



# Pima County Beryllium Monitoring Network

Pima County Department  
of  
Environmental Quality  
February 6, 2008

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# Overview of Presentation

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- Background on Monitoring Network
- Beryllium Analysis Issues
- Results of Beryllium Analysis
- Next Steps
- Contact Information

# Background on Monitoring Network

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- Goal of monitoring is to determine levels of Beryllium (Be) in ambient air
- Monitoring conducted at 6 locations
- Sampling rotated through network
- Each monitor is on one in every six days
- Monitors are high volume particulate samplers
- Particulate matter is collected on a filter which is collected for Be analysis

# Brush Ceramics Facility & Monitoring Sites

-  Brush Ceramics Facility
-  Major Streets
-  Monitoring Locations

- 1 Transportation Department
- 2 Los Ninos Elementary School
- 3 Los Amigos Elementary School
- 4 Ocotillo Elementary School (co-locate)
- 5 Sunnyside High School
- 6 Chaparral Middle School
- BG Santa Clara

November 2006

Prepared By Pima County  
Department of Environmental Quality

**Comments**  
All information is provided as is, with all faults, and without warranty of any kind, expressed or implied, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose.



# Background on Monitoring Network

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- ❑ Filter is weighed before and after the sample run
- ❑ Filters are shipped to Schneider Laboratories for analysis every 30 days
- ❑ Laboratory analyzes only  $\frac{1}{2}$  the filter, with the other  $\frac{1}{2}$  being retained by PDEQ as a back up
- ❑ Laboratory results are sent to PDEQ, checked, and reported on our website

# Beryllium Analysis Issues

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- ❑ Filters for July through October were sent to Schneider Laboratories for Be analyses
- ❑ NIOSH Method 7102 was used for Be analyses as recommend by Dr. Betterton (U of A Professor Atmospheric Sciences)
- ❑ NIOSH Method uses stronger acid in the digestion of the filter
- ❑ Laboratory reported problems with analyses

# Beryllium Analysis Issues

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- ❑ Schneider and PDEQ evaluated analysis problem
- ❑ Field blanks (filters that were not used) reported same Be values as monitoring network filters
- ❑ Upon review of sampling procedures, glass filters used for collection of particulates were found to contain Be ( $1\mu\text{g}$ ) from manufacturing process

# Beryllium Analysis Issues

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- ❑ PDEQ switched to quartz filters for all monitors in mid December 2007
- ❑ While quartz filters also contain Be, it is at a level below the NIOSH detection limit
- ❑ Quartz filters from December 14<sup>th</sup> to December 31<sup>st</sup> (20 samples) sent to Schneider Laboratories for analysis in early January
- ❑ PDEQ received results at the end of January

# Results of Beryllium Analysis

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- The 20 samples submitted to Schneider were reported as  $< 0.20 \mu\text{g}$  total Be
- The  $< 0.20 \mu\text{g}$  is the Minimum Reporting Limit for total Be using this analytical method
- Total Be can be converted to a Time Weighted Average (TWA) based using the monitors' flow rate
- All samples were reported as having a TWA as  $< 0.001 \mu\text{g}/\text{m}^3$

# SCHNEIDER LABORATORIES

INCORPORATED

2512 W. Cary Street • Richmond, Virginia • 23220-5117  
804-353-6778 • 800-785-LABS (5227) • (FAX) 804-359-1475

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AIHA/ELLAP 100527, NVLAP 101150-0, NYELAP/NELAC 11413, CAELAP 2078, NC 593, SC 93003

## LABORATORY ANALYSIS REPORT

High-Volume Filter Beryllium Analysis by NIOSH 7102M

**ACCOUNT #:** 3690-08-2  
**CLIENT:** Pima County Procurement Department  
**ADDRESS:** 150 West Congress, 1st Floor  
Tucson, AZ 85701

**DATE COLLECTED:** 12/15/2007  
**DATE RECEIVED:** 1/8/2008  
**DATE ANALYZED:** 1/9/2008  
**DATE REPORTED:** 1/11/2008

**PROJECT NAME:** PDEQ Beryllium Study  
**JOB LOCATION:** Tucson, Arizona  
**PROJECT NO.:**  
**PO NO.:** B504685 Rev. No: 000

**Sample Type:** PM10

SLI Sample No.	Client Sample No.	Filter Type	Filter Paper ID	Sample Time (min)	Flow Rate (L/min)	Sample Volume (m <sup>3</sup> )	Total Beryllium (µg)*	Beryllium Conc (µg/m <sup>3</sup> )	24 Hour TWA (µg/m <sup>3</sup> )
29589326	Q4113555	PM10			1105.40	1,511.28	< 0.20	< 0.001	< 0.001
29589327	Q4113554	PM10			1149.00	1,570.78	< 0.20	< 0.001	< 0.001
29589328	Q4113553	PM10			1205.70	1,648.29	< 0.20	< 0.001	< 0.001
29589329	Q4113552	PM10			1230.10	1,681.73	< 0.20	< 0.001	< 0.001
29589330	Q4113551	PM10			1222.40	1,671.17	< 0.20	< 0.001	< 0.001
29589331	Q4113550	PM10			1239.90	1,695.10	< 0.20	< 0.001	< 0.001
29589332	Q4113549	PM10			1186.30	1,621.81	< 0.20	< 0.001	< 0.001
29589333	Q4113548	PM10			1202.80	1,644.41	< 0.20	< 0.001	< 0.001
29589334	Q4113547	PM10			1217.70	1,664.70	< 0.20	< 0.001	< 0.001
29589335	Q4113541	PM10			1196.00	1,635.15	< 0.20	< 0.001	< 0.001
29589336	Q4113540	PM10			1216.10	1,662.58	< 0.20	< 0.001	< 0.001
29589337	Q4113539	PM10			1171.30	1,601.34	< 0.20	< 0.001	< 0.001
29589338	Q4113538	PM10			1232.90	1,685.57	< 0.20	< 0.001	< 0.001
29589339	Q4113537	PM10			1209.70	1,653.86	< 0.20	< 0.001	< 0.001
29589340	Q4113535	PM10			1147.90	1,569.32	< 0.20	< 0.001	< 0.001
29589341	Q4113534	PM10			1189.90	1,626.59	< 0.20	< 0.001	< 0.001
29589342	Q4113533	PM10			1200.90	1,641.74	< 0.20	< 0.001	< 0.001
29589343	Q4113532	PM10			1175.40	1,606.97	< 0.20	< 0.001	< 0.001
29589344	Q4113531	PM10			1121.50	1,533.18	< 0.20	< 0.001	< 0.001

**Total Number of Pages in Report: 2**

Results relate only to samples as received by the laboratory.

### Amended Report

Minimum Reporting Limit: 0.2 µg Total Beryllium. Volume is based on client-supplied information. 24h TWA assumes zero concentration for time not sampled. Results are not blank-corrected unless noted by analyst. Quality control data is available from the laboratory upon request. \*Data precision justifies 2 significant figures. Unusual sample conditions, if any, are described.

# Next Steps

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- PDEQ currently working Dr. Betterton, local health officials, and EPA to interpret the results
- PDEQ will continue to monitor utilizing quartz filters
- Data will be reported on the website quarterly or upon request
  - <http://www.deq.pima.gov/Regulations/BrushCeramicProductsMonitoring.htm>

# Contacts

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