Message

From: LEE, LILY [LEE.LILY@EPA.GOV]
Sent: 1/5/2018 1:27:07 AM
To: Fairbanks, Brianna [Fairbanks.Brianna@epa.gov]
CC: Chesnutt, John [Chesnutt.John@epa.gov]
Subject: Followup to Jan 2 call - Background information for Jan. 17-18 meeting
Attachments: Conceptual Site Model for the Removal of the Sanitary and storm sewers.pdf; Hunters Point Excerpts from RODs Parcels B and G 12-15-17.docx; Post ROD changes EPA guidance 1999.pdf; Petition to Revoke the NRC License of Tetra Tech EC Inc highlighted.pdf

Dear Brianna,

John had asked if the ORNL health physicists were all aware of the ROD, CSM, etc. I am thinking of sending this out to the full group that attends the technical conference calls. I want to make sure everyone has this information. Including 3rd party reviewers and the City.

DRAFT:

Thank you to Derek for his interest in going "by the book," as expressed at the Jan. 2 technical team meeting. As context for the Jan. 17-18 meeting, below are some "books" that are relevant. Any potential next steps should keep these in mind.

1. **2008 Navy Memo re Conceptual Site Model** – Attached is the memo that the Rad RACR's cite. EPA cites excerpts in its 12/2017 comments on the draft Parcel B & G Findings Report. These are cut and pasted below.

2. **2009 Parcel G ROD** – This is based on the above memo. Attached are excerpts, some of which EPA cited in its 10/2017 draft comments on the Parcel G portions. Similar language appears in RODs for other Parcels. Here is a link to the full document: [INSERT LINK]

3. **2010 Workplan** – This was written by Tetra Tech EC, Inc., and the work was supposed to follow this workplan, consistent with the ROD. Here is a link to that document: [INSERT LINK]

4. **EPA's 1999 Post-ROD Change guidance** - See attached chapter for examples of significant and fundamental ROD changes that would require an ESD or ROD Amendment with an associated public involvement process.

5. **EPA's 2014 Radiological Q&A's** – See attached guidance, with highlights of sections addressing "Not To Exceed" vs. "Area Averaging."

6. **2017 NRC Petition Allegations** – Attached is a highlighted version of the specific forms of falsification described in allegations from seven former workers. Note that the data evaluation process showed potential signs consistent with many of these allegations. It also found other forms of falsification beyond these listed.

See below for EPA's Comment #21 on the draft Findings Report for the rad data evaluation for Parcels B and G

21. Section 2.1 of the Report presents a brief description of the conceptual site model (CSM). However, it is not complete. This should be revised to include more detail. The The final Radiological Removal Action Completion Reports (RACRs) for Parcels B and G, Section 2.2 Conceptual Site Model, both cite the *Navy Memorandum for the Record: Conceptual Site Model for the Removal of the Sanitary and Storm Sewers at Hunters Point Shipyard*, December 17, 2008. Below are excerpts from that memo:

    Section 2, Background, p.1-2: "Contamination . . . could have come from rework and repair of radioluminescent devices (Ra-226 and Sr-90), NRDL [Naval Radiation Defense Laboratory]

experimentation and development of radiation survey instrumentation (Ra-226, Cs-137, and Sr-90), or decontamination of ships that participated in atomic weapons testing. . . . radiological operations at HPS started in 1941 and concluded in 1974 with the closure of the shipyard. During this time, controls of radioactive materials, particularly involving radioluminescent devices, were much more relaxed than today's standards and any radiological operation could have potentially impacted the sewer system. . . . Slip fittings were used at pipe joints of the sewer system, therefore the lines were not sealed and some leakage from the pipe was expected when the system was built. Additionally, excavated manholes have been found to be porous. The potential for materials to migrate from piping and manholes into the surrounding soils is significant."

Section 3b., Conceptual Site Model, p. 2: "Historically, the systems were cleaned, repaired, and replaced as necessary. In addition to potential normal seepage, all three of these operations could have released contaminations [sic] into soils surrounding the systems. In fact, cleaning was often accomplished by power washing that could have forced the contamination from the system and in some cases leave the piping free of contamination but the surrounding soils contaminated. . . . Power washing of old sewer systems easily cracks the pipes and allows for releases of pipe sediment into surrounding soils."

Section 3c. Conceptual Site Model, p. 3: "To date, the removal action has demonstrated the accuracy of the conceptual site model."

Section 3d. Conceptual Site Model, p. 4, shows that as of December 9, 2008, the Navy found 6.9% of contaminated soil in Parcel B (including Parcel D-2) trenches and 12.2% of Parcel G. This represented 93.8% of the Parcel B trench units and 58.5% of the Parcel G trench units.

Section 4a Ongoing Removal Operations, p. 5: "93.8 percent of the sewer survey units in Parcel B . . . demonstrates the validity of the CSM [Conceptual Site Model]. Most contamination has been found in the soils surrounding the pipes, primarily below five feet. This is consistent with the pipe locations and the fact that repairs to the system or power washing would have resulted in the spread of contamination well beneath and beyond the piping system."

EPA has also discussed site conditions with contractors that worked at Hunters Point and conducted oversight of removal action, and they provided the following information:

a. During three attempts by the Navy while the shipyard was still in use to separate the storm drains and sanitary sewer lines, soil from piping would have been excavated and piled up beside the trenches and then returned to trenches. As a result, it is not possible to predict where contamination would be in the vicinity of the storm drains and sanitary sewers.

b. It is also known that the sanitary sewers on Parcels G, D-1, and D-2 (formerly all part of Parcel D), and E were in very poor condition based on the large groundwater depression that formed in these areas. Groundwater entered the sanitary sewers through cracks and gaps in the piping. After the lift station pumping was terminated, it took many years for normal groundwater flow conditions to be established; remnants of this depression can be seen in Parcel E on the A- Aquifer groundwater elevation contour maps through November 2015. It is likely that differential settling and earthquakes caused the cracks and gaps in this system and that the storm drain system had similar cracks and gaps.

c. Furthermore, the seagates in the storm drain system did not work well. As a result, it is possible that incoming tides moved contaminated sediment inland into lines that would not have been expected to have been contaminated. Numerous Parcel B and G forms indicate that sufficient sediment was present to sample and count in some lines. When radionuclide contamination was found above cleanup levels, the Base-wide Radiological Work Plan required that the bottom of the trench be sampled. This occurred in some trenches.

d. Finally, much of the piping was found to be in poor condition and could not be removed intact from the SD/SS trench excavations. In some cases, the Parcels B and G forms note that there was

shattered or broken piping. Any sediment in the bottom of this broken piping was likely mixed with the soil in the trenches, rather than being removed.

This Conceptual Site Model is the basis for selection in the Parcels B and G the Records of Decision (RODs) for Parcels B and G of alternative R-2, the Workplan that Tetra Tech EC, Inc., was required to follow, over alternative R-1, which was "No action." For Parcels B and G, no alternative between these levels of effort was analyzed. Please revise Section 2.1 to add more detail such as information in the above record about the Conceptual Site Model.