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Dr. Thomas McLaughlin  
Materials Decommissioning Branch  
Division of Waste Management and Environmental Protection  
Office of Nuclear Materials Safety and Safeguard  
Two While Flint North  
11545 Rockville Pike  
Rockville, MD 20852-2738

Dear Dr. McLaughlin:

The purpose of this letter is to address action items identified during the meeting between the U.S. Army and U.S. Nuclear Regulatory Commission (NRC) to discuss the Data Quality Objectives for the upcoming sampling events at Jefferson Proving Ground and contents of Addendum 7. This meeting was held at NRC's Executive Boulevard Building in Rockville, MD on 23 July 2008. The three action items assigned are discussed below.

**Action Item #1:** "Provide links to all models proposed for potential use in the site characterization study to NRC by the end of August." The following bullets include links and describe the computer codes we plan to use to supplement the modeling with the RESRAD-OFFSITE code for the JPG site characterization study. Additional information will be provided about these models in Field Sampling Plan Addendum 7, which will be delivered by the end of this week.

**Primary Models:**

- Information about the HSPF (Hydrologic Simulation Program Fortran) model and the graphical user interface (GUI) to run it (a.k.a. BASINS) can be found at <http://www.epa.gov/ceampubl/swater/hspf/index.htm>. This model will enable us to perform more robust analyses of the surface water and sediment pathways.
- Information about the MODFLOW-SURFACT model can be found at [http://www.hglsoftware.com/Modflow\\_Surfact.cfm](http://www.hglsoftware.com/Modflow_Surfact.cfm). This finite difference code can be used as a 3-D groundwater flow model and to simulate future DU transport.

**Secondary Models:**

- Information about the Seasonal Soil Compartment (SESOIL) model can be found at [http://www.scisoftware.com/products/sesoil\\_overview/sesoil\\_overview.html](http://www.scisoftware.com/products/sesoil_overview/sesoil_overview.html). It can be used to check recharge rates and DU transport in washload due to surface runoff applied in or determined from other models used to model DU fate and transport and to determine the mass loading of DU to the groundwater table using results of the soil sampling, Kd study, and corrosion study as inputs.

- Information about the Storm Water Management Model (SWMM) can be found at <http://www.epa.gov/ednrmrl/models/swmm/>. It is a rainfall-runoff simulation model used for single event or long-term (continuous) simulation of runoff quantity and quality from primarily urban areas with some applications from rural areas
- Information about the Finite Element Heat and Mass Transfer Code (FEHM) can be found at <http://ees1.lanl.gov/EES5/fehm/>. We are planning to run the FEHM model to support the soil-to-groundwater and groundwater transport pathway evaluations further than can be evaluated using RESRAD-Offsite. On the referenced webpage, you will see the contact information to request an executable version of FEHM from Zora V. Dash.

**Action Item #2:** “Determine if a change of protocol is needed for the different technique employed while sampling low volume ground water wells and inform NRC by the end of August.” The groundwater sampling protocols provided and described in the Field Sampling Addendum 5 (Section 5) is appropriate and is being used for the majority of the forty-two wells being sampled. Following the submission of the FSP Addendum 5 it was determined that several wells have very low yields (lower than anticipated) and that in order to sample and use those wells for other aspects of the investigation the protocol for sampling those wells would need to be modified. Numerous methods and types of equipment were evaluated and a passive discrete interval sampling device (HydraSleeve<sup>®</sup>) was selected. This change in protocol was proposed and detailed in an email sent by Todd Eaby, SAIC, to Tom McLaughlin, NRC, on April 3, 2008. Verbal concurrence was provided to Mr. Paul Cloud, Army, before the revised protocol was used.

During the quarterly groundwater sampling event completed in July 2008 it was determined that several of the wells had very limited water column present in the well. This limited water column excluded even the use of the HydraSleeve<sup>®</sup> sampling device due to the minimum water column required for filling of the HydraSleeve<sup>®</sup> sampling device. These wells were proposed to be sampled by bailing any water available without first purging the well. There was a concern that if there was an attempt to purge the limited water in the well, it would not re-charge in a reasonable amount of time to allow sample collection. The sampling protocol of bailing a sample from these wells was discussed with Jon Peckenpaugh, NRC, by phone on July 17, 2008. It was agreed by Jon that there really was no other choice and he agreed with the change. He requested that SAIC document on the paperwork the wells where this change was implemented, why the deviation from the FSP was occurring, and also flag the resulting analysis data to document the different collection protocol. During the July 2008 sampling event the following wells were sampled with these modified protocols:

#### **HydraSleeve<sup>®</sup> Sample Collection**

- JPG-DU-01D
- JPG-DU-04D
- JPG-DU-05D
- JPG-DU-07I
- JPG-DU-07D

### **Bailed Available Water Column**

- MW-9
- MW-11 (Well dewatered with pump and sampled with bailer since not recovering after several days)
- JPG-DU-02I
- JPG-DU-08I
- JPG-DU-08D

These two changes in the protocol for sampling low volume wells will continue to be used where needed along with the sampling protocol provided in the FSP Addendum 5 as applicable during the remaining groundwater sampling events. We will continue to document when and where these protocols are used.

**Action Item #3:** “Check the Field Sampling Plan for the background locations of surface water and sediment samples to determine if a change of protocol is needed and inform NRC by the end of August.” We have checked Field Sampling Plan (FSP) Addendum 5 (January 2008) and do not believe any change in protocol is necessary. The following statements summarize statements included in FSP Addendum 5:

**Background Surface Water Sampling Locations:** “A minimum of four suitable locations for use as upgradient/background surface water sampling locations will be used for comparison to and evaluation of the analytical results obtained from the remainder of the locations. It is anticipated that the following locations will be upgradient/ background: one location north of the northern boundary of the DU Impact Area on the tributary feeding into Big Creek, two locations on Big Creek east of the boundary of the DU Impact Area, and one location on Middle Fork Creek east of the DU Impact Area” (excerpt from Section 6.1).

**Background Sediment Sampling Locations:** “...In addition to the 16 sediment samples in the DU Impact Area, a minimum of 4 upgradient sediment samples will be collected to establish background levels of naturally occurring uranium in sediment. The upgradient sediment sampling locations will be in close proximity to the upgradient/ background surface water sampling locations described in Section 6.1” (excerpt from Section 6.2).

Slides 20 and 22 from the presentation provided during the 23 July 2008 meeting showed surface water and sediment sampling locations, respectively. The following bullets describe the locations that were selected:

#### **One Location North of the Northern Boundary of the DU Impact Area on the Tributary Feeding into Big Creek:**

- JP-W-16/JP-D-16 was collected 700 feet north of the DU Impact Area’s northern boundary



**Two Locations on Big Creek East of the Boundary of the DU Impact Area**

- JP-W-13/JP-D-13 was collected 3,200 feet east of DU Impact Area's eastern boundary
- JP-W-12/JP-D-12 was collected 235 feet east of DU Impact Area's eastern boundary

**One Location on Middle Fork Creek East of the DU Impact Area**

- JP-W-17/JP-D-17 was collected 75 feet east of DU Impact Area's eastern boundary

If you have any questions, please contact Mr. Paul Cloud, Jefferson Proving Ground (JPG) License Radiation Safety Officer, U.S. Army.

Sincerely,

A handwritten signature in black ink that reads "Joseph N. Skibinski". The signature is fluid and cursive, with a large loop at the end of the last name.

Joseph N. Skibinski  
Project Manager, Science Applications International Corporation (SAIC)

cc: Paul Cloud  
Brooks Evens  
SAIC Central Records Project File (transmittal memo only)