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DEPARTMENT OF NATURAL RESOURCES
& ENVIRONMENTAL CONTROL
DIVISION OF AIR & WASTE MANAGEMENT
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10 October 2007

Dr. Peter deFur, Ph.D.
Environmental Stewardship Concepts
1108 Westbriar Drive, Suite F
Richmond, VA 23238

RE: Former Hercules Golf Course, August 16, 2007 Letter to Mr. Coons (DE-1323)

Dear Dr. deFur:

I am writing in response to your August 16, 2007 letter to New Castle County Executive Christopher Coons, which was forwarded to the Department of Natural Resources and Environmental Control (DNREC) Secretary John A. Hughes by Jeffrey W. Bullock, Chief Administrative Officer for New Castle County. Mr. Bullock asked that "DNREC review the report and take whatever action you deem necessary to address the issues it raises." This referral is consistent with DNREC's role of supporting the County's decision making on this site with regard to cleanup of environmental contamination to protect human health and the environment, as we do for hundreds of sites statewide. In the response to Mr. Bullock, Secretary Hughes committed that DNREC was prepared to take whatever action is necessary to address the issues it raises and I share that commitment. Secretary Hughes also asked me to respond directly to you because I am responsible for the programs to which you refer in your letter.

Your letter includes a variety of concerns to County Executive Coons, beginning with the information that "[d]ocumented contamination presents sever health risks." I can assure you that DNREC and Mr. Coons are acutely aware of the contamination at this and other golf courses, and this is why the County sought assistance from our agency and we are working cooperatively on cleanup to mitigate any health or environmental risks. The shared goal of the County and State is to clean up this contamination, which has been present at the site for decades. You are correct that the site is currently contaminated. After the completion of the proposed remedial activities, supervised by our staff, this site will be suitable for unrestricted use (i.e. residential).

I know Mr. Coons and Bullock want to ensure the investigation and remediation of the site is completed in a manner that is fully protective of human health and the environment. Their decision to forward your letter for DNREC's attention reflects the County's continuing concern

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and interest in seeing every potential issue be addressed thoroughly. Accordingly, this response addresses each of the seven sections of your letter, as well as “Other Concerns.” We have also enclosed documents to provide technical information regarding the site investigations and cleanup plans. You indicated that “[t]he list of reports and related documents that were used in my evaluation are listed at the end of this memo.” Of the 35 documents and reports listed, however, only one of them is a DNREC document (though your letter reference an additional letter by John Blevins but did not cite it) and only another four are directly relevant to the Hercules property. It appears that you did not have all of the technical information relevant to this site. Our web site (<http://www.awm.delaware.gov/Info/DelNationalHercules.htm>) and administrative files contain many more documents, which we would have gladly provided had you contacted us for assistance. We have included many of these technical documents on a CD (enclosed) to save paper and reduce our greenhouse gas footprint, (Delaware is a signatory to the Regional Greenhouse Gas Initiative). Finally, your letter makes a number of assertions that are undocumented, and we would like to make sure we understand fully the basis for the concerns, so we have include several questions we hope you are able to answer.

One of the concerns we have paid careful attention to in our scrutiny of the cleanup plans, and have heard significant concerns from the community, is the potential risks from windborne dust. Your letter contains a technical error. You wrote

“[t]he current plan intends [sic] on estimating residential exposures by using a combination of PM10 [particulate matter with an effective cross-section less than 10 microns] data and the site-wide 95 % UCL [upper confidence limit] arsenic concentration. This approach would significantly underestimate the amount of arsenic residents are exposed to. The dust disturbed by any cleanup activities would be far higher than the site-wide UCL since these activities will be focused on the most contaminated areas of the property. This means that the dust in the air could have arsenic concentrations higher than 400 ppm while risk estimations are using a value just over 8 ppm.”

This statement is not accurate. This project has established air action levels for monitoring dust in both the breathing zone of site workers and also at the perimeter of the site. The action level for site workers is based on the worst case scenario of an arsenic concentration in dust equivalent to the highest concentration found in soil on the site. If dust reaches 0.8 mg/m^3 in the breathing zone, site workers will immediately start dust suppression measures. If dust reaches 2 mg/m^3 , then workers will stop work and achieve full control of the dust.

Avatar Environmental, a firm specializing in risk assessment, developed the perimeter dust monitoring action levels using a risk-based approach. Their methodology was consistent with practices and recommendations of the US EPA. The risk-based action levels represent a “target risk” of one in one million for cancer or a non-cancer effects hazard equivalent to a Hazard Quotient of 1. The calculated action levels are based on the exposure of sensitive populations (children elderly and individuals with respiratory ailments) to dust containing arsenic at a concentration of 87 ppm (not 8 ppm as your letter stated) for a period of three months, 24 hours a day. The resulting risk-based action level is 0.870 mg/m^3 .

Moreover, that the action level proposed by BrightFields and approved by DNREC is based on the national ambient air quality standard for particulate matter (PM10) which is 0.150 mg/m^3 .

This action level is significantly more conservative than the calculated risk-based action level and should give residents extra assurance that the cleanup will not result in unsafe conditions in their neighborhood. We do not expect these action levels to be exceeded for one hour much less three months.

You included a Table (1) of “Compounds Detected Above Background Concentrations”, which is drawn largely from data included in Toll Brothers' consultant, BrightFields reports. Your ground water column, however, incorrectly lists iron and manganese as “detected above background concentrations.” They are certainly above the national average background concentrations according to the United States Geological Survey, but they are normal background for this area, which is rich in iron. In fact, immediately upstream from the site is the former Alan Wood iron foundry site. This site, which was located at Wooddale across the creek from a ridge, was used for mining iron ore because of the rich deposits in the area. This ridge is still owned by Hercules and bears the residual piles from the iron ore mining. Many of the characteristic blue-grey granites in this area often contain rusty nodules of almost solid iron ore protruding from the surface. This geological feature is a remarkable sight; we urge you to see it if you visit again. Similarly, vanadium, thallium and antimony are elements that occur naturally in Delaware soils.

You assert that “gaps exist in our knowledge based on knowledge of sites former uses.” If you still have gaps in your knowledge of the site, we urge you to visit our office and review the files, which will help fill those gaps. One assertion that is absolutely incorrect is “DNREC failed to consider that this parcel was subdivided from a RCRA corrective action site.” In fact, staff from DNREC's Solid and Hazardous Waste Management Branch, which is responsible for “Corrective Action” under the Resources Conservation and Recovery Act (RCRA) and the Site Investigation and Remediation Branch (SIRB), which has the lead responsibility for the former Hercules golf course site, have coordinated extensively to determine whether any contamination from one site affected the other.

In the section of your letter on the “Proposed Sampling Methodology,” you indicate concerns about the use of X-Ray Florescence (XRF) field screening. You failed to note, or perhaps were unaware, that all soil concentrations will be verified with laboratory analysis. This is another area where an extra level of care is being exercised with this site. Notwithstanding your review of reports, XRF has in fact been used extensively by EPA and states as a well-accepted analytical technique for many metals. The use of additional laboratory analysis is intended as an extra measure of assurance that DNREC receives precise, as well as, accurate results. Any decisions on the attainment of cleanup goals will be made with the use of full laboratory analysis results for all contaminants of concern, not merely XRF.

Much of your letter is related to assertions and implied connections between health effects potentially related to historic exposures. You do not appear to be asserting the existence of any current exposures to hazardous constituents. The investigations of historic releases, not related to existing contamination particularly cumulative exposures that may include occupational hazards, is outside the scope of our mandate, so DNREC cannot address them here.

In addition, your letter raises a number of questions:

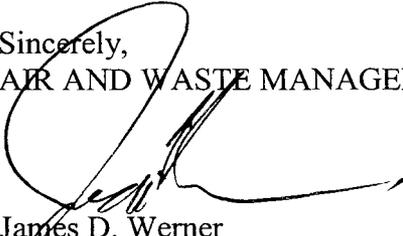
1. What is your basis for asserting that “[a] County employee reported that two waste pipes drain from the [Hercules] Research Center onto the golf course parcel.” DNREC staff has heard this same report second hand, and have physical investigation this rumored “waste pipe” but has never found any evidence of it and have been able to interview anyone with first hand information about such outfalls. Please send DNREC a name and contact information and a map indicating the location where, as you assert, “one can see that greater contamination was measured in roughly the outfall areas he indicated.”
2. You indicate “[t]here is good reason to believe that a dump exists between Hole 9 and the power station.” Again, DNREC staff have heard this same report second hand, and tried extensively to find more information, but have never been able to interview anyone with first hand information about such a dump. Please send us any names of contacts and a map indicating the location where the dump is located so we may investigate further.
3. You indicated there was a “vat of benzene...stored under one of the buildings at the center.” Please provide the documentation of this “vat” and its contents, including what building it is or was under.
4. You indicated a concern that the golf “course was reportedly watered through pipes that drew fro[m] the badly contaminated Red Clay Creek...”. Our colleagues in DNREC Water Resources have monitored this creek extensively; the only contamination (beyond coliforms) in the creek appears to be zinc, resulting from discharges by NVF upstream in Yorklynn. This creek is also subject to monitoring by a very active “Stream Team” network, as well as the Delaware Nature Society. Please provide documentation to support your assertion about the “badly contaminated” Red Clay Creek and the use of the creek for watering the golf course. I must add that this assertion is of personal interest to me and my son because we regularly swim in the Red Clay Creek and have paid special attention to any water quality issues.

Please understand that DNREC is working with the County regarding the remedial activities at this site with the framework of a mutual Memorandum of Understanding (MOU) even though this is not a regulated facility as defined under Delaware’s Hazardous Substance Cleanup Act (HSCA) Title 7 Chapter 91 of the Delaware Code. DNREC has made every effort to ensure that all of the substantive requirements of HSCA are followed for this Site. In doing so, a Proposed Remedial Action plan (PRA) was submitted and reviewed by DNREC. At the time DNREC completed its concurrence of the PRA, a 20-day public comment period began that also included a public meeting. At the conclusion of the 20-day comment period, after addressing all substantive comments, DNREC issued its concurrence with the Final Remedial Action plan (FRA) on July 13, 2007.

Since your correspondence was dated after the conclusion of this comment period, please be aware that your comments will not be included at part of the official comments for this site. However, since you brought up numerous points that were already addressed by other citizens, DNREC is confident that your concerns have already been addressed.

Again, we are committed to protecting human health and the environment at this and other sites, and we are pleased to work with you toward this shared goal. Please do not hesitate to contact me or Steve Johnson, P.E. at 302-395-2600 if you have any further questions.

Sincerely,
AIR AND WASTE MANAGEMENT DIVISION



James D. Werner
Director

JDW:vdc; JDW07003.doc; DE 1323 II I 1

pc: John A. Hughes, DNREC - Secretary
David Small, DNREC- Deputy Secretary
Christopher Coons, NCCo – County Executive
Jeffrey Bullock, NCCo - Chief Administrative Officer
Charlie Baker, NCCo – Department of Land Use Manager
Kevin Donnelly, DNREC – Director of Division of Water Resources
Kathleen Stiller-Banning, DNREC – SIRB Program Manager II
Timothy Ratsep, DNREC – SIRB Program Manager I
Steve Johnson, DNREC- SIRB Project Officer
Bob Kuehl, DOJ – Deputy Attorney General

Attachments (on CD):

Attachment I – MOU between DNREC and New Castle County Government
Attachment II – Proposed Remedial Action plan
Attachment III – Final Remedial Action plan
Attachment IV – DNREC memo regarding Dioxin sampling
Attachment V – State Senator Blevins sampling request and DNREC response
Attachment VI – Dioxin sampling results to State Senator Blevins