Mr. Steve Zappe, Project Leader (WIPP)  
Hazardous Waste Permits Program  
Hazardous Waste Bureau  
New Mexico Environment Department  
2905 E. Rodeo Park Dr. Bldg 1  
Santa Fe, New Mexico 87502-6303

RE: Notification of a Class 1 Permit Modification to the Hazardous Waste Facility  
Permit, Permit Number: NM4890139088-TSDF

Dear Mr. Zappe:

The purpose of this letter is to submit this notification of a Class 1 modification to the  
Waste Isolation Pilot Plant Hazardous Waste Facility Permit, Number: NM4890139088- 
TSDF. The proposed changes do not compromise worker safety, human health, or the  
environment. The purpose of this modification is to:

- Allow the use of American Society for Testing and Materials (ASTM) Type I or  
  Type II water
- Allow the use of a Nitrogen Generator or Zero Air Generator for Headspace  
  Gas Sampling

The ASTM Type I or Type II waster is being submitted at the suggestion of Mr. Steve  
Holmes, of the NMED, as a result of an observation inquiry during an audit at the  
Savannah River Site. With regard to the nitrogen generator, Mr. Steve Zappe has  
suggested it be submitted as a Class 1 notification.

I certify under penalty of law that this document and all attachments were prepared  
under my direction or supervision in accordance with a system designed to assure that  
qualified personnel properly gather and evaluate the information submitted. Based on  
my inquiry of the person or persons who manage the system, or those persons directly  
responsible for gathering the information, the information submitted is, to the best of my  
knowledge and belief, true, accurate, and complete. I am aware that there are  
significant penalties for submitting false information, including the possibility of fine and  
imprisonment for knowing violations.
Mr. Steve Zappe

February 7, 2002

Sincerely,

Dr. Inés Triay, CBFO Manager
U. S. Department of Energy

Enclosure

cc: w/enclosure
C. Walker, Techlaw

cc: w/o enclosure
J. Bearzi, NMED
J. Kieling, NMED

J. L. Lee, General Manager
Westinghouse TRU Solutions LLC
Notice of Class 1 Permit Modification

Allow the Use of ASTM Type I or Type II Water and Allow the Use of Zero Air or Nitrogen Generator

Waste Isolation Pilot Plant
Carlsbad, New Mexico

WIPP HWFP # NM4890139088-TSDF

February 4, 2002
Transmittal Letter
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## Acronyms and Abbreviations

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Full Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASTM</td>
<td>American Society for Testing and Materials</td>
</tr>
<tr>
<td>CBFO</td>
<td>Carlsbad Field Office</td>
</tr>
<tr>
<td>CFR</td>
<td>Code of Federal Regulations</td>
</tr>
<tr>
<td>CO₂</td>
<td>Carbon Dioxide</td>
</tr>
<tr>
<td>DOE</td>
<td>Department of Energy</td>
</tr>
<tr>
<td>FTIRS</td>
<td>Fourier Transform Infrared System</td>
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<tr>
<td>HWFP</td>
<td>Hazardous Waste Facility Permit</td>
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<tr>
<td>NMAC</td>
<td>New Mexico Administrative Code</td>
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<tr>
<td>NMED</td>
<td>New Mexico Environment Department</td>
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<tr>
<td>PMN</td>
<td>Permit Modification Notification</td>
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<tr>
<td>SRS</td>
<td>Savannah River Site</td>
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<tr>
<td>VOC</td>
<td>Volatile Organic Compound</td>
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<tr>
<td>WIPP</td>
<td>Waste Isolation Pilot Plant</td>
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<tr>
<td>WTS</td>
<td>Westinghouse TRU Solutions, LLC</td>
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Overview of Permit Modifications

This document contains a Class 1 Permit Modification Notification (PMN) to the Hazardous Waste Facility Permit (HWFP) at the Waste Isolation Pilot Plant (WIPP), Number NM4890139088-TSDF hereinafter referred to as the WIPP HWFP.

This PMN is being submitted by the U.S. Department of Energy (DOE), Carlsbad Field Office (CBFO) and Westinghouse TRU Solutions, LLC (WTS), collectively referred to as the Permittees, in accordance with the WIPP HWFP, Condition I.B.1 (20.4.1.900 New Mexico Administrative Code (NMAC) incorporating 40 Code of Federal Register (CFR) §270.42(a)). This change does not reduce the ability of the Permittees to provide continued protection to human health and the environment.

The modifications to the WIPP HWFP and related supporting documents are provided in the following sections of the PMN. The modifications to the text of the WIPP HWFP have been identified using a double underline for new information added and a strikeout font for information proposed for deletion. There is also a right hand /outside margin Revision Bar to assist in location of all additions.
This PMN contains two items that will provide generator sites flexibility in headspace gas analysis.

<table>
<thead>
<tr>
<th>No.</th>
<th>Affected Permit Section</th>
<th>Item</th>
<th>Category</th>
<th>Attachment A Page #</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>a.1. Attachment B1</td>
<td>Allow the use of ASTM Type I water or ASTM Type II water to humidify gasses and allow the use of either a zero air or nitrogen generator</td>
<td>A.1</td>
<td>A-2</td>
</tr>
</tbody>
</table>
Attachment A

Description of the Hazardous Waste Facility Class 1 Permit Modifications
Item 1

Description:
This modification will allow generator/storage sites the ability to use either American Society for Testing and Materials (ASTM) Type I or Type II water.

This modification will also allow the generator/storage sites to use a zero air or nitrogen generator or compressed gasses during headspace gas sampling.

Basis:
The current HWFP (Section B1-1a(1)) requires that the humidifier connected to a manifold headspace gas sampling system be filled with ASTM Type II water. An observation regarding humidification water was made during the Savannah River Site (SRS) audit on December 12, 2001. Mr. Steve Holmes of the NMED suggested that a Class 1 notification be submitted to allow the use of either Type I or Type II water.

The generator/storage sites have requested the ability to use a nitrogen generator as an alternative to the zero air generator or compressed gasses for headspace gas sampling as currently required in Attachment B1, Section B1-1a(1) of the HWFP. The nitrogen generator will meet the requirement for maximum Volatile Organic Compound (VOC) contamination as specified for the zero air generator in the aforementioned Section. The change does not functionally impact the headspace gas sampling process because the use of compressed nitrogen is currently an allowable option to zero air.

Discussion:
The current HWFP specifies the use of ASTM Type II water to humidify gasses used to condition the equipment blanks and field-reference standards and to assist with manifold cleaning between headspace gas sample collection when a method other than Fourier Transform Infrared Spectroscopy (FTIRS) is used for analysis.

Mr. Holmes on Observer Inquiry Form # A-02-06-001 dated December 12, 2001, indicated that, “ASTM Type I water is far superior for humidification functions than ASTM Type II water.” As suggested by Mr. Holmes, the CBFO is submitting a Class 1 modification to allow the use of either Type I or Type II water for humidification.

The basis for making this change as a Class 1 modification is related to the use of ASTM Type II water in the HWFP. The HWFP requires that humidification water be sufficiently pure so as not to affect the analytical data. Water purity is measured by conductivity. The conductivity of ASTM Type II water (1.0 micromho/cm) is higher than the conductivity of ASTM Type I water (0.056 micromho/cm) which indicates that Type I water is purer. All other specified compounds in these waters (i.e. chloride, sodium, silica and total organic carbon) are present in concentrations too low to be considered significant to the measurements required in the WIPP program.

The current HWFP requires the use of gasses in cylinders such as zero air, helium, argon or nitrogen for collecting equipments blanks and cleaning the manifold between samples. Currently, a zero air generator may be employed in lieu of a compressed gas...
A cylinder provided a sample of the zero air is collected and demonstrated to contain less than 1 ppm total VOCs.

Because nitrogen gas is already allowed by the HWFP, this change does not alter the functionality of the headspace gas sampling system or the analytical results. This modification only allows the use of a nitrogen generator that meets the same requirements as the zero air generator.

Sites may continue to use gas cylinders, a zero air generator or may now use a nitrogen generator. Site procedures that are modified to incorporate use of a nitrogen generator will be subject to an adequacy review by CBFO personnel.

**Revised Permit Text:**

a. 1. Attachment B1, Section B1-1a(1)

   The standard side must consist of the following major elements:

   C A cylinder of compressed zero air, helium, argon, or nitrogen gas that is hydrocarbon and carbon dioxide \((\text{CO}_2)\)-free (only hydrocarbon and \(\text{CO}_2\)-free gases required for Fourier Transform Infrared System [FTIRS]) to clean the manifold between samples and to provide gas for the collection of equipment blanks or on-line blanks. These high-purity gases shall be certified by the manufacturer to contain less than one ppm total VOCs. The gases must be metered into the standard side of the manifold using devices that are corrosion proof and that do not allow for the introduction of manifold gas into the purge gas cylinders or generator. Alternatively, a zero air or nitrogen generator may be used, provided a sample of the zero air or nitrogen is collected and demonstrated to contain less than one ppm total VOCs. Zero air or nitrogen from a generator shall be humidified (except for use with FTIRS).

   C Cylinders of field-reference standard gases or on-line control sample gases. These cylinders provide gases for evaluating the accuracy of the headspace-gas sampling process. Each cylinder of field-reference gas or on-line control sample gas shall have a flow-regulating device. The field-reference standard gases or on-line control sample gas shall be certified by the manufacturer to contain analytes from Table B3-2 of Permit Attachment B3 at known concentrations.

   C If using an analytical method other than FTIRS a humidifier filled with American Society for Testing and Materials (ASTM) Type I or II water, connected, and opened to the standard side of the manifold between the compressed gas cylinders and the purge assembly shall be used. Dry gases flowing to the purge assembly will pick up moisture from the humidifier. Moisture is added to the dry gases to condition the equipment blanks and field-reference standards and to assist with system cleaning between headspace-gas sample collection. If using FTIRS for analysis, the sample and sampling system shall be kept dry.
Are procedures, processes, and equipment in place to ensure that the following manifold standard side conditions are met:

<p>| | |</p>
<table>
<thead>
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<tbody>
<tr>
<td>C</td>
<td>A cylinder of compressed zero air, helium, or nitrogen that is hydrocarbon and CO$_2$ free air (only hydrocarbon and CO$_2$-free gases required for FTIRS) certified by the manufacturer to contain less than one ppm VOCs. The gas is used to clean the manifold between samples and to provide gas for the collection of equipment and on-line blanks. <em>(Note: a zero air or nitrogen generator may be used, provided a sample of air is collected and found to contain less than 1 ppm total VOCs and the air is humidified)</em></td>
</tr>
<tr>
<td>C</td>
<td>Cylinders of reference gas with known concentrations of analytes from Table B3-2 certified by the manufacturer to provide gases for evaluating the accuracy of the headspace gas sampling process</td>
</tr>
<tr>
<td>C</td>
<td>All cylinders of reference gases and zero air shall be connected to flow regulating devices that are corrosion proof and that do not allow for the introduction of manifold gas into the purge gas cylinders or generator</td>
</tr>
<tr>
<td>C</td>
<td>A humidifier filled with ASTM Type I or II water, connected, and opened to the standard side of the manifold between the compressed gas cylinders and the purge assembly, if the Fourier Transform Infrared System (FTIRS) is not used. No humidifier if the FTIRS is used. <em>(Note: Compressed gas may include water vapor between 1000 and 10000 ppmv in lieu of a humidifier)</em></td>
</tr>
<tr>
<td>C</td>
<td>The humidifier is off-line during system evacuation to prevent manifold flooding</td>
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</table>