

Class 2 Permit Modification Request

**Revise Volatile Organic Compound Concentrations of Concern and
Update These Values Using Current EPA IRIS Data**

**Waste Isolation Pilot Plant
Carlsbad, New Mexico**

WIPP HWFP Number NM4890139088-TSDF

April 2010

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Acronyms and Abbreviations

1,1-DCE	1,1-dichloroethene
CBFO	Carlsbad Field Office
CFR	Code of Federal Regulations
Cs of C	Concentrations of Concern
CH	Contact-Handled
DOE	U.S. Department of Energy
EPA	U.S. Environmental Protection Agency
GAC	Granular Activated Carbon
HI	hazard index
HWDU	Hazardous Waste Disposal Unit
IDLH	Immediately Dangerous to Life and Health
IRIS	Integrated Risk Information System
IUR	Inhalation Unit Risk
LEL	Lower Explosive Limit
NMAC	New Mexico Administrative Code
NMED	New Mexico Environment Department
Permit	Hazardous Waste Facility Permit
Permittees	Carlsbad Field Office and Washington TRU Solutions LLC
PMR	Permit Modification Request
PPRTV	Provisional Peer Reviewed Toxicity Value
RAA	Running Annual Average
RBL	Room-Based Limit
RfC	Reference Concentration
TRU	Transuranic
URFs	Unit Risk Factors
VOC	Volatile Organic Compound
WIPP	Waste Isolation Pilot Plant
WTS	Washington TRU Solutions LLC

Overview of the Permit Modification Request

This document contains one Class 2 Permit Modification Request (**PMR**) to the Hazardous Waste Facility Permit (**Permit**) at the Waste Isolation Pilot Plant (**WIPP**), Permit Number NM4890139088-TSDF.

This PMR is being submitted by the U.S. Department of Energy (**DOE**), Carlsbad Field Office (**CBFO**) and Washington TRU Solutions LLC (**WTS**), collectively referred to as the Permittees, in accordance with the Permit, Condition I.B.1 (20.4.1.900 New Mexico Administrative Code (**NMAC**) incorporating Title 40 Code of Federal Regulations (**CFR**) §270.42(b)). A modification to the Permit is being requested for the following item:

1. Revise Volatile Organic Compound (**VOC**) Concentrations of Concern (**Cs of C**) and update to current U.S. Environmental Protection Agency (**EPA**) Integrated Risk Information System (**IRIS**) data

These changes do not reduce the ability of the Permittees to protect human health and the environment.

The requested modification to the WIPP Permit and related supporting documents are provided in this PMR. The proposed modification to the text of the WIPP Permit has been identified using red text and a double underline and a ~~strikeout~~ font for deleted information. All direct quotations are indicated by italicized text. The following information specifically addresses how compliance has been achieved with the WIPP Permit requirement, Permit condition I.B.1 for submission of this Class 2 PMR.

1. **20.4.1.900 NMAC (incorporating 40 CFR §270.42(b)(1)(i)), requires the applicant to describe the exact change to be made to the permit conditions and supporting documents referenced by the permit.**

This PMR proposes to revise Table IV.F.2.c, VOC Cs of C for the VOCs listed below:

- Carbon tetrachloride
- Chloroform
- Methylene chloride
- 1,1,2,2-Tetrachloroethane

In addition, this PMR updates the Permit with regard to EPA IRIS data by moving 1,1-dichloroethene (**1,1-DCE**) from the category of suspected human carcinogens to the non-carcinogenic category in the Permit risk calculations, and recalculating the Cs of C using new unit risk factors for 1,1,1-trichloroethane, chlorobenzene, and toluene. No changes in the Cs of C for these compounds are proposed at this time.

The Table of Changes and the redline ~~strikeout~~ in this modification describe each change

that is being proposed.

2. 20.4.1.900 NMAC (incorporating 40 CFR §270.42(b)(1)(ii)), requires the applicant to identify that the modification is a Class 2 modification.

The proposed modification is classified as a Class 2 Permit Modification for the reason indicated below:

20.4.1.900 New Mexico Administrative Code (incorporating 40 CFR §270.42, Appendix I, Item A.) "*General Permit Provisions ... 4. Changes in the frequency of or procedures for monitoring, reporting, sampling, or maintenance activities by the Permittee: ... b. Other changes ... 2*"

3. 20.4.1.900 NMAC (incorporating 40 CFR §270.42(b)(1)(iii)), requires the applicant to explain why the modification is needed.

This Class 2 permit modification request is needed to:

- Update the unit risk factors used to calculate the environmental performance standards for air emissions from the repository in the Permit
- Reapportion the risk associated with the VOCs by changing the C of C identified in Module IV, Table IV.F.2.c of the Permit.

Updating Unit Risk Factors: At the time NMED issued the WIPP Permit in 1999 it established Permit conditions associated with the environmental performance standard for nine VOCs. These Permit conditions assure protection of a non-waste worker on the surface. The Permit conditions are represented by Cs of C for each VOC in Table IV.F.2.c. The Cs of C were calculated using a risk-based method that incorporated published unit risk factors (**URFs**) for each VOC. The risk factor for the air pathway for suspected human carcinogens is referred to as the inhalation unit risk (**IUR**) and the risk factor for a non-carcinogen is referred to as the reference concentration (**RfC**). The NMED used the risk factors published in IRIS to establish the Cs of C.

Since the Permit was issued, the EPA has re-evaluated the risk associated with several of the VOCs. Specifically, on August 13, 2002, 1,1-DCE was reclassified as a non-carcinogen and was assigned a RfC of 2.0 E-01 milligrams per cubic meter (**mg/m³**); on September 23, 2005 the RfC for toluene was changed from 4.0 E-01 mg/m³ to 5.0 mg/m³, on June 1, 2007, the EPA changed the RfC for chlorobenzene from 2.0 E-02 mg/m³ to 5.0 E-02 mg/m³ (Note that the inhalation risk factor for chlorobenzene is not evaluated in IRIS, the EPA value is referred to as a provisional peer reviewed toxicity value (**PPRTV**)), on September 28, 2007 the RfC for 1,1,1 – trichloroethane was changed from 7.0 E-01 mg/m³ to 5.0 mg/m³, on March 31, 2010, the EPA changed the inhalation unit risk for carbon tetrachloride from 1.5 E-05 m³/μg to 6.0 E-06 m³/μg. In order to incorporate these revised unit risk factors into the

Permit it is necessary to modify the Cs of C for some of the VOCs affected.

The NMED also used the EPA data in determining the Room-Based limits (**RBLs**) in Permit Table IV.D.1. However, these values are unaffected at this time by the changes made in the IRIS database for the following reasons:

- The RBLs for chlorobenzene and toluene are based on their lower explosive limits (**LELs**) which has not changed
- The RBL for 1,1,1-trichloroethane is based on a immediately dangerous to life and health (**IDLH**) value of 700 ppmv which has not changed
- The RBL for 1,1-DCE was based on the NMED's reapportionment of carcinogenic risk for the surface worker and then a back calculation as a RBL. As a non-carcinogenic compound the basis for an RBL is the LEL which is 65,000 ppmv (there is no IDLH established). Therefore, the current value of 5,490 ppmv is acceptable and no change is needed.
- The RBL for carbon tetrachloride is based on the IDLH. The IDLH has not been changed, however, the information published by the EPA may lead to an evaluation of the IDLH in the future. Such a change is likely to raise the IDLH so that the corresponding RBL could be increased. The Permittees will evaluate such a change in the future if it occurs. The current RBL, however, is protective and does not need to change.

Reapportioning Risk: The Cs of C specified in the Permit represent action levels to assure compliance with environmental performance standards (limits) established by the NMED. The environmental performance standard for suspected human carcinogens is one excess cancer death in 100,000 commonly expressed as a risk of 1.0 E-05, based upon the maximally exposed individual for a ten-year chronic exposure period. The environmental performance standard for non-carcinogenic compounds is a hazard index (**HI**) of 1 or less. The Cs of C were established based on the cumulative effect of exposure to all of the VOCs simultaneously. Each VOC was assigned a portion of the overall risk and that portion of the risk was used to derive the C of C for the VOC. As the following discussion explains, the Permittees particular concern is that the portion of the risk assigned to carbon tetrachloride is too low and the portions assigned to other VOCs are too high based on what is actually observed in the waste that has been shipped to the WIPP facility over the last 11 years and based on waste anticipated in the future. Reapportionment is necessary because the concentration of carbon tetrachloride, which is one of the VOCs that is listed by the U. S. Environmental Protection Agency (**EPA**) as a suspected human carcinogen, is approaching the action level in the Permit which could require the Permittees to cease disposal in the active contact-handled (**CH**) transuranic (**TRU**) waste disposal room and close the room prematurely. Closure is premature because the risk associated with VOC emissions would be 6.2 E-07 which is approximately a factor of sixteen below the 1.0 E-05 cumulative risk limit established by the NMED. Reapportionment is an appropriate approach to preventing the premature closure of a disposal room since the Permit did not base the original apportionment of risk on the actual distribution of VOCs within the waste; operational records now demonstrate that the risk is predominately attributable to carbon tetrachloride.

Currently, the concentration of carbon tetrachloride is approaching its concentration of concern. This is clearly indicated in Figure 1 for data collected through March 10, 2010. In contrast to this, the concentrations of the other VOCs have historically been low compared to their C of C as shown in Figure 2 and Column 5 of Table 1. The data for VOCs are reported as a running annual average (**RAA**) which represents the average concentration for a VOC for the previous 12-month period. If the RAA reaches its concentration of concern, the Permittees are required to cease disposal in the active disposal room per Permit Condition IV.F.2.d and install ventilation barriers. Furthermore, if the running annual average exceeds the concentration of concern for six consecutive months, the active hazardous waste disposal unit (**HWDU**) will also have to be closed. Closure is a measure to prevent exposing surface workers to a risk of 1.0 E-05. Given the current VOC distributions in the waste, the total risk from VOC emissions at the point where carbon tetrachloride reaches its concentration of concern will be well below the repository risk limit. The carbon tetrachloride concentration reported as the RAA represents the average of samples taken over the previous 12-month period, while the repository risk limit represents a chronic exposure over a 10-year period.

The Permittees have concluded, based on actual repository monitoring data and a projection of the VOCs associated with future waste shipments that the portion of the risk assigned to carbon tetrachloride in the current Permit is underestimated and inconsistent with the actual data. Therefore the risk for each VOC should be revised based on these data. Revision should also incorporate the latest URFs published by the EPA. The Permittees believe ceasing disposal in the active room and/or the active HWDU would be premature, unnecessary and would disrupt the normal waste handling process of filling rooms of the HWDUs prior to initiating HWDU closure. In addition, it would result in an unnecessary loss of disposal space which also impacts waste disposal operations.

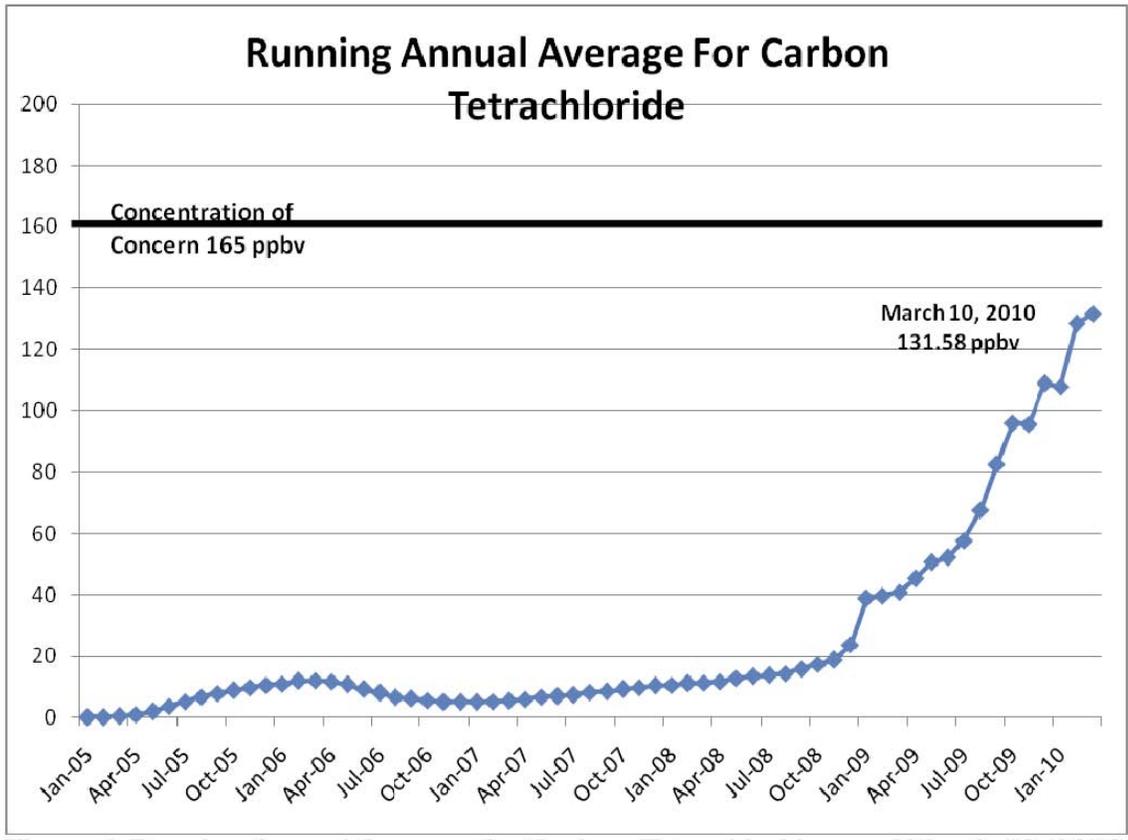


Figure 1 Running Annual Average for Carbon Tetrachloride as of March 10, 2010

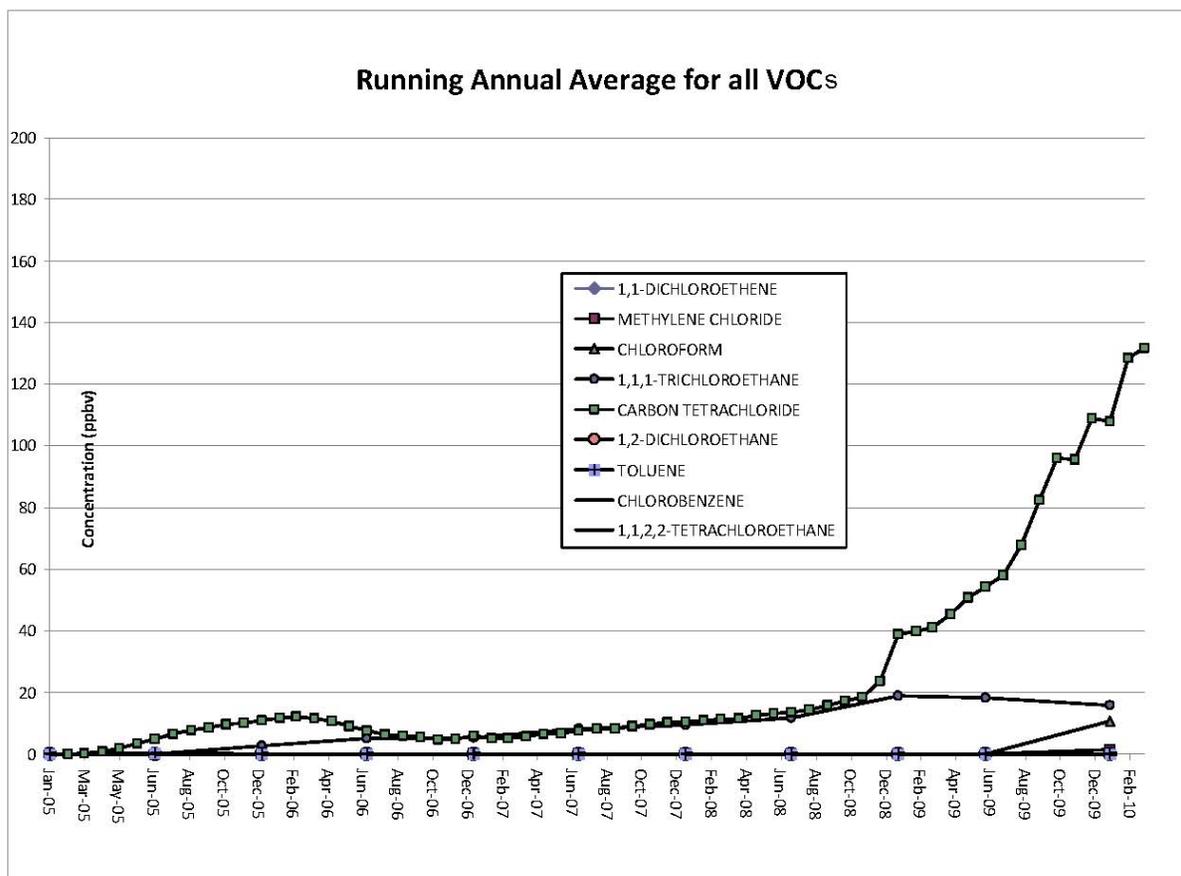


Figure 2 Running Annual Average for all VOCs through December 22, 2009

The Permittees first became concerned about the rapidly rising levels of carbon tetrachloride in July, 2009, and have been working diligently since then to control the emissions. The Permittees considered a number of options to control the emissions of carbon tetrachloride. These included adding granulated activated carbon (**GAC**) to waste containers prior to shipment to the WIPP facility. However, this was determined to be ineffective due to the limited GAC surface area exposed. The Permittees also considered a process for changing drum filters upon arrival at the WIPP facility to a less diffusive filter, however this was not recommended at this time due to the potential for extensive handling, additional exposure to workers, and the creation of a filter waste stream at the WIPP facility. In addition, the Permittees considered the construction of explosion-isolation walls for Panels 3 and 4 as a means of mitigating carbon tetrachloride emissions. This option was not recommended at this time for the following reasons: Construction of the walls would eliminate the ability to collect hydrogen and methane data necessary for evaluating redesign of panel closures and the Permittees determined that the Panel 4 exhaust drift is an appropriate location for evaluating the use of GAC as a means of reducing emissions from filled HWDUs. The majority of the emissions are originating in Panel 5 which would be unaffected by these walls.

The Permittees will continue to evaluate the use of explosion-isolation walls.

Actions taken include the following:

- Additional bulkheads in filled HWDUs
- Additional sealing of bulkheads in filled HWDUs
- Additional bulkheads in the active HWDU between filled rooms and active rooms
- Curtailing the shipment of the waste stream containing the high concentrations of carbon tetrachloride
- Installation of a GAC system on one drift of a filled HWDU to determine if this approach will be effective for the control of carbon tetrachloride.

With regard to future shipments of high carbon tetrachloride waste, the following actions will be used for Panel 5 and possibly future panels:

- Overpacking drums of waste with high concentrations of carbon tetrachloride into standard waste boxes or ten drum overpacks: The purpose of overpacking is to control the diffusivity of VOCs from these containers. In order to meet transportation requirements some containers of solidified organics have the highly diffusive filters (e.g. "5 X"). However, filters with lower diffusivity are acceptable at the WIPP facility. In order to mitigate the effect of the higher diffusivity filters, these drums of waste may be overpacked into standard waste boxes or ten drum overpacks. These overpacks would have the higher diffusivity filters installed along with lower diffusivity filters. This reconfiguration maintains an acceptable shipment configuration and facilitates the plugging of the higher diffusivity filters at the WIPP facility. This should result in a significant decrease in carbon tetrachloride emissions from containers once shipments resume with minimal impact to waste handling operations at the WIPP facility.

Along with these actions to control the emission of carbon tetrachloride, numerous administrative actions have been taken to protect underground workers from potential hazardous exposure to carbon tetrachloride. These include increased monitoring, entry restrictions in areas of the underground that may have high concentrations of carbon tetrachloride, locks on bulkhead doors where concentrations may be high, enhanced training, and use of personal protective equipment when needed.

While the administrative activities have been successful in protecting workers, none of the activities that have been taken to date have been successful enough either separately or collectively to significantly impact the RAA of carbon tetrachloride. The RAA for carbon tetrachloride, as of March 10, 2010 is approximately 132 ppbv as shown in Figure 1. Therefore, in order to avoid having to stop disposal in the active CH room or HWDU prematurely (i.e., when the risk posed by the VOCs is not exceeding overall repository environmental performance limits), it is appropriate to update the unit risk factors, based on current EPA information and to reapportion the risk associated with the individual VOCs within the total allowable risk, based upon the actual VOCs in waste shipped to the WIPP facility for disposal.

Therefore, the Permittees are proposing to reapportion risk and the associated concentrations of concern for the VOCs indicated in Table IV.F.2.c.

The Permittees are not proposing to revise the risk assessment methodology used by the New Mexico Environment Department (**NMED**) when it developed the Permit conditions related to VOC emissions for the underground nor are the Permittees proposing any changes to the current language in the Permit, with the exception of revising Table IV.F.2.c, *VOC Concentrations of Concern*. The items listed below are **not** changing:

- VOC source term
- VOC pathway
- VOC receptors
- Cumulative carcinogenic and non-carcinogenic risk
- Miscellaneous unit above-ground environmental performance standards (however the repository concentrations of concern for four VOCs used to incorporate these limits are changing)
- Miscellaneous unit underground environmental performance standards (room-based limits)

The Permittees have included a link to the appropriate background information on the WIPP homepage concerning the VOC source term, pathways, receptors, risk, miscellaneous unit limits, VOC data collected by the Repository VOC Monitoring System, data supplied to the NMED regarding the carbon tetrachloride concentration measured by the Repository VOC Monitoring System, and the summary of historical measurements as reported to stakeholders at a March 22, 2010 meeting. Specifically, the link will lead to the following items:

- WIPP Permit Application Appendices
- NMED Direct Testimony Regarding VOC Concentrations
- Paper entitled "VOC Risks in the Permit"
- Data from published VOC monitoring reports through June 30, 2009. (Data for the period July 1, 2009 through December 31, 2009 has not been published, however the Running Annual Averages are similar to the December 22, 2009 data reported in Table 1)
- Data submitted to NMED regarding carbon tetrachloride which show Station VOC-A results through March 2, 2010
- Presentation used to brief stakeholders regarding this PMR
- Toxicological Review of 1,1-dichloroethylene
- IRIS Information on carbon tetrachloride as of March 31, 2010.

This link is: <http://www.wipp.energy.gov/rcradox/Draftmods.htm>

RISK APPORTIONMENT

The NMED, in accordance with EPA guidance (EPA, 1998 a, b) calculated the risk to the receptor as a cumulative risk adding the effects of all VOCs. The initial assumption regarding the apportionment of risk made by the NMED was that the risk associated with each VOC was equal. Risk was then reapportioned by the NMED based on other factors related to establishing the room-based limits associated with the miscellaneous unit underground environmental performance standards. However, this apportionment does not reflect all of the data the Permittees provided in the Permit Application regarding the waste. The Permittees' data indicated that carbon tetrachloride was expected to be the dominant contributor to the carcinogenic risk. After a review of the 2009 TRU Waste Inventory Report (DOE, 2009) , the Permittees believe that there is sufficient knowledge about both current and future waste streams and the potential VOC emissions from these wastes to more accurately reapportion the risk. This reapportionment will primarily have the result of raising the concentration of concern for carbon tetrachloride while maintaining an overall cumulative risk of 1 in 100,000 or 1.0 E-05.

The approach proposed by the Permittees uses the actual RAA shown in Table 1 for suspected human carcinogens and calculates the risk accordingly. The risk will then be scaled so that it sums to 1.0 E-05. If scaling is based entirely on the current results, the expectation is that the carbon tetrachloride concentration of concern would increase to over 2,100 ppbv. However, a lower number is more appropriate as discussed below.

TABLE 1 Actual Repository Monitoring Results for One Year Ending on 12/22/09

Compound	Average of Sample Pair Difference (RAA)	Minimum of Sample Pair Difference	Maximum of Sample Pair Difference	Current Permit Concentration of Concern
	ppbv	ppbv	ppbv	ppbv
1,1,1-Trichloroethane	17.56	0	105.55	590
1,1,2,2-Tetrachloroethane*	0	0	0	50
1,1-Dichloroethene	0	0	0	100
1,2-Dichloroethane*	0	0	0	45
Carbon Tetrachloride*	108.73	0	393.65	165
Chlorobenzene	0	0	0	220
Chloroform*	10.46	0	46.04	180
Methylene Chloride*	1.99	0	27.89	1,930
Toluene	0.01	0	1.97	190

*= suspected human carcinogen

Table 1 represents the validated results from the Repository Monitoring System for the consecutive 12-month period ending December 22, 2009 and contains 105 data pairs. A data pair is a normalized concentration at Station VOC A and a corresponding normalized concentration at Station VOC B. The sample pair difference is calculated by subtracting the concentration at Station VOC B from the concentration at Station VOC A. The second column is the RAA. Table 2 provides the actual risk for the VOCs that have non-zero RAA in Table 1. Note that Table 2 uses the most recent EPA URFs.

It is apparent that most of the suspected human carcinogenic VOC risk is from carbon tetrachloride, although the distribution in the Permit only assigns approximately 19 percent of the risk to carbon tetrachloride. The inequity between the Permit value and the actual value can be resolved by reapportioning the risk to reflect the reality of the current measurements. Table 3 is the redistribution, assuring that the total risk does not exceed 1.0 E-05. In reapportioning the risk, some portion of the risk has been assigned to the VOCs that are zeros for the RAA in Table 1 since they may occur at some time in the future and with a risk portion of zero, the concentration of concern is automatically exceeded. Table 3 assigns 1,1-DCE to the non-carcinogen category; and no change in its concentration of concern is needed. This reassignment increases the cumulative Hazard Index associated with non-carcinogens. However, the application of the revised RfCs for the other non-carcinogens results in a lower total risk than what is represented by the values in the Permit. This resulting sum remains well below a Hazard Index of 1.

TABLE 2 Calculation of Risk Based on Actual Repository Monitoring Results as of December 22, 2009

		Carbon Tetrachloride	Chlorobenzene	Chloroform	1,1-Dichloroethene	1,2-Dichloroethane	Methylene Chloride	1,1,2,2-Tetrachloroethane	Toluene	1,1,1-Trichloroethane
Concentration of Concern E-300	ppbv	108.73	0	10.46	0	0	1.99	0	0.01	17.56
Concentration of Concern E-300	µg/m ³	679.5	0	51.1	0	0	6.9	0	0	95.8
Receptor Concentration	ppbv	4.1 E-04	0.	4.0E-05	0	0.	5.4 E-06	0	3.8 E-08	5.9 E-05
Receptor Concentration	µg/m ³	2.6	0	0.2	0	0	0.019	0	1.4 E-04	0.32
Associated Risk Carcinogenic		4.8 E-07		1.4E-07		0	2.8 E-10	0		
Associated Risk Non- carcinogenic			0		0				6.2 E-09	1.4 E-05
Carcinogen Risk Distribution	%	77.1		22.9		0	0.04	0		
Non-Carcinogen Risk Distribution	%		0		0				0.04	99.96

Table 3 shows the current risk (Permit Values) and its apportionment as a percentage of the total risk (Columns 2 and 3); the actual risk using the current EPA URFs (Actual Data) and its apportionment as a percentage of the total risk, (Columns 4 and 5) based on the data in Table 1; and a recommended reapportionment (Proposed Change) as a risk and its apportionment as a percentage of the total risk (Columns 6 and 7), assuring no VOC is assigned zero risk. The reapportioned risk incorporates the current EPA URFs into the Permit. The current and proposed Cs of C are also shown (Columns 8 and 9). Note that minor differences in the values between the “PERMIT VALUES” columns and the “PROPOSED CHANGE” columns of Table 3 for those compounds that

did not change are due to round-off of the Cs of C when they were included in the Permit. Also note the changes in the risk factors for each of the non-carcinogens results in the reduction of the total non-carcinogenic risk. However, these Cs of C are not proposed to change at this time.

TABLE 3 Reapportioned Risk and the Associated Concentrations of Concern

VOC	PERMIT VALUES		ACTUAL DATA		PROPOSED CHANGE		C of C ppbv	
	RISK	Percent	RISK	Percent	RISK	Percent	Permit	New
Carcinogenic VOCs								
Carbon Tetrachloride	1.9 E-06	18.6	4.8 E-07	77.1	7.38 E-06	73.9	165	1660
Chloroform	2.4 E-06	24.1	1.4 E-07	22.9	1.19 E-06	11.9	180	90
1,1-Dichloroethene*	2.4 E-06	24.1						
1,2-Dichloroethane	5.4 E-07	5.4	0	0	5.58 E-07	5.6	45	45
Methylene Chloride	3.7 E-07	4.7	2.8 E-10	0.04	2.0 E-07	2.0	1930	1040
1,1,2,2-Tetrachloroethane	2.4 E-06	24.1	0	0	6.57 E-07	6.6	50	14
TOTAL	1.0 E-05	100	6.2 E-07	100	1.0 E-05	100		
Non carcinogenic VOCs								
Chlorobenzene	4.2 E-02	88.9	0	0	1.7 E-02	95.0	220	220
Toluene	1.5 E-03	3.1	6.2 E-09	0.04	1.2 E-04	0.67	190	190
1,1,1-Trichloroethane	3.8 E-03	8.0	1.4 E-05	99.96	5.3 E-04	3.02	590	590
1,1-Dichloroethene*			0	0	2.3 E-04	1.33	100	100
TOTAL	4.7 E-02	100	1.4 E-05	100	1.8 E-02	100		

*1,1-Dichloroethene has been reclassified by the EPA as a non-carcinogen (EPA, 2002)

The rationale for proposing this change is as follows:

- EPA has issued new URFs for five of the VOCs
- The overall risk is not changing
- The original risk was not based on actual VOC data, the current risk is based on actual data
- Allocation is made to assure minimum values are greater than 10 ppbv for detection purposes
- Surface non-waste worker risk is decoupled from underground worker risk (previously, the surface risk value was established based on the room-based limit)
- Room-based values are protective and are not proposed to change at this time

The proposed changes are based on actual measurements that reflect the emissions coming from the current inventory of waste disposed at the WIPP facility and on potential emissions from wastes anticipated to be sent to WIPP in the future. These emissions are dominated by the current shipping campaign of solidified sludges from the Idaho National Laboratory. The Permittees estimate that only about one-third of this waste has been shipped and disposed. The revised Cs of C along with the other measures in place and proposed, provide the Permittees with the assurance that further disposal of this waste can be accomplished as planned while continuing to protect human health and the environment.

4. **20.4.1.900 NMAC (incorporating 40 CFR §270.42(b)(1)(iv)), requires the applicant to provide the applicable information required by 40 CFR §§270.13 through 270.21, 270.62, and 270.63.**

The regulatory crosswalk describes those portions of the Permit that are affected by this PMR. Where applicable, regulatory citations in this modification reference 20.4.1 NMAC revised March 1, 2009, incorporating 40 CFR (40 CFR Parts 264 and 270). Title 40 CFR §§270.16 through 270.21, 270.62, and 270.63 are not applicable at WIPP.

Consequently, they are not listed in the regulatory crosswalk table. Title 40 CFR §270.23 is applicable to the WIPP HWDUs. This modification does not impact the conditions associated with the HWDUs.

5. **20.4.1.900 NMAC (incorporating 40 CFR §270.11(d)(1) and 40 CFR §270.30(k)), requires any person signing under paragraphs a and b must certify the document in accordance with 20.4.1.900 NMAC.**

The transmittal letter for this PMR contains the signed certification statement in accordance with Module I.F. of the Permit.

REFERENCES

DOE, 2009, Annual Transuranic Waste Inventory Report-2009, DOE/TRU-09-3425 12/31/2008, U.S. Department of Energy, Carlsbad, NM (available at http://www.wipp.energy.gov/library/Baseline2004/FY2009/Annual_TRU_Waste_Inventory_Report-2009_DOE_TRU-2009-3425.pdf)

EPA, 2002, Toxicological Review of 1, 1-Dichloroethylene, June 2002, U. S. Environmental Protection Agency, Washington, .D. C. (available at <http://www.wipp.energy.gov/rcradox/Draftmods.htm>)

EPA, 1998a, Human Health Risk Assessment Protocol for Hazardous Waste Combustion Facilities, EPA 530-D-98-001A, July 1998 (available at <http://www.wipp.energy.gov/rcradox/Draftmods.htm>)

EPA 1998b, EPA Region 6 Risk Management Addendum-Draft Human Health Risk Assessment Protocol for Hazardous Waste Combustion Facilities, EPA-R6-98-002, July 1998 (available at http://www.epa.gov/region6/6pd/rcra_c/protocol/r6add.pdf)

Note that the IRIS database can be accessed at the following URL: www.epa.gov/iris

Regulatory Crosswalk					
Regulatory Citation(s) 20.4.1.900 NMAC (incorporating 40 CFR Part 270)	Regulatory Citation(s) 20.4.1.500 NMAC (incorporating 40 CFR Part 264)	Description of Requirement	Added or Clarified Information		
			Section of the HWFP or Permit Application	Yes	No
§270.13		Contents of Part A permit application	Attachment O, Part A		√
§270.14(b)(1)		General facility description	Attachment A		√
§270.14(b)(2)	§264.13(a)	Chemical and physical analyses	Attachment B		√
§270.14(b)(3)	§264.13(b)	Development and implementation of waste analysis plan	Attachment B		√
	§264.13(c)	Off-site waste analysis requirements	Attachment B		√
§270.14(b)(4)	§264.14(a-c)	Security procedures and equipment	Attachment C		√
§270.14(b)(5)	§264.15(a-d)	General inspection requirements	Attachment D		√
	§264.174	Container inspections	Attachment D		√
§270.23(a)(2)	§264.602	Miscellaneous units inspections	Attachment D		√
§270.14(b)(6)		Request for waiver from preparedness and prevention requirements of Part 264 Subpart C	NA		√
§270.14(b)(7)	264 Subpart D	Contingency plan requirements	Attachment F		√
	§264.51	Contingency plan design and implementation	Attachment F		√
	§264.52 (a) & (c-f)	Contingency plan content	Attachment F		√
	§264.53	Contingency plan copies	Attachment F		√
	§264.54	Contingency plan amendment	Attachment F		√
	§264.55	Emergency coordinator	Attachment F		√
	§264.56	Emergency procedures	Attachment F		√
§270.14(b)(8)		Description of procedures, structures or equipment for:	Attachment E		√
§270.14(b)(8)(i)		Prevention of hazards in unloading operations (e.g., ramps and special forklifts)	Attachment E		√
§270.14(b)(8)(ii)		Runoff or flood prevention (e.g., berms, trenches, and dikes)	Attachment E		√
§270.14(b)(8)(iii)		Prevention of contamination of water supplies	Attachment E		√
§270.14(b)(8)(iv)		Mitigation of effects of equipment failure and power outages	Attachment E		√
§270.14(b)(8)(v)		Prevention of undue exposure of personnel (e.g., personal protective equipment)	Attachment E		√
§270.14(b)(8)(vi) §270.23(a)(2)	§264.601	Prevention of releases to the atmosphere	Module II Module IV Attachment M2 Attachment N	√	
	264 Subpart C	Preparedness and Prevention	Attachment E		√
	§264.31	Design and operation of facility	Attachment E		√
	§264.32	Required equipment	Attachment E Attachment F		√
	§264.33	Testing and maintenance of equipment	Attachment D		√

Regulatory Crosswalk					
Regulatory Citation(s) 20.4.1.900 NMAC (incorporating 40 CFR Part 270)	Regulatory Citation(s) 20.4.1.500 NMAC (incorporating 40 CFR Part 264)	Description of Requirement	Added or Clarified Information		
			Section of the HWFP or Permit Application	Yes	No
	§264.34	Access to communication/alarm system	Attachment E		√
	§264.35	Required aisle space	Attachment E		√
	§264.37	Arrangements with local authorities	Attachment F		√
§270.14(b)(9)	§264.17(a-c)	Prevention of accidental ignition or reaction of ignitable, reactive, or incompatible wastes	Attachment E		√
§270.14(b)(10)		Traffic pattern, volume, and controls, for example: Identification of turn lanes Identification of traffic/stacking lanes, if appropriate Description of access road surface Description of access road load-bearing capacity Identification of traffic controls	Attachment G		√
§270.14(b)(11)(i) and (ii)	§264.18(a)	Seismic standard applicability and requirements	Part B, Rev. 6 Chapter B		√
§270.14(b)(11)(iii-v)	§264.18(b)	100-year flood plain standard	Part B, Rev. 6 Chapter B		√
	§264.18(c)	Other location standards	Part B, Rev. 6 Chapter B		√
§270.14(b)(12)	§264.16(a-e)	Personnel training program	Permit Module II Attachment H		√
§270.14(b)(13)	264 Subpart G	Closure and post-closure plans	Attachment I & J		√
§270.14(b)(13)	§264.111	Closure performance standard	Attachment I		√
§270.14(b)(13)	§264.112(a), (b)	Written content of closure plan	Attachment I		√
§270.14(b)(13)	§264.112(c)	Amendment of closure plan	Attachment I		√
§270.14(b)(13)	§264.112(d)	Notification of partial and final closure	Attachment I		√
§270.14(b)(13)	§264.112(e)	Removal of wastes and decontamination/dismantling of equipment	Attachment I		√
§270.14(b)(13)	§264.113	Time allowed for closure	Attachment I		√
§270.14(b)(13)	§264.114	Disposal/decontamination	Attachment I		√
§270.14(b)(13)	§264.115	Certification of closure	Attachment I		√
§270.14(b)(13)	§264.116	Survey plat	Attachment I		√
§270.14(b)(13)	§264.117	Post-closure care and use of property	Attachment J		√
§270.14(b)(13)	§264.118	Post-closure plan; amendment of plan	Attachment J		√
§270.14(b)(13)	§264.178	Closure/containers	Attachment I		√
§270.14(b)(13)	§264.601	Environmental performance standards-Miscellaneous units	Attachment I		√
§270.14(b)(13)	§264.603	Post-closure care	Attachment I		√
§270.14(b)(14)	§264.119	Post-closure notices	Attachment J		√
§270.14(b)(15)	§264.142	Closure cost estimate	NA		√
	§264.143	Financial assurance	NA		√
§270.14(b)(16)	§264.144	Post-closure cost estimate	NA		√
	§264.145	Post-closure care financial assurance	NA		√
§270.14(b)(17)	§264.147	Liability insurance	NA		√

Regulatory Crosswalk					
Regulatory Citation(s) 20.4.1.900 NMAC (incorporating 40 CFR Part 270)	Regulatory Citation(s) 20.4.1.500 NMAC (incorporating 40 CFR Part 264)	Description of Requirement	Added or Clarified Information		
			Section of the HWFP or Permit Application	Yes	No
§270.14(b)(18)	§264.149-150	Proof of financial coverage	NA		√
§270.14(b)(19)(I), (vi), (vii), and (x)		Topographic map requirements Map scale and date Map orientation Legal boundaries Buildings Treatment, storage, and disposal operations Run-on/run-off control systems Fire control facilities	Attachment O Part A Part B, Rev. 6 Chapter B, E		√
§270.14(b)(19)(ii)	§264.18(b)	100-year floodplain	Attachment O Part A Part B, Rev. 6 Chapter B, E		√
§270.14(b)(19)(iii)		Surface waters	Attachment O Part A Part B, Rev. 6 Chapter B, E		√
§270.14(b)(19)(iv)		Surrounding Land use	Attachment O Part A Part B, Rev. 6 Chapter B, E		√
§270.14(b)(19)(v)		Wind rose	Attachment O Part A Part B, Rev. 6 Chapter B, E		√
§270.14(b)(19)(viii)	§264.14(b)	Access controls	Attachment O Part A Part B, Rev. 6 Chapter B, E, F		√
§270.14(b)(19)(ix)		Injection and withdrawal wells	Attachment O Part A Part B, Rev. 6 Chapter B, E, F		√
§270.14(b)(19)(xi)		Drainage on flood control barriers	Part B, Rev. 6 Chapter B, E, F		√
§270.14(b)(19)(xii)		Location of operational units	Part B, Rev. 6 Chapter B		√
§270.14(b)(20)		Other federal laws Wild and Scenic Rivers Act National Historic Preservation Act Endangered Species Act Coastal Zone Management Act Fish and Wildlife Coordination Act Executive Orders	Part B, Rev. 6 Chapter K		√
§270.15	§264 Subpart I	Containers	Attachment M1		√
	§264.171	Condition of containers	Attachment M1		√
	§264.172	Compatibility of waste with containers	Attachment M1		√
	§264.173	Management of containers	Attachment M1		√
	§264.174	Inspections	Attachment D Attachment M1		√
§270.15(a)	§264.175	Containment systems	Attachment M1		√

Regulatory Crosswalk					
Regulatory Citation(s) 20.4.1.900 NMAC (incorporating 40 CFR Part 270)	Regulatory Citation(s) 20.4.1.500 NMAC (incorporating 40 CFR Part 264)	Description of Requirement	Added or Clarified Information		
			Section of the HWFP or Permit Application	Yes	No
§270.15(c)	§264.176	Special requirements for ignitable or reactive waste	Attachment E Permit Module II		√
§270.15(d)	§264.177	Special requirements for incompatible wastes	Attachment E Permit Module II		√
	§264.178	Closure	Attachment I		√
§270.15(e)	§264.179	Air emission standards	Attachment E Attachment N		√
§270.23	264 Subpart X	Miscellaneous units	Attachment M2		√
§270.23(a)	§264.601	Detailed unit description	Attachment M2		√
§270.23(b)	§264.601	Hydrologic, geologic, and meteorologic assessments	Permit Module IV Attachment M2		√
§270.23(c)	§264.601	Potential exposure pathways	Permit Module IV Attachment M2 Attachment N	√	
§270.23(d)		Demonstration of treatment effectiveness	Permit Module IV Attachment M2 Attachment N		√
	§264.602	Monitoring, analysis, inspection, response, reporting, and corrective action	Permit Module IV Attachment M2 Attachment N	√	
	§264.603	Post-closure care	Attachment J Attachment J1		√
	264 Subpart E	Manifest system, record keeping, and reporting	Permit Module I Permit Module II Permit Module IV Attachment B		√

Attachment A
Table of Changes – Item 1

Table of Changes	
Affected Permit Section	List of Changes
Module IV, Table IV.F.2.c, VOC Concentrations of Concern	<ul style="list-style-type: none">• Revise Table IV.F.2.c to reflect revised values for some VOCs

Attachment B
Proposed Revised Permit Text

Proposed Permit Text:

Table IV.F.2.c – VOC Concentrations of Concern		
Compound	Drift E-300 Concentration	
	µg/m ³	ppbv
Carbon Tetrachloride	1050 10,445	465 1,660
Chlorobenzene	1015	220
Chloroform	890 439	480 90
1,1 Dichloroethene	410	100
1,2 Dichloroethane	175	45
Methylene Chloride	6700 3613	4930 1040
1,1,2,2-Tetrachloroethane	350 96	50 14
Toluene	715	190
1,1,1-Trichloroethane	3200	590