

**SAN JOAQUIN VALLEY UNIFIED
AIR POLLUTION CONTROL DISTRICT
COMPLIANCE DEPARTMENT**

COM 1180

APPROVED: _____ **SIGNED** _____ **DATE:** April 26, 2007
Jon Adams
Director of Compliance

TITLE: **DISTRICT PRODUCT/MATERIAL SAMPLING**

SUBJECT: **PROPER SAMPLING TECHNIQUES, PROCEDURES, STORAGE,
SECURITY AND TRANSPORTATION**

OBJECTIVE:

Product/material sampling is undertaken by the District to verify compliance or establish noncompliance with applicable limitations in District rules and, for asbestos, to establish regulatory jurisdiction. Following a proper protocol provides assurance to both the source and the District that the samples are representative of the operation.

PURPOSE:

In order for the results of product samples to be useful, the samples must be representative of the product. The samples must be handled so as to ensure that they are not subject to adulteration, degradation or tampering. Proper custody of samples must be maintained: chain of custody must be properly documented and samples must be stored with appropriate security.

POLICY STATEMENT:

Procedures for collecting storing and transporting samples must be followed. Samples will be collected as evidence to establish jurisdiction or compliance with applicable rules, permit conditions or for identification purposes. These procedures will be followed so that, to the maximum extent possible, no question can be raised regarding sample integrity or representativeness as a result of a breakdown in the chain of custody.

I. GENERAL POLICIES AND PROCEDURES:

A. Chain of Custody. It is essential to maintain a continuous chain of custody. The District chain of custody form is attached. It is necessary for each party relinquishing and accepting the sample to sign the form.

B. Sample Identification

1. Sample Numbering. Each sample container will be identified with a number, using the following format:

Inspector's Initials, the date MMDDYY, -, three digit consecutive number. Example: RB 062995-001.

2. Sample label. District labels will be affixed to each sample container. See Figure 3.

3. Container seal. A District paper container seal will be placed over the lid of the sample container.

C. Security/Handling/Transportation:

1. Security.

a. Field. Samples must be kept under the control of the inspector, such as being stored in their locked vehicle.

b. Office. Samples may be kept in a locked desk or file cabinet.

2. Handling. Sample containers of volatile organic compounds will be iced down and transported in an ice chest. Sample containers can be placed in a zip-lock plastic bag to protect the container and label from moisture.

3. Transportation. Asbestos samples are mailed via Federal Express.

Other samples will be delivered by District provided transportation or courier.

4. Samples will be shipped or delivered to the laboratory as soon as possible.

D. Safety.

Chemicals, solvents and other materials that may be sampled by District staff will range from entirely harmless to those, which may be quite dangerous or toxic. Proper health and safety precautions must always be observed when handling samples. Important information about materials is available from Material Safety Data Sheets (MSDS). These sheets should be obtained and reviewed for pertinent

information. The inspector is expected to be aware of the general nature of the material, the type and severity of the hazard that may be involved, and the proper steps to take if this material is inadvertently mishandled or if unexpected reactions take place.

1. Ignitability. When a sample of gasoline, natural gasoline, coating, crude oil, or solvent is taken and placed in a car, the ignition of flammable mixtures of gases and vapors and air can occur from an open flame or a cigarette. Therefore, **do not smoke**. Store samples in an ice chest during transport, and transport the samples in the trunk or pickup bed and not in the passenger compartment. Secure the container prior to transport.
2. Flammability. Some flammable materials may form explosive mixtures with air. Certain chemicals can polymerize exothermically (produce heat) with great rapidity and can cause serious explosion if confined in a closed vessel without proper precautions. Some materials, notably organic peroxides, can detonate by heat, friction, or mechanical shock.
3. Exposure. For sampling safety, there are two types of exposure of concern: contact and inhalation.
 - a. Exposure by contact. Certain chemicals can produce burns, eye damage, systemic poisoning or nerve damage upon contact. Examples are sulfuric acid, nitric acid, hydrofluoric acid, and phenols.
 - b. Exposure by inhalation. Inhalation of toxic vapors, gases, or dust can produce poisoning through the mucous membranes of the mouth, throat or lungs. Examples: mercury and its salts, benzene.

E. Sample Logs:

Each office will maintain in a bound volume a log of all samples. The following items will be recorded regarding each sample:

Date collected
Name of sample collector
Type of sample (asbestos, coating, fuel, etc.)
Laboratory name
Type of analysis requested (test method)
Name of Laboratory personnel accepting sample
Date submitted
Date analysis returned

II. POLICIES AND PROCEDURES BY TYPE OF SAMPLE

A. Asbestos:

1. Sample gathering:

- a. Personal protective measures. Proper personal protective measures will be taken during sample gathering. At a minimum, respiratory protection (PAPR) is required, as is the use of disposable latex gloves.

Only properly trained personnel may obtain, process, or handle asbestos containing or possible asbestos containing material.

If it is necessary to enter a regulated area or a suspected contaminated site (a site where suspect asbestos-containing materials have been disturbed), an adequate protective outer garment [disposable protective (tyvek) suit] will be donned. Respiratory protection will be used. Refer to the respiratory protection policy (at least equivalent to what is being used onsite, and SCBA if there are airborne visible emissions).

- b. Sample Containers. Disposable, pre-sealed plastic bags (Whirl-Pak) or an equivalent are used.
- c. Sample point. Sampling points are dictated by the nature of the material being sampled, following the AHERA protocol as may be needed. (Reference: Asbestos in Buildings, Simplified Sampling Scheme for Friable Surfacing Materials, Exposure Evaluation Division, Office of Toxic Substances, Office of Pesticides and Toxic Substances, USEPA, October, '85)
- d. Material. Each sample should consist of a single homogeneous material. Do not mix samples of more than one material, except when this is impractical, such as for layered materials such as sheetrock, texture and paint, stucco layers, or floor covering and mastic.
- e. Amount. Minimum sample size is one half square inch of material.
- f. Precautions: Materials will be wetted before sampling, except for gathering of dry materials obtained to establish lack of adequate wetting.

2. Sample Analysis. The District will utilize private laboratories to perform sample analyses. Laboratories used participate in the NVLAP - National Voluntary Laboratory Accreditation Program.

B. Coatings and Solvents Used in Coating Applications:

1. Sample Gathering.

- a. Personal protective measures. Employees will avoid unnecessary exposure to vapors, but respiratory protection is not expected to be necessary. Employees will wear rubber gloves to avoid contact with coatings.
- b. Sample containers. All coating and solvent samples will be collected in one pint or one-half pint, screw-top plastic containers. If a second sample is desired for evidence, another one pint or one-half pint sample (split sample) should be taken with the first.
- c. Sample containers shall be filled to minimize airspace in the container.
- d. At the source's request, District personnel will split a sample with them. The District will provide a container if requested.
- e. All single component paint samples will be sampled from the storage container or from the spray pot or applicator.
- f. Multiple component samples will be obtained thoroughly mixed, and ready to apply from the spray pot or applicator. Exceptions include catalyzed coatings, and coatings that are not in the process of being applied. Another exception is coatings for which compliance is determined mathematically from the VOC of several parts (such as a basecoat-clearcoat combination). For these exceptions the components shall be sampled separately, in individual containers, and compliance will be determined based on laboratory results and the mix ratios specified in the facility records. If one part of a multi-stage coating can be obtained ready to spray, the other components can be sampled separately.

2. Sample Analysis.

The District has established an agreement with a private laboratory to perform analysis of coatings and solvents. Samples will be driven to the laboratory from the Northern District Office and delivered in person for analysis. Samples will be driven to the Northern Office from the Central or Southern Offices. Samples will be packed in a small ice chest with

"blue ice" type cooling, and the Change of Custody form will be updated with each transfer, even between District employees. If the District wishes to retain the sample for evidence, arrangements will have to be made with the lab to store or return the sample.

C. Fuels:

1. Sample gathering.

- a. Personal protective measures. General safety concerns need to be followed, per the IIPP.
- b. Sample containers. Fuel oils are collected in one-quart metal cans with screw top lids.
- c. Gaseous samples. Samples will be taken in Tedlar Bags (by District, source, or lab) or in metal gas cylinders (gas bombs, by source or lab only). For those samples taken by District personnel in bags, great care must be taken to avoid overfilling the bag. Because the bags may leak, two samples are recommended. Samples with sulfur content will degrade quickly especially if exposed to the sun. Samples should not be taken if they cannot be analyzed within 48 hours. For sulfur-containing samples taken in gas bombs, ensure that the source or lab uses a Teflon-lined bomb.

2. Sample analysis. A private laboratory will analyze samples.

D. Crude and Refined Hydrocarbons

1. Sample gathering.

- a. Personal protective measures. General safety concerns need to be followed, per the IIPP.
- b. Sample containers. Crude and refined hydrocarbons are collected in one-quart metal cans with screw top lids. For crude oil with American Petroleum Institute (API) gravity of greater than 26°, samples will be taken in a one-quart metal cans with screw top lids.
- c. Crude oil with API gravity equal to or less than 26° may be (but are not required to be) sampled and analyzed utilizing the HOST method. This method excludes any vapor pressure derived from water and generally provides a lower vapor pressure for crude samples, especially for lower gravity or heavy crudes. The District does not have the equipment or expertise to obtain these samples. Arrangements can be made with a laboratory to sample via the HOST method.

2. Sample analysis. A private laboratory will analyze samples.

E. Ambient Samples and Odor Complaint Samples:

1. Sample gathering:

- a. Sampling Date. Please inform the operator of gas chromatograph/mass spectrometer (GC/MS) in the Southern Region of the date of sampling as soon as possible, so that the GC/MS operator may prepare for sample analysis.
- b. Personal protective measures. General safety concerns need to be followed, per the Injury Illness Prevention Program (IIPP).
- c. Sample containers. The District has two types of canisters, SilcoCan and TO-Can. The canister volume is 6-liters. Prior to use, the canisters are cleaned and evacuated under vacuum to less than 50 milli-Torr. They are designed to hold a pressure up to 40 psig at up to 250 degrees Celsius. A SilcoCan should be used for samples that may contain sulfur compounds, such as hydrogen sulfide and methyl mercaptan. A TO-Can should be used for samples that do not contain sulfur compounds. When in doubt, a SilcoCan should be used. These canisters are to be transported in the purpose-built aluminum case.
- d. Sample point. For complaint investigations, a sample from upwind, and downwind of the potential emission source should be taken. A sampling height of 6 feet above the ground is recommended to minimize dust particles entering the canister. Samples should be taken as far away as possible from vehicle exhaust of nearby traffic.
- e. Sampling procedure.
 1. Remove the brass plug nut from top of the blue canister valve by unscrewing it counterclockwise.
 2. To begin sampling, open the blue canister valve by turning it counterclockwise about $\frac{1}{4}$ - $\frac{1}{2}$ turn.
 3. When the sample stream enters the canister, one will hear a hissing sound.
 4. When the hissing sound stops, sampling has stopped.
 5. Close the blue canister valve by turning it clockwise. **DO NOT OVERTIGHTEN THE VALVE.**
 6. Replace and finger-tighten the brass plug nut on top of the blue canister valve by screwing it clockwise to protect the

threads of sampling inlet. **DO NOT OVERTIGHTEN THE NUT.**

7. Using the standard sampling nomenclature, write the sample description on the tag attached to the canister.

2. Sample Analysis:

- a. Sample transportation. The District utilizes the GC/MS unit in the Southern Region to analyze the samples. The canisters should be transported in their aluminum cases to the GC/MS Laboratory in the Southern Region as soon as possible to minimize sample deterioration.
- b. Types of compounds analyzed. The GC/MS unit detects hydrocarbon and sulfur compounds in the concentration range of parts per billion. Hydrocarbons and TO-15 compounds (62 VOC standard) including ethane to decane (C2 to C10), freons, BETX (benzene, toluene, ethylbenzene, xylene), and chlorinated or brominated compounds can be identified. Sulfur compounds including hydrogen sulfide, carbonyl sulfide, methyl mercaptan, ethyl mercaptan, dimethyl sulfide, carbon disulfide, methyl ethyl sulfide, and dimethyl disulfide can be identified.

APPENDICES:

- I. Chain of Custody Form
- II. Sample Seal and Sample Label Forms

SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT LABORATORY REQUEST and SAMPLE TRANSFER FORM

Submitter's Name: _____ Project Coordinator: _____ Phone: (____) _____ - _____
 Date Submitted: ____ / ____ / ____ Date Lab Results Desired: ____ / ____ / ____ Date Results Returned: ____ / ____ / ____
 Facility Name: _____ Address: _____ City: _____

Purpose: Emission/Compliance Testing Special Study Other: _____

Lab #	Sample #	Type of Sample	Location Sampled	Field Sample Description	Container Type	Volume	Special Instructions	Analysis Required*

* List appropriate laboratory test method in the "Analysis Required" space provided above:

- EPA Method 24/24A (Coatings, solvents VOC)
 ASTM D-86 (Boiling Point)
 API 2547 or ASTM D 1298 (Oil API Gravity)
 ASTM E-260/ASTM D-1072 (Gas Speciation/Sulfur)
 Asbestos (TEM,PLM,SEM)
 Other

Sample Transfer Record	I certify that I RELINQUISH custody of the samples listed:		I certify that I RECEIVED custody of the samples listed:		This transfer occurred on:	
	Print Name	Signature	Print Name	Signature	Date	Time
First Transfer						
Second Transfer						
Third Transfer						
Fourth Transfer						

IF samples are shipped by COMMERCIAL FREIGHT:
 I, _____ RELINQUISHED the samples listed above to the _____ shipping company on ____ / ____ / ____.
 I, _____ RECEIVED the samples listed above from the listed shipping company on ____ / ____ / ____.

Northern Region
 4800 Enterprise Way
 Modesto, CA 95356-8718
 (209) 557-6400 ✎ Fax (209) 557-6475

Central Region
 1990 East Gettysburg Avenue
 Fresno, CA 93726-0244
 (559) 230-6000 ✎ Fax (559) 230-6061

Southern Region
 2700 "M" Street, Suite 275
 Bakersfield, CA 93301-2373
 (661) 326-6900 ✎ Fax (661) 326-6985

Figure 2

District Sample Seal

San Joaquin Valley Unified Air Pollution Control District		
Product _____	Source _____	Number _____
Sealed By _____		Date _____
DO NOT BREAK SEAL		

Figure 3

Sample Label

SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT	
Sample Number _____	
Product _____	
Source Name _____	
Address _____	
City _____	Zip _____
Analysis Requested _____	
Test Method _____	
Submitted by _____	
Date _____	Rule _____