Enclosure

Discussion of Major Issues Associated With EPA's Compressed Waste Review

This attachment provides an expanded discussion of the major issues addressed in the correspondence from Frank Marcinowski to Paul Detwiler. The primary documents examined in the review of the compressed waste are the reports, *Effects of Supercompacted Waste and Heterogeneous Waste Emplacement on Repository Performance,*" Revisions 1 and 2 by Hansen et al. (2003a and 2003b) and the *Determination of the Porosity Surfaces of the Disposal Room Containing Various Waste Inventories for WIPP PA* by Park and Hansen 2003b. These documents and others are in EPA's Docket A-98-49 or are contained as part of the 2004 Draft Compliance Recertification Application (CRA).

An even more comprehensive review than that below is provided in the document *Review of Effects of Supercompacted Waste and Heterogeneity Waste Emplacement on WIPP Repository Performance* (TEA 2004; Docket A-98-49, Item II-B3-68). Enclosure 2 lists the correspondence between DOE and EPA and the associated docket numbers for this review.

General Background on AMWTF Compressed Waste

The Department initially requested EPA to approve emplacement of compressed waste at the WIPP in correspondence dated December 10, 2002 (DOE 2002; Docket A-98-49, Item II-B-15). Compressed waste would be generated at the Advanced Mixed Waste Treatment Facility (AMWTF), currently undergoing testing at the Idaho National Engineering and Environmental Laboratory (INEEL). The AMWTF is designed to retrieve, characterize, repackage, and compact 55-gallon drums of contact-handled, mixed transuranic debris waste, and place the compressed drums into 100-gallon drums for disposal at WIPP.

Non-debris waste would also be processed at the AMWTF but would not be compressed. The uncompressed waste (or standard waste) would be placed in standard 55-gallon drums or in standard waste boxes for shipment and disposal at WIPP. The Agency approved disposal of uncompressed AMWTF waste on June 11, 2003, assuming all additional requirements were also met (EPA 2003a; Docket A-98-49, Item II-B3-56).

All AMWTF waste to be emplaced at WIPP will be contact-handled (CH), transuranic (TRU) waste. The inventory of compressed AMWTF debris waste is based on a total of 52,440 100-gallon containers being shipped to the WIPP. The total emplaced volume of these wastes, based on an inner volume of 0.379 m^3 per 100-gallon container, is estimated to be 19,875 m^3 or 11.8% of the total planned 168,500 m^3 CH TRU waste volume. However, the actual compressed waste volume is reported by INEEL to be 11,635 m^3, which is 41 percent less than the container volume due to void space within the 100-gallon containers. In the Advanced Mixed Waste (AMW) performance assessment (PA), DOE modeled the repository using the same total inventory as expected in the 2004 Compliance Recertification Application.

DOE indicates that the supercompaction portion of the AMWTF intends to undergo the site certification process in the fall of 2004 with the intent of shipping waste in the spring of 2005, assuming the facility obtains all other applicable approvals.

Compressed Waste Will Be Rigid, Have High CPR, and Contain Low Radioactivity

The compressed AMWTF waste would consist of 55-gallon drums of debris waste compressed vertically, resulting in flattened cylinders called "pucks" (see Figure 1 in the main letter). The compressed pucks will have final volumes expected to range from 15 to 35 gallons. These pucks would be placed in 100-gallon drums for shipping. Each 100-gallon drum is expected to contain from 3 to 5 pucks, with an average of 4 pucks per drum. Both the 55-gallon drums and the 100-gallon disposal containers would be made of steel.

When compared to standard (uncompressed) waste, compressed waste is expected to have stronger structural properties, higher concentrations of gas generating material (cellulosic, plastic and rubber materials), and lower radioactivity. The pucks will be compressed by a greater pressure than they would be subjected to underground, so they will not compress any further during room closure, unlike the standard waste. The pucks are expected to remain rigid. In its analyses, DOE identified that these rigid wastes could be modeled in the performance assessment as standard wastes.

The waste to be compressed is debris waste that was originally intended to be incinerated to remove the CPR materials. Since the incineration plans have been changed, the waste and its CPR material will be shipped to WIPP. The density of compressed waste CPR is about ten times that of standard WIPP waste. Approximately 1.7 million kilograms CPR (including plastic/liners) have been emplaced as of March 22, 2004. The CCA limit is 20.89 million kilograms and the CRA limit is 28.65 million kilograms. (DOE 2004a; Docket A-98-49, Item II-B2-29)

DOE states, however, that the radioactivity of compressed waste will be lower than that of the standard TRU waste. DOE estimates the radionuclide inventory (decayed to 2033) as 89,252 curies (DOE 2004a; Docket A-98-49, Item II-B2-29) versus an overall repository total of 2.48 million curies. At INEEL there are wastes from multiple waste streams with varying levels of radioactivity, but many have low radioactivity. DOE is combining a number of these multiple waste streams into one waste stream, denoted as IN-BN-510. Since much of the debris waste has low radioactivity, DOE plans to characterize the drums, compress them, and then sort them into 100-gallon drums.

In our review of the IN-BN-510 waste stream, we identified that remote-handled (RH) waste streams are included in the inventory. This was not discussed in the AMWTF submission materials. Upon further review we have found that the AMWTF contractor, BNFL, is required by contract to separate out any RH waste that is found in the waste that comprises the IN-BN-510 waste stream and the non-debris waste. (DOE 2004; Docket A-98-49, Item II-B2-29)

Shipping requirements are such that each 100-gallon drum must meet the same radioactivity limit as a standard 55-gallon drum. If there is to be an average of 4 pucks to a 100-gallon drum, an individual puck would, on average, have to contain one-quarter the radioactivity of a standard drum.

No Change in Total Radioactive Releases with Compressed Waste

In response to DOE's December 10, 2002, submission, EPA identified (EPA 2003b; March 21, 2003 correspondence) that DOE would either need to demonstrate equivalency of the AMWTF wastes to the standard waste or, if somewhat different from the assumed waste characteristics, show that the waste does not impact compliance with the Agency's disposal regulations. In responding to EPA's comments on DOE's December 10, 2002 analyses, DOE chose to demonstrate equivalency of the uncompressed waste and developed an advanced mixed waste (AMW) PA for the compressed waste to show that it did not impact compliance with the disposal regulations.

Instead of three full replicates (sets of 100 model runs) used for full compliance, DOE used one replicate. EPA believes this was reasonable since this analysis was for a planned change and not an attempt to demonstrate compliance with all aspects of EPA's regulations.

DOE indicated that radioactive releases with compressed waste are similar to or below those of standard waste. In these calculations, DOE used much of the same process that will be used in the compliance recertification application (CRA). Notable differences include the use of the PA Verification Test (PAVT) spallings model and explicit accounting for the effects of structural characteristics on creep closure in the AMW PA but not in the forthcoming CRA. Separate calculations investigated the distribution of compressed waste and effects of compressed waste on MgO safety factors. The focus of this section is on the releases predicted by the AMW PA.

Since the AMW PA inventory and the 2004 CRA use the same inventory, DOE chose to compare the AMW PA with a modified CRA PA[1]. In this comparison, the set of CCDF (cumulative complementary distribution function) curves for total normalized releases are almost indistinguishable. The mean total releases and the 90th quantile releases are almost identical. The porosity concerns EPA identified in the review and discussed below should not affect these results because additional analyses showed that important results are not affected by use of constant porosity or porosity surface. EPA's concerns related to the uncertainty are satisfied with a review of the means and 90th quantile of total releases presented in Table 1 and Figure 2.

However, the current regulatory baseline for PA is the PAVT conducted as part of the original certification decision process. As presented in Table 1 the AMW PA releases are lower than the PAVT at the 0.1 probability but higher at the 0.001 probability. While different from the PAVT, the higher releases at 0.001 are not due to AMW PA waste. Instead the differences appear to be due to an increase in cuttings and cavings releases. The cuttings and cavings releases appear higher because a few non-AMWTF waste streams with high radioactivity were sampled.

[1] DOE used the PAVT spallings model in the AMW PA and to get a direct comparison, DOE similarly modified the CRA PA for this analysis.

Table 1. CRA1, AMW PA, CRA1 and PAVT Releases at Probabilities of 0.1 and 0.001 Source: Hansen, 2004 (Docket A-98-49, Item II-B2-34)

Probabilities	Analysis	Mean Total Release	90th Quantile Total Release
0.1	CRA1	0.1272	0.1764
	AMW PA	0.1226	0.1694
	PAVT	0.1325	0.2021
0.001	CRA1	0.5417	0.8137
	AMWPA	0.5541	0.8051
	PAVT	0.3825	0.3929

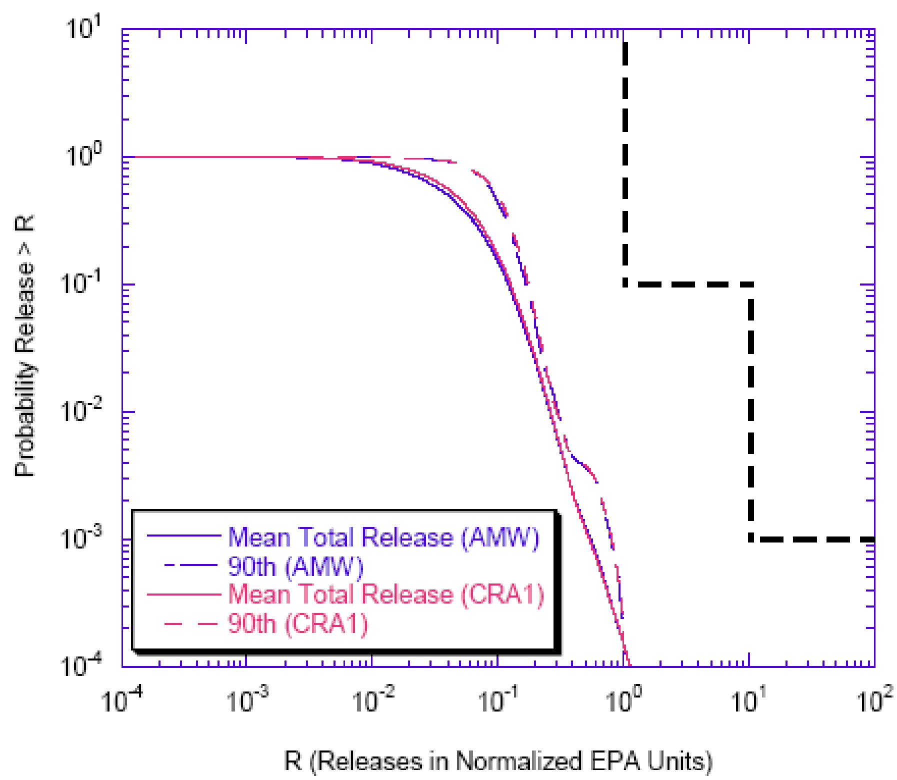

Figure 2. Comparison of AMW PA total releases with releases from the modified Compliance Recertification Application (CRA1). The CRA1 uses the PAVT spallings modeling instead of the spallings model used in the forthcoming (~March 26, 2004) CRA. (Source: Hansen et al. 2004, Docket A-98-49, Item II-B2-30)

Effects of the Waste

Compressed waste can affect the repository because of the increased cellulosic, plastic and rubber (CPR) volumes. CPR is the material that microbes, if present, would use as an energy source. The breakdown of the CPR would produce gas. This increased CPR inventory allows microbial gas generating processes to produce more gas over a longer period of time. This additional gas increases the pressure in the repository. If the gas produced is carbon dioxide, it can also alter the chemistry in the WIPP by affecting (increasing) the actinide solubility. To counter the potential changes in aqueous chemistry from gas production, DOE uses magnesium oxide to control the brine pH in the repository.

The compressed waste is expected to be much more rigid than the standard waste because of the extreme compression applied to make pucks. If the waste remains rigid through the regulatory time frame, then it could potentially prop open the repository and also decrease the lateral creep closure of a room. This could lead to higher room void volume and decreased pressures. If the pucks degrade, then they would be expected to act as standard waste and there should be no difference in performance due to structural characteristics of the compressed waste.

In reviewing the modeling DOE conducted on the compressed wastes' effect on creep closure due to waste rigidity, EPA raised a number of questions related to the modeling approach used by DOE. The main concern focused on the calculation of porosity and whether the computer code SANTOS or its related codes were implemented appropriately. The room porosity values (presented in PA as porosity surfaces) are used to predict the flow of fluids in a waste room, and they represent the impact, over time, of creep closure and gas generation on the porosity of the waste area in the BRAGFLO computer code. If the porosity is too high then pressures could be underestimated.

During our review we requested additional BRAGFLO calculations to evaluate the impact of porosity on the brine saturation and pressure in the repository. Calculations indicate that the performance results are not sensitive to the porosity surface generated by SANTOS or the use of a constant porosity as requested by EPA. That is, the use of the constant porosity and the porosity surface produce similar brine saturation and pressure histories.

Primary release mechanisms at WIPP are cuttings, cavings and spallings during drilling. Other less important releases are from direct brine releases when brine from the repository is released to the surface over a period of days, and long-term releases to the Salado anhydrite interbeds and overlying Culebra. The bullets below summarize effects on performance due to the compressed waste and EPA's findings.

1. Cuttings and Cavings
   The cuttings and cavings release models used in the CCA/PAVT remain appropriate for use in the AMW performance assessment. This is because (1) the radionuclide concentration in the compressed AMWTF waste streams is lower than the repository average and use of the repository average is therefore conservative; (2) it is not certain that a drill bit designed for penetrating the soft rock in the Delaware Basin would be able to fully penetrate a supercompacted waste puck and effect a complete cuttings or cavings release; and (3) cavings releases would be further reduced below that for standard waste because of the greater shear strength of supercompacted waste pucks.

2. Spallings
   The assumption of standard waste physical and chemical properties for calculating spallings releases of supercompacted AMWTF waste is appropriate because it conservatively overestimates this type of release. This is because the greater shear and tensile strength of supercompacted AMWTF waste pucks will tend to limit spallings releases to below the volumes that would occur under equivalent conditions for standard waste.

3. Direct Brine Releases (DBR)
   As mentioned above, direct brine releases are a relatively small contributor to releases in the current calculations. Releases to surface in the event of a drilling intrusion depend on several conditions in the repository, including brine saturation (amount of brine in the repository), pressure and permeability. There has to be enough brine and a high enough pressure to transport the repository brine to the surface. DOE's analysis indicates that these conditions are similar with compressed waste and standard waste under different porosity assumptions. However, if there were higher waste permeability associated with the compressed waste, brine volumes released could be higher than with the permeability used for the standard waste if there is available brine. In the sensitivity analysis of higher waste permeability, direct brine releases do increase with higher waste permeability. Nevertheless, the DBR still remains small overall and is not significant to compliance.

4. Long-term releases
   Long-term releases are those releases to the overlying Culebra Dolomite and the Salado anhydrite marker beds. The Department's model for identifying such releases are not be affected by the proposed emplacement of supercompacted AMWTF waste and AMW performance assessment.

For one drilling scenario EPA and the Environmental Evaluation Group EEG (EEG 2004) raised questions about whether the compressed waste form could be subjected to stuck pipe and gas erosion processes. Stuck pipe and gas erosion scenarios have in common the requirements of low permeability *and* a weak waste material. DOE contends that although the supercompacted waste pucks may have low permeabilities, they are too strong to support these release mechanisms. The Department stated that the low permeability of the waste will retard corrosion and biodegradation, and the waste must be degraded to sufficiently reduce its strength for these mechanisms to occur.

EPA's agrees that the compressed waste will be too strong for these to occur. If the compressed waste degrades, then it will act like standard waste, for which EPA has agreed that these processes will not occur. After review of this issue, EPA concurs that stuck pipe and gas erosion will not occur in the compressed waste.

More MgO Needs to Be Added to Maintain Safety Factor

There are two sources of gas in the repository: hydrogen gas anoxic corrosion of iron, primarily in the drums, and from microbial processes that biodegradate CPR. The hydrogen does not appreciably affect chemical conditions but the gas produced from microbial processes can, and is important to performance of the disposal system.

Microbial processes produce carbon dioxide. Carbon dioxide contributes to repository pressure, but it also increases the solubility of actinides in the repository brine by lowering the pH of the brine. Magnesium oxide (MgO) backfill buffers the brine to a higher pH and stable actinide solubility. The MgO backfill is the only engineered barrier in the disposal system.

DOE currently places more MgO in the repository than is necessary to buffer the brine. This excess amount is the MgO safety factor and is 167% (or 1.67 times more) of that needed to fully buffer the brine. Excess MgO (when the safety factor is greater than one) addresses potential uncertainties or unforseen circumstances associated with the repository chemical conditions and ensures that enough MgO is present to maintain the engineered barrier integrity.

DOE assumes that microbes will sequentially use as energy sources denitrification, sulfate reduction and methanogenesis. The first two processes produce one mole of carbon dioxide per mole of carbon consumed. Methanogenesis produces 0.5 mole of carbon dioxide per mole of carbon consumed in addition to methane. In the original certification application, DOE stated that methanogenesis would be the dominant pathway due to the limited amount of nitrates and sulfates in the waste. But because of a lack of experimental evidence at the time of the original certification decision, DOE assumed in the PA that denitrification and sulfate reduction would be the primary carbon dioxide production pathways. DOE now believes that there is experimental evidence to support methanogenesis as the primary carbon dioxide production pathway. The methanogenesis pathway is the primary pathway used in the AMW performance assessment calculations and the forthcoming Compliance Recertification Application performance assessment.

The calculated MgO safety factors are sensitive to the estimated CPR density in the waste. Any significant changes to the inventory estimates of CPR density in CH waste from the AMWTF and from other waste generator sites could result in significant changes in the MgO safety factor. Our concern is that the methanogenesis pathway used in the performance assessment may be circumvented and sulfate reduction, which produces greater amounts of carbon dioxide, could still be important because of the excess sulfate in the system. The presence of excess sulfate would lead to additional sulfate reduction and would reduce the current MgO safety factor.

Because of the relatively high CPR density in supercompacted waste, significantly greater quantities of MgO may be required than the amounts currently placed in each panel to ensure that chemical conditions are adequately controlled in the repository. For example, in a panel containing equal amounts of supercompacted AMWTF waste and standard waste, 23,770 tons of MgO would be required to maintain the currently approved MgO safety factor of 1.67. This amount of MgO is more than three times the currently approved amount of 7,400 tons per panel (assuming a 10-panel repository).

In the decision to use the methanogenesis pathway in the AMW PA, DOE did not consider the potential excess sulfate in the surrounding waste area environment, including the brines and anhydrite marker beds. EPA raised this issue and requested DOE to further analyze the potential for the existing sulfate to affect the methanogenesis assumption. DOE did provide additional information (Kanney et. al, 2004; Docket A-98-49, Item II-B2-33) on the topic and it is DOE's contention that MgO safety factor would remain above 1, but below the current safety factor. As long as the MgO safety factor remains above 1, then there is no impact on the performance assessment calculations and MgO still acts as a sufficient engineered barrier, albeit with less margin for error.

DOE's analysis may be correct but uncertainties remain in the quantities of CPR present in a waste panel and in the extent to which sulfate reduction will occur. More sulfate may be present in the waste or waste area environment than currently estimated.

More waste with high CPR may be placed in a panel than currently anticipated. Because of these uncertainties, DOE needs to ensure that these uncertainties are accounted for in the calculation of the MgO safety factor, even if it appears that there is enough MgO for performance assessment calculations.

Methanogenesis may not occur because of the presence of excess sulfate in the system, so MgO safety factor calculations need to assume all carbon could be converted to carbon dioxide until the Department provides adequate evidence that methanogenesis is the dominant process. Using the masses of CPR per 100-gallon drum provided by DOE and our current understanding of the waste, approximately 1.3 MgO supersacks will be required per 3-pack of 100-gallon drums to achieve the currently approved MgO safety factor. The safety factor could also be calculated on a room basis.

Summary

While compressed waste is stronger and contains a higher inventory of CPR and iron, it also has lower radioactivity. After much analysis of the structural characteristics of the compressed waste, it appears that the structural characteristics of the waste could enhance containment at least by reducing spallings releases. We have determined that the most important impact of the compressed waste is primarily the greater CPR inventory and its potential to generate additional gas, either methane or carbon dioxide.

We agree with DOE that the compressed waste will not noticeably affect radioactive releases. Our review, however, did not fully resolve the uncertainty that the proposed microbial gas generation pathway (methanogenesis) will be the dominant pathway. While DOE may be correct in this assumption, we believe that there is enough uncertainty in the assumption to warrant measures that will address the uncertainty. This is not necessarily specific to compressed waste, but would be needed to account for higher CPR inventories from any waste stream.

DOE's analyses indicate that currently there should be enough MgO to maintain its efficacy as an engineered barrier with a nominal safety factor. However, since the MgO backfill is the only engineered barrier, the Agency believes that is prudent to account for potential uncertainties and require that DOE maintain the current 1.67 safety factor.

Selected References Used in EPA's Review of DOE's AMWTF Waste Disposal Request

DOE 2002. Correspondence from Dr. I. Triay, Manager, Carlsbad Field Office, U.S. Department of Energy to F. Marcinowski, Director, Radiation Protection Division. DOE request to dispose of AMWTF wastes at WIPP. Request includes an assessment of the wastes on long-term WIPP performance and an analysis of features, events and processes. December 10, 2002 (Docket A-98-49, Item II-B-15).

DOE 2004. Correspondence from Russ Patterson, DOE WIPP Performance Assessment Manager to E. Forinash, U.S. Environmental Protection Agency Office of Radiation and Indoor Air, Washington D.C. The AMWTF contractor, BNFL, is required by contract to separate out any RH waste that is found in the waste that comprises the IN-BN-510 waste stream and the non-debris waste. (March 24, 2004). (Docket A-98-49, Item II-B2-29)

DOE 2004. Correspondence from R. Patterson, DOE WIPP Performance Assessment Manager to E. Forinash, U.S. Environmental Protection Agency Office of Radiation and Indoor Air, Washington D.C. DOE estimates the radionuclide inventory as 89,252 curies (decayed to 2033). (Docket A-98-49, Item II-B2-29)

DOE 2004. Correspondence from R. Patterson, DOE WIPP Performance Assessment Manager to E. Forinash, U.S. Environmental Protection Agency Office of Radiation and Indoor Air, Washington D.C. DOE estimates the CPR inventory as 1696165.9 kilograms placed in WIPP as of March 22, 2004. (Docket A-98-49, Item II-B2-29)

EPA 2003a. Correspondence from F. Marcinowski, Director, Radiation Protection Division, to Dr. I. Triay, Manager, Carlsbad Field Office, U.S. Department of Energy. U.S. Environmental Protection Agency Office of Radiation and Indoor Air, Washington D.C. Approval of AMWTF uncompressed waste based on information in DOE's May 20, 2003 (Docket A-98-49, Item II-B3-56).

EPA 2003b. Correspondence from F. Marcinowski, Director, Radiation Protection Division, to Dr. I. Triay, Manager, Carlsbad Field Office, U.S. Department of Energy. U.S. Environmental Protection Agency Office of Radiation and Indoor Air, Washington D.C. March 21, 2003. (Docket A-98-49, Item II-B3-64)

EEG 2003. Correspondence from Matthew Silva, Environmental Evaluation Group to P. Detwiler, Acting Manager, Carlsbad Field Office, U.S. Department of Energy. Correspondence provides revised comments to DOE on Advanced Mixed Waste Treatment Plant waste forms. (Docket A-98-49, Item II-B3-68)

Hansen, C.W. 2004. *Comparison of AMW and PAVT Results with CRA Results,* Memorandum from Cliff Hansen, Sandia National Laboratories, to David Kessel, Sandia National Laboratories, March 19, 2004. ERMS 534241. (Docket A-98-49, Item II-B2-34)

Hansen, C.W., L.H. Brush, M.B. Gross, F.D. Hansen, B-Y Park, J.S. Stein, and B. Thompson 2003a. *Effects of Supercompacted Waste and Heterogeneous Waste Emplacement on Repository Performance, Rev. 1.* Sandia National Laboratories Carlsbad Programs Group, Carlsbad, New Mexico. October 17, 2003. (Docket A-98-49, Item II-B2-24)

Hansen, C.W., L.H. Brush, M.B. Gross, F.D. Hansen, B. Thompson, J.S. Stein, and B-Y Park 2003b. *Effects of Supercompacted Waste and Heterogeneous Waste Emplacement on Repository Performance, Rev. 2*. Sandia National Laboratories Carlsbad Programs Group, Carlsbad, New Mexico. January 19, 2004. (Docket A-98-49, Item II-B2-30)

Kanney, J.F., A.C. Snider, T.W. Thompson, and L.H. Brush 2004. *Effect of Naturally Occurring Sulfate on the MgO Safety Factor in the Presence of Supercompacted Waste and Heterogeneous Waste Emplacement.* Sandia National Laboratories Carlsbad Programs Group, Carlsbad, New Mexico. March 5, 2004. (Docket A-98-49, Item II-B2-33)

Park, B-Y, and F.D. Hansen 2003b. *Determination of the Porosity Surfaces of the Disposal Room Containing Various Waste Inventories for WIPP PA*. ERMS 533216, Sandia National Laboratories Carlsbad Programs Group, Carlsbad, New Mexico. (Docket A-98-49, Item II-B2-31)

TEA 2004. *Review of Effects of Supercompacted Waste and Heterogeneity Waste Emplacement on WIPP Repository Performance,* prepared by Trinity Engineering Associates for EPA, March 2004. (Docket A-98-49, Item II-B3-68)

Enclosure 2

Correspondence Between DOE and EPA On the Disposal of AMWTF Waste at WIPP

Date	Sender	Topic	A-98-49 Docket Number
12/10/2002	DOE	DOE request to dispose of AMWTF wastes at WIPP. Request includes an assessment of the wastes on long-term WIPP performance and an analysis of features, events and processes	II-B2-15
3/21/2003	EPA	Response to DOE's 12/12/2002 correspondence identifying the analysis in DOE's request was deficient	II-B3-64
5/20/2003	DOE	DOE correspondence submitting of AMWTF standard (uncompressed) waste information	
6/11/03	EPA	Approval of AMWTF uncompressed waste based on information in DOE's May 20, 2003	II-B3-56
10/17/03	DOE	Initial Advanced Mixed Waste (AMW) Performance Assessment report identifying that the compressed waste had negligible impact on performance and the assumption of standard, average waste is sufficient for PA	II-B2-23
10/21-22/02		Technical Exchange and Tour of Idaho National Environmental and Engineering Laboratory, Idaho Falls, ID	
10/29/03	EPA	Comments on and requests for clarification of AMWTP compressed waste issues, including porosity calculations, and long-term WIPP performance assessment calculations	II-B3-63
11/18-19/03		Technical Exchange, Carlsbad, NM	
11/26/03	DOE	DOE's response to EPA's 10/29/03 request for clarification	II-B2-24
12/9/03	EPA	Request to DOE for additional information in response to technical exchange of 11/18-19/03	II-B3-64
12/24/03	DOE	DOE's response to EPA's request for additional AMWTF information	II-B2-25
1/20-23/04		Technical Exchange, Albuquerque, NM	
2/9/2004	EPA	Correspondence to DOE identifying that most issues were clarified except for SANTOS and methanogenesis	II-B3-66
3/24/04	DOE	Correspondence describing that the potential RH waste in the AMWTF will not be part of the AMWTF CH waste streams, compressed waste radioactive inventory and currently emplaced CPR inventory	II-B2-29