STATE OF NEW MEXICO
Before the
ALBUQUERQUE-BERNALILLO COUNTY
AIR QUALITY CONTROL BOARD

IN THE MATTER OF THE PETITION
FOR A HEARING ON THE MERITS
REGARDING AIR QUALITY PERMIT
NO. 3131

AQCB No. 2014-4

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Southwest Organizing Project [SWOP]
By Juan Reynosa, Environmental Justice Organizer;
Esther and Steven Abeyta, Members of SWOP, Petitioners

ENVIRONMENTAL HEALTH DEPARTMENT AIR QUALITY PROGRAM NOTICE OF INTENT TO PRESENT TECHNICAL TESTIMONY

Pursuant to the Revised Prehearing Order dated December 19, 2014, the Environmental Health Department ("EHD") Air Quality Program ("Program") submits this Notice of Intent to Present Technical Testimony for the upcoming hearing in the above matter.

EHD is including as Exhibits to this Notice the full narrative testimony to be offered by its witnesses, including their names, affiliations, education, and work background, as well as certain exhibits as required by the Revised Prehearing Order.

EHD reserves the right to call additional witnesses to present rebuttal testimony and to offer rebuttal exhibits. EHD reserves the right to offer additional demonstrative exhibits at the hearing. EHD plans to offer its technical witnesses as a panel.

EHD intends to offer the following technical witnesses:

1) Mr. Isreal L. Tavarez, P.E., Environmental Health Manager, Permitting Division, Air Quality Program, Environmental Health Department. Mr. Tavarez has a B.S. and an M.S. in Chemical Engineering. Mr. Tavarez has twenty-one years of experience in air quality with a significant focus on air quality permitting. He reviews and signs all major and minor stationary

source permits at the Air Quality Program. In his career at EHD, he has reviewed and approved more than 1,000 air quality permits. He is qualified to testify both based on his education and experience.

Mr. Tavarez will testify about how hazardous air pollutants are regulated in general and amendments to the Clean Air Act that led to the current manner of regulation of hazardous air pollutants. He will testify about how the current regulation of hazardous air pollutants has led to dramatic reductions in hazardous air pollutants in ambient air.

Mr. Tavarez will testify about state restrictions on regulation of hazardous air pollutants and allowable conditions on air quality permits under the Air Quality Control Act.

Mr. Tavarez reviewed and approved the Honstein air quality permit. Mr. Tavarez will offer his opinion that Permit #3131 for the Honstein bulk fuels plant, meets all requirements imposed by the Air Act, satisfies all applicable Air Board regulations and requires compliance with all applicable Air Board regulations going forward.

Mr. Tavarez will testify about Petitioner's requested relief including rescinding the Honstein Permit until a cumulative impact study is done and placing a condition on the Honstein Permit to require monitoring to assure that there is no exceedance of ambient air quality standards. He will also discuss the emissions from the Honstein facility in comparison to other emissions in Bernalillo County.

2) Ms. Regan V. Eyerman, P.E., M. Eng., Environmental Concentration. Ms. Eyerman was the permit writer for Permit #3131 for the Honstein bulk fuels plant and will testify about the process she followed in drafting Permit #3131. Ms. Eyerman has nine years of experience in air quality permitting and has written approximately 300 air quality permits at the Albuquerque EHD. She is qualified to testify both based on her education and experience.

Ms. Eyerman will offer the opinion that Permit #3131 for the Honstein bulk fuel plant satisfies all Air Board regulations and requires compliance with all applicable Air Board regulations going forward. She will also discuss Petitioner's reliance on the 2005 NATA and will explain how it was prepared and why it is not a reliable estimate of emissions. She will also explain why the 2005 NATA cannot be used to compare emissions between census blocks.

3) Mr. Daniel Gates, Quality Assurance Section Supervisor, Air Quality Program, Environmental Health Department, B.A. Mr. Gates has sixteen years of experience in air quality with a significant focus in quality assurance and data quality. He is qualified based on her training and experience.

Mr. Gates will testify about potential data quality control issues that compromise the reliability of the air quality testing performed by SWOP. Mr. Gates will offer the opinion that the data quality control issues which occurred during the SWOP Bucket Brigade makes its data unreliable.

4) Mr. Travis E. Miller, Environmental Health Scientist, Air Quality Progra, Environmental Health Department, B.A. Mr. Miller has thirteen years in the environmental health and safety fields, including education and training on the use of computer aided design and GIS mapping.

Mr. Miller will testify about the map that he prepared which shows the location of the various monitors in the Bernalillo County network, the location of the Honstein facility, the locations of the San Jose and Mountain View Neighborhoods and will offer his opinion about the distance between certain locations on the map he prepared.

Mr. Miller's testimony is being submitted unsigned because after he prepared his testimony he had to go on sick leave. A signed signature page will be filed as soon as he returns to work.

Exhibits

EHD's technical witnesses intend to offer the following Exhibits:

1) Mr. Tavarez:
   a. EHD Ex. 1, Written Testimony of Isreal L. Tavarez
   b. EHD Ex. 1-A, Resume of Isreal L. Tavarez
   c. EHD Ex. 1-B, EHD Air Quality Dispersion Modeling Guidelines
2) Ms. Eyerman:
   a. EHD Ex. 2, Written Testimony of Regan V. Eyerman
   b. EHD Ex. 2-A, Resume of Regan V. Eyerman
   c. EHD Ex. 2-B, EPA Web Page on National Toxics Assessments
3) Mr. Gates:
   a. EHD Ex. 3, Written Testimony of Daniel Gates
   b. EHD Ex. 3-A, Resume of Daniel Gates
   c. EHD Ex. 3-B, PowerPoint illustrating SWOP Bucket Brigade data quality problems
   d. EHD Ex. 3-C. EPA Standard Operating Procedure including procedures for the use of Tedlar bags
   e. EHD Ex. 3-D, Information from company testing Petitioner's air samples explaining that for ambient air quality sampling, Summa canisters are the preferred method and Tedlar bags are not suited to ambient air sampling

    f. EHD Ex. 3-E, Information from company testing Petitioner's air samples explaining that it does not use EPA Method TO-15 but uses a modified method when testing Tedlar bags

4) <u>Mr. Miller</u>:

    a. Ex. 4, Written Testimony of Travis E. Miller
    b. Ex. 4-A, Resume of Travis E. Miller
    c. Ex. 4-B, Map prepared by Travis E. Miller to show locations of Albuquerque-Bernalillo County air quality monitors, the San Jose and Mountainview Neighborhood boundaries, and the distances from the South Valley Monitoring Station and (1) the Honstein facility, (2) the Jack Candelaria Community Center in the San Jose Neighborhood and (3) the south boundary of the San Jose Neighborhood

Anticipated Length of Testimony

EHD anticipates that Isreal Tavarez's testimony will last approximately one and a half hours, exclusive of cross examination. EHD reserves the right to call Mr. Tavarez as a rebuttal witness.

EHD anticipates that Regan Eyerman's testimony will last approximately one hour, exclusive of cross examination. EHD reserves the right to call Ms. Eyerman as a rebuttal witness.

EHD anticipates that Dan Gates testimony will last approximately thirty minutes, exclusive of cross examination. EHD reserves the right to call Mr. Gates as a rebuttal witness.

EHD anticipates that Travis Miller's testimony will last approximately thirty minutes, exclusive of cross examination. EHD reserves the right to call Mr. Miller as a rebuttal witness.

CITY OF ALBUQUERQUE
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CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the foregoing pleading was served as described below on April 29, 2015:

1) The City's original pleading was filed with the Hearing Clerk in the above-captioned matter and nine copies were hand delivered to the Hearing Clerk.

2) One additional copy was hand-delivered to the Hearing Clerk for delivery to the Hearing Officer/Air Board Attorney and one copy was sent by electronic mail to:

Felicia Orth
c/o Andrew Daffern, Hearing Clerk
Control Strategies Section
Environmental Health Department
One Civic Plaza, Room 3023
Albuquerque, NM 87102
orthf@yahoo.com
Attorney for the Albuquerque-Bernalillo County Air Quality Control Board
and Hearing Officer for AQCB Petition No. 2014-4

3) One hard copy was mailed by first class mail and an electronic copy was sent by electronic mail to:

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Southwest Organizing Project [SWOP]
By Juan Reynosa, Environmental Justice Organizer;
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Written Testimony of City Technical Witness
Isreal L. Tavarez, P.E.

1) **Name and Title:** Isreal L. Tavarez, Environmental Health Manager, Permitting Division, Air Quality Program, Environmental Health Department, City of Albuquerque

2) **Education:** Bachelor of Science in Chemical Engineering and a Masters of Science in Chemical Engineering both from New Mexico State University

3) **Work Experience:** I have 21 years of experience in air quality with a significant focus on air quality permitting. My experience encompasses managing air quality programs, approving air quality permits, conducting technical review of air quality permits, approving air quality permits and writing air quality permits. In my career I have written and issued over 100 air quality permits and I have reviewed and approved over 1,200 air quality permits. My resume with additional details about my education and experience is attached as EHD Ex. 1-A.

EHD
EX 1

4) **Written Testimony:**

I want to begin by discussing air pollution generally and then discuss EHD's regulation of the kinds of emissions produced by the Honstein facility. Finally, I'll discuss my decision to approve the Honstein air quality permit.

Air Pollution Background

Air pollution is a scientifically complex problem. What we call air pollution contains particulate matter of various sizes and composition, inorganic gases, and numerous volatile organic compounds intermingled with biological materials such as pollens, spore fragments, viruses, and bacteria. These airborne components exist in an active cloud interacting with sunlight and modified by weather. The contaminants of ambient air arise from a variety of natural and man-made sources.[1]

Protection of air quality in the United States is achieved through a complex network of federal and state environmental regulations developed over the years. Air quality regulation has been labeled as the hands-down winner in both statutory and regulatory complexity. The federal Clean Air Act (CAA) has been referred to as the most complicated environmental statute in history. It includes thousands of pages of federal regulations and overlapping statues and regulations adopted by each individual state.

The federal CAA is the principal air quality legislation in the United States and employs three broad strategies for protecting air quality.

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[1] Oxford Journals – Toxicology Sciences, Volume 100, Issue, 2, pp. 318-327, The Complexities of Air Pollution Regulation: the Need for an Integrated Research and Regulatory Perspective.

1. Individual states are given the responsibility to monitor ambient air (outdoor air) for compliance with federal ambient air quality standards and to take actions to improve air quality.
2. Pollutants from mobile sources, e.g. cars, trucks, construction equipment and lawn mowers, are primarily controlled by requiring manufacturers to meet national emissions standards and by requiring refiners to improve the quality of fuels.

3. Discrete sources of pollution from individual facilities such as factories, power plants, and landfills, often referred to as stationary sources, are regulated by states or local governments to ensure that ambient air quality standards are met and that other pollutants from the source are appropriately controlled.

In this case, the Honstein facility is a "stationary source" so EHD regulates its stationary source emissions which consist of volatile organic compounds from gasoline vapor. Two substantive Air Board rules control those emissions. First, 20.11.64 NMAC controls emissions of hazardous air pollutants which EPA estimates are about 4.8% of gasoline vapor.[2] Second, 20.11.65 NMAC controls volatile organic compound emissions. There are also other procedural regulations that affect such things as fees, etc. that I can answer questions about but otherwise I'll let the conditions in the Honstein permit speak for themselves on those issues.

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[2] Estimates of the percentage of hazardous air pollutants in volatile organic compounds in gasoline vapor vary. Older estimates may be 2-11% or generally less than 17%. As EPA explained when it adopted *National Emission Standards for Hazardous Air Pollutants for Source Categories: Gasoline Distribution Bulk Terminals, Bulk Plants, and Pipeline Facilities; and Gasoline Dispensing Facilities,* 73 Fed. Reg. 1916, 1930 (Jan. 10, 2008), EPA imposed a fuel standard in 2007 that reduced the percentage of benzene in gasoline and MTBE (another hazardous air pollutant in gasoline) has been phased out. Factoring in these recent regulatory changes led EPA to an estimate of 4.8%, as cited.

Regulation of Hazardous Air Pollutants

There are two kinds of pollutants regulated under the federal Clean Air Act. One group, called "criteria pollutants" are emitted in the millions of tons nationwide and are air pollution problems across broad regions of the United States. There are six criteria pollutants: sulfur dioxide, carbon monoxide, lead, ozone, nitrogen dioxide and particulates.[3] The federal Environmental Protection Agency (EPA) sets ambient air quality standards for each of these criteria pollutants which must provide an adequate margin of safety to protect public health, including the health of at-risk populations. State and local air quality agencies must take actions to assure each standard for each criteria pollutant is not exceeded.

The other pollutants that the Clean Air Act regulates are called hazardous air pollutants or air toxics. These pollutants are generally cancer-causing substances, but other health and environmental problems may also be caused by toxics.

There are hundreds of toxics of concern. Some examples are mercury, arsenic, asbestos, benzene, trichloroethylene (a solvent), perchlorethylene (dry cleaning fluid), ethylene oxide (hospital sterilant). Some hazardous air pollutants are in common household use such as chlorine bleach or moth balls (paradichlorobenzene). The largest source of benzene air emissions nationwide is mobile sources like the cars which many of us drive. *Control of Hazardous Air Pollutants from Mobile Sources,* 72 Fed. Reg. 8428, 8428 (Feb. 26, 2007) ("Benzene is a known human carcinogen, and mobile sources are responsible for the majority of benzene emissions.")

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[3] Business Law Today, Volume 16, Number 6, July/August 2007, Erich Birch, "Air Quality Regulation in the United States: A complicated system yields laudable results."

In 1970, in section 112 of the federal Clean Air Act, Congress required EPA to list each hazardous air pollutant which was likely to cause an increase in death or serious illness. Within a year after listing a hazardous air pollutant, EPA was required to establish emission standards which would apply to sources of the listed pollutant "providing an ample margin of safety to protect public health."

This approach was largely ineffective. In its first 18 years of administering section 112, EPA had hardly created any standards. In holding hearings to consider changes to the Clean Air Act, the United States Senate noted a problem created by the Clean Air Act's language:

> The law has worked poorly. In 18 years, EPA has regulated only some sources of seven chemicals. One reason the law has worked so poorly is the standard of protection required. "An ample margin of safety" has been interpreted by many to mean zero exposure to carcinogens, because any amount of exposure may cause a cancer. EPA has not been willing to write standards so stringent because they would shut down major segments of American industry.

Clean Air Act Amendments of 1989, S. Rep. 101-549, 3387, 3513 (Dec. 20. 1989).

In the mid to late 1980s, EPA had begun considering a new air toxics strategy that would shift the focus of the program, this time from individual pollutants to source categories. The EPA screened some 900 pollutants and 360 source categories to establish priorities for regulation, identifying 27 source categories as high-priorities for review. However, there were doubts about the legal status of such an approach.

In Congress, a broad consensus developed that the program to regulate hazardous air pollutants under section 112 of the Clean Air Act should be restructured to provide EPA with the needed authority to regulate industrial and area source categories of air pollution (rather than the pollutants) with technology-based standards.

As a result of this consensus, among other things, Congress amended the Clean Air Act in 1990 to adopt fundamental changes to section 112 that regulated hazardous air pollutants. Without going into all of the details, the important points for our purposes here are the following:

1. For major sources, which meant more than 10 tons per year of a single hazardous air pollutant or 25 tons per year of all hazardous air pollutants combined, they must use maximum available control technology, known as MACT.
2. For "area sources" which meant sources which were not major, EPA could adopt MACT standards or could require generally available control technology ("GACT").
3. EPA was required to adopt a national urban air toxics strategy to reduce risks from area sources.

These 1990 amendments laid the foundation for the kinds of regulations that apply to the Honstein facility and explain why Congress changed the focus of the Clean Air Act with regard to hazardous air pollutants. As you will see, these changes to hazardous air pollutant regulation under the Clean Air Act led to much better protection of public health than had been achieved by the initial version of the Clean Air that Congress passed in the 1970's.

On July 6, 1999, the EPA released its first Integrated Urban Air Toxics Strategy. The Strategy established a framework for addressing air toxics in urban areas. The highlights of the Strategy include:

1. EPA has and would continue to develop a number of national standards for stationary and mobile sources to improve air quality in urban and rural areas.
2. The Strategy built on substantial emission reductions already achieved from cars, trucks, fuels, and industries such as chemical plants and oil refineries.
3. EPA identified a list of 33 air toxics that present the greatest threat to public health in the largest number of urban areas. Of the 33 urban air toxics, EPA identified the 30 with the greatest contribution from smaller commercial and industrial operations or so-called "area" sources.
4. EPA identified 29 area source categories

The 33 urban air toxics area source categories include the category of gasoline distribution as a new area source category[4] and include benzene which is a hazardous air pollutant from gasoline vapor. Also as part of the Clean Air Act requirements passed in 1990, EPA identified 30 hazardous air pollutants ("HAPs") that posed the greatest potential health threat in urban areas, and these HAPs are referred to as the "urban HAPs." Overall, this approach is known as the Integrated Urban Toxics Strategy.

On January 10, 2008, the EPA adopted a final rule for national emission standards for hazardous air pollutants for two kinds of facilities in the gasoline distribution area source category. The first regulation included requirements for bulk distribution facilities, i.e., large gasoline distribution bulk terminals, smaller bulk plants, and pipeline facilities. This regulation is known as "Hex B" which EHD applied to the Honstein permit. The second regulation included requirements for loading of storage tanks at gasoline dispensing facilities (i.e., gas stations).

Section 112(d) of the federal Clean Air Act allows EPA to adopt maximum achievable control technology (MACT) standards, health threshold standards, and generally available control technology or management practices (GACT) standards for area sources. The standards established for gasoline distribution including bulk fuels plants like Honstein come from section 112(d) and are based on GACT.

Gasoline vapors can contain two HAPs (benzene and ethylene dichloride (EDC)) that are included in the 30 area source HAPs listed in the Urban Toxics Strategy. The gasoline distribution (Stage I) area source category was originally listed in the Urban Toxics Strategy because the facilities in this category contributed approximately 36 percent of the national

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[4] July 6, 1999 EPA Fact Sheet, National Air Toxics Program: Integrated Urban Strategy.

emissions of benzene and 2 percent of the ethylene dichloride (EDC) emissions from stationary area sources. Since ethylene dichloride emissions are no longer emitted from facilities in the gasoline distribution category as a result of the lead phase-down provisions of section 218 of the federal Clean Air Act the gasoline distribution standards address benzene only.[5]

EPA's approach to regulating hazardous air pollutants has achieved significant protections for public health and the environment by regulating both mobile and stationary sources of air toxics. EPA's August 21, 2014, "National Air Toxics Program: The Second Integrated Urban Air Toxics Report to Congress" includes the following highlights, among others:

1. The National Emission Standards for Hazardous Air Pollutants (which includes Subpart BBBBBB (Hex B)), for Source Category: Gasoline Distribution Bulk Terminals, Bulk Plants, and Pipelines Facilities) is estimated to result in 5,000 tons per year of HAP reductions, including 175 tons per year of benzene and reduce volatile organic compound emissions by 100,000 tons.
2. The new benzene fuel standard and hydrocarbon standards for vehicles and gas cans are expected to reduce total emissions of mobile source air toxics by 330,000 tons including 61,000 tons of benzene.
3. Benzene emissions have declined 66% from 1994 to 2009.
4. Benzene is among the pollutants that contributes a significant portion of the risk in urban areas.

It is notable that the National Air Toxics Program achieved substantial improvement in urban levels of benzene from 1994 to 2009 even though the numbers of cars and people increased over that time. This Integrated National Strategy is working to remove large amounts of hazardous air pollutants from urban air by a coordinated strategy that regulates hazardous air

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[5] *National Emission Standards for Hazardous Air Pollutants for Source Categories: Gasoline Distribution Bulk Terminals, Bulk Plants, and Pipeline Facilities; and Gasoline Dispensing Facilities*, 73 Fed. Reg., 1916, 1917 (Jan. 10, 2008).

pollutants from source categories, major sources and mobile sources. However, as I explained earlier, the Clean Air Act envisions that states and local governments regulate stationary sources like the Honstein facility. Below, I discuss how EHD and the Air Board participate in this National Air Toxics Program.

State Implementation Plan

The Clean Air Act allows states to decide how best to meet Clean Air Act requirements in their jurisdictions by developing their own plans called State Implementation Plans. States can also allow local jurisdictions to regulate air quality as New Mexico has done in the case of Bernalillo County. For simplicity here I will just refer to "states" even though "states" can include local governments like Bernalillo County. The Clean Air Act allows states to be more stringent than Congress has required and more stringent than many EPA regulations. However, most mobile source regulation occurs at the federal level and states may be preempted.

In New Mexico, the State Legislature has passed the Air Quality Control Act (the "Air Act"). The Air Act establishes the overall scheme for how air quality is regulated in New Mexico by accepting the authority provided by the Clean Air Act. Even though the Clean Air Act would have allowed New Mexico to be more stringent than the Clean Air Act, the Legislature decided that New Mexico should be no more stringent than the Clean Air Act regulations with regard to hazardous air pollutants as well as certain other areas that are not relevant here. NMSA 1978, § 74-2-5(C)(2). The City Council and Bernalillo County have both adopted ordinances which contain the same limitation on regulation of hazardous air pollutants. Revised Ordinances of Albuquerque ("ROA"), § 9-5-1-4(C)(2); Bernalillo County Ordinances Art. II, Ch. 30, § 30-33(c)(2).

To accept the authority that the Clean Air Act provides, a state submits a State Implementation Plan to EPA which describes how the air quality in its jurisdiction will be protected and maintained. The Air Board has established a State Implementation Plan (SIP). This SIP includes the statues, ordinances and regulations for stationary sources.

Consistent with the limitations imposed by the Legislature, the City Council and the County Commission, the Albuquerque-Bernalillo County SIP provides that hazardous air emissions from bulk fuel plants like Honstein will follow the applicable federal standard for hazardous air pollutants which is known as Hex B. The Air Quality program applied this regulation to the Honstein facility in Permit #3131. The Air Quality Program also imposed all other applicable rules such as 20.11.65 NMAC (volatile organic compounds) and others to the Honstein facility.

After Ms. Eyerman completed drafting Permit #3131, I reviewed it on June 12, 2014. I found that it met all air quality requirements and I approved it on the same date.

Petitioner's Requested Relief

I would like to briefly address the Petitioner's requested relief. The Petitioner has requested that the Honstein Permit be rescinded until a cumulative impact study is completed. Petition p. 5 (Aug. 12, 2014). The Petitioner has also requested that, if the Honstein Permit is to be issued, that the Honstein Permit be conditioned to require continuous monitoring at the permit site for exceedance of any federal Clean Air Act standards. EHD does not believe that either of those results would be appropriate here.

There is no basis to deny the Honstein Permit.

The Air Act provides three bases for which EHD may deny a construction permit. I agree with Ms. Eyerman's conclusion that the Honstein Permit (1) meets all applicable standards, rules or requirements of the Air Act and the Clean Air Act; (2) will not cause or contribute to an exceedance of any ambient air quality standard; and (3) does not violate any other provision of the Air Act or the Clean Air Act. Thus, there is no basis in the Air Act to deny (or rescind) the Honstein Permit as Petitioner is requesting, until a cumulative impact study is completed.

The air pollutant evaluated in the Honstein air quality permit application is volatile organic compounds or VOCs. There is no ambient air quality standard for VOCs. VOCs are regulated as a precursor in the formation of ground level ozone. Ozone is a regional rather than an urban pollution problem and ozone does not form at the exact point where the precursors to ozone, like VOCs, are released because of the complex factors involved in the formation of ground level ozone. The City of Albuquerque Environmental Health Air Quality Division Air Dispersion Modeling Guidelines for Air Quality Permitting revised 01/21/10 do not require an air dispersion modeling analysis if the VOC emissions are less than 500 tons per year. EHD Ex. 1-B, Air Dispersion Modeling Guidelines for Air Quality Permitting p. 4 (Jan. 21, 2010). The VOC emissions in the Honstein air quality permit are 2.26 tons per year and do not require modeling to have confidence that they will not cause or contribute to an exceedance of ambient air quality standards.

In order gain perspective regarding how the 2.26 tons per year of VOCs in the Honstein Permit compares to other VOC sources in Albuquerque and Bernalillo County, I would like to provide the permitted VOCs amounts from other sources. The Earthgrains Baking Company facility at 111 Montano Road NE has permitted VOC emissions of 233 tons per year, the Albuquerque Refined Products Terminal at 6348 State Road 303 SE (gasoline bulk terminal) has permitted VOC emissions of 65 tons per year and the Corner Store (convenience store & gas station) at Bridge and 4th Street SW has permitted VOC emission of 26 tons per year. Honstein is smaller than these by an order of magniture.

For additional comparison purposes, in 2011, EPA estimated the VOC emissions from highway vehicles in Bernalillo County at 6330 tons per year. Even if EPA were to announce a new ozone ambient air quality standard and Bernalillo County exceeded it, denying the Honstein Permit would not make any difference in ozone concentrations because it is such a small source.

It would be unreasonable to impose a condition on the Honstein Permit to monitor for exceedance of Clean Air Act standards.

EHD imposed a number of conditions in the Honstein Permit but EHD does not believe that a condition should be imposed on the Honstein Permit to monitor for exceedance of federal Clean Air Act standards as Petitioner has requested. I would like begin by addressing how the Air Program interprets its authority to impose conditions.

The Air Act and the City and County ordinances allow certain conditions to be imposed on permits. The Air Act allows five kinds of conditions in construction permits.

First, a condition may be imposed requiring the use of certain technology to control emissions but only to the extent required by law.

Second, a condition may be imposed limiting emissions but again, only to the extent required by law; otherwise, the permit may not be any more stringent than the emission limit requested in the application.

Third, a condition may be used to impose a federal standard of performance; in the case of the Air Act, the term "federal standard of performance" includes emission standards adopted pursuant to section 112 of the Clean Air Act like Hex B.

Fourth, a condition may be imposed requiring "reasonable restrictions and limitations" not relating to emission limits or emission rates. EHD interprets this to allow conditions such as air quality monitoring of the source's emissions, recordkeeping and reporting. I will discuss this further below.

Finally, any combination of the above conditions may be imposed.

EHD does not believe that its authority to impose conditions extends to imposing a requirement for Honstein to monitor to assure that Clean Air Act standards would not be violated for the following reasons:

1. As explained previously, the Honstein stationary source does not emit any criteria pollutants subject to Clean Air Act ambient standards. It emits volatile organic compounds for which there is no federal standard. Thus, such a condition placed on the Honstein Permit would not be a "reasonable restriction or limitation" on the Honstein stationary source emissions.
2. A permit condition to monitor ambient air quality for Clean Air Act standards would require construction of a monitoring station, hiring trained staff to operate and maintain the monitoring station, and to report the monitoring results. This would be an extraordinary permit condition being imposed on a very minor stationary source in Bernalillo County. Imposing this extraordinary burden on a source producing 2.26 tons of VOC per year like the Honstein Permit would not be "reasonable."

It would be unreasonable to impose a condition on the Honstein Permit to produce a cumulative impact study.

Petitioner's witness Dana Rowangould seems to be requesting that Honstein should be required to produce a cumulative impact study. EHD is aware of no law or regulation that requires Honstein to conduct such a cumulative impact study. The City used to have an ordinance, developed when Bernalillo County was in nonattainment for carbon monoxide, which required some applicants to produce an air quality impact study. However, that ordinance was repealed in 2010 because it was no longer needed. In 2014, Petitioner requested such a rule from the Air Board but that request was denied. So, today, there is no law and no regulation that requires an applicant to conduct a cumulative impact study.

Furthermore, imposing a condition to require Honstein to conduct a cumulative impact study is not reasonable for several reasons.

1. The condition would not meaningfully relate to restrictions or limitations on Honstein's emissions. In contrast, the typical conditions EHD would impose using this authority such as monitoring, recordkeeping, and reporting would relate directly to EHD's ability to regulate the source's emissions.
2. Honstein's emissions are very tiny compared to the already permitted emissions allowed in Bernalillo County. If a cumulative impact study were to be done, it would be more equitable to require all contributors to share in the cost but there is no legal authority that EHD is aware of which would allow EHD to impose such a requirement on sources after they were permitted. Moreover, there would be no way to impose such a funding requirement on mobile sources which contribute significantly to volatile organic compound emissions.
3. Petitioner has offered no technical testimony that ties the levels of emissions in the South Valley to any health impacts. Bernalillo County is in attainment for all health based standards and when EHD received an EPA grant to monitor for toxic pollutants in Bernalillo County in 2009, the consultant found no levels which caused a health concern. EHD has applied for funding to conduct an update of that previous study but until monitoring demonstrates a level of toxic pollutants that could cause a problem, it does not seem appropriate to progress to a cumulative impact study.

How the regulations apply to a longstanding source like the Honstein facility.

Since the Air Act and the Board's regulations envision permitting prior to construction, sometimes there is confusion regarding "construction" of long existing sources such the Honstein facility. A long existing source like Honstein does not have "construction date" with respect to air quality permitting requirement because frankly, Honstein existed prior to air quality laws and regulations being established and these types of existing sources used to be considered "grandfathered." As has been discussed in the earlier part of my testimony, air quality permitting requirements continue to increase and become more complex. In order to address existing sources in air quality regulations, the trend has been for regulations to not only apply to new sources but also to existing sources which is the case with the federal Hex B requirements.

Rather than attempt to evaluate when the Honstein facility was "constructed", the City of Albuquerque Air Quality Program (Program) focuses on bringing these existing sources into compliance with regulations as they are adopted. When the Program receives an air quality permit application, EHD evaluates the activity to determine what regulation and requirements apply to the equipment and activities listed in the application at the time of the review. Ms. Regan Eyerman correctly identified the regulations and requirements for the Honstein application and developed Permit #3131 which EHD issued to Honstein Oil Company.

As stated above, EHD found that the Honstein Permit satisfied the requirements and met the limitations imposed by the Legislature, the City Council and the County Commission. The Albuquerque-Bernalillo County SIP provides that hazardous air emissions from bulk fuel plants like Honstein will follow the applicable federal standard for hazardous air pollutants which is known as Hex B. The Air Quality program applied this regulation to the Honstein facility in

Permit #3131. The Air Quality Program also imposed all other applicable rules such as 20.11.65 NMAC (volatile organic compounds) and others to the Honstein facility. Because the Honstein Permit met all legal requirements, EHD issued it.

I declare under penalty of perjury that the above testimony is true and correct to the best of my knowledge and belief.

Respectfully submitted,

Isreal L Tavarez

Isreal L. Tavarez, P.E.

4/29/2015

Date

169753

Education and Work Background of
Isreal L. Tavarez, PE

Technical Witness for the
Albuquerque Environmental Health Department
Air Quality Program

AFFILIATION AND TITLE

Environmental Health Manager, Permitting Division
Air Quality Program, Environmental Health Department
City of Albuquerque, New Mexico

EDUCATION

Master of Science in Chemical Engineering, New Mexico State University – December 1991
Bachelor of Science in Chemical Engineering, New Mexico State University – May 1989

TRAINING

Air Pollution Training Institute Self-Instructional Course – Intro to Inspections – 12/15/14
Engineering Ethics: The Bhopal Disaster – 11/11/14
Engineering Ethics: Pressure Vessel Explosion at Bayer Chemical Plant – 11/11/14
WESTAR Principles & Practices of Air Pollution Control – 9/17/13-9/19/13
WESTAR Monitoring Compliance Testing and Source Test Observation – 10/29/12-11/2/12
WESTAR Effective Permit Writing – 7/19-7/21/11
WESTAR Compliance Assurance and Title V Monitoring – 5/19-5/20/10
WESTAR Intermediate NSR/PSD Workshop – 10/21-10/22/09
WESTAR Introduction to Hazardous Air Pollutants – 9/8-9/10/08
Air Pollution Training Institute Self-Instructional Course 409 – Basic Air Pollution Meteorology – 12/22/04
Advanced Air Quality Permitting: New Source Review/Prevention of Significant Deterioration – 8/14-8/17/01
Air Pollution Training Institute Course 454 Effective Permit Writing – 5/16-5/18/00
Air Pollution Training Institute Course 454 Effective Permit Writing – 2/22/99
Visible Emissions Evaluation/Albuquerque – 3/2/99
Air Pollution Training Institute Course 427 - Combustion Evaluation/Santa Fe – 3/9-3/13/98
United States Environmental Protection Agency Orientation to Quality Assurance Management – 12/2/98
United States Environmental Protection Agency Orientation to Quality Assurance Management – 12/1/98
Air Pollution Training Institute Self-Instructional Course 453 – Overview of Prevention of Significant Deterioration (PSD) Regulations/April 26, 1995
APTI Course 415 - Control of Gaseous Emissions – 10/11-10/14/94
Air Pollution Training Inst. Self Instruct. Course 422 - Air Pollution Control Orientation Course – 5/13/94

EHD
EX 1-A

EXPERIENCE

I currently have 21 years of experience in air quality with a significant focus on air quality permitting. My experience encompasses managing air quality programs, approving air quality permits, conducting technical review of air quality permits, and writing air quality permits. I am a registered Professional Engineer in the State of New Mexico.

I review and sign all major and minor stationary source permits at the Air Quality Program of the Environmental Health Department ("EHD"). In my career at EHD I have reviewed and approved more than 1,000 air quality permits.

ENVIRONMENTAL HEALTH MANAGER, Permitting Division, Air Quality Program, Environmental Health Department, City of Albuquerque: October 2010 – Present

- My main responsibility is to manage the air quality stationary source permitting program which includes reviewing and approving all air quality stationary source permits to ensure the permits are issued in accordance with local, state, and federal regulations.

ENVIRONMENTAL ENGINEERING MANAGER, Air Quality Programs, Environmental Health Department, City of Albuquerque: December 2004 – October 2010

- My main responsibility was to manage and oversee the Air Quality Programs which included the quality stationary source permitting program.

ENVIRONMENTAL HEALTH MANAGER, Air Quality Division, Environmental Health Department, City of Albuquerque: June 2003 – December 2004

- My main responsibility was to manage and oversee the Air Quality Division which included reviewing and approving all air quality stationary source permits.

ACTING ENVIRONMENTAL HEALTH MANAGER, Air Quality Division, Environmental Health Department, City of Albuquerque: August 2002 – June 2003

- My main responsibility was to manage and oversee the Air Quality Division which included reviewing and approving all air quality stationary source permits.

ENVIRONMENTAL HEALTH SUPERVISOR, Air Quality Permitting Section, Air Quality Division, Environmental Health Department, City of Albuquerque: August 1998 – August 2002

- My main responsibility was to manage and oversee the Air Quality Permitting Section which included approving and reviewing air quality stationary source permits.

ENVIRONMENTAL HEALTH SPECIALIST II, Air Quality Permitting Section, Air Quality Division, Environmental Health Department, City of Albuquerque: July 1996 – August 1998

- My main responsibility was to review air quality permit applications and draft permits in accordance with local, state, and federal regulations.

- I was also responsible for staying current with changes to local air quality regulations, as well as any revision or newly promulgated federal regulations.

ENVIRONMENTAL ENGINEER I, Operating Permits Unit, Air Quality Bureau, Environment Department, State of New Mexico: August 1998 – August 2002

- My main responsibility was to review air quality permit applications and draft permits in accordance with state and federal regulations.

- I was also responsible for staying current with changes to state air quality regulations, as well as any revision or newly promulgated federal regulations.

PROCESS DEVELOPMENT ENGINEER, Kraft General Foods Technology Center: July 1991 to March 1994

- My main responsibility was to evaluate the impact the manufacturing process had on food products.

Richard J. Berry, Mayor

Mary Lou Leonard, Acting Director

AIR DISPERSION MODELING GUIDELINES For AIR QUALITY PERMITTING

City of Albuquerque
Environmental Health Department
Air Quality Division
Permitting & Technical Analysis Section

EHD
EX 1-B

Table of Contents

INTRODUCTION

Albuquerque / Bernalillo County Air Quality Control Board (A/BCAQCB) Regulations 20.11.41.13.B.(6) NMAC and 20.11.42.12.A.(4).(j).(ii) NMAC require an applicant to demonstrate the effects that a proposed facility will have upon any New Mexico or National ambient air quality standard (NAAQS), or an applicable New Source Performance Standard (NSPS) or National Emission Standard for Hazardous Air Pollutants (NESHAP) limitation or any Air Quality Control Board rule. This demonstration must relate the expected emissions from the facility to the maximum off-site ambient air impact. The required information must be developed using an Environmental Protection Agency (EPA) approved dispersion model. These guidelines have been developed using the latest revision to Appendix W of 40 CFR 51 "Revision to the Guideline on Air Quality Models: Adoption of a Preferred General Purpose (Flat and Complex Terrain) Dispersion Model and Other Revisions: Final Rule; Wednesday November 9, 2005". This document is subject to change by the Division in order to be consistent with revisions to EPA guidelines, and to update modeling policies and procedures.

Initial evaluations of the facilities emissions can be made using the model SCREEN 3, which is available from the EPA's Technology Transfer Network as well as several different environmental engineering firms. The model inputs must reflect the estimated emission parameters of the source. SCREEN 3 should be run with the FULL METEOROLOGY option. The use of other meteorological conditions must be fully justified and documented in the modeling report. If the predicted ambient impacts modeled with SCREEN 3 are less than the above referenced standards and/or limitations for the emitted pollutants, then no further modeling analysis is needed.

If the SCREEN 3 ambient impacts are higher than the above referenced standards for the emitted pollutants, then additional modeling analyses will be required. Although EPA has stated that AERMOD is the preferred model for choice for additional analyses, ISC3 can also be used for minor source permitting actions (see details below). Both available from the sources mentioned above and should be run using a rectangular grid receptor array. Model inputs must reflect the estimated emission parameters of the source. In addition, AERMOD (or ISC) should be run using the regulatory default options and a 100-meter by 100-meter receptor array for areas outside the fence line, out to 0.5 kilometers. If the radius of impact exceeds 0.5 kilometers, the receptor array spacing may be increased to 500 meters for those areas beyond 0.5 kilometers. The emission point or points, buildings and fence lines should be located using exact UTM coordinates, however the receptor grid may be located at an even 100 meter spacing.

A decision concerning rural vs. urban dispersion coefficients must be made. Use *URBAN / RURAL DISPERSION COEFFICIENTS CLASSIFICATION*, (Attachment A) to make this determination. Rural dispersion may frequently be used as a default since it is more conservative i.e. less dispersion, if this use does not produce ambient violations.

EPA's modeling guidelines (40 Code of Federal Regulations, Part 51) and Environmental Protection Agency, 40 CFR Part 51 "Revision to the Guideline on Air Quality Models: Adoption of a Preferred General Purpose (Flat and Complex Terrain) Dispersion Model and Other Revisions: Final Rule; Wednesday November 9, 2005" (Guidelines) provides guidelines for air dispersion modeling. For topics that are not discussed in the Division's guidelines please refer to the EPA Guideline and contact the Air Quality Division.

MODELING PROTOCOL

For minor stationary source permitting actions, a modeling protocol should be submitted and approved before modeling begins. For PSD or major stationary source permit applications, a modeling protocol shall be submitted and approved before modeling begins. The modeling protocol must describe the proposed action in detail and explain the choice of input parameters to be used.

POLLUTANTS AND MODELS

1. Ozone
    A. If VOC emissions are less than 500 tons per year, then there is no need to determine compliance with ozone standards.
    B. If VOC emissions are 500 tons per year or more, then use the Scheffe screening technique outlined in Attachment B.
    C. If the screening method does not demonstrate compliance with the ozone standards, then modeling with CAMX or CMAQ will be required. Contact the Division for more information.
2. All other pollutants shall be modeled using AERMOD, ISC3, SCREEN3 (until replaced by AERSCREEN), CALPUFF, or CALSCREEN. Exceptions must be approved by the Air Quality Division ('Division') on a case-by-case basis.
3. Seasonal restrictions:
   AERMOD sometimes shows maximum 24-hour impacts during the spring and summer. Experience, on the other hand, shows the worst dispersion conditions for Bernalillo County occur during autumn and winter. It is unacceptable to use AERMOD results as justification for limiting hours of operation only during the spring and not during winter. When operating hours are limited in the model solely to comply with NAAQS/NMAAQS, winter and autumn operations should always be limited before spring and summer operations. For this reason, the Division prefers the use of ISC over AERMOD when there is a need to restrict hours of operation.

   For example, suppose a facility (without a tall, buoyant smokestack) would like to be able to operate 24 hours a day, 6 days a week, all year. You've just run AERMOD and it's showing an exceedance of a 24-hour particulate standard on March 10. Do not bother to re-run AERMOD with only 16 hours of operation during March as a demonstration of compliance because that demonstration will be rejected. Instead, use ISC.

   In fact, AERMOD shows maximum 24-hour impacts for Albuquerque as occurring in the spring often enough that the Division recommends using ISC from the beginning for modeling associated with minor source permitting actions. Until further notice, **AERMOD must be used with major source permitting actions.**

MODELING WAIVERS

Some source's emissions are either minimal, intermittent or do not require air dispersion modeling for some other reason. The following are some examples of sources that do not have to provide air dispersion modeling upon application.

- Emergency Generators (less than 500 hours of annual operations)
- Gasoline Stations
- Dry Cleaners
- Boilers intended for comfort heat (please contact the Division for a case-by-case determination)
- Automotive Paint and Body
- Certain Soil Vapor Extraction Systems (please contact the Division for a case-by-case determination)
- Groundwater Stripping Systems

If a source is eligible for a modeling waiver then submit a brief report specifically addressing the request for a modeling waiver to the Division.

METEOROLOGICAL DATA

AERMOD, ISC, and CALPUFF all require meteorological data files. For ISC and AERMOD, meteorological data files are available from the Division which uses Albuquerque airport data gathered by the National Weather Service. MM5 meteorological datasets are generally used for CALPUFF modeling. As of this revision, some MM5 data has been obtained, but not tested, by the Division. For more information on the MM5 data, contact the Division.

CALPUFF modeling is required by the Division when an appropriate meteorological data set for use with AERMOD is not available. For example, meteorological datasets gathered west of the Sandia Mountains are not representative of conditions in Tijeras Canyon or to the east of the Sandias. Thus, dispersion modeling in canyons and east of the Sandia Mountains may require use of CALPUFF. (An alternative would be to gather a year of met data at the proposed facility site and use AERMOD.)

PROCESSING METEOROLOGICAL DATA WITH AERMET

Meteorological data for use with AERMOD and AERMET are available on the Division's website. The 1993 and 1990-1995 (5-year) datasets that are ready for use with AERMOD were processed with the following surface characteristics: an albedo of 0.25 and a Bowen ratio of 4.0 for all seasons. Values of albedo and Bowen ratio were chosen by averaging satellite imagery of the surface characteristics over the Albuquerque metro area.

Surface roughness values were chosen to represent a 3-mile radius around the site of data collection. A roughness value of 0.5 meters was chosen for the northeast, northwest, and southwest quadrants. For the southeast quadrant, which includes the Albuquerque airport runways, a roughness value of 0.25 meters was chosen.

AERMOD shows little sensitivity to choice of albedo and Bowen ratio for low-level sources and non-buoyant sources. For tall, buoyant smokestacks, modelers will need to re-evaluate values used for Bowen ratio and albedo. Satellite image data for albedo and Bowen ratio are available on the Division's website. The albedo and Bowen ratio maps were derived from LANDSAT images using SEBAL^{NM}. The maps for the City of Albuquerque were provided by Dr. Jan Hendrickx, Professor of Hydrology at New Mexico Tech (hendrick@nmt.edu).

The 5-year and 1-year model-ready datasets posted on the Division's website will suffice for most sources within the Albuquerque metro area. In the event that a tall, buoyant smokestack needs to be modeled, the Division has also posted the merged surface and upper air data. AERMET Stage 3 processing must be performed on the merged data to create a model-ready dataset. The input file used in the final stage of processing must be submitted to the Division.

Values of Bowen ratio and albedo must also be investigated for processing meteorological data outside of the Albuquerque metro area. Surface roughness values must be investigated for processing any site-specific meteorological data. The roughness length, albedo, and Bowen ratio values used in stage 3 processing must be discussed in the modeling report submitted to the Division. The Texas Commission on Environmental Quality (TCEQ) has published an excellent guide for choosing surface roughness values. It can be found at
http://www.tceq.state.tx.us/permitting/air/modeling/aermet_1309973.pdf

Upper air and surface data are also available for merging with on-site meteorological data. Be prepared to defend the quality of site-specific meteorological data used in AERMOD. Quality of site-specific data must be demonstrated with documentation.

DESIGN CONCENTRATIONS

"Emission limits should be based on concentration estimates for the averaging time that results in the most stringent control requirements. The concentration used in specifying emission limits is called the design value or design concentration and is a sum of the concentration contributed by the primary source, other applicable sources, and -- for NAAQS assessments - the background concentrations." -40 CFR Part 51, Guideline on Air Quality Models, Appendix W, 10.2.3.1.

The recommended procedures under 7.2.1 - "Design Concentrations", of 40 CFR Part 51, Guideline on Air Quality Models, Appendix W, shall be used in order to determine the design concentrations for SO_2, PM_{10}, CO, Pb, NO_2, O_3, and $PM_{2.5}$. Appendix W refers to Appendix N of the NAAQS CFR which describes the computation of the 98th percentile, the form of the $PM_{2.5}$ standard. The NAAQS CFR, on page 61164, states the form of the standard was chosen because "it gives proportionally greater weight to days when concentrations are well above 35 $\mu g/m^3$ than to days when the concentrations are just above 35 $\mu g/m^3$."

It is tempting to compare the eighth highest, high as a modeling impact from a facility to the level of the standard, 35 $\mu g/m^3$, because two percent of 365 days is seven days. That simple arithmetic may sometimes ignore the greater weight the form of the standard gives to days with 24-hour averages well above the standard.

An argument for using the eighth highest, high as a modeling impact must take into account the greater weight the form of the standard gives to days with 24-hour averages well above the standard. The Division will accept or reject such arguments on a case-by-case basis. Often, it will be easier to simply use the highest modeled impact in demonstrating compliance.

BACKGROUND CONCENTRATIONS

The Division maintains an ambient air monitoring network consisting of monitors for particulate matter less than 10 microns (PM_{10}), particulate matter less than 2.5 microns ($PM_{2.5}$), nitrogen dioxide (NO_2), and carbon monoxide (CO). Sulfur dioxide concentrations have been found insignificant in the western United States and monitoring of SO_2 ceased a long time ago. Zero shall be used as the background for SO_2 for all averaging times.

Attachments C & D displays a map of TSP and PM_{10} background levels for Bernalillo County and the Albuquerque metropolitan area. PM_{10} background levels for Bernalillo County were established upon review of the entire monitoring network and each of the monitoring stations. As a result of the USEPA revoking the Total Suspended Particulate Matter (TSP) standard and requirements for monitoring, the Air Quality Division discontinued ambient air monitoring for Total Suspended Particulate Matter (TSP) in May 1989. Therefore, established TSP background concentrations values are identical as those of PM_{10} background values.

This will sometimes complicate the calculation of a design concentration. In particular, if an adjacent property has a source of large particles then cumulative modeling will be required for the large particles. PM_{10} impacts are accounted for in the background value. Thus PM_{10} emissions must be subtracted from TSP emissions for the source on the adjacent property. To get the TSP design concentration, the maximum impact found in the cumulative model must then be added to background value for particles of 10 microns or less in diameter.

For $PM_{2.5}$, 6.5 $\mu g/m^3$ will be used as the background value for all of Bernalillo County. A separate report, *Methodologies for Calculating Particulate Background Concentrations*, is available from the Division that explains in far greater detail how background levels of pollutants are calculated.

For NO_2, 31 $\mu g/m^3$ shall be used as background for all of Bernalillo County for compliance with New Mexico's 24-hour standard; 25 $\mu g/m^3$ shall be used as background for compliance with the annual standard.

PLUME DEPLETION

Particle size distributions used must be documented and justified. The modeling analysis submitted must explain the derivation of particle sizes, percentages/mass fractions, and densities for all particle size distributions used within the model.
Use of plume depletion is acceptable for modeling of both Total Suspended Particulate and PM_{10}.

The following particle size distribution is acceptable for crushing of rock and stone:

Table I: Particle Size Distribution

Size Range (μm)	Mass Mean Diameter (μm)	Mass Fraction
2.5-5.0	3.88	0.06
5-10	7.77	0.205
10-15	12.66	0.16
15-20	17.62	0.175
20-30	25.33	0.225
30-45	38.0	0.175

The particle size distribution in Table I was derived from an article in the March 2006 issue of the Journal of Environmental Engineering titled *Particulate Matter from the Stone Crushing Industry: Size Distribution and Health Effects*. The distribution in Table I can also be used for aggregate handling if the applicant shows that calculated TSP emissions include particles larger than 30 microns.

MODELING METHODOLOGIES

MERGING PARAMETERS FOR MULTIPLE STACKS

If a source emits the same pollutant from multiple stacks within 100 meters of each other the stacks may be merged into one stack, if stack height, flow rates, and stack gas exit temperatures differ by no more than 20% each. Compute a value of M for each stack using the equation below and use the stack with the smallest M value as the "merging" stack. Sum the emissions from all stacks to obtain the "merged" emissions from the "merged" stack.

$$M = HVT / Q$$

where:

H = stack height (m).
V = stack gas volume flow rate (m^3/s)
T = stack gas exit temperature (K)
Q = pollutant emission rate (g/s)

USE OF EMISSIONS FACTORS

The maximum hourly emissions being requested must also be the hourly emissions used in the 24-hour model. It is inappropriate to use hourly emission factors to spread total daily emissions out over all potential operating hours. For example, if a concrete batch plant can produce its maximum daily throughput in 8 hours, but the plant wants the flexibility to operate during any time of day between 5 AM and 9 PM (16 hours), it is inappropriate to spread 8 hours of emissions out over 16 hours by using an hourly emissions factor of 0.5 (i.e. cutting the emission rate in half).

MODELING BLOCKS OF TIME

If a modeling situation is complex (e.g. two facilities with different schedules operating on the same property) it may be necessary to model operations during successive blocks of time to discover the worst case scenario. For example, suppose plants A and B operate on the same piece of property. Plant A always operates from 7 AM to 5 PM, while plant B needs the flexibility to operate during any 8 hour block within a 24 hour period. Numerous scenarios may have to be modeled to find the worst case scenario. Document and submit the different scenarios studied.

USE OF 0.6 CORRECTION FACTOR FOR FUGITIVE EMISSIONS

For release heights of 10 meters or less and **with ISC only**, it is appropriate to multiply fugitive emission rates by a factor of 0.6. The justification for doing this can be found at http://www.tceq.state.tx.us/assets/public/permitting/air/memos/modadjfact.pdf.

MODELING CHANGES IN FACILITY SOURCE CONFIGURATIONS

In the case where volume or point sources need to be moved within the boundaries of a property or need to be replaced, it is acceptable to model the changes to sources. In other words, execute the model with the current or permitted configuration of sources; then execute the model with the proposed configuration of sources. Comparing the modeled impacts (current or permitted configuration and proposed configuration) from the two scenarios may show no significant increase in impacts or perhaps, even a decrease in impacts. In those cases, no further modeling is required to demonstrate compliance with NAAQS and NMAAQS.

MODELING PORTABLE SOURCES/RELOCATIONS

In cases where an existing portable source is notifying the Division of relocating equipment, the Division may require air dispersion modeling. Please contact the Division Modeling Staff for a case-by-case determination.

MODELING PROPOSED MODIFICATIONS TO EXISTING FACILITIES

In cases where facility/permittee has a source that is added to a current and long-standing source(s) that have contributed to the background levels, a company may model only the emissions associated with the proposed modification (i.e. addition of screen, crusher), then add the appropriate background concentration to the modeled concentration of the proposed modification. If this situation applies to your company/client, the modeling protocol submitted should discuss the proposed addition of sources. Explain how air quality standards will be protected in both the modeling protocol and report submitted.

HAUL ROADS

Careful examination of AP-42 for both Paved and Unpaved Roads shows the science of haul road modeling is dubious in nature. Furthermore, the WRAP Fugitive Dust Handbook published November 2004 shows paving of haul roads and keeping those roads clean results in nearly 100 percent control of PM10 emissions. Modeling of paved haul roads will not be required if the applicant is willing to implement reasonably available control measures as specified below or if the applicant implements a department approved best management practices plan.

Paved haul roads can be conditionally excluded from modeling. The conditions shall be enforceable permit conditions and at a minimum, these conditions include:

1. The applicant shall use any of the control measures to **prevent** visible emissions of fugitive dust from being generated as specified by 20.11.20.23.A and B NMAC:
    a. Cleaning up spillage and trackout as necessary to prevent pulverized particulates from being entrained into the atmosphere
    b. Using paved or gravel entry/exit aprons with devices, such as steel grates, capable of knocking mud and bulk material off vehicle tires;
    c. Using on-site wheel washes; or
    d. Performing regularly scheduled vacuum street cleaning or wet sweeping with a sweeper certified by the manufacturer to be efficient at removing particulate matter having an aerodynamic diameter of less than 10 microns (i.e. PM_{10})
    e. Using dust suppressants applied in amounts and rates recommended by the manufacturer and maintained as recommended by the manufacturer
    f. Using wet suppression
    g. Using traffic controls, including decreased speed limits with appropriate enforcement; other traffic calming methods, vehicle access restrictions and controls; road closures or barricades; and off-road vehicle access controls and closures
2. Visible accumulation of particulate matter that is deposited on all paved haul roads shall be cleaned and/or mitigated as soon as possible. If visible fugitive emissions are observed off of paved haul roads utilizing the methods specified by 20.11.20.26 NMAC, one or a combination of the above control measures shall be implemented and completed to prevent any visible emissions of fugitive dust from being generated.

Not complying with the above minimum conditions shall be a violation of the applicant's permit.

Procedure for Modeling Haul Roads

The Division has approved the use of volume sources for modeling haul roads. The following is a procedure to develop model input parameters (obtained from Texas Modeling Guidelines, 1999). Other methodologies may be accepted on a case-by-case basis and must be explained in detail. Companies/consultants need to document how they develop the emission factors and emission rates used in haul road modeling. They must justify (scientific studies, AP-42, etc.) values used to develop emission factors, such as percentage of silt on haul road surfaces.

Volume Source Characterization: Follow the steps described below.

Volume Step 1: Determine the number of volume sources, N. Divide the length of the road by the width. The result is the maximum number of volume sources that could be used to represent the road.

Volume Step 2: Determine the height of the volume source. The height will be equal to twice the height of the vehicle generating the emissions—round to the nearest meter.

Volume Step 3: Determine the initial horizontal sigma for each volume.

- If the road is represented by a single volume, divide the length of the volume source by 4.3.
- If the road is represented by adjacent volumes, divide the length of the volume source by 2.15.
- If the road is represented by alternating volumes, divide twice the length of the volume source measured from the center point of the first volume to the center point of the next represented volume—by 2.15. Start with the volume source nearest to the property line. This representation is often used for long roads.

Volume Step 4: Determine the initial vertical sigma. Divide the height of the volume source determined in Step 2 by 2.15.

Volume Step 5: Determine the release point. Divide the height of the volume source by two. This point is in the center of the volume source.

Volume Step 6: Determine the emission rate for each volume source used to calculate the initial horizontal sigma in Step 4. Divide the total emission rate equally among the individual volumes used to represent the road, unless there is a known spatial variation in emissions.

Volume Step 7: Determine the UTM coordinate for the release point. The release point location is in the center of the base of the volume. This location must be at least one meter from the nearest receptor.

PSD MODELING ANALYSES

Air Quality Control Regions and PSD Baseline Dates

Major modifications that meet significance thresholds and new major sources require a PSD increment consumption analysis before construction begins. Increment analysis generally involves three steps:
1) Determine the Class II "significant impact area" for each pollutant and averaging time that triggered PSD review. Class II significance levels are found in Table VI.
2) Prepare an inventory of sources that expand or consume increment within the significant impact area. This may include sources outside the significant impact area.
3) Model the change in emissions to get a concentration change, and compare that concentration change to the applicable increment.

The following table serves as a tool to determine which sources to include in PSD increment modeling.

Table II: PSD Increment Consumption and Expansion

Sources that do not consume PSD increment	• Temporary construction emissions (sources involved in a construction project that will be completed in a year or less). • Any facility or modification to a facility constructed before the PSD major source baseline date. • Any minor source constructed before the PSD minor source baseline date.
Sources that consume PSD increment	• Any new emissions or increase in emissions after the PSD Minor Source Baseline date (for that AQCR and pollutant). • Any new emissions or increase in emissions at a PSD Major source that occurs after the Major Source Baseline Date.
Sources that expand PSD increment	• A permanent reduction in actual emissions from a baseline source.

Notes:

- EPA memos written before the publication of the Draft NSR Workshop Manual indicate that PSD regulations were not intended to apply to temporary pilot projects. The memo clearly indicated that the pilot project did not need a PSD permit.
- If a minor source facility once existed but shut down before the minor source baseline date, then it would not be considered to be part of the baseline.
- An increase in emissions due to increased utilization of a facility, such as de-bottlenecking, are treated as any other increase in emissions.

Minor Source Baseline Dates for Air Quality Control Region 152

Pollutant	Trigger Date
NO_2	3/26/97
SO_2	5/14/81
PM10	Not Yet Triggered

Major Source Baseline Dates and Trigger Dates

Pollutant	Major Source Baseline Date	Trigger Date
PM	January 6, 1975	August 7, 1977
SO_2	January 6, 1975	August 7, 1977
NO_2	February 8, 1988	February 8, 1988

PSD Class I Area Receptors

A modeling analysis of the PSD increment consumed at the nearest Class I areas must be performed by sources in AQCR 152 when a new major source is to be constructed or when a modification at a major source exceeds significance thresholds. Receptors should generally be placed along the boundaries of the Class I areas with medium (100 meter) spacing and in the interior with coarse (500 meter) spacing. If concentrations are above 75% of the PSD increment, then Fine (50 meter) grid spacing should be used near the hot spots.

PSD Class II Area Receptors

Bandelier National Monument is the only PSD Class I area in AQCR 152. The remainder of AQCR 152, including the County of Bernalillo, is a Class II area. The receptor grid for the PSD Class II increment analysis should be the same as for NAAQS compliance modeling.

PSD Class I increment

If the proposed construction of a PSD major source is within 100 km of a Class I area, then PSD increment consumption at the Class I area(s) must be determined and compared with the Class I PSD increment. The PSD permit process requires a more thorough Class I analysis, which is described below under "PSD Permit Application Modeling".

PSD PERMIT APPLICATION MODELING

PSD sources and requirements are defined in NMAC 20.11.61.15 NMAC to 20.11.61.17 NMAC. New PSD major sources and major modifications to PSD major sources must submit the following modeling requirements in addition to the regular NSR modeling requirements. Minor modifications to PSD major sources are only subject to regular NSR modeling requirements, as required under 20.11.41 NMAC.

Sources subject to PSD requirements should consult with the Division to determine how to proceed in the application process. For PSD applications, a modeling protocol is required for review. The following items are required for PSD permit applications and supersede other modeling requirements in this document.

Meteorological Data

Applicants may need to collect one year of on-site meteorological and ambient data to satisfy PSD requirements. In some cases, it may be advantageous to begin collecting on-site meteorological and ambient data to ensure that it is available at a site that may become PSD in the future. A company considering a monitoring program is advised to consult with the Division as early as possible so that an acceptable data collection process, including instrument parameters, can be started. Generally, the following meteorological parameters will be measured: wind direction, wind speed, ambient air temperature, solar insolation, ΔT, and σ_θ. For further information on meteorological monitoring Refer to EPA's *Guideline on Air Quality Models* and *On-Site Meteorological Program Guidance for Regulatory Modeling Applications*. Refer to *Ambient Monitoring Guidelines for Prevention of Significant Deterioration (PSD)* for ambient monitoring guidance. In addition, a monitoring protocol and QA plan **must** be submitted and approved prior to beginning collection of data for a PSD application if these data are to be used for the analysis.

In the absence of actual on-site data, the Division may approve the use of off-site data that the Division believes mimics on-site data for that location or the Division may approve the use of data produced by the model MM5.

Ambient Air Quality Analysis

- If there is a Class I area within 100 km of the facility, then receptors must be located in the Class I area.
- If a model of a facility produces ambient concentrations in a Class I area greater than the significance levels in Table V, then the increment analysis for the Class I area should include all increment consuming sources within 100 km of the Class I area.
- If a model of the facility produces ambient concentrations in a Class II area greater than the significance levels in Table VI, then the Class II PSD increment analysis for the facility must include all increment consuming sources within the significant impact area.
- If the maximum modeled ambient impact is less than the significant level, then a full analysis is not required.

Additional Requirements of a Full Analysis (NMAC 20.11.61.16)

In addition to demonstrating compliance with applicable PSD increments, the owner or operator of the proposed major stationary source or major modification shall provide an analysis of the impact that would occur as a result of the source or modification and general commercial, residential, industrial, and other growth associated with the source or modification.

- An analysis of Air Quality Related Values must be included in the PSD application. If the facility will have no impact on the AQRV, then that must be stated in the application (NSR Workshop Manual, Chapter D).
- There may be additional analyses required by the Federal Land Managers (FLM) for Air Quality Related Values (AQRVs). See Federal Land Managers' Air Quality Related Values Work Group for more information at: http://www2.nature.nps.gov/air/Permits/flag/index.cfm
- Visibility analysis: A Class II Visibility Analysis is required to determine impact the facility will have upon Class II areas. Analyze the change in visibility of a nearby peak or mountain for this analysis. In the absence of nearby mountains, analyze the visibility of clear sky from nearby state or local parks.
- Soils analysis: What changes will occur to soil pH, toxicity, susceptibility to erosion, or other soil characteristics as a result of the project and indirect growth related to this project?
- Vegetation analysis: What changes will occur to type, abundance, vulnerability to parasites, or other vegetation characteristics as a result of the project and indirect growth related to the project? The owner or operator need not provide an analysis of the impact on vegetation having no significant commercial or recreational value.
- Growth analysis: The owner or operator shall also provide an analysis of the air quality impact projected for the area as a result of general commercial, residential, industrial, and other growth associated with the source or modification.

Emission trade-offs

- If a facility is trading off emissions from another source that is not owned by the applicant, the applicant must produce a federally enforceable legal document that the state can use to force the emission reductions.

Emission Inventories

- The most current inventory of sources must be used. It should contain all sources currently under review by the Division that would be located within the appropriate inventory area. The applicant should check with the modeling staff to ensure that the inventory is up to date.

BACT analysis

- The analysis must follow current EPA procedures and guidelines.

Table V: Class I PSD Significance Levels

Pollutant	Averaging Period	FLM Recommended Significance Level (µg/m^3)	PSD Class I Increment (µg/m^3)
SO2	Annual	0.03	2
	24hr	0.07	5
	3hr	0.48	25
NO2	Annual	0.03	2.5
PM10	Annual	0.08	4
	24hr	0.27	8

Table VI: Class II PSD Significance Levels

Pollutant	Averaging Period	FLM Recommended Significance Level (µg/m^3)	PSD Class I Increment (µg/m^3)
SO2	Annual	1.0	20
	24hr	5.0	91
	3hr	25.0	512
NO2	Annual	1.0	25
PM10	Annual	1.0	17
	24hr	5.0	30

Completeness requirements

A narrative report describing the modeling performed for the facility is required to be submitted with the modeling files. This report should be written so as to provide the public and the AQD with sufficient information to determine that the proposed construction will not cause or contribute to violations of air quality standards. The report needs to contain enough information to allow a reviewer to determine that modeling was done in a manner consistent and defensible with respect to available modeling guidance. Do not include raw modeling output in the report, only summaries and descriptions of the output.

It is suggested that reports be laid out according to the following outline. The outline may also be used as a checklist to determine if the analysis is complete.

I. Applicant and consultant information
  a. Name of facility and company.
  b. Permit numbers currently registered for the facility.
  c. Contact name, phone number, and e-mail address for the AQD to call in case of modeling questions.
II. Facility and operations description
  a. A narrative summary of the purpose of the proposed construction, modification, or revision.
  b. Brief physical description of the location.
  c. Duration of time that the facility will be located at this location.
  d. A map showing UTM coordinates and the location of the proposed facility, on-site buildings, emission points, fence line, and property boundary.
III. Modeling requirements description
  a. List of pollutants at this facility requiring NAAQS and/or NMAAQS modeling.
  b. If PSD, NSPS and NESHAP are applicable, then state any additional modeling requirements that result.
IV. Modeling inputs
  a. General modeling approach
    i. The models used and the justification for using each model.
    ii. Model options used and why they were considered appropriate to the application.
    iii. Ozone limiting model options discussion, if used for NO_2 impacts.
    iv. Background concentrations.
  b. Meteorological data
    i. A discussion of the meteorological data, including identification of the source of the data.
    ii. The data itself and a discussion of the procedures used to quality-assure the data (if the Division did not provide the data).
    iii. The stage3.inp file used in stage 3 processing and a discussion of the values chosen for Bowen ratio, albedo, and roughness length.
  c. Receptor and terrain discussion
    i. Description of the spacing of the receptor grids.
    ii. List fence line coordinates and describe receptor spacing along fence line.
    iii. Flat and complex terrain discussion, including source of elevation data.
  d. Emission sources
    i. Description of sources at the facility, including:

            1. A summary of actual and modeled dimensions of all volume sources, whether the sources are elevated or surface based, and whether they are attached to a building or not.
            2. Describe treatment of operating hours
            3. Particle size characteristics, if plume depletion is used
            4. If the modeled stack parameters are different from those in the application, an explanation must be provided as to what special cases are being analyzed and why.
            5. Flare calculations used to determine effective stack parameters.
            6. A cross-reference from the model input source numbers/names to the sources listed in the permit application for the proposed facility.
    e. Building downwash
        i. Dimensions of buildings

V. Modeling files description
    a. A list of all the file names in the accompanying CD and description of these files.
    b. Description of all scenarios modeled and which files go with which scenarios.

VI. Modeling results
    a. If maximum impacts occur more than 50 meters from the fence line, then include a discussion of the radius of impact determination.
    b. A summary of the modeling results including the maximum concentrations, location where the maximum concentration occurs, and comparison of the design concentration to the ambient standards.
    c. For Title V sources, discuss Class I increment impact.
    d. A table showing design concentrations corrected for elevation versus ambient air quality standards.

VII. Summary/conclusions
    a. A statement that modeling requirements have been satisfied and that the permit can be issued.

Bind Your Report! Division modeling staff will not be responsible for loss of parts of your analysis and subsequent incomplete rulings. Three-ring binders or plastic side bindings are preferred.

Submit your report:

I. An electronic copy (in MS Word format) of the modeling report.
II. Input and output files for all model runs. Include BEEST (.BST) files, if available.
III. Building downwash input and output files.
IV. Met data, if not supplied by AQD.
V. An electronic copy of the approved modeling protocol.
VI. A paper copy of the modeling report. Only the narrative report should be printed. Do not include paper copies of modeling input and output files.
VII. A map showing all sources along with UTM coordinates in meters.

ATTACHMENT A
URBAN / RURAL DISPERSION COEFFICIENTS CLASSIFICATION

The following land use procedure should be used when determining whether urban or rural dispersion coefficients should be used when performing an ambient impact analysis using dispersion modeling. Should urban dispersion coefficients be required and your particular model gives you the option of URBAN-1, URBAN-2, or URBAN-3, the URBAN-3 dispersion coefficients should be selected.

1. Classify the land use within the total area, A_o, circumscribed by a 3 kilometer (km) radius circle about the source using the meteorological, land use, typing scheme proposed by Auer[1].

2. If land use types I1, I2, C1, R2, and R3 (defined below) account for 50 percent or more of A_o, use urban dispersion coefficients; otherwise use appropriate rural dispersion coefficients.

DEFINITION OF LAND USE TYPES

(Meteorological Anomalies. Journal of Applied Meteorology, 17:636643.)

TYPE	USE AND STRUCTURES	VEGETATION
I 1	Heavy industrial - Major chemical, steel and fabrication industries; generally 3 - 5 story buildings with flat roofs.	Grass and tree growth extremely rare; < 5% vegetation
I 2	Light-moderate Industrial - Rail yards, Truck depots, Warehouses, Industrial parks, Minor fabrications; generally 1 - 3 story buildings with flat roofs.	Very limited grass, trees almost totally absent; < 5% vegetation
C 1	Commercial - Office and apartment buildings, hotels < 10 stories; with flat roofs.	Limited grass and trees; < 15% vegetation
R 2	Compact residential - Single, some multiple family dwellings with close spacing; generally < 2 story, pitched roof structures; garages (via alley); no driveways.	Limited lawn sizes and shade trees; <30% vegetation
R 3	Compact Residential - Old multi-family dwellings with close (< 2 meter) lateral separation; generally 2 story, flat roof structures; garages (via alley); no driveways.	Limited lawn sizes, old established shade trees; < 35% vegetation

ATTACHMENT B
Scheffe Ozone Screening Method

POINT SOURCES EMITTING VOC AND NO_X

Several photochemical models are appropriate for determining ozone impacts from sources emitting Volatile Organic Compounds (VOC) and Oxides of Nitrogen (NO_X). These models require extensive input data and can be quite resource-intensive to set up and run. The Division recommends the screening procedure documented in *Point Source Screening for Ozone Precursor Emissions,* by Richard D. Scheffe. Table IV and Table V from this document are reproduced below. The ozone concentration in parts per hundred million (pphm) determined from these screening tables should be added to the ozone background for comparison to the NAAQS. Please contact the Division to obtain an ozone background appropriate for the source you are modeling.

Table IV
Rural ozone increment (pphm) as a function of VOC emissions and VOC/NOx ratios.

VOC/NO_X Ratio

VOC Emissions TPY	>20	5 - 20	< 5
50 TPY	0.4	0.4	1.1
75 TPY	0.4	0.4	1.2
100 TPY	0.4	0.5	1.4
300 TPY	0.8	1.0	1.7
500 TPY	1.1	1.4	1.9
750 TPY	1.6	1.9	2.3
1,000 TPY	2.0	2.4	2.7
1,500 TPY	2.7	3.0	3.3
2,000 TPY	3.4	3.8	3.7
3,000 TPY	4.8	5.2	4.3
5,000 TPY	7.0	7.5	4.8
7,500 TPY	9.8	10.1	5.1
10,000 TPY	12.2	12.9	5.4

Example calculation: Given

1. A rural VOC dominated source has the following emission parameters:
   -100 Tons per year VOC and 30 Tons per year NOx
   -Therefore the VOC / NOx ratio = 100 / 30 = 3.33
2. Use the column in the above table headed < 5, since 3.33 < 5
3. On the row for VOC emissions, under the column for < 5 find the entry 1.4

4. The table, therefore, indicates a rural ozone increment for this source of 1.4 parts per hundred million (pphm). Local, background ozone levels will increase 1.4 pphm as a result of this sources' emissions.

As the table and calculation show, the incremental ozone increase due to emissions from a VOC dominated source depend on the gross VOC emissions and the VOC / NOx emissions ratio.

Table V

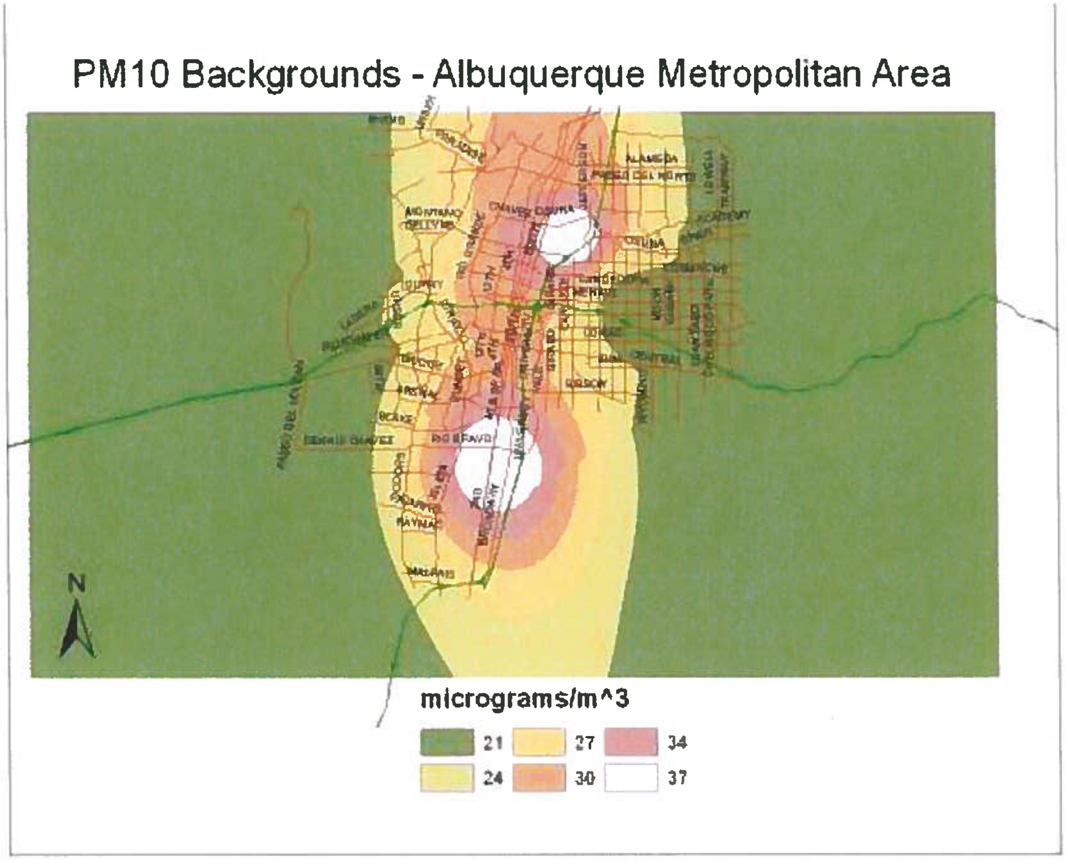
Urban ozone increment (pphm) as a function of VOC emissions and VOC/NOx ratios.

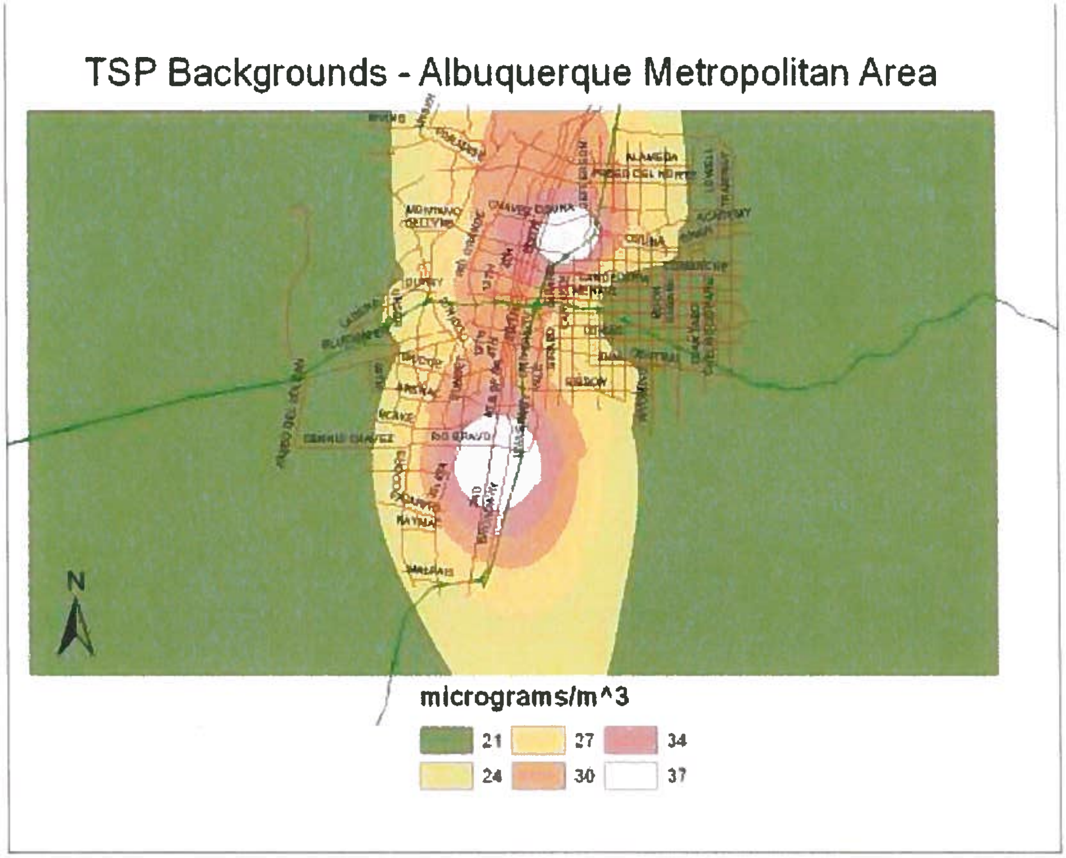
VOC/NO_X Ratio

VOC Emissions TPY	**>20**	**5 - 20**	**< 5**
50 TPY	1.1	1.1	1.0
75 TPY	1.2	1.1	1.1
100 TPY	1.3	1.2	1.1
300 TPY	1.8	1.6	1.9
500 TPY	2.2	2.0	2.8
750 TPY	3.3	2.6	3.9
1,000 TPY	4.1	3.2	4.7
1,500 TPY	5.8	4.2	4.9
2,000 TPY	7.1	5.4	4.9
3,000 TPY	9.5	7.8	6.5
5,000 TPY	13.3	12.0	9.3
7,500 TPY	17.3	16.7	12.5
10,000 TPY	21.1	20.8	15.5

Urban ozone increments are calculated as in the example above except the urban table is used to determine the increment.

ATTACHMENTS C & D





TSP Backgrounds - Albuquerque Metropolitan Area

STATE OF NEW MEXICO
Before the
ALBUQUERQUE-BERNALILLO COUNTY
AIR QUALITY CONTROL BOARD

IN THE MATTER OF THE PETITION
FOR A HEARING ON THE MERITS
REGARDING AIR QUALITY PERMIT
NO. 3131

AQCB No. 2014-4

Southwest Organizing Project [SWOP]
By Juan Reynosa, Environmental Justice Organizer;
Esther and Steven Abeyta, Members of SWOP, Petitioners

Written Testimony of EHD Technical Witness
Regan V. Eyerman, P.E.

My name is Regan Eyerman. I am an Environmental Health Scientist with the City of Albuquerque, Environmental Health Department ("EHD") Air Quality Program. I have a Bachelor of Science degree in Mechanical Engineering from Southern Methodist University and a Master of Engineering degree in Civil Engineering, Environmental Concentration from Texas A&M University. I have received specialized training including classes in major source permitting, greenhouse gas permitting, compliance testing, compliance assurance monitoring, hazardous air pollutants, smoke school, the federal Toxic Substance Control Act, and OSHA 40 Hour Hazardous Waste Operations & Emergency Response Training (HAZWOPER). I have 9 years of experience in air quality permitting, which includes staying current with changes to Albuquerque-Bernalillo County regulations adopted by the Albuquerque-Bernalillo County Air Quality Control Board ("Air Board"), as well as any revisions to or newly-promulgated federal

EHD
EX 2

air quality regulations. I have written approximately 300 air quality permits at the Albuquerque EHD. I have also assisted in the preparation of emissions inventories ("EIs") for Bernalillo County for submission to the Environmental Protection Agency ("EPA"). My resume with additional details about my education and experience is attached as EHD Ex. 2-A

I was the permit writer for the Authority-to-Construct Permit #3131 for Honstein Oil & Distributing, LLC ("Honstein") for a bulk gasoline plant at 101 Anderson Avenue SE, Albuquerque, NM. EHD issued the Honstein Permit on June 12, 2014. My testimony will review the process EHD followed which resulted in its issuance of the Honstein Permit.

EHD received the Honstein "Application for Air Pollutant Sources in Bernalillo County" ("Application"), on October 3, 2013. AR 3, Bates p. 5. In the application, Honstein requested a permit for its existing bulk gasoline plant located at 101 Anderson Avenue SE. I ruled the application incomplete on November 1, 2013 because it did not contain clear and concise emission calculations that were the basis for Honstein's requested potential emissions rate ("PER") for the facility. AR 9, Bates p. 27.

Honstein hired a consultant, Jane Cudney-Black of Weston Solutions, Inc., who resubmitted an updated application on December 13, 2013. AR 13, Bates p. 39. In the updated application, Honstein requested a gasoline throughput of 250,000 gallons per year for its 6000 gallon underground storage tank, resulting in a PER of 2.26 tons of volatile organic compounds ("VOCs") per year. According to the application, Honstein's facility operates 24 hours a day, 7 days a week.

I reviewed Honstein's resubmitted application for completeness. Before EHD can determine that an Application is administratively and technically complete, it must contain the following elements: the company name, company address, facility address, facility UTM coordinates, requested PER, emissions calculations, signature of authorized representative, and payment of the application review fee. The updated Application submitted by Honstein's consultant met all of these requirements except the review fee. EHD had waived the Honstein permit fee because Honstein had already paid the fees for a previous permit application that had been withdrawn at EHD's request. I determined that the updated Honstein Application prepared by its consultant was administratively and technically complete and ruled it complete on December 17, 2013. AR 15, Bates p. 54.

I prepared the public notice which was required to be published. AR 16, Bates p. 56. The Honstein Application was processed under the Air Board's old Part 41 because it was submitted and ruled complete in 2013. The Air Board's new version of Part 41 did not become effective until January 1, 2014.

Part 41 Subpart 14 identifies the requirements for public notice on a permit application. In this case, the Honstein public notice contained information regarding the location of the bulk gasoline plant, that the application was assigned Permit #3131, the requested gasoline throughput, the PER of VOC emissions, the deadline for EHD to make a decision regarding the pending Application, the public comment period, the possibility of requesting a public hearing regarding the Application, the availability of a copy of the Application at EHD and information regarding how to contact EHD for more information. The public notice met all of the requirements of 20.11.41.14 NMAC.

I contacted Ms. Cudney-Black and the applicant, Rod Honstein, on December 17, 2013 and let them know that I had ruled the Honstein Application complete and that public notice would publish in the Albuquerque Journal on December 20, 2013. I also contacted the following individuals, who were listed as contacts for nearby neighborhood associations, on December 23, 2013 to let them know that the application was complete and that public notice was published in the Albuquerque Journal on December 20, 2013 and would run through February 3, 2014: Annette Colbert and Deanna Baca of the San Jose Neighborhood Association (N.A); Dorothy Chavez and Javier Benavidez of Barelas N.A; and Lorraine Smith of South Broadway N.A. AR 18, Bates p. 60. I also provided these individuals with a copy of the public notice which would be published. Also on December 23, 2013, I contacted Ted Schooley of the New Mexico Environment Department and Randy Pitre of EPA and supplied them each with a copy of the public notice. AR 17, Bates p. 59.

During the public comment period, EHD received requests for a Public Information Hearing. AR 19, Bates p. 62; AR 21, Bates p. 66; AR 23, Bates p. 70. EHD received requests from Steve and Esther Abeyta, residents and past presidents of the San Jose Neighborhood Association, from Juan Reynosa from SouthWest Organizing Project ("SWOP"), and from Jacque Garcia from Bernalillo County Place Matters ("BCPM"). The public comment period closed February 3, 2014, with three requests being received for a PIH on the application: one request from two individuals and two requests from persons representing two different public interest organizations.

Part 41 establishes "significant public interest" as the standard for the Director to grant a request for a PIH. The Air Quality Program recommended that the Environmental Health Director find that these requests constituted significant public interest. On February 10, 2014, Isreal Tavarez, EHD Environmental Health Manager and my supervisor, sent a memo to Mary Lou Leonard, EHD Director, requesting a 90-day extension on the Honstein application to allow time for a PIH to occur. Ms. Leonard approved the 90- day extension the next day. AR 24, Bates p. 72. On March 5, 2014, Ms. Leonard determined that there was significant public interest in the

Honstein permit application and approved holding a PIH. AR 27, Bates pp. 80-81. On February 14, 2014, EHD received an email from Mr. Honstein stating that Mr. Honstein had contacted Mr. Reynosa of SWOP and the Abeytas to ask for a meeting to discuss the Honstein application, but that they had declined. AR 25, Bates p. 73.

EHD reserved the Herman Sanchez Community Center near the Honstein facility for May 22, 2014 from 6pm to 8:30 pm to hold the PIH. AR 35, Bates p. 96. EHD had fliers printed in both English and Spanish. AR 26, Bates pp. 78-79. The PIH requesters and City of Albuquerque and Honstein personnel were notified about the scheduled hearing through email on April 17, 2014. AR 36, Bates p. 98.

EHD also received additional requests relating to the PIH. Jacque Garcia of BCPM requested that persons who had indicated interest in Honstein's prior withdrawn application be sent notice of the upcoming PIH and that a Spanish language interpreter be available at the PIH. AR 37, Bates pp. 100-102. On May 8, 2014, EHD sent out 20 letters and 10 emails to these additional requested individuals, as well as to the other interested persons. AR 44A, Bates 118A-118D (*see* Unopposed Motion to Supplement the Administrative Record (Apr. 29, 2015). The letters included the hearing flyers in both English and Spanish, and the emails had links to the flyers in both languages. AR 42 and AR44.

Notice of the Honstein PIH was published in the Albuquerque Journal on May 11, 2014. AR 40, Bates 107; AR 43, Bates pp. 112-116; AR 48, Bates pp. 125-126. Separately, Honstein submitted an updated Application on May 14, 2015 to change the company name from Honstein Oil to Honstein Oil & Distributing, LLC. AR 49, Bates p. 127. Another application was received on May 22, 2015 which changed the description of the facility type from "Gasoline Distribution Terminal" to "Bulk Gasoline Plant." AR 50, Bates pp. 133-139. In preparation for the PIH, EHD posted the following documents on the Air Program's public access website: the updated permit application, the draft Permit #3131, the PIH flyers in English and Spanish, and a summary of the federal regulation controlling emissions from bulk fuel plants.

The PIH was held on May 22, 2014 at the Herman Sanchez Community Center. AR 52-60, Bates 140-173. A Spanish language interpreter was available. At the PIH, EHD provided copies of the meeting agenda, handouts of an EHD presentation, and copies of an EPA brochure entitled *Summary of Regulations Controlling Air Emissions from Gasoline Distribution Bulk Terminals, Bulk Plant, and Pipeline Facilities*. Seventeen people signed in at the PIH. AR 54, Bates 142-43. EHD also prepared a presentation board displayed at the PIH which contained parts of the Administrative Record from the permit file including: the Application, a Google Earth printout of the facility location, the December 20, 2013 *Albuquerque Journal* legal advertisement regarding the Application and the May 11, 2014 *Albuquerque Journal* legal advertisement regarding the PIH. Mr. Tavarez provided a presentation explaining how air emissions from bulk fuel plants are regulated and Mr. Honstein provided a presentation about the history of the Honstein facility. AR 55, Bates p. 144-153 Mr. Tavarez and I took handwritten notes of oral testimony and answered questions from PIH attendees. AR 57-58, Bates pp. 158-173. At the PIH, EHD also received written comments and documents submitted by interested participants which I added to the Administrative Record. AR 59, Bates pp. 174-77.

After the PIH, EHD's Air Quality Program reviewed the comments that were received concerning the Honstein application in the context of the applicable rules which govern air quality permits for bulk fuel plants.

The underground gasoline storage tank is the source of regulated air emissions from bulk fuel plants. The substantive regulations that control these emissions are the Air Board's regulations 20.11.64.12 NMAC (hazardous air pollutants) (incorporating 40 C.F.R. Subpart BBBBBB, among other things) and 20.11.65 NMAC (volatile organic compounds). Copies of these regulations are provided with the Administrative Record.

The Air Board regulation that establishes general minor sources permit requirements for sources like the Honstein facility is 20.11.41 NMAC (2002) called "Authority to Construct." As that name suggests, operators of sources are required to apply for and receive a permit prior to constructing the source. In this case, the storage tank at the Honstein facility appears to have been operating for many years, possibly before air quality permits were even required. Because regulations have changed over the decades and the facility's operations might have changed, we cannot determine with certainty today exactly when the underground gasoline storage tank at the Honstein facility should have had an air quality permit.

At this time, the "construction" of the gasoline storage tank has already occurred, so this permitting process occurred after the fact. EHD issued Permit #3131 to require Honstein to comply with federal and local standards and to allow EHD to enforce the applicable substantive standards on Honstein's air emissions through an effective permit.

The Air Quality Control Act only allows a construction permit to be denied if the construction or modification meets one or more of the following criteria:

1) Would not meet applicable standards, rules or requirements of the Air Act or the Clean Air Act;

2) Would cause or contribute to air contaminant levels in excess of a national, state or local ambient air quality standard; or

3) Would violate any other provision of the Air Act or the Clean Air Act.

Prior to the PIH, EHD had not identified any facts to support a conclusion that any of these three criteria were met.

In reviewing the PIH comments, EHD found no information that established that construction of the Honstein's underground gasoline storage tank would not meet any applicable standard, rule or requirement of the Air Act or the Clean Air Act. No comments established that the construction of the Honstein facility caused or contributed to an air contaminant level in excess of any ambient air quality standard. No comments showed that the construction would violate any other provision of the Air Act or the Clean Air Act.

I reviewed the draft permit for the Honstein facility and concluded that, if it was operated as required by the draft permit, it would not violate 20.11.64.12 NMAC, *Emission Standards for Hazardous Air Pollutants* (incorporating 40 CFR 63, Subpart BBBBBB (aka Hex B)); or Local Air Board regulation 20.11.65, *Volatile Organic Compounds.* A summary of my analysis is contained in a memo I prepared. AR 66, Bates pp. 190-94. Therefore, I presented the permit and my memo to my supervisor, Mr. Tavarez, for final review. He signed the permit and issued it on June 12, 2014. AR 67, Bates pp. 195-198.

Notice of EHD's issuance of the Honstein Permit was provided by certified mail July 14, 2014 and email July 16, 2014. AR 70-71, Bates pp. 212-219, 221-229; AR 72, Bates pp. 230-259. There was a delay between the issuance of the permit and notice of its issuance being sent. At the public information hearing, a number of detailed questions were submitted by participants. The Air Program wanted to put together written responses to all of the questions before notice was given, but that took time to compile. The Air Act allows 30 days from when "notice is given" of the permitting action for filing a petition for a hearing before the Air Board.

NMSA 1978, § 74-2-7(H). So, anyone who had participated in the permitting action and was adversely affected by the permitting action could request a hearing for thirty days from when notice was given, not from when the permit was issued. Thus, those who wanted to request a hearing had the full thirty days provided by law to request one.

In my opinion, based on the facts described above, Permit #3131 satisfies all legal requirements imposed by the Air Act and the Clean Air Act and all applicable Air Board regulations.

That completes my testimony about how I prepared the Honstein Permit. I would also like to address the Petitioner's testimony offered through Dr. George Thurston relating to the 2005 National Air Toxics Assessment ("2005 NATA").

The 2005 NATA is not based on monitored data. The data is so old that when I contacted Sally Dombrowski of the EPA's Emission Inventory and Analysis Group to inquire about certain aspects of it, Ms. Dombrowski could no longer identify some of its data sources. However, some of its sources are still known and a brief explanation of how the 2005 NATA was prepared (to the extent that this information is still available) helps in understanding why it is no longer a reliable data source.

The 2005 NATA was compiled, in part, from several data sources from 2002 and 2005 with variable reliability.

1) Emissions for larger sources were based on 2005 reported emission inventories. This should generally be a reliable estimate of a source's emissions ten years ago.

2) Smaller sources relied on 2002 reported emission inventories if available. Otherwise the data was permitted allowable emissions, which is what a source is allowed to emit by their permit but not necessarily what they actually emitted in a particular year. While these are smaller sources, there are many, many more minor sources in Bernalillo County than large sources that are required annually to produce emissions inventories. Therefore, the combination of using permitted allowable emissions for minor sources plus the far greater number of these sources would result in much higher estimates of emissions than actually occurred.
3) For some data categories, the source of the data in the 2005 NATA has been lost to time and its reliability can no longer be assessed.

Thus, the 2005 NATA was not a very accurate estimate of toxic air emissions when it was prepared. However, over the years it has become even more inaccurate for two major reasons.

First, EPA regulation of hazardous air pollutants is not static over time. In general, EPA has added new regulations to control hazardous air pollutants over the last ten years and has strengthened others. As a result of these rulemakings, today's emissions for an activity that began ten years ago could be significantly lower than it used to be. For example, the federal regulations which limit emissions from gasoline distribution sources like Honstein were adopted in 2008, after the 2005 NATA was prepared. Similarly, in 2007 EPA adopted rules to decrease emissions from mobile sources. *Control of Hazardous Air Pollutants from Mobile Sources* 72 Fed. Reg. 8428, 8428 (Feb. 26, 2007). Since mobile sources are the largest source of benzene, an important urban hazardous air pollutant, *id.,* EPA's additional rules affecting mobile sources would be expected to decrease benzene emissions when compared to 2005.

Second, EHD permits are not static over time. Permits are cancelled, modified, new regulations are applied to existing activities, and new sources apply for permits and old sources move and close. Thus, an estimate based on permitted allowable emissions in 2005 would not be a reliable estimate of 2015 actual emissions.

Finally, EPA itself has cautioned against using the 2005 NATA to compare census blocks. A copy of EPA's warning is included with my testimony as EHD Ex. 2-B. Thus, Dr. Thurston is using the 2005 NATA for a purpose for which EPA said that it is not reliable enough to yield meaningful conclusions.

I declare under penalty of perjury that the above testimony is true and correct to the best of my knowledge and belief.

Respectfully submitted,

Regan V. Eyerman
Regan V. Eyerman, P.E.

4/29/2015
Date

Education and Work Background of
Regan Eyerman, PE

Technical Witness for the
Albuquerque Environmental Health Department
Air Quality Program

AFFILIATION AND TITLE

Environmental Health Scientist, Air Quality Program Permitting
Environmental Health Department
City of Albuquerque, New Mexico

EDUCATION

MEng in Civil Engineering, Environmental Concentration, Texas A&M University – May 1994
B.S. in Mechanical Engineering, Southern Methodist University (SMU) – December 1991

TRAINING

ODEQ NSR/PSD Workshop – 4/8-4/10/14
WESTAR Principles and Practices of Air Pollution – 9/17-9/19/13
WESTAR Greenhouse Gases Prevention of Significant Deterioration – 6/18/13
EPA Quality Assurance Training – 5/14-5/16/13
WESTAR Monitoring Compliance Testing and Source Test Observations – 10/29-11/2/12
City of Albuquerque Engineering Ethics– 10/26/12
WESTAR Effective Permit Writing – 7/19-7/21/11
OSHA 8 Hour Hazardous Waste Operations Refresher – 4/20/11
WESTAR Compliance Assurance and Title V Monitoring – 5/19-5/20/10
WESTAR Intermediate NSR/PSD Workshop – 10/21-10/22/09
OSHA 8 Hour Hazardous Waste Operations Refresher – 3/13/09
WESTAR Introduction to Hazardous Air Pollutants – 9/8-9/10/08
WESTAR Permit Practices and Procedures II – 9/26-9/28/07
Smoke School, Lecture and Initial Field Certification – Fall 2006
WESTAR Training Courses in Industrial Boilers and Stationary Reciprocating Engines – 4/17/06 and 4/20/06
Toxic Substance Control Act (TSCA) Compliance Course – 7/14-7/15/03
OSHA 40 Hour Hazardous Waste Operations & Emergency Response Training – 1994

EHD
EX 2-A

PROFESSIONAL EXPERIENCE

I have 20 years of experience in the environmental, health and safety field. This experience includes 8 years directing employees working in a fabrication environment on compliance programs related to chemical safety and solid waste management. Since being employed by the City of Albuquerque I have gained an additional 9.5 years of experience in air quality issues. This experience encompasses conducting technical reviews of stationary sources in order to write Air Quality Construction permits and Title V permits; and also producing annual county-wide inventories of emissions of regulated air pollutants required to be reported to the EPA. I am a registered Professional Engineer in the State of New Mexico (since 2009).

ENVIRONMENTAL HEALTH SCIENTIST, Air Quality Program Permitting, Environmental Health Department, City of Albuquerque: August 2008 – Present

- My main responsibility is to review air quality permit applications and draft permits in accordance with local, state, and federal regulations.

- I am also responsible for staying current with changes to local air quality regulations, as well as any revisions or newly promulgated federal regulations.

- Additionally, I am also responsible for assisting in the preparation of annual air emission inventories for submittal to the EPA.

ENVIRONMENTAL HEALTH SPECIALIST II, Air Quality Division, Environmental Health Department, City of Albuquerque: August 2006 – August 2008

- My main responsibility was to review air quality permit applications and draft permits in accordance with local, state, and federal regulations.

- I was also responsible for staying current with changes to local air quality regulations, as well as any revisions or newly promulgated federal regulations.

ENVIRONMENTAL HEALTH SPECIALIST I, Air Quality Division, Environmental Health Department, City of Albuquerque: July 2005 – August 2006

- My main responsibility was to assist in the preparation of annual air emission inventories for submittal to the EPA.

- I was also responsible for assisting in the preparation of a county-wide and city-wide greenhouse gas inventory.

- Additionally, I began to assume some responsibility for reviewing air quality permit applications and drafting permits in accordance with local, state, and federal regulations.

STAFF ENVIRONMENTAL ENGINEER, Hitachi Global Storage Technologies (formerly IBM): January 2003 – February 2005

- While with Hitachi, my main responsibility was coordinating environmental compliance programs related to chemical safety.

- My secondary responsibility was chemical incident management.

STAFF ENVIRONMENTAL ENGINEER, International Business Machines Corporation (IBM): August 1997 – January 2003

- While with IBM, my main responsibility was coordinating environmental compliance programs related to solid waste management.

- I was also responsible for auditing fabrication areas and laboratories to ensure compliance with environmental/health safety issues.

- Additionally, I helped to design and maintain the main fabrication area's environmental monitoring system.

PROJECT ENGINEER, Central and Southwest Corporation: February 1997 – August 1997

- While with Central and Southwest, I trained in the power generation industry.

PROJECT ENGINEER, International Technology Corporation: May 1994 – October 1996

- While with IT Corporation, my main responsibility was preparing air emission inventories for Title V air permit applications.

http://www.epa.gov/airtoxics/natamain/
Last updated on 2/22/2013

Technology Transfer Network
Air Toxics Web Site

You are here: EPA Home Air & Radiation TTN Web - Technology Transfer Network Air Toxics Web site National Air Toxics Assessments

National Air Toxics Assessments

Announcements

NATA video modules provide an overview, demonstration of how to navigate 2005 results, and examples of how NATA is used.

What is NATA?

The National-Scale Air Toxics Assessment (NATA) is EPA's ongoing comprehensive evaluation of air toxics in the U.S. EPA developed the NATA as a state-of-the-science screening tool for State/Local/Tribal Agencies to prioritize pollutants, emission sources and locations of interest for further study in order to gain a better understanding of risks. NATA assessments do not incorporate refined information about emission sources, but rather, use general information about sources to develop estimates of risks which are more likely to overestimate impacts than underestimate them. NATA provides estimates of the risk of cancer and other serious health effects from breathing (inhaling) air toxics in order to inform both national and more localized efforts to identify and prioritize air toxics, emission source types and locations which are of greatest potential concern in terms of contributing to population risk. This in turn helps air pollution experts focus limited analytical resources on areas and or populations where the potential for health risks are highest. Assessments include estimates of cancer and non-cancer health effects based on chronic exposure from outdoor sources, including assessments of non-cancer health effects for Diesel Particulate Matter (PM). Assessments provide a snapshot of the outdoor air quality and the risks to human health that would result if air toxic emissions levels remained unchanged.

How do I access NATA assessments?

EPA has completed four assessments that characterize the nationwide chronic cancer risk estimates and noncancer hazards from inhaling air toxics. The latest, the 2005 NATA, was made available to the public in early 2011. You can access any of the NATA assessments by clicking below on the specific year of interest.

- 2005 National-Scale Air Toxics Assessment
- 2002 National-Scale Air Toxics Assessment
- 1999 National-Scale Air Toxics Assessment
- 1996 National-Scale Air Toxics Assessment

Why was NATA developed?

The NATA assessments were designed to help guide efforts to cut toxic air pollution and build upon the already significant emissions reductions achieved in the US since 1990.

NATA was developed as a tool to inform both national and more localized efforts to collect air toxics information, characterize emissions, and help prioritize pollutants/geographic areas of interest for more refined data collection and analyses.

The goal is to identify those air toxics which are of greatest potential concern in terms of

EHD
EX 2-B

contribution to population risk. Ambient and exposure concentrations, and estimates of risk and hazard for air toxics in each State are typically generated at the census tract level.

What NATA is not.

NATA results provide answers to questions about emissions, ambient air concentrations, exposures and risks across broad geographic areas (such as counties, states and the Nation) at a moment in time. As such, they help the EPA identify specific air toxics compounds, and specific source sectors such as stationary sources or mobile sources, which generally produce the highest exposures and risks in the country. These assessments are based on assumptions and methods that limit the range of questions that can be answered reliably. The results cannot be used to identify exposures and risks for specific individuals, or even to identify exposures and risks in small geographic regions such as a specific census block, i.e., hotspots.

These assessments use emissions data for a single year as inputs to models which will yield concentration and risk estimates. These estimates reflect chronic exposures resulting from the inhalation of the air toxics emitted and do not consider exposures which may occur indoors or as a results of exposures other than inhalation, i.e., dermal or ingestion.

These limitations, or caveats, must always be kept in mind when interpreting the results, and the results should be used only to address questions for which the assessment methods are suited.

How should I use NATA results?

The results of assessments are best used to focus on geographic patterns and ranges of risks across the country. You can use NATA to do all of the following:

- Prioritize pollutants and emission sources
- Identify locations of interest for further investigation
- Provide a starting point for local-scale assessments
- Focus community efforts
- Inform monitoring programs
- To prioritize schools for monitoring outdoor air toxics

For example, assessments made at the community level, have relied on assessments to prioritize data and research needs to better assess the local risk from air toxics. Communities have found that accessing NATA data helps inform and empower citizens to make local decisions concerning the health of their communities. In some cases, local projects can achieve environmental improvements sooner than federal regulations alone.

EPA uses the results of assessments to do all of the following:

- Set priorities for improving data in emission inventories
- Direct priorities in expanding EPA's air toxics monitoring network
- More effectively target risk reduction activities
- Identify pollutants and industrial source categories of greatest concern
- Help set priorities for the collection of additional information
- Improve understanding of the risk from air toxics
- Work with communities in designing their own assessment
- Link Air Toxics to Criteria Pollutant Program

NATA assessments should not be used for any of the following:

- As a sole means for identifying localized hotspots*

- As a definitive means to pinpoint specific risk values within a census tract
- To characterize or compare risks at local levels such as between neighborhoods
- As the sole basis for developing risk reduction plans or regulations
- To control specific sources or pollutants
- To quantify benefits of reduced air toxic emissions

*For analysis of air toxics in these smaller areas, other tools such as monitoring and local-scale assessments should be used to evaluate potential hot spots using more refined and localized data.

Can I compare data across assessments?

For each assessment, EPA has improved its methodology by doing all of the following:

- Use a better and more complete inventory of emission sources
- Increase the number of air toxics evaluated
- Improve upon health data information used in assessments

Due to the extent of improvements in methodology, it is not meaningful to compare the assessments. This is because any change in emissions, ambient concentrations, or risks maybe due to either improvement in methodology or to real changes in emissions or source characterization.

How are NATA assessments developed?

NATA assessments generally include a four step process including:

1. Compile a national emissions inventory from outdoor sources.
2. Estimate ambient concentrations of air toxics across the United States.
3. Estimate population exposures across the United States.
4. Characterize potential public health risks due to inhalation of air toxics.

Is NATA a collaborative process?

EPA collaborated with State, local and Tribal agencies to develop the information that is contained in the assessment. Communities have been actively involved in partnerships with local governments to use NATA data to develop local toxics inventories and to provide the basis for developing a community-supported plan for reducing toxic emissions. The National Research Council (NRC) in their review of the 1996 NATA ,emphasized in their 2004 report on "Air Quality Management in the United States" EXIT Disclaimer that "NATA has provided a tool for exploring control priorities and has served as a preliminary attempt to establish a baseline for tracking progress in reducing HAP emissions".(See p.247 of that report).

Aside from interactions with other environmental agencies, EPA has sought to collaborate with EPA's Science Advisory Board which provided helpful comments through their peer review process. The methods used for these assessments were peer-reviewed and endorsed by EPA's Science Advisory Board in 2001. (See http://www.epa.gov/ttn/atw/nata/sab/sabrev.html). The SAB review concluded that NATA represents "an important step toward characterizing the relationship between sources and risk of hazardous air pollutants".

STATE OF NEW MEXICO
Before the
ALBUQUERQUE-BERNALILLO COUNTY
AIR QUALITY CONTROL BOARD

IN THE MATTER OF THE PETITION FOR A HEARING ON THE MERITS REGARDING AIR QUALITY PERMIT NO. 3131 **AQCB No. 2014-4**

Southwest Organizing Project [SWOP]
By Juan Reynosa, Environmental Justice Organizer;
Esther and Steven Abeyta, Members of SWOP, Petitioners

Written Testimony of EHD Technical Witness
Daniel Gates

My name is Daniel Gates and I am the Quality Assurance Section Supervisor for the Air Quality Program in the Albuquerque Environmental Health Department ("EHD"). I have sixteen years of experience in air quality with a significant focus on data management and quality assurance. My experience encompasses conducting equipment and data audits, data validation procedures, standard operating procedure development, review and evaluation of EPA air quality requirements, and developing and writing Quality Assurance Project Plans. I have been the primary EHD Air Quality Program Quality Assurance contact for the EPA Region 6 office for 15 years. I have received specialized training including classes in quality assurance management, data quality objectives, and quality management plans. I have a Quality Management Certificate from the Robert O. Anderson School of Management. My resume with additional details about my education and experience is attached. EHD Ex. 3-A.

I was asked by EHD to examine the sampling that Petitioner did to conduct its "Bucket Brigade." I faced some challenges in reviewing what Petitioner did to conduct their sampling from a quality assurance standpoint. I did not have the actual chain of custody documents or the

EHD
EX 3

complete set of laboratory sample results to review. Instead, I had only the items, summaries and photos which I found on Petitioner's web site at http://www.breatheinnm.org/. Thus, the quality assurance issues I have identified in this testimony should not be considered to be a complete list.

The data quality issues that I noticed include the following:

1) Likely sources of cross-contamination: I examined the photos which are on the Petitioner's web site which show how Petitioner's Bucket Brigade samples were collected. In examining the photos, I noticed that there are several examples of activities which I would expect would cause cross-contamination of Petitioner's samples. For example, Petitioner's volunteers used Sharpie pens, highlighters, dry erase markers, tape and labels and other unacceptable items in proximity to their Tedlar bags. All of these items are all potential sources of volatile organic compounds and they could readily contaminate Petitioner's Tedlar bags. I have attached copies of the photos from Petitioner's web site that illustrate these issues. EHD Ex. 3-B. I have added red circles and notes to the photos to explain the significance of what I saw.

Problems with Tedlar bag cross-contamination have been addressed by EPA in its standard operating procedures:

> 4.3 Tedlar Bag Sampling
> Contamination is a major concern since many of the compounds in question will be present in the parts per billion range. In order to minimize the risk of cross contamination, the following factors should be considered:
> - Proximity of the bags to source(s) of potential contamination during transportation and storage. The farther away from source(s) the bags are the less likely the chances of external contamination.
> - Bags must be attached only to clean Teflon tubing.
> - Once the bag has been collected, affix the sample label to the edge of the bag. Adhesives found in the label may permeate the bag if placed on the body of

> the bag. Fill out labels with a ballpoint pen as permanent markers contain volatile compounds that may contaminate the sample.
>
> - Due to the chemical structure of Tedlar, highly polar compounds will adhere to the inner surface of the bag. Also, low molecular weight compounds may permeate the bag. Real-time monitors such as the organic vapor analyzer, photoionization detector, and combustible gas indicator should be used as screening devices prior to sampling. The information gathered is written on the sample label to inform the individuals performing the sample analysis. The Tedlar bag sampling system is straightforward and easy to use. However, there are several things to be aware of when sampling.
> - The seal between the top and bottom half of the vacuum box must be air tight in order for the system to work.

Standard Operating Procedure, Eleven, General Air Sampling Guidelines, Modified from U.S. Environmental Protection Agency Environmental Response Team, SOP's 2102, 2103, and 2104 [emphasis added]. EHD Ex. 3-C.

Because Petitioner did not use appropriate measures to protect its samples from cross-contamination, Petitioner's sampling results are not reliable.

2) Improper method for analysis: Petitioner used Tedlar bags to gather the samples for its Bucket Brigade. This is not a recommended method for sampling ambient air. Petitioner's own laboratory that performed the testing states that "[f]or indoor air or ambient air sampling, 6L Summa canisters are the recommended sampling medium." (http://www.caslab.com/News/analytical-considerations-for-air-samples-for-vapor-intrusion-investigations.html#more-37). Furthermore, Petitioner's laboratory did not use the EPA Reference Method for testing Tedlar bags, "TO-15." Instead, the laboratory used a modified method. EHD Ex. 3-D, 3-E. Because Petitioner did not use an EPA reference method and it used a method, Tedlar bags, which are not recommended for ambient air testing, Petitioner's sample results should not be relied upon.

I declare under penalty of perjury that the above testimony is true and correct to the best of my knowledge and belief.

Respectfully submitted,

Daniel Gates

9/29/15

Date

169734

Education and Work Background of
Daniel Gates

Technical Witness for the
Albuquerque Environmental Health Department
Air Quality Program

AFFILIATION AND TITLE

Quality Assurance Section Supervisor,
Air Quality Program, Environmental Health Department
City of Albuquerque, New Mexico

EDUCATION

Bachelor of Arts in Architecture, University of New Mexico –May 1989

TRAINING

USEPA – Orientation to Quality Assurance Management – 12/1/98
USEPA – Data Quality Objectives – 12/2/98
USEPA – Quality Management Plan/Quality Assurance Project Plan – 12/4/98
Quality Management Certificate – UNM Robert O. Anderson School of Management – May 2005
Business Ethics Certification – Colorado State University – Spring 2006

EXPERIENCE

I currently have 16 years of experience in air quality with a significant focus on data management and quality assurance. My experience encompasses conducting equipment and data audits, data validation procedures, standard operating procedure development, review and evaluation of EPA air quality requirements, and developing and writing Quality Assurance Project Plans.

I have been the primary Quality Assurance contact for the EPA Region 6 office for 15 years.

Quality Assurance Section Supervisor, Air Quality Program, Environmental Health Department, City of Albuquerque: August 1998 – Present

- My main responsibility is to review, validate and submit the monitoring sections data to EPA. This includes meeting the EPA requirements for equipment audits, data reporting and data quality objective development in accordance with EPA federal requirements and guidance documents.

Environmental Health Specialist, Wastewater Utility Department, City of Albuquerque: November 1994 – August 1998

- My main responsibility was to develop and oversee the Pollution Prevention Program. The primary task was to reduce the amount of commercial and industrial waste material being discharged to the wastewater treatment facility.

EHD
EX 3-A

Use of dry erase and other types of high VOC markers

Label affixed directly to the tedlar bag. Bags are porous, possible cross contamination from the labels adhesive.

EHD
EX 3-B

Appears tape is being applied to sampler – VOC cross contamination

Tedlar bags out in the open – VOC cross contamination

Appears to be a marker/dry erase –VOC cross contamination

Appears to be highlighters –VOC cross contamination

Label affixed directly to the tedlar bag. Bags are porous, possible cross contamination from the labels adhesive.

Additional labels affixed to the exterior of the sampling bucket.

Appears that the sample pump may be in operation.

Labels affixed to cap. Possible cross contamination from the labels adhesive.

STANDARD OPERATING PROCEDURE

Eleven

General Air Sampling Guidelines

Modified from

U.S. Environmental Protection Agency Environmental Response Team

SOP's 2102, 2103, and 2104

Version 2.0 (3/18/2003)

EHD
EX 3-C

TABLE OF CONTENTS

1.0 SCOPE AND APPLICATION

The purpose of this standard operating procedure (SOP) is to define the use of several air sampling techniques that could be used for indoor air monitoring/remediation system monitoring (i.e. soil vapor extraction systems) of petroleum constituents. The sampling methods that will be discussed include Tedlar bag sampling, charcoal tube sampling, and Tenax/Carbon Molecular Sieve (CMS) tube sampling.

These are standard (i.e., typically applicable) operating procedures which may be varied or changed as required, dependent upon site situations, equipment limitations, or limitations imposed by the procedure. In all instances, the ultimate procedures employed should be documented and associated with the final report.

Mention of trade names or commercial products does not constitute South Dakota Department of Environment and Natural Resources (Department) endorsement or recommendation for use.

2.0 METHOD SUMMARY

2.1 Charcoal Tube Sampling

Charcoal tube sampling is performed by drawing a known volume of air through a charcoal adsorption tube. As air is drawn through the tube during sampling, gases and vapor adsorb onto the surface of the charcoal. After sampling, the tubes are delivered to the laboratory for analysis.

2.2 Tenax/CMS Tube Sampling

Tenax/CMS tube sampling is performed by drawing a known volume of air through a Tenax adsorbent followed by a CMS adsorbent. Volatile organic compounds are captured on the adsorbent while major inorganic atmospheric constituents pass through or are partially retained. After sampling, the tubes are delivered to the laboratory for analysis.

2.3 Tedlar Bag Sampling

Tedlar bag sampling allows for the collection of a representative grab sample of a gaseous media for analysis. The Tedlar bag collection system allows for this and consists of the following items:

- The Tedlar bag complete with necessary fittings
- A box in which a vacuum is created
- A sampling pump to create the necessary vacuum
- An appropriate Teflon and Tygon tubing

The Tedlar bag is placed into a vacuum box (See Figure 1 in Appendix) and the fitting is inserted into the Teflon tubing. The Teflon tubing is the path through which the gaseous media will travel. The pump is attached to the Tygon tubing, which is part of the vacuum fitting on the vacuum box. The pump evacuates the air in the vacuum box, creating a pressure differential causing the sample to be drawn into the bag. The sample drawn into the Tedlar bag never flows through the pump. The flow rate for the pump must be defined prior to sampling. The usual flow rate for bag sampling is 3 liters/minute (l/min).

3.0 SAMPLE PRESERVATION, CONTAINERS, HANDLING, AND STORAGE

3.1 Charcoal Tube Sampling

Charcoal used for sampling is housed in a glass tube that has been flame sealed. The most commonly used charcoal tubes contain 150 milligrams (mg) or 600 mg of carbon. The smaller 150-mg tube is 7 centimeters (cm) long with a 4 millimeter (mm) inside diameter (ID) and a 6 mm outside diameter (OD) containing two sections of 20/40 mesh activated carbon separated by urethane foam. The adsorbing section contains 100-mg of charcoal, with the backup section contains 50-mg of charcoal. The larger 600-mg tube is 11-cm long with a 6-mm ID and 8-mm OD containing two sections of 20/40 mesh activated charcoal separated by urethane foam. The adsorbing section contains 400-mg of charcoal, with the backup section containing 200-mg of charcoal. A greater volume of air can be drawn through the larger tube thereby providing a greater sensitivity.

To preserve and store samples:

- Place plastic caps on the charcoal tube ends.
- Place the sample in a whirl bag. If collocated samples have been collected, place both tubes in one whirl bag.
- If the sample tube must be stored for more than a week, refrigeration is recommended. **Maximum recommended holding time is two weeks.**

3.2 Tenax/CMS Tube Sampling

Tenax/CMS tubes contain a granular inert chemical compound with adsorbent properties. A flame-sealed outer glass tube protects the inner tube from contamination. This outer glass tube must be broken and the Tenax/CMS tube must be removed prior to sampling. The Tenax/CMS tube has a 6 mm OD and a 4 mm ID containing one section of 150-mg Tenax, 35/60 mesh and one section of 150-mg CMS 60/80 mesh.

After sampling is complete, the Tenax/CMS tubes are stored in culture tubes. Therefore, prior to site work, the culture tubes should be cleaned and prepared using the following procedure:

- A plug of pre-cleaned glass wool (methanol rinsed, baked in an oven at 120^0 C) is placed in the bottom of each tube.
- The culture tubes are placed in an oven for at least two hours at 120^0 C. The Teflon lined caps are not baked.
- The culture tubes are removed from the oven and allowed to cool.
- The culture tubes are placed in a resealable bag or whirl bag.

Refrigerate the samples and keep out of sunlight. **Storage for more than four weeks is not recommended.**

3.3 Tedlar Bag Sampling

The Tedlar bags most commonly used for sampling have a 1-liter volume. When the sampling procedure is concluded, the Tedlar bags are stored in either a clean cooler or a trash bag to prevent photodegradation. **Note: It is essential that sample analysis be conducted within 48 hours, after this time compounds may escape or become altered.**

4.0 INTERFERENCES AND POTENTIAL PROBLEMS

4.1 Charcoal Tube Sampling

Low sampling flow rates, and high temperature and humidity may cause a decrease in the adsorption capacity of activated carbon. Contaminants from the front portion of the tube may migrate to the back portion of the tube. Refrigeration may minimize this migration.

4.2 Tenax/CMS Tube Sampling

Contamination of the Tenax/CMS tubes with the compound(s) of interest is a common problem. To minimize this problem, the user must be extremely careful in the preparation, storage, and handling of the tube throughout the sampling analysis process. To avoid contamination from skin oils, a lint free glove must be used when handling Tenax/CMS tubes.

4.3 Tedlar Bag Sampling

Contamination is a major concern since many of the compounds in question will be present in the parts per billion range. In order to minimize the risk of cross contamination, the following factors should be considered:

- Proximity of the bags to source(s) of potential contamination during transportation and storage. The farther away from source(s) the bags are the less likely the chances of external contamination.
- Bags must be attached only to clean Teflon tubing.
- Once the bag has been collected, affix the sample label to the edge of the bag. Adhesives found in the label may permeate the bag if placed on the body of the bag. Fill out labels with a ballpoint pen as permanent markers contain volatile compounds that may contaminate the sample.
- Due to the chemical structure of Tedlar, highly polar compounds will adhere to the inner surface of the bag. Also, low molecular weight compounds may permeate the bag. Real-time monitors such as the organic vapor analyzer, photoionization detector, and combustible gas indicator should be used as screening devices prior to sampling. The information gathered is written on the sample label to inform the individuals performing the sample analysis.

The Tedlar bag sampling system is straightforward and easy to use. However, there are several things to be aware of when sampling.

- The seal between the top and bottom half of the vacuum box must be air tight in order for the system to work.

- Check the O-ring gasket to see if it is in place with the proper fit. O-rings that have been stretched out will not remain in place, thus requiring constant realignment.
- Check that all the fittings associated with the vacuum joints are securely in place. The fittings can be pushed loose when inserting the valve stem into the Teflon tubing.
- Occasionally, a corner of the Tedlar bag will stick out between the two halves of the vacuum box causing a poor seal. Since the bags will hold only a given volume, over-inflation will cause the bags to burst.

5.0 EQUIPMENT

5.1 Charcoal Tube Sampling

Equipment List:

- Personal sampling pump
- Dowel rods
- Single or dual rotameter (with stand and desired pre-calibrated flow rate)
- Charcoal tubes (150 or 600 mg)
- Tygon tubing (for attaching the tube holder system to the suction side of the pump)
- Sleeves (or support tubes to hold tubes in place)
- Single or dual manifold flow controller
- Tube holder end (to support and seal the sampling tube within the plastic housing)
- Glass tube cracker
- Resealable bags
- Whirl bags
- Plastic end caps
- Air sampling worksheets and sample labels
- Chain of custody records
- Screwdriver set

5.2 Tenax/CMS Tube Sampling

Equipment List:

- Calibrated personal sampling pump
- Dual rotameter with stand and pre-calibrated flow rate
- Tenax/CMS tubes, preferably of the same lot number
- Flexible Tygon tubing (for attaching the tube holder system to the suction side of the pump)
- Universal tube holder system which includes, dual variable manifold flow controller, tube holder end with rubber boot adapter, sleeves, and clear plastic housings
- Glass cracker
- Lint-free gloves
- Glass wool
- Teflon tape
- Culture tubes
- Screwdrivers
- Resealable bags

- Whirl bags
- Air sampling worksheets
- Chain of custody records

5.3 Tedlar Bag Sampling

The following items must be operational to perform Tedlar bag sampling:

- Vacuum box must be clean, Teflon tubing replaced, and equipped with extra O-rings
- Pump(s) must be charged, in good working order, and set with the appropriate flow rate of 3 liters per minute
- Tedlar bags must be free of visible contamination and preferably new
- Chain of custody records, custody seals
- Sample labels
- Air sampling worksheets
- Opaque trash bags

6.0 REAGENTS

6.1 Charcoal Tube Sampling

This section is not applicable to charcoal tube sampling.

6.2 Tenax/CMS Tube Sampling

Methanol is used in the laboratory to clean the culture tubes, which hold the Tenax/CMS samples. This is performed prior to site work.

6.3 Tedlar Bag Sampling

This section is not applicable to Tedlar bag sampling.

7.0 PROCEDURES

7.1 Charcoal Tube Sampling

7.1.1 Preparation

- Determine the extent of the sampling effort, the sampling methods to be employed and the types and amounts of equipment and supplies needed.
- Obtain and organize the necessary sampling and monitoring equipment.
- Decontaminate or pre-clean equipment, and ensure that it is in working order. Pre-calibrate sampling pumps as described in Section 7.1.2.
- Prepare scheduling and coordinate with staff, client, and the department, if appropriate.
- Perform a general site survey prior to entry, in accordance with the site specific Health and Safety Plan.

7.1.2 Calibration Procedures

To save time in the field, sampling pumps can be pre-calibrated in the office prior to arriving on-site. The calibration must be checked in the field prior to, and upon completion of sampling.

- Assemble the calibration train as shown in Figure 2 of Appendix, using a rotameter, sampling pump, manifold (only if the desired flow rate is below 750 cc/min), a tube holder system (sleeve and tube end holder), and a calibration tube. The calibration tube is a representative tube from the same lot of tubes that is used for sampling.
- Turn on the pump and adjust the flow using the flow adjust mechanism on the manifold (if used) or on the pump itself until the float ball on the rotameter is aligned with the rotameter's pre-calibrated flow rate value. A sticker on the rotameter should indicate this value.
- Affix a sticker to the manifold (if used) and pump indicating the pre-calibrated flow rate and sampling media.
- Remove the calibration tube from the sleeve. The pump and manifold (if used) are calibrated as a unit and should not be separated until the samples have been collected.

7.1.3 Field Operation

- Mobilize to a clean zone and calibrate the appropriate number of sampling pumps as described in Section 7.1.2. If the pumps were pre-calibrated, the calibration should be checked in the same manner. Fine-tuning of the flow may be required.
- Mobilize to the sampling location.
- Crack the charcoal tube ends using a glass tube cracker.
- Screw the tip onto the sleeve so the charcoal tube is held in place.
- Attach the sleeve(s) to a single or double manifold. At higher flow rates (>750 cc/min), charcoal tubes can run straight without a manifold.
- To set up the sampling train, attach one end of the Tygon tubing (approximately 2 feet) to the tip of the sleeve or manifold. Attach the other end of the tubing to the inlet plug on the pump, Figure 3 in Appendix. Refer to Figures 4 and 5 in the appendix, respectively, for illustrations of sampling trains without a manifold and with a dual manifold (for collocated samples).
- Adjust time on the pump to the required sample time.
- Place the charcoal tube in a position free from obstruction on a dowel rod or stand.
- Record weather data (e.g., ambient temperature, barometric pressure, and relative humidity) on the air sampling worksheet or in the logbook.
- Turn on the pump.
- After the pump has run the full time, check the fault button to determine if the pump ran for the scheduled time.
- Verify calibration by connecting a rotameter with Tygon tubing and turning on the pump. Record the final flow rate on the air sampling worksheet.

7.1.4 Post Operation Procedures

- Record the sampling time on the air sampling worksheet.
- Remove the charcoal tube from the sleeve.
- Cap charcoal tubes with plastic caps immediately after sampling. Never use rubber caps.
- Place the sample in a whirl bag labeled with sample ID No., total volume, and required analysis. If collocated samples were collected, place each tube in a separate whirl bag and assign a unique sample ID No. to each tube.
- Indicate all applicable information on the air sampling worksheet (e.g., sample volume, ID No., location, date, and weather parameters).
- If the sample tube must be stored for more than a week, refrigeration is recommended.
- Prepare samples, including QC samples, for transport by packing them in a shipping container with bubble wrap or styrofoam. Complete a chain of custody record in accordance with the appropriate chain of custody procedures.

The following methods are typically used for the analysis of charcoal tubes: NIOSH Methods 1501-aromatic hydrocarbons; 1500-hydrocarbons boiling point 36^0 to 126^0 C; and 103-halogenated hydrocarbons. If other analytical parameters are required, the appropriate methodology should be determined prior to field activities.

7.2 Tenax/CMS Tube Sampling

7.2.1 Preparation

- Determine the extent of the sampling effort, the sampling methods to be employed and the types and amounts of equipment and supplies needed.
- Obtain and organize the necessary sampling and monitoring equipment.
- Decontaminate or pre-clean equipment, and ensure that it is in working order. Pre-calibrate sampling pumps as described in Section 7.1.2.
- Prepare scheduling and coordinate with staff, client, and the department, if appropriate.
- Perform a general site survey prior to entry, in accordance with the site specific Health and Safety Plan.

7.2.2 Calibration Procedures

Assemble the calibration train as shown in Figure 6, in Appendix, using a dual rotameter, sampling pump, dual manifold, and representative Tenax/CMS tubes. The same lot number of Tenax/CMS tubes is used for both sampling and calibration.

- Adjust the sampling pump to the low flow mode.

- Remove the end caps on the flow controller manifold. To adjust flow, turn the needle valve with a small screwdriver (counter-clockwise to increase, clockwise to decrease).
- Turn the flow adjustment screw on each manifold until the float ball on the rotameter is lined up with the pre-calibrated flow rate value. A sticker on the rotameter should indicate this value.
- Affix a sticker to the manifold and pump indicating the calibrated flow rate and media.
- Remove the representative Tenax/CMS tubes from the sleeves.

The pump and manifold (including boots) are calibrated as a unit and should not be separated until the samples have been collected. See Table 1 below for recommended flow rates and sample volumes.

TABLE 1. RECOMMENDED FLOW RATES AND SAMPLE VOLUMES

Flow Rates	
Maximum	50 cc/min
Optimal	30-40 cc/min
Minimum	10 cc/min
Volumes	
Maximum	5 liters
Optimal	2 liters
Minimum	0.5 liters

7.2.3 Field Operation

- Calibrate the appropriate number of pumps with manifolds as described in Section 7.2.2. If the pumps were pre-calibrated, the calibration should be checked in the same manner. Fine-tuning of the flow may be required.
- Crack the outer glass tubes using a glass cracker.
- Use clean, lint-free gloves or cloth to remove the Tenax/CMS tubes from the outer glass housings.
- Insert the Tenax/CMS tubes into a boot, with the CMS sections closet to the manifold.
- Attach protective sleeves over the tubes. Do not enclose the Tenax/CMS tube ends.
- Set up the sampling train, by attaching one end of the Tygon tubing (approximately two feet) to the manifold; and the other end to the inlet plug on the pump (Figure 7 in Appendix).
- Place the sampling tubes in the breathing zone. The pump and tubes can be placed on any solid stationary surface.
- Place the tubes in either a vertical or horizontal position.
- Adjust the pump time and turn it on.
- Record weather data (e.g., ambient temperature, barometric pressure, and relative humidity) on the air sampling worksheet or in the logbook.

- Check the pump at the midpoint of the sampling period if longer than four hours.

7.2.4 Post Operational Procedures

- At the end of the sampling period, record the run in a logbook or on a worksheet.
- Check the flow rate by attaching a rotameter with Tygon tubing and turning on the pump.
- Remove the Tenax/CMS tubes from the sleeves using a lint-free cloth or gloves.
- Place the Tenax/CMS tubes in a culture tube. Pack with glass wool. Tenax/CMS tubes from the same manifold and identical flow rates must be placed in the same culture tube.
- Place a sample sticker indicating sample ID No. on the culture tube. Do not put a sample sticker on the Tenax/CMS tubes itself, as this will contaminate the tube.
- Attach the culture tube lid and wrap the lid/tube interface with Teflon tape.
- Place the culture tubes into a resealable bag or a whirl bag.
- Keep the samples refrigerated and out of the sunlight. **Storage for more than four weeks is not recommended.**
- Prepare the samples, including QC samples, for transport by packing them in shipping containers with bubble wrap or styrofoam. Complete a chain of custody record in accordance with the appropriate chain of custody procedures.

7.3 Tedlar Bag Sampling

7.3.1 Preparation

- Determine the extent of the sampling effort, the sampling methods to be employed and the types and amounts of equipment and supplies needed.
- Obtain and organize the necessary sampling and monitoring equipment.
- Decontaminate or pre-clean equipment, and ensure that it is in working order. Pre-calibrate sampling pumps as described in Section 7.1.2.
- Prepare scheduling and coordinate with staff, client, and the department, if appropriate.
- Perform a general site survey prior to entry, in accordance with the site specific Health and Safety Plan.

7.3.2 Field Operation

Tedlar bags are stored in boxes of ten. The valve is in the open position when stored. Occasionally, a piece of debris will clog the valve, making it necessary to close the valve stem to clear the debris. Pulling it out closes the valve stem. If the valve stem is difficult to pull, it helps to spin the valve stem while pulling it.

- Remove the Tedlar bag from the carton.

- Insert the valve stem into the Teflon tube which runs through the vacuum box (See Figure 1 of Appendix).
- Place the Tedlar bag in the vacuum box. Seal the vacuum box by applying pressure to the top and bottom (ensure that the O-ring is in place and unobstructed).
- Connect the sampling pump to the evacuation tube.
- Connect the intake tube to the desired source or place the intake tube into the media of concern.
- Turn on the sampling pump.
- Allow the bag to fill (visual observation and sound of laboring pump).
- Turn off the sampling pump and remove the evacuation tube from the pump.
- Remove bag and pull the valve stem out.
- Lock the valve stem.
- Label the bag using either a tag or sticker placed on the edge of the bag. Do not write on the bag itself.
- Place Tedlar bag in a clean cooler or opaque trash bag to prevent photodegradation.

7.3.3 Post Operation

- Once the samples are collected, transfer them to the laboratory for analysis. It is essential that sample analysis be conducted within **48 hours**, after this time compounds may escape or become degraded.
- When transferring Tedlar bags, a chain of custody form must accompany the samples. **Note: Personnel should be aware that some of the chemicals of concern will degrade within a few hours of sampling. A study conducted by Posner and Woodfin (1986) showed that over a 4 to 6 hour period benzene losses approached 5%.**
- For the time prior to analysis, samples may be stored in a clean cooler or opaque trash bag with a trip blank (a Tedlar bag filled with "zero air") and the chain of custody form.

8.0 CALCULATIONS

8.1 Charcoal Tube Sampling & Tenax/CMS Tube Sampling

The total volume of a sample is calculated by multiplying the total sampling time by the flow rate. The total volume for each sample should be indicated on the chain of custody form.

8.2 Tedlar Bag Sampling

This section is not applicable to Tedlar bag sampling.

9.0 QUALITY ASSURANCE/QUALITY CONTROL

9.1 Charcoal Tube Sampling

The following general QA procedures apply:

- All data must be documented on a worksheet or in a logbook.
- All instruments must be operated in accordance with operating instructions as supplied by the manufacturer, unless otherwise specified in the work plan. Equipment checkout and calibration activities must occur prior to sampling and operation and they must be documented.

The following specific QC activities apply:

- Provide one field blank per sampling event or per 20 samples which ever is greater. The field blank should be handled in the same manner as the sampling tube (break, seal, and transport) except that no air is drawn through the tube.
- Collect one collocated sample per sampling event or per 10 samples, whichever is greater. (Collocated samples are two samples collected adjacent to each other during the same time period at the same flow rates.)
- Include a minimum of one lot blank tube per manufacture's lot of tubes used per sampling event. These tubes are taken directly from the charcoal tube box. Do not break the ends.

9.2 Tenax /CMS Tube Sampling

The following general QA procedures apply:

- All data must be documented on a worksheet or in a logbook.
- All instruments must be operated in accordance with operating instructions as supplied by the manufacturer, unless otherwise specified in the work plan. Equipment checkout and calibration activities must occur prior to sampling and operation and they must be documented.

The following specific QC activities apply:

- Provide one field blank per sampling event or per 20 samples which ever is greater. The field blank should be handled in the same manner as the sampling tube (break, seal, and transport) except that no air is drawn through the tube.
- Provide a minimum of one lot blank tube per sampling episode. These tubes are taken directly from the Tenax/CMS tube box. Do not break the outer glass housing. Place in a resealable bag and keep with other samples
- All sample stations should have duplicated sample tubes.

9.3 Tedlar Bag Sampling

The following general QA procedures apply:

- All data must be documented on a worksheet or in a logbook.
- All instruments must be operated in accordance with operating instructions as supplied by the manufacturer, unless otherwise specified in the work plan. Equipment checkout and calibration activities must occur prior to sampling and operation and they must be documented.

Depending upon the quality assurance work plan requirements, a background sample consisting of upgradient/downgradient, beginning/ending of day or a combination, may be collected. It may also be desirable to change sample train tubing between locations.

Tedlar bag standards must be filled on-site to identify the contaminants' degradation from the time the sample is collected until its analysis. Trip blanks, Tedlar bags filled with "zero air", must accompany sample bags at a minimum rate of one per day to identify possible contamination during handling. For each lot of Tedlar bags, a minimum of one bag must be filled with "zero air" and then analyzed for the parameter(s) of interest to detect contamination due to the Tedlar bag which may itself cause false positives. Duplicate Tedlar bags should be collected at a minimum rate of 5% of the total number of samples per sampling event.

10.0 DATA VALIDATION

Results of the quality control samples will be evaluated for contamination. This information will be utilized to qualify the environmental sample results according to the project's data quality objectives.

11.0 HEALTH AND SAFETY

When working with potentially hazardous materials, follow U.S. EPA, OSHA, and corporate health and safety procedures.

12.0 SUMMARY

This SOP discusses three types of sampling methods that are acceptable for the collection of indoor air/remediation system monitoring (i.e. soil vapor extraction systems) that may contain petroleum constituents. The collection of indoor air samples is not limited to these three methods. However, the department **must** be contacted prior to using an alternative air sampling method.

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STANDARD OPERATING PROCEDURE

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Appendix of Figures

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APPENDIX A

Figure

FIGURE 1 - Tedlar Bag Sampling Apparatus

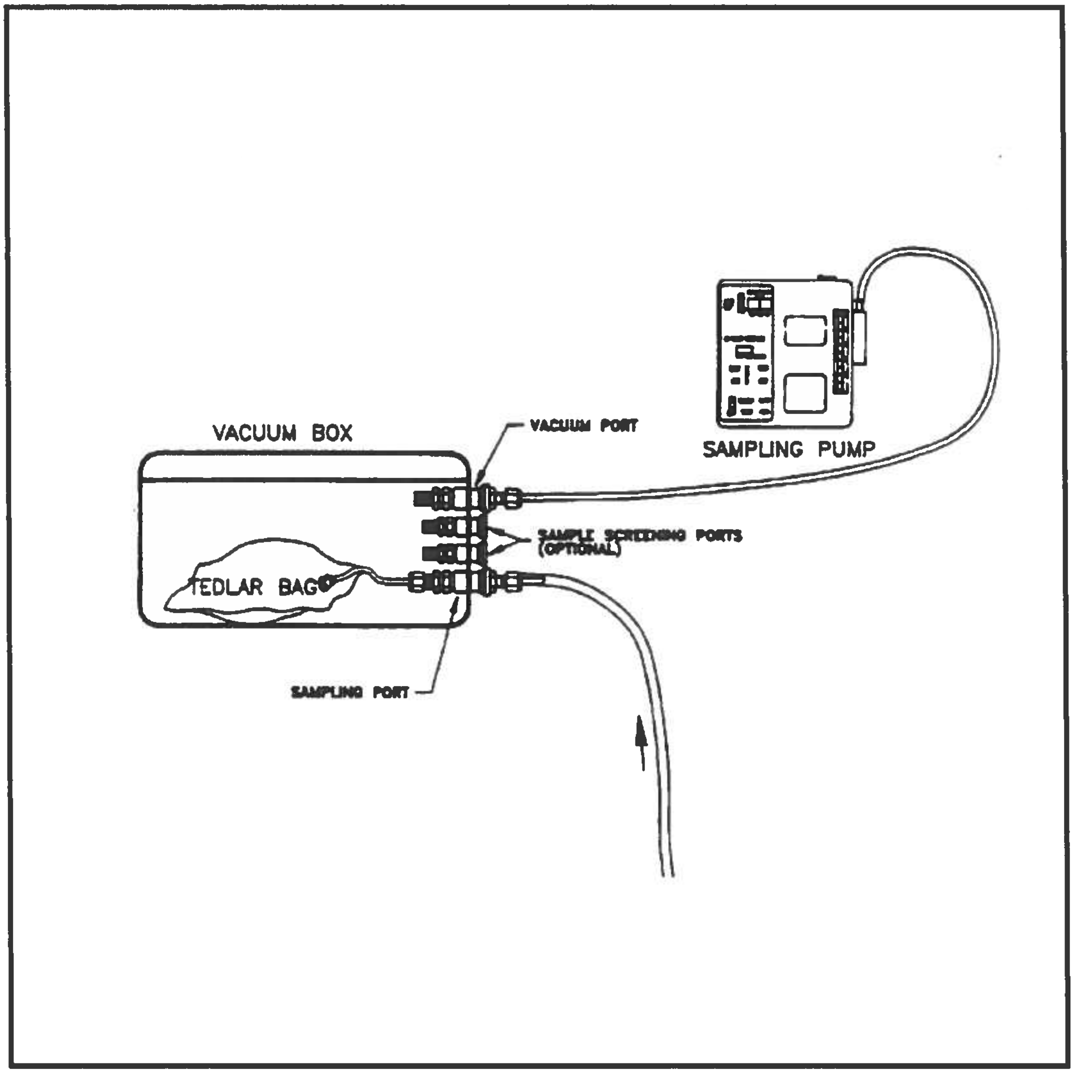

Figure 1. Tedlar Bag Sampling Apparatus

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FIGURE 1. Calibration Train

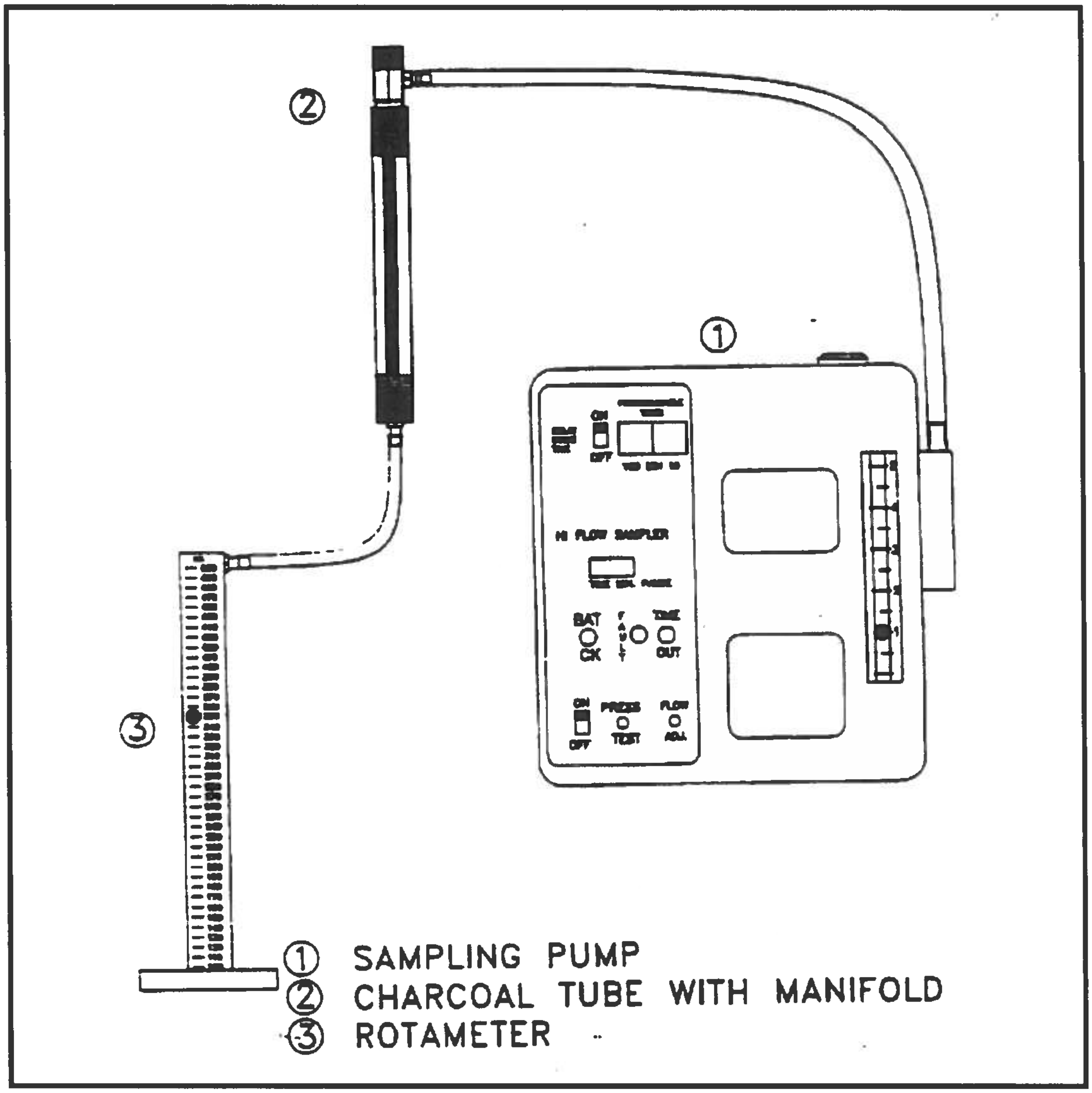

Figure 2. Calibration Train

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Figures

FIGURE 2. Charcoal Tube Sampling Train (Single Manifold)

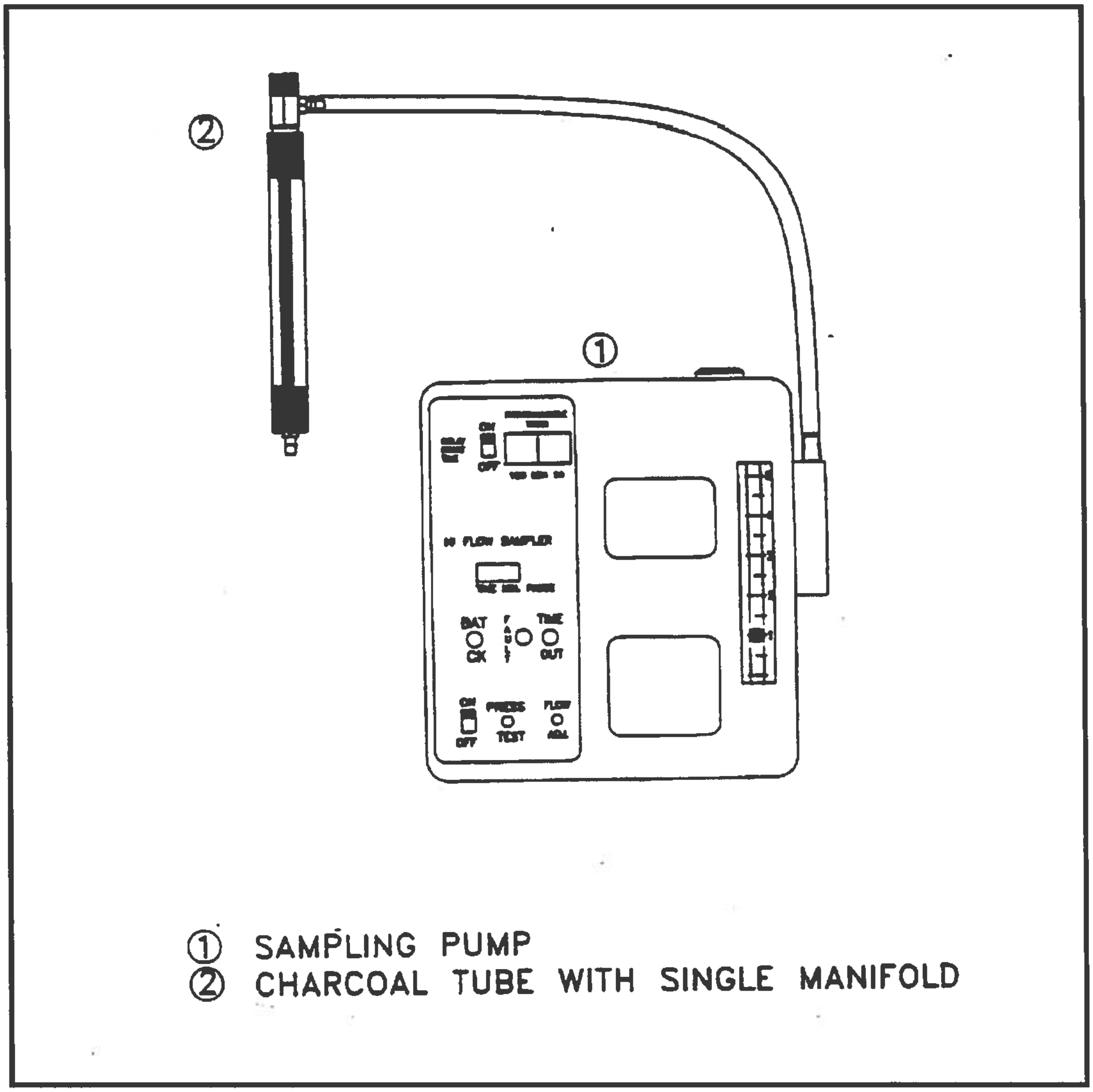

Figure 3. Charcoal Tube Sampling Train (Single Manifold)

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Figures

FIGURE 3. Charcoal Tube Sampling Train (No Manifold)

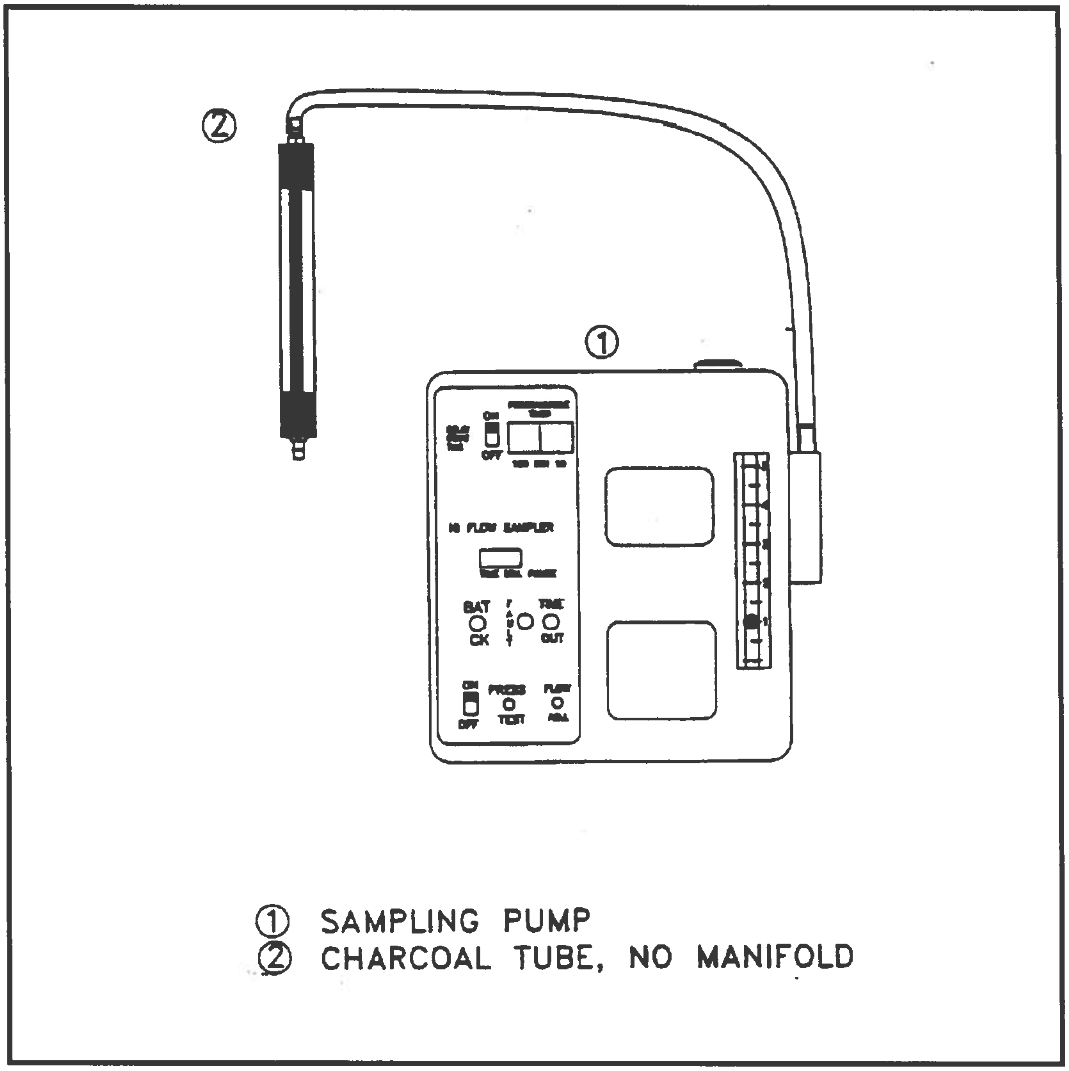

Figure 4. Charcoal Tube Sampling Train (No Manifold)

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FIGURE 4. Charcoal Tube Sampling Train (Dual Manifold for Collocated Sampling)

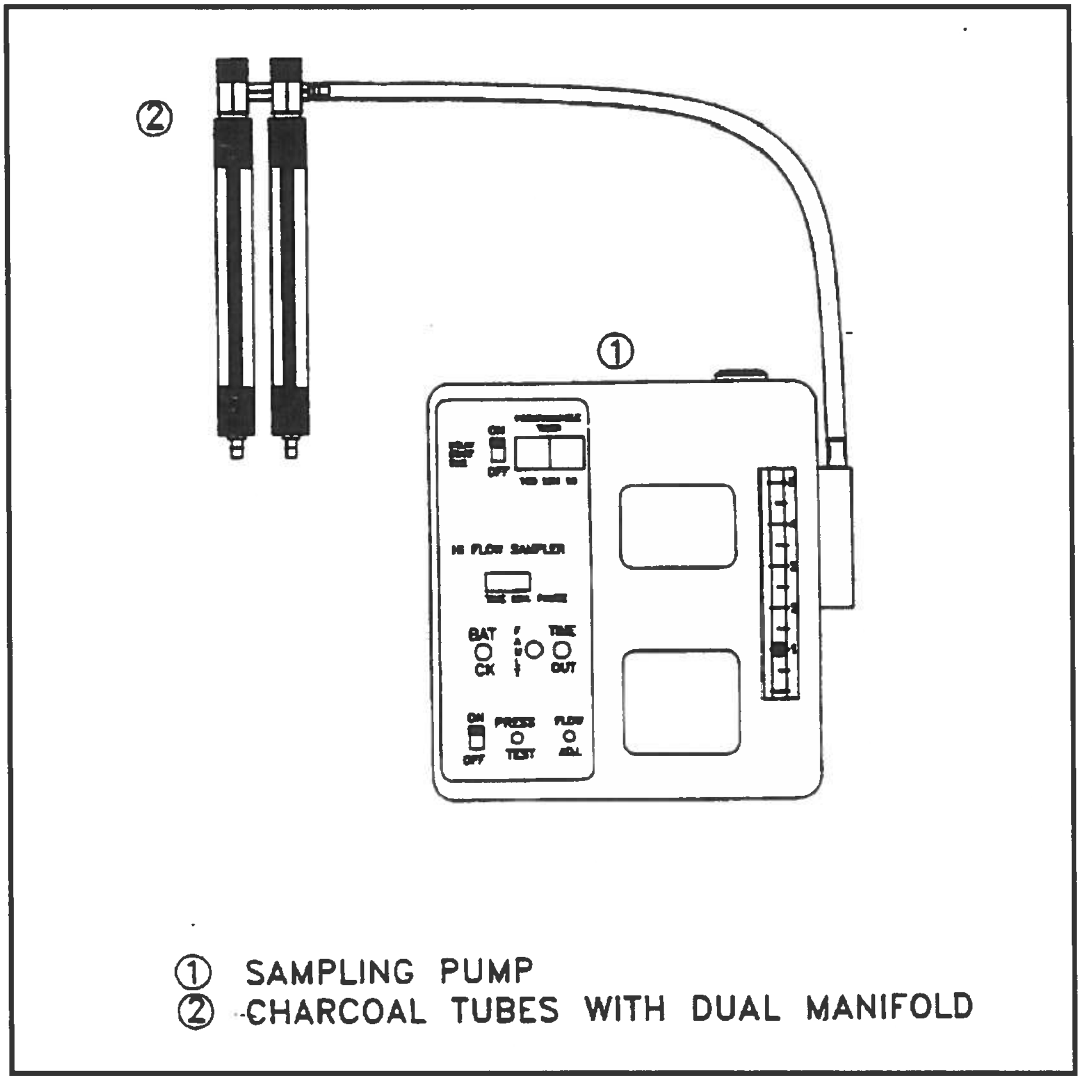

Figure 5. Charcoal Tube Sampling Train (Dual Manifold for Collocated Sampling)

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APPENDIX B

Figures

FIGURE 1 Tenax CMS Calibration Train

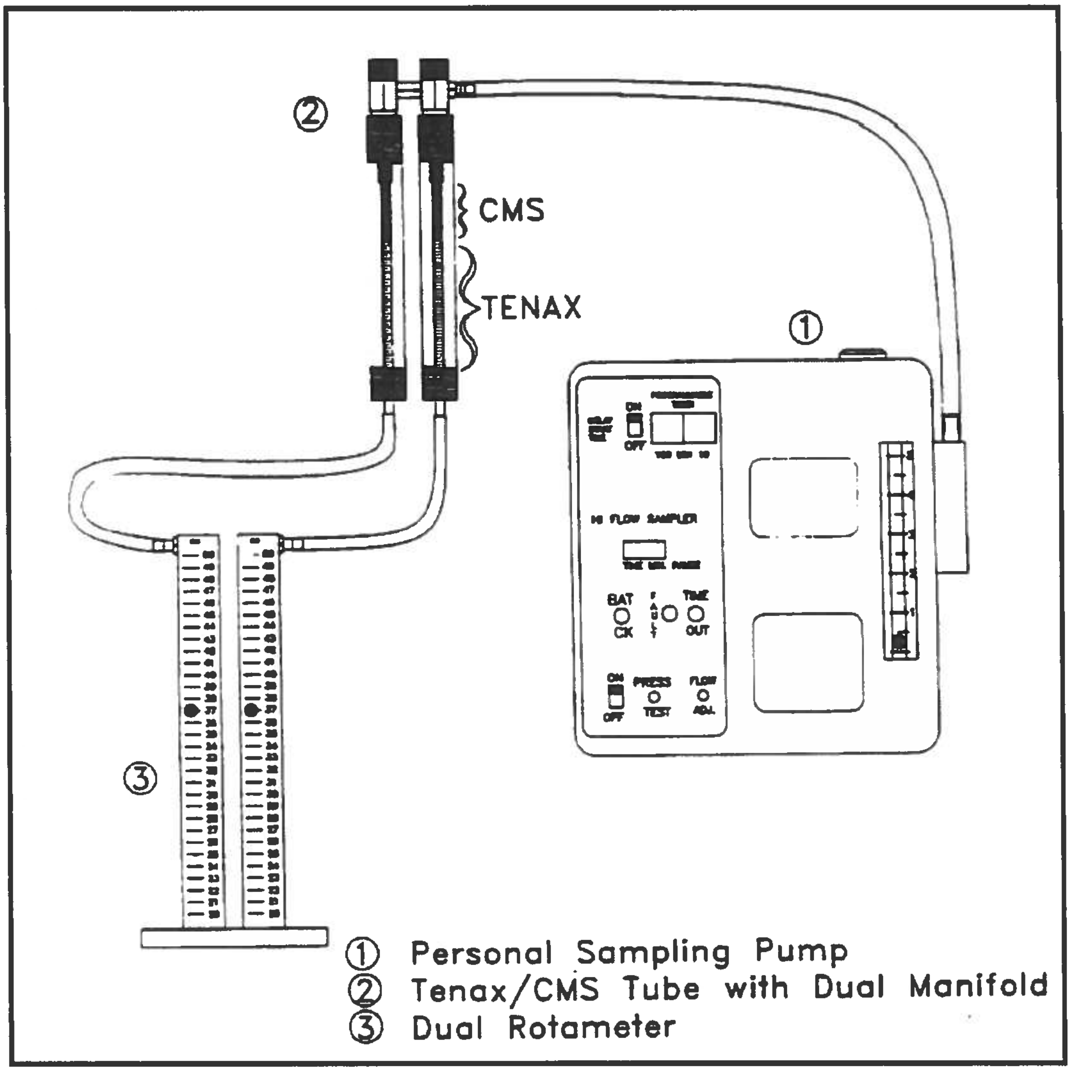

Figure 6. Tenax/CMS Calibration Train

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APPENDIX B (Cont'd)

Figures

FIGURE 2. Tenax.CMS Sampling Train

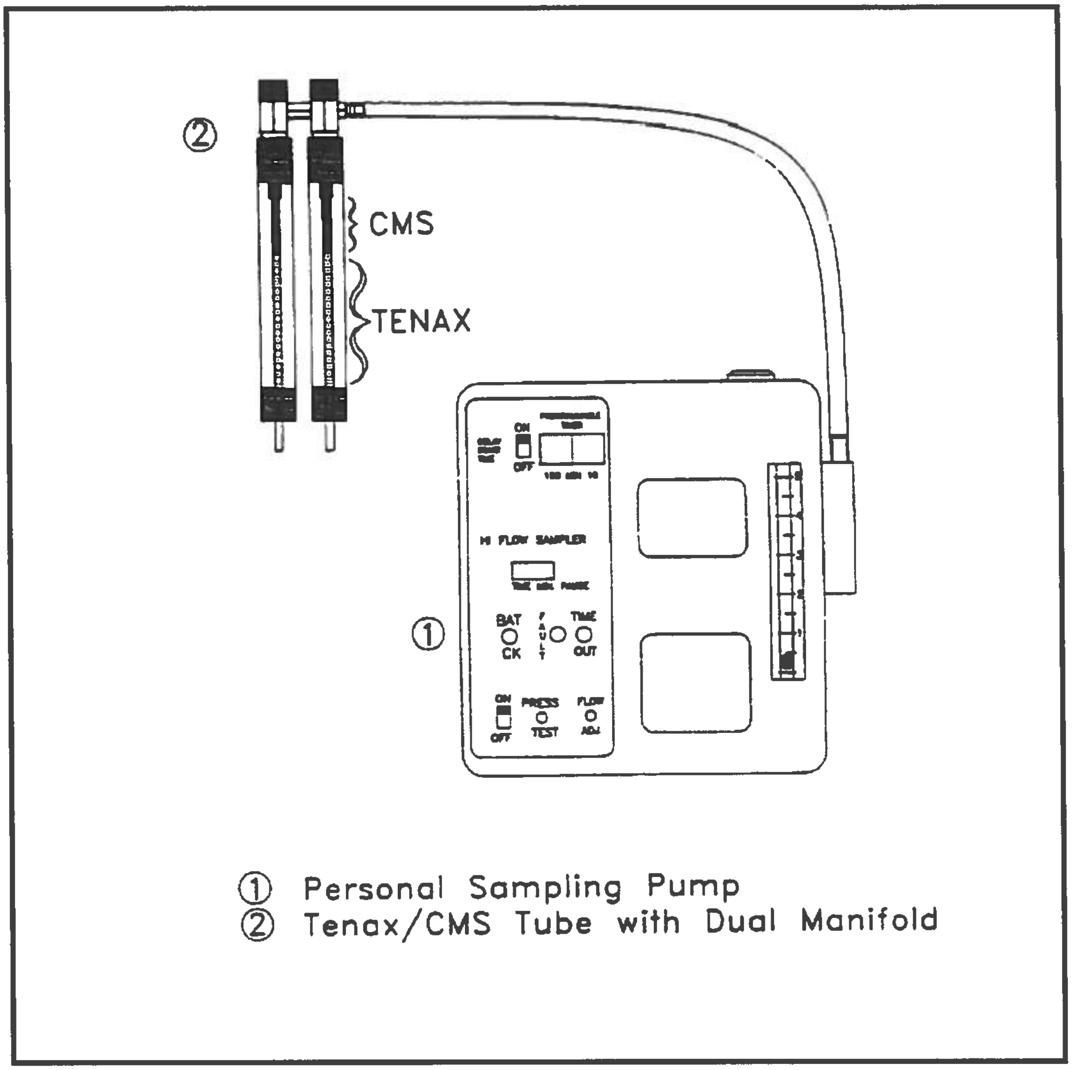

Figure 7. Tenax/CMS Sampling Train

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LAB SCIENCE NEWS - TECHNICAL BLOG

Analytical Considerations for Air Samples for Vapor Intrusion Investigations

February 5th, 2007

The term "vapor intrusion" refers to the migration of volatile chemicals from subsurface contaminated sources into overlying residential or commercial structures. "Historically, it was thought that vapor intrusion was only an issue where the source of the contaminants was very shallow and the magnitude of the contamination was very great. It is now known that the previous assumptions about the mechanisms that could lead to exposure to vapor intrusion were not complete (NYS DEC DER Vapor Intrusion Guidance)." For a growing number of federal, state and local agencies, as well as environmental consultants and laboratories, vapor intrusion could emerge as the next major environmental challenge.

Vapor intrusion is not a new phenomenon— for some environmental experts, it has been recognized as a potential pathway of contamination for almost 20 years. In the late 1980s, the first vapor intrusion studies were carried out to evaluate potential health effects from chronic exposure to volatile organic compounds. Presently, vapor intrusion is of growing concern to the environmental community due to a number of factors, such as increased recognition of it as a potential pathway for exposure and the risks associated with that exposure, as well as the location and the number of potential sites for investigation and remediation. With this increased focus comes ongoing debate regarding the mechanism of the exposure pathway, compliance concentrations of contaminants, identification of sites, sampling approaches, analytical methodology, use and validity of current models, screening approaches, and risk assessment, among other topics.

What this has meant for many laboratories specializing in air analyses is an upward trend in the number of ambient air, indoor air, soil gas and sub-slab samples submitted each year for volatile organic compound (VOC) analyses. The primary compounds of concern are often chlorinated VOCs. Trichloroethene (TCE) and tetrachloroethene (PCE), in particular, are common targets of the investigations due to the health risks associated with these compounds and their breakdown products.

In instances where the project specific objectives of the vapor intrusion investigation call for sampling, several kinds of air samples can be collected: soil vapor, ambient (outdoor) air, indoor air and sub-slab vapor. The timing of the collection, as well as the number, placement and combination of samples will all vary depending on the client-defined sampling protocol, which ultimately relies on local, state or federal requirements.

So, keeping in mind the client's project-specific objectives and the underlying regulatory requirements, here are some of the factors to be taken into consideration for the analytical portion of a vapor intrusion investigation:

Analytical Method

EPA Method TO-15 is the most frequently requested method for the analysis of VOCs for the range of air samples associated with vapor intrusion investigations. The method uses gas chromatography (GC) to achieve sample separation and a mass spectrometer (MS) for identification and quantitation.

TO-15 was a new method added to the Second Edition of the Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air in January 1999. Although very similar to EPA Method TO-14A, EPA Method TO-15 is larger in scope and better defined for the analysis of VOCs in air and other gaseous matrices than TO-14A (which is a revised and updated version of the former Method TO-14).

Compound List

A wide range of compounds may be analyzed by EPA TO-15 including alkanes, alkenes, aromatics, halogenated VOCs, ketones, esters and some alcohols. Some aldehydes and sulfides may also be evaluated using this method.

EPA TO-15 does not specify a target compound list in the method. As a result, there is some variation among commercial environmental laboratories in the compound lists that are available for VOCs. Target compound lists may include anywhere from 40 to 60 compounds or more, and may provide results in µg/m3, ppbV, or both.

Compound lists can usually be tailored to meet project-specific objectives. This is true especially in the case of indoor air, which typically involves a subset of the laboratory's standard target compound list.

Method Reporting Limits

Target method reporting limits (MRLs) will vary depending on the data quality objectives of the investigation, which should take into account any state or federal regulatory documents or guidances that may apply.

For soil gas or sub-slab samples, it is usually sufficient to analyze the samples in the normal operating mode of the GC/MS (SCAN), which yields MRLs from sub-parts per billion up to parts per million levels.

For indoor or ambient air analyses, investigators are often considering the potential risk to human health, so they are typically interested in lower MRLs, down to the single digit part per trillion levels. Indoor air and ambient air analyses are frequently performed by GC/MS in Selective Ion Monitoring (SIM) mode to achieve these ultra-low level MRLs.

The risk-based levels for the contaminants of concern are, in many cases, less than the typical or observed background levels in the indoor or outdoor environment, creating a challenge for many vapor intrusion investigations. The best approach for assessing and dealing with this issue continues to be discussed and debated by experts in the field.

Sampling Media

For soil gas determinations, samples may be collected using either passivated stainless steel canisters (such as Summa canisters) or Tedlar bags. Each sampling medium has its advantages and disadvantages, as summarized in the table below.

For soil gas sampling, 1L Summa canisters can offer certain benefits over the larger 6L canisters. They fill faster, reducing time in the field for the investigators. They are smaller and lighter, so they are easier to transport, handle and ship. The smaller volume reduces the likelihood of ambient air intrusion, especially when sampling more densely packed soils. The trade off is that a smaller sample portion can be withdrawn from the canister for the analysis, which results in higher MRLs than those achievable from samples collected in a larger canister, typically 3 to 5 times higher.

For indoor air or ambient air sampling, 6L Summa canisters are the recommended sampling medium. Canisters may be either batch certified clean or individually certified clean—the selection depends, again, on the data quality objectives of the project and on any regulatory specifications. In situations where it may be valuable to have documentation for every canister, (e.g. potential litigation, risk assessment), then individual certification can be requested. In either case, the canisters will be cleaned and certified below the target MRLs.

Columbia Analytical's Air Quality Laboratory has extensive experience performing analyses of indoor and ambient air, as well as sub-slab and soil gas samples. Specializing in the analysis of volatile and semi-volatile organic compounds, sulfur compounds and other hazardous substances in a wide variety of air and vapor matrices since 1988, the lab has performed tens of thousands of analyses from its southern California location near Los Angeles, and it successfully serves clients in all 50 states and around the globe.

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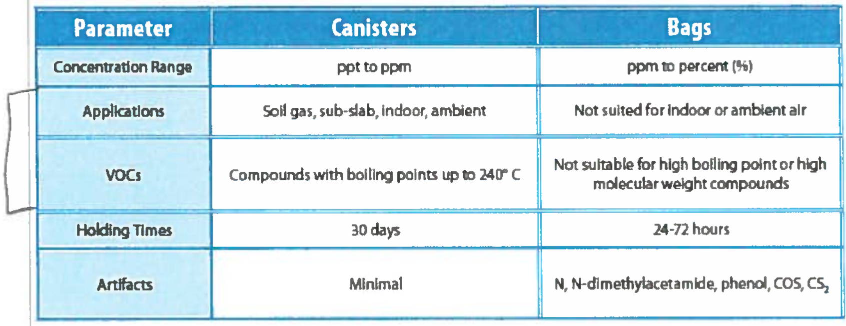

Parameter	Canisters	Bags
Concentration Range	ppt to ppm	ppm to percent (%)
Applications	Soil gas, sub-slab, indoor, ambient	Not suited for indoor or ambient air
VOCs	Compounds with boiling points up to 240° C	Not suitable for high boiling point or high molecular weight compounds
Holding Times	30 days	24-72 hours
Artifacts	Minimal	N, N-dimethylacetamide, phenol, COS, CS_2

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Chlorobenzene

ALS Environmental may or may not test for Chlorobenzene (CAS # 108-90-7). Information is subject to change; please contact us for the latest available analytes for which we test.

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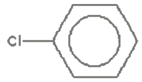

Analyte: Chlorobenzene

Abbreviation: CBZH

CAS Number or ID: 108-90-7

Department: Organics

EC Number (EINECS): 108-90-7

Synonyms: Chlorobenzene;Monochlorobenzene;MCB;Phenyl Chloride;Benzene chloride;Chlorbenzene;Chlorobenzol;Monochlorbenzene;Chloorbenzeen;Chlorbenzol;Chlorobenzen;Chlorobenzene, mono-;Clorobenzene;Monochloorbenzeen;Monochlorbenzol;Monoclorobenzene;NCI-C54886;Chlorobenzenu;UN 1134;Abluton T30

Chemical Formula: C_6H_5Cl

Apearance: colourless liquid

Melting Point: -45 C

Boiling Point: 132 C

Vapor Density: 3.86

Vapor Pressure: 12 mm Hg at 25 C

Flash Point: 24 C

Explosion Limits: 1.3 % - 7.1 %

Auto Ignition: 636 C

Stability: Stable. Incompatible with oxidizing agents. Flammable. Attacks some types of plastics, rubber and coatings.

EHD
EX 3-E

Laboratory tests that may be available by ALS - Columbia for **Chlorobenzene (CAS # 108-90-7)**:

EPA METHOD	TEST NAME	MATRIX	MRL	INSTRUMENT
EPA 524.2	Purgeable Organic Compounds by GC/MS	Drinking Water	0.5	GCMS
EPA 524.2	Purgeable Organic Compounds by GC/MS	Liquid	0.5	GCMS
EPA 601	Purgeable Halocarbons	Liquid	1	GC
EPA 601 602	Purgeable Halocarbons and Purgeable Aromatics by GC/PID/ELCD - Field Preserved	Liquid	0.5	GC
EPA 601 602	Purgeable Halocarbons and Purgeable Aromatics by GC/PID/ELCD - Field Preserved	Liquid	0.55	GC
EPA 601 602	Purgeable Halocarbons and Purgeable Aromatics by GC/PID/ELCD - Field Preserved	Liquid	1	GC
EPA 602	Purgeable Aromatics - Field Preserved	Liquid	1	GC
EPA 624	Volatile Organic Compounds by GC/MS	Liquid	1	GCMS
EPA 624	Volatile Organic Compounds by GC/MS with 3 Day Holding Time for Acrolein, Unpreserved	Liquid	1	GCMS
EPA 8021B	Aromatic and Halogenated Volatiles by GC	Liquid	0.5	GC
EPA 8021B	Aromatic and Halogenated Volatiles by GC	Liquid	1	GC
8021B Modified	Volatile Organic Compounds by GC	Liquid	1	GC
8021B Modified	Volatile Organic Compounds by GC	NonAq Liquid	500	GC
EPA 8260B	SPLP Volatile Organics	Solid	1	GCMS
EPA 8260B	SPLP Volatile Organics	Solid	5	GCMS
EPA 8260B	TCLP Volatile Organics by GC/MS	Liquid	0.005	GCMS
EPA 8260B	TCLP Volatile Organics by GC/MS	Liquid	1	GCMS
EPA 8260B	TCLP Volatile Organics by GC/MS	Liquid	5	GCMS
EPA 8260B	TCLP Volatile Organics by GC/MS	NonAq Liquid	0.005	GCMS
EPA 8260B	TCLP Volatile Organics by GC/MS	NonAq Liquid	5	GCMS
EPA 8260B	TCLP Volatile Organics by GC/MS	Solid	0.005	GCMS
EPA 8260B	TCLP Volatile Organics by GC/MS	Solid	1	GCMS
EPA 8260B	TCLP Volatile Organics by GC/MS	Solid	5	GCMS
EPA 8260B	Volatile Organic Compounds by GC/MS	Liquid	0.005	GCMS
EPA 8260B	Volatile Organic Compounds by GC/MS	Liquid	0.5	GCMS
EPA 8260B	Volatile Organic Compounds by GC/MS	Liquid	1	GCMS
EPA 8260B	Volatile Organic Compounds by GC/MS	Liquid	5	GCMS
EPA 8260B	Volatile Organic Compounds by GC/MS	NonAq Liquid	0.005	GCMS
EPA 8260B	Volatile Organic Compounds by GC/MS	NonAq Liquid	1	GCMS
EPA 8260B	Volatile Organic Compounds by GC/MS	NonAq Liquid	5	GCMS
EPA 8260B	Volatile Organic Compounds by GC/MS	Solid	0.005	GCMS
EPA 8260B	Volatile Organic Compounds by GC/MS	Solid	1	GCMS
EPA 8260B	Volatile Organic Compounds by GC/MS	Solid	5	GCMS
CLP-VOA OLC02.1	Low Level Water Volatile Organic Compounds by GC/MS	Liquid	1	GCMS
CLP-VOA OLC03.2	Low Level Water Volatile Organic Compounds by GC/MS	Liquid	0.5	GCMS
CLP-VOA OLM04.3	Volatile Organic Compounds by GC/MS	Liquid	10	GCMS

CLP-VOA OLM04.3	Volatile Organic Compounds by GC/MS	Liquid	5	GCMS
CLP-VOA OLM04.3	Volatile Organic Compounds by GC/MS	Solid	10	GCMS
EPA TO-15	Volatile Organic Compounds in Air Collected In SUMMA Passivated Canisters and Analyzed By GC/MS	Air	0.5	GCMS
EPA TO-15	Volatile Organic Compounds in Air Collected In SUMMA Passivated Canisters and Analyzed By GC/MS	Air	0.51	GCMS
TO-15 Modified	Volatile Organic Compounds in Air Analyzed By GC/MS, Modified for Tedlar Bags	Air	0.5	GCMS
TO-15 Modified	Volatile Organic Compounds in Air Analyzed By GC/MS, Modified for Tedlar Bags	Air	0.51	GCMS

More analytical test methods may be available for Chlorobenzene. Please contact us for the latest available analytes and methods.

<-- Search for more analytes

*CAS Registry Number is a Registered Trademark of the American Chemical Society.

Suggestions? If you have ideas for improvement, we would enjoy hearing from you. Please contact the webmaster here.

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STATE OF NEW MEXICO
Before the
ALBUQUERQUE-BERNALILLO COUNTY
AIR QUALITY CONTROL BOARD

IN THE MATTER OF THE PETITION
FOR A HEARING ON THE MERITS
REGARDING AIR QUALITY PERMIT
NO. 3131

AQCB No. 2014-4

Southwest Organizing Project [SWOP]
By Juan Reynosa, Environmental Justice Organizer;
Esther and Steven Abeyta, Members of SWOP, Petitioners

Written Testimony of EHD Technical Witness
Travis E. Miller

My name is Travis E. Miller and I am an Environmental Health Scientist with the Air Quality Program in the Albuquerque Environmental Health Department ("EHD"). I have thirteen years in the health and safety fields. I have conducted a broad range of environmental compliance projects including technical functions of data collection, data analysis, reporting and preparing recommendations based on the results. As part of that experience I have used various computer aided drafting (CAD) software to develop site plans and recommendations relating to various projects. I have been trained in using GIS mapping software. My resume with additional details about my education and experience is attached as EHD Ex. 4-A.

I was asked by EHD to prepare a map to represent the locations of the monitoring stations throughout the Albuquerque/Bernalillo County area. To prepare this map, I gathered the addresses of each of the six monitoring stations, the address of the Honstein Permit (Permit #3131), the location of the Jack Candelaria Community Center in the San Jose Neighborhood, the boundaries of the San Jose Neighborhood and the Mountainview Neighborhood, and then measured the approximate distances from the South Valley Monitoring Station and three points:

EHD
EX 4

(1) the San Jose Neighborhood South Boundary (0.69 miles);

(2) the Jack Candelaria Community Center in the San Jose Neighborhood (2.69 miles); and

(3) the Honstein Permit address (3.11 miles).

I used the City of Albuquerque GIS Advanced Map Viewer to plot each of the above locations and the neighborhood boundaries on a map. The Advanced Map Viewer Measuring Tool was used to obtain the distances. Because the purpose of the map was to be an illustration, the Advanced Map Viewer image was imported into Microsoft PowerPoint and keys were made to illustrate the approximate location of each site requested. The keys are for illustration purposes only and are not exact. A copy of the map that I prepared is attached. Ex. 4-B.

I declare under penalty of perjury that the above testimony is true and correct to the best of my knowledge and belief.

Respectfully submitted,

____________________________ ______________

Travis E. Miller Date

169741

Education and Work Background of
Travis E. Miller

Technical Witness for the
Albuquerque Environmental Health Department
Air Quality Program

AFFILIATION AND TITLE

Environmental Health Scientist, Emissions Inventory, Vehicle Pollution Management Division
Air Quality Program, Environmental Health Department
City of Albuquerque, New Mexico

EDUCATION

Bachelor of Architecture, University of New Mexico – May, 2006

TRAINING

EPA Motor Vehicle Emissions Simulator (MOVES) 2014 Hands-On Training Course – 4/13/15
City of Albuquerque, GIS Advanced Map Viewer Training – 12/20/14
EPA Quality Assurance, Quality Project & Program Management Training – 9/25/14
Air Dispersion Modeling (AERMOD) Training, Lake Environmental – 9/13/13
OSHA 8 Hour Hazardous Waste Operations & Emergency Response – 9/25/07
Construction Documents Technologist Training Certification – 5/25/07
OSHA 40 Hour Hazardous Waste Operations & Emergency Response – 7/25/05

EXPERIENCE

I currently have 13 years of experience in the environmental, health and safety fields. This experience includes a broad range of environmental compliance projects to technical functions of data collections, data analysis, reporting and preparing recommendations. Use of various computer aided drafting (CAD) software to develop site plans and recommendations relating to various projects.

ENVIRONMENTAL HEALTH SCIENTIST, Vehicle Pollution Management Division, Air Quality Program, Environmental Health Department, City of Albuquerque: May, 2014 – Present

- My main responsibility is to maintain the Air Emissions Inventory for the Air Quality Program. This includes receiving and evaluating emissions data from stationary sources, area sources, mobile sources and events. Data received is analyzed and used to estimate emissions inventory and report emissions data to EPA.

EHD
EX 4-A

PROJECT / CONSTRUCTION MANAGER TO ENVIRONMENTAL HEALTH MANAGER, University of New Mexico, Safety and Risk Services: Jan, 2008 – Oct 2013

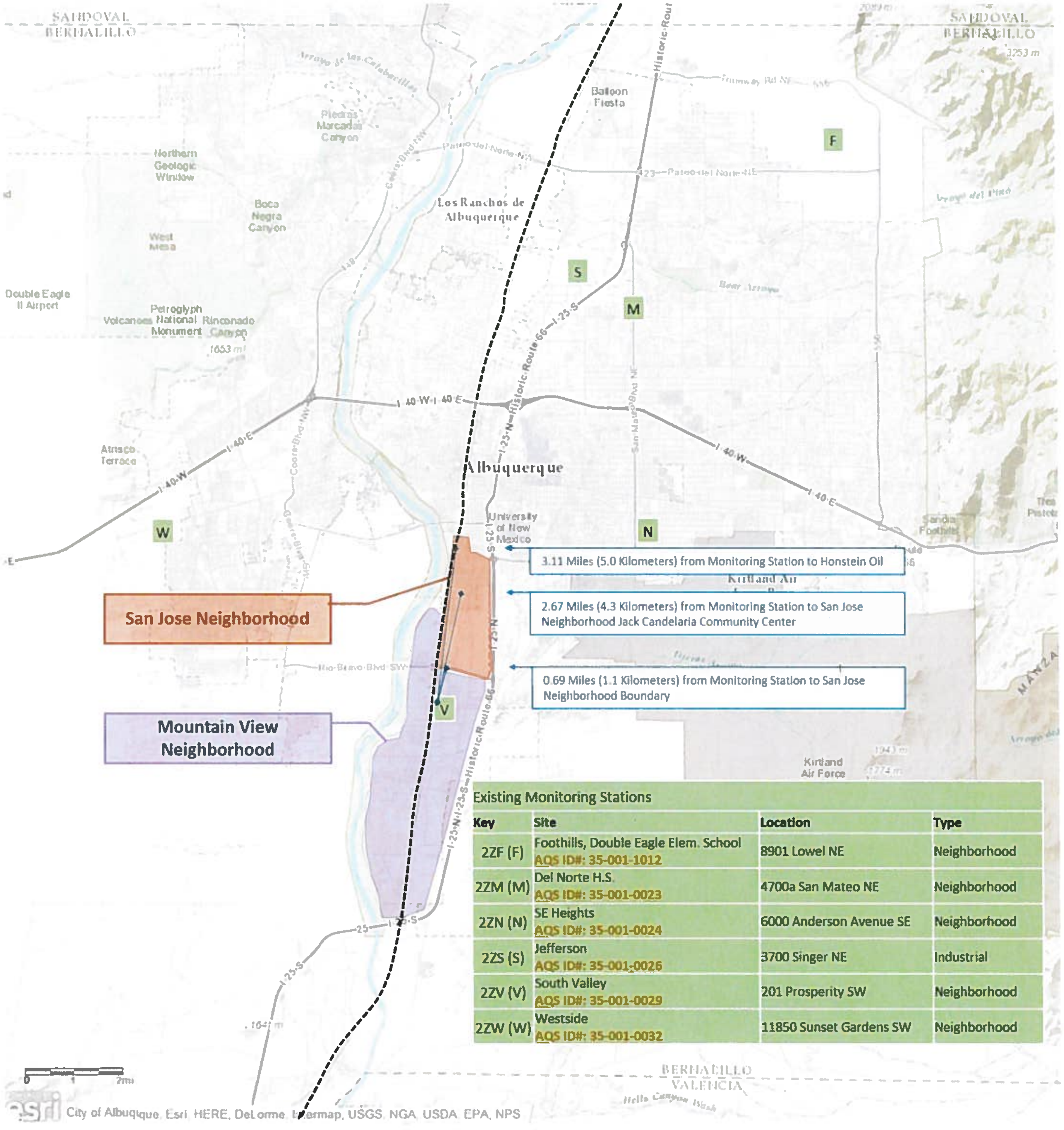
- Project Construction Manager, January, 2008: My main responsibilities were the management of multiple environment remediation and air quality projects, self-performed by the University, from inception to completion. This includes environmental assessments, writing reports, project planning and design, requests for proposals, hiring consultants/contractors, regulatory compliance, documentation, cost control and complete project oversight.
- Environmental Health Manager, February 2013: Responsible for the environmental program for health and safety issues throughout the University including air quality, water quality, pollution prevention, chemical safety, construction oversight as well as other safety programs.

STAFF SCIENTIST – PROJECT MANAGER, ATC Associates Inc: Jan, 2008 – Oct 2013

- My main responsibility was the project design and oversight for environmental remediation to ensure regulatory compliance and safety while improving performance and enhancing project/cost control. Performed comprehensive inspection and project consultation for clients.

ESTIMATOR / PROJECT MANAGER TO SENIOR PROJECT MANAGER, Southwest Abatement, Inc. Apr, 2002 – Oct, 2005 and Oct, 2013 to May, 2014

- Estimator/Project Manager, Apr, 2002: My main responsibility was the project management of multiple, short and long-term, projects simultaneous. Responsible for all aspects of project. Cost estimating and project management for asbestos abatement and other environmental hazards projects to ensure highest level of completed project at the minimum cost. .
- Senior Project Manager, Oct 2013: My main responsibility was overseeing all aspects of the organization project management and environmental compliance responsibilities..



3.11 Miles (5.0 Kilometers) from Monitoring Station to Honstein Oil

2.67 Miles (4.3 Kilometers) from Monitoring Station to San Jose Neighborhood Jack Candelaria Community Center

0.69 Miles (1.1 Kilometers) from Monitoring Station to San Jose Neighborhood Boundary

Existing Monitoring Stations

Key	Site	Location	Type
2ZF (F)	Foothills, Double Eagle Elem. School AQS ID#: 35-001-1012	8901 Lowel NE	Neighborhood
2ZM (M)	Del Norte H.S. AQS ID#: 35-001-0023	4700a San Mateo NE	Neighborhood
2ZN (N)	SE Heights AQS ID#: 35-001-0024	6000 Anderson Avenue SE	Neighborhood
2ZS (S)	Jefferson AQS ID#: 35-001-0026	3700 Singer NE	Industrial
2ZV (V)	South Valley AQS ID#: 35-001-0029	201 Prosperity SW	Neighborhood
2ZW (W)	Westside AQS ID#: 35-001-0032	11850 Sunset Gardens SW	Neighborhood

City of Albuquque, Esri, HERE, DeLorme, Intermap, USGS, NGA, USDA, EPA, NPS

EHD
EX 4-B