



CARD

Citizens For Alternatives To Radioactive Dumping

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**Comments on the Department of Energy's Proposed Class 2 Modifications to the
Waste Isolation Pilot Plant Hazardous Waste Operating Permit:
USING COMPOSITE HEADSPACE GAS DATA AND COMPOSITING UP TO 20 SAMPLES,
ESTABLISHING SAFETY CONDITIONS FOR
VISUAL EXAMINATION (VE) OF WASTE CONTAINERS,
TAKING SAMPLES OF HEADSPACE GAS THROUGH EXISTING FILTER VENT HOLES**

Introduction

Although CARD does not have problems with any of the proposed modifications *in concept*, we do have problems with and concerns about some of the methods proposed to carry out these modifications and some of their supporting documentation. Since class 2 modifications cannot be revised by the New Mexico Environment Department (NMED), we urge NMED to deny all three modifications.

Item 1: Using Composite Headspace Gas Data and Compositing up to 20 Samples

CARD has several problems with this modification as submitted. First, c.1. Section B3-1: *Identification of Tentatively Identified Compounds*, bullet 6 states "The reference spectra used for identifying TICs shall include, at a minimum, all of the available spectra for compounds that appear in the 20.4.1.200 NMAC (incorporating 40 CFR Part 261) Appendix VIII list. *The reference spectra may be limited to VOCs when analyzing headspace gas samples.*" (emphasis added) There are similar statements in d.2. Table B6-2:126a bullet 6 and d.4. Table B6-4, 222a bullet 6.

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CARD believes that limiting reference spectra to VOCs rather than using all compounds in the Appendix VIII list is not protective of human health and the environment. DOE's own supplementary material included with this modification application (*Technical Evaluation of Headspace Gas Compositing: 3. Tentatively Identified Compounds*, page 29) states that "The NMED, in their written testimony for the HWFP hearing, provides a summary statement regarding the Permit conditions for TICs that indicates three areas that are important for TIC evaluation under the WIPP program. ...The NMED statement is as follows: 'In summary. HSG compounds, including TICS contained in the hazardous waste disposed at WIPP must be identified and quantified to ensure that **(1) the accuracy of hazardous waste codes assigned to a waste stream; (2) the proper characterization of waste; and (3) the protection of human health and the environment from releases of hazardous waste.** To this end, the TIC permit condition, based on SW-846 Methods and the Appendix VIII list, is both reasonable and necessary.'" (emphasis in original)

Attachment B3 of the Permit at B3-1 *Validation Methods, Identification of Tentatively Identified Compounds* refers to Headspace gas sampling and the Appendix VIII list: "TICs that meet the SW-846 identification criteria, are detected in 25 percent of all samples from a given waste stream, and that appear in the 20 NMAC 4.1.200 (incorporating 40 CFR §261) Appendix VIII list, will be compared to acceptable knowledge data..." There is no language allowing the permittees to limit that list only to VOCs. The purpose of headspace gas sampling is not only to quantify VOCs, but also to confirm assigned hazardous waste codes and waste characterization in general. Therefore, the Appendix VIII list should not be allowed to be limited to VOCs.

CARD is also concerned that allowing compositing at 20:1 might be too much. Although it appears that it may be possible to identify TICs present with a minimum of 0.5% of the area of the nearest internal standard, it seems, at least to the layperson, that this is getting close undetectable amounts. Minute instrumentation or calibration problems etc. could have an effect here. As noted in the *E-mail Response from the Methods Information Communication Exchange Regarding Method 8260 Compositing*, "...as volumes get smaller the associated error becomes larger." Could compositing samples at 20:1 affect not only the identification of small quantity TICs, but also the requirement that the relative intensities of the major ions should agree within + or - 20%?

The INEEL and RFRETS studies do not completely support DOE's conclusions that there will be no problem with these higher compositing levels. The INEEL study only composited at a maximum of 10:1. The RFRETS study was better, using 17:, 18:, and 19:1 composite samples, but also did not include any 20:1 samples and had only 13 samples at these higher levels. Although the so-called 20:1 results appeared to support their conclusions, the 5:1 results were off for cyclohexane (analyte 11). DOE states that this is not significant and resulted because a single large value skewed the final results. However, this is exactly what we are looking for with TICs. That is, will an Appendix VIII compound that occurs at 10% or greater in a single container be able to be detected and measured accurately when samples are composited?

It was also stated for both studies that "...any concentrations that are below the PRQL are only estimated concentrations..." and that "[t]his is even more important for the RFETS evaluations because the waste stream is a non-mixed waste stream where, on average, more than 95% of the detections are below the PRQL." If the studies are comparing estimates and are dealing with these very small quantities, one wonders how representative of reality the studies actually are. In the RFETS study, when describing the TIC analysis of Appendix VIII compounds, it was stated that methylchloride was detected in only 4 of the 1137 individual container samples but in none of the composited samples. Was methylchloride not detected in the composited samples because it wasn't there or because the sampling wasn't able to detect it?

CARD is unable to properly analyze the INEEL and RFRETS studies and some other technical elements of this modification request and is relying on NMED's expertise in this area. However, even if NMED finds no problems in the technical questions we have raised, CARD still objects to allowing the permittees to eliminate any compounds from the Appendix VIII list and therefore requests that NMED deny this modification request.

Item 2: Establishing Safety Conditions for Visual Examination (VE) of Waste Containers

CARD is concerned that allowing the permittees to eliminate a randomly selected container for safety conditions and substituting another "randomly" selected container taints the whole concept of randomness and makes the second selected container no longer random. CARD can suggest several possibilities to address this problem (since we consider worker safety to be an important concern) but since revision of a class 2 modification request is not allowed, we have to propose that this modification be denied as well.

Possibly, the first selected container could be eliminated from group it is picked from and set aside for some type of "special handling." Since it would no longer be part of the original group, another randomly selected container could then be seen as being representative of the group.

Another possibility would be to handle all such dangerous containers remotely. This would be especially applicable if the container were dangerous because it included a highly radioactive item but would also solve problems related to sharp objects and other problems. Since it is unlikely that there would be very many containers like this, only a few would require this special handling. This would preserve the random selection and address worker safety better than choosing another container or simply not visually examining part of the container, etc.

The modification states on page A-21 that "A site may establish container (e.g., radiological) safety conditions that must be met prior to opening containers for VE as a QC check on radiography." and "The method for determining the container safety conditions, the analysis performed, and the actual conditions established must be part of the site's documentation that is submitted to the CBFO for approval..." NMED needs to establish some type of control over these and all other safety conditions and methods used by the permittees if they are allowed to eliminate a selected container from VE. NMED should approve these conditions and methods at each site before they can be used and should continue to oversee the use of these methods and conditions.

CARD believes that if a second container is allowed to be "randomly" selected, that container should be selected from the same waste stream as the first container, not just from the same Summary Category Group.

Finally, CARD is concerned that safety could be used as an excuse to eliminate "problem" containers from VE. There is already evidence of similar activity having occurred at Lawrence Livermore National Laboratory (LLNL). According to *EEG Comments on DOE/CAOI's July 21, 2000 Request for RCRA 2 Permit Modification in Accordance with 20.4.1.900 NMAC*, page 6 "A February 17-18, 1999, CAO surveillance of RTR performed at LLNL discovered that RTR forms were changed by the RTR operator after data packages had been finalized by the supervisor/QA officer;" and that "[w]ith the apparent concurrence of LLNL, the surveillance team leader abbreviated the surveillance, and no formal surveillance report was written..." This writer has personally interviewed a former characterization worker at Los Alamos National Laboratory who claimed supervisors demanded that he sign off on characterization

data for WIPP waste which was non-existent since the machine to do the characterization was broken. Though the latter problem occurred before the permit was issued, these incidents show that this type of "nonconforming" activity can occur in any large organization where pressure is put on workers to achieve a certain result and meet certain deadlines.

Item 3: Taking Samples of Headspace Gas through Existing Filter Vent Holes

Again, CARD has no problems with the concept of taking samples through existing filter vent holes. However, we have some concerns with several items in this modification and feel that the modification is poorly written and confusing in parts. Even the title is incorrect, since the sampling includes punching a hole in the lid of a drum as well as taking samples through existing filter vent holes.

The second paragraph under a.3. B1-1a(2) *Direct Canister Headspace Gas Sampling* appears to be confusing as well. This paragraph states "The sampling head(s) must be capable of punching through the metal lid of the drums, a sampling head with an airtight seal for sampling through the existing filter vent hole, or penetrating a filter, or penetrating the septum in the orifice of the self-tapping screw to obtain the drum headspace samples." Are the sampling head(s) supposed to punch through a sampling head with an airtight seal? This does not appear to make sense. Later in the paragraph it is stated that "Field blanks shall be samples of room air collected in the immediate vicinity of the waste-drum sampling area prior to removal of the drum lid." Are drum lids routinely removed? Under what conditions would a drum lid be removed in the sampling room?

The third paragraph in the section states that "When an estimate of the available headspace-gas volume of the waste container can be made, less than 10 percent of that volume should be withdrawn." This appears too vague. Also, could this requirement to withdraw less than 10 percent of the volume potentially conflict with volume requirements for composite sampling?

1.4. Section B1-1a(3)(ii) *Sampling Through the Drum Lid By Drum Punching* states in the 5th bulleted item that "Provisions shall be made to relieve excessive drum pressure increases during drum-punch operations; potential pressure increases may occur during sealing of the drum punch to the drum lid." What are the potential problems that could occur with "excessive drum pressure" etc.? How often could these problems occur? Could there be a potential breach of the container and what would the effects be if such a breach occurred? The permittees also do not address the potential problems associated with punching through a metal container filled with flammable gases. Could the punching process create sparks and under what conditions could this process ignite the flammable gases? What would be the results if this occurred? Perhaps these issues have already been addressed in adding filters to older 55-gallon drums, but they are certainly not addressed here.

a.5. Attachment B1-1a(3)(iii) *Sampling Through an Existing Filter Vent Hole* also has some problems. At the second bullet it is stated that "The filter shall be replaced as quickly as is practicable with the airtight sampling apparatus to ensure that a representative sample can be taken." It is unclear if the permittees are concerned that gases might escape out of or that room air might migrate in to the container. At any rate, the permittees provide documentation that appears to show that a representative sample is not a problem with this method. However, for the pipe overpack container (POC) they do not address the potential problem of the escape of residues. Since the residues in these POCs could be unsolidified ash, soot or similar waste-forms, it seems possible that these materials could escape into the room air after the filter is removed and before the air-tight sampling device is applied. None of the seven tests used by the permittees in their

documentation included these types of materials to see if they could come through the filter hole. Even if they are routinely contained in plastic bags before being put into the POC, a breach of the bag could occur. If the contents are contained in a liner which has a hole in it or has to be punched through, material could also escape. If this were not possible, filters would not be needed on the vents. There is also some question of gases escaping and contaminating the room air blanks. Certainly, sampling through the filter and the tiny holes in the PUC seems practically impossible. However, one wonders why DOE designed a container that is so difficult to sample in the first place. If contamination by POC contents could be a problem, perhaps a re-design of the container would be in order.

Since the POC is an overpacked container, is sampling required between the overpacking and the POC itself?

Finally, various methods mention that a representative sample cannot be collected until the poly-liner has been vented to the container. However, the time that it would take for this to occur is not described here. a.5. Attachment B1-1a(3)(iii) *Sampling Through an Existing Filter Vent Hole* states at bullet 5 that "...as an option, the same airtight seal sampling apparatus may include a needle to penetrate the rigid liner." However, it appears possible that the needle might actually seal the hole that it creates. Various requirements for gases to reach equilibrium in the headspace of the liner and the container are described in the permit, various modification requests and in transportation sampling requirements. However, they are not delineated here so descriptions of venting the poly-liner to the container are vague and confusing. Again, CARD requests that NMED deny this modification.

Sincerely,



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CARD