OhioEPA
State of Ohio Environmental Protection Agency

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Bob Taft, Governor
Bruce Johnson, Lieutenant Governor
Joseph P. Koncelik, Director

Re: Seneca County
Sunny Farms Landfill
Ground Water

January 9, 2007

Mr. Michael Holmes
Regus Industries, LLC
2730 Transit Road
West Seneca, NY 14224

Dear Mr. Holmes:

The Ohio Environmental Protection Agency (Ohio EPA) has reviewed a document titled, Semiannual Determination of Rate, Extent, and Concentration - May 2006 Groundwater Quality Assessment Monitoring Event, dated July 2006 for the Sunny Farms Landfill. The report was received by Ohio EPA on July 31, 2006.

The Sunny Farms Landfill is located in Louden Township, Seneca County, Ohio. The solid waste ID number is 74-00-02. Seven wells are in assessment monitoring. Sixteen wells are in detection monitoring. Based on Ohio EPA's evaluation, the facility is presently operating under the correct ground water monitoring phases, the well system is adequate for the detection monitoring program and the owner/operator should continue to monitor under the current program. The assessment monitoring network is presently not adequate. Ohio EPA reviewed the report dated July, 2006 in order to determine compliance with OAC Rule 3745-27-10.

The report is signed by a qualified ground water scientist, but the signature is not notarized.

COMMENTS

VIOLATIONS

1. OAC Rules 3745-27-10(C)(6), (A) & (E)(6)(a). The owner/operator is in violation of the following rules, OAC Rule 3745-27-10(C)(6), requiring **The statistical method specified shall ensure protection of human health and the environment and shall comply with the performance standards outlined in paragraph (C)(7) of this rule,** OAC Rule 3745-27-10(A), requiring **the owner or operator of a sanitary landfill facility shall implement a groundwater monitoring program capable of determining the impact of the facility on the quality of ground water occurring within the uppermost aquifer system and all significant zones of saturation above the uppermost aquifer system underlying the sanitary landfill facility,** and OAC Rule 3745-27-10(E)(6)(a) requiring, **A determination of rate, extent, and concentration. ...(a) The rate and extent of migration of the waste-derived constituents in the ground water..**

The MCL for arsenic is 10 ug/l. The PQL used at the site for arsenic is 5 ug/l. The upgradient background data do not contain any results above the PQL. The tolerance limit was arbitrarily set at 49.95 ug/l until the May 2006 sampling event. The tolerance limit has been lowered to 9.99 ug/L. The MCL for nickel is 100 ug/l. The PQL for nickel is 20 ug/l. The upgradient background data do not contain any results above the PQL. The tolerance limit has been set at 99.9 ug/l.

The owner/operator is in violation of OAC Rule 3745-27-10(C)(6) for improperly applying the statistical method; therefore, not ensuring protection of human health and the environment. All of the background data for arsenic and nickel are non detect; therefore, the tolerance limits will default to the PQLs. Because the tolerance limits in this case default to the PQLs the owner/operator is in violation of OAC Rule 3745-27-10(A) because the statistical limits are arbitrarily too high and do not allow the owner/operator to detect all releases of arsenic or nickle from the landfill. In addition, the owner/operator is in violation of OAC Rule 3745-27-10(E)(6)(a) since a release of these parameters cannot be detected using artificially high tolerance limits; therefore, a determination of rate, extent, and concentration of waste derived constituents cannot be made.

2. OAC Rule 3745-27-10(C)(7)(e): The owner/operator continues to be in violation of OAC Rule 3745-27-10(C)(7)(e), requiring: **.... Any practical quantitation limit (PQL) used in the statistical method shall be the lowest concentration level that can be reliably achieved within the specified limits of precision and accuracy during routine laboratory operating conditions that are available to the facility.**

   According to the ground water quality assessment plan (GWQAP) dated May 2004, Revised June 2005, Table 10, arsenic has a tolerance limit of 49.95 ug/L, the tolerance limit has been lowered to 9.99 ug/L in the July 2006 report, and nickel has a tolerance limit of 99.9 ug/L. The tolerance limits were not calculated properly, they are based on the 99.9 % of the MCL. The laboratory has been able to achieve lower PQLs than those listed above in the "Tolerance Limit" column. This is reflected in the fact that the laboratory personnel have stated "The ... (PQL) is the lowest concentration that the laboratory can reliably achieve." and listed lower PQLs (these are listed in the "PQL" columns from the Analytical Reports in the January 2006 data report).

   In order to prevent this violation during future sampling events the owner/operator needs to use PQLs with the lowest concentration level that can be reliably achieved within the specified limits of precision and accuracy during routine laboratory operating conditions that are available to the facility.

3. The owner/operator is in violation of OAC Rule 3745-27-10(C)(1)(a) requiring: **...The owner or operator is required to use the procedures documented within the sampling and analysis plan.**

   According to the ground water quality assessment plan (GWQAP) dated May 2004, Revised June 2005, Table 10, arsenic has a tolerance limit of 49.95 ug/L. The owner/operator has lowered the tolerance limit to 9.99 ug/L. The owner/operator did not submit a revision to the plan before sampling and analyzing the ground water samples.

The owner/operator is not meeting the requirements of OAC Rule 3745-27-10(C)(1)(a) by using a tolerance limit not listed in Table 10 of the GWQAP. In order to avoid this violation in the future, the owner/operator needs to revise the statistical analysis portion of the GWQAP and submit the revisions to the Ohio EPA thirty days prior to submitting to the operating record and/or Ohio EPA the first set of ground water analytical data analyzed using the revised statistical method according to OAC 3745-27-10(C)(6).

4. OAC Rule 3745-27-10(C)(1)&(C)(1)(a): The owner/operator is in violation of OAC Rule 3745-27-10(C)(1)&(C)(1)(a), requiring: (C)(1) **The ground water monitoring program shall include consistent sampling and analysis procedures and statistical methods that are protective of human health and the environment and that are designed to ensure monitoring results that provide an accurate representation of ground water quality.. .**(a) **...The owner or operator is required to use the procedures documented within the sampling and analysis plan.**

According to the **Groundwater Quality Assessment Plan Revision 3** dated May 2004 Revised June 2005, pages 30 & 31, **Four field parameters (pH, specific conductance, temperature, and turbidity) shall be measured...Sampling will proceed when the turbidity has improved and three successive measurements of the field parameters yield results within ± 10 percent...**

According to the **Groundwater Monitoring well Record Forms** for wells MP2AR, 7A, 9A, 11A, 15A, 20A, 24A, 25A, 26A, and 27A, the turbidity had not stabilized within 10 percent for the last three field measurements before sampling.

The owner/operator is in violation of OAC Rule 3745-27-10(C)(1)(a) for not following the **Groundwater Quality Assessment Plan (GWQAP)** requiring sampling to proceed when **three successive measurements of the field parameters yield results within ± 10 percent**. The owner/operator is in violation of OAC Rule 3745-27-10(C)(1) for collecting samples that are not representative of the ground water quality. In order to meet the requirements of the rules in future sampling events, the owner/operator needs to follow the procedures in the GWQAP and to purge the wells until stabilization is maintained over three successive measurements of the four field parameters.

5. OAC Rule 3745-27-10(B)(3) & (B)(3)(e): Compliance with OAC 3745-27-10(B)(3) & (B)(3)(e) can not be determined at this time. According to OAC Rule 3745-27-10(B)(3), **All monitoring wells shall be designed, installed, and developed in a manner that allows the collection of ground water samples that are representative of ground water quality in the geologic unit being monitored...**

According to OAC Rule 3745-27-10(B)(3)(e) **The monitoring wells, piezometers, and other measurement, sampling, and analytical devices shall be operated and maintained to perform to design specifications throughout the life of the monitoring program**

The field measurements recorded on the **Groundwater Monitoring well Record Forms** for wells MP24A (1st field measurement>1000 NTUs to 7th/final field measurement 308 NTUs) and 27A (1st field measurement 665 NTUs to 7th/ final field measurement >1000 NTUs) show excessive turbidity. The samples are not representative of the ground water quality and the wells have not been operated and maintained to perform to design specifications. The owner/operator needs to develop the wells, or install replacement wells, or determine whether or not the pumps are placed high enough above the bottoms of the wells to not agitate any fine material accumulating at the bottom and raise the pumps, in order to avoid this violation for future sampling events.

MORE INFORMATION NEEDED TO DETERMINE COMPLIANCE

6. Compliance with OAC Rule 3745-30-08(C)(1) cannot be determined at this time. OAC Rule 3745-27-10(C)(1) requires that, **The ground water monitoring program shall include consistent sampling and analysis procedures and statistical methods that are protective of human health and the environment and that are designed to ensure monitoring results that provide an accurate representation of ground water quality ...**

   The owner/operator utilizes low flow purging with bladder pumps based wholly on stabilization of indicator parameters. According to the **Groundwater Monitoring Well Record Forms**, the owner/operator purged less than a screen volume from each well during the sampling round.

   If purging is based wholly or partially on stabilization of indicator parameters, at least three measurements (with a variation of no more than 0.1 S.U. for pH, 3% for specific conductance, 0.5°C for temperature and 10% for turbidity between all 3 of the measurements) of the indicator parameters should be used to determine when to terminate purging, and at least one screen volume plus the volume of the drawdown should be purged from the well prior to sampling. In order to meet the requirements of OAC Rule 3745-27-10(C)(1) in all future sampling events, resampling events and verification sampling events the owner/operator needs to remove at least one screen volume plus the volume of the drawdown of ground water during purging before collecting the samples. Or the owner/operator can conduct a study of each well by purging until stabilization has been achieved in the four field parameters then continue purging until a full screen volume has been purged. After the full screen volume has been purged, the owner/operator needs to conduct a minimum of three additional measurements of the four field parameters to show that the wells have stabilized.

STATEMENTS

7. According to the report, page 18, last paragraph, **Since arsenic was reported as nondetect in monitoring well MP-25A...it does not appear that elevated arsenic concentrations are migrating off site to the west.**

Arsenic has been detected above the PQL of <5 ug/L during three previous sampling events. The background well MP11A did not contain any arsenic during the three events; therefore, arsenic does appear to be migrating off site.

8. According to the report, page 1, paragraph 1, **Arsenic concentrations were also observed...in MP-20A 10.3 ug/l) and MP27A (16.9 ug/l) during the May 2006 sampling event. Therefore, elevated arsenic concentrations appear to be migration...potentially off site...Because arsenic concentrations were not determined to be statistically significant in MP-2AR, making a conclusion that the elevated arsenic results reported for MP-20A and MP-27A are due to the landfill is questionable.**

According to Table 3, for MP2 and the replacement well MP2AR, arsenic was detected above the PQL of <5 ug/L every time the ground water samples were collected and analyzed for metals except May 11, 2004 (result was <5 ug/L) and June 30, 2005 (result was <10ug/L). The background wells (MP9A and 15A for the period January 2002 to June 28, 2003 and 11A for the period January 2002 to present) have never had a detection of arsenic. The most recent sample from well MP2AR was 6.23 ug/L. The arsenic is from the landfill.

9. According to the report, page 1, paragraph 1, **Based upon historical site data, it appears that the arsenic concentrations in MP-20A and MP-27A are potentially naturally occurring. As Ohio EPA pointed out in a letter dated November 1, 2005, there are documented detections of arsenic concentrations reported for wells located upgradient of the facility. This data will be reviewed and will likely be used for background groundwater quality for statistical analyses...**

According to the Ohio EPA letter dated November 1, 2005, comment 4 on page 8,

The owner/operator also states on page 10, *"...upgradient wells MP-9A, MP-11A, and MP-15A are screened within fine sand in close proximity to the lateral extent of the glacial sand unit. Positively charged arsenic ions are more likely to adhere to negatively charged clay particles. The same arsenic ions are less likely to remain adhered to clay particles within an environment containing more coarse material and an increased hydraulic gradient..."* The owner/operator continues by indicating that the affected wells are in a coarser sand and the upgradient wells are in a finer sand. Therefore, the downgradient wells will contain more arsenic than the upgradient wells because there is more dissolved arsenic in the coarse grained materials.

The owner/operator is collecting total metals samples and not dissolved metals samples. Total metals results contain all the metals in the ground water. With the scenario as described by the owner/operator, there should be more arsenic in the fine grained sand units because there are more clay particles close to these wells. In addition, well MP12A is screened in a silty clay according to the well log/boring log. Arsenic was as high as 440 ug/l in samples collected from well MP12A.

Well MP12A was the original upgradient well for the significant zone of saturation monitored at the site. It was determined to be screened in a different zone. The upgradient monitoring well was replaced with MP9A, 11A and 15A (9A and 15A temporarily until phased in as downgradient wells according to the PTI). The arsenic data for well MP12A cannot be used for statistical comparisons to downgradient wells at the facility.

10. According to the report, page17, section 6.4, lines 14 and 15, **Based upon these calculations, the average linear flow velocity ranges from 0.225 to 1.73 ft/year across the site.**

    Arsenic was detected above the detection limit (5 ug/L) in well MP20A, indicating the contamination has reached at least that far. Chloride and arsenic were detected above the detection limits in wells MP24A, 25A and 26A indicating the contamination has reached at least that far. The landfill has been taking waste since 1970, 34 years (based on the time this statement was first provided to the owner/operator). The distance from the limits of waste placement and well MP26A is approximately 500 feet. The rate of flow based on 34 years and 500 feet is 14.7 feet/year, at a minimum.

11. The owner/operator was informed in letters dated June 4, 2004 (4076), December 6, 2004 (4547), March 24, 2005 (4930) and March 22, 2006 (5731) that there was a violation for not determining the full extent of the contamination according to OAC 3745-27-10(E)(6)(a). The owner/operator has not adequately addressed the violation at this point in time.

If you have any questions please contact Jack Leow, C.P.G., at the Ohio EPA, Northwest District Office, Division of Drinking and Ground Waters, 347 N. Dunbridge Rd., Bowling Green, Ohio 43402. Submit all reports/data to Mary Ann Miller, Ohio EPA, Northwest District Office, Division of Solid and Infectious Waste Management, 347 N. Dunbridge Rd., Bowling Green, Ohio 43402.

Sincerely,

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