

3.19.2 ST. BERNARD LANDFILL

Location: South and southwest of Bank Avenue, east of I75;
Access from intersection of Phillips Avenue and Baker Place in St. Bernard, Ohio.

Parcel(s): 58200070002

Lat, Long: 39.167494 -84.504420

Region: St. Bernard, OH 45177

Owner: Village of St. Bernard

Operation (yrs): Prior to 1958 – 1977



Facility Overview

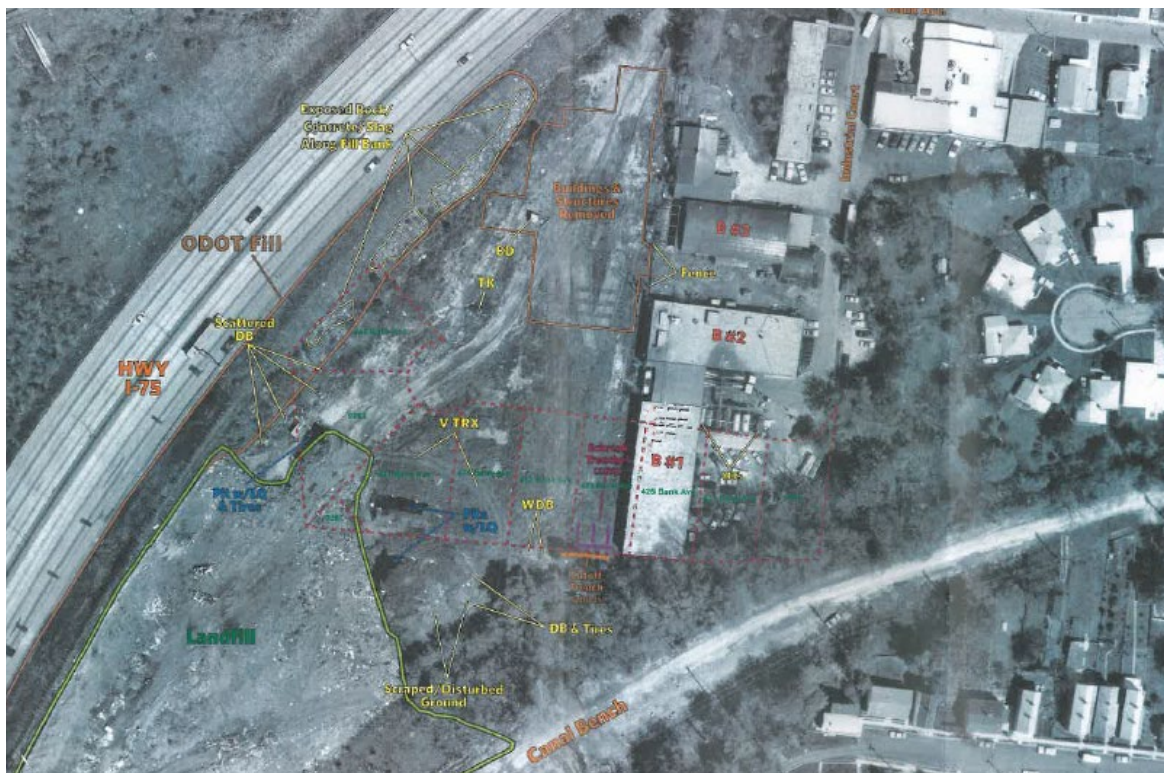
The landfill is located within an area of the village with a history of industrial use as early as the late 1800's and continuing through the late 1970's. The land occupied by the landfill has belonged to St. Bernard since 1945. Dumping at the site began prior to 1958.

Garbage from St. Bernard was taken to an incinerator located approximately ½ mile northeast of the landfill. The garbage was incinerated and the ash was disposed of at the landfill. According to the original Explosive Gas Monitoring Plan (EGMP) submitted in 1991, the landfill was also used for disposal of construction and demolition debris, stoves, refrigerators, tires, empty oil drums, soap manufacturing by-products, grass, tree limbs, and kitchen wastes. Depth of the landfill is estimated to vary between 23 and 29 feet.

In the late 1970's and early 1980's, various properties were acquired with the intent of converting the area northeast of the landfill into a residential area. Industrial structures in this area were demolished in the spring of 1977 and anecdotal information suggests that the demolition materials from these industrial structures were

used to fill what is now land occupied by residential structures. Figure 3.19.2-A is an aerial from 1974 showing the landfill and industrial buildings in relation to present day homes:

FIGURE 3.19.2-A

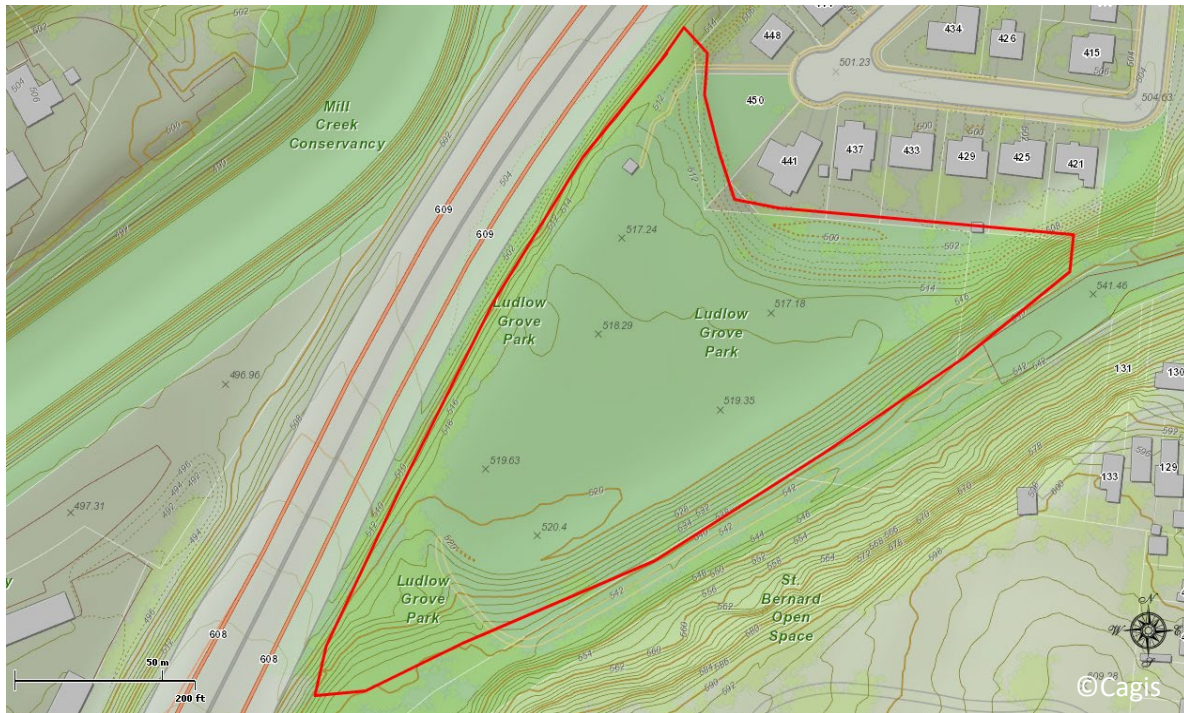


Ohio EPA confirmed that the landfill was closed in May 1977. Additional contouring and improvement of the cap was conducted from 1981 to 1985. While no specific closure plans have been located, information indicates that approximately 5 to 6 feet of cover material was placed over the landfill as a "cap".

At the request of Ohio EPA, landfill gas monitoring was initiated in the early 1990's. This included installing six gas monitoring probes (MP-1 through MP-6) along the northern edge of the landfill. The probes were to be installed between the assumed limits of the landfill and adjacent residential properties. However, since the limits of waste placement were unknown many of the probes were installed in direct contact with the waste mass. Seven additional probes (MP-7 through MP-13) were completed in April 2001. Installation of a vacuum line, attached to five of the original probes (MP-2 through MP-6), was also completed in 2001 converting these probes to extraction wells (EW-1 through EW-6). Following activation of this original extraction system, gas levels declined in the monitoring network with the exception of sporadic exceedances in probe MP-7. Since 2002 several probes and a gas cutoff trench have been installed in the area of MP-7 and MP-8 which showed elevated levels of combustible gas starting in 2007. It has been determined, through probe monitoring and test pits that the source of these elevated levels may have been present outside the landfill footprint.

In 2009 the Ohio EPA issued Directors Final Findings and Orders or DFFOs. The DFFOs stated "*Ohio EPA has concerns that exceedances of the LEL at the Facility Property Boundary continue to occur despite remedial efforts taken by Respondent, that explosive gas alarms within residences of adjacent landowners have sounded on at least five separate occasions, and that the full extent of waste placement likely has not been delineated at the Facility*". The orders contained 28 requirements of the facility related to explosive gas delineation, remediation plans, revisions to the EGMP, installation/replacement of permanent monitoring probes, and recalibration/installation of explosive gas alarms. These DFFOs also contain a very detailed history of explosive gas and the facility's monitoring/mitigation efforts up to the date of the orders.

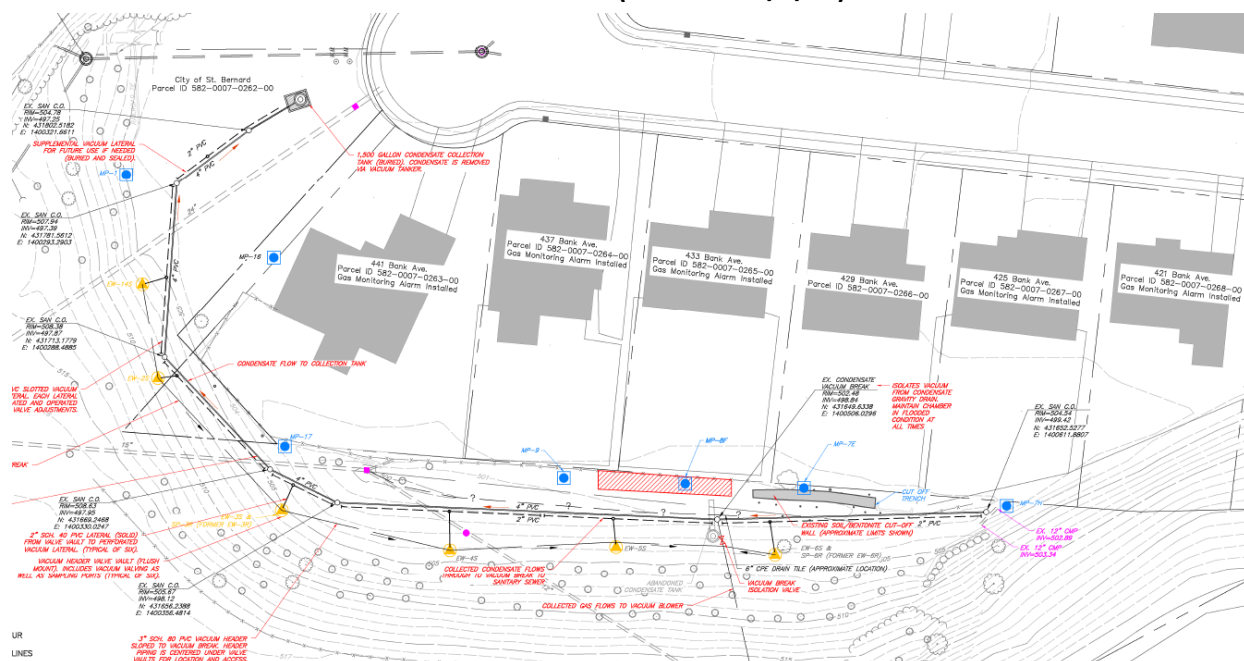
FIGURE 3.19.2-B



A remediation plan was accepted by the Ohio EPA in September of 2011 and was subsequently implemented by the village. Extensive sampling of borings and gases was conducted on private properties in 2011 by Ohio EPA. The results were reviewed by Ohio Department of Health's Health Assessment Section and results were reviewed with the residents in February of 2012. For more information on the sampling and health assessment – see those respective agencies. A revised EGMP was submitted in 2011. In April 2011 a new perimeter gas extraction system was activated. This new system along with the existing monitoring/extraction system has resulted in maintenance of compliant gas levels throughout the network with the exception of probes MP-7E, MP-8D, MP-8F, MP-9, MP-10, and MP-16 which showed seasonal elevated gas levels. In June 2012 a trench was excavated to remove organic materials adjacent to MP-8 series probes. During this excavation four, 8 series probes were removed and replaced. In July 2013 Ohio EPA issued a NOV for open dumping to the village. The NOV was in response to the results of a delineation investigation that revealed that waste was present on adjacent properties to the landfill. In August 2013 blowers for the extraction system were replaced to apply additional vacuum on the collector system. On November 3, 2014, a signed consent agreement was entered into Hamilton County Court between the Village and the Attorney General's Office, which required the Village to update and revise the Facility's EGMP for Ohio EPA approval. The revised EGMP, dated December 5, 2014, included installation of ten (10) additional monitoring probes in explosive gas monitoring network and properly abandoning any former compliance probes that are not included in the revised network.

In July 2015 the existing probes not incorporated into the monitoring network were abandoned. In February of 2018 the EGMP was altered to remove MP-10 which was abandoned. In September of 2019 the village requested to terminate the September 16, 2009 DFFOs. The facility provided information necessary to certify and demonstrate that the village performed its obligations under the DFFOs and in a December 16, 2019, letter the Ohio EPA terminated the DFFOs. Figure 3.19.2-C shows the existing monitoring network contained within the EGMP. Blue dots represent monitoring probes and yellow triangles are the location of extraction wells.

FIGURE 3.19.2-C (EGMP rev 2/4/20)



In April 2020, the city proposed a “*Work Plan for Blower Shut Down Test*”. The city proposed to shut down the blower attached to the extraction wells and monitor the existing probes to determine the blower shutdown’s effect. The monitoring data would be used to determine if the gas extraction system located along the northern border of the landfill was still needed. The proposal was approved in June of 2020. Near the end of 2020 the city requested and was granted an extension of the study through 2021.

SAMPLING RESULTS

No surface water sampling or biological sampling is performed at this landfill due to the lack of bodies of water immediately adjacent to the landfill.

Various gas migration control systems have been installed and operated since the 1990’s. The facility’s current EGMP (revised in 2020) requires monitoring semiannually. However, over the last few years the landfill has been monitored at varying intervals within the guidelines laid out in the “*Work Plan for Blower Shut Down Test*” discussed above. During a September 2021 monitoring event, probe MP-9 had methane in excess of 5%. This concentration of methane triggered contingency monitoring which was performed at an increased frequency through November 2021. Probe MP-7E also was above this 5% threshold during initial monitoring in September 2021 but was not verified by the subsequent validation resampling. 2021 monitoring was very similar to monitoring completed in 2020. During monitoring completed in September 2020 probes MP-7E and MP-9 had methane in excess of 5%. These concentrations of methane triggered an increase in monitoring of these probes through October 2020. Methane was not detected in any other probes during 2020. In 2019 the village conducted quarterly gas monitoring at the landfill. During 2019 monitoring there were three detections of methane. Methane was detected in MP-7E during the September 5, 2019 monitoring event at a concentration of 0.8 %. During the December 23, 2019 monitoring methane was detected in MP-1 at 0.1% methane and in MP-7H at 0.5% methane. During 2018 there was one detection (3.4% methane) in MP-7E on September 12, 2018. During 2017 there were some detections of methane in MP-7E and MP-10 which triggered contingency monitoring since concentrations were in excess of 5% methane. As required by the EGMP additional monitoring and reporting were completed. Adjustments to the gas extraction system were also made and the facility eventually returned to quarterly monitoring. The facility was required to implement contingency monitoring for MP-9 and MP-10 in 2016. As required by the EGMP Combustible Gas Indicators (CGI’s) are made available to residences adjacent to the landfill. The village is required to recalibrate these indicators annually and maintain/replace them as needed. (*Sampling data for this landfill is in the files at Hamilton County Public Health*).

FACILITY INSPECTIONS

The site was inspected by HCPH on December 27, 2021. No violations or nuisance conditions were observed on the site.

SITE PRESENT DAY

The former landfill is covered mainly with established and maintained grass and is currently used as Ludlow Grove Park. The park contains soccer fields and a playground in the lower portion while a paved walking path is located in the upper portion.

