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Title: **Understanding Analytical Results Plots for the Individual Permit, Poster, Individual Permit for Storm Water, NPDES Permit No. NM0030759**

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Intended for: Public

Purpose: This poster was prepared for the June 2013 Individual Permit for Storm Water (IP) public meeting. The purpose of the meeting was to update the public on implementation of the permit as required under Part 1.I (7) of the IP (National Pollutant Discharge Elimination System Permit No. NM0030759). The poster will be available on Los Alamos National Laboratory's (LANL's) public website.



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Understanding Analytical Results Plots for the Individual Permit

Analytical results plots graphically present storm water data in a way that is easy to understand. Analytical plots show results in a manner that allows direct comparison with the target action levels (TALs) as defined in the Individual Permit (IP) for Los Alamos National Laboratory (the Laboratory). Each element of the plot is explained in detail in the text boxes surrounding the plot and in the text to the left. Analytical results plots for each site monitoring area (SMA) are included in the annual Site Discharge Pollution Prevention Plan (SDPPP).

Analytical results for each analyte presented on the plots are normalized by calculating an exceedance ratio. This ratio is defined as the analytical result divided by the applicable TAL. Thus, results exceeding the TAL will be greater than an exceedance ratio of 1.0. The exceedance ratios are plotted on a log scale to allow the viewing of a larger range of values. A solid symbol on the plot represents a result that is detected above the practical quantitation limit (PQL), while an empty symbol represents a value that is considered a nondetect. In a few instances, an empty symbol is plotted above an exceedance ratio of 1.0. In these cases, the value is nondetect and is represented graphically by the PQL. The PQL is normally 3 to 6 times the method detection limit (MDL) and is considered the lowest concentration that can be accurately quantified rather than simply detected.

Background storm water values for some metals, gross alpha, and polychlorinated biphenyls (PCBs), where available, are also plotted to provide additional points of reference when evaluating the significance of the analytical result. The process for determining background storm water values for PCBs is presented in "Polychlorinated Biphenyls in Precipitation and Stormwater within the Upper Rio Grande Watershed." The process for determining background storm water values for metals and selected radionuclides is presented in "Background Metals Concentrations and Radioactivity in Storm Water on the Pajarito Plateau, Northern New Mexico."

A list of all the samples collected at the SMA with sample dates is provided. A diamond-shaped symbol identifies a baseline sample, and a triangle-shaped symbol identifies a corrective action sample.

The geometric mean of all the results is calculated, as described in Part II.D of the IP, and then plotted for analytes that are compared with an average TAL (ATAL).

Background values for storm water are normalized to the TAL and plotted for comparison with storm water sample results.

Results for individual samples are provided in separate rows.

For each sample, the top row presents the analytical result in the reporting units, and the bottom row presents the result normalized to the TAL (i.e., the result or quantitation level divided by the TAL).

This is the SMA title.

Analytical results are normalized by dividing the result by the TAL to derive the exceedance ratio. An exceedance ratio of 1.0 is equal to the TAL for each analyte.

Available background values are plotted for each analyte when a resulting value exceeds the TAL. Plotted background values are normalized by dividing by the TAL. When both the Bandelier Tuff and developed background values are available, the range between them is connected by a set of parallel lines.

A solid symbol indicates a detected value. The value plotted is the result divided by the TAL.

An empty symbol indicates a result that is below quantitation levels. The value plotted is the quantitation level divided by the TAL.

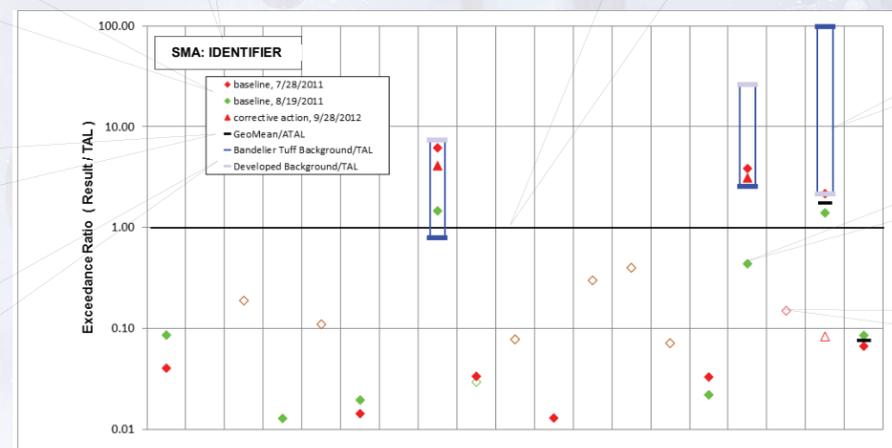
This row presents an analyte list as defined in the IP; there is one chart for inorganic chemicals and a second chart for organic chemicals.

This row identifies whether a maximum TAL (MTAL) or ATAL is used as the regulatory level per the IP.

This row presents the TAL value as listed in the IP.

This row shows units of measurement reported for the TAL and the result.

Bold values represent results that exceed the applicable TAL.



	Aluminum	Antimony	Arsenic	Boron	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc	Cyanide, weak acid dissociable	Gross alpha	Radium-226 and Radium-228
std used in ratio calculations	MTAL	ATAL	ATAL	ATAL	MTAL	MTAL	ATAL	MTAL	MTAL	ATAL	MTAL	ATAL	MTAL	ATAL	ATAL	MTAL	ATAL	ATAL	ATAL
std value	750	640	9	5000	1	210	1000	4.3	17	0.77	170	5	0.5	6.3	100	42	0.01	15	30
unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L	pCi/L	pCi/L
9/28/2012 result	-	-	-	-	-	-	-	17.7	-	-	-	-	-	-	-	131	-	1.25	-
result / TAL	-	-	-	-	-	-	-	4.1	-	-	-	-	-	-	-	3.1	-	0.083	-
8/19/2011 result	64.5	1	1.7	64.1	0.11	4.1	1.8	6.3	0.5	0.06	1.6	1.5	0.2	0.45	2.2	18.4	-	21	2.56
result / TAL	0.086	0.002	0.19	0.013	0.11	0.02	0.0018	1.5	0.029	0.078	0.0094	0.3	0.4	0.071	0.022	0.44	-	1.4	0.085
7/28/2011 result	30.3	1	1.7	16	0.11	3	1.2	26.6	0.57	0.06	2.2	1.5	0.2	0.45	3.3	162	0.002	32.6	2
result / TAL	0.04	0.002	0.19	0.0032	0.11	0.014	0.0012	6.2	0.034	0.078	0.013	0.3	0.4	0.071	0.033	3.9	0.15	2.2	0.067

Bold font indicates result>TAL; italic font indicates undetected results; "-" is used if no analytical results were available.

No symbol is shown if the exceedance ratio is less than the minimum plot value.

Values in italics represent quantitation levels for undetected results.