

California Environmental Protection Agency



Monitoring and Laboratory Division
Northern Laboratory Branch

Qualitative Analysis Report
Loyalton Air Monitoring Plan

July 23, 2009

Prepared by:

Inorganic Laboratory Section

Qualitative Analysis Report Loyalton Air Monitoring Plan

BACKGROUND

The Monitoring and Laboratory Division (MLD) was requested by Enforcement Division (ED) to help identify a black sticky substance that has been depositing on the property of the residents of Loyalton, California. Specifically, ED requested MLD to perform ambient air monitoring to determine the composition of the substance.

To achieve this, MLD's Air Quality Surveillance Branch (AQSB) prepared the Sampling Protocol for Loyalton Ambient Air Monitoring Plan (March 2, 2009). The Monitoring Objectives of the Protocol (Section 2) was to determine the substance composition performing four analyses. The first analysis was qualitative (identification only) analysis of the substance for carbon, ions, metals, and levoglucosan from glass petri dish sampling media. The Northern Laboratory Branch (NLB) was assigned the qualitative analysis responsibilities.

ANALYSIS

The results of the qualitative analysis conducted by the NLB's Inorganic Laboratory Section (ILS) are attached in Appendix A, Qualitative Analytical Results. Each sample was received by ILS staff and logged into the Laboratory Information Management System (LIMS). Table 1 provides an inventory of the samples:

**Table 1
Loyalton Sample Receipt (LIMS)**

Sample ID	Sampling Date	Sample Condition
SP000001	3/10/2009	solid
SP000002	3/18/2009	solid
SP000003	4/17/2009	liquid
SP000004*	4/24/2009	solid – insufficient quantity for analysis
SP000005*	4/24/2009	solid – insufficient quantity for analysis
SP000006*	5/1/2009	solid – insufficient quantity for full analysis
SP000007*	5/1/2009	solid – insufficient quantity for full analysis
SP000008**	5/14/2009	solid

* SP000004 & SP000005 and SP000006 & SP000007 were collocated samples (same sampling time/duration)

** SP000008 was a composite of three petri dish samples

There was insufficient sample quantity to conduct the four analyses in all cases: carbon, ions, metals, and levoglucosan. Levoglucosan was not evaluated by qualitative analysis for any of the samples. Qualitative analysis for carbon, ions, and metals was completed for samples SP000001, SP000002, and SP000008. Due to the liquid condition of sample SP000003, only ions could be identified. There was insufficient sample quantity to conduct qualitative analysis for SP000004 and SP000005, and there was only enough sample quantity for

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SP000006 and SP000007 for metals identification. In addition to the metals listed on the Qualitative Analysis Results for SP000001, vanadium (V) and cadmium (Cd) were also detected, but not included on the list.

Table 2 lists the standard operating procedures (SOP) used to analyze for carbon, ions, and metals:

**Table 2
List of Standard Operating Procedures**

SOP Number	SOP Title
MLD 007-4.1	Determination of Sulfate, Nitrate, and Chloride Using Ion Chromatography
MLD 023-1.0	Determination of Ammonium and Potassium Using Ion Chromatography
MLD 034-2.0	Determination of Elemental Concentrations in Ambient Air by Energy-Dispersive X-Ray Fluorescent Spectroscopy
MLD 065-1.0	Organic and Elemental Carbon Analysis of Exposed Quartz Microfiber Filters

All qualitative analyses met NLB's laboratory quality control requirements and were peer reviewed and approved by MLD management.

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APPENDIX A

Qualitative Analysis Results
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