EMAIL REGARDING U S EPA REGION IV COMMENTS ON PRELIMINARY DATA SUMMARY FOR SITE 14 STORM SEWER OUTFALLS MCRD PARRIS ISLAND SC

7/24/2009

U S EPA REGION IV

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| **From:** | Llamas.Lila@epamail.epa.gov |
| **To:** | Sladic, Mark |
| **Cc:** | Meredith Amick; Susan Byrd; Charles Cook; Heber Pittman; Annie Gerry; Mac McRae; Pat Franklin; Churchill, Peggy; Timothy Harrington; Tom.Dillon@noaa.gov; Priscilla Wendt; Llamas.Lila@epamail.epa.gov |
| **Subject:** | RE: MCRD Outfall Assessment |
| **Date:** | Friday, July 24, 2009 5:59:05 PM |

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Hi Folks,

I might as well weigh in here while we are on the subject. I have spoken with Dann Spariosu today and Tom Dillon earlier this week, and Priscilla previously. I caught Tom right before he left for two weeks, so we will not likely hear any more from him for a while, except what I report to you today. So hopefully none of this will hold us up from making progress.

EPA is interested in hearing the Navy's responses to SCDHEC comments on the Site 14 preliminary data summary during the DQO process. SCDHEC has raised many significant questions. However, please note that EPA does not agree in whole with SCDHEC's comment #1. There appears to be some question as to whether or not EPA "approved" Dr. Chow's research findings, and whether or not EPA agreed there is an overarching determination that "sediment analysis would not be conclusive regarding overland run-off through storm drainage systems to the nearest water body from historical releases." EPA believes that the research of Dr. Ivan Chow was focused, mostly or perhaps even solely, on PAHs. Reportedly the findings were as Susan said, PAHs were transported to great distances, perhaps mostly due to the fact they are more persistent and not very soluble. However, this may not be the case for less persistent and more soluble contaminants. They just may not last long enough to go very far. Reportedly, at CNC metals which are more soluble were detected in sediments close to an ongoing source (sediments immediately adjacent to the dry dock area), but were not seen at distances removed from the source. So if there exists a historical release resulting in ongoing contamination (i.e. PCE at Site 45) sediments may reflect contamination from the historical release. We will all likely agree that it may be difficult to attribute contaminants to historical releases, but it may depend on the contaminant in question, and the conditions of the specific scenarios. Either way, sediment contamination is still part of the question regarding impacts to the marsh. So while I agree sediment samples at the outfall may not be the end all to contamination indicators, I think they could be significant and appropriate for an SI level investigation depending on what COCs we are talking about and when the COCs were deposited there. (For more details, see thoughts on background for CSM below.)

At the same time, the idea of sampling the surface water in the outfall for a continuing source indicator may also be appropriate at the SI stage, to indicate what is in the storm water, and perhaps answer the question of whether or not we would expect to see deposits near the outfall or more removed via transportation. However, I would argue that the timing of the pipe water samples is dependent upon what you may be looking to see. While parking lot PAH's may drive a "during rainfall" sample time, PCE/TCE in the subsurface/gw at Site 45 would drive a dry high-tide sampling time to minimize dilution by rainwater (for more detail, see below). But when you really think about it, there is also a level of added complication that comes with trying to sample over 100 outfalls during rain events when you are from out of town, which would

somehow have to be overcome, or maybe even to get water from certain outfalls when it is not raining, unless there are cracks which allow high tide gw in. Oh my.... Anyway, Priscilla had also mentioned pipe water samples in an earlier conversation with me, but did not really pursue it as being necessary up-front in the SI investigation. Earlier this week Tom did not mention any concern about pipe water samples at the SI stage, and agreed to the upstream investigation only as triggered by sediment and/or gw results. However, I don't think he would be opposed to a pipe water sample in the initial SI stage either, especially if limited to the endpoint outfall discharge.

Furthermore, Tom did strongly support the separation of contaminated outfalls associated with identified upstream sources as new sites. He stated this would avoid many of the problems and issues encountered at other sites he has worked on where this was not done and the outfalls were kept together as one OU. Tom also validated that the investigation of sediments should be focused on the top 6 inches. Tom agreed with the focus on process related endpoint outfalls and emphasized the need for good reference (for ongoing non-point source contaminants like PAHs from roads and parking lots, etc.) and background data sets. With respect to limiting the # of samples needed, he agreed in general to more at the process related outfalls and less at the reference areas. However, his expectations might be a bit more than what we had discussed (3 and 1 respectfully). Tom did not offer a specific number of samples needed, but rather stated that it may vary by outfall. In our discussions it was postulated that it may depend on the outfall discharge area size, the nature of the outfall discharge area, the depositional area layout, the size of the serviced area upstream, the amount of flow, etc. We also discussed a transect approach, leading from the outfall and following the depositional area layout (straight if it is straight, meander if it meanders, etc.) It became obvious that when we get to the question of how many samples are needed, we need to make sure the trustees are involved in the conversation to more quickly focus on an acceptable number, or approach to numbering, and to ensure buy-in.

Since we do not yet have a Problem Statement or CSM in place (or was a problem statement drafted in the team minutes? I don't have time to check right now), I think we should be cautious about speaking in generalities which pertain to some instances, but maybe not to all. As we work through the DQOs, hopefully it will become clear as to what makes sense when. Until that time, I think we need to look again at the IAS/RFA and back to our meeting discussions, and think about what the driver/goal is for Site 14. Then we need to get it down in writing with concurrence from all involved before much effort is made in further documentation or decisions about what samples answer what questions when. (Peggy - I know you have nothing else to do (:-) so feel free to use any of this which is worthy. I have also attached it as a Word file just in case.) Therefore, I will share my two cents worth, but then will wait for the Problem Statement and CSM. I do not plan on formally commenting on the scoping document at this time. You may accept this as my additional forethought on the Problem Statement and CSM.

PROBLEM STATEMENT:

As I understand, the IAS and RFA called into question, to varying degrees, the storm water system, including drains, pipes and outfalls due to its relation to historical processes and /or spills which released significant volumes of contaminants into the storm water system. Furthermore, the RFA mentions that prevention of ongoing releases along any of the pipelines is dependent upon the integrity of

the pipes, and calls into question the pipes and drains which may or may not be covered by the permits associated with the waste water treatment plant (WWTP). Since this time, some of the drains and pipes might have been added to the WWTP permits or other storm water permits. The current status of inclusion or exclusion of these pipes in various permits still needs to be formally clarified by the Base based on permit documentation - I guess (since Tim's indication at the meeting came with a glazed look - no offense intended : - ) In accordance with EPA's Storm Water Office, those parts of the system covered by permits may or may not have maintenance and inspection requirements in the permit. And parts of the system not associated with an industrialized area or specific process may not be permitted at all. However, until we get clarification from the base as to which pipes are covered by a permit and which are not, my understanding of our working assumption is that all the drains, pipes and outfalls are covered by some permit. Therefore, the integrity-of-the-pipes issue in general becomes another program's to address under the associated permit, and the upstream portions of the drains and pipes can be excluded from Site 14 in general, until a finding of exceedances in the sediments and/or gw (and now perhaps surface water in the pipes) associated with endpoint outfalls drives an upstream source investigation. For purposes of a Site Investigation Level Problem Statement, maybe the question is, “Are contaminants currently present in the discharge from the storm water system endpoint outfalls or in the sediments and/or gw adjacent to those endpoint outfalls at levels which exceed background, reference, and/or action levels?” We will need to discuss whether or not this problem statement needs some additional aspect to it to address historical releases which have been transported to some location away from the endpoint outfalls (indicated by what? evidence of dead marsh areas? samples from river bottoms? Can we make a connection? ... Not really sure about this, but open to discussions.)

BACKGROUND FOR A CONCEPTUAL SITE MODEL:

I offer the following:

In the IAS/RFA there were reports of historical process related disposals and spills which contributed contaminants to the Storm Water System. For disposals, these contaminants could have been deposited along the pipes at cracks (potential historical continuing sources) and/or at the endpoint outfall (non-continuing historical release). For historical spills, the working assumption is that contaminated surface soils, and sometimes limited subsurface soils, were removed from the historical spill sites, however, there is no guarantee there is not a continuing source in the ground which may be infiltrating the storm water system (case in point = Site 45, and who knows, maybe Site 27 as well) and traveling to the endpoint outfall (a historical yet continuing source). In addition to these historical events resulting in either continuing or non-continuing process related sources (point source), there is the potential for historical anthropogenic continuing non-point sources (DDX from historical applications, mercury, etc.) as well as current anthropogenic continuing non-point sources (PAHs from roads and cars, mercury?, etc.). Additionally, there are naturally occurring elements in sediments, otherwise known as background. My understanding is these non-point sources would not be the focus of our investigation, and therefore, we will need to have a good reference and background database for such occurrences, to rule out detections if within those levels, or identify them as exceedances for investigation if they are found to exceed those levels. This all results in the following categories of concerns:

If this table does not show in your email, see the attached WORD file.

For each of these different scenarios and each contaminant eventually found, there may be a different degree to which outfall sediment, gw, and/or sw (in end of pipes) samples are reflective for purposes of our goal. Each scenario and contaminant may be affected to a different degree by tidal influences. And each scenario may call for a different timing of samples (e.g. pipe water samples during heavy rains for non-point source PAHs, but pipe water samples during dry periods at high tides for point source subsurface soil contamination infiltrating via pipe cracks.)

IN CLOSING:

This could all get very complicated very quickly. Hopefully the DQO process will help us get through this.

Have a good weekend.

Lila

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07/24/2009 07:39 AM

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cc
Susan Byrd <BYRDSK@dhec.sc.gov>, "Churchill, Peggy" <Peggy.Churchill@tetratech.com>

Subject
RE: MCRD Outfall Assessment

Thanks for the note Meredith. Susan Byrd and I also talked about this

study for a while the other day. I think Susan thought that Tom Dillon and Priscilla might already have some familiarity with the CNC study. If that's the case, we certainly need to look into any commentary that Priscilla and Tom can provide on the applicability of the CNC study for the work at Parris Island. (I left Susan's note attached to this reply).

While inviting Susan to correct any mis-statements I'm about to make, I will say that Susan and I did discuss that what was driving the need to evaluate Site 14 was the anecdotal reporting (and possible unreported occurrences) of miscellaneous historic releases to the storm sewer network, as discussed in the IAS/RFA or other documents. Susan said that even so, because of the transient nature of the sediments, there is not necessarily going to be adequate correlation between any sediment detections and what might/might not have been released up-pipe, and that the CNC study provides significant support of this opinion. For tidally influenced storm water systems (as we know is the case at MCRD), the study even addresses the inability to associate sediment in the network to process releases since it could have been deposited tidally. Once in acceptance of the CNC data, the study concludes that the only meaningful data collection would be that resulting from the storm water discharge. Susan and I discussed that while the actual goal for Parris, based on the IAS/RFI, would be to identify non-continuing, historic releases, Susan feels the CNC study indicates that this doesn't change the CNC conclusions that sampling sediment outside an outfall discharge will not meet that goal.

However we proceed, we probably also need to consider the Depot's ongoing participation in the existing general storm water permit program, and its associated conditions.

Thanks.

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-----Original Message-----
From: Meredith Amick [mailto:amickms@dhec.sc.gov]
Sent: Thursday, July 23, 2009 11:31 AM
To: Annie Gerry; Priscilla Wendt; llamas.lila@epa.gov; Pat Franklin; Charles Cook; Tom.Dillon@noaa.gov; Mac McRae; Sladic, Mark; Heber Pittman; Timothy Harrington
Subject: Fwd: MCRD Outfall Assessment

Hi team,

I've been out of town at Myrtle Beach for another team meeting and am just getting back into the office. [Another trip to "the beach," what a glamourous job...how did I get so lucky?] I'm finally digging out from my email avalanche and found this. I'm forwarding a message from Susan that she wrote me after reviewing the Site 14 Preliminary Data Summary. This is just a heads up and a fulfillment of part of an action item that

I had about talking with other PMs about outfall sampling at other bases. Susan, although not the PM at CNC at the time, was the lead on the outfalls project at CNC b/c of the Eco issues.

I hope to have my comments to the Preliminary Data Summary out to the team by Monday and this will be a main part of those comments.

Let me know if you have questions.
Meredith

----- Message from Susan Byrd <BYRDSK@dhec.sc.gov> on Tue, 21 Jul 2009 15:04:14 -0500 -----

To: Meredith Amick <AmickMS@dhec.sc.gov>

Subject: Fwd: MCRD Outfall Assessment

>>> Susan Byrd 7/21/2009 2:38 PM >>>
Hey Meredith,

Based on Extensive research conducted by the Navy and approved by EPA at the CNC, it was determined that sediment analysis would not be conclusive regarding overland runoff through storm drainage systems to the nearest water body. The CNC team concluded that sediment and soil particulates are tidally influenced and dispersed from outside of the evaluated drainage basin. Please contact Dann Spariosu regarding his involvement with extensive research regarding sediment dispersion as presented by Dr. Ivan Chow. Sediments at the storm outfalls at the Naval Complex were "traced" to over 10 miles downgradient of the base! Therefore, it is recommended (as was recommended at the Naval Complex) that surface water samples be collected from within the outfall pipe during a period of heavy rainfall. If an outfall is tidally influenced, samples should be collected during the outgoing tide. Surface water sampling is an indication of current contamination migration from within the distinct drainage basins.
Due to PAH residuals from road runoff and parking lots, it is recommended that "control" samples from non-site related asphalt parking lots or roads be included in the evaluation in order to specifically identify site related contamination.

If you have any further questions, feel free to contact me.

Susan Byrd