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LETTER AND COMMENTS FROM FLORIDA DEPARTMENT OF ENVIRONMENTAL
PROTECTION REGARDING BIOAUGMENTATION CORRECTIVE ACTION SUBMITTAL
PACKAGE FOR AREA 1 SOLID WASTE MANAGEMENT UNIT 15 NS MAYPORT FL

2/28/1995

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION



Lawton Chiles
Governor

Department of Environmental Protection

Twin Towers Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

238
Naval Station Mayport
Administrative Record
08.01.00.0096

Virginia B. Wetherell
Secretary

February 28, 1995

Mr. Dwight Cargile
Department of the Navy
Southern Division Naval Facilities Engineering Command
2155 Eagle Drive, P.O. Box 190010
North Charleston, South Carolina 29419-9010

File:bacterra.doc

SUBJECT: Comments on "Bioaugmentation Corrective Action Submittal Package, January 1995." FIFCO International, Inc. Proposed for use at Area 1, SWMU 15 Naval Station, Mayport (NELP Program)

Dear Mr. Cargile:

I have reviewed the above document and offer the following comments in addition to the previous comments submitted by Mr. Gregory M. Brown on January 13, 1995. Absence of specific comments regarding any aspect of the project should not be construed as endorsement or approval by myself or the Department of the proposed project. This project is considered as a demonstration project only.

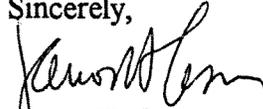
1. The overall scope and presentation of the project is vague and uses general terminology to describe processes and concepts. Additionally, significant aspects of the project are not adequately addressed: this includes the duration of the project, how ground water and aquifer characteristics will be utilized in the project design, the total volume of media to be injected, the media characteristics with respect to any breakdown products, the media slug migration rate, direction of migration, composition and geometry of the media slug. More importantly, what will be the effect, if any, on wells located in the city of Mayport?
2. What is (are) the bacteria types (genus at least) that will be utilized in this project? What is the composition of the "100% symbiotic organic matter"? What will happen to this material as its residence time in the aquifer increases? If this material is a fulvic acid or humic acid material, will it act as a chelator to metal species that are present and increase their aquifer mobility? Why or why not?

3. How can this process "degrade...stabilized heavy metal salts?" (See Section 6.1). What happens to the metal atom or ion? I can understand degrading organic compounds to their components such as CHON, but am unsure of the application of this principle regarding metals.
4. Please explain the meaning of the statement "Bac-Terra™, BR-650 is comprised of only beneficial micro-organisms and is capable of rapid reproduction, thus allowing the nitrogen stressed environment to release and utilize its nitrogen. As a result of this process, molecularly bound oxygen is released as free oxygen, which aids the reproduction of the aerobic micro-organisms" (See Section 6.2.1).
5. Section 6.2.3 speaks of nutrient application volumes (1.5 gallons per cubic yard) which will be disbursed by "transpiration under gravity flow". Please explain the term "transpiration". It appears that the assumption is made that the media will disburse laterally (at 90° to the gravitational force which is vertical in the down direction); in fact, the upper portion of the fluid media within the individual well screen is subject to less hydraulic head which would assist in the lateral migration of the media. How will this be compensated for, remembering that the site contaminant data indicates that the majority of the contamination is within the upper foot or so of the site?
6. In Section 6.2.4, several references are made to "the plume." In fact, no discrete plume has been delineated; therefore, how will the nutrients be "equilibrated" within such a plume? Is it anticipated that saturation of the upper foot or so of the vadose zone can be achieved and/or be maintained? Please elaborate.
7. Section 8.1 must be addressed adequately; how does FIFCO or the Navy intend to monitor and evaluate the residual media remaining in the shallow soil and water table aquifer after the project. What proposed criteria will be used to assess success or the risk, if any, from this project?
8. The method of utilizing wells in this project to place the bacterial culture and/or culture media within the subsurface will likely subject the project to permitting under Department Rule, Chapter 62-528, F.A.C., Underground Injection Control. Project Management and the Navy should recognize this during these early decision stages of the project.

Thank you for the opportunity to comment on this project. If you have questions or require further clarification, please contact me. By copy of this letter, I am informing Mr. Ernie Frey, FDEP Northeast District Manager, of the possibility that this project may require permitting pursuant to Chapter 62-528, F.A.C.

Mr. Dwight Cargile
February 28, 1995
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Sincerely,



James H. Cason, Technical Review Section
Bureau of Waste Cleanup

cc: Cheryl Mitchell, NAVSTA Mayport
Ernie Frey, Manager, FDEP Northeast District
Jerry Young, City of Jacksonville
John Mitchell, FDEP Natural Resource Trustee

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