

FORM HDP-PR-HP-311-4 RADIOLOGICAL SURVEY INSTRUCTIONS

Survey Area Description: LSA 10-05 (Post-flood event confirmation)

Gamma Walkover Survey (GWS):

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| Scan Coverage | 100 % of accessible surfaces potentially impacted by flood water intrusion, 50% of sidewalls, and elevated surfaces not impacted by flood water intrusion. See attached for approximate areas – 50% coverage in blue, 100% in white. |
| Scan MDC | 84 pCi/g (Total Uranium) |

Instrumentation

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| Ludlum 2221 with 44-10 (2X2 NaI) detector | Perform daily pre- and post-QC source checks in accordance with HDP-PR-HP-416. Probe will be optimized to the settings listed in Sec. 8.1.2.1.2, HDP-PR-HP-411; <i>Radiological Instrumentation</i> to meet scan MDC criteria listed above and detect discrete radiation sources. |
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Comments: The instructions below provide direction for performing confirmation surveys in LSA-10-05. The surveys performed under this instruction are designed to provide data that ensures LSA 10-05 has not been impacted by the recent flood event that occurred on April 3rd, 2014.

Instructions: Gamma Walkover Surveys (GWS)

1. Perform a gamma walkover survey using a NaI (Tl) detector interfaced with a GPS system and data logger. Document the general area background, maximum and average net count per minute readings on Survey Form HDP-PR-HP-311-3, *Radiological Survey Report – Walkover Surveys*.
 - Scan at a speed of 1-foot per second or less.
 - Move the survey probe in a serpentine pattern approximately 6-inches off-set from centerline to the body (e.g., “shoulder-to-shoulder”) with the probe as close to the surface as possible; maintaining the detector as close as possible to the surface (nominally not to exceed 1-in. distance from the surface).
 - The GWS will cover 100 % of the accessible surfaces potentially impacted by flood water intrusion, 50% of sidewalls, and elevated surfaces not impacted by flood water intrusion as indicated in the attached figure.
 - If trash, waste, or other non-native materials are observed during surveys or sample collection, stop sampling activities and notify HP Supervision
2. During scanning look and listen for locations exhibiting anomalous readings.
3. Record the count rate at each location exhibiting anomalous reading (e.g. reading that exhibit an increase in the count rates exceeding the average background of the localized area).
4. When an anomalous reading is found, perform a more detailed point survey of the area. Pause and place the survey probe on contact to the surface to accurately determine the count rate associated with the region of interest.

Instructions
(cont.)

5. Mark the location(s) that required additional investigation (that is, areas described in Step 2 above) to facilitate possible future investigations. For example, use a flag, stake or other method.
6. Survey and record the count rate on contact with features other than soil within the survey unit. (e.g., native rock). Record the nature and extent of features other than soil found within the survey unit on Survey Form HDP-PR-HP-311-3.
7. Download the survey data at the end of each shift. To minimize data loss, periodically save the GWS data set throughout the shift.

Sampling

Note: The attached map and sample coordinates provide systematic sampling locations for sampling determined by Radiological Engineering and reviewed by the RSO.

Note: After the GWS, Radiological Engineering will review the data collected during the survey to determine if and where additional samples will be collected. Radiological Engineering will document sample locations. The RSO will approve the sample locations. Radiological Engineering will provide the sample location documentation to the Health Physics Technicians.

8. Locate and mark the sample coordinate in the field by either use of a GPS handset or assistance from the civil surveyor.
9. Before sample collection, monitor the count rate on the surface of the soil. Record the count rate on Survey Form HDP-PR-HP-311-3.
10. Collect the soil sample in a marinelli for analysis at each location specified by Radiological Engineering. Record collected samples on Survey Form HDP-PR-HP-311-3. Samples will be collected from the surface to a depth of 6 inches.
11. Care should be exercised to ensure the entire sample is included from within the depths specified for sampling. Vegetation and native debris/rocks with a diameter greater than 1-inch should be discarded
12. Using a collimated probe, monitor the count rates within the depression created by the collection of soil samples. Record the count rates on Survey Form HDP-PR-HP-311-3.
 - If the count rate from within the sample depression indicates an anomalous reading, contact HP Supervision or Radiological Engineering to determine need for collecting another sample from the following 6 inches of soil (i.e., 6 - 12 inches). Record collected samples on Survey Form HDP-PR-HP-311-3.
 - If additional sampling is determined necessary, collect the sample using the methods described above.
13. Each sample will be labeled in the field and then transported to a secure location for storage before either, onsite analysis or being shipped to an offsite laboratory for analysis. Each sample to be sent offsite shall be recorded on a chain of custody form, a copy of which will accompany the sample to its final destination in accordance with HDP-PR-QA-006.

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05/05/14
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Survey Coverage



Systematic Sample Locations

