



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

December 14, 2012

**RE: BOYAS/NICKY BOULEVARD LANDFILL  
GROUND WATER  
NOTICE OF VIOLATION**

**CERTIFIED MAIL 7012 1010 0002 2260 2769**

Michael Boyas  
10055 Sweet Valley Drive  
Valley View, OH 44125

Dear Mr. Boyas:

The Ohio Environmental Protection Agency (Ohio EPA) has reviewed the *Ground Water Quality Assessment Monitoring Program Reports (GWQAMPR)* for the September 2011 and March 2012 Sampling Events conducted at the Nicky Boulevard Landfill (NBL). The reports are dated November 21, 2011 and April 4, 2012, and were received by Ohio EPA on November 23, 2011 and April 6, 2012, respectively. Both reports were prepared by Burgess & Niple, Inc. (B&N) for Boyas Contributions, LLC, the owner/operator of NBL.

### **BACKGROUND**

NBL entered assessment monitoring in accordance with Ohio Administrative Code (OAC) Rule 3745-30-08(E) as a result of two consecutive statistically significant increases in various parameters in three downgradient monitoring wells during the January 1999 and July 1999 detection monitoring events. Assessment was initiated when the first required ground water sampling event pursuant to OAC 3745-30-08(D)(9)(b) took place on October 14, 1999.

The September 2011 and March 2012 sampling events were conducted in accordance with the facility's current *Ground Water Quality Assessment Plan (GWQAP)* that was revised in July 2003. The 2003 GWQAP indicates (pg. 2) that all monitoring wells at NBL are currently in the assessment monitoring program. The wells in assessment include downgradient monitoring wells MW-13, MW-15, and MW-16R, and upgradient monitoring wells PZ-4, MW-5R, MW-8, MW-9, MW-12, MW-17, and MW-18.

The September 2011 sampling event occurred on September 12 and 13, 2011. The March 2012 sampling event occurred on March 6 and 7, 2012. Ground water samples were analyzed for the following parameters: barium, calcium, iron, and magnesium. Ground water samples for metals analyses were field filtered. Additionally, parameters including pH, specific conductance, temperature, and turbidity of ground water samples were measured in the field.

The GWQAMPRs for the September 2011 and March 2012 sampling events indicate that barium, calcium, iron, magnesium, and specific conductance will be considered parameters of concern for future ground water sampling at NBL.

Concentrations of barium and iron were detected above background tolerance limits in September 2011 and March 2012 ground water samples from the three downgradient monitoring wells MW-13, MW-15, and MW-16R. Concentrations of magnesium and calcium were detected above background tolerance limits in the September 2011 and March 2012 ground water samples from MW-13 and MW-15. Specific conductance was not determined to be above its respective tolerance limit in ground water samples from any of the upgradient or downgradient monitoring wells during the September 2011 or March 2012 sampling events.

The GWQAMPR for September 2011 and March 2012 included semiannual determinations of concentration, rate and extent.

Isoconcentration maps (Figures 5 through 8) included in the GWQAMPR indicate that concentrations above tolerance limits of the waste-derived parameters (barium, calcium, iron, magnesium) have migrated in ground water no more than about 25 feet off-property and to the west of NBL, and that concentrations above tolerance limits of iron have migrated in ground water off-property to the south of NBL to an undetermined extent. The isoconcentration maps did not include data from monitoring wells located directly horizontally downgradient from the limits of waste.

The rate of transport for the September 2011 ground water monitoring event was  $2.54 \times 10^{-1}$  feet per day or 92.8 feet per day. The rate of transport for the March 2012 ground water monitoring event was  $2.61 \times 10^{-1}$  feet per day or 95.2 feet per day.

## COMPLIANCE

Ohio EPA has identified the following violations regarding ground water monitoring at NBL:

- 1. OAC 3745-30-08(E)(4) requires the owner/operator to implement a ground water assessment plan whereby assessment wells are analyzed on a semiannual basis for the applicable indicator parameters in Appendix III of this rule and those constituents determined to be released, and on an annual basis for all parameters applicable for the facility in Appendix III until relieved by the director in accordance with paragraph (D)(9), (E)(5), or F(16) of this rule.**

The facility's current GWQAP (pg. 1) states:

*"The primary wastes disposed of at the landfill were construction and demolition waste, mostly house, bridge, and road demolition*

*materials. Some industrial waste was disposed of as the last 10 to 15 feet in 1990. This material consisted primarily of slag, foundry sand, and pollution control sludge from steel making."*

According to the 2003 GWQAP (pg. 10 and Table 12), applicable parameters listed in Appendices I, II, and III of OAC 3745-30-08 that exceed background concentrations include: barium, calcium, iron, magnesium, total dissolved solids (TDS), specific conductance, dioxins and furans.

The GWQAMPRs for the September 2011 and March 2012 sampling events indicate that assessment ground water samples were analyzed for the parameters barium, calcium, iron, and magnesium. Additionally, parameters including pH, specific conductance, temperature, and turbidity of ground water samples were measured in the field. **Note:** Historical Ground Water Quality Data Summary Tables located in Attachment 2 of the GWQAMPR for the September 2011 and March 2012 sampling events indicate that assessment ground water samples have been analyzed for the aforementioned limited set of parameters from 2004 through the last sampling event in 2012. From 2000 until 2004, assessment samples were analyzed for a similar limited set of parameters with slight variation, and generally with the addition of dioxins and furans. Of particular concern is that while elevated levels of gross alpha (1.3 to 71.1 pCi/L) and gross beta (5 to 658 pCi/L) radiation were detected in ground water samples from NBL, ground water samples from NBL monitoring wells have not been sampled for gross alpha or gross beta radiation since 1999.

Based on review of the GWQAMPRs for the September 2011 and March 2012 sampling events, as well as historical ground water analytical data over the last decade, it does not appear that ground water samples from NBL's assessment wells are being analyzed for applicable indicator parameters in Appendix III on a semiannual basis, and for all the parameters applicable for the facility in Appendix III on an annual basis. Based on the waste streams that the facility reportedly received, it appears that a composite of parameters lists "B" (Waste Generated from Foundry Operations) and "D" (Wastes Generated from Steelmaking Operations) in Appendix III apply to the site. Although it is unclear if NBL ever operated under Chapter 3745-29, it is Ohio EPA's opinion that any additional parameters on list "H" (Industrial Solid Waste Facilities) are appropriate analytes for the facility because NBL accepted industrial waste.

The owner/operator needs to explain why ground water samples from the NBL's assessment monitoring well system have not been sampled in accordance with OAC Rule 3745-30-08(E)(4), and clarify which Appendix III parameters apply to the NBL.

- 2. OAC 3745-30-08(C)(3) requires that the owner/operator establish background water quality, unless the exception in paragraph (C)(4) of this rule applies, by analyzing ground water samples collected from hydraulically upgradient wells for each of the monitoring parameters or constituents required in the particular ground water monitoring program that applies to the landfill facility as determined by paragraphs (D), (E), or (F) of this rule.**

The background dataset includes ground water analyses from PZ-4 and MW-8.

PZ-4 is located within the limits of waste placement, and located hydraulically downgradient of waste placement as is shown on Figure 3 of the GWQAMPRs for both the September 2011 and March 2012 sampling events. The well log for PZ-4 indicates that the top of the well sand pack is located about 22 feet below foundry sand. Historical conductance measurements of ground water samples from PZ-4 are typically two times (or more) the values obtained from other background well ground water samples.

MW-8 is located sidegradient and immediately adjacent to the limits of waste. Information in the GWQAMPR for the September 2011 and March 2012 sampling events indicate that the concentration of iron in ground water samples from the last three sampling events has exceeded the tolerance limit for iron. Also, historical ground water quality data presented in Table 2 of the GWQAMPR for the March 2012 sampling event suggests that the concentration of iron in MW-8 is increasing over time.

The owner/operator has not adequately demonstrated that ground water analytical data from PZ-4 and MW-8 are representative of ground water quality upgradient of the limits of waste.

- 3. OAC Rule 3745-30-08 (B)(1)(a) requires that the ground water monitoring system include a sufficient number of wells installed at appropriate locations and depths to yield ground water samples from both the uppermost aquifer system (UAS) and any significant zones of saturation that exist above the UAS that represent the quality of ground water passing directly downgradient of the limits of waste placement.**

The GWQAMPR for September 2011 and March 2012 indicate that the only downgradient monitoring wells in NBL's monitoring well system are MW-13, MW-14, and MW-15. MW-13, MW-14, and MW-15 are all located within the limits of waste placement, and well screens for those wells are located below waste placement.

MW-13, MW-14, and MW-15 may be able to provide data regarding ground water quality vertically downgradient of the limits of waste placement, but the monitoring well system does not contain any monitoring wells to provide ground water data for the area located horizontally downgradient of the limits of waste. Additionally, the reliability of ground water data obtained from monitoring wells installed through waste is uncertain due to concerns about the integrity of the annular space seal.

The owner/operator has not adequately demonstrated that NBL's ground water monitoring system has a sufficient number of wells installed at appropriate locations to represent the quality of ground water directly downgradient of the limits of waste placement.

Based on information from the Cuyahoga County Auditor's website, the property located adjacent to and southwest of the NBL, and immediately downgradient of the limits of waste, is currently owned by the Village of Cuyahoga Heights. The owner/operator may have to obtain permission from the Village of Cuyahoga Heights and/or other land owners in order to install and sample monitoring wells that are appropriately located downgradient of the limits of waste placement.

4. **OAC Rule 3745-30-08(C)(5) requires the owner/operator to select a statistical method that shall ensure protection of human health and safety and comply with the performance standards outlined in paragraph (C)(6) of this rule to evaluate ground water monitoring data.**

According to the GWQAMPR for the September 2011 and March 2012 sampling events, the owner/operator determined through the use of tolerance limits that the following constituents were elevated due to waste materials contained in NBL: barium, calcium, iron, magnesium, and specific conductance. The GWQAMPR (pg. 2) indicate that the selected statistical procedure is based on 1989 and 1992 versions of U.S. EPA *Statistical Analysis of Ground Water Monitoring Data at RCRA Facilities-Interim Final Guidance*.

- A. The *U.S. EPA Statistical Guidance* was updated in 2009. Tolerance limits are no longer recommended by *U.S. EPA Statistical Guidance* (refer to pages 2-15, 8-31, 17-15 to 17-16). The owner/operator has not clearly demonstrated that the selected statistical method is appropriate and/or protective of human health and the environment.
- B. One U.S. EPA guidance requirement for use of tolerance limits is that population medians across all tested wells be equal. Considering the multiple waste units located upgradient and sidegradient, it is unclear if this requirement has been met.

C. A number of parameter's tolerance limits exceed their respective Primary or Secondary Maximum Contaminant Levels (MCLs) or Human Health Advisory (HHA). The following table lists the present tolerance limits with the values above their respective Primary or Secondary MCL or HHA. It is not clear that these tolerance limits are protective of human health and the environment.

Parameter	Primary/Secondary MCL or HHA	Tolerance Limit
Ammonia	30 mg/L (HHA)	475 mg/L
Arsenic	0.010 mg/L (P)	<0.1 mg/L
Chloride	250 mg/L (S)	7,274 mg/L
Fluoride	2 mg/L (S)	19.1 mg/L
Gross Alpha	15 pCi/L (P)	71.1 pCi/L
Gross Beta	50 pCi/L (P)	2,216 pCi/L
Iron	0.3 mg/L (S)	5,300 mg/L
Manganese	0.05 mg/L (S)	77.388 mg/L
Sulfate	250 mg/L (S)	285 mg/L
TDS	50 mg/L (S)	8,870 mg/L

HHA-Human Health Advisory  
 P-Primary MCL  
 S-Secondary MCL

\* Gross beta's federal MCL is 4 millirems/yr. A number of states set a maximum limit of 50 pCi/L for gross beta. If gross beta exceeds 50 pCi/L, analysis of the sample for Photon Activity shall be performed to identify the major radioactive constituents. If excessive activity levels are found, further sample characterization is required. Based on current U.S. EPA risk coefficients, a significant proportion of the potential beta photon emitters in drinking water could pose a higher than *de minimis* 10<sup>-6</sup> cancer risk if present at radioactivity levels of 50 pCi/L or less.

Source: *Health-protective Considerations Regarding Measurement of Gross Beta Particle and Photon Activity in Drinking Water*. Office of Environmental Health Hazard Assessment Sacramento and Oakland, California, December, 2003.

5. OAC Rule 3745-30-08(E)(6) requires that based on the determination made according to paragraph (E)(2) of this rule that waste-derived constituents from the facility have entered the ground water, the owner/operator shall continue to make the determination required in accordance with paragraph (E)(2) of this rule until released from this obligation by the director or unless an alternate time interval is established by the director.

(A) It appears that assessment well ground water samples have not been analyzed on an annual and a semiannual basis for all appropriate Appendix III parameters (refer to Comment

#1). Therefore, it is unclear that concentrations of waste-derived parameters have been adequately determined.

- (B) Isoconcentration maps (Figures 5 through 8) included in the GWQAMPRs indicate that concentrations above tolerance limits of the waste-derived parameters (barium, calcium, iron, magnesium) have migrated in ground water about 25 feet off-property and to the west of NBL, and that concentrations of iron above tolerance limits have migrated in ground water off-property to the south of NBL to an undetermined extent. However, the isoconcentration maps appear to be based on ground water data from an insufficient number of monitoring wells located directly downgradient of the limits of waste (refer to Comment #3). It does not appear that the extent of migration of waste-derived constituents has been determined.

The owner/operator has not adequately demonstrated that concentration and extent of migration of waste-derived constituents have been determined. Until concentration, rate, and extent of waste-derived constituents have been adequately determined in accordance with (E)(2), the requirements specified in (E)(6) cannot be met.

#### COMMENT

6. **OAC Rule 3745-30-08 (B)(3) requires that all monitoring wells be designed and installed in a manner in which the casings maintain the integrity of the well boreholes, and the annular spaces are sealed to prevent contamination of ground water and ground water samples.**

Monitoring wells/piezometers: PZ-1, PZ-2, PZ-4, MW-6, MW-13, MW-15, and MW-16 are located within the limits of waste, and were installed through waste. **Note:** Based on information presented on Figure 5 of the 2005 *Ground Water Quality Assessment Report (GWQAR)*, the top of the well screen for MW-1 intersects demolition fill and residual waste.

The concern with monitoring wells installed (even if partially double-cased) through waste, is migration of surface water, leachate, and ground water between units and contaminating ground water and ground water samples. Typical settlement issues with landfill materials add to the concerns regarding integrity of the annular space around monitoring wells to prevent the migration of waste-derived constituents.

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Monitoring wells at NBL that are installed through waste need to be properly abandoned in accordance with OAC 3745-9-10 and *State of Ohio Technical Guidance for Sealing Monitoring Wells* (1996).

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 Entity from responsibility under Chapters 3704, 3714, 3734, or 6111 of the Ohio Revised Code or under the Federal Clean Water or Comprehensive Environmental Response, Compensation, and Liability Acts for remedying conditions resulting from any release of contaminants to the environment.

Please submit a response to this notice of violation 30 days from receipt of this letter. If you have any questions concerning this letter, please contact me at (330) 963-1133.

Sincerely,



Jennifer Carlin  
Division of Materials and Waste Management

JC:cl

cc: Albert Muller, DDAGW-NEDO  
Dane Tussel, Cuyahoga County Health Department  
File: [Sowers/LAND/Boyas (Nicky Blvd)/GRO/18]  
DMWM #s 4155, 4447