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EMAIL REGARDING USE OF RADON AS TRACER FOR VAPOR INTRUSION ANALYSIS AT
SITE 45 DRY CLEANING FACILITY SPILL AREA MCRD PARRIS ISLAND SC
10/15/2010
NAVAL FACILITIES ENGINEERING COMMAND ATLANTIC

From: [Cook, Charles CIV NAVFAC SE](#)
To: [Sladic, Mark](#)
Subject: FW: Site 45 vapor intrusion Parris Island
Date: Friday, October 15, 2010 1:12:27 PM

Mark , we went ahead and called EPA and are sending background information on Radon, We talked about the possibility of doing a plan inhouse from Norfolk to fast track ufp sap .
v/r\
Charles Cook

-----Original Message-----

From: Caldwell, Donna J CIV NAVFAC Atlantic
Sent: Friday, October 15, 2010 11:47
To: Llamas.Lila@epamail.epa.gov; Cook, Charles CIV NAVFAC SE
Cc: Singletary, Michael A CIV NAVFAC SE; Jon@mintra02.rtp.epa.gov; Richards/R4/USEPA/US@mintra02.rtp.epa.gov; timothy.j.harrington@usmc.mil; lisa.donahoe@usmc.mil; llamas.lila@epa.gov
Subject: RE: Site 45 vapor intrusion Parris Island

Charles I don't mean to overstep my authority responding but thought I could at least attach some of the documentation regarding the use of radon as a tracer by VI practioners.

Ms. Llamas, please note the intention is to use radon in a manner consistent with the protocols described by the researches in the attached documents.

The ITRC document is available here <http://www.itrcweb.org/Documents/VI-1.pdf> , I did not want to clog inboxes with large files.

Please let me know if I can offer any additional information or support.

v/r, Donna Caldwell
Naval Facilities Engineering Command Atlantic
Attn: Code EV32AV
6506 Hampton Boulevard, LRA Building A
Norfolk, Virginia 23508-1278
PH: (757) 322-4816
FAX (757) 322-4805
donna.caldwell@navy.mil

-----Original Message-----

From: Llamas.Lila@epamail.epa.gov [<mailto:Llamas.Lila@epamail.epa.gov>]
Sent: Friday, October 15, 2010 11:14 AM
To: Cook, Charles CIV NAVFAC SE
Cc: Caldwell, Donna J CIV NAVFAC Atlantic; Singletary, Michael A CIV NAVFAC SE; Jon@mintra02.rtp.epa.gov; Richards/R4/USEPA/US@mintra02.rtp.epa.gov; timothy.j.harrington@usmc.mil; lisa.donahoe@usmc.mil; llamas.lila@epa.gov
Subject: RE: Site 45 vapor intrusion Parris Island

Hi Charles,

The necessary support documentation is not attached as Donna suggested.
Please resubmit with all necessary support documentation attached.
BEFORE SUBMITTAL, ensure you are proposing to use radon in a manner which is consistent with the manner proven in your support documentation, providing for all data necessary to make the conclusions, the frequency/distribution of samples necessary, the same calculations, etc. Be sure to address all concerns or limitations discussed in the supporting documentation. Otherwise, you must also include an argument for why it should be accepted when used in a manner which is inconsistent with

the support documentation.

Also, please note Jon Richards' correct email address.

Thanks,
Lila

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

To: Lila Llamas/R4/USEPA/US@EPA

Cc: "Caldwell, Donna J CIV NAVFAC Atlantic" <donna.caldwell@navy.mil>, "Singletary, Michael A CIV NAVFAC SE"
<michael.a.singletary@navy.mil>

Date: 10/14/2010 05:43 PM

Subject: RE: Site 45 vapor intrusion Parris Island

Lila,

Attached is an email for your consideration.

v/r

Charles Cook

-----Original Message-----

From: Caldwell, Donna J CIV NAVFAC Atlantic

Sent: Thursday, October 14, 2010 11:45

To: Cook, Charles CIV NAVFAC SE; Singletary, Michael A CIV NAVFAC SE

Subject: Site 45 vapor intrusion Parris Island

Charles and Mike,

The proposed approach for EPA to discuss with EPA HQ (Henry Schuver) prior to Navy implementing an expedited VI sampling and analysis at Site 45 New Dry Cleaner Facility consists of the following:

- 1) Collect concurrent indoor air, subslab soil gas, outdoor air samples for analysis of PCE, TCE, and radon. (Other degradation product parameters can be negotiated but decisions on this pathway will likely be made based on these parameters anyway.
- 2) The number of samples can be negotiated but I think only 1 or 2 co-located subslab and indoor air samples are need versus the 3 samples collected in the ESTCP Project (Figure A.4.1 ER-0707 ESTCP Interim Report) and only 1 outdoor air sample.
- 3) Collect subslab soil gas, indoor air, and outdoor ambient samples in 500 ml Tedlar bag or 1L Summa for analysis of TCE & PCE using EPA TO 15 Method
- 4) Collect subslab soil gas, indoor air, and outdoor ambient samples in 500 ml Tedlar bag for radon

analysis using Mathieu & Berelson Method

5) Calculate a building-specific attenuation factor (indoor air concentration /soil gas concentration) using radon for each paired result. Use this building specific attenuation factor (Min or average) and apply that ratio to the VOC subslab soil gas concentrations to predict the indoor air contribution of the VOC associated with VI.

For example using the ESTCP ER-0707 Project data attenuation factors are calculated using radon data:

SS-1 AF = $0.27/2405 = 0.00011$

SS-2 AF = $0.21/2681 = 0.00008$

SS-3 AF = $0.30/2562 = 0.00011$

Average AF for radon = 0.0001

Max PCE concentration = 240 ug/m³. Thus $240 \times 0 \text{ ug/m}^3 \times .0001$ yields a predicted indoor air concentration for PCE of 0.024 ug/m³, below the EPA RSL for residential air of 0.41 ug/m³ indicating VI is not contributing an unacceptable CERCLA risk

This is the approach that would be applied to additional sampling data for decision making regarding the potential risk associated VI and given similar results with additional sampling would be used to document NFA for the pathway at this building.

I was thinking you could attach the radon papers demonstrating this is an accepted approach in VI assessment when you send this email to your stakeholders.

Please let me know how I can further support you on this project.

v/r, Donna Caldwell
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donna.caldwell@navy.mil

-----Original Message-----

From: Cook, Charles CIV NAVFAC SE
Sent: Wednesday, October 13, 2010 3:53 PM
To: Caldwell, Donna J CIV NAVFAC Atlantic; Llamas.Lila@epamail.epa.gov; Singletary, Michael A CIV NAVFAC SE; Donohoe Civ Lisa C
Cc: Reed, Sarah M CIV NAVFAC SE, JAX
Subject: conf call for vapor intrusion PARRIS ISLAND

ALL

Thursday Morning 900 am EST conference bridge below

v/r
Charles Cook

Phone number: 1-866-508-3159
Participant pass code: 2863207#