a reevaluation of the NIOSH study supporting the proposed standard.

We expect the joint letters from the DOE/DOD to receive serious consideration at OSHA and to moderate the final standard to that which is technically and economically feasible.

Recommendation

That the joint DOE/DOD letters to the DOL and the DHEW at Tab B be signed by the Secretary.

Approve:_____

Disapprove:_____

Date:_____

Next Steps

DP will pursue the joint procurement of beryllium with the DOD and with GSA. The GSA has been requested by MA to upgrade the beryllium stockpile by adding additional beryllium metal which meets current product specifications to the stockpile. DP, through AL, will also continue parallel planning to determine costs and to evaluate actions to encourage the industry to improve their facilities. Concurrently, AL will examine the feasibility of establishing an in-house production capability.

Concurrences

EV, Liverman	Date_____	Concur_____ Nonconcur_____	See Tab_____
GC, Coleman	Date_____	Concur_____ Nonconcur_____	See Tab_____

cc: Mr. Liverman, EV
Mr. Coleman, GC
Mr. Roser, AL
Mr. Hollister, OES

Attachments: Tab A - Impact on the Weapons Program of the Proposed OSHA Standard on Beryllium
Tab B - Proposed Joint Letters to Secretary Califano and Secretary Marshall
Tab C - Special Task Group Report - Beryllium, Vol. I

Prepared by: MA: GLTayler/bjt: 353-3487: 6/26/78