



## Allen, Pam, NMENV

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**From:** Maestas, Ricardo, NMENV  
**Sent:** Wednesday, June 25, 2014 3:16 PM  
**To:** Allen, Pam, NMENV  
**Subject:** FW: RCRA particulates

March

**From:** Smith, Coleman, NMENV  
**Sent:** Friday, March 07, 2014 2:49 PM  
**To:** Kliphuis, Trais, NMENV  
**Cc:** Maestas, Ricardo, NMENV; Holmes, Steve, NMENV  
**Subject:** RE: RCRA particulates

Trais,

The referenced list didn't make it through to me, but here are some pertinent HEPA specs:

- Nuclear Grade HEPA filters (Flanders) must meet or exceed the quality assurance standards found in ASME NQA-1 and 10CFR50, Appendix B.
- Nuclear Grade HEPA, largest physical size available 24"x30"x11 1/2", 1275 CFM @ 1.0" WC; largest airflow capacity for a single filter 24"x24"x11 1/2", 1500 CFM @ 1.3" WC. (Flanders)
- Specifications: (Mil Std-282): efficiency 99.97% for 0.3 µm particles at 100% rated flowrate and at 20% rated flowrate. Maximum allowable penetration is 0.03% for the most penetrating particle size.
- The respirable fraction is considered to be 0.1-10 µm.
- Aerosols generally have the smallest particle size, are easily suspended in air, and <0.1 µm aerosol particles could penetrate the filter.

Given this information, the next question is "what is the particle size distribution for solid TRU mixed waste?". As mentioned above, the respirable size fraction is 0.1-10 µm. On the low end of this range one may find diesel particulates (generally < 1 µm) and would include very finely divided dust and finely dispersed aerosols. All RCRA solids (with few exceptions, and not including sludge or other stabilized solids) can be processed into a respirable particulate.

In order to find containers with respirable solids, the AK documents for each waste stream must be carefully reviewed. The physical form of the hazardous waste should be described, and any container with powdered metal, oxide from burning pure metal, soil, and fine aerosols should be noted in the AK. Without some information concerning particle size distributions, it would be difficult to estimate the amount of hazardous solid waste that could have penetrated the HEPAs at WIPP. Hazardous waste particulates could have leaked past the bypass dampers just like the actinide particulates. The sampler filters could undergo non-destructive analysis, using techniques such as X-ray fluorescence (XRF) and atomic force microscopy (AFM).

Radionuclides can be detected at very low concentrations, and lower than similar concentrations of haz waste particulate.

That's about all I have for now. Maybe more can be said after reviewing the AK documentation.

Cole

Coleman A. Smith, Ph.D.  
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New Mexico Environment Department  
Hazardous Waste Bureau, WIPP Project



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**From:** Kliphuis, Trais, NMENV  
**Sent:** Friday, March 07, 2014 8:42 AM  
**To:** Smith, Coleman, NMENV  
**Subject:** FW: RCRA particulates

Trais Kliphuis  
WIPP Staff Manager  
Hazardous Waste Bureau  
New Mexico Environment Department  
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**From:** Blaine, Tom, NMENV  
**Sent:** Friday, March 07, 2014 7:40 AM  
**To:** Kliphuis, Trais, NMENV  
**Subject:** RE: RCRA particulates

Are all of these susceptible at any level to becoming air born? Will the existing filters remove these constituents from the air?

Tom

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**From:** Kliphuis, Trais, NMENV  
**Sent:** Friday, March 07, 2014 7:24 AM  
**To:** Blaine, Tom, NMENV  
**Subject:** Fwd: RCRA particulates

Fyi

Sent from my Samsung Galaxy Note® 3

----- Original message -----  
From: "Holmes, Steve, NMENV"  
Date:03/07/2014 7:18 AM (GMT-07:00)  
To: "Kliphuis, Trais, NMENV"  
Subject: FW: RCRA particulates

Trais,  
I meant to state that the list of particulates are all of the metal RCRA codes in the WIPP permit (Arsenic, Barium, Cadmium , Chromium, Lead, Mercury, Selenium, and Silver).

**From:** Holmes, Steve, NMENV  
**Sent:** Friday, March 07, 2014 7:09 AM  
**To:** Kliphuis, Trais, NMENV  
**Subject:** RE: RCRA particulates

Trais,  
The list is all of the RCRA codes in the WIPP permit.

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**From:** Kliphuis, Trais, NMENV  
**Sent:** Thursday, March 06, 2014 4:29 PM  
**To:** Holmes, Steve, NMENV  
**Cc:** Maestas, Ricardo, NMENV; Smith, Coleman, NMENV  
**Subject:** RCRA particulates

Hi Steve,

When you have time but as soon as possible, I need a list of RCRA particulates (e.g. lead) that exist in the WIPP waste stream. Thanks.

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