



DEPARTMENT OF DEFENSE  
MISSILE DEFENSE AGENCY  
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WASHINGTON, DC 20301-7100

DO

JAN - 7 2009

MEMORANDUM FOR OFFICE OF THE UNDER SECRETARY OF DEFENSE  
ACQUISITION, TECHNOLOGY AND LOGISTICS  
(AT&L)

SUBJECT: Reducing Toxic and Hazardous Chemicals Under Executive Order (EO)  
13423, *Strengthening Federal Environmental, Energy and Transportation  
Management*


This memorandum responds to your December 3, 2008 request to assist the Department of Defense (DoD) in implementing the *DoD Agency-Level Toxic and Hazardous Chemicals Reduction Plan* by providing information regarding baseline toxic and hazardous chemical usage, proposed future reductions, and elimination or replacement with less toxic alternatives.

MDA has identified three pollutants for reduction, as documented in the MDA Worksheet for Implementing EO 13423 Chemical Reductions (attachment 1). These reduction goals will be attained through the procurement of, at a minimum, Electronic Product Environmental Assessment Tool (EPEAT)-Silver registered computer products.

Based on our historic replacement rate for computer equipment, MDA can achieve the proposed reduction of toxic/hazardous chemical usage without additional funding or additional staff. This strategy will allow MDA to reduce toxic and hazardous chemicals, energy usage, and greenhouse gas emissions without adverse impact to the MDA mission.

My point of contact for this matter is Mr. Crate J. Spears, who can be reached at (703) 697-4123.

v/r

  
ALBERT D. HEMPHILL II  
MDA Director for Operations

Attachment:  
As stated

**Attachment 1**  
**MDA Worksheet for Implementing EO 13423**  
**Chemical Reductions**

| SERVICE: Missile Defense Agency   |   |   |  |                       |  |                 |
|---|---|---|--|-----------------------|--|-----------------|
| Identification of Chemicals Due to OSD by January 9, 2009 (minimum of three)  | Chemical Name and CAS Number, if applicable | Family (F) or Type (T) or Not applicable (NA) | Baseline/year (approx. pounds, gallons, etc. used) | As of (approx. dates) | Based on Est. total Usage OR Est. Intensity-specific Usage (please describe) | Reduction Goals |
| <b>Toxic/Hazardous Chemical 1</b>   | Carbon Dioxide                              | NA  | 8,759,069 lbs                                      | Dec 31, 2008          | Estimate total usage   | 20%             |
| <b>Reasons for Selection:</b> Chemical reduction can be successfully attained without any adverse impact to mission objectives. |   |   |  |                       |  |                 |
| <b>Toxic/Hazardous Chemical 2</b>   | Hexavalent Chromium - Cr <sup>6+</sup>      | NA  | 39.9 lbs   | Dec 31, 2008          | Estimate total usage   | 20%             |
| <b>Reasons for Selection:</b> Chemical reduction can be successfully attained without any adverse impact to mission objectives. |   |   |  |                       |  |                 |
| <b>Toxic/Hazardous Chemical 3</b>   | Lead - Pb                                   | NA  | 1,463.9 lbs  | Dec 31, 2008          | Estimate total usage   | 20%             |
| <b>Reasons for Selection:</b> Chemical reduction can be successfully attained without any adverse impact to mission objectives. |   |   |  |                       |  |                 |

- Assumptions base on total number of MDA employees is 9,451<sup>1</sup>. Approximately 97% of these employees have computers (9,167)
- MDA has notebook computers but none were assumed in baseline calculations until a verifiable estimate or actual numbers could be obtained.
- Estimate 9,167 non-Energy Star or Energy Star disabled computers
- Prior to 2008 MDA all MDA computers were pre-Electronic Product Environmental Assessment (EPEAT) computers
- EPA CO<sub>2</sub> emission factor for non-energy Star or Energy Star disabled computers – 1.5 lbs per kWh
- According to the Electronic Environmental Benefits Calculator (EEBC), pre-EPEAT energy use per unit was 371kWh/y
- MDA baseline estimated CO<sub>2</sub> emissions from computer usage in 2007:

$$\text{CPUs } 9,167 \text{ units} \times \frac{371 \text{ kWh}}{\text{y/unit}} \times \frac{1.5 \text{ lbs CO}_2}{\text{kWh}} = 5,101,436 \text{ lbs CO}_2 / \text{y}$$

$$\text{Monitors } 9,167 \text{ units} \times \frac{266 \text{ kWh}}{\text{y/unit}} \times \frac{1.5 \text{ lbs CO}_2}{\text{kWh}} = 3,657,633 \text{ lbs CO}_2 / \text{y}$$

Total -- 8,759,069 lbs CO<sub>2</sub>/y

- MDA baseline estimate for Cr<sup>6+</sup> from computers usage in 2007. Cr<sup>6+</sup> per unit factors obtained from EEBC baseline product assumptions:

$$\text{CPUs } 9,167 \text{ units} \times \frac{1.3 \text{ g Cr}^{6+}}{\text{unit}} \times \frac{1 \text{ lbs Cr}^{6+}}{454 \text{ g}} = 26.2 \text{ lbs Cr}^{6+}$$

$$\text{Monitors } 9,167 \text{ units} \times \frac{0.53 \text{ g Cr}^{6+}}{\text{unit}} \times \frac{1 \text{ lbs Cr}^{6+}}{454 \text{ g}} = 10.7 \text{ lbs Cr}^{6+}$$

Total – 36.9 lbs Cr<sup>6+</sup>

- MDA baseline estimate for Pb from computers 2007. Pb per unit factors obtained from EEBC baseline product assumptions.

$$\text{CPUs } 9,167 \text{ units} \times \frac{47.3 \text{ g Pb}}{1 \text{ unit}} \times \frac{1 \text{ lbs}}{454 \text{ g}} = 955.1 \text{ lbs Pb}$$

$$\text{Monitors } 9,167 \text{ units} \times \frac{25.2 \text{ g Pb}}{1 \text{ unit}} \times \frac{1 \text{ lbs}}{454 \text{ g}} = 508.8 \text{ lbs Pb}$$

Total – 1,463.9 lbs Pb

<sup>1</sup>From MDA Registrar's Office