



MEMORANDUM

Pima County Department of Environmental Quality

DATE: 12/2/15

FROM: Beth Gorman

Senior Program Manager

TO: Mr. Steven Holmes
Superintendent

Hector Encinas
Chief Financial Officer

RE: Pima County DEQ Beryllium Monitoring Report 3rd Quarter 2015

Attached is the Pima County Department of Environmental Quality's (PDEQ) Air Monitoring Division Beryllium Monitoring Network Summary for the 3rd Quarter of 2015.

Highlights:

- 94 samples collected resulting in 64 valid and 30 invalid samples (68.1% data recovery). EPA requires monitoring data recovery at 75%.
- No beryllium values were detected over the Practical Quantitation Limit (PQL).
- The PQL was updated from 0.265 to 0.225 to reflect the lowest standard used in the analysis.
- The Beryllium Air Monitoring Study was concluded on September 30, 2015.

For additional information on this report, please contact me at Pima County Department of Environmental Quality at (520) 724-7400.

Attachment

Cc: Ursula Nelson, Pima County Department of Environmental Quality Director
Richard Grimaldi, Pima County Department of Environmental Quality Deputy Director



PIMA COUNTY

ENVIRONMENTAL QUALITY

Pima County

Department of Environmental Quality

Air Monitoring Division

Beryllium Monitoring Network Summary

3rd Quarter 2015

*Pima County Department of Environmental Quality
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Tucson, Arizona 85701*

Summary

The Pima County Department of Environmental Quality has contracted with the Pima County Regional Wastewater Reclamation Department (RWRD) to perform analysis on filters sampled in the Beryllium Monitoring Network located in the Sunnyside Unified School District.

For the 3rd quarter of 2015 there was a total of 94 PM₁₀ samples collected resulting in 64 valid and 30 invalid samples; for a data recovery of 68.1 %. Two samples were collected to be used as precision checks as recommended in *40 CFR, Part 58, Appendix A, Section 5.3.1*. All samples run for a 24-hour period as specified in *40 CFR, Part 50, Appendix B*.

There were a total of 64 samples analyzed for beryllium. Beryllium concentrations are reported as <0.225 ng/m³ PQL (Practical Quantitation Level. In the preamble to a November 13, 1985 rulemaking (50 FR 46906), the PQL was defined as “the lowest concentration of an analyte that can be reliably measured within specific limits of precision and accuracy during routine laboratory operating conditions.” The Agency has used the PQL to estimate or evaluate the minimum concentration at which most laboratories can be expected to reliably measure a specific chemical contaminant during day-to-day analysis.

The following pages display the sampling dates, sampling locations, PM₁₀ concentrations (µg/m³) calculated in standard conditions, PM₁₀ 24-hour NAAQS standard, precision measurements, and beryllium analysis results, accompanying graphs and a brief explanation of all invalid samples for the 3rd quarter of 2015.

PM₁₀ /Beryllium Concentrations

Monthly Summary of PM₁₀/Beryllium Data

July 2015

Date	Location	Standard Concentration PM ₁₀ (µg/m ³)	24-hour NAAQS PM ₁₀ (µg/m ³)	Beryllium (ng/m ³)
07/01/15	Los Niños	15.3	150	<0.225
07/02/15	Chaparral M.S.	NO SAMPLE	NO SAMPLE	NO SAMPLE
07/03/15	Transportation Bldg	11.4	150	<0.225
07/04/15	Sunnyside H.S.	11.6	150	<0.225
07/05/15	Ocotillo #1	10.3	150	<0.225
07/05/15	Ocotillo #2	13.6	150	<0.225
07/06/15	Los Amigos	11.8	150	<0.225
07/07/15	Los Niños	17.4	150	<0.225
07/08/15	Chaparral M.S.	NO SAMPLE	NO SAMPLE	NO SAMPLE
07/09/15	Transportation Bldg.	INVALID	INVALID	INVALID
07/10/15	Sunnyside H.S.	16.6	150	<0.225
07/11/15	Ocotillo #1	14.8	150	<0.225
07/11/15	Ocotillo #2	18.4	150	<0.225
07/12/15	Los Amigos	16.7	150	<0.225
07/13/15	Los Niños	14.9	150	<0.225
07/14/15	Chaparral M.S.	NO SAMPLE	NO SAMPLE	NO SAMPLE
07/15/15	Transportation Bldg.	INVALID	INVALID	INVALID
07/16/15	Sunnyside H.S.	14.4	150	<0.225
07/17/15	Ocotillo #1	INVALID	INVALID	INVALID
07/17/15	Ocotillo #2	INVALID	150	<0.225
07/18/15	Los Amigos	11.8	150	<0.225
07/19/15	Los Niños	9.3	150	<0.225
07/20/15	Chaparral M.S.	NO SAMPLE	NO SAMPLE	NO SAMPLE
07/21/15	Transportation Bldg.	16.2	150	<0.225
07/22/15	Sunnyside H.S.	12.8	150	<0.225
07/23/15	Ocotillo #1	9.3	150	<0.225
07/23/15	Ocotillo #2	10.1	150	<0.225
07/24/15	Los Amigos	13.4	150	<0.225
07/25/15	Los Niño's	14.2	150	<0.225
07/26/15	Chaparral M.S.	NO SAMPLE	NO SAMPLE	NO SAMPLE
07/27/15	Transportation Bldg.	15.8	150	<0.225
07/28/15	Sunnyside H.S.	13.4	150	<0.225
07/29/15	Ocotillo #1	16.5	150	<0.225
07/29/15	Ocotillo #2	21.3	150	<0.225
07/30/15	Los Amigos	16.9	150	<0.225
07/31/15	Los Ninos	15.1	150	<0.225

Samples running on 7/2/15, 7/8/15, 7/14/15, 7/20/15 AND 7/26/15 invalid due to the power being turned off for renovations.

Sample running on 7/9/15 invalid due to double exposure caused by filter not being changed.

Sample running on 7/15/15 invalid due to the filter not being installed.

Sample running on 7/17/15 (Ocotillo #1) invalid due to no flow or run time annotated on chart.

Sample running on 7/17/15 (Ocotillo #2) invalid for PM10 caused by sample over-run

NAAQS = National Ambient Air Quality Standard for PM₁₀

PM₁₀ /Beryllium Concentrations (continued)

Monthly Summary of PM₁₀/Beryllium Data

August 2015

Date	Location	Standard Concentration PM₁₀ (µg/m³)	24-hour NAAQS PM₁₀ (µg/m³)	Beryllium (ng/m³)
08/01/15	Chaparral M.S.	6.5	150	<0.225
08/02/15	Transportation Bldg	6.6	150	<0.225
08/03/15	Sunnyside H.S.	7.2	150	<0.225
08/04/15	Ocotillo #1	INVALID	INVALID	INVALID
08/04/15	Ocotillo #2	INVALID	INVALID	INVALID
08/05/15	Los Amigos	23.2	150	<0.225
08/06/15	Los Niños	18.5	150	<0.225
08/07/15	Chaparral M.S.	NO SAMPLE	NO SAMPLE	NO SAMPLE
08/08/15	Transportation Bldg	9.4	150	<0.225
08/09/15	Sunnyside H.S.	10.4	150	<0.225
08/10/15	Ocotillo #1	12.9	150	<0.225
08/10/15	Ocotillo #2	14.8	150	<0.225
08/11/15	Los Amigos	13.0	150	<0.225
08/12/15	Los Niños	18.6	150	<0.225
08/13/15	Chaparral M.S.	NO SAMPLE	NO SAMPLE	NO SAMPLE
08/14/15	Transportation Bldg.	16.2	150	<0.225
08/15/15	Sunnyside H.S.	16.6	150	<0.225
08/16/15	Ocotillo #1	22.5	150	<0.225
08/16/15	Ocotillo #2	42.5	150	<0.225
08/17/15	Los Amigos	22.0	150	<0.225
08/18/15	Los Niños	22.8	150	<0.225
08/19/15	Chaparral M.S.	NO SAMPLE	NO SAMPLE	NO SAMPLE
08/20/15	Transportation Bldg.	13.0	150	<0.225
08/21/15	Sunnyside H.S.	INVALID	INVALID	INVALID
08/22/15	Ocotillo #1	20.6	150	<0.225
08/22/15	Ocotillo #2	INVALID	INVALID	INVALID
08/23/15	Los Amigos	22.8	150	<0.225
08/24/15	Los Niños	15.8	150	<0.225
08/25/15	Chaparral M.S.	INVALID	INVALID	INVALID
08/26/15	Transportation Bldg.	INVALID	INVALID	INVALID
08/27/15	Sunnyside H.S.	INVALID	INVALID	INVALID
08/28/15	Ocotillo #1	INVALID	INVALID	INVALID
08/28/15	Ocotillo #2	INVALID	INVALID	INVALID
08/29/15	Los Amigos	INVALID	INVALID	INVALID
08/30/15	Los Ninos	13.8	150	<0.225
08/31/15	Chaparral M.S.	INVALID	INVALID	INVALID

Samples running on 8/7/15, 8/13/15 AND 8/19/15 invalid due to the power being turned off for renovations.

Samples running on 8/25/15, 8/27/15 and 8/31/15 invalid due to the filter not being installed.

Samples running on 8/26/15, 8/28/15 and 8/29/15 invalid due to sample over-run.

Sample running on 8/21/15 invalid due to triple exposure caused by the filter not being changed.

Sample running on 8/4/15 (Ocotillo #1) invalid due to no power.

Sample running on 8/4/15 (Ocotillo #2) invalid due to a damaged filter.

Sample running on 8/22/15 invalid due to no flow rate or run time annotated.

NAAQS = National Ambient Air Quality Standard for PM₁₀

PM₁₀ /Beryllium Concentrations (continued)

Monthly Summary of PM₁₀/Beryllium Data

September 2015

Date	Location	Standard Concentration PM₁₀ (µg/m³)	24-hour NAAQS PM₁₀ (µg/m³)	Beryllium (ng/m³)
09/01/15	Transportation Bldg.	INVALID	INVALID	INVALID
09/02/15	Sunnyside H.S.	INVALID	INVALID	INVALID
09/03/15	Ocotillo #1	INVALID	INVALID	INVALID
09/03/15	Ocotillo #2	INVALID	INVALID	INVALID
09/04/15	Los Amigos	INVALID	INVALID	INVALID
09/05/15	Los Niños	INVALID	INVALID	INVALID
09/06/15	Chaparral M.S.	INVALID	INVALID	INVALID
09/07/15	Transportation Bldg.	INVALID	INVALID	INVALID
09/08/15	Sunnyside H.S.	INVALID	INVALID	INVALID
09/09/15	Ocotillo #1	14.7	150	<0.225
09/09/15	Ocotillo #2	15.8	150	<0.225
09/10/15	Los Amigos	INVALID	INVALID	INVALID
09/11/15	Los Niños	INVALID	INVALID	INVALID
09/12/15	Chaparral M.S.	INVALID	INVALID	INVALID
09/13/15	Transportation Bldg.	INVALID	INVALID	INVALID
09/14/15	Sunnyside H.S.	INVALID	INVALID	INVALID
09/15/15	Ocotillo #1	10.7	150	<0.225
09/15/15	Ocotillo #2	NO SAMPLE	NO SAMPLE	NO SAMPLE
09/16/15	Los Amigos	11.6	150	<0.225
09/17/15	Los Niños	INVALID	INVALID	INVALID
09/18/15	Chaparral M.S.	12.1	150	<0.225
09/19/15	Transportation Bldg.	INVALID	INVALID	INVALID
09/20/15	Sunnyside H.S.	3.7	150	<0.225
09/21/15	Ocotillo #1	9.1	150	<0.225
09/21/15	Ocotillo #2	NO SAMPLE	NO SAMPLE	NO SAMPLE
09/22/15	Los Amigos	6.5	150	<0.225
09/23/15	Los Niños	INVALID	INVALID	INVALID
09/24/15	Chaparral M.S.	7.7	150	<0.225
09/25/15	Transportation Bldg.	INVALID	INVALID	INVALID
09/26/15	Sunnyside H.S.	12.1	150	<0.225
09/27/15	Ocotillo #1	22.9	150	<0.225
09/27/15	Ocotillo #2	NO SAMPLE	NO SAMPLE	NO SAMPLE
09/28/15	Los Amigos	15.2	150	<0.225
09/29/15	Los Niños	27.4	150	<0.225
09/30/15	Chaparral M.S.	9.9	150	<0.225

Samples running on 9/1/15, 9/2/15, 9/3/15, 9/4/15, 9/10/15, 9/11/15, 9/12/15, 9/13/15, 9/14/15, 9/19/15, 9/23/15 and 9/25/15 invalid due to the filters not being installed.

Samples running on 9/5/15, 9/7/15, 9/8/15, and 9/17/15 invalid due to sample over-run caused by improper sampler set-up. Sample running on 9/6/15 invalid due to double exposure caused by the filter not being changed.

Ocotillo #2 samples due to run on 9/15/15, 9/21/15 and 9/27/15 are designated as NO SAMPLE due to the sampler being decommissioned.

NAAQS = National Ambient Air Quality Standard for PM₁₀

Precision of Duplicate Pairs – PM10

At low concentrations, agreement between the measurements of collocated samplers, expressed as relative percent difference, may be relatively poor. For this reason, collocated measurement pairs are selected for use in the precision and bias calculations only when both measurement pairs are equal to or above 15 $\mu\text{g}/\text{m}^3$ (40CFR58, Appendix A, Section 4c).

Sample Date	Primary Sampler Number	Measured PM ₁₀ ($\mu\text{g}/\text{m}^3$)	Duplicate Sampler Number	Measured PM ₁₀ ($\mu\text{g}/\text{m}^3$)	Difference ($\mu\text{g}/\text{m}^3$)	Percent Difference %
7/29/15	1	16.5	2	21.3	4.8	25.4
8/16/15	1	22.5	2	42.5	20.0	61.5

PM₁₀ Concentration Charts



