

New York State Department of Environmental Conservation

Office of General Counsel, Region 8

6274 East Avon-Lima Rd, Avon NY 14414-9516

Phone: (585) 226-5364 • Fax: (585) 226-9485

Website: www.dec.ny.gov



Alexander B. Grannis
Commissioner

Edward Buhrmaster, Esq.
NYS Department of Environmental Conservation
Office of Hearings and Mediation Services
625 Broadway – 1st floor
Albany, New York 12233-1550

June 30, 2010

BY E-MAIL AND FIRST CLASS MAIL

Dear Judge Buhrmaster:

Re: Chemung County Landfill Permit Modification
DEC Project No. 8-0728-00004/00013

This letter presents the Department staff response to the information submitted on May 18 and 19, 2010 by Gary Abraham, Esq. on behalf of Residents For the Protection of Lowman and Chemung (“RFPLC”) to the extent it was not stricken from the record by the Administrative Law Judge on June 3, 2010; and to the information submitted on June 9, 2010, by Thomas S. West, Esq. on behalf of New England Waste Services of New York, Inc. (“NEWSNY”). Additionally, as a result of the applicant June 1, 2010 response to the April 27, 2010 Department staff request for data, this letter also adds a new condition related to waste from Marcellus Shale gas well drilling and/or development to the draft permit in this proceeding.

I. COPHYSICS REPORT RELEVANCE - Combined response to the issue raised by the Gary Abraham letter dated May 18, 2010, the Anthony R. Ingraffea letter dated May 17, 2010, and the Conrad (Dan) Volz letter dated May 19, 2010, questioning whether the samples examined by the April 2010 radiological survey report on Marcellus Shale drill cuttings prepared by CoPhysics Corp. were taken from and are representative of waste from the horizontal portion of a Marcellus Shale drilling operation; and to Attachment 1 to the correspondence dated June 9, 2010, from Thomas S. West (the April 17, 2010 Report of Dan A. Billman/ Billman Geologic Consultants, Inc. to Larry Shilling regarding “Review of Cuttings Samples from Select Marcellus Shale Wells”).

The April 17, 2010 report of Dan Billman/Billman Geologic Consultants, Inc. to Larry Shilling regarding “Review of Cuttings Samples from Select Marcellus Shale Wells” (the “Billman Report”) has been provided as Attachment 1 to the correspondence dated June 9, 2010, from Thomas S. West. The conclusion of the Billman Report is valid. The report states, “Both the sample locations along the borehole path and the geologic review of the samples indicate that these samples are from the Marcellus shale; typical Marcellus shale from the northeastern tier of Pennsylvania.” The report describes the depth of the samples at a point or interval in the horizontal section of the borehole, as well as the characteristic physical description of the cutting. The evaluation by Billman Geologic Consultants, Inc. demonstrates that the samples are from the target Marcellus Shale. Thus, Department staff is satisfied that the samples examined by the April 2010 radiological survey

report on Marcellus Shale drill cuttings prepared by CoPhysics Corp. were taken from and are representative of waste from the horizontal portion of a Marcellus Shale drilling operation.

II. RADIOLOGICAL SUBMISSIONS - Response to Sections 5.3 and 6.0 of the report, "Radioactivity in Marcellus Shale" dated May 19, 2010, by Marvin Resnikoff, Ekaterina Alexandrova and Jackie Travers, Radioactive Waste Management Associates ("Resnikoff Report"); and response to the correspondence dated June 9, 2010, from Thomas S. West as it pertains to radiological submissions.

A. Resnikoff Report Section 5.3 ("Radioactivity Detected by 375P-1000 Detector")

This section assumes (incorrectly), from information reported to come from the manufacturer, that a set point of 0.95 uR/hr (micro Roentgen per hour) will be utilized for discrimination (low alarm or investigation level) purposes. A review of the manufacturer's website makes it clear that the low or alert alarm level can be set by the user based upon site specific background values. The calculations provided by the applicant shows that they have established a series of instrument readings (in K counts per minute rather than in uR/hr units) corresponding to concentrations in the waste and will establish a site specific exclusion or upper bound alarm set point accordingly. The applicant subsequently verified that this upper bound alarm level is not fixed but can be set based upon user needs. They also clarified that the low alarm value is set by the user as a multiple of a common statistical measure of the reliability of the daily established site background value known as the sigma value.

Additionally, at the request of Department staff, the applicant will begin collecting samples from the waste loads for determination of NORM concentrations in the waste and will compare those values to instrument readings from those waste loads to validate their calculation method. This direct comparison of radiation portal monitor readings to waste load concentrations will provide the best possible approach to setting the upper alarm limit.

Also, as the Resnikoff Report points out, its (and the applicant's) assessment assumes that the radiation field being measured is only coming from the Ra-226 in the NORM present in the waste load. Therefore, the additional radiation from other NORM constituents will result in an over assessment of radium concentrations, adding a modest level of conservatism to the alarm set points.

B. Resnikoff Report Section 6.0 ("Issues in the CoPhysics Report")

The Resnikoff Report questions whether the use of EPA method 701.1 is appropriate for soils or soil-like materials. See the Department's response to West's comment on this issue under section C below.

The Resnikoff Report states that CoPhysics uses B-214 as a surrogate for Ra-226, relying on the equilibrium between Ra-226 and B-214, which is correct. This is a broadly accepted way of determining Ra-226 concentrations when the decay chain is in equilibrium. The Resnikoff Report goes on to say that due to the "selective dissolution of radium in fluid this relationship cannot be relied upon to accurately determine the Ra-226 concentration." This statement overemphasizes the impacts of a minor influence on the relative ratios of radium and its decay chain components, by inferring a much larger impact from radium's limited solubility than would actually occur. The fact that a particular physical or chemical effect might occur does not mean that it will have any significant impact on the final outcome. Radium does have a limited solubility in water. However, when combined with the relatively short time that it takes for the drill fluid to remove the cuttings from a drill hole and for the sample collection, it is unreasonable to believe that a significant change in the concentration ratio between Ra-226 and Bi-214 in the cuttings samples would result.

C. West Correspondence on Radiological Submissions

West's Response to Section 5.3 of the Resnikoff Report: Department staff concurs that the Resnikoff Report may have made an error in the modeling presented therein. The type of equipment installed at the Landfill is routinely used in the industry at waste management facilities to detect and discriminate between concentrations of NORM and other radioactive constituents, at levels comparable to and often lower than the levels of concern in the drill cuttings being received by the applicant.

West's Response to section 6.0 of the Resnikoff Report: Department staff concurs that a modified version of EPA 901.1 is an acceptable method for performing gamma spectroscopy for soil samples.

On the discussion of the use of Bi-214 as a surrogate for Ra-226, Department staff believes that the commenter missed the point of the Resnikoff Report argument. The Resnikoff Report was not arguing that bismuth was an inappropriate surrogate for radium. The point of the Resnikoff Report was that, in the opinion of the Report's authors, during the displacement of cuttings from the well bore by drilling mud, the solubility of radium would lead to a significant enough change in the relationship between the Ra-226 and Bi-214 concentrations to call into question the use of bismuth as a surrogate for radium in this circumstance. Department staff disagrees with this opinion of the Resnikoff Report. See the Department comment on this issue above in section B.

III. NOISE - Combined response to the Stephen Szulecki/ The Noise Consultancy correspondence dated May 18, 2010, regarding "TNC Acoustical Compliance Analysis & Review of the Applicant's Sound Level Monitoring Summary Report (April 2010)"; and to the correspondence dated June 9, 2010, from Thomas S. West as it pertains to compliance with Part 360 noise issues, Attachment 2 (Correspondence dated June 8, 2010 from Jeffrey J. Reed/Barton and Loguidice, P.C., regarding "Response to TNC Acoustical Compliance Analysis & Review [May 18, 2010]") and Attachment 3 (Barton and Loguidice ["B&L"] June 8, 2010 "Chemung County Landfill Proposed Real Time Sound Level Monitoring Program").

Staff has the following concerns about the TNC May 18, 2010 modeling:

- 1) Based on cross sectional drawing provided in the June 8, 2010 B&L report and Department staff's examination of the site, existing vegetation, and landforms will attenuate sound transmission to the areas west of the landfill over the entire time waste is placed in Cell-IV-B. Thus, these attenuating factors should have been included in sound level modeling such as that of TNC, but were not.
- 2) Staff agrees with the TNC observation that the west side screening berm, which is directly west of the noise source used in the B&L April 2010 Cell IV-B noise study, is about 7 feet higher than the path traversed by the noise source during the study. TNC estimated the berm would have reduced the sound level at the 4B-6 measurement point (Robert Hollow power line area) by 5 to 9 dB. Staff notes that due to the shape of the berm in this area and the path traversed attenuation would have been greatest at the northern end of the path. NYSDEC program policy DEP-00-1 "Assessing and Mitigating Noise Impacts" ("DEC Noise Guidance") indicates a similar attenuation factor should be applied to all areas where intervening topography interrupts the transmission of sound from a noise source to receptors in a second level sound study. The TNC modeling did not do so. Moreover, TNC's argument for modeling rather than actual measurement also acknowledges these items as factors that can be considered in a modeling

study. However, the TNC May 2010 report failed to include and or discuss all these factors when calculating the sound level at the Garew property line.

- 3) Due to the distance between the airport and Landfill (approximately 12 miles), the intervening topography between the sites (including hills 500 to 700 feet higher than the Landfill and airport elevations), and the timing of the weather front's passage on April 21, 2010, TNC cannot use the Elmira airport wind velocity data to supersede the values reported in B&L's April sound study.
- 4) The April 2010 B&L sound study lists the variables and measurement techniques used to measure the working face sound level. Thus, TNC's assertion that B&L's working face sound level is an adoption of a TNC value is unsupported.

Also, the May 18, 2010 TNC sound level modeling predicts that a worst case hour of operation, as simulated during the April 2010 B&L sound study, will result in a Leq sound level of 59.8 dB(A) (2.8 dB(A) over the Part 360-1.14(p) limit) on Roberts Hollow Road at the Garew property line. This calculation considered distance, ground and atmospheric attenuation only. However, if TNC had included attenuation due to the intervening topography, a sound reduction of at least 5 dB(A) would be expected, based on TNC's own estimate. See above. Moreover, Department Staff's worst case calculation concludes a Leq sound level of 53.2 dB(A) will result (not at the Garew property), based on the following factors:

- Distance from the noise source to the receptor = 650 feet
- Working face Leq sound level = 84.7 dB(A) [B&L April 2010, which DEC staff agrees is representative of the worst case working face noise level]
- Attenuation due to topography = 6.0 dB(A) [TNC May 2010 stated range of 5-9 dB(A)]
- Attenuation due to ground and atmosphere = 1.2 dB(A) [DEC conservative assumption, TNC calculated 1.3 at 750 feet]
- Attenuation due to vegetation = 2.0 dB(A) [DEC conservative assumption]
- Attenuation due to distance = 22.3 dB(A) [inverse square calculation pursuant to DEC Noise Guidance].

Moreover, Department staff continues to believe that the factors affecting sound transmission to the west of the Landfill present a complex issue, making future sound levels difficult to accurately model with simple calculation. Staff therefore believes actual measurements are the preferred method to predict/determine regulatory compliance. (See the correspondence dated May 18, 2010, to the Administrative Law Judge from Lisa Schwartz in this proceeding.)

Thus, Department staff finds that the applicant's recent proposal to use continuous real time sound monitoring to address any remaining concerns about noise levels from the Landfill further supports the permit modification application. Although RFPLC did not agree to participate in discussions between the parties concerning real time noise monitoring, representatives of Department staff and the applicant conferred and agreed to replace current draft special permit condition number 72 with the following:

Whenever operations occur in Cell 4B within 800 feet of Roberts Hollow Road, or such other distance as the Department may determine based upon the operation of the noise monitoring system contemplated by this condition, real time noise monitoring shall be implemented to ensure compliance with 6 NYCRR Part 360-1.14(p). The real time monitoring of operational noise will be active and continuous so that landfill operations can be immediately adjusted if noise levels begin to approach the regulatory limits set

forth in 6 NYCRR Part 360-1.14(p). An amendment to the approved Environmental Monitoring Plan that details the real time continuous monitoring system for Cell 4B operations shall be submitted for Department approval within thirty (30) days from permit issuance and be operational no later than thirty (30) days after the Department's approval of the amendment. Thereafter, all noise monitoring shall be in conformance with the Department approved amendment.

Additionally, subsequent to the applicant's June 8, 2010 submission of a proposed real-time sound level monitoring program protocol, Department staff and the applicant have continued to work on that protocol's parameters, and the applicant has submitted further clarification. (See attached the correspondence dated June 29, 2010 from John Brusa/ B&L.) Department staff also will continue to work with the applicant to insure that an acceptable protocol is approved.

The required real-time monitoring will have the effect of immediately slowing or stopping Landfill operations should the sound levels at the property line approach the regulatory limit. As a result, Landfill operations resulting from a waste acceptance rate of 180,000 ton/year should not result in an exceedance of the 57 dB(A) Leq sound level limit of Part 360-1.14(p).

Finally, TNC also asserts that use of the bulldozer used as a sound source during the Cell-IV-B study will violate 360-1.14(p) (4). Department staff disputes this contention. The bulldozer used as a sound source during the Cell-IV-B study is not owned by the Landfill. It is owned by Marcey Excavation, the contractor which is building Cell-IV-B. Construction of this cell is scheduled to be completed by the end of September 2010, at which time the bulldozer will be removed from the site.

IV. NEW PERMIT CONDITION RELATED TO MARCELLUS SHALE

Shortly before the issues conference in this permit modification proceeding, the applicant advised the Department of two recent incidents of Landfill disposal of non-drill cutting waste related to Marcellus Shale horizontal drilling. After receiving certain information about the waste, Department staff determined that more information was necessary to determine the Department's interests, and forwarded its written request to the applicant for such information by correspondence dated April 27, 2010, from Gary Maslanka. The applicant submitted its response on June 1, 2010, by correspondence from Joseph R. Boyles. By letter dated June 30, 2010 from Mr. Maslanka, Department staff advised that the information provided on June 1, together with a subsequent conversation between Department staff and staff from the Pennsylvania Department of Environmental Protection, resulted in Department staff concluding that "this office has no reason to believe unpermitted waste has been disposed of at the landfill." (See the June 30, 2010 letter of Gary Maslanka attached.)

The Department's investigation of the two disposal incidents described above is now closed. Staff intends to ask no further questions of the applicant concerning these incidents, but reserves its rights to act upon any new and relevant information requiring otherwise.

Based on all the facts and circumstances of the Department's inquiry, a new permit condition must be added to the current Landfill permit. This condition will clarify the Marcellus Shale drilling waste that can and cannot be accepted for Landfill disposal. Also, the implementation of this condition will avoid the future need for inquiry into the exact nature of waste after that waste's disposal.

As a result, representatives of the Department and the applicant have conferred, and agreed to include

the following special condition to the draft permit in this proceeding:

. Disposal of Marcellus Shale wastes.

The following applies to wastes generated during any drilling and/or development of natural gas wells targeting the Marcellus Shale, and/or wastes generated from the production of natural gas from any wells completed in the Marcellus Shale.

- a. Flowback water related filter sludge, production brine related filter sludge, and free-phase liquids of any origin, are prohibited from disposal.
- b. Drill cuttings including those generated from operations using air, water and/or oil-based drilling fluids may be accepted for disposal.
- c. Except as noted above, acceptance of all other waste streams requires prior written approval from the Department.
- d. The amount and type of waste accepted at the landfill must be reported in the facility's annual report to the Department.

Finally, as a result of the conclusion of its investigation described above, and the addition of the above special condition to the draft permit, Department staff hereby confirms its position that the entirety of the first issue raised by the April 2010 RFPLC Petition for Full Party Status (i.e., "Dose limits for land disposal of radioactive waste") does not meet the regulatory standards for permit adjudication in this proceeding.

Sincerely,



Lisa Perla Schwartz
Assistant Regional Attorney

cc: Ronald G. Hull, Esq.
Thomas S. West, Esq.
Gary A. Abraham, Esq.