



Facts About...

Patriotic Fireworks MD-542
(State Master List Site)

Site Location

The Patriotic Fireworks site is located at 200 Patriotic Lane in a predominantly residential section of rural Cecil County. It is situated approximately 2.25 miles east of the town of North East on parcel 431 on Cecil County tax map 32 in Congressional District 36. Patriotic Fireworks is owned and operated by Maryland State Specialty, Inc. Maryland State Specialty also owns two adjacent parcels immediately to the north (parcels 409 and 432). The headwaters of Mill Creek is just north of and parallels the northern boundary of parcel 431. A Penn Central high-speed rail line is situated to the north beyond the other parcels owned by Maryland State Specialty. The properties surrounding the site to the east, south and west are forested tracts belonging to the State of Maryland.

Site History

The site use was agricultural until shortly after 1965 when the property was transferred to the Mar-Del Manufacturing Co., Inc. and developed for the manufacture of Class C fireworks. The manufacture of fireworks ceased sometime in the mid 1990s. Chemicals used on site included potassium nitrate, charcoal, sulfur, aluminum flake, strontium, copper oxide, magnesium and aluminum powder, methylene chloride and barium nitrate. The facility used potassium perchlorate mainly for the manufacture of comets. Inspection of the existing buildings on site identified several containers labeled as potassium perchlorate near the former chemical mixing building. Currently, fireworks are imported and repackaged with minor component attachment operations, then stored and finally distributed after resale.

Environmental Investigations

In March 1992, EA Engineering Science and Technology, Inc. completed the *Environmental Conditions Survey* that included a review of site maps, State and Federal documents, a survey of on-site conditions and adjacent property use and the collection of two composite soils samples collected from a burn pit. This very limited environmental survey concluded that there are no significant environmental issues, with the exception of some elevated concentrations of metals related to fireworks production in the burn pit area.

In August 2004, MDE personnel visited the site to conduct a Compliance Evaluation Inspection. An interview with the facility owner revealed that sparkler, star and comet fireworks manufacturing operations began sometime in 1963 and ceased sometime in the late 1990s.

In June 2006, MDE conducted a Preliminary Assessment/Site Inspection to assess potential contamination from fireworks manufacturing, handling and storage on site and to determine if contamination has migrated off site. Analytical results of the soil, surface water and sediment samples collected failed to identify elevated levels of contamination. Perchlorate was however, detected in the groundwater near a burn pit at levels up to 11,400 µg/l. Further investigation of the groundwater was recommended.



In December 2007, MDE conducted an Expanded Site Inspection that included installation and sampling of three nested pairs of monitoring wells to determine if perchlorate and metals were migrating with the groundwater off site potentially impacting targets to the north and potentially contributing to the known perchlorate contamination in the Mill Creek basin towards the northeast. Analytical results of

groundwater samples collected from monitoring wells and the onsite drinking water well identified slightly elevated levels of arsenic, thallium, vanadium and perchlorate that slightly exceeded their EPA benchmarks. Low level inorganic contamination was identified in the surface water samples collected from the unnamed tributary of Mill Creek just north of the site. Perchlorate was identified in the surface water samples at levels significantly greater than the background.

As part of the ESI, MDE conducted a Toxicological Evaluation utilizing a commercial use scenario. The Toxicological Evaluation identified slight risks or potential adverse effects resulting from ingestion and dermal contact of the groundwater. However, since the ingestion risk was driven by the concentrations of perchlorate and metals from the monitoring well samples and not derived from the onsite drinking water well sample, the ingestion risk of onsite groundwater does not apply. The dermal contact with groundwater risk was driven by chromium in hexavalent form and as if the highest concentration detected was the site wide level. The actual reported concentration of chromium is reported as total chromium and hexavalent chromium is not expected at this site. Therefore, the dermal contact risk with onsite groundwater is not expected to impact human health.

Based on the findings and conclusions above, MDE has determined that no further requirements for the investigation of hazardous wastes are required at this site at this time. MDE does recognize potential impacts to the onsite drinking water supply if the confining clay layer beneath the site is penetrated creating a conduit for contamination migration. Extreme care should be taken during any intrusive activities greater than 50 feet bgs to ensure that the integrity of confining clay remains intact. MDE also reserves the right to require additional investigation if previously undiscovered or exacerbated levels of contamination are discovered.

Current Status

Although no further requirements for the investigation of hazardous wastes are planned for this site at this time, because the site remains a potential source for perchlorate contamination, it will remain on the State Master List of sites known to have stored and handled hazardous wastes.

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