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MCRD PARRIS ISLAND
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EMAIL REGARDING U S GEOLOGICAL SURVEY COMMENTS ON PRELIMINARY FINDINGS AND WORK PLAN FOR FISCAL YEAR 2008 FIELD ACTIVITIES AT SITE 45 DRY CLEANING FACILITY SPILL AREA MCRD PARRIS ISLAND SC
12/6/2007
U S GEOLOGICAL SURVEY

From:	Cook, Charles CIV NAVFAC SE
To:	Sanford, Art F CIV NAVFAC SE; Sladic, Mark; Singletary, Michael A CIV NAVFAC SE; Pittman GS12 Darrel H
Cc:	Stewart, Kathryn A CIV NAVFAC SE
Subject:	FW: Site 45 preliminary findings and workplan for USGS
Date:	Thursday, December 06, 2007 3:51:51 PM
Attachments:	Degradation of CVOCs under different TEAPs.ppt

All,
fyi Good information, discussion DEC 7, 2008 will focus on remedial alternatives for the DNAPL, it will be good to know what detrimental effects HVOC oxidation technology will have on future bio degradation.
V/R
Charle s Cook

-----Original Message-----
From: Don A Vroblesky [mailto:vroblesk@usgs.gov]
Sent: Thursday, December 06, 2007 8:59
To: Cook, Charles CIV NAVFAC SE
Subject: RE: Site 45 preliminary findings and workplan for USGS

Charles:

1) This is a bit of a misunderstanding, probably because I didn't write it clearly. There are two major degradative pathways for chlorinated solvents: reduction and oxidation. Vinyl chloride can be produced by dechlorination of dichloroethene under methanogenic conditions. Vinyl chloride is very hard to destroy by reduction. It can be destroyed pretty easily, however, by oxidation under the right conditions. Vinyl chloride can degrade under iron-reducing and sulfate-reducing conditions by oxidation. Vinyl chloride, however, is not typically produced as a daughter product under sulfate-reducing conditions. Therefore, the presence of sulfate or iron-reducing conditions, means a good to excellent chance that vinly chloride will be degraded. There must also be methanogenic conditions somewhere in the system because vinyl chloride needs it to be produced and because methane is there. Methanogenisis is best for TCE reduction. I attached a powerpoint slide from a talk I did recently that may clear this up.
2) Yes, it will be important to collect a sediment sample from below the immediate surface of the estuary bottom or to include deeper sediment in a composite sample.

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"Cook, Charles CIV NAVFAC SE" <charles.cook2@navy.mil>

12/05/2007 02:41 PM To
"Don A Vroblesky" <vroblesk@usgs.gov>
cc
"Singletary, Michael A CIV NAVFAC SE" <michael.a.singletary@navy.mil>
Subject
RE: Site 45 preliminary findings and workplan for USGS

Don,
A COUPLE OF COMMENTS
1) From review of the data and your discussion , it appears because of the presence of SO4 in the ground water , bio degradation of VC is not likely (a more readily available electron is available from S04) . The presence of methane and ethane on the other hand indicates possibility of degradation . Is it possible the ethane and methane are from other sources, and no degradation is occurring due to sulfate concentrations.

2) Would the sediment sampling method be better developed to capture the top six inches to assure we have organic matter that may have capture HVOC, other wise I am sure it will have evaporated.

V/R
Charles Cook

-----Original Message-----
From: Don A Vroblesky [mailto:vroblesk@usgs.gov]
Sent: Monday, December 03, 2007 13:04
To: Cook, Charles CIV NAVFAC SE
Subject: Site 45 preliminary findings and workplan for USGS

Mr. Cook:

Attached is a a link where you can download the Progress Report For U.S. Geological Survey FY 2007 Activities And Workplan For FY 2008 Field Activities At Site 45, Marine Corps Recruit Depot, Parris Island, South Carolina. The report summarizes the preliminary findings of the USGS in FY2007. The preliminary findings are not meant for widespread distribution; however, please feel free to distribute it to the appropriate members of he MCRD Partnering Team.

ftp://ftpext.usgs.gov/pub/er/sc/columbia/vroblesky/WORKPLAN PARRIS ISLAND 2008.doc

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Degradation of CVOCs under different TEAPs (Bradley, 2003)

Reduct.	O2 Red.	Mn(IV) Red.	Fe(III) Red.	SO4 Red.	Methano-genesis
TCE	No	Fair	Good	Good	Excellent
DCE	Poor	Poor	Poor	Fair	Good
VC	Poor	Poor	Poor	Fair	Fair

Oxidation	O2 Red.	Mn(IV) Red.	Fe(III) Red.	SO4 Red.	Methano-genesis
TCE	A CoM	No	No	No	No
DCE	Excellent	Good	Poor	Poor	Poor
VC	Excellent	Excellent	Excellent	Good	H. acid red.