



John R. Kasich, Governor
Mary Taylor, Lt. Governor
Scott J. Nally, Director

January 3, 2013

**RE: ALUMINUM SMELTING AND
REFINING LANDFILL
GROUND WATER MONITORING
NOTICE OF VIOLATION**

David Pytak
Aluminum Smelting & Refining
40 Fountain Plaza, 8th Floor
Buffalo, NY 14202

Dear Mr. Pytak:

The Ohio Environmental Protection Agency (Ohio EPA) has reviewed the “2012 Annual Groundwater Monitoring and Statistical Analysis Report, Aluminum Smelting and Refining Landfill, 1601 Brown Road, Ashtabula County, Ohio.” The report was prepared by Bowser & Morner, Inc., and submitted on the behalf of Aluminum Smelting and Refining (ASR). The 2012 report is dated November 6, 2012, and was received by the Northeast District Office (NEDO) of Ohio EPA on November 8, 2012.

ASR Landfill closed under the 1994 revised Industrial Solid Waste Regulations and is required to conduct post-closure ground water detection monitoring in accordance with OAC 3745-30-08 and the site specific ground water detection monitoring plan. In August 2005, ASR revised the site-specific ground water detection monitoring plan to comply with the requirements of OAC 3745-30-08 of the 2003 revised Residual Waste regulations. The 2012 annual ground water detection monitoring report was reviewed for compliance with OAC 3745-30-08 and the facility’s site-specific ground water detection monitoring plan (GWDMP).

Upon review of the report, Ohio EPA noted that ASR is in violation of OAC 3745-30-08(A)(1) and 30-08(C)(5).

OAC 3745-30-08(A)(1) and OAC 3745-30-08(C)(5) require that the owner/operator *“implement and maintain a ground water monitoring program capable of determining the impact of the landfill facility”* and that *“the statistical method specified shall ensure protection of human health and safety and the environment and shall comply with the performance standards outlined in paragraph (C)(6) of this rule.”*

ASR failed to use appropriate statistical methods to evaluate ground water quality. ASR continues to use both ChemStat and ANOVA for this site. OAC rule 3745-30-08(C)(6)(a) & (f) requires that the statistical test employed be appropriate for the distribution and, if necessary, account for spatial variability. ASR uses the coefficient of variation to determine distribution (normality). The 2009 U.S. EPA Unified Statistical Guidance found that the coefficient of variation is “not an accurate test of normality.” The Unified Guidance no longer supports the use of ANOVA for detection monitoring, particularly for sites with spatial variability and use of appropriate statistical

methods indicate that the ground water quality has been impacted. Ohio EPA performed statistics on each of the wells for all the parameters. Results for conductivity, chloride and magnesium at MW-4 using the 2012 data indicated statistically significant increases from background using the parametric prediction limit. Significant upward trends were confirmed for specific conductance, chloride and magnesium using Sens Slope and the Mann Kendall tests available on Sanitas software. Chloride and magnesium are not required to be statistically analyzed as part of the approved plan. However, using the parametric prediction limit test, chloride, magnesium and conductivity have each triggered more than twice in a row at MW-4 using U.S. EPA's 2009 recommended statistical methods. [See attached figures.]

Use of correct statistics indicates that activities at the landfill may have impacted the ground water. Based upon OAC 3745-30-08(D)(8) and the fact that when using U.S. EPA 2009 approved statistical methods, specific conductivity in MW-4 has shown a statistically significant difference from background two events in a row, increasing from 592 to 1140 mg/l between 2006 and 2012; as well as the fact that, in the same well, chloride has increased from 25 to 190 mg/l and magnesium has increased from 14 to mid-to-high 30s mg/l in that same time interval. It appears that ASR should either submit a demonstration of another source according to OAC 3745-30-08(D)(9) or follow 3745-30-08(D)(10 through 12) and move toward assessment monitoring.

Ohio EPA also noted the following:

1. All wells in the ground water monitoring system (MW-1A, MW-4, MW-8 and MW-9) were sampled and analyzed for all parameters in the facility's annual alternate parameter list over the period of September 25 and 26, 2012. The ground water flow direction to the west-northwest remained consistent with historical data. The samples were statistically analyzed in accordance with the facility's site-specific GWDMP.

Annual Alternate Ground Water Detection Sampling List:

COD (chem O ₂ demand)	Zinc	Chromium
Total Alkalinity	Copper	Cadmium
Ammonia	Nickel	Mercury
Nitrate-Nitrite	Barium	Potassium
Chloride	Arsenic	Calcium
Sodium	Lead	Turbidity
Fluoride	Sulfate	Magnesium
Temperature	Specific Conductivity	Manganese
TDS (total dissolved solids)	TOC (total org carbon)	Ph

2. Statistical analysis of the 2012 results using ANOVA (which U.S. EPA no longer recommends for detection monitoring), indicated statistically significant differences in MW-4 for pH, one of the parameters required by Ohio EPA's December 28, 1999 correspondence. Results were run again using the parametric prediction limit test listed in the GWDMP. The resample for pH passed.

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ASR needs to immediately take the necessary measures to return to compliance with Ohio's environmental laws. Within 14 days of receipt of this letter, ASR is requested to provide documentation to this office including the steps taken to abate the violations cited above. Documentation of steps taken to return to compliance includes written correspondence, updated policies and photographs, as appropriate, and may be submitted via the postal service or electronically to colum.mckenna@epa.ohio.gov.

Please be advised that violations cited above will continue until the violations have been properly abated. Failure to comply with Chapter 3734 of the Ohio Revised Code and rules promulgated thereunder may result in a civil penalty of up to \$10,000 per day for each violation. It is imperative that you return to compliance. If circumstances delay the abatement of violations, ASR is requested to submit written correspondence of the steps that will be taken by date certain to attain compliance.

If you have any questions, please contact me by telephone at (614) 123-4567 or by e-mail at first.last@epa.ohio.gov.

Nothing in this letter shall be construed to authorize any waiver from the requirements of any applicable state or federal laws or regulations. This letter shall not be interpreted to release the owner or operator, or others, from responsibility under Chapters 3704, 3714, 3734, or 6111 of the Ohio Revised Code or under the Federal Clean Water Act, Resource Conservation and Recovery Act, or Comprehensive Environmental Response, Compensation, and Liability Act for remedying conditions resulting from any release of contaminants to the environment.

Please contact Katie Radar at (614) 644-3128 if you have any technical questions regarding this review. Otherwise, submit all correspondence to Colum McKenna, Division of Materials and Waste Management, Northeast District Office, Ohio EPA, 2110 East Aurora Road, Twinsburg, Ohio 44087.

Sincerely,



Colum J. McKenna
Environmental Specialist
Division of Materials and Waste Management

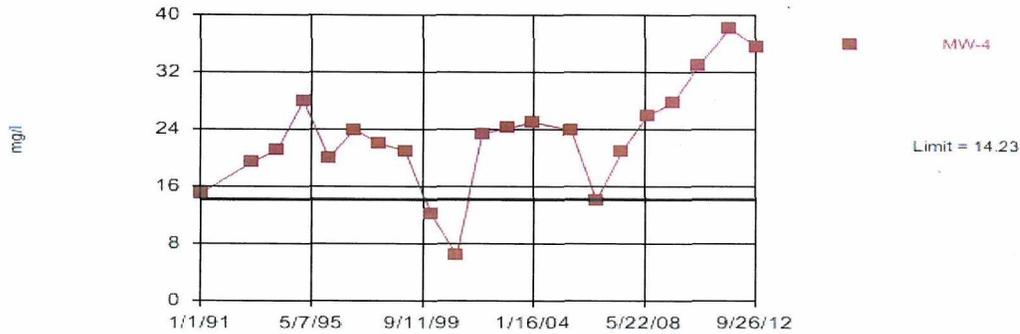
CJM/cl

cc: Katie Radar, DDAGW-CO
Eric Adams, DDAGW-NEDO
Stephen L. Hire, Bowser-Morner, Inc.
Pat Loper, Bowser-Morner, Inc.
Ray Saporito, ACHD
File: [Singh/LAND/Aluminum Smelting/GRO/04]
DMWM # 4727

Sanitas v 9.3.13 For regulatory purposes only UG

Exceeds Limit: MW-4

Prediction Limit
 Interwell Parametric



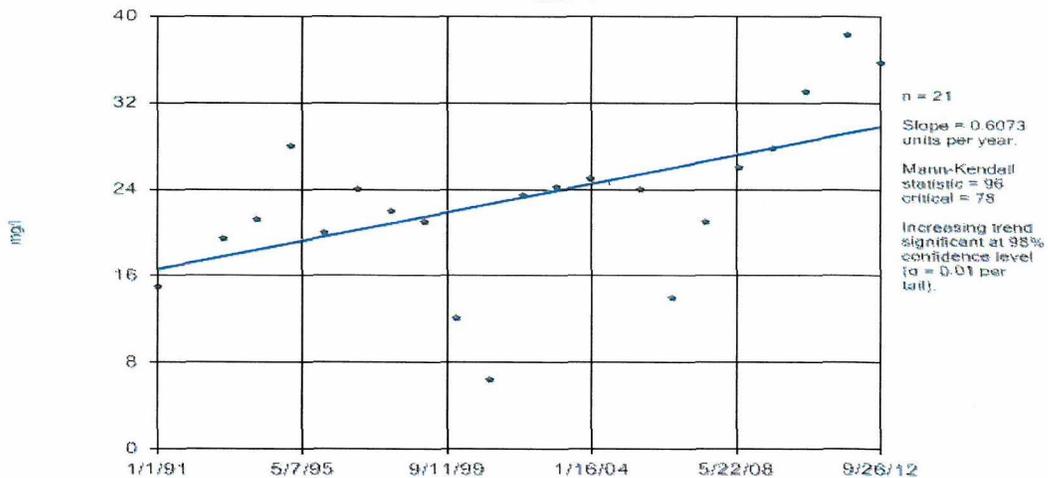
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Constituent: Mg Analysis Run 12/11/2012 1:46 PM

Facility: ALUMSMEL Client: REGULATOR Data File: AluminumSmeltingFinalSanitas

Sanitas v 9.3.13 For regulatory purposes only UG

Sen's Slope Estimator
 MW-4



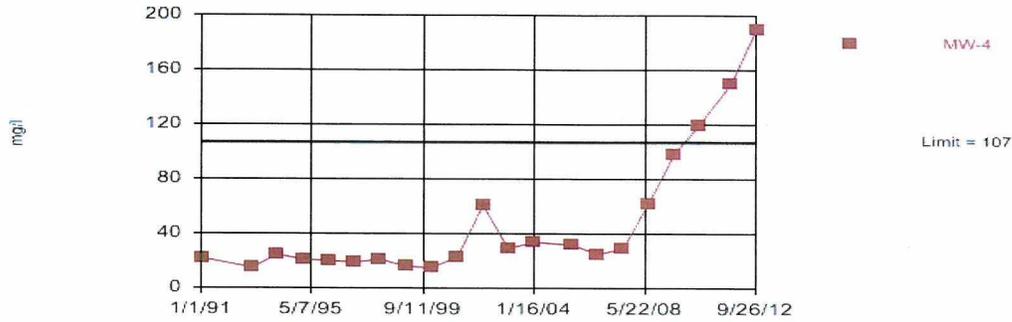
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Facility: ALUMSMEL Client: REGULATOR Data File: AluminumSmeltingFinalSanitas

Sanitas™ v 9.3.13 For regulatory purposes only UG

Exceeds Limit: MW-4

Prediction Limit
 Interwell Parametric

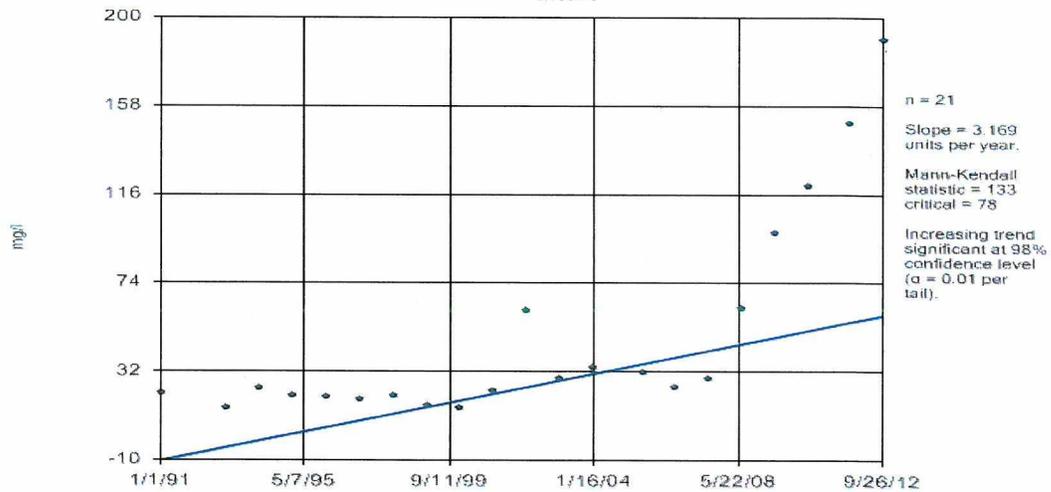


Background Data Summary (based on square root transformation): Mean=9.878, Std. Dev.=0.4701, n=18. Insufficient data to test for seasonality; data will not be deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8663, critical = 0.858. Kappa = 0.995 (c=1, w=3, 1 of 2, event alpha = 0.1). Report alpha = 0.1. Individual comparison alpha = 0.03451.

Constituent: Cl Analysis Run 12/11/2012 1:48 PM
 Facility: ALUMSMEL Client: REGULATOR Data File: AluminumSmeltingFinalSanitas

Sanitas™ v 9.3.13 For regulatory purposes only UG

Sen's Slope Estimator
 MW-4

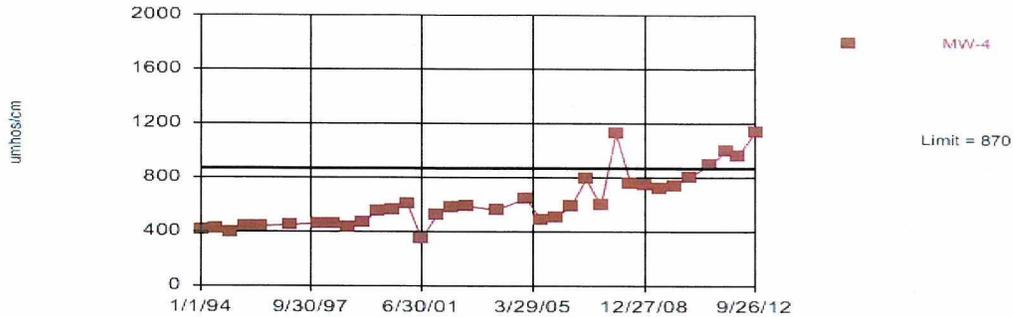


Constituent: Cl Analysis Run 12/11/2012 1:49 PM
 Facility: ALUMSMEL Client: REGULATOR Data File: AluminumSmeltingFinalSanitas

Sanitas™ v 9.1.13 For regulatory purposes only UG

Exceeds Limit: MW-4

Prediction Limit
 Interwell Parametric



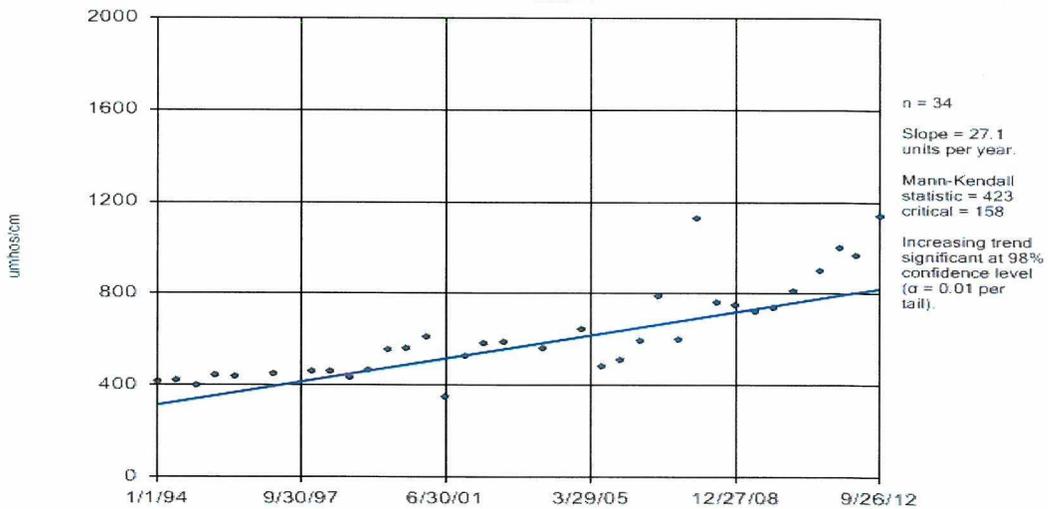
Background Data Summary (based on natural log transformation): Mean=6.559, Std. Dev.=0.2229, n=34. Insufficient data to test for seasonality; data will not be deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9264, critical = 0.908. Kappa = 0.942 (c=1, w=3, 1 of 2, event alpha = 0.1). Report alpha = 0.1. Individual comparison alpha = 0.03451.

Constituent: Cond Analysis Run 12/11/2012 1:50 PM

Facility: ALUMSMEL Client: REGULATOR Data File: AluminumSmeltingFinalSanitas

Sanitas™ v 9.1.13 For regulatory purposes only UG

Sen's Slope Estimator
 MW-4



Constituent: Cond Analysis Run 12/11/2012 1:50 PM

Facility: ALUMSMEL Client: REGULATOR Data File: AluminumSmeltingFinalSanitas