



Air model on the burning grounds. (UNCLASSIFIED)

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 2 Files (111KB)



AIR MODEL



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Classification: UNCLASSIFIED

Caveats: NONE

Mike:

As we agreed at our April RAB meeting and per Action Item attached is 'information on Picatinny air monitoring.' This includes an air model summary plus CERCLA information taken from the Record of Decision

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Picatinny Arsenal has developed a facility-wide air dispersion model for nineteen (19) specific hazardous air pollutants (HAPs) to determine fence-line health risk impacts. Emissions of HAPs from Picatinny operations were assessed for their impact on ambient air quality consistent with guidelines published in the NJDEP Technical Manual 1003, Guidance on Preparing a Risk Assessment for Air Contaminant Emissions. The air dispersion model used for this study was the USEPA recommended model, AERMOD.

One parameter used in assessing risk is a HAP's reference concentration or RfC. The RfC is defined by the USEPA as a concentration that...is a continuous inhalation exposure of a chemical...that is likely to be without risk of deleterious noncancer effects during a lifetime. The second parameter used to assess risk is the National Ambient Air Quality Standard or the NAAQS. The NAAQS is established to protect human health and the environment from hazardous concentration of air pollutants.

The NJDEP RfC is the level where there will be no significant risk to prenatal and/or child development. The NJDEP RfC is 0.1 ug/m³ based on a 24-hour averaging period. This reference criterion is not a regulatory requirement it is a goal the NJDEP would like facilities to attempt to achieve.

Latest air model results show a slight exceedance of the short-term standard (RfC) (0.13 vs 0.1) for lead. The long term standard (NAAQS) is well within the regulatory standard (0.018 vs 0.15) for lead. All other HAPs are within the state guidelines or regulatory standards. These numbers are for the entire facility modeled together. A typical risk screening model performed in accordance with the NJDEP TM 2003 is for a single source only and does not require facility-wide modeling.

There are two ways that the modeled lead concentration can be compared to the NJDEP RfC. The first way is to compare these values directly. This comparison is overly conservative as it assumes that an individual will spend 24 hours/day, 365 days/year, for 25 years standing at the area of highest lead concentration at the Picatinny fence-line.

The second way the modeled value can be compared to the RfC is by using exposure modeling. An exposure model allows for various exposure parameters to be set at more realistic values. Using exposure modeling,

an individual will spend 18 hours/day, 365 days/year, for 25 years standing at the area of highest lead concentration (0.13 ug/m³) with the resultant exposure being no different than the NJDEP RfC.