

**Spring Valley OU-5
Proposed Sampling Plan**

Central Test Area (Quadrant Sampling)

- Four (4) composite surface soil samples collected from 4 quadrants on every residential lot. The 4 samples consist of soil taken from 6 locations. The 4 composite samples will be analyzed for arsenic.
- Subsurface samples will be collected from one boring per property. The location of the boring shall be located in an area containing fill. If possible, the location of the boring shall also be located in an area identified as a ground scar/stressed vegetation. The depth of the boring will be based on the cut and fill map developed for the American University Experiment Station (AUES). For properties containing fill material, the boring will be conducted to 2 feet beyond fill (to a maximum of 10 feet). For properties containing only 1918 level or areas of cut, the boring will be conducted to 6 feet below ground surface (bgs). Samples will be collected from each 1-foot level and analyzed for arsenic.
- Expanded contaminant sampling based on POI-specific lists of potential contaminants (see below). Samples from the subsurface boring will be used for this testing.

Outside the CTA (Halve Sampling Areas)

- Two (2) composite surface soil samples on every residential lot. Both samples consist of soil taken from 6 locations. The 2 composite samples will be analyzed for arsenic.
- Subsurface samples will be collected from 15% of the properties from the area outside of the Central Test Area (CTA). Subsurface samples will be collected from the borings installed on 15% of the properties. The location of the boring shall be located in an area containing fill. If possible, the location of the boring shall also be located in an area identified as a ground scar/stressed vegetation. The depth of the boring will be based on the cut and fill map developed for the AUES. For properties containing fill material, the boring will be conducted to 2 feet beyond fill (to a maximum of 10 feet). For properties containing only 1918 level or areas of cut, the boring will be conducted to 6 feet bgs. Samples will be collected from each 1-foot level and analyzed for arsenic.
- Some samples may also be tested for other contaminants (TBD).

POI-Specific Sampling Plans

☐ POI 19 (CTA)

Documentaion refers to POI 19 as the “Old Mustard Field” which seems to indicate this area was used to test for agent persistence. Therefore, Mustard and Mustard Agent Breakdown Products (ABPs) are identified as the potential chemicals of concern (PCOCs) and will be analyzed for at this POI.

- Surface soil (quadrant sampling) analyzed for arsenic.
- Subsurface samples will be collected from one boring per property. The location of the boring shall be located in an area containing fill. If possible, the location of the boring shall also be located in an area identified as a ground scar/stressed vegetation. The depth of the boring will be based on the cut and fill map developed for the AUES. For properties containing fill material, the boring will be conducted to 2 feet beyond fill (to a maximum of 10 feet). For properties containing only 1918 level or areas of cut, the boring will be conducted to 6 feet bgs. Samples will be collected from each 1-foot level and analyzed for arsenic.

DRAFT

- Samples will be collected at 1-foot intervals and analyzed for arsenic.
- Samples will be collected at 1918 level. For properties containing only the 1918 level or areas of cut, the samples will be collected from 1 to 2 feet bgs. The samples will be analyzed for the following parameters:
 - Mustard
 - Mustard ABPs (Oxithiane, Dithiane, Thiodyglycol)

□ POIs 15R and 16R (CTA)

Documentation indicates POIs 15R and 16R (R refers to revised boundary) were chemical persistency test areas that consisted of applying chemicals to evaluate their persistency. Chemicals that were used at POIs 15R and 16R are identified in Mark Baker's memorandum dated 27 September 1993. These chemicals documented to have been used at POIs 15R and 16R are considered the PCOCs and will be analyzed for at POIs 15R and 16R.

- Surface soil (quadrant sampling) analyzed for arsenic.
- Subsurface samples will be collected from one boring per property. The location of the boring shall be located in an area containing fill. If possible, the location of the boring shall also be located in an area identified as a ground scar/stressed vegetation. The depth of the boring will be based on the cut and fill map developed for the AUES. For properties containing fill material, the boring will be conducted to 2 feet beyond fill (to a maximum of 10 feet). For properties containing only 1918 level or areas of cut, the boring will be conducted to 6 feet bgs. Samples will be collected from each 1-foot level and analyzed for arsenic.
- Samples will be collected at 1-foot intervals and analyzed for arsenic.
- Samples will be collected at 1918 level. For properties containing only the 1918 level or areas of cut, the samples will be collected from 1 to 2 feet bgs. For POI 15R, these samples will be collected in the subsurface boring conducted for each property within the boundaries of the POI. For POI 16R, these samples will be collected in a subsurface boring conducted for at the center of each patch used for persistency testing as documented from aerial photography. The samples will be analyzed for the following parameters:
 - Mustard
 - Mustard ABPs (Oxithiane, Dithiane, Thiodyglycol)
 - Lewisite ABPs (CVAO, CVAA)
 - Adamsite/Adamsite ABPs (TBD)
 - Hydrocyanic Acid
 - Cyanogen Chloride
 - **Carbon Bisulphide (TBD)**
 - Carbon Disulphide
 - Cyani

□ POIs 7, 13, 39 (CTA)

Documentation indicates POI 7 was test area used for agent persistence. Documentation indicates POI 13 was a circular trench used as a static test fire area. The chemicals used at POI 13 were identified in Mark Baker's memorandum dated 27 September 1993.

Documentation indicates POI 39 was a static test fire area. In addition, chemicals used at unknown locations on test range were also identified in this memorandum. These chemicals documented to have been used at POI 13 and the unknown test range locations are considered the PCOCs and will be analyzed for at POIs 7, 13, and 39.

- Surface soil (quadrant sampling) analyzed for arsenic, **tetryl, nitroglycerin, 2,4-DNT, and 2,6-DNT (list being refined)**.
- Subsurface samples will be collected from one boring per property. The location of the boring shall be located in an area containing fill. If possible, the location of the boring shall

DRAFT

also be located in an area identified as a ground scar/stressed vegetation. The depth of the boring will be based on the cut and fill map developed for the AUES. For properties containing fill material, the boring will be conducted to 2 feet beyond fill (to a maximum of 10 feet). For properties containing only 1918 level or areas of cut, the boring will be conducted to 6 feet bgs. Samples will be collected from each 1-foot level and analyzed for arsenic.

- Samples will be collected at 1-foot intervals and analyzed for arsenic.
- For POIs 7 and 39, samples will be collected at 1918 level. For properties containing only the 1918 level or areas of cut, the samples will be collected from 1 to 2 feet bgs. These samples will be collected in the subsurface boring conducted for each property within the boundaries of the POI.
- Trench Subsurface soil. For POI 13, four borings collected from the bottom of the trench and staggered for the inner and outer trenches similar to Sedgwick trench borings. A subsurface sample will be collected from the bottom of the trench in these borings.
- These subsurface samples at POIs 7, 39, and 13 will be collected and analyzed for the following parameters:
 - Mustard
 - Mustard ABPs (Oxithiane, Dithiane, Thiodyglycol)
 - Lewisite ABPs (CVAO, CVAA)
 - Adamsite/Adamsite ABPs (TBD)
 - Hydrocyanic Acid
 - Cyanogen Chloride
 - **Carbon Bisulphide (TBD)**
 - Carbon Disulphide
 - Cyanide
 - Tetryl
 - Trinitrotoluene (TNT)
 - Nitroglycerin
 - 2,4 dinitrotoluene (2,4-DNT)
 - 2,6 dinitrotoluene (2,6-DNT)

□ POI 38 (CTA)

Documentation indicates POI 38 was a test area where shells were fired. The chemicals used at POI 38 were identified in Mark Baker's memorandum dated 27 September 1993. The chemicals documented to have been used at POI 38 are considered the PCOCs and will be analyzed for at POI 38.

- Surface soil (quadrant sampling) analyzed for arsenic, **tetryl, nitroglycerin, 2,4-DNT, and 2,6-DNT (list being refined)**.
- Subsurface samples will be collected from one boring per property. The location of the boring shall be located in an area containing fill. If possible, the location of the boring shall also be located in an area identified as a ground scar/stressed vegetation. The depth of the boring will be based on the cut and fill map developed for the American University Experiment Station (AUES). For properties containing fill material, the boring will be conducted to 2 feet beyond fill (to a maximum of 10 feet). For properties containing only 1918 level or areas of cut, the boring will be conducted to 6 feet below ground surface (bgs). Samples will be collected from each 1-foot level and analyzed for arsenic.
 - Samples will be collected at 1-foot intervals and analyzed for arsenic.
 - Samples will be collected at 1918 level. For properties containing only the 1918 level or areas of cut, the samples will be collected from 1 to 2 feet bgs. The samples will be analyzed for the following parameters:
 - Adamsite/Adamsite ABPs (TBD)
 - Tetryl
 - Trinitrotoluene (TNT)
 - Nitroglycerin
 - 2,4 dinitrotoluene (2,4-DNT)
 - 2,6 dinitrotoluene (2,6-DNT)