

**DEPARTMENT OF THE ARMY**  
**BALTIMORE DISTRICT, CORPS OF ENGINEERS**  
**2 HOPKINS PLACE**  
**BALTIMORE, MD 21201**

CENAB-HM-EI

4 June 2022

MEMORANDUM FOR RECORD

SUBJECT: Summary of Findings, Magnetometer-Assisted Survey of Sand Creek conducted on 31 May to 4 June 2022 as related to the Time Critical Removal Action for Open Demolition Area #2 at Camp James A. Garfield Joint Military Training Center, Newton Falls, OH

1) References.

- a) US Army Corps of Engineers Baltimore District (CENAB), Final Action Memorandum, Time-Critical Removal Action (TCRA), RVAAP-004-R-01 Open Demolition Area #2, Former Ravenna Army Ammunition Plant, Ravenna, Ohio, 30 October 2015.
- b) Final Work Plan, Time Critical Removal Action (TCRA), RVAAP-004-R-01 Open Demolition Area #2 Former Ravenna Army Ammunition Plant, Revision 1. March 18, 2016.

2) Purpose.

- a) The purpose of this Memorandum for Record (MFR) is to document the results of the Magnetometer-Assisted Survey of Sand Creek conducted by USACE Ordnance and Explosive Safety Specialist (OESS) personnel at Camp Ravenna on 31 May to 4 June 2022.
- b) The purpose of the creek walk was to assess the potential for Munitions and Explosives of Concern (MEC) and Material Potentially Presenting an Explosive Hazard (MPPEH) migration from the RVAAP-004-R-01 Open Demolition Area #2 Munitions Response Site (MRS), and the potential for migration of MEC/MPPEH off the installation at creek exit points during the TCRA.

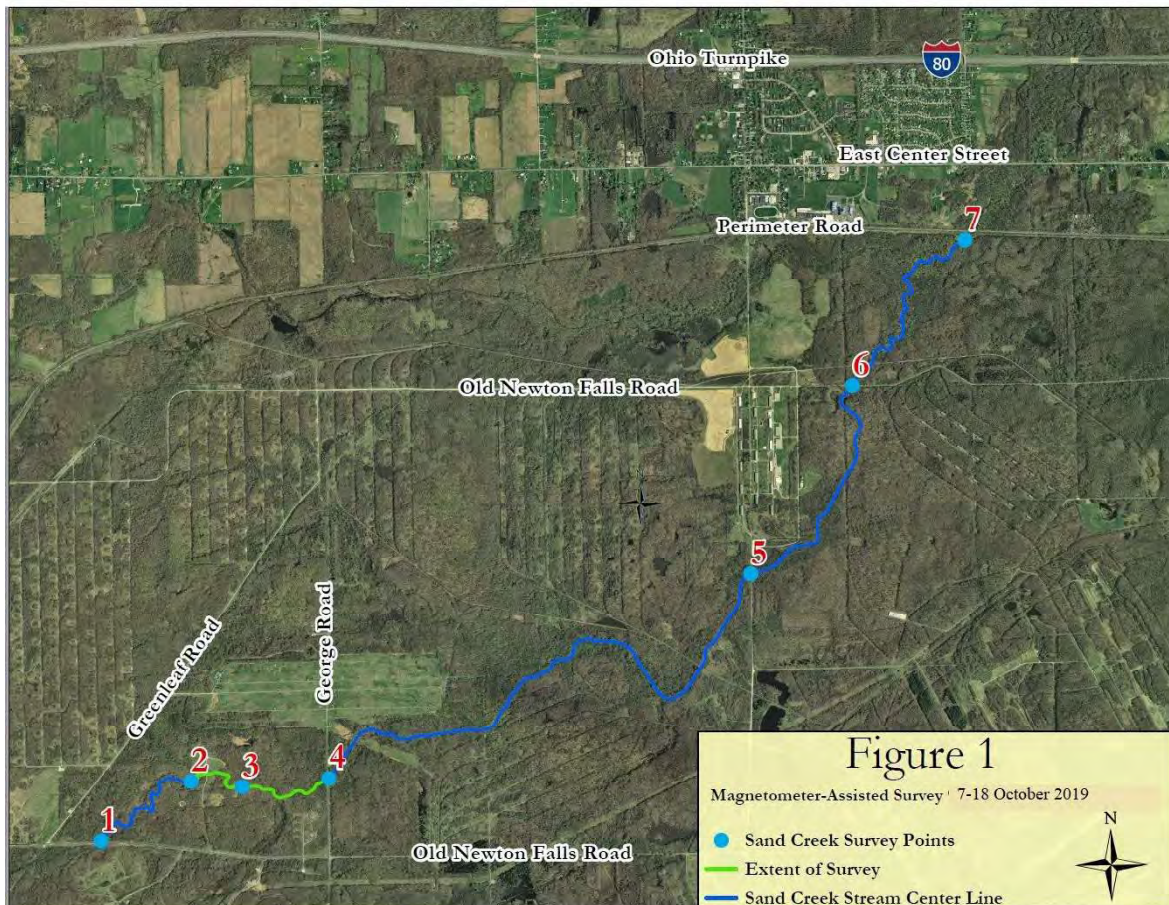
3) Background.

- a) The Open Demolition Area #2 (ODA2) MRS is a former open burning/open detonation (OB/OD) area, dumping ground, and burial site that was used from 1948 to 1991. Large caliber munitions and off-specification bulk explosives that could not be deactivated or demilitarized were detonated within the MRS. The principle sources of MEC/MPPEH at the ODA2 MRS are the result of intentional detonations and potential burial of MEC and bulk explosives. These activities resulted in the potential for MEC/MPPEH to be present in the both the surface and subsurface soil at the MRS.

- b) Sand Creek flows through the ODA2 MRS and down-gradient areas of the installation. The potential exists for MEC/MPPEH migration within the ODA2 MRS and down-gradient areas during high-energy flood events.

4) Findings.

- a) *Dates of Extent of Survey.* The Sand Creek survey was conducted on 31 May to 4 June 2022.
- b) *Personnel.* The survey was conducted by OESS Personnel (Mr. Ricky Whitten and Mr. David Carlin).
- c) *Areas Surveyed.* Seven (7) way-points were established and evaluated during the initial survey (**Figure 1**) completed on 12-16 October 2016. These waypoints were used as markers/reference for the sweep conducted on 31 May to 4 June 2022. For this event, approximately 1.5 line-miles were surveyed in and around the creek line between the ODA2 MRS western boundary (waypoint 2) to George Road (Waypoint 4), as illustrated on **Figure 1**. This survey did not extend beyond Waypoint 4 based on field observations based on the absence of magnetic anomalies in the creek.



5) Observations.

- a) MPPEH/Munitions debris (MD) was recovered between Waypoint 2 to Waypoint 3. MPPEH/MD was encountered within the ODA2 MRS boundary. In this area there are two major bends in Sand Creek located at coordinates: N41.19616, W081.09616, and N41.19641, W081.09658 (WGS 84). Ongoing erosion of the creek banks in these areas continues to release MPPEH/MD into the creek. This material appears to be accumulating in the creek bends located near the three-sided culvert in ODA2. Approximately 300lb of MPPEH/MD was recovered from this area during the 31 May to 4 June 2022 survey. All items except one were inspected and determined to be (Material Documented As Safe) MDAS. One item remains MPPEH and will require further action, explosive operations, to determine the explosive safety status.
- b) MPPEH/MD was recovered between Waypoint 3 to Waypoint 4. 40lb of MPPEH/MD was recovered between Waypoint 3 and Waypoint 4. All of the big pieces were near the culvert. The items were inspected and determined to be MDAS. These items most likely originated from an upstream source (area between Waypoint 2 and Waypoint 3) and were deposited in this area during a high-energy storm event.

MEC was not encountered during the survey. Most recovered MPPEH/MD items were inspected and determined to be MDAS. One item remains MPPEH and will require further action to determine its explosive safety status. All MDAS was transported to the earth covered magazine (Bldg 1501) at ODA2 and stored for final disposition (recycling) at a future date.

6) Conclusions.

- a) 300 lbs of MPPEH/MD was identified within the creek between Waypoint 2 and Waypoint 3. This material does not appear to be migrating downstream, rather this material appears to be collecting near the three-sided culvert located near the center of the ODA2 MRS. 40 lbs of MD was recovered from between Waypoint 3 and Waypoint 4, but no other anomalies were detected. Based on this information, future surveys of this area are recommended.

Beavers recently built a dam in the river just west of the culvert pipe (between way point 2 & 3). Range Control was notified about the dam. They plan to remove the dam within the next couple of months.

- b) Significant erosion of the creek banks continues between Waypoint 2 and Waypoint 3. This area is most likely the source area for the small MPPEH/MD items recovered from Waypoint 3 and Waypoint 4 during this survey.
- c) There was no evidence that MEC, MPPEH, or MD is migrating beyond the ODA 2 MRS boundary.

7) Attachments:

a) Attachment 1: Pictures.

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Marty A. Holmes  
Chief, Ordnance & Explosive Safety  
U.S. Army Corps of Engineers  
Baltimore District

# **Attachment 1**





**Sweeping on east side of culvert.**





**East side of culvert.**





**Sweeping the creek bed.**





**MDAS recovered east side of culvert.**







**Sweeping on west side of culvert**





**Sweeping on west side of culvert.**





**MDAS recovery, west side of culvert.**





**105mm MPPEH**





**MPPEH/MDAS recovered from west side of culvert.**