



## Maryland

### Aberdeen Proving Ground

---

#### ***Facility and Location***

Aberdeen Proving Ground (APG) is located at the northern end of the Chesapeake Bay near the city of Aberdeen. Established in 1917, APG is the Army's oldest active testing and evaluation facility and has been used for munitions testing, evaluation, research, development, and training.

Perchlorate was first discovered at the APG Field Training Area (FTX) in the spring of 2001 during Remedial Investigation activities. The FTX includes soldier training grounds adjacent to and above the aquifer/well field that supplies water for the city of Aberdeen. The city water plant draws water from 11 supply wells, four located on the training grounds and seven immediately adjacent to the training grounds. Perchlorate was first detected in groundwater in an aquifer used by the city of Aberdeen for drinking water in 2002. Perchlorate has been detected in the aquifer, in the supply wells, and in the finished drinking water. The suspected source of the perchlorate is the use of pyrotechnics in the form of obscurants, smokes, and simulators during soldier training activities. All pyrotechnic training activity has ceased in this area.

#### ***Media Sampled and Findings***

**Drinking Water** — Prior to 2007, samples at the city of Aberdeen Water Treatment Plant taken twice weekly did not detect perchlorate above 1 ppb.

**Groundwater** — In 2011, 40 of 41 samples detected perchlorate from 0.07 to 22 ppb. In 2010, two of two samples detected perchlorate at 1.1 and 21 ppb. In 2009, 58 of 63 samples detected perchlorate from 0.11 to 140 ppb. In 2008, 84 of 90 samples detected perchlorate from 0.04 to 92.9 ppb. In 2007, 25 of 26 samples detected perchlorate from 0.1 to 37.1 ppb. The Army tested groundwater for perchlorate using a direct push technique (DPT) and reported one high detection of 3,500 ppb. This result was never replicated. The Army believes the high detection was the result of contaminated soil above the water table. Of the 268 groundwater samples taken by DPT, 267 detected perchlorate less than 20 ppb. The Harford County Supply wells are approximately five miles southwest of APG FTX and detections have been below 1 ppb (and the laboratory reporting limit). Prior to 2007, samples were taken at the drinking water supply wells weekly or bi-weekly following the first detection. Perchlorate has occasionally been detected in 4 of the 11 wells. Three of these wells are within the APG boundary. Perchlorate detections in these wells have ranged from non-detect to 5.6 ppb.

**Sediment** — Prior to 2007, the Army tested sediments for perchlorate and no detections have been found.

**Soil** — In 2011, 13 of 13 samples detected perchlorate from 2.3 to 74 ppb. Prior to 2007, samples have detected perchlorate up to 15,000 ppb in subsurface soil overlying the aquifer. These areas have been covered to avoid the potential for the perchlorate to leach into the groundwater. Surface soil samples have detected perchlorate up to 530 ppb.



**Surface Water** — In 2007, two of three samples detected perchlorate at 0.12 and 0.13 ppb. Prior to 2007, sampling in this area reported no detection. APG relocated FTX site and related use of pyrotechnics from the city of Aberdeen well recharge area to APG's Edgewood area.

### ***Appropriate Actions***

Groundwater samples were above the EPA and DoD Preliminary Remediation Goal of 15 ppb. Soil concentrations are below the 55,000 ppb residential and 720,000 ppb industrial soil screening levels recommended by EPA Region III. In March 2006, a human health risk assessment was completed for the former FTX. The risk assessment concluded there are no human health risks. The Environmental Protection Agency and the Maryland Department of the Environment (MDE) have reviewed and approved the report.

The city of Aberdeen has placed a well head treatment on three drinking water production wells. Drinking water from 11 wells is mixed to ensure perchlorate levels are below 1 ppb (the Maryland Health Advisory Level for drinking water). At the OEA-Swaderick-Watson Creek Investigation Area location, the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) investigation is ongoing. Cleanup, if required, will be performed. Perchlorate detections at the active open detonation units are annually evaluated by the installation and regulatory authorities under a Resource Conservation and Recovery Act (RCRA) permit required groundwater monitoring program. Until viable pathway and exposure routes develop, present protocol calls for continued annual groundwater monitoring and surface soil characterization every five years at these sites. The MDE may at some time in the future require remedial action; however, this will likely be based on risk and the operational status of these sites.