

## Clinton Landfill #3 – 2013 Groundwater Monitoring Overview:

May 16, 2014

An overview of the groundwater monitoring process at Illinois solid waste landfills is presented in the attached flowchart. This process follows the regulatory requirements/actions that a solid waste landfill, under 35 IAC 811 regulations, is required to adhere to with respect to the approved groundwater monitoring program.

At the Clinton Landfill No. 3, during the 2<sup>nd</sup> quarter 2013 groundwater monitoring event (May 20, 2013), there were detections of trichloroethylene (TCE) in wells G25M and G25D and detections of dichloroethylene (DCE, also referred to as 1,1-dichloroethene) in wells G25R, G25M, G25D and G26D. The background concentration (referred to as the Applicable Groundwater Quality Standard (AGQS) and/or Maximum Allowable Prediction Concentration (MAPC) values) for these parameters is set at the analytical detection level because both parameters are manmade volatile organic compounds that do not naturally occur in groundwater or soil. Should a confirmed detection occur, this would indicate some type of impact to groundwater. In accordance with 35 IAC 811.319 (a)(4)(B) the facility collected additional samples from these wells to confirm if the initial detection was valid and constituted an exceedance of background values. This confirmation sampling occurred during the routine 4<sup>th</sup> quarter 2013 groundwater monitoring event (November 15, 2013) because of the time requirements of the analytical sampling and reporting procedure, the 4<sup>th</sup> quarter sampling event is the earliest the resamples could be collected.

The analytical results for the resampling event showed that neither parameter was detected at any of the four monitoring wells during this sampling event. Because the confirmation sampling failed to detect the same parameters in these wells, the regulations assert that the initial laboratory value was an anomaly and not a valid concentration/detection [See the 3<sup>rd</sup> decision diamond on the attached flowchart]. Potential causes for the erroneous initial detection could be laboratory and/or sampling error, cross contamination of samples, contamination during sample transport, or other factors.

The facility submitted their required notification to the Illinois EPA that the compounds had been detected in the 2<sup>nd</sup> quarter 2013 sampling, but confirmation sampling resulted in non-detect values. The resampling and notification occurred within the required 180 days as shown in 35 IAC 811.319 (a)(4)(B)(iii).

Therefore, in accordance with 35 IAC 811.319 (a)(4)(B) because the original detection was not confirmed as valid, there have been no confirmed detections/exceedances of either TCE or DCE at Clinton Landfill No. 3. All confirmation sampling for organic compounds at Clinton Landfill No. 3 have been negative. Because of the nature of landfill releases, it is very unlikely that an exceedance cause by a leachate release will be present in one quarter and then be non-detect in the next quarter. Groundwater contamination is a persistently detected phenomenon, and if the detection is valid, will likely be continuously detected for years during routine detection monitoring, groundwater assessment monitoring investigation, and corrective action at the facility.

On April 1, 2014, the Illinois EPA conducted split sampling analysis with Clinton Landfill No. 3 to address analytical laboratory integrity and provide additional confirmation the 2<sup>nd</sup> quarter 2013 detection was not valid. Identical groundwater samples from monitoring wells G02D, G16D, G25D, and G49D were split between the Illinois EPA laboratory and the analytical laboratory for Clinton Landfill No. 3. The results of the split sampling analysis showed good similarity between analytical

results from both laboratories, and were non-detect for DCE and TCE in well G25D. There were no VOC's detected in any of the four monitoring wells. In accordance with the facility permit, VOC analysis of groundwater samples is only required to be conducted during the 2<sup>nd</sup> quarter sampling event. This sampling occurs annually; unless additional confirmation sampling is required or the facility is performing other groundwater investigation activities [See Assessment Monitoring Investigation on the attached flowchart].

As of May 12, 2014, only the 2<sup>nd</sup> quarter 2014 groundwater monitoring results for the four split sample monitoring wells have been submitted to the Illinois EPA for review. The remaining 2<sup>nd</sup> quarter 2014 groundwater sampling event at the Clinton No. 3 Landfill, including wells G25R, G25M, and G26D has not been conducted and is scheduled to be performed before the end of May, 2014. The remaining 2<sup>nd</sup> quarter 2014 analytical results are scheduled to be submitted to the Illinois EPA by July 15, 2014. A summary of the Illinois EPA evaluation of the groundwater monitoring for 2<sup>nd</sup> quarter 2014 will be forwarded to the Clinton Taskforce members in August.

**SIMPLIFIED FLOWCHART OF GROUNDWATER MONITORING AT NON-HAZARDOUS WASTE LANDFILLS**

