UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION I
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BOSTON, MASSACHUSETTS 02109-3912

March 24, 2011

Bruce Thompson
Industri-plex OU2 Coordinator
de maximis, inc.
200 Day Hill Road, Suite 200
Windsor, CT 06095

Re: EPA response to "de maximis 01-05-11 Submission" responding to "EPA 12-10-11 Submission"
Industri-plex Superfund Site, Operable Unit 2, Woburn, Massachusetts

Dear Mr. Thompson:

Thank you for your prior submission of draft documents in February, and participation in our March 3, 2011 technical meeting. EPA has reviewed your March 8, 2011 email regarding the microcosm study and March 9, 2011 response to comments cover letter with response to EPA March 2, 2011 comments, redline-strikeout (RLSO) electronic revised RDWP, SMP, FSP, QAPP, HASP, and CRSP, and revised FSP & QAPP tables (March 9, 2011 RDWP).

In your March 9, 2011 response to comments cover letter, EPA agrees with your recommendation to delay any winter condition evaluations with the microcosm study until later in the schedule. EPA also recommends this delay include winter condition evaluations with tank studies under PDI-5. These recommendations correspond with my March 8, 2011 email to you (see attached EPA March 8, 2011 email) that outlined concerns that "the distribution and type of the microbe populations in the HBHA Pond is expected to vary seasonally based on variations in temperature, volume and estimated residence time in the pond," and "sampling depth will also influence what active microbial populations [are] being collected to evaluate degradation/transformation processes in laboratory microcosms."

Under Paragraph 37(b) of the Consent Decree, EPA hereby approves your March 9, 2011 RDWP, conditioned upon the edits below being incorporated in the FSP.

- FSP, Page 34 of 113, Section 3.1.4.1, first bullet (bottom of page # 23): "The position of the chemocline will be identified by vertical profiling with a YSI sonde (or similar instrument; collect data on DO, temperature, pH, specific conductance, ORP) in order to insure that water from the desired depth is extracted for the tank treatability tests."

- FSP, Page 92 of 113, Attachment C6, Experimental Setup (bottom of page # 7 of 12): "The elevation of the chemocline varies with pond conditions, and sampling depth will influence what active microbial populations are collected to evaluate degradation/transformation processes in laboratory microcosms. The position of the chemocline will be identified immediately prior to water sample collection by vertical profiling with a YSI sonde (or similar instrument; collect data on DO, temperature, pH, specific conductance, ORP) in order to insure that sample collection targets the desired depth."

As the RD process moves forward, EPA looks forward to working with the Settling Parties to implement the remedy as called for in the ROD, and achieve the best remedial design that significantly reduce contaminants of concern (COCs) in the HBHA Pond, the COCs' downstream migration, and the overall risks associated with Industri-plex OU2.

Sincerely,

Joseph F. LeMay, P.E.
Remedial Project Manager
Office of Site Remediation and Restoration

Cc: David Peterson, EPA
Bob Cianciarulo, EPA
Don Frankel, DOJ
Robert Ford, EPA ORD
Jennifer McWeeney, MassDEP
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Paul Dombrowski, AECOM
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From: Lemay.Joe@epamail.epa.gov
Sent: Tuesday, March 08, 2011 9:44 AM
To: Bruce Thompson
Cc: Gordon Bullard (gmail); Carol.Dickerson@astrazeneca.com; Bowden, Gregory; jennifer.mcweeney@state.ma.us; Dombrowski, Paul (Wakefield); randall.lee.cooper@monsanto.com; Ford.Robert@epamail.epa.gov; RSchuck@haleyaldrich.com; Todd Majer
Subject: Followup with 3/3/10 IPLEX OU2 RDWP PDI Meeting
Attachments: OrgGeoch_Ertefai et al_2008_V39_PP1572-1588_SI.pdf; OrgGeoch_Ertefai et al_2008_V39_PP1572-1588.pdf; EST_Wick and Gschwend_1998_V32_PP1319-1328.pdf

Bruce,

Some of the issues the agency raised near the end of our 3/3/10 meeting was related to seasonal (e.g. winter and summer conditions) and positional variability with microbe populations and activities in HBHA Pond and conducting the microbe study and tank tests PDIs. Please find below a greater description of the issues. I believe the timing of these PDIs should be reflected in the schedule within the final approved RDWP. If we need to discuss further, then lets schedule a time for a conference call. Thank you.

Joe

The distribution and type of the microbe populations in the HBHA Pond is expected to vary seasonally based on variations in temperature, volume and estimated residence time in the pond. As a result, collecting a summer sample and testing it at winter temperatures is not going to replicate the actual processes active within the pond during the winter time frame (and vice versa). Therefore, microcosm tests to evaluate potential ammonia transformation processes occurring in the pond should be conducted at approximately the same conditions of the pond at the time of collection. It is suggested to conduct at least two sets of microcosm tests during the year (e.g. summer and winter) to the capture microbial population variations that are anticipated within the pond.

Sampling depth will also influence what active microbial populations being collected to evaluate degradation/transformation processes in laboratory microcosms. The position of the chemocline should be identified immediately prior to water sample collection using profiling with a YSI sonde (or similar instrument; collect data on DO, temperature, pH, specific conductance, ORP) in order to insure they are collecting a sample that targets the desired depth. [See attached "OrgGeoch" article which provides some historical indication of the changes in microbial cell population density as a function of depth.]

Regarding residence time of the HBHA pond, this has been estimated by Phil Gschwend's group at MIT based on water and salt balances [see attached "EST" file]:

- above the chemocline (epilimnion): 3 days (estimated range 2-120 days)
- below the chemocline (hypolimnion): 150 days (estimated range 20-269 days)

However, these estimates are applied as an average for the whole pond, so there will be some deviation from this average depending on the specific location within the pond.

(See attached file: OrgGeoch_Ertefai et al_2008_V39_PP1572-1588_SI.pdf)
(See attached file: OrgGeoch_Ertefai et al_2008_V39_PP1572-1588.pdf)(See attached file: EST_Wick and Gschwend_1998_V32_PP1319-1328.pdf)