

**TECHNICAL BRIEFING – 2013 ANNUAL GROUNDWATER MONITORING  
REPORT SITE 23 (PICA 065) POST FARM LANDFILL – JANUARY 2014**

The document reviewed was an annual report containing results of groundwater monitoring for the Post Farm Landfill (Site 23 – PICA 065). The response action for the site as dictated by the 2004 record of decision (ROD) is long-term groundwater monitoring along with land use controls (LUCs).

Site Background

The Post Farm Landfill is near the eastern boundary of Picatinny Arsenal. There are three main areas comprising the site as follows:

- Drum Burial Area (DBA)
- Northern Burial Area (NBA)
- Central Borrow Pit.

The DBA and the NBA are the landfilled areas; these areas have perimeter fencing. Disposal of drummed industrial waste (caustic paint stripper, used hydraulic oils, wastewater from oil reservoirs, and cleaning solvents), fly ash, and solid waste occurred at the site. The response action for the site includes long-term groundwater monitoring and LUCs.

Monitoring Schedule

Groundwater sampling was specified for a quarterly frequency for a minimum of eight quarters. Thereafter, the sampling frequency was reduced to annual if the contaminant concentrations remained consistent over the eight quarters or there were no increases in concentration. In 2007 after two years of sampling results were gathered, a statistical assessment was performed and, on that basis, the sampling frequency was reduced to annual. Additional assessment was performed in 2010 but the frequency remained annual but with a reduced number of wells. The monitoring program established in 2010 and followed in 2013 was as follows:

- Well DM23-3 for cadmium and field parameters;
- Well MW-14 for target analyte list (TAL) metals and radiological parameters; and
- Seep and spring locations (one each) for cis-1,2-dichloroethene.

### 2013 Groundwater and Surface Water Sampling

Two monitoring wells and two surface-water sampling locations were designated for sampling. After several unsuccessful sampling attempts at Well C-MW-14 following precipitation events (when the well would be expected to contain groundwater) another well (C-MW23-1B) was substituted for sampling. Well C-MW-14 has been dry since 2008; the nearest well downgradient of C-MW-14 is Well C-MW23-1B and was chosen for its proximity. The sample from the substitute well was collected on November 18, 2013 but the sample from Well DM23-3 “was inadvertently not collected as scheduled during the fourth quarter 2013 and therefore was sampled on January 8, 2014 in order to provide a representative sample immediately following the 2013 calendar year.” Low-flow sampling methodologies were used to collect the samples and field parameters (pH, specific conductance, temperature, dissolved oxygen, and oxidation-reduction potential) were measured at the time of sample collection.

The seep and spring samples were not collected because the locations were dry. Only three samples have been collected from these locations in the past (two in 2003 and one in 2006).

### Analytical Results

Limited data validation was performed in accordance with the Final Quality Assurance Project Plan. Based on that review no major deficiencies were identified.

Cadmium was the sole analyte at Well DM23-3 and was detected at an estimated concentration of 0.000518 micrograms per liter (ug/L) which is considerably below the site cleanup level (SCLs) of 4 ug/L. Cadmium was not detected at the other well sampled - Well C-MW-23-1B. There were no exceedances of the SCLs for the other analytes – TAL metals (cadmium – 4 ug/L and lead – 10 ug/L) or radiological parameters (gross alpha – 15 picocuries per liter [pCi/L] and radium-226 – 5 pCi/L).

### Data Trends

Cadmium had been detected in exceedance of the SCL in Well C-DM23-3 in annual samples from 2008 through 2012 with the highest detection at an estimated concentration of 7.35 ug/L. The highest detection during the specified period was almost the same as the historical high concentration of 7.8 ug/L detected in February 2003. The trigger value for cadmium is 18.7 ug/L; the report states the following: “Cadmium concentrations in DM23-3 are not expected to exceed the trigger value.” No

reason is specified but based on the reported results for 2003 through the present it is logical to presume that an exceedance is not expected.

#### Future Monitoring

The monitoring program began with 11 monitoring wells and now includes only two wells, one of which had to have a substitute because of having been dry for multiple sampling events. Statistical assessment is mandated at 5-year intervals and the next will occur in 2015. At that time the following conditions will be evaluated:

- Condition A: Removal of wells/analytes from monitoring based on consistent concentrations observed below SCLs.
- Condition B: Continue annual monitoring if consistent concentrations at a sampling point are consistent over eight or more consecutive periods.
- Condition C: Investigate more aggressive remedial alternative if constituent concentrations for two consecutive periods are greater than the “trigger” value and concentrations are increasing at one or more sampling points. The increases would have to be considered statistically significant.

The exit strategy did not specify a timeframe for the remedial action. However, the statistical assessment has resulted in diminished monitoring pool.

#### Comments

It would be reasonable to continue sampling until analytical results are consistently below the SCLs and the consistency is verified by statistical analysis. Two more annual sampling events (2014 and 2015) will occur before the next statistical analysis.

#### Regulatory Status

The NJDEP approved the report on March 26, 2014.