



STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES

Jeremiah W. (Jay) Nixon, Governor • Sara Parker Pauley, Director

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JUL 03 2013

Mr. Craig Almanza
Area Environmental Manager
Bridgeton Landfill, LLC
13570 St. Charles Rock Road
Bridgeton, MO 63044

RE: Gas Wellfield Management, Bridgeton Sanitary Landfill, Permit Number 0118912, St. Louis County

Dear Mr. Almanza:

The Missouri Department of Natural Resources (Department) is in receipt of your most recent data package, received on June 20, 2013, as well as previously submitted data packages. The data submittal is a requirement of the First Agreed Order signed by the Department, the AGO and Republic Services, Inc. (Republic).

As you are aware, the Department has retained Todd Thalhamer, P.E. as a landfill fire expert to aid us in our review of submittals related to the subsurface smoldering event currently occurring at the Bridgeton Landfill. Mr. Thalhamer reviewed the submitted data and in a report titled "Data Evaluation of the Subsurface Smoldering Event at the Bridgeton Landfill", dated June 17, 2013, and made the following recommendations:

1. The oxygen concentrations should be kept below the 5% New Source Performance Standards (NSPS) limit for all interior gas extraction wells (GEWs).
2. In facilities with smoldering events, it is recommended the oxygen concentration for all interior GEWs be kept below 1%.
3. In areas where the gas or waste temperatures exceed 180°F, the oxygen concentrations in the waste mass should be kept below 1% and optimally should be kept below 0.5% for an interior GEW.
4. All wells in the North Quarry should be kept to below 1% oxygen.
5. Excessive oxygen in the waste prisms should be avoided. While landfill odors can be a driving factor in increasing the vacuum on a gas collection system, the operator should examine the design and operation of the gas collection system first and keep "overdraw" conditions to a minimum.

Please note the listed recommendations are only the ones related to oxygen levels in wells and the actual recommendation list contained in the report was more extensive.

In a meeting on June 18, 2013, the Department shared these recommendations with Republic. In response, you submitted a letter dated June 24, 2013, to Mr. Aaron Schmidt, MDNR.

Your response contained two points.

Point 1

Paraphrasing, the first point you made was that the inlet gas to the flare contained more than 5% oxygen and you noted that the gas collection at the flare includes gas from many locations other than the GEWs and gas interceptor wells that allowed ambient air into the gas collection system. The Department concurs that some of the collection points do allow ambient air into the system but would like Republic to review the following table:

| Well Name | Date | %O ₂ or %O ₂ /Argon | Document |
|-----------|-----------|---|---------------------------------------|
| GEW-01 | 5/29/2013 | 19.10% | SCS Engineers-Wellfield Data May 2013 |
| GEW-10 | 5/14/2013 | 8.00% | SCS Engineers-Lab Analysis-May 2013 |
| GEW-14A | 5/14/2013 | 5.00% | SCS Engineers-Lab Analysis-May 2013 |
| GEW-14A | 5/23/2013 | 11.50% | SCS Engineers-Wellfield Data May 2013 |
| GEW-18R | 5/30/2013 | 19.60% | SCS Engineers-Wellfield Data May 2013 |
| GEW-20A | 5/14/2013 | 11.00% | SCS Engineers-Lab Analysis-May 2013 |
| GEW-20A | 5/30/2013 | 7.60% | SCS Engineers-Wellfield Data May 2013 |
| GEW-23A | 5/14/2013 | 4.00% | SCS Engineers-Lab Analysis-May 2013 |
| GEW-33R | 5/15/2013 | 8.00% | SCS Engineers-Lab Analysis-May 2013 |
| GEW-34 | 5/29/2013 | 15.10% | SCS Engineers-Wellfield Data May 2013 |
| GEW-34 | 5/15/2013 | 20.00% | SCS Engineers-Lab Analysis-May 2013 |
| GEW-35 | 5/15/2013 | 11.00% | SCS Engineers-Lab Analysis-May 2013 |
| GEW-36 | 5/15/2013 | 18.00% | SCS Engineers-Lab Analysis-May 2013 |
| GEW-56R | 5/29/2013 | 18.60% | SCS Engineers-Wellfield Data May 2013 |
| GEW-62R | 5/14/2013 | 4.00% | SCS Engineers-Lab Analysis-May 2013 |
| GEW-91 | 5/14/2013 | 4.00% | SCS Engineers-Lab Analysis-May 2013 |

All of the above listed wells are GEWs and the majority of them have reported oxygen levels well in excess of 5% as required under NSPS. **Due to the ongoing subsurface smoldering event, the oxygen levels in all the GEWs must be minimized (less than one percent by volume).** As you state, it is anticipated that the installation of the synthetic cap will seal off the wells and upon installation of the 'boots' around each well the oxygen levels should drop to below 1%. However, until such time as the cap is complete Republic must take actions to keep the oxygen levels to below 1%.

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Point 2

In point 2, you detail many of the reasons that the oxygen levels can exceed 5%, including high water levels in a gas well, and settlement around a well casing. The Department understands that those events can occur from time-to-time, but as a part of ongoing maintenance and balancing of the well field, steps should be taken to dewater the extraction wells and place additional soil as necessary.

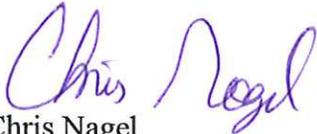
In your letter, Republic states they will continue to remain diligent while at the same time trying to maximize gas removal in an attempt to control odor. You state you will provide follow-up on wells that indicate the presence of oxygen and take steps to remediate the levels down.

The Department understands the steps Republic has taken to contain odors; however, oxygen intrusion into the waste mass must be minimized. We would like to schedule a meeting to discuss the high oxygen levels and Republic's action plan to minimize these levels. Please contact me at your earliest convenience to set up a meeting date and time.

If you have any questions or need additional information, please contact myself or Charlene Fitch of my staff at (573) 751-5401 or at P.O. Box 176, Jefferson City, Missouri 65102-0176.

Sincerely,

SOLID WASTE MANAGEMENT PROGRAM



Chris Nagel
Director

CN:cfl

c: Mr. Tim Stark, Stark Consultants
Mr. Todd Thalhamer, Hammer Consulting Service
Ms. Dorothy Franklin, Director, St. Louis Regional Office
John Haasis, P.E., St. Louis County Department of Health
Mr. Tim Duggan, Attorney General's Office
Ms. Kyra Moore, Director, Air Pollution Control Program