



ENVIRONMENTAL EVALUATION GROUP

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ENTERED



February 9, 2001

Mr. Steve Zappe
New Mexico Environment Dept.
Hazardous Waste Bureau
2044 A Galisteo Street
Santa Fe, NM 87502

Dear Mr. Zappe:

Attached are EEG's comments on DOE's request for a Class 2 Permit Modification regarding Drum Age Criteria. Our comments are summarized as follows:

1. The conceptual approach is reasonable and we have no objection to appropriate credit for different packaging configurations.
2. EEG has not checked the calculations. This should be done by NMED.
3. There are a variety of diffusivity values in filters allowed in WIPP waste containers. These diffusivities fall within the ranges evaluated by DOE but the proposed DAC values (assuming they are correctly calculated) must be used carefully in order to be conservative for individual containers with different filters.
4. The diameter of the rigid liner opening in a waste container is a critical value. There needs to be assurance that the size of these openings is accurately known in order for the specific DAC value used to be conservative.
5. The number of inner bags and liner bags in a waste container is a critical parameter. There needs to be assurance that these values are accurately known in order for the DAC value chosen for a waste container to be conservative.

Sincerely,


for Matthew K. Silva
Director

MKS:JKC:js

Attachment
cc: Dr. Inés Triay, CBFO

010225



EEG Comments on Proposed Class 2 Modification on Drum Age Criteria

The EEG has reviewed the December 7, 2000 Request for a RCRA Class 2 Permit Modification in Accordance with 20.4.1.900 NMAC (incorporating 40 CFR Part 270). This proposed modification deals with Drum Age Criteria. Several specific comments are listed below.

The concept of allowing credit for different packaging configurations is appropriate and the tabulated values in Tables B1-6, B1-7, B1-9, and B1-10 appear reasonable. However, EEG has not reviewed the calculation methodology in detail and has not tried to reproduce any of the calculations. This should be done by NMED and the evaluation should consider uncertainty.

Our specific comments are:

1. Variable Filter Diffusivity Values

The BWXT 2000 document included as Appendix B to the proposed modification indicates that the diffusivity of the filter vents in waste containers is an important consideration for the DAC. That document, and Tables B1-7, B1-9, and B1-10 of the proposed HWFP text modification describe DACs for only filters with hydrogen diffusivities of 1.9×10^{-6} , 3.7×10^{-6} , and 3.7×10^{-5} mol/sec/mol fractions. The differences in the DACs for these values are significant. For instance, the proposed Table B1-9 (Scenario 3 DAC for debris) shows that under packaging configuration 1 a debris drum with a liner lid vent of 0.30 inches would have a DAC of 131 days when the filter has a hydrogen diffusivity of 1.9×10^{-6} mol/sec/mol fraction, but a DAC of only 28 days with a 3.7×10^{-5} mol/sec/mol fraction hydrogen diffusivity. Given this greater than fourfold change in DAC values, it is clear that different filter diffusivity characteristics can greatly affect the DAC.

Change Notice #1 to Revision 7 of the *Waste Acceptance Criteria for the Waste Isolation Pilot Plant* (WAC, DOE/WIPP-069) instituted a dynamic listing of the filters that are acceptable for use on WIPP waste containers, based on transportation requirements in the WIPP TRUPACT-II SARP. The list is kept on the CBFO Transportation web site (www.wipp.carlsbad.NM.us/library/wac/CAOApprovedFilterVents.pdf). Attachment one to these EEG comments is a January 24, 2001 hard copy of this list, which includes hydrogen diffusivities for each filter. All of the 27 filters on the WAC list have hydrogen diffusivities that fall within the 1.9×10^{-6} to 3.7×10^{-5} mol/sec/mol range that was evaluated in the BWXT 2000 supporting document. Only four of the filters on the WAC list fall in the range between 1.9×10^{-6} and 3.7×10^{-6} mol/sec/mol. The remaining 23 filters fall in the range between 3.7×10^{-6} and 3.7×10^{-5} mol/sec/mol.

EEG believes that the modification should specify how the effect of variable filter diffusivity values will be incorporated into the drum age criteria (in days) actually allowed. The simplest, conservative, correction for this would be to require the appropriate DAC to be that determined in BWXT 2000 to be the value calculated for the next lower diffusivity value evaluated. For example, the four filters that have diffusivity values less than 3.7×10^{-6} mol/sec/mol would be assigned the DAC value determined for 1.9×10^{-6} mol/sec/mol. The remaining 23 filters would be

assigned the DAC values for 3.7×10^{-6} mol/sec/mol. Using this correction, the largest diffusivity value evaluated (3.7×10^{-5} mol/sec/mol) would never be applicable. DAC values could be calculated for each of the 23 different diffusivity values if DOE felt this was worthwhile. However, linear interpolation between the DAC values in Tables would not be appropriate because these are not linear relationships.

The current HWFP contains no requirements for container filter vents, though Section B-1c and Section M1-1d (1) does describe the purpose of the filters, and state that the filter vents are "...nominally 0.75 in..." (note that the WAC list attached to these comments shows sizes from 7/16 to 2 inches). Implementing this modification submission would seem to indicate that more specific requirements concerning the acceptable hydrogen diffusivity values for each type of waste container should be specified in the HWFP.

NMED may want to add a requirement to the HWFP that filter type for each container be recorded. A requirement to do so is currently not a part of the HWFP. Since filter IDs are a transportation requirement, and are recorded on site documents as well as in the WWIS for each container, the addition of this requirement to the HWFP would not result in additional resource use by the DOE. However, the inclusion of this requirement would prevent its deletion without NMED approval.

2. Uncertainty in Critical Parameters

The BWXT 2000 documents state in section 4 that a sensitivity analysis for DACs was performed, and that (p. 2):

The sensitivity analysis indicated that filter vent characteristic, opening size in the liner lid, as well as presence or absence of the liner itself had a significant influence on the DAC values.

Liner Lid Opening Diameter

Concerns related to the filter vent characteristic were discussed above. The liner lid diameter also needs to be addressed. This is a critical parameter. For example, the proposed Table B1-9 shows that a Packaging Configuration 1 drum with 1.9×10^{-6} mol/sec/mol fraction hydrogen diffusivity and a 0.3-inch liner lid opening would require 131 days before sampling, while a drum with a 0.375-inch opening would require only 95 days. This small difference in hole diameter (about the width of one letter on this page) would not be obvious even in a visual examination without a measuring device.

EEG does not know of the accuracy of liner lid hole size and tolerance data. The NMED should determine the amount of uncertainty and add appropriate language to the HWFP during the

ATTACHMENT 1

The following filters meet all transportation requirements stated in Appendix 1.3.5, Specification for Filter Vents, of the Safety Analysis Report, Revision 18 (August 1999):

Manufacturer	Model Number	WWIS Model Number Entry (limited to six characters)	Style	Mean Hydrogen Diffusivity (m/s/mf)
NFT	NucFil®-012	NF012	¾ NPSM-14	3.5E-06
NFT	NucFil®-013	NF013	¾ NPSM-14	1.1E-05
NFT	NucFil®-013 GorTex	NF013G	¾ NPSM-14	1.1E-05
NFT	NucFil®-013 SSS	NF013S	¾ NPSM-14	1.6E-05
NFT	NucFil®-016	NF016	2 NPSM-11½	3.6E-05
NFT	NucFil®-019	NF019	¾ NPSM-14	2.7E-05
NFT	NucFil®-019-HCR	NF019H	¾ NPSM-14	1.5E-05
NFT	NucFil®-020 (x 1)	NF020	7/16-16 ST	3.9E-06
NFT	NucFil®-020 (x 2)	2NF020	7/16-16 ST	7.8E-06
NFT	NucFil®-020 (x 3)	3NF020	7/16-16 ST	1.17E-05
NFT	NucFil®-020 (x 4)	4NF020	7/16-16 ST	1.56E-05
NFT	NucFil®-049	NF049	11/16-14 ST	9.5E-06
NFT	NucFil®-049LS	NF049L	11/16-14 ST	7.7E-06
NFT	NucFil®-049S	NF049S	11/16-14 ST	1.2E-05
NFT	NucFil®-072	NF072	7/16-14 ST	5.0E-06
NFT	NucFil®-072 SSS	NF072S	7/16-14 ST	3.5E-06
NFT	NucFil®-073	NF073	7/16-14 ST	5.0E-06
NFT	NucFil®-074	NF074	7/16-14 ST	4.2E-06
NFT	NucFil®-075	NF075	7/16-14 ST	4.4E-06
NFT	NucFil®-DVS3	NFDVS3	9/16-14 ST	9.5E-06
UltraTech	9400	UT9400	¾ NPSM-14	3.73E-06
UltraTech	9402	UT9402	7/16-16 ST	2.06E-06
UltraTech	9414	UT9414	9416 Insert	1.02E-05
UltraTech	9415	UT9415	9416 Insert	2.20E-06
UltraTech	9416	UT9416	¾ NPSM-14	2.82E-05
UltraTech	9500	UT9500	¾ NPSM-14	2.05E-05
Fairey	988673	988673	¾ NPSM-14	1.04E-05

Key:

- NFT = Nuclear Filter Technology, Inc.
- UltraTech = UltraTech International, Inc.
- Fairey = Fairey Microfiltrex, Inc.
- m/s/mf = mole per second per mole fraction
- NPSM = National Pipe Straight Male
- ST = Self-tapping thread