# CONFIRMATORY VOLATILE ORGANIC COMPOUND MONITORING PROGRAM

In the revised draft permit, the New Mexico Environment Department (NMED) determined to impose a condition for the implementation of a Confirmatory Volatile Organic Compound Monitoring Program (VOC Monitoring Program). The purpose of the VOC Monitoring Program is to confirm that the concentration of nine (9) VOCs listed in Permit Module IV (Tables IV.D.1 and IV.F.2.c) entrained in the air emissions from the Waste Isolation Pilot Plant (WIPP) Underground Hazardous Waste Disposal Units (HWDUs) do not exceed the environmental performance standard under 20 NMAC 4.1.500 (incorporating 40 CFR §264.601(c)).

## I. REGULATORY STANDARD

NMED regulations at 20 NMAC 4.1.500 (incorporating 40 CFR §264.601) state:

> A miscellaneous unit must be located, designed, constructed, operated, maintained, and closed in a manner that will ensure protection of human health and the environment. Permits for miscellaneous units are to contain such terms and provisions as necessary to protect human health and the environment, including, but not limited to, as appropriate, design and operating requirements, detection and monitoring requirements, and requirements for responses to releases of hazardous waste or hazardous constituents from the unit . . . Protection of human health and the environment includes, but is not limited to . . .
>
> (c) Prevention of any release that may have adverse effects on human health and the environment due to migration of waste constituents in the air.

In addition, NMED regulations at 20 NMAC 4.1.500 (incorporating 40 CFR §264.602) state:

> Monitoring, testing, analytical data, inspections, response, and reporting procedures and frequencies must ensure compliance with §§264.601 . . . as well as meet any additional requirements needed to protect human health and the environment as specified in the permit.

## II. ANALYSIS

NMED specified that the Applicants implement the air monitoring program described in the Confirmatory VOC Monitoring Plan (Permit Attachment N) within 30 calender days of issuance of the Permit, and until the certified closure of all Underground HWDUs. NMED also specified reporting, notification, and remedial action requirements. NMED required the VOC Monitoring Program to ensure adequate monitoring to confirm compliance with the environmental performance standards for the Underground HWDUs. NMED required the reporting,

notification, and remedial action requirements to provide a mechanism for implementing remedial action in the event of noncompliance with the environmental performance standards.

## A. BACKGROUND

The containers of TRU mixed waste to be disposed in the WIPP HWDUs may contain VOCs in the vapor state within the headspace of the containers. Each container will be vented through a filter vent. VOCs in the vapor state may diffuse across the filter vents into the air within a HWDU, become entrained in the exhaust air, migrate through the mine ventilation system to the atmosphere at the outlet of the mine ventilation exhaust shaft.

NMED has specified an environmental performance standard for the prevention of any release that may have adverse effects on human health and the environment due to migration of waste constituents in the air. The standard is that the total individual risk associated with exposures to VOCs in the exhaust air from the WIPP repository (assuming a minimum running annual average mine ventilation rate of 260,000 cubic feet per minute) shall not exceed the following acceptable risk levels: (1) for a resident living at the WIPP site boundary (e.g., the Land Withdrawal Act boundary), a total individual risk from exposure to carcinogens and potential carcinogens of one in a million ($10^{-6}$); (2) for a WIPP non-waste surface worker, a total individual cancer risk from exposure to carcinogens and potential carcinogens of one in one hundred thousand ($10^{-5}$); and (3) for a resident living at the WIPP site boundary and a WIPP non-waste surface worker, a hazard index from exposure to non-carcinogens of less than 1.0.

The Applicants agree that the VOC concentrations in the headspace of containers must be limited to achieve the environmental performance standard. NMED specified these concentrations as VOC Room-Based Concentration Limits (Permit Module IV, Table IV.D.1), as more fully described in other technical testimony.

## B. THE VOC MONITORING PROGRAM

### 1. Introduction

As noted above, NMED's primary goal for imposing the VOC Monitoring Program is to ensure compliance with the environmental performance standards. NMED's secondary goal is to ensure that the VOC Room-Based Concentration Limits are not exceeded. NMED's tertiary goal is to confirm the assumptions used in the risk assessment calculations and modeling. To achieve these goals, NMED must be able to determine the actual VOC concentrations entrained in the mine ventilation air from the Underground HWDUs. From a comparison of these measured concentrations to the calculated allowable concentrations, NMED can determine compliance with the environmental performance standards.

The VOC Monitoring Program is based on Appendix D20 of Revision 6.3 of the Application. Appendix D20 states that the Applicants also intended the VOC Monitoring Program to confirm

the assumptions and predictions used to demonstrate compliance with the environmental performance standards. However, the Applicants also suggested that upon a showing of compliance for Panel 1, no further monitoring would be necessary. NMED disagrees that a confirmation of the assumptions and predictions for Panel 1, a single panel, is adequate to ensure that VOC releases from other panels, singly and cumulatively, also will comply with the environmental performance standards. NMED notes that the Applicants' calculations reflect the possibility of significant VOC releases from closed Underground HWDUs. In addition, the actual magnitude of VOC releases from closed panels cannot be evaluated if the Applicants cease the monitoring program soon after the closure of Panel 1.

In developing the VOC Monitoring Program, NMED incorporated relevant requirements from the RCRA groundwater monitoring regulations (40 CFR §264 Subpart F) for two reasons. First, there are no specific regulations for air monitoring at a geologic repository. Second, the VOC Monitoring Program at WIPP is most analogous to a groundwater monitoring program. The VOC Monitoring Program will be implemented as a compliance monitoring program since the primary issue is limiting VOC concentrations from known emission points to ensure compliance with the environmental performance standards. As a result, the VOC Monitoring Program is similar to a RCRA Groundwater Compliance Monitoring Program, in which the concentrations of hazardous constituents in ground water are compared to concentration limits to determine whether the release of hazardous constituents requires corrective action.

### 2. Target VOCs

As noted above, NMED has specified nine (9) VOCs (Tables IV.D.1 and IV.F.2.c) as the target VOCs for the VOC Monitoring Program. NMED selected these VOCs because they represent approximately ninety (99) percent of the risk due to air emissions from the Underground HWDUs. See Revision 6.0, Appendix D13.

### 3. Monitoring Locations

The VOC Monitoring Program requires the collection of air samples from two monitoring stations, VOC-A and VOC-B, located in the E-300 drift of the underground geologic repository. First, the Applicants must measure the VOC concentrations in the mine ventilation exhaust air (e.g., VOC concentrations attributable to open and closed panels containing CH TRU mixed waste) by placing a VOC monitoring station (VOC-A) downstream of Panel 1. Station VOC-A will remain at the same location during the term of the permit, because the exhaust air from the three (3) HWDUs currently authorized for waste disposal will flow past this station. Second, the Applicants will measure background VOC concentrations (e.g., attributable to upstream sources) upstream of the any open panel. As a result, Station VOC-B will be initially located upstream from Panel 1; the location will change as new panels are being filled. In all cases, Station VOC-B will be located to ensure that it is upstream of the open panel receiving waste.

The number and initial locations of monitoring stations is based on Revision 6.3 of the Application. NMED believes that two (2) two monitoring stations is sufficient to measure the VOCs attributable to the HWDUs, because all mine ventilation air potentially containing VOCs from Panels 1, 2, and 3 will pass Monitoring Station VOC-A. Alternatively, NMED could have located Monitoring Station VOC-A at the top of the exhaust shaft, because VOCs entrained in the mine ventilation exhaust air also would pass this point. However, the large volume of air discharged through the exhaust shaft would make the detection of VOCs very difficult. In addition, the exhaust air at the top of the exhaust shaft may contain VOCs attributable to other sources in the underground geological repository (e.g., the mining area), making it difficult to determine the source and quantify the amount of VOCs attributable to the HWDUs. Further, NMED could not have located Monitoring Station VOC-A inside Panel 1, because the station would not monitor VOCs from other panels after Panel 1 closed.

In Revision 6.3, Appendix D20, the Applicants did not consider the need to move Monitoring Station VOC-B be upstream of the open panel, because they had proposed to cease air monitoring after closure of Panel 1. However, NMED has required the Applicants to continue the VOC Monitoring Program until certified closure of all HWDUs. Therefore, NMED has required the Applicants to relocate Monitoring Station VOC-B upstream of an open panel before disposing waste in order to ensure that the station collects data on VOC concentrations attributable to the open panel.

### 4. Calculation of Concentrations of Concern

NMED set the VOC Room-Based Concentration Limits to achieve the environmental performance standards. However, the VOC concentrations measured at Monitoring Station VOC-A cannot be directly compared with these limits because the station will be located in the E-300 drift downstream of Panels 1, 2 and 3, and the VOC concentrations in the exhaust air from a specific panel will be diluted by mixing with fresh air in the E-300 drift which did not flow through the panel. Therefore, NMED calculated the COCs at Monitoring Station VOC-A based on the VOC limits.

To derive the COCs for the nine (9) target VOCs, NMED first assumed that all disposal rooms in nine (9) closed HWDUs and one (1) open HWDU were filled with containers with VOC headspace concentrations equal to the Table IV.D.1 VOC Room-Based Concentration Limits. With the exception of two values (e.g., the container VOC headspace concentrations and the overall mine ventilation rate of 260,000 scfm), NMED used the assumptions and equations in Revision 6.0, Appendix D9 to calculate the actual exhaust shaft concentration for each target VOC due to emissions from Underground HWDUs. NMED then calculated the COCs at Monitoring Station VOC-A by multiplying each target exhaust shaft concentration by the ratio of the overall mine ventilation rate (260,000 scfm) and the mine ventilation rate through the E-300 drift (130,000 scfm).

There is a direct relationship between the actual average VOC concentrations in the headspace of containers in an Underground HWDU and the expected target VOC concentrations at the top of the exhaust shaft. Further, there is a direct relationship between the expected VOC concentrations at the top of the exhaust shaft and the COCs at monitoring station VOC-A. Therefore, if the VOC concentrations measured at Monitoring Station VOC-A (e.g., the difference between the VOC concentrations measured at Monitoring Stations VOC-A and VOC-B) are below the COCs, one can conclude that the Applicants are complying with the VOC limits and environmental performance standards. Similarly, one can conclude that the assumptions underlying the VOC limits are accurate.

### 5. Monitoring Frequency and Duration

The Applicants must begin VOC sampling at Monitoring Stations VOC-A and VOC-B within thirty (30) calender days of permit issuance. The Applicants must continue sampling until the certified closure of the last Underground HWDU.

In Revision 6.3, Appendix D20, the Applicants proposed to terminate sampling shortly after the certified closure of Panel 1. In their public comments on the first draft permit, the Applicants also stated that monitoring emissions from Panel 1 would be sufficient to confirm whether VOC emissions were an issue. See Comment 103. Finally, the Applicants stated that they proposed to monitor VOCs in Panel 1 only to confirm the Application's modeling data, which allegedly established that VOCs would not be emitted in significant quantities; if the Panel 1 data confirmed the model, Applicants asserted, monitoring the other panels would be duplicative and unnecessary.

For several reasons, NMED believes that the VOC Monitoring Program should continue throughout WIPP's operational period.

First, the environmental performance standards apply during the WIPP operational period. Therefore, VOC emissions from both open and closed panels must be monitored. The Applicants could not determine compliance with the environmental performance standards if the VOC monitoring program were terminated six (6) months after the closure of Panel 1.

Second, the equations and models used to derive the VOC Room-Based Concentration Limits are based on numerous assumptions, including the assumptions used to calculate expected emissions from closed panels. These calculations assume that closed panels would contribute a significant portion of the total VOCs emitted from WIPP. To confirm these assumptions, and to protect human health and the environment if these assumptions were wrong, the Applicants must monitor VOC emissions throughout the WIPP operational period.

Third, the VOC Monitoring Program is the only way to monitor for the component of the VOC emissions due to the radiolysis of waste. While the VOC concentrations in the headspace of a TRU mixed waste container, or group of TRU mixed waste containers, initially may comply with

the VOC limits, the radiolysis of waste may generate additional VOCs, increasing the VOC concentrations in the headspace of containers or disposal rooms above the VOC limits. Under the VOC Monitoring Program, sampling can be used to detect these VOCs.

Based on these concerns, NMED believes it is reasonable to initially require the Applicants to implement the VOC Monitoring Program throughout the operational period of the WIPP facility. However, the Applicants may request a permit modification to reduce or eliminate the requirements for VOC monitoring, based on data collected since the inception of VOC monitoring.

The VOC Monitoring Program requires routine sampling two (2) times per week. NMED notes that the Applicants specified this frequency of sampling in Revision 6.3, Appendix D20. NMED believes that this frequency of sampling is acceptable, because the physical conditions in the disposal rooms are not expected to change rapidly and the volume of waste containers to be emplaced on a weekly basis is anticipated to range from 784 drums to 1568 drums (or 6 to 12 percent of the assumed capacity of a disposal room). Thus, if samples are collected two (2) times per week, the sample results will be representative of 3 to 6 percent of the assumed capacity of the open disposal room. Since the environmental performance standards are based on long-term average exposures, minor variations in the VOC concentrations emitted from a HWDU, or even occasional exceedences of the VOC limits, should not be cause for concern. As noted above, the Applicants may seek a permit modification to reduce this frequency of sampling based on data collected since the inception of VOC monitoring.

### 6. Sampling and Analysis Methods

NMED adopted the Applicants' proposal for VOC sampling method, laboratory analysis, and quality assurance, as specified in Revision 6.3, Appendix D20. The VOC sampling method is based on the concept of pressurized sample collection as specified in the EPA Compendium Method TO-14. The TO-14 sampling concept uses 6-liter SUMMA® passivated stainless-steel canisters to collect integrated air samples at each sample location. The samples will be analyzed using gas chromatography/mass spectrometry (GC/MS) under an established QA/quality control (QC) program. Laboratory analytical procedures have been developed based on the concepts contained in both EPA Compendium TO-14 and the draft *EPA Contract Laboratory Program - Statement of Work* (CLP-SOW) *for Volatile Organics Analysis of Ambient Air in Canisters*.

NMED believes that VOC sampling method is appropriate since the EPA Compendium TO-14 method is an EPA-recognized sampling concept for VOC sampling and speciation. It can be used to provide integrated samples, or grab samples, and compound quantitation for a broad range of concentrations. The canister sampling system and GC/MS analytical method are particularly appropriate for the VOC Monitoring Program because a relatively large sample volume is collected, and multiple dilutions and reanalyses can be performed to ensure identification and quantification of target VOCs within the working range of the method. Because the contract-required quantitation limits (CRQL) proposed by the EPA in the CLP-SOW

are 5 parts per billion by volume (ppbv) or less for the nine target compounds, low VOC concentrations can be measured.

## 7. Data Evaluation and Reporting

The Applicants must collect a sample from each monitoring station on designated sample days. After receiving the laboratory analytical data from an air sampling event, the Applicants must validate the data and evaluate whether the VOC emissions exceed the COCs.

NMED calculated the COCs using the permitted mine ventilation rate of 260,000 scfm and the expected flow rate at Monitoring Station VOC-A of 130,000 scfm. However, because these rates may vary at the time of sampling, the Applicants must measure and record these rates during each sampling event. In addition, the Applicants must measure and record the temperature and pressure during each sampling event in order to convert these rates conditions during the sampling event for conversion to standard flow rates.

If the air samples were collected under the typical mine ventilation rate conditions, then the analytical data will be used without further manipulation. The concentration of each target VOC detected at Station VOC-B will be subtracted from the concentration detected at Station VOC-A. The resulting VOC concentration represents the concentration of VOCs being emitted from the open and closed Underground HWDUs upstream of Station VOC-A (or the Underground HWDU VOC emission concentration.)

If the Applicants collected the samples under atypical flow rates, they must normalize the results from both monitoring stations to the permitted/expected flow rates. The data must be normalized because changes in the flow rates directly and significantly affect the the measurable VOC concentrations. For instance, an increased mine ventilation exhaust rate will tend to "dilute" the measured VOC concentrations compared to the VOC concentrations measured under the permitted/expected flow rates. The Applicants must normalize the data using the relevant equation in Permit Attachment N. Then the Applicants must subtract the normalized concentration of each target VOC detected at Station VOC-B from the normalized concentration detected at Station VOC-A. The resulting concentration represents the VOC emission concentration from the HWDU(s).

The Applicants must compare the calculated VOC emission concentration (e.g., the difference between Monitoring Stations VOC-A and VOC-B) directly to relevant COC. If the value exceeds the COC, the Applicants must notify the Secretary in writing, within five (5) working days of obtaining validated analytical results.

The Applicants also must average the air sampling event with the data collected during the previous twelve (12) months to calculate the running annual average concentration for each target VOC. If this value exceeds the COC, the Applicants must notify the Secretary in writing, within five (5) working days. In addition, the Applicants must undertake remedial action,

including the cessation of disposal in the active disposal room and the installation of ventilation barriers. If this value exceeds the COC for six (6) consecutive months, the Applicants must close the affected Underground HWDU. NMED believes these conditions are necessary to ensure compliance with the environmental performance standards for air emissions from the WIPP. Moreover, the notification and remedial action requirements provide the sole mechanism to prevent harm to the public and the environment should the measured VOC concentrations exceed the COCs despite the Applicants' compliance with other conditions of the permit (e.g., the VOC Room-Based Concentration Limits).

NMED believes that this approach is superior to the Applicants' proposal in Revision 6.3, Appendix D20. Specifically, the Permittees proposed that for Panel 1, they would subtract the concentration of each target VOC measured measured at Monitoring Station VOC-B from the concentration measured at Monitorig Station VOC-A, and compare the value to the COCs. They would evaluate these concentrations quarterly to confirm their calculations. If the average measured concentrations for Panel 1 confirmed the calculations, then the Applicants proposed to cease sampling. The Applicants deemed the calculations "confirmed" if the annual average concentration were below the predicted values, but would only "consider" additional sampling if it exceeded a predicted value.

As discussed above, NMED rejected this proposal for many reasons, including the Applicants' failure to account for changes in mine ventilation rates, the lack of a mechanism to calculate and evaluate annual average VOC concentrations from other panels besides Panel 1; the lack of a mechanism to report air sampling data and calculations to NMED; and the absence of a remedial action plan for any exceedance of the COCs.

## III. RESPONSE TO COMMENTS

### A. VOC MONITORING IS NOT NECESSARY

In public comments regarding the draft permit, the Applicants contended that the VOC Monitoring Program was unnecessary. See Comment 103. The Applicants cite EPA guidance which suggests that air monitoring is not necessary if an applicant can demonstrate compliance with health-based standards by at least an order of magnitude. The Applicants argue that they have demonstrated that, even under a worst-case scenario, public exposure to VOCs would always be one order of magnitude below acceptable levels. The Applicants conclude that air monitoring should not be required, except to confirm the modeling of Panel 1.

NMED disagrees that the Applicants have demonstrated that, under a worst-case scenario, the public exposure to VOCs will always be one order of magnitude below acceptable levels:

1) The Applicants' alleged demonstration assumed that the VOC headspace concentrations in the containers would be the "weighted average headspace concentrations" derived from a "representative" sample of containers destined for emplacement at WIPP.

However, the Applicants requested allowable drum headspace concentration limits based on a Maximum Allowable Average VOC Headspace Concentrations, not the "weighted average headspace concentrations". The Maximum Allowable Average VOC Headspace Concentrations were based on ensuring that the VOC concentrations emitted by WIPP would not exceed a risk level for a resident at the WIPP site boundary between one in a million or a one in one hundred thousand excess cancer risk target level depending on the specific VOC. As a result, the Maximum Allowable VOC Headspace Concentrations actually were calculated to achieve, with no margin of safety, the acceptable risk levels for individual VOCs. Simply, the public easily could be exposed to VOC concentrations within an order of magnitude of acceptable levels.

2) The Applicants' derivation of Maximum Allowable VOC Headspace Concentrations violated EPA guidance by failing to account for the total individual excess cancer risk associated with exposures to multiple potential carcinogens. As a result, the Applicants' demonstration was not performed correctly and could not be used to demonstrate that public exposure to VOCs would always be one order of magnitude below acceptable levels.

3) To derive the VOC Room-Based Concentration Limits for potential carcinogenic VOCs, NMED used the Applicants' equations and assumptions. As noted above, NMED's acceptable levels for total individual excess cancer risk from exposure to VOCs from WIPP were (1) one in a million for a resident living at the WIPP site boundary; and (2) one in one hundred thousand for a WIPP non-waste surface worker. As a result, NMED's VOC Room-Based Concentration Limits were calculated to just achieve the acceptable risk levels for VOC concentrations from WIPP.

Based on these findings, NMED concludes that the potential VOC exposure may exceed one order of magnitude below acceptable levels, and that it is appropriate to impose a compliance monitoring program at WIPP.

### B. THE VOC MONITORING PROGRAM IS EXCESSIVE

In public comments regarding the draft permit, the Applicants asserted that the VOC Monitoring Program was excessive. See Comment 103. The Applicants contested NMED's specification of two different methods for achieving compliance with environmental performance standards: (1) a maximum allowable average headspace concentration measured by headspace gas sampling on every container; and (2) the VOC Monitoring Program. The Applicants urged NMED to select a single method.

NMED determined to retain both methods for the following reasons:

1) The requirement for one hundred (100) percent headspace gas sampling is necessary because it is a key confirmatory analysis in the acceptable knowledge process and the only chemical analytical method used for debris waste characterization.

2) The VOC Monitoring Program is necessary to confirm numerous assumptions underlying the equations and model used to derive the VOC Room-Based Concentration Limits, including (1) the diffusion characteristics of the drum filters; (2) the effective gas generation rate in closed rooms and panels; (3) the number of drums per panel; (4) the number of open and closed panels; and (5) the overall mine ventilation rate.

3) The VOC Monitoring Program is needed to protect human health and the environment in the event any of these assumptions is incorrect. In other words, even if the Applicants complied with the VOC limits, it is possible that the VOC concentrations could exceed the acceptable risk levels. The VOC Monitoring Program, with its associated reporting, notification, and remedial action requirements, provides the data to determine compliance with the environmental performance standards, as well as the appropriate mechanism to protect human health and the environment if acceptable risk levels are exceeded.

Finally, NMED notes that the Applicants have the option of requesting a permit modification to reduce or eliminate the requirements of the VOC Monitoring Program based on the collected evidence.

### C. POST-CLOSURE VOC MONITORING IS NOT NECESSARY

In public comments regarding the draft permit, the Applicants contended that post-closure monitoring was unnecessary because there was no possible pathway for a VOC release after closure. See Comment 103. The Applicants noted that panel closure involved sealing off the ventilation system leading from the disposal area to the outside atmosphere, which in turn would seal off any VOC migration pathway. The Applicants also argued that the requirement to monitor for six (6) after closure of the last panel would interfere with final facility closure.

NMED concurred with the Applicants' position. Accordingly, in the revised draft permit, NMED required the Applicants to implement the VOC Monitoring Program only until certified closure of all Underground HWDUs.

### D. THE VOC CONCENTRATIONS OF CONCERN ARE TOO STRINGENT

In public comments on the first draft permit, the Applicants argued that the VOC Concentrations of Concern (COCs) were substantially less than the Appendix D20 values which were adequate to protect human health and the environment. See Comment 103.

NMED does not agree. The NMED set the VOC COCs below the Appendix D20 values to protect human health and the environment. The NMED derived the VOC COCs from the VOC Room-Based Concentration Limits listed in Table IV.D.1. As noted above, NMED revised these limits to ensure that VOC concentrations from the WIPP were below acceptable risk levels. As a result, NMED also revised the VOC COCs. Specifically, NMED derived the COCs for the nine (9) target VOCs by (1) calculating the actual exhaust shaft concentrations assuming all disposal

rooms in nine (9) closed HWDUs and one (1) open HWDU were filled with containers with VOC headspace concentrations equal to VOC Room-Based Concentration Limits; and (2) using the VOC COCs to calculate the target exhaust shaft concentration given the ratio of the overall mine ventilation rate and the mine ventilation rate through the E-300 Drift.

NMED also disputes the Applicants' contention that the VOC COCs in Revision 6.3, Appendix D20 were correct. First, the Applicants failed to provide specific information necessary to confirm the accuracy of equations and methods used to calculate the VOC COCs in Appendix D20. Second, based on the available information, NMED believes that for chlorobenzene and 1,1,1-trichloroethane, the Applicants calculated the VOC COCs in Appendix D20 using an erroneous Averaging Time (AT) of seventy (70) years, rather than ten (10) years. This error resulted in COCs seven (7) times greater than appropriate. Further, the Applicants apparently used the incorrect (non-carcinogenic) Reference Dose (RfD) for 1,1,1-trichloroethane. This error, which was compounded by the incorrect AT, resulted in a COC nearly two thousand four hundred (2400) times greater than appropriate. If NMED had allowed the Applicants to use these incorrectly calculated COCs, the threshold for detecting unsafe VOC concentrations would have been dramatically incorrect.

Also with respect to the VOC COCs in the first draft permit, the Applicants contended that the EPA guidance on no-migration petitions distinguished between EPA public exposure limits and OSHA occupational standards. Specifically, the Applicants aserted that the EPA disapproved the application of public exposure limits to workers because worker exposures are short term, unlike a member of the public residing near the facility, and (2) worker exposures are preventable and/or controllable, unlike exposures to a member of the public residing near the facility. On this basis, the Applicants concluded that the application of public exposure limits to workers, at least to the extent that the limits were less than the OSHA occupational standards, would be arbitrary.

NMED does not believe that the rationale or methods used to adjust the VOC COCs are arbitrary. For the revised draft permit, NMED adjusted the VOC limits (and by corrolary, the COCs) (1) to ensure that the VOC concentrations in the air of a closed disposal room do not exceed the Lower Explosive Limit (LEL) for the chlorobenzene and toluene; (2) to ensure that the VOC concentrations in a HWDU immediately after a roof fall do not exceed the NIOSH immediately dangerous to life and health (IDLH) concentration for 1,2-dichloroethane and 1,1,1-trichloroethane; and (3) to incorporate a limit for methylene chloride. In addition, NMED notes that the VOC COCs are considerably higher than they might have been had NMED based the COCs on the "weighted average" headspace concentrations proposed by the Applicants.