

**ANALYTICAL SERVICES, INC. (ASI)**

*Microbiological Testing, Research and Consulting*

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February 9, 2009

Peter LeCompte  
Valley Crest Farm  
14 Allerton Rd.  
Lebanon, NJ 08833

Dear Peter:

Enclosed please find the results of the Microscopic Particulate Analysis (MPA) performed on the sample received in our laboratory on January 15, 2009. As requested, we also analyzed the sample for *Giardia* and *Cryptosporidium*, and those results are also enclosed.

Thank you for using Analytical Services Inc. for your testing needs. If you have any questions or if we may be of service in the future, please do not hesitate to contact us at (800) 723-4432.

Sincerely,

ANALYTICAL SERVICES, INC.

*Carolyn M. Brault,*  
*for*

Colin R. Fricker, Ph.D.  
Technical Director

CRF/III

ASI Project No.: 34343

# ANALYTICAL SERVICES, INC.

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**Client:** Valley Crest Farm  
**Address:** 14 Allerton Rd.  
Lebanon, NJ 08833

**Sampling Date:** January 14, 2009  
**Date Received:** January 15, 2009  
**Analyst:** CHD

**Client Sample ID:** Bore Hole #2

**ASI Sample No.:** 34343-01

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## Section I.

### Microscopic Particulate Analysis

This sample was analyzed using the Environmental Protection Agency's Consensus Method for Determining Ground Waters Under the Direct Influence (GWUDI) of Surface Water Using Microscopic Particulate Analysis (MPA). MPA is one parameter used to determine if a ground water source is under the direct influence of surface water. As indicated in the Guidance Manual for compliance with the Surface Water Treatment Rule, other factors, including a sanitary survey, well construction logs, hydrological criteria, distance from nearest surface water source and water quality are considered when making a GWUDI determination. Recent data indicate that factors effecting particulate movement in soil need to be taken into account in GWUDI determinations. These include the degree of hydraulic communication (timing and amount of surface water mixed with ground water), time of travel in the ground, and natural filtration.

An MPA filter is processed by first cutting the fibers from the filter core then washing them repeatedly with a stomacher. The resulting sediment is centrifuged into a pellet. Then, depending on the volume of the pellet recovered from a filter, the sediment is either purified by a gradient flotation procedure using Percoll sucrose as the levitant, or is analyzed directly. A portion of the pellet is examined for surface water "bioindicators", such as plant debris, algae, diatoms, insects, protozoa, rotifers, and other particulates that are characteristic of surface waters. The number and type of bioindicators are tabulated and used to calculate a risk rating score, which indicates the risk of surface water contamination. The MPA risk-rating table can be found in Section IV of this report.

We also analyzed a portion of the MPA sample concentrate for *Giardia* and *Cryptosporidium* using the purification, staining and microscopy procedures in Method 1623: *Cryptosporidium* and *Giardia* in Water by Filtration/IMS/IFA (EPA-821-R-01-025). No *Cryptosporidium* oocysts or *Giardia* cysts were detected in the sample aliquot. The data from this analysis are presented in Section III of the Analytical Results.

There was a moderate amount of sediment recovered from the filter (1.0 mL in 565.3 gallons). Biological particulates that contribute to the EPA Risk Rating score were detected in this sample. Data from the MPA are included in Section II of the Analytical Results.

A moderate concentration of algae ( $3.4 \times 10^1$  in 100 gallons) was detected in this sample. Algae are indicators of surface water, and the source of these organisms should be determined. Algae identifications are included in Section II of the Analytical Results.

This sample was extracted, concentrated and preserved at ASI. Sample concentrates were processed for flotation (as needed) and final microscopic examination performed at CHDCS, Inc., under a subcontractual agreement.

