



**Department of Energy**  
 Carlsbad Field Office  
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 July 15, 2010



Mr. James Bearzi, Chief  
 Hazardous Waste Bureau  
 New Mexico Environment Department  
 2905 Rodeo Park Drive East, Building 1  
 Santa Fe, New Mexico 87505-6303

**Subject:** Comment on the Waste Isolation Pilot Plant Hazardous Waste Facility Revised Draft Permit as of June 29, 2010

Dear Mr. Bearzi:

The purpose of this letter is to transmit the Applicants' comment on the Waste Isolation Pilot Plant Hazardous Waste Facility Revised Draft Renewal Permit. This comment addresses the Volatile Organic Compounds (VOCs) concentrations of concern.

Please contact George T. Basabilvazo at (575) 234-7488 if you have any questions regarding this transmittal.

Sincerely,

David C. Moody, Manager  
 Carlsbad Field Office

M. F. Sharif, General Manager  
 Washington TRU Solutions LLC

Enclosure(s)

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## **Applicants' Comments on the Revised Draft Permit**

The Applicants' Preliminary Comments submitted to the NMED on May 25, 2010 have been resolved with the exception of the comment regarding Volatile Organic Compounds (VOCs). The Applicants' filed the following preliminary comment regarding VOCs:

### **6. Volatile Organic Compounds Concentration of Concern Revisions**

Comment:

The Applicants have filed a Class 2 Permit Modification to reappportion the VOC risk. The Applicants will submit a written comment to incorporate NMED's final action into the Draft Permit.

Complexity: Medium

Controversy: Medium

By letter dated April 12, 2010, the Applicants submitted a Class 2 permit modification request to the NMED to reappportion the concentrations of concern (Cs of C) for four of the VOCs. This Class 2 permit modification request was submitted to accomplish two goals:

- 1: Update the U S Environmental Protection Agency (EPA) unit risk factors used to calculate the environmental performance standards for air emissions from the repository in the Permit
- 2: Reappportion the risk associated with the VOCs by changing the C of C identified in Module IV, Table IV.F.2.c of the existing Permit.

Concentrations of concern are tabulated limits in the WIPP facility Permit that incorporate disposal unit environmental performance standards, established under 20.4.1.500 NMAC (incorporating 40 CFR 264 Subpart X). Compliance with the Permit conditions regarding Cs of C assures that public health and the environment are protected from emissions from the waste disposed in the WIPP facility.

The NMED took final action on the Class 2 Permit Modification Request on July 2, 2010 and incorporated that final action into the Revised Draft Permit. Even though the final action is already incorporated, the final action is unsatisfactory to the Applicants because the final action only accommodated a portion of Goal 1 and none of Goal 2. The specific change that the NMED made was to raise the C of C for carbon tetrachloride to 412.5 ppbv from 165 ppbv, instead of the requested 1,660 ppbv. This increase accommodates the change that the EPA made to the unit risk factor for carbon tetrachloride of 2.5 (reduction in risk) on March 31, 2010. None of the other changes in unit risk factors for target VOCs were included. The NMED did not reappportion risk as proposed by the Applicants.

The action taken by the NMED in their approval letter (Leavitt to Moody and Sharif, dated July 2, 2010) was justified solely on the basis of the EPA change to the unit risk factor for carbon tetrachloride. NMED, while not opposed to the technical basis for the proposal, believed that because of significant public interest, the incorporation of the other EPA changes which impact reappportionment of risk, and reappportionment of risk itself should be handled as a Class 3 permit modification. In their response to comments made by stakeholders, the NMED stated: *NMED concurs that the reappportionment of risk component of the PMR requires complex calculations and doesn't necessarily fit the basis cited in the PMR as qualifying for a Class 2 PMR. However, reappportionment of risk would not substantially alter the facility or its operations as the commenter states in referencing 40 CFR §270.42(d)(2)(iii). Rather than invoking §270.42(b)(6)(i)(C) at this time (i.e., determine that the PMR follow the procedures of §270.42(c) for a Class 3 due to the complex nature of the change), NMED is approving a less complex portion of the PMR as a Class 2. Additionally, because NMED will include this modification in the draft permit as changed in its NOI for the upcoming permit renewal hearing, these issues may be raised by one or more parties during that hearing scheduled for August 2010.*

Therefore, the Applicants are using the venue of Permit renewal to provide for the needed public participation and hearing for this topic.

**Applicants' Comment**

The Cs of C for VOCs measured in the Repository Monitoring Program should be established at the values listed below (shown as a redline edit to Revised Draft Permit Table 4.6.2.3) based on a reapportionment of the total allowable risk.

<b>Table 4.6.2.3 - VOC Concentrations of Concern</b>		
<b>Compound</b>	<b>Drift E-300 Concentration</b>	
	<b>ug/m3</b>	<b>ppbv</b>
Carbon Tetrachloride	<del>2625</del> <u>10,445</u>	<del>412.5</del> <u>1,660</u>
Chlorobenzene	1015	220
Chloroform	<del>890</del> <u>444</u>	<del>180</del> <u>90</u>
1,1-Dichloroethene	410	100
1,2-Dichloroethane	175	45
Methylene Chloride	<del>6700</del> <u>3,613</u>	<del>1930</del> <u>1,040</u>
1,1,2,2-Tetrachloroethane	<del>350</del> <u>93</u>	<del>50</del> <u>14</u>
Toluene	715	190
1,1,1-Trichloroethane	3200	590

The concept of reapportionment however is quite simple. Risk should be applied to VOCs in proportion to their concentration in the waste. If risk is applied in a manner that does not represent actual conditions, it should be reapportioned as needed. The Applicants used the same procedures for calculating the cumulative risk as did the NMED, but varied only in the reapportionment. The technical details are discussed below.

There are multiple reasons that the Applicants propose the revised Cs of C including:

- Risk has not been totally apportioned. The current risk limit using the 412.5 ppbv for carbon tetrachloride and no other changes is 7.5 E-06 which is 25 percent below the environmental performance standard of 1.0 E-05 established by the NMED for the surface worker in the HWFP<sup>1</sup>.
- As stated in the response to comment above, the current risk distribution does not reflect the inventory of VOCs in the current and anticipated waste.
- Other EPA changes to VOC risk factors such as the reclassification of 1,1-Dichloroethylene from a suspected human carcinogen to a non-carcinogen need to be incorporated into the Permit.

The NMED's original basis for apportioning risk among the VOCs is described in the following from its response to comments: *NMED's initial apportionment of risk among the original six carcinogenic VOCs was not based upon assumptions about future inventory. Instead, it was based on limiting three of the VOCs to concentration limits not to exceed an acute exposure limit to underground workers in the event of a roof fall in a panel. The remaining three VOC limits were established by apportioning the remaining excess cancer risk evenly such that the cumulative risk from all six VOCs did not exceed an excess*

<sup>1</sup> NMED Memo to File dated November 19, 1998 and titled "NMED Calculations for VOC concentrations in WIPP Underground HWDUs"

*cancer risk of  $10^{-5}$  resulting from an occupational exposure to a non-waste worker at the surface. Any reasonable reapportionment of excess cancer risk from carcinogenic VOCs that does not exceed this  $10^{-5}$  occupational exposure limit would be acceptable. NMED is not approving the Permittees' request to reapportion risk. The tie that the NMED created between Repository Cs of C and the limits to prevent an acute exposure to an underground worker (i.e., Room-based limits) no longer exists after the 2006 modification to the Permit that added Room-based VOC monitoring.*

## **Discussion**

This modification to the Cs of C was proposed by the Permittees in early 2010 in response to an increasing concentration of carbon tetrachloride in the air emitted from the WIPP facility. The carbon tetrachloride originates from several high-organic waste streams being disposed of in the facility. As carbon tetrachloride concentrations began to rise, the Applicants took several measures to assure the protection of workers in the underground in the vicinity of the waste. These measures, while effective in protecting workers, did not totally address the levels of carbon tetrachloride that are detected in the air exhausted from the repository. Twice per week measurements, averaged with measurements taken over the previous 12 months (referred to as the "running annual average" (RAA)) are approaching the C of C for carbon tetrachloride. Once the RAA reaches the C of C for any of the nine target VOCs, action must be initiated to cease disposal in the active disposal room in the repository, close the room, and move into a new room. These actions were included in the Permit by the NMED in order to prevent the  $1.0 \times 10^{-5}$  risk limit from being exceeded, thereby protecting the surface worker. The Applicants became concerned because simple calculations show that at the point carbon tetrachloride reaches its C of C, the actual risk to the surface worker would be only one-sixteenth of the risk limit. In fact, the C of C for carbon tetrachloride could be many times higher and still be protective.

This situation exists because the manner in which the NMED assigned a portion of the total risk to each of the VOCs (referred to as apportionment) in the original RCRA Permit, resulting in a small portion of the risk (18.7 percent) being assigned to carbon tetrachloride. The NMED's original apportionment of risk is inconsistent with the observations of actual waste data (as of December 31, 2009) which show over 77 percent of the risk is associated with carbon tetrachloride. In order to rectify the situation and to prevent having to stop waste disposal in an active portion of the repository prematurely, the Applicants now seek to reapportion the risk among the VOCs in a manner that reflects the actual and anticipated characteristics of the waste.

The Applicants used a four step process for reapportioning the risk and determining revised Cs of C:

- Step 1: Examine how the distribution of VOCs has changed over time and determine the associated risk
- Step 2: Examine the risk associated with the current distribution of VOCs based on actual data
- Step 3: Examine how the distribution of VOCs may change in the future
- Step 4: Reapportion the risk and calculate new Cs of C based on past and actual data, expected waste and new EPA Risk factors

In Steps 1 and 2, the risk is evaluated based on the concentration of the VOCs measured in the emissions from the facility. In Step 3, waste characteristics for future waste streams are compared to current waste streams. In each case, available data are used for the assessment.

### **Step 1**

In order to evaluate the past distribution of VOCs, the Applicants examined the RAA for each VOC as published in the Annual and Semi-annual VOC monitoring reports submitted in accordance with the Permit. In addition, the maximum recorded value for each VOC during the reporting period is examined to determine if there are any of the nine VOCs of interest that have not been present. These data are summarized in Tables 1, 2 and 3 and lead to the following conclusion:

- Historically, only carbon tetrachloride, chloroform, methylene chloride, 1,1,1-trichloroethane, and toluene have been present in sufficient concentrations to calculate RAAs

- Historically, the cumulative risk posed has been very low and has been dominated by carbon tetrachloride
- Historically, all 9 VOCs have been detected at some time in the emissions from the WIPP facility

### Step 2

This step can be accomplished by examining the last column in Tables 1 and 2. These represent very recent VOC data. These data show that currently, with the RAA for carbon tetrachloride at 141.4 ppbv, the RAA for chloroform at 15.2 ppbv, and the RAA for methylene chloride is at 1.7 ppbv the cumulative risk posed these three carcinogenic VOCs with non-zero RAAs, is about 8.2 percent of the limit or  $8.2 \times 10^{-7}$ . Carbon tetrachloride makes up about 76 percent of the risk posed by the current emissions from the waste disposed of in the WIPP facility. The observations from Step 2 lead to the following conclusions:

- Only three of the suspected human carcinogens are detected in the waste in sufficient concentration to result in a non-zero Running Annual Average:
  - o Carbon tetrachloride
  - o Chloroform
  - o Methylene chloride
- The total risk to the non waste surface worker is  $8.2 \times 10^{-7}$  (compared to the limit of  $10^{-5}$ )
- Carbon tetrachloride contributes 76 percent of this risk

### Step 3

In order to evaluate the future waste shipments, the TRU waste inventory database was consulted to determine what high-organic waste REMAINED in the inventory. Four waste streams were identified as shown in Table 4. These waste streams are currently being shipped to the WIPP facility and are contributing to the VOC emissions being measured. This leads to the following conclusions for Step 3:

- The only significant waste streams for the future are those that are currently being disposed
- No significant change in distribution of VOCs is anticipated

### Step 4

The final step is to reapportion the risk in order to determine new Cs of C. The following considerations are taken into account. These were evaluated as criteria to apply to the decision making process for reapportionment:

Criterion 1. The new Cs of C should reflect VOCs associated with historical and current data and waste projections (Results of Steps 1 to 3)

Criterion 2. The new Cs of C should accommodate very low concentration values. However a C of zero is not appropriate since all compounds have been detected at some time during the life of the WIPP facility. A recommended minimum value is 14 ppbv to assure reliable detection of a VOC in a sample.

Criterion 3. The new Cs of C should reflect current EPA risk factors

Table 5 summarizes the results of Step 4 by illustrating process for changing the Cs of C for the 9 VOCs in Revised Draft Permit Table 4.6.2.3. The Table is divided into three sections: Revised Draft Permit; Actual Data; and Proposed. The first column is the VOC. Note that 1,1-Dichloroethylene appears in both the upper (Carcinogen) and lower (Non-carcinogen) portions of Table 5. This represents its reclassification by the EPA as a non-carcinogen. In the Revised Draft Permit portion of the table, Column 2 contains the risk factors that were used in the Revised Draft Permit. Column 3 contains the Cs of C in Table 4.6.2.3 of the Revised Draft Permit. Column 5 is the portion of the total allowed risk that is assigned to each VOC. Note that 1,1-Dichloroethylene shows up in the calculation since it was not moved to the non-carcinogen category when NMED approved the Class 2 permit modification request and its risk was not reapportioned. In reality, because it is in fact no longer a carcinogen, the total risk is overstated. Column 5 lists the percent of the risk assigned to each VOC. This is the original assignment made by the NMED when the Permit was first issued. The Actual Data portion of the table contain the April 2010 RAAs for

the compounds that had non-zero RAAs, the risk created by that RAA and the apportionment of the risk between the VOC with non-zero RAAs. Note that 1,1-Dichloroethylene has been removed from the carcinogen portion of the table. Comparing the actual risk apportionment in Columns 5 and 8, one observes that the Revised Draft Permit significantly underestimates the portion of the risk that is associated with carbon tetrachloride. Also worth noting is the total risk of  $8.29 \times 10^{-7}$  which is significantly below the allowable risk of  $10^{-5}$ . The Proposed portion of Table 5 shows how the risk was reapportioned to raise the carbon tetrachloride C of C. The first action was to assign all of the apportioned risk from 1,1-Dichloroethylene to carbon tetrachloride since this is where it is needed most and since the risk portion for carbon tetrachloride is significantly underestimated. Next, in order to raise the risk portion for carbon tetrachloride to near the actual levels, risk was also reapportioned from compounds that occur at low concentrations such as methylene chloride and 1,1,2,2-tetrachloroethane. Finally, while chloroform is a VOC that has a current RAA, the risk portion that was assigned to it by the NMED is 4 times the amount indicated by chemical data collected from TRU mixed waste in support of the original Permit Application, and therefore is too high. Consequently risk is reapportioned from chloroform to carbon tetrachloride. Column 13 quantifies the amount of risk that was reapportioned from each compound and assigned to carbon tetrachloride. Column 14 provides a short justification. In this column, reference to "anticipated" values refers to the distribution of VOC concentration and risk that was evaluated for the original Permit Application. The final column shows which of the criteria above was considered in reapportioning the risk. Column 12 contains the proposed new Cs of C that the Applicants are requesting in this comment.

With regard to the non carcinogens, the changes in risk factors have resulted in a total risk that is also significantly less than the target cumulative hazard index of 1. However, while this comment documents the application of the new risk factors, the Applicants are not seeking a change in the Cs of C for these compounds. If the concentrations increase to the point where the Cs of C are being approached, the Applicants may revisit this topic.

### **Technical Basis for Environmental Performance Standards**

The following discussion provides additional information regarding the development of risk factors and their use by the NMED in developing the environmental performance standards for the WIPP facility. At the time NMED issued the WIPP Hazardous Waste 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 of the existing Permit and Table 4.6.2.3 in the Revised Draft Permit. 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 by the EPA 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-Dichloroethylene was reclassified in the Integrated Risk Information System (IRIS) as a non-carcinogen and was assigned a RfC of 0.2 milligram per cubic meter ( $\text{mg}/\text{m}^3$ )<sup>2</sup>; on September 23, 2005 the RfC for toluene was changed from  $0.4 \text{ mg}/\text{m}^3$  to  $5.0 \text{ mg}/\text{m}^3$ , on June 1, 2007, the EPA changed the RfC for chlorobenzene from  $0.02 \text{ mg}/\text{m}^3$  to  $0.05 \text{ mg}/\text{m}^3$  (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  $0.7 \text{ mg}/\text{m}^3$  to  $5.0 \text{ mg}/\text{m}^3$ , on March 31, 2010, the EPA changed the inhalation unit risk for carbon tetrachloride from  $1.5 \times 10^{-5} \text{ m}^3/\mu\text{g}$  to  $6.0 \times 10^{-6} \text{ m}^3/\mu\text{g}$ .

The EPA establishes dose standards (exposure limits) based on the estimated effect of a toxic agent on a person with specified characteristics. This benchmark dosage is known as the reference dose. To find

<sup>2</sup> Toxicological Review of 1,1-Dichloroethylene (CAS No. 75-35-4), EPA/635/R02/002, June 2002

<sup>3</sup> Toxicological Review of Carbon Tetrachloride (CASRN 56-23-5), EPA/635/R-08/005F, March 2010

the reference dose, several different dosages of a substance are tested on laboratory animals. Starting at the highest dose, the toxicologist continues to lower doses until effects are no longer detectable (i.e., the dose at which experimental animals no longer differ from controls). This dose, called the "no observed adverse effect level" (NOAEL), is considered the highest dose that poses an acceptable risk. The NOAEL is then adjusted for a series of uncertainty factors to determine the final reference dose. For example, the EPA toxicological review for carbon tetrachloride<sup>4</sup> indicates that an uncertainty factor of 100 was applied to the results of the toxicological study to determine the inhalation reference concentration. These uncertainty factors are used to account for lack of specific data regarding species or exposure routes and thereby provide conservatism to the limits.

The Cs of C specified in the existing 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  $1.0 \times 10^{-5}$ , 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. The portion of the risk assigned does not reflect the distribution of risk that 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. The NMED's process for calculating the Cs of C in the HWFP is documented in the administrative record<sup>5,6</sup>.

The NMED, in accordance with EPA guidance<sup>7,8</sup> 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 is discussed above. However, this apportionment does not reflect all of the data the Applicants provided in the Permit Application regarding the waste. The Applicants' data indicate that carbon tetrachloride was expected to be the dominant contributor to the carcinogenic risk. After a review of the 2009 TRU Waste Inventory Report<sup>9</sup>, the Applicants 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  $1.0 \times 10^{-5}$ .

In summary, the rationale for proposing this change is as follows:

- EPA has issued new URFs for five of the VOCs. NMED has only incorporated one of these changes.
- The overall risk is not changing: it remains at  $1.0 \times 10^{-5}$
- The original risk was not based on actual VOC data, the current risk is based on actual data

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<sup>4</sup> id Section 5.3, p. 212

<sup>5</sup> NMED Memo to File dated November 19, 1998 and titled "NMED Calculations for VOC concentrations in WIPP Underground HWDUs"

<sup>6</sup> New Mexico Environment Department's Direct Testimony Regarding Regulatory Process and Imposed Conditions, March 1999

<sup>7</sup> EPA, Human Health Risk Assessment Protocol for Hazardous Waste Combustion Facilities, EPA 530-D-98-001A, July 1998

<sup>8</sup> EPA, EPA Region 6 Risk Management Addendum-Draft Human Health Risk Assessment Protocol for Hazardous Waste Combustion Facilities, EPA-R6-98-002, July 1998

<sup>9</sup> DOE, Annual Transuranic Waste Inventory Report-2009, DOE/TRU-09-3425 12/31/2008, U.S. Department of Energy, Carlsbad, NM

The NMED's initial apportionment of risk to carbon tetrachloride was based on limiting the concentration so as not to exceed an acute exposure limit to underground workers in the event of a roof fall in a panel. The tie between the above ground limit and the underground limit was eliminated by a 2006 modification to the Permit. As the result, the C of C for carbon tetrachloride is no longer constrained by the underground limit.

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 Applicants 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 Applicants with the assurance that further disposal of this waste can be accomplished as planned while continuing to protect human health and the environment.



TABLE 1 RUNNING ANNUAL AVERAGE FOR THE REPORTING DATE SHOWN

Values are the Running Annual Average in parts per billion by volume

	REPORTING PERIOD (Reporting period ends on the last day of the month shown)													
	Jun-01	Jun-02	Jun-03	Jun-04	Jun-05	Jun-06	Dec-06	Jun-07	Dec-07	Jun-08	Dec-08	Jun-09	Dec-09	Apr-10
CARBON TETRACHLORIDE	0.0	0.0	0.0	0.0	4.9	7.6	5.9	8.7	10.4	13.6	38.9	54.3	107.8	141.4
CHLOROFORM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.8	15.2
1,2-DICHLOROETHANE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
METHYLENE CHLORIDE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	1.7
1,1,2,2-TETRACHLOROETHANE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1,1-DICHLOROETHENE*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1,1,1-TRICHLOROETHANE	0.0	0.0	0.0	0.0	2.4	5.2	5.4	8.2	9.3	11.7	19.0	18.2	15.8	16.6
TOLUENE	0.0	0.0	0.0	0.0	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CHLOROBENZENE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

\*1,1-DICHLOROETHENE is a pseudonym for 1,1 DICHLOROETHYLENE

TABLE 2 RISK TO SURFACE WORKER

Values are in percent of risk limit ( $10^{-5}$ )

	REPORTING PERIOD (Reporting period ends on the last day of the month shown)													
	Jun-01	Jun-02	Jun-03	Jun-04	Jun-05	Jun-06	Dec-06	Jun-07	Dec-07	Jun-08	Dec-08	Jun-09	Dec-09	Apr-10
CARBON TETRACHLORIDE	0.0%	0.0%	0.0%	0.0%	0.2%	0.3%	0.3%	0.4%	0.5%	0.6%	1.7%	2.4%	4.8%	6.3%
CHLOROFORM	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.4%	2.0%
1,2-DICHLOROETHANE	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
METHYLENE CHLORIDE	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1,1,2,2-TETRACHLOROETHANE	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1,1-DICHLOROETHENE	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1,1,1-TRICHLOROETHANE	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
TOLUENE	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
CHLOROBENZENE	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

TABLE 3 MAXIMUM VALUES RECORDED DURING REPORTING PERIOD

Values are in parts per billion by volume

	REPORTING PERIOD (Reporting period ends on the last day of the month shown)													
	Jun-01	Jun-02	Jun-03	Jun-04	Jun-05	Jun-06	Dec-06	Jun-07	Dec-07	Jun-08	Dec-08	Jun-09	Dec-09	Apr-10
CARBON TETRACHLORIDE	0.0	0.0	0.0	0.8	51.3	40.4	14.5	32.6	37.7	58.8	315.1	207.9	393.7	518.9
CHLOROFORM	0.0	0.0	0.0	0.0	0.5	0.7	0.0	0.6	0.8	1.4	15.7	18.0	46.0	49.0
1,2-DICHLOROETHANE	0.0	0.0	0.0	0.0	0.5	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
METHYLENE CHLORIDE	0.0	0.0	0.0	2.4	1.4	2.7	4.6	9.1	8.1	14.3	27.9	20.4	20.4	19.0
1,1,2,2-TETRACHLOROETHANE	0.0	0.0	0.0	0.0	0.6	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1,1-DICHLOROETHENE	0.0	0.0	0.0	0.0	0.4	0.7	1.6	2.8	2.6	5.1	7.3	2.1	0.0	0.0
1,1,1-TRICHLOROETHANE	0.0	0.0	0.0	0.8	33.4	29.0	16.0	28.3	30.0	47.4	105.6	75.9	75.9	71.7
TOLUENE	0.0	0.0	0.0	4.6	13.5	8.0	1.7	2.8	1.4	2.3	3.5	9.4	2.0	2.0
CHLOROBENZENE	0.0	0.0	0.0	0.0	0.5	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

TABLE 4 FUTURE WASTE STREAMS OF HIGH ORGANIC WASTE

Waste Stream	CONTAINERS IN WASTE STREAM*	SHIPPED	REMAINING (High VOC)**
ID-RF-S3114	8,169	1,633	4,000
ID-RF-S3150-A	858	667	
ID-SDA-Sludge	25,519	9,263***	3,200
ID-SDA-Soil	8,585	1,182	600

Waste Streams identified from the ANNUAL TRANSURANIC WASTE INVENTORY REPORT – 2009 DOE/TRU-09-3425 12/31/2008

Waste Stream information from approved Waste Stream Profile Forms

Shipped container numbers from the WIPP Waste Data System 3/18/2010

\*Based on Waste Stream Profile

\*\*Based on generator site estimates

\*\*\*1,407 of this total are inorganic sludge

TABLE 5 REVISED Cs of C

	REVISED DRAFT PERMIT				ACTUAL DATA			PROPOSED						
Column Number 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
VOC	URF	C OF C (ppbv)	RISK	PERCENT RISK	RAA (ppbv)	RISK	PERCENT RISK	NEW URF	PERCENT RISK	RISK	C OF C (ppbv)	RISK PERCENTAGE REAPPORTIONED	COMMENT	CRITERION APPLIED
SUSPECTED HUMAN CARCINOGENS														
Carbon Tetrachloride	6.0E-06	412.5	1.86E-06	19%	141.4	6.29E-07	76%	6.0E-06	74%	7.4E-06	1,660	55%	Target 70 to 76 percent	1, 3
Chloroform	2.3E-05	180	2.41E-06	24%	0.0	2.00E-07	24%	2.3E-05	12%	1.2E-06	90	-12%	Reduce to level between anticipated and current.	1
1,1-Dichloroethylene	5.0E-05	100	2.41E-06	24%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-24%	EPA removed from list of suspected carcinogens. Assign all risk to carbon tetrachloride	3
1,2-Dichloroethane	2.6E-05	45	5.42E-07	5%	0.0	0.00E+00	0%	2.6E-05	6%	5.6E-07	45	0%	No change proposed. Value is greater than anticipated.	1
Methylene Chloride	4.7E-07	1,930	3.72E-07	4%	1.7	3.31E-10	0%	4.7E-07	2%	2.0E-07	1,040	-2%	Reduce to level between anticipated and current.	1
1,1,2,2-Tetrachloroethane	5.8E-05	50	2.41E-06	24%	0.0	0.00E+00	0%	5.8E-05	7%	6.6E-07	14	-18%	Reduce to level that is detectable in monitoring system.	1, 2
TOTALS			1.0 E-05	100%		8.29E-07			100%	1.0E-05		0%		
NON CARCINOGENS														
Chlorobenzene	2.0E-02	220	4.19E-02	89%	15.2	0.00E+00	0%	5.0E-02	95%	1.7E-02	220	6%	Change in risk due to revised URF. No change in C of C proposed.	3
Toluene	4.0E-01	190	1.47E-03	3%	0.0	0.00E+00	0%	5.0E+00	1%	1.2E-04	190	-2%	Change in risk due to revised URF. No change in C of C proposed.	3
1,1,1-Trichloroethane	7.0E-01	590	3.76E-03	8%	16.6	1.50E-05	100%	5.0E+00	3%	5.3E-04	590	-5%	Change in risk due to revised URF. No change in C of C proposed.	3
1,1-Dichloroethylene	N/A	N/A	N/A	N/A	0.0	0.00E+00	0%	2.0E-01	1%	2.3E-04	100	1%	Change in risk due to revised URF. No change in C of C proposed.	3
TOTALS			4.72E-02	100%		1.5 E-05			100%	1.8E-02		0%		