NEW MEXICO ENVIRONMENT DEPARTMENT'S RESPONSE TO PUBLIC COMMENTS ON THE CLASS 2 PERMIT MODIFICATION REQUEST TO REVISE WASTE ANALYSIS CHARACTERIZATION METHODS

Introduction. The New Mexico Environment Department (NMED) is responding to comments it received from the public on the permit modification request (modification) for the revision of the waste analysis plan waste characterization methods, dated December 12, 2012. NMED proposes to issue the permit pursuant to its authority under the New Mexico Hazardous Waste Act (HWA), NMSA 1978, §§ 74-4-1 to 74-1-14. On December 18, 2012 the Permittees issued a public notice that the NMED would accept comments for 60 days, until February 18, 2013. NMED carefully considered all the comments received. The comments and NMED's responses are presented in chronological order of receipt below.

1. Comment: My name is Dale Janway, and I'm proudly serving the City of Carlsbad, New Mexico as its Mayor. Today I'm addressing the Class 2 permit modification request package submitted to the New Mexico Environment Department by the Department of Energy on December 12, 2012. I will be submitting these comments on the record to the New Mexico Environment Department as well.

First of all, thank you for attending the meeting to discuss this topic. I appreciate the New Mexico Environment Department's efforts in putting together a very comprehensive regulatory process to make sure that WIPP is safe. Most importantly, I very sincerely want to thank all of the members of the public who are here today to learn about this process. We often talk about how proud this community is of WIPP, but I also want to stress that we have an incredible thirst for knowledge when it comes to the Waste Isolation Pilot Plant. The residents of this community have a strong background in mining and the extractive industries, and we're always happy to join in on discussions involving these topics.

Today's permit modification would revise the Waste Analysis Plan characterization methods so that waste characterization would be accomplished using acceptable knowledge and radiography or visual examination. Chemical sampling would no longer be a requirement when deciding what is to be sent to WIPP.

I consider this proposed change to be fair and reasonable, given my understanding of the issue. It is my understanding that, throughout the almost 14 year history of WIPP, there has never been a case where chemical sampling has changed the designation of what is in a WIPP drum. In other words, the other methods of examining the drums that are being sent to WIPP have provided a completely accurate profile about what is going to WIPP. Waste that should not be sent to WIPP is not sent to WIPP.

Redundancies are important at WIPP. We want everything examined from multiple angels, but there will still be redundancies in characterization even without chemical sampling. Approving this permit modification would simply eliminate what we now know is an expensive and ineffective means of identifying waste.

Price is not the top priority at WIPP. Safety is the top priority. But if the DOE can show that something can be done just as safely for the same price, then it is worthwhile. Chemical sampling is extremely expensive and DOES NOT provide us with any information we are not getting from other sources through multiple means.

It's also worth noting that there are steps before and after the characterization process. All the states that send waste to WIPP have hazardous waste rules of their own. On the other end of the process, WIPP will continue its extensive monitory system at the site to make sure that there are not chemical releases issues.

Let's not lose site of the goal of the characterization process. We're doing this to make sure the contents of the drums that are sent to WIPP are understood and can be properly handled. In my opinion, this change will in no way impact the safety of WIPP's workers.

Response: Comment noted.

2. Comment: Thank you for the opportunity to comment on the Department of Energy's Class 2 Permit Modification request to allow changes to the permit allowing disposal of hazardous materials at WIPP. This particular permit modification would eliminate the need for chemical sampling (through headspace testing and core sampling) before making the determination that a given waste stream of transuranic (TRU) mixed waste can be sent to WIPP.

In order to feel confident that this permit modification would not create a safety risk for either WIPP's workers or members of the community, I and several other members of Mayor Dale Janway's nuclear task force reviewed this request. We met with DOE employees and WIPP contractors on several occasions to ask questions, and we appreciate their diligence in providing us with the answers. Our goal was to understand this request and make sure, from our point of view, that this is a safe change.

After this extensive review, we have come to the conclusion that this permit modification does not reduce the safety of WIPP workers because they are protected by sampling the workplace environment directly, and not through sampling that is conducted thousands of miles away. We encourage the State of New Mexico to approve this proposed modification. Our concern related to this issue is the men and women who work at WIPP making sure this change in no way increases the risk of exposure to harmful chemicals. We believe that monitoring in the WIPP underground is clearly the best preventive measure for this concern. WIPP's routine air sample collection for target gases down to part per billion sensitivity, and the process of isolating rooms when they are filled, is a vastly superior approach and is much more protective of the worker than chemical sampling of the waste containers themselves at a distant laboratory. Solids sampling by coring through solidified (usually cement) serves no useful purpose, because knowledge of the chemical content of the drums is known and because there is no liquid in the mine, there is no natural pathway for a solid to escape its matrix. Drilling into solids at the distant laboratory also puts workers there at risk unnecessarily. Another key to understanding this proposed change is the fact that it will in no way alter the rigorous requirements of what can be sent to WIPP. The historical data and records of what is in the drum (called acceptable knowledge), radiography (X-ray) and/or visual examination, and radioactivity measurement

requirements remain the same and have been proven to be sufficient to show whether a drum meets the requirements for shipment to WIPP. A waste drum that does not meet these requirements is not sent to WIPP.

The option of chemical sampling is still available, if needed, and the transportation system will independently confirm no flammable or explosive contents are in any shipment. The funding saved from this change should be invested in needed improvements at WIPP, such as infrastructure.

Most significantly, a monitoring system at WIPP ensures that WIPP's waste handlers and miners are not being exposed to dangerous levels of chemicals. WIPP's rigorous commitment to safety, if this permit change is approved, will be as strong as it always has been. Thank you for the opportunity to comment.

Response: Comment noted.

3. Comment: Over the past few weeks, myself and several other members of the Mayor's Nuclear Task Force have met with the DOE, Nuclear Waste Partnership, to review the Level 2 Proposed Modification to eliminate testing done at the waste generator sites. This testing of Head Space Gases and Core testing of Solid Waste does not provide any pertinent data that directly affects the worker safety nor the long term exposure of the environment at WIPP.

I have spent several days meeting with those closely involved with the proposal and I have asked a multitude of questions about these tests to scientists who are familiar with the process and the information obtained from the tests.

My conclusion is that because of all of the other extensive testing that is done prior to these drums being accepted by WIPP, and the proven accuracy of the Acceptable Knowledge of what the drums contain, that this current testing is not necessary. The resources used for these processes would be much more valuable to worker safety if they were focused on the operation and maintenance of the systems at the WIPP site.

Response: Comment noted.

4. Comment: I am very concerned that eliminating sampling of waste bound for WIPP would reduce health and safety protections because such analysis is still needed, including for the many waste streams that have not yet been sampled. NMED should deny the request. Any future requests to reduce or eliminate sampling should only be made after the kind of systematic approach recommended by the National Academy of Sciences [**NAS**] is carried out and made public and after representative sampling is done for waste streams that have not yet been shipped to WIPP.

Response: NMED has approved the PMR with changes and is not eliminating chemical sampling in its entirety. Revised condition 2.3.1.3 reads:

2.3.1.3. Waste Sampling and Analysis Methods

> If, at any time prior to shipment of a new waste stream or at the time of review of a revised waste stream profile form, the Secretary or Permittees identify a discrepancy regarding the assignment of hazardous waste numbers not authorized in Permit Table 2.3.4, the Permittees shall require the generator/storage site to perform additional evaluation/characterization of the waste stream that may include chemical sampling and analysis of the waste.
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> If the Secretary or Permittees determine that additional characterization is necessary using chemical sampling and analysis, the Permittees shall direct the generator/storage site to provide the Permittees with the following documentation:
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> a) Sampling and analysis plan
> b) EPA SW-846 test method(s), or functionally equivalent test method(s), to be used
> c) Identification of the laboratory(ies) that will be performing the test(s)
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> Upon request by the Secretary, the Permittees shall provide such documentation within 30 days after receipt from the generator.
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> Upon the Permittees written approval of the sampling and analysis plan, the generator/storage shall implement the sampling and analysis plan and modify the WSPF as appropriate. The Permittees shall provide copies of the approved plan and the results of all analyses to the NMED per Permit Attachment C, Section C-5a.

The NAS 2004 report contains recommendations developed nearly a decade ago. Major changes were made to the permit after this document's publication. The committee that developed the report met four times from October 2002 to May 2003 and much of the analysis and information is now obsolete. Regardless, the report also acknowledged that "The initial transuranic waste characterization program proposed by DOE to EPA and NMED was based on a conservative interpretation of regulatory requirements." It also states "The initial application of conservative requirements is not uncommon for a first-of-a-kind regulated facility, in part because regulators and permittees have no direct operational experience on which to base decisions. As operational experience and analysis lead to better understanding, some characterization activities could be modified, reduced, or eliminated and others added." This clearly indicated that revision and even elimination of requirements was anticipated.

Although the NAS recommended using a "systematic and quantitative approach to determine the value of the information currently obtained by its waste characterization activities and the impact of changes to them" it goes on to say "There are several approaches to achieve this goal. One example is a structured and quantitative analysis based on the value of characterization information collected. The value of characterization information is determined by how much the information contributes to waste handling, transportation or disposal decision. If the characterization information is not used in current or future decisions, then it has no impact, and therefore it has no value".

The Permittees provided an analysis in the modification request Appendix D– Evaluation of Approved Waste Stream Profile Forms (WSPFs) for Addition of EPA Hazardous Waste Numbers (HWNs) through Resolution of EPA HWN Assignment Using Chemical Sampling/Analysis as Required in the WIPP Hazardous Waste Facility Permit (Permit) Waste Analysis Plan (WAP). Since sampling began, the additional information gained by chemical sampling has not changed a waste stream disposal decision for the waste stream that was sampled.

In addition, a systematic analysis was provided to NMED during the 311 Modification (see "Appendix I – Response to Section 311 NOD Comments 3.2.t and 3.2.u" June 6, 2005).

5. Comment: I am chemist and resident of New Mexico and bring my perspective on these issues. Additionally, as a previous member of the Northern New Mexico Citizen's Advisory Board and having toured the storage facilities at Los Alamos and been informed of the range of materials and radiation stored there, I am simply astonished at the attitude that could possibly allow much higher level waste transit the State of New Mexico en route to WIPP. In the unforeseen event of an accident in transit, the immediate response, both public and first responders, would be at a serious disadvantage not knowing the level and character of the waste involved. Additionally, an error at the point of departure would also go undetected with the potential exposure of the public during transit and handing at WIPP.

Response: The Permit does not regulate transportation activities and transportation sampling is not part of the Hazardous Waste Bureau WIPP permit. Regulation 49 CFR 171.1 - Applicability of Hazardous Materials Regulations (HMR) to persons and functions addresses transportation and is not within NMED's regulatory authority.

Flammable (Gas/VOC) concentration limits and methods of compliance for transportation can be found at the DOE WIPP website.

6. Comment: DOE should [not] eliminate sampling of anything coming off the hill from Los Alamos. History has shown clearly that contamination goes hand in hand with nuclear products. Sampling is our only hope for keeping NM's water and air relatively clean.

Response: See response to comment 4.

7. Comment: The WIPP permit specifies the amount of sampling and the quality assurance measures that are required to ensure accurate results. Sampling is done for a certain number of containers of a waste stream, that is, of the waste generated by a single process. Identification of the chemical composition is important because the WIPP permit prohibits wastes and chemicals that explode, ignite, corrode, react or are chemically incompatible. Careful sampling protects workers at the originating sites and all those who handle the waste during transportation and at WIPP.

Sampling results were used in 2010 to identify which waste streams contained the carcinogen carbon tetrachloride that arrived at WIPP in higher than expected concentrations. Shipments of those waste streams were curtailed while measures were taken to reduce carbon tetrachloride in the underground air.

Furthermore, the National Academy of Sciences (NAS) recommended in 2004 that DOE should use a "systematic and quantitative approach to determine the value of the information currently obtained by its waste characterization activities" and the impacts of changes to them. The NAS suggested using this analysis to support requests for permit modification. No such analysis accompanies the DOE sampling modification request, nor has the public been provided with any of that information.

Response: Since sampling began, the additional information gained by chemical sampling has not changed a waste stream disposal decision for the waste stream that was sampled. The assertion that the referenced chemical sampling data was used for decisions to curtail shipment of waste streams high in carbon tetrachloride in 2010 is not correct. Shipments of those waste streams were indeed curtailed while measures were taken to reduce carbon tetrachloride in the underground air, but the subject chemical sampling and analysis did not play a role in these activities. NMED reviewed several documents including the Class 2 PMR pre-submittal meeting presentation from March 22, 2010 and did not find in the record that the wastes were identified by the subject chemical sampling. The Acceptable Knowledge Summary Reports CCP-AK-INL-001 Revision 9 (September 8, 2010) and CCP-AK-INL-005 Revision 3 (July 31, 2008) show that carbon tetrachloride was first identified in those waste streams through acceptable knowledge (AK). AK documents are prepared before sampling and analysis and with the help of VOC monitoring at the repository, decisions were made on how to best proceed with the disposal of these waste streams.

See response to comment 4 regarding the NAS recommendation and response to comment 16o for pertaining to carbon tetrachloride.

8. Comment: Again the people come after the profits! High times on Wall Street and hard times on Main Street. Now DOE doesn't even bother to try to protect the planet. Who needs testing to see if material is radioactive? How pathetic you people are!!!!!!!!!!!!

Response: The chemical sampling proposed to be eliminated is not used for radioactivity identification. The referenced sampling is used to resolve the assignment of hazardous waste numbers.

9. Comment: Good afternoon, I am writing in support of the DOE/CBFO's and the NWP's request to revise the waste analysis plan for waste characterization methods. In their plan, DOE/CBFO and NWP recommend eliminating the headspace gas sampling for non-solid waste and eliminating core-sampling for solid waste constituents claiming that the analysis creates additional costs but does not provide useful information in terms of waste characterization. In reviewing the information provided and by listening to presentations by DOE/CBFO and NWP staff, I concur that such methods are likely redundant and expensive and, as a result, do not provide additional benefits with respect to waste characterization. Further, I believe that current and on-going monitoring and analysis of the air within the repository and the waste panels for volatile organic compounds (VOCs) as well as for Hydrogen and Methane provides additional protections for the workforce that might be missed in the absence of the proposed change.

Therefore, I support the proposed modification to eliminate headspace gas and core sampling on the assumption that the repository and waste panels/waste rooms will continue to be monitored for the presence of volatile organic compounds (VOCs) as well as for the presence of Hydrogen and Methane. Should the agency or the contractor or both propose to eliminate or minimize monitoring and analysis of air within the repository, waste panels, or waste rooms at any point in the future with respect to VOCs, Hydrogen, and Methane, then I believe that headspace gas monitoring and core sampling of waste be reinstated as a measure of ensuring worker safety within the underground environment. For without either one, there will be no canary left in the

mine with respect to the presence of VOCs, Hydrogen, or Methane. Therefore, I believe that one or the other must be maintained, at all times, as a matter of employee protection until the repository is closed and shuttered to human access.

Response: Comment noted.

10. Comment: As a citizen of Carlsbad, I am always concerned about the safety of our citizens and the environment around our community. I have reviewed the proposed Class 2 WIPP permit change and do not believe that it will change the nature of what can be sent to the WIPP site. I understand that the historical data and X-ray requirements remain the same and still allow the Department of Energy to conclude whether a drum should be sent to WIPP. I also understand that any waste that does not meet these requirements, will not be sent to WIPP. Knowing this and understanding that this change will in no way adversely affect the safety of our citizens and workers at the WIPP site, I fully support the DOE permit modification as proposed.

Response: Comment noted.

11. Comment: This is a comment on DOE's plans to eliminate sampling of waste coming to WIPP. Frankly I am horrified that they would even propose this but nothing they do actually surprises me anymore. What is even more horrifying is that I no longer have faith that NMED will care to protect the citizens of New Mexico from this potential harm because it's been obvious for some time that you feel more kinship with DOE whom you are supposed to be regulating than with the folks and environment you are supposed to be protecting. I certainly hope you can prove me wrong in this instance.

The centerpiece of the transportation portion of the WIPP project has always been sampling. It was clear at the original hearing that DOE has very little idea of what is actually in the waste. Nothing has happened to change this and there are still waste streams waiting for shipment that have not been sampled.

Of course DOE wants to eliminate this expensive process but do not allow this. We must, at a minimum, know what is being transported on our highways to be emplaced at WIPP.

Response: NMED's mission is to provide the highest quality of life throughout the state by promoting a safe, clean and productive environment.

The Hazardous Waste Bureau WIPP Group's mission is to protect human health and the environment and to ensure compliance with applicable federal and state regulations ultimately achieving the safe disposal of TRU mixed waste by applying the regulations in a fair, rigorous and consistent manner while facing many inherent challenges.

See response to comment 5 for information regarding transportation.

12. Comment: In the overview of the permit modification request (**PMR**), the Permittees state, "*This proposed Permit modification does not restrict generator/storage sites from utilizing chemical sampling/analysis as a means for characterizing TRU mixed waste streams*." The

Permittees have determined that it is necessary to clarify the process by which a generator/storage site collects and submits additional chemical sampling and analysis information when the need for such information is identified by the Permittees during the waste stream approval process. During the Permittees' review of the Waste Stream Profile Form (**WSPF**), as required by Permit Attachment C, Section C-5a, the Permittees determine whether additional characterization information is needed to address discrepancies that have not been adequately resolved. The Permittees are proposing to add text to the Permit to request additional information from the generator/storage site under specific circumstances which would include, if needed, chemical sampling and analysis. At the Permittees' request, the generator/storage site may augment the acceptable knowledge information with chemical sampling and analysis data. However, the Permittees wish to assure that such chemical sampling and analysis is performed consistent with sound laboratory practice. To this end, the Permittees propose that, prior to collecting the data, the generator/storage site provide a sampling and analysis plan and laboratory identification to the Permittees for approval. The Permittees propose clarifying text to be inserted into the Permit Part 2, Section 2.3.1.3, which was deleted in its entirely in the PMR submittal. In addition, a revision to Figure C-2, "Waste Characterization Process" (Enclosure 1), is being proposed to reflect the following revised Permit text:

> 2.3.1.3. Waste Sampling and Analysis Methods
> If, at the time of waste stream profile form review and approval per Permit Attachment C, Section C-5a, the Permittees identify a discrepancy regarding the assignment of hazardous waste numbers not authorized in Permit Table 2.3.4, the Permittees shall require the generator/storage site to perform additional evaluation/characterization of the waste stream that may include chemical sampling and analysis of the waste.
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> If the Permittees determine that additional characterization is necessary using chemical sampling and analysis, the generator/storage site shall respond to the Permittees with the following documentation:
>
> a) Sampling and analysis plan
> b) EPA SW-846 test method(s), or functionally equivalent test method(s), to be used
> c) Identification of the laboratory(ies) that will be performing the test(s)
>
> Upon the Permittees written approval of the sampling and analysis plan, the generator/storage shall implement the sampling and analysis plan and modify the WSPF as appropriate. The Permittees shall provide copies of the approved plan and the results of the discrepancy resolution to the NMED per Permit Attachment C, Section C-5a.

Response: See response to comment 4 regarding revised language to be added to the permit.

13. Comment: The Permittees have determined that there is an inconsistency, in two separate locations, between the Table of Changes (Appendix A of the PMR) and the proposed text revisions to Table C6-1 (as presented in Appendix B of the PMR). In order to be consistent with the Table of Changes, the following revised Permit text is being proposed:

Table C6-1, Item 30, last bullet: "Use radiography or visual examination to verify the physical form of the waste matches its waste stream description as determined by AK and to verify the absence of prohibited items

Table C6-1, Item 56a, second bullet: "Radiography and visual examination summary to document that all prohibited items are absent in the waste and to verify that the physical form of the waste matches its waste stream description as determined by AK (if applicable)".

Response: Comment noted.

14. Comment: The Permittees have determined the need for an additional revision to Table C-1 (Enclosure 2). The revision proposed in the PMR deleted the row entitled "Newly Generated Waste" but did not delete the row entitled "Stored Waste." Since the waste parameters and characterization techniques are the same for both retrievably stored and newly generated waste, there is no need to distinguish between these two waste types in the table, and the Permittees propose the attached revised table to delete the "Stored Waste" row.

Response: Comment noted.

15. Comment: In our industry, protection of our work force, the public, and the environment is paramount. The foundation upon which this protection is based is our detailed knowledge of the waste we process. We gather a great deal of information about the waste before we begin to process it. We know who generated it, where it was generated, and when it was generated. We have a comprehensive understanding of the processes involved with generation of the waste, including what chemicals were used, how they were used, the radioisotopic content, handling operations, packaging configurations, and storage. We compile all of this information into a summary document, which includes references to every document we reviewed and used. All of the reference documents are maintained on file.

We then perform characterization of the waste, which means we either X-ray the waste or visually examine every container, measure the types and amounts of radiation emitted from every container, perform statistical sampling on a few containers to check the chemical content of the waste stream, and measure or determine the flammable gas concentrations of every container. All of this is done to ensure that the information we gathered is correct.

The current PMR proposes to eliminate the requirement for the statistical sampling to check the chemical content of the waste stream. AMWTP strongly endorses this change, for two significant reasons.

First, for all of the sampling events we have performed at the AMWTP, which amounts to over 35,000 head space gas sampling events, and 400 coring events, with all of the associated laboratory work spanning nearly a decade, we have never found our gathered information to be incorrect. Consequently, the AMWTP has never added a hazardous waste identification number to any of our waste streams, based on the sampling and analysis work. As such, we believe there is no benefit to continuing this sampling and analysis.

Second, we minimize opening the waste containers wherever we can, in order to minimize the risk of exposure to our workers. Waste sampling and analysis work for coring is by definition intrusive, and requires each affected container be opened. While we go to great lengths to ensure this operation is conducted safely, the fact remains that opening waste containers involves some risk. We believe that in the case of sampling, this risk is unnecessary, and should therefore be eliminated.

Response: Comment noted.

16. Comment: NMED must deny the modification request. Pursuant to 20.NMAC 4.1.900 (incorporating 40 CFR §270.42(b)(7)), NMED may deny the class 2 modification request for any of three reasons. SRIC believes that denial is required because the request is deficient under each of the three criteria — the request is not complete, the request does not meet the requirements of the Resource Conservation and Recovery Act (RCRA) and the Hazardous Waste Act (HWA), and the request does not demonstrate that the changes requested will protect human health and the environment. SRIC notes that on several occasions, including as recently as January 31, 2012 and as far in the past as March 26, 2001, NMED has denied class 2 modification requests. Thus, NMED has ample precedent, as well as the legal authority, to deny the request. While NMED also has legal authority, and precedent, to approve a class 2 request with changes, it cannot do so for the present request.

A. The request is not complete. 40 CFR §270.42(b)(7)(i). On page 4 of the modification request Overview, the permittees state:

> This proposed Permit modification does not restrict generator/storage sites from utilizing chemical sampling/analysis as a means for characterizing TRU mixed waste streams. For instance, generator/storage sites may need to conduct chemical sampling/analysis of some waste streams to resolve discrepancies in AK information and complete a hazardous waste determination as required by 40 CFR 262.11. In such cases, the chemical sampling/analysis information and data would be incorporated into the AK record for those waste streams.

However, if the chemical sampling and laboratory analysis provisions of the permit are eliminated, as permittees propose, there is no basis for NMED to determine whether such "voluntary" sampling is done, that it is accurate, and that the methods and procedures, including quality assurance and quality control, are consistent with the existing requirements regarding how each site conducts such sampling. The provisions of the WIPP permit have established – and must continue to provide – such requirements. If the generator/storage sites "may need" to conduct sampling and analysis, then such procedures must remain in the permit. Permittees' statement is clear evidence that sampling and analysis must remain part of the Waste Analysis Plan (WAP) and must continue to be included in the permit.

Response: NMED is including language to ensure that chemical sampling will be conducted when it is determined to be necessary. See response to comment 4 for additional information.

16a: Moreover, if the permittees want sampling to be reduced to those waste streams that have "discrepancies," the permittees must submit a modification request that proposes revised language and the need to accomplish that result, which they have not done. Thus,

the request is incomplete, and it also cannot be approved with changes because the language for such reduced sampling has not been proposed or publicly discussed.

Response: See comment 4.

16b: On page 5 of the modification request Overview, the permittees state:

> There are about 60 future waste streams identified in the ATWIR as either WIPP-bound waste (ATWIR Appendix A) or as potential waste (ATWIR Appendix B). This inventory represents a final-form volume of about 9,800 cubic meters of TRU waste. Of this total, no HWNs are specified for approximately 6,900 cubic meters. For the most part, this is because the AK record has not yet been compiled for this waste. Because the descriptions of these waste streams indicate they are generated by processes that generated waste already shipped to the WIPP facility, the Permittees have no reason to anticipate that these waste streams will require chemical sampling/analysis in order to complete the characterization process.

The permittees have not correctly described that 2012 Inventory. Its Table 3-1 shows that there are 68,000 cubic meters of contact-handled (CH) waste in final form at 13 sites that could be shipped to WIPP in the future. That 68,000 cubic meters, not 9,800 cubic meters in about 60 waste streams, is the amount of waste that must be considered. For example, Table 3-1 shows that the Hanford (Richland) Site CH anticipated volume is 20,100 cubic meters. Hanford has shipped less than 5,100 cubic meters of CH waste to WIPP (or about six percent of the total CH waste volume at WIPP). The permittees have provided no basis to conclude that the remaining waste, which is four times the amount of that shipped, will not require any sampling and analysis. Thus, at best, the permittees have provided incomplete information about Hanford waste.

Response: The focus of the Permittees' statement in the PMR overview is on identification of specific waste streams for which there may be insufficient information. The Annual Transuranic Waste Inventory Report (ATWIR) Table 3-1 does not contain waste-stream specific information, so it is not useful as part of the analysis. The Permittees' statement focuses on waste for which little information is known, not waste that has been identified to a sufficient degree for inclusion in the ATWIR Appendix A. These wastes can be found listed in the ATWIR Table 4-1 and ATWIR Appendix B. In addition, the Permittees included in the analysis several waste streams in the ATWIR Appendix A that are identified as new waste streams in the list in the ATWIR Appendix C (i.e., waste not in the previous ATWIR) (14 waste streams). Four waste streams in the ATWIR Appendix A were excluded because they either were not yet determined to be defense waste or they contained polychlorinated biphenyls. There are three waste streams listed in both ATWIR Table 4-1 and ATWIR Appendix C.

16c: SRIC believes, based on past experience of incomplete and inaccurate AK at various sites, and the relatively small amount of Hanford waste that has had chemical sampling, that the permittees "anticipation" that no sampling/analysis will be required is unjustified and inaccurate. Transuranic waste so far emplaced at WIPP is predominantly from the Rocky Flats Plant (more than 65 percent of the CH has been shipped directly from Rocky Flats and in the INL wastes that are mostly from Rocky Flats). Hanford generated transuranic waste from significantly different

processes, and most of that waste has not yet been subjected to sampling and analysis. SRIC believes that sampling and analysis will be necessary and must be maintained in the permit.

Response: The comment is expressing an opinion based on volumes and not waste analysis results. NMED is unaware of the "incomplete and inaccurate AK" that is referenced in the Comment. The Permit has specific requirements in Permit Attachment C4 for AK that must be met, and the Permittees are not proposing changes to the AK compilation requirements in Attachment C4. The Permittees have characterized much of the waste at Hanford, since a large number of waste stream profiles have been submitted and approved for Hanford, even though not all of the waste has been shipped. Twenty-two Hanford WSPFs have been submitted and approved by the Permittees. Two of these were submitted first by the Hanford project and subsequently by CCP. The total volume of waste reported in these approved WSPFs (removing the two CCP redundant profiles) is 13,773 cubic meters. This is 69 percent of the waste reported in ATWIR Table 3.1. Hanford has identified the hazardous waste numbers (HWNs) that they anticipate to be included in their waste, and they match the list in the Permit (with one exception, Hanford lists D041 as a possible constituent in three waste streams).

16d: There are also sites (Knolls Atomic Power Laboratory-Nuclear Fuel Services, Lawrence Berkeley National Laboratory, Material and Fuels Complex, and Nuclear Radiation Development) included in Inventory Table 3-1 that have yet to ship any waste to WIPP. The request does not discuss those four sites, and the permittees have not demonstrated that wastes from those sites, which also differ from the Rocky Flats processes, have been sampled in accordance with the WIPP permit, since those sites have not be audited or certified. Again, at best, the permittees have provided incomplete information that chemical sampling and analysis is not needed at those sites. SRIC believes that it is likely that at least some of those four sites and waste streams also will have inadequate AK and that sampling and analysis will be required.

Response: The information in Table 3-1 does not lend itself to waste-stream specific conclusions such as those drawn by the commenter as discussed in comment response above. With reference to four small sites (Knolls Atomic Power Laboratory [KAPL]-Nuclear Fuel Services, Lawrence Berkeley National Laboratory [LBNL], Materials and Fuels Complex [MFC], and Nuclear Radiation Development [NRD]), KAPL is the only site that has not asked DOE (and therefore WIPP) to dispose of its waste yet. Waste generated at LBNL was sent to Idaho National Lab, where it was characterized, processed, and disposed of as stream ID ID-LBNL-S5400. NMED audited the waste and reviewed the WSPF. MFC produced waste stream ID-HFEF-S5400-RH which was characterized, processed and then disposed at WIPP. Again, NMED audited the waste and reviewed the WSPF. NRD generated waste stream ID-NRD-1 which was sent to INL where it was characterized, processed and then shipped to WIPP for disposal. This information is available on the WIPP Webpage under WWIS.

16e: The modification request does not discuss the impact of eliminating chemical sampling and analysis related to additional Hazardous Waste Numbers (HWN). Currently, the permit sections C-3(d) and C3-1 include procedures for including Tentatively Identified Compounds (TICs) in headspace gas and solids sampling. TICs can also result in assigning of new Hazardous Waste Numbers to the permit. Without the sampling and analysis procedures, TICs will no longer be identified and accurate HWNs may not be in the permit, especially for future waste streams that contain different chemicals than in waste streams already subject to chemical sampling and

analysis. The permittees have not presented definitive evidence that additional HWN would not be required for future waste streams. The request does not discuss this issue and is incomplete.

Response: The TIC process is a standard protocol to assist the analyst in understanding chemical constituents in the waste. The Permit specifies what to do if TICs are identified and meet criteria in the Permit to become target analytes. There have been no Environmental Protection Agency (EPA) HWNs identified during chemical sampling/analysis of a waste stream which were not already allowed by the Permit. In other words, the results of sampling/analysis have never prompted a request to modify the Permit to add hazardous waste numbers. The only time this would be necessary is if a TIC was identified indicating the presence of a toxicity-characteristic hazardous constituent not already allowed by the Permit. The Permit currently allows all toxicity-characteristic HWNs with the exception of those associated with pesticides, fungicides, and herbicides, which are highly unlikely to be in the waste in concentrations above or equal to the toxicity-characteristic values in 40 CFR §261.24, Table 1. In addition, the use of sampling/analysis for the application of listed hazardous waste numbers is not appropriate since determining whether a waste is a listed waste is solely a knowledge-based evaluation.

16f: On pages 7-8 of the modification request Overview, the permittees state:

> the New Mexico Environment Department (**NMED**) referred to a recommendation by the National Research Council [footnote omitted] for a systematic analysis to support waste characterization reductions. The NMED narrowed the focus of the scope of the National Research Council request to the Permit and the requested modification. The Permittees provided the requested information in the response to the NOD identified as "Appendix I, Response to NOD Comments 3.2.t and 3.2.u." The conclusion from that study for headspace gas sampling and analysis (**HSGSA**) was: "Generally, AK information is sufficient to assign HWNs. There may be situations, however, when the AK information is not sufficient to resolve the HWN assignment for debris waste. In these cases, the generator/storage site will use HSGSA in accordance with the sampling approach in the revised PMR to sample and test a representative portion of the waste stream." Data collected since then and discussed above have shown that even this reduced amount of HSGSA is not needed. Similarly, the conclusion regarding solids sampling and analysis (SSA) was: "Eliminating SSA for every container does not reduce the reliability of the HWN assignment made by the generator/storage site because, generally, AK information is sufficient to assign HWNs. There may be situations, however, when the AK information is not sufficient to resolve the HWN assignment for homogeneous solids waste." Data collected since then and discussed above have shown that even this reduced amount of SSA is not needed.

There are several aspects of that discussion that are incomplete. First, that Response to NOD omits the portion that states that "few (2.8%) changes in the assignment of HWNs from AK have resulted from subsequent chemical testing." at 7. Since that calculation was based on "1,496 assignments of HWNs" (see Table 2), there were 42 changes in HWNs from chemical sampling and analysis. That information is not provided with this request, and contradicts the analysis in Appendix D of the request, which uses a different methodology. Not using the same methodology as in 2004 and not discussing the higher number of HWNs being changed is a significant incompleteness as well as clearly inaccurate.

Response: Metric 3, as described on Page 7 of the NOD response, involved the confirmation of F-listed solvent assignment using headspace gas sampling/analysis. These HWNs were conservatively added to the waste streams if the presence of the solvents could not be explained as a result of container packaging or radiolysis. The two methodologies were the same in that AK accuracy was evaluated as it pertained to the reassignment of HWNs as a result of chemical sampling/analysis alone; however, the methodology presented in Appendix D of the Permit Modification Request (PMR) is more comprehensive than that presented in the NOD response because it evaluates results of both headspace gas and solidified waste sampling/analysis and includes additional data collected since that time. The Appendix D evaluation was also conducted on a waste-stream basis instead of a container basis. As stated in Appendix D, 7.6% of the WSPFs evaluated had HWNs added due to the resolution of HWN assignment using chemical sampling analysis; this translates to an AK correctness of 92.4%. In the case of Metric 3, conducted on a container basis, the correctness was 97.3%. The conclusion of the Appendix D evaluation, in addition to the conclusions drawn in the NOD response for Metrics 3 and 4, is that the AK correctness associated with the assignment of EPA HWNs is sufficiently high to justify the sole use of AK for determining the proper assignment of HWNs to a waste stream.

16g: Second, that NOD Response specifically stated that headspace gas sampling and analysis (HSGSA) would continue on a minimum number of representative samples of the waste stream. at 16. That requirement was a significant reason that SRIC agreed to the reduced sampling in the Section 311 "Monster Modification." Hearing transcript at 1082-1083, June 2, 2006, HWB 06-01(M). Keeping some sampling and analysis was also important to NMED's draft permit. Hearing transcript at 1194-1996, June 3, 2006, HWB 06-01(M). Not fully describing the NOD Response and the importance of continued HSGSA to SRIC and NMED and in the Secretary's decision to approve the "Monster Modification" is a significant incompleteness.

Third, that NOD Response specifically stated that solids sampling and analysis (SSA) would continue on a minimum number of representative samples of the waste stream. As with HSGSA, that was a significant reason that the reduced sampling was agreed to in the "Monster Modification" by SRIC and NMED. Importantly, in sworn testimony at the hearing on that modification request, the permittees expert witness stated: "Yes, there are waste streams that will require sampling." Hearing transcript at 177, June 1, 2006, HWB 06-01(M). Not fully describing the NOD Response and the importance of continued SSA to SRIC and NMED, the permittees own sworn testimony, and in the Secretary's decision to approve the "Monster Modification" is a significant incompleteness. Moreover, the permittees' sworn testimony has not been retracted or shown to be inaccurate, so there is no adequate technical basis for the elimination of sampling.

Response: The Hearing Transcripts at 177, June 1, 2006 are the cross examination of Wayne Ledford, CTAC and primary witness for the Permittees by Don Hancock of SRIC. The questions asked were directed on the subject of AKSD. The most typical AKSD submittal scenario is for a stream that cannot be sampled and only the AK can be utilized for approval for eventual disposal. The line in Hearing Transcripts at 177 is taken out of context. The response to the question posed regarded the topic of AKSD, not chemical sampling. The segment of the cross examination had started out discussing the new items in the Class 3 referred to as RH/311, in which Mr. Hancock asked questions pertaining to the AKSD with a question of how many streams would undergo the AKSD process. Mr. Ledford answered that he had no idea and that

he had no way of predicting that. Prior to this AKSD segment, Don Hancock had several questions pertaining to Confirmation.

From the transcript:

> Mr. Hancock asked "Okay. Another part of your testimony related to the AKSD, or the acceptable knowledge sufficiency determinations. Do you know how many streams that an AKSD will be requested for?"
> Mr. Ledford answered "I have no idea. I have no way of predicting that".
> Mr. Hancock asked "Is it your – based on your experience, do you think that all the waste streams that currently don't have waste stream profile forms would go through an AKSD process?"
> Mr. Ledford answered "Based on my experience, that's very unlikely that all waste streams that don't have approved waste stream profile forms would go through that process."
> Mr. Hancock asked "And why is that?"
> Mr. Ledford answered "Well, it's been my experience that, if you send a document to New Mexico Environment Department, it will get a thorough review. So it will – in some cases, it will be a simpler matter to go do sampling and analysis than down the path of requesting that."
> Mr. Hancock asked "Is it possible that there are waste streams, maybe particularly debris waste streams, that are pretty heterogeneous, and you might, in fact, actually need to do sampling in order to make sure that everything is all right?"
> Mr. Ledford answered "Absolutely."
> Mr. Hancock asked "and for example, there are no prohibited items?"
> Mr. Ledford answered "Yes, there are waste streams that will require sampling."

If additional data and analysis supports a new or revised method, previous testimony does not need to be retracted or shown to be inaccurate.

The Permittees have also acknowledged that chemical sampling/analysis may be required. See comment 12 and response to comment 4.

16h: Fourth, while the Overview does mention the National Research Council Report, it does not mention its main recommendation.

> **Recommendation 1:** DOE should use a systematic and quantitative approach to determine the value of the information currently obtained by its waste characterization activities and the impact of changes to them. This approach should also be used to support permit modification requests and communicate with the public. The approach should include analyses of the following types:
>
> - an assessment of the risks of transuranic waste handling transportation, and disposal activities, including the current characterization activities; and
> - an assessment of the impacts-risks, costs, and other impacts, including policy and societal impacts of changes to the current waste characterization activities.
>
> National Research Council, 2004, "Improving the Characterization Program for Contact-Handled Transuranic Waste Bound for the Waste Isolation Pilot Plant", Washington, D.C. at 3, **emphasis in original.**

Not only does the request not mention that main recommendation, but neither in the request nor in any referenced document with the request have the permittees provided that recommended systematic and quantitative analysis. SRIC specifically raised the National Research Council Report recommendation at the pre-submittal meeting, so we are concerned about the request not adequately addressing that issue.

Response: The executive summary of the report contains six findings and recommendations. Recommendation 1 is not specifically the main recommendation. While the National Research Council report offers recommendations for a systematic and quantitative approach for evaluating the value associated with waste characterization activities, there are no RCRA regulatory requirements for conducting such evaluations or providing the results of such evaluations in permit modification requests. The PMR has provided an evaluation of waste stream profile forms that have been approved to date, has provided the results of that evaluation in Appendix D, and draws the conclusion that continued chemical sampling/analysis does not provide information needed for decision-making with respect to the storage or disposal of TRU mixed waste at the WIPP facility. See responses to comment 4 for additional information.

16i: Thus, the request is incomplete. SRIC also believes that the permittees have fundamentally misrepresented that Report by not focusing on the basic recommendation and instead cherry-picking a few sentences, even though the excerpts do not support total elimination of sampling and analysis.

Response: The report is comprehensive and includes over 100 pages of analysis and recommendations. See response to comment 4 for other sections of the report that have particular relevance to this PMR.

16j: Fifth, the National Research Council Report looked at the accuracy of acceptable knowledge (AK). at 48-49. The findings included:

> There is great variability in AK accuracy (degree of agreement between observed measurements and the "true" value) among sites….Therefore, it is unclear how AK accuracy varies among different waste streams and among different waste sites. at 49.

That finding further shows that the permittees' claimed accuracy of AK in the modification request is not warranted. But not addressing the National Research Council Report's findings about AK is another clear example of incompleteness in the request.

Response: As discussed in response to comment 4, the NAS 2004 report contains recommendations developed nearly a decade ago. Major changes were made to the permit after this document's publication including the addition of confirmation requirements. It is also important to note that the AK characterization process has improved significantly over the last decade. In addition, there are no RCRA regulatory requirements for conducting such evaluations or providing the results of such evaluations in permit modification requests.

16k: Sixth, the National Research Council Report collected waste characterization cost data. at 49-51 and 62-64. On page 7 of the request Overview, the permittees state:

> It is currently estimated that approximately $5,000,000 per year in chemical sampling/analysis costs could be saved by the Central Characterization Project (**CCP**) and the Advance [sic] Mixed Waste Treatment Project (**AMWTP**) combined with the approval of this PMR.

However, there is no detailed breakdown of characterization costs, nor comparison of current costs to those calculated in 2003 and including in the National Research Council Report. In addition, there is no data on the costs of confirmation, which were not included in that Report, because that process did not exist at that time. Again, the request is incomplete and the cost estimates should not be deemed reliable because they greatly vary from those subjected to independent review in the National Research Council Report.

Response: The estimated $5,000,000 was based on annual expenditures pertaining to solidified waste coring, solidified waste analysis, and headspace gas sampling/analysis by both the Central Characterization Project (CCP) and the Advanced Mixed Waste Treatment Project (AMWTP). These figures reflect a negotiated fixed cost between the DOE and the contracted laboratories/coring facilities. It is not appropriate to compare these cost estimates with figures from 2003 since there are differences in the types of waste being analyzed and the number of sites characterizing waste.

Regardless, NMED agrees that the cost associated with mandatory chemical sampling/analysis is unwarranted since the information gained from such activities is not used to make decisions regarding the management of waste at the WIPP facility. The cost of waste confirmation, which involves only radiography and visual examination, remains unaffected with the removal of chemical sampling/analysis requirements from the Permit.

The Permittees have followed the regulations at 40 CFR §270.42(b) in preparing the Class 2 PMR submittal and have ensured that each element described in 40 CFR §§270.42(b)(i) through 270.42(b)(iv) have been included in the PMR Overview.

16l: B. The request does not meet the requirements of the HWA and RCRA. 40 CFR §270.42(b)(7)(ii). On page 3 of the modification request Overview, the permittees state:

> This proposed Permit modification is necessary to eliminate redundancy in waste characterization by removing the requirement for generator/storage sites to characterize their wastes using chemical sampling/analysis, thereby reducing waste characterization complexity, cost, and personnel radiation exposure.

That explanation is not consistent with Environmental Protection Agency (EPA) guidance document OSWER 9938.4-03, "Waste Analysis at Facilities that Generate, Treat, Store, and Dispose of Hazardous Waste." That document states:

> This preference for corroborative testing, even though it arguably may be redundant, is designed to ensure that the waste is what others have represented it to be (even if the generator also tested the waste or certified that it meets LDR requirements) and provides reinforcement that it will meet LDR treatment standards prior to land disposal. at 1-11.

The EPA guidance document further states:

> Wherever feasible, the preferred method to meet the waste analysis requirements is to conduct **sampling and laboratory analysis** because it is more accurate and defensible than other options. Id., **emphasis in original**.

Thus, redundancy through testing is the EPA preference, and such redundancy, contrary to the permittees assertion, is certainly not a regulatory reason to eliminate chemical sampling and analysis. Of course, given that explicit EPA guidance, it is not credible for the permittees to state in Appendix E of the request that they "have been unable to find federal or state guidance that recommends the use of redundant methods for determining waste parameters." at E-3.

Response: The reference to the EPA guidance document at page 1-11 pertains to corroborative testing, on a periodic basis, by treatment and disposal facilities to ensure compliance with the LDR requirements. This excerpt from the guidance document is from Section 1.4.2, "Specific Waste Analysis Requirements," that addresses specific waste management methods and associated requirements that are in addition to the general waste analysis requirements of 40 CFR §264.13. As stated in the PMR, the LDR requirements are not applicable to the waste designated by the Secretary of Energy for disposal at the WIPP facility. Therefore, this requirement for redundancy, which would involve chemical sampling/analysis for the purposes of ensuring compliance with the LDR treatment standards, does not apply.

The PMR does acknowledge that, for the purposes of fingerprint analyses, corroborative and redundant testing is appropriate for the purposes of verifying that the waste received at the WIPP facility matches the expected characteristics of the waste, as determined by the generator/storage sites. This corroborative testing is accomplished through the TRU Waste Confirmation Program, which involves the use of radiography and/or VE to verify fingerprint parameters, and remains unaffected by the proposed modification to the Permit.

As also described in the PMR, the EPA guidance document states that "[w]herever feasible, the preferred method to meet the waste analysis requirements is to conduct **sampling and laboratory analysis**" [emphasis in original]; however, the document further states in the next paragraph that "generators and TSDFs can also meet waste analysis requirements by applying acceptable knowledge. **Acceptable knowledge** can be used to meet all or part of the waste analysis requirements" [emphasis in original]. The PMR also provides a RCRA citation from the general waste analysis requirements of 40 CFR §264.13(a)(2) as justification for using AK to characterize TRU mixed waste and provide the information needed for decision-making regarding the storage and disposal of TRU mixed waste at the WIPP facility.

16m: The request emphasizes that eliminating redundancy also is based on the Joint EPA-NRC Guidance related to mixed waste and includes that guidance as Appendix C of the request. SRIC agrees that it is appropriate to limit worker radiation and hazardous chemical exposure, and the permit has always allowed methods to reduce exposures. The Joint EPA-NRC Guidance states (not cited in the request): "The use of waste knowledge alone is appropriate for wastes that have physical properties that are not conducive to taking a laboratory sample or performing laboratory analysis." Appendix C-5. But, as shown by the historic practice of the past 13+ years, most

WIPP waste streams are conducive to sampling and analysis. Thus, the Joint EPA-NRC Guidance is not an adequate basis for the elimination of sampling and analysis, especially when it has been the historic practice at WIPP for almost 14 years.

Of course, the fact that the request is incomplete, as discussed in 1.A. above, also shows that the request does not meet the HWA and RCRA regulatory requirements.

Response: The joint EPA/NCR guidance on testing mixed waste emphasizes the use of knowledge to characterize mixed waste to "eliminate unnecessary or redundant waste testing." The PMR demonstrates that chemical sampling/analysis is 1) unnecessary because waste management decisions are not based on the results of chemical sampling/analysis and 2) it is redundant to the use of AK for determining applicable EPA HWNs.

16n: C. The request does not demonstrate that eliminating sampling and laboratory analysis will protect public health and the environment. 40 CFR §270.42(b)(7)(iii); §74-4-4 NMSA. As has been discussed in 1.A and 1.B above, sampling and analysis is needed in the future for at least some waste streams from some sites. Without such sampling and analysis, toxic chemicals that are not allowed by the permit or in concentrations that endanger public health and the environment could come to WIPP. Therefore, completely eliminating chemical sampling and analysis is not protective of public health and the environment.

Response: Sampling will be required when necessary and appropriate. See response to comment 4 regarding revised language to be added to the permit.

Further, the permittees misrepresent the past history of usefulness of sampling and analysis in protecting public health and the environment. On page 3 of the modification request Overview, the permittees state:

> The information gained from chemical sampling/analysis activities is not used to make decisions regarding the storage and disposal of transuranic (**TRU**) mixed waste at the WIPP facility and is not required to meet the Resource Conservation and Recovery Act (**RCRA**) regulations.

On the contrary, sampling and analysis has been used "to make decisions" about TRU mixed waste. The permittees agree that sampling and analysis has been used between April 8, 1999 and March 15, 2012 to determine hazardous waste numbers on four waste streams. at Appendix D-3. As noted on page 4 above, the National Research Council Report showed that sampling and analysis resulted in additional HWNs on at least 42 occasions.

Response: The Permit required that decisions be made regarding waste management at the WIPP facility based on chemical sampling/analysis from 1999 to 2006. At that time, a modification to the Permit substituted the room-based volatile organic compound monitoring for the practice of evaluating room concentrations based on the results of chemical sampling/analysis. Therefore, it is important to distinguish between the pre-2006 and post-2006 time periods when referring to the decision-making importance of chemical sampling/analysis. The Permittees' statement regarding this PMR is that chemical sampling/analysis results are no longer being used for WIPP decision-making at the WIPP facility. This statement applies to

current conditions and not the previous pre-2006 time period. Furthermore, chemical sampling used in the past did not result in the identification of a HWN for a waste stream that is not already allowed by the Permit and thus, did not affect any decision on how waste is managed, stored, and disposed of at the WIPP facility. Shipping waste that is authorized by the Permit does not constitute an increased risk to human health and the public. However, when a new hazardous waste number is identified via AK, it must be demonstrated to be compatible at the WIPP facility and the number added to the Permit through the permit modification process.

As previously discussed, the National Research Council Report was written in 2004. One portion of the study reviewed the number of times that containers had to add EPA hazardous waste codes. At that time, every mixed TRU waste container underwent chemical sampling and analysis. There were 39, 430 TRU waste containers deposited at WIPP from the time that the Permit was issued to December of 2003. On 42 occasions out of 39,430 updates were necessary (0.106%).

16o: In addition, chemical sampling and analysis provided essential data to determine which waste streams caused the unexpected amounts of carbon tetrachloride that were detected in the underground air sampling in 2009 and 2010, and which waste streams did not have significant amounts of carbon tetrachloride. The permittees initially stated that "the main contribution of carbon tetrachloride appears to be from wastes in filled panels (Panels 3 and 4)." Letter from Moody and Sharif to Bearzi, November 17, 2009, at 2.

However, examination of chemical sampling and analysis data on Waste Streams ID-RF-S3114 and ID-SDA-Sludge showed that those two waste streams were primary contributors to carbon tetrachloride emissions. Those waste streams were being placed in panels 4 and 5. Therefore, DOE revised its understanding and took actions. Letter from Moody to Hancock, January 14, 2000. At least three decisions were made and implemented as a result of that revised understanding. First, new bulkheads were installed in Panel 5 to reduce the levels of carbon tetrachloride. Second, a planned change request was submitted to allow installation of a granulated activated carbon system at the exhaust of Panel 4 to reduce the amount of carbon tetrachloride emissions. Third, some shipments from those waste streams were curtailed and some containers from those waste streams with high amounts of carbon tetrachloride were overpacked to reduce the amount of carbon tetrachloride released through the container vent filters.

Therefore, sampling and analysis has been used to protect public health and the environment from hazardous waste. In the future, it is certainly possible that knowledge about the concentrations of particular chemicals in waste streams will again help make decisions. If there are no sampling data available, such decisions would not have adequate information. With sampling and analysis, the additional information could be available. Thus, the request to eliminate all sampling and analysis provisions of the permit is not protective of public health and the environment.

Response: As discussed in response to comment 7, NMED reviewed the record and correspondence and did not find this documented in the record. The referenced letter states: "The main contribution of carbon tetrachloride appears to be from wastes in filled panels (Panels 3 and 4). Therefore, the Permittees have taken actions to reduce VOC emissions from those

panels. The Permittees are currently evaluating the results of those actions and are considering other alternative actions and monitoring (e.g. surface monitoring) that we would like to discuss with you or your staff." In addition, none of the statements in the comment indicate that the Permittees stated in their correspondence regarding the management of high carbon tetrachloride waste that such management relied on Permit-required sampling and analysis.

Carbon tetrachloride emissions are due to volatile organic compounds in the headspace of drums. Measuring carbon tetrachloride content of the matrix does not necessarily provide useful information regarding the concentration of emissions. At the time that the Permittees were dealing with high carbon tetrachloride, headspace gas sampling/analysis of the two waste streams mentioned by the commenter were not being performed since these are homogeneous solids which are not required to undergo headspace sampling per the Permit. Therefore, no decisions could have been made based on chemical sampling/analysis required by the Permit. Sufficient information was available from other sources, such as AK and non-RCRA sampling programs (i.e., transportation), to identify the high volatile organic compound waste streams so that the Permittees could manage them in a manner that prevented the repository limits from being exceeded.

See response to comment 7 for additional discussion regarding identification of the waste streams high in carbon tetrachloride.

16p: 2. <u>The request also has other deficiencies</u>.
On pages 8-9 of the modification request Overview, the permittees state that use of the Acceptable Knowledge Sufficiency Determination (AKSD) provisions of the permit

> is inefficient and inappropriate for the following reasons: 1) a list of waste streams for which a Determination Request may potentially be submitted for the upcoming federal fiscal year must be submitted by July 1 of each year; 2) the NMED cannot evaluate more than one Determination Request at a time; and 3) the Permit does not prescribe a time frame by which the NMED must provide its concurrence with a Determination Request.

SRIC notes that the AKSD provision was specifically included to address situations in which sampling and analysis are shown to be unnecessary. The three reasons cited related to AKSD are insufficient and inadequate. If the listing of potential AKSD waste streams needs to be more frequent, the permittees could submit a modification request and justify that change. The permittees could also submit a modification request and justify a time frame for NMED's concurrence. How many AKSDs NMED can evaluate at one time is a function of funding and staff, which could be remedied by the permittees providing the additional necessary funding. Moreover, a significant reason, not mentioned in the request, that NMED's review of the AKSDs so far submitted have taken the timeframes described is because the permittees' submissions have been incomplete, requiring NMED to issue Notices of Deficiency. The permittees have then taken months to submit additional information. Complete and accurate submissions would reduce the time needed by NMED, as demonstrated by the fact that NMED has taken as little as nine weeks once adequate information was submitted for waste stream SR-RL-BCLDP.001. For other AKSDs, NMED has taken only a few months to issue its evaluations, once complete responses have been submitted.

Thus, if the AKSD provision is maintained in the permit, it should be the means to address waste streams for which the permittees believe AK is sufficient. If AKSD is "inefficient and inappropriate," as the permittees state, then the provision should be eliminated from the permit.

Response: The Permittees requested to revise the characterization process by eliminating unnecessary testing that rather than seek improvement to the existing AKSD process. There is no regulatory basis to deny this approach.

16q: More recently, the permittees permit renewal application and technical testimony regarding the permit renewal continued to support the need for representative chemical sampling and laboratory analysis. See Permittees' Notice of Intent to Present Technical Testimony; HWB 10-26 (P), July 16, 2010; Testimony of J.R. Stroble, pages 4-9. Eliminating sampling and analysis could have been part of the permit renewal process, including the extensive public comment, negotiations, and hearing processes. Such a fundamental change in the WIPP WAP should be subject to similar class 3 permit modification processes. Moreover, as SRIC suggested at the pre-submittal meeting, this request and that for changes in underground VOC monitoring could be considered as a class 3 permit modification request.

Response: The Permittees' Notice of Intent to Present Technical Testimony; HWB 10-26 (P); July 16, 2010; Testimony of J. R. Stroble, pages 4-9 was a reiteration of the permit requirements at the time. It was not a statement of agreement with the need for the requirement. The testimony was never heard during the hearing of the Renewal of the Permit and was one of many documents that were intended and submitted for the hearing. The correct citation of the testimony should be page 7, third paragraph and not pages 4-9, as this paragraph discusses the sampling and analysis. The other portions of pages 4-9 discuss CBFO QA activities, certification of a program, AK, RTR, VE, then chemical sampling and analysis, AKSD, data generation level, DQOs, and confirmation. In the sampling and analysis section, JR Stroble is referring to the sampling and analysis as it was stated in the Permit at that time frame (July 2010). This PMR requests to change that particular language, by stating that sampling and analysis is not necessary to resolve hazardous waste numbers assigned from the AK documentation process. This PMR states that the AK is sufficient to assign the hazardous waste numbers without resolution.

16r: In summary, regulatory requirements require that NMED deny the modification request, as it cannot be approved and it cannot be approved with changes. In addition, SRIC requests that in its denial, NMED state that if the permittees want to request a similar change when they also wish to change underground VOC monitoring that both changes be in a class 3 modification request.

Response: NMED is not denying the PMR but has reserved the right to require chemical testing of waste stream if deemed necessary. A reference to a Class 3 PMR is not included as part of the modification.

17. Comment: Citizens for Alternatives to Radioactive Dumping are asking that the New Mexico Environment Department deny the class 2 WIPP Permit Modification request made by the Department of Energy and Nuclear Waste Partnership LLC to revise the waste analysis plan waste characterization methods for the following reasons:

*Sampling of waste will still be needed according to DOE therefore the regulator should continue to be involved in the process so that proper procedures are followed. Allowing sampling to continue without regulation would amount to NMED reneging on their responsibility to protect human health and the environment.

*Accessible knowledge is a fallible process when it comes to characterizing waste; this process needs to be backed up by samplings of chemical analysis. EPA guidance tells us that ……'the preferred method to meet the waste analysis requirements is to conduct sampling and laboratory analysis' …

*Sampling has been used to make important decisions to not ship certain waste streams due to concerns about safety of workers in the underground.

*Eighty percent of the Hanford Washington waste destined for WIPP has not been characterized so we do not know whether chemical analysis will be required.

*The National Academy of Sciences has done an analysis of how to make major changes in characterization: "DOE should use a systematic and quantitative approach to determine the value of the information currently obtained by its waste characterization activities and the impact of changes to them. This approach should also be used to support permit modification requests and communicate with the public." We do not find this approach in the modification request.

*DOE is approaching changes in characterization in a piecemeal manner that denies the public the chance to see the whole picture concerning changes in characterization.

*CARD believes because of the complexity of the issue as illustrated above that this modification request should have been a class three.

Response: See response to comment 4 regarding continued oversight regarding sampling when needed. See response to comments 4, 7, 16h and 16j regarding the NAS study. See response to comment 16 regarding sampling use for shipment decisions.

The Annual Transuranic Waste Inventory Report indicates that approximately 69% of the Hanford waste has been profiled.

18. Comment: Concerned Citizens for Nuclear Safety (CCNS) fully supports the comments submitted by Southwest Research and Information Center to the New Mexico Environment Department (NMED) about the Class 2 permit modification request for the Waste Isolation Pilot Plant (WIPP) regarding eliminating sampling of waste bound for the facility.

CCNS remains very concerned that eliminating sampling of waste bound for WIPP would reduce health and safety protections because such analysis is still needed, including for the many waste streams that have not yet been sampled. NMED should deny the request. Any future requests to reduce or eliminate sampling should only be made after the kind of systematic approach recommended by the National Academy of Sciences is carried out and made public and after representative sampling is done for waste streams that have not yet been shipped to WIPP.

CCNS requests the opportunity to participate in any negotiations between NMED, the Applicant and interested members of the public that may take place about the Class 2 permit modification request.

Response: See responses to comment 16 regarding SRIC comments. Class 2 permit modifications do not require negotiation with the stakeholders.

19. Comment: The following is the comment of the New Mexico Environmental Law Center per the above referenced request for a Class 2 Permit Modification to the WIPP permit in order to allow the U.S. Department of Energy ("DOE") to eliminate the requirement for chemical testing of waste shipments that will be stored at the WIPP.

Occupational and public health and safety mitigate against eliminating chemical inspection of WIPP shipments. For example, OSHA guidelines, intended to protect workers from the kind of potential hazards that could arise if shipment going into WIPP were not as described in the shipping manifests, recommend characterization of hazardous waste. Such characterization requires chemical testing. OSHA manuals on this subject--in particular those dealing with the handling of hazardous waste containers--set forth the variety of potential hazardous to personnel working with such materials. Such hazards can be reduced if the persons handling the waste containers know for certain what is inside. Additionally, where the materials are radioactive, IAEA bulletin TE-1537 describes the concerns over potential injury to workers and the public in the event that radioactive materials are released and recommends characterization of the waste.

Response: Regulations such as OSHA and IAEA fall outside NMED HWB authority. See response to comment 5 regarding transportation requirements and the associated sampling required for transportation.

19a: Unless the New Mexico Environment Department (“NMED”) ascertains that WIPP shipments are as described in the shipment manifests for each shipment, there will be increased risk of accidents to workers handling these shipments and the potential for an accident involving members of the public. Without knowing for certain that what is being shipped into WIPP is as described, the hazardous materials response teams could be exposed, along with WIPP workers and members of the public, to unknown, uncharacterized hazardous and radioactive materials. Choice of the means for containing spills and releases requires as complete knowledge as possible as to what is in a container that is leaking, spilled or breached.

As the mission of NMED is to assure environmental and public health and safety, continued chemical sampling and oversight of WIPP shipments must take place. Relying on the knowledge of the permittee and visual inspections of shipments is not sufficient to provide the requisite level of protection (radiography will not reveal chemical contamination). Only by requiring chemical sampling can DOE, NMED and WIPP operators and personnel be certain that what is going into the repository is what is stated on the shipping manifests--and in that way know for certain what is present in the event materials leak out of the containers at any stage in the entombment process.

Response: NMED will continue to require sampling when needed. See response to comment 4 for additional information.

20. Comment: PECOS Management Services, Inc. is in agreement on the subject proposed Class 2 permit modification for the WIPP Hazardous Waste Facility Permit. Our agreement is based on our experience while the Independent Oversight Contract for WIPP from 10/2005 through 9/2010 during which we participated in extensive evaluations and overviews of the environmental, health, and safety activities and programs including permit compliance, permit modifications, and new permit issuance. These activities included overview of the waste characterization programs at several of the major generator sites including Hanford, Los Alamos, and Oak Ridge. In addition, in April, 2009 PECOS Management Services, Inc. completed a report specific to this Class 2 permit modification request titled: Review of Headspace Gas Sampling Results and Requirements. That report is available from PECOS on request.

Response: Comment noted.