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Fact Sheet for 21-005 (Nitric Acid Pit)

Operational History

The nitric acid pit (structure TA-21-70) was constructed in 1946 to dissolve classified documents. The pit measured 3 ft. by 3 ft. by 4 ft. deep. It contained concentrated nitric acid, however the volume or the concentration of the acid in the pit is unknown. The pit was removed in 1967. It is unknown whether any soil surrounding the pit was removed at that time. Depth to tuff and the potential amount of fill present is not known at this time.

Release History

No documented releases from the pit occurred. However, given the 21 years the pit remained in the ground if acid was present for a long period it is possible that the concrete would have been degraded resulting in a release.

Chemicals of Potential Concern (COPCs)

Nitrates and corrosive soil.

Existing TA-21 Work Plan Sampling and Analysis Plan

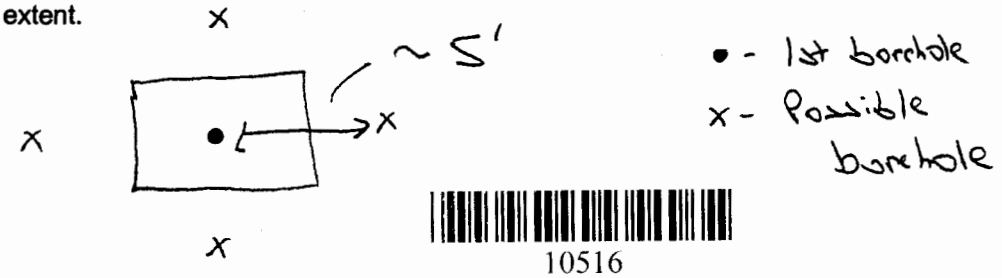
The existing plan assumes that the pit is located under a mobile office trailer (structure TA-21-363). In 1991 when the TA-21 work plan was completed, TA-21 was still fully operational. It was assumed that the trailer could not be moved. Therefore, the existing plan calls for an angled borehole to begin next to the trailer location and pass underneath the pit location. The bore hole length is specified as 10 ft and the angle is 45 degrees. With these criteria it is estimated that the borehole will reach a depth of 7 ft beneath the pit. The sampling interval is 2.5 ft resulting in four samples. Samples are to be analyzed for a full suite including pH.

Implementation of the TA-21 RFI Work Plan Sampling and Analysis Plan

Confirm the location of the nitric pit with a historical search of engineering maps. Translate the coordinates off engineering maps by determining a scale based on locations of currently existing structures and survey the pit location. There have been multiple PRSs where former septic tank locations were scaled off engineering maps and the tanks were found within a few feet of the scaled location. The mobile office trailer (structure TA-21-363) has already been moved away from the former location of the nitric pit (PRS 21-005). One vertical bore hole will be installed through the former location of the pit to a depth of 20 ft. and four soil samples collected (at 5-ft. intervals) to determine if a release occurred from the pit. If stained soils or fractures are observed, biased samples will be collected and analyzed for the full suite of analytes.

Historical information does not document the presence of other COPCs being disposed of or used the in nitric acid pit. Since it cannot be determined if only nitric acid was used to dissolve classified documents, full suite analyses will be run on all soil samples. The full suite of analytes for this PRS investigation includes gross alpha, beta and gamma; gamma spectroscopy; metals including mercury by cold vapor; isotopic uranium; isotopic plutonium; nitrates; VOCs; SVOCs; and PCBs.

If the assessment of the data indicates a release occurred and the need for additional information, four additional boreholes will be drilled around the location of the first bore hole to determine lateral extent (see sampling diagram below). The depth of the first and the four additional boreholes will be adjusted as necessary to assess vertical extent.



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