Memo

SUBJECT
Fort Edward Landfill Health and Safety (H&S) Audit

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OUR REF
D009804 WA 07, NYSDEC Site #558001

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PROJECT NUMBER
30055713

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This memorandum summarizes the observations made during the site Health and Safety Audit at the Fort Edward Landfill located at 45 Leavy Hollow Lane, in the Village of Hudson Falls, New York. The Audit was conducted on 30 March 2021 by Aaron Bobar, a Senior Scientist and Safety Specialist at Arcadis of New York, Inc. (Arcadis). The Audit included a site walkthrough, inspection of equipment, review of site documentation, and interviews with site personnel.

H&S Audit Summary

The following provides a summary of the audit observations and action item recommendations, as applicable:

Record Keeping

The site Health and Safety documentation appeared complete, and up to date. No discrepancies were noted is the Site Health and Safety Plan (HASP) or Emergency Action Plan (EAP). Emergency evacuation procedures and evacuation/ rally points were identified. Safety Data Sheets (SDS) were provided for the chemicals stored on site.

General Building Safety and Housekeeping

The treatment building was generally clean and well maintained, with no structural issues or hazards noted. Tools were stored neatly and were not left out as tripping hazards. Work areas were open and accessible. Lighting in all areas was adequate, with no visibility issues noted. Walkways and work surfaces were clean and dry.

The elevated platform used at the site to access an elevated tank was properly counter-weighted (Figure 1), with clean treads, proper handrails, fall barriers, and toe boards installed.

Figure 1 – Elevated platform counterweight.

Employees noted a previous issue with falling ice from the roof posing a serious hazard at the rear service entrance at the eastern side of the building. Ice rails had been installed on the roof. However, this

area should be re-assessed to ensure that there is no further risk, and if necessary, consider installation of an open vestibule at that entrance to protect from falling ice/ snow.

Figure 2 - Staging Area; electrical panels.

The electrical equipment and control room was being used as the main office/ staging area for the building (Figure 3). A table, chairs, and other equipment were stored near energized panels. Site personnel should evaluate this issue and consider if there is a risk of arc-flash or electrocution hazard for personnel working in proximity to the energized equipment.

Sumps and drains present in the floor of the facility had protective non-slip grating over them, which appeared to be in good condition and properly installed.

Chemical and Equipment Storage

Chemicals were properly stored and labeled. The building was labeled with appropriate National Fire Protection Association (NFPA) 704 chemical hazard placard on the outside. However, signage should be evaluated to confirm that it meets the current Federal and State Hazard Communication (HazCom) standards.

Splash guards were installed around areas where chemicals were routinely handled. However, some spillage was noted on top of the chlorine container attached to the metering equipment – chemical drums and adjacent surfaces should be kept clean at all times to prevent incidental contact with the chemicals (Figure 3). Emergency spill equipment was present at the facility, and all employees knew where the equipment was stored.

Due to the use of chlorine, an automatic detection and venting system was installed within the treatment building to actively vent the building in the event of a chemical spill or accidental overdosing. This system should be tested on a periodic basis both using the manual switch, and also by testing the sensor directly to confirm that it is calibrated properly and still capable of detecting the chlorine.

A storage container is used for storage of the mower and other equipment (Figure 4). A flammable storage cabinet was present within this container, where small amounts of gasoline are kept for the riding mower and other groundskeeping equipment. While a vent was present in the flammable cabinet, it was not vented to outside the storage container. Upon entering, a strong petroleum odor was noted within the storage container. The flammable storage cabinet should be actively or passively vented to the outside of the storage container to fresh air. In addition, confirm that the steel container is properly labeled/ placarded to identify flammable storage.

Figure 3 - Splash guard; some spillage noted.

Safety Equipment and Site Equipment

There were two fire extinguishers at the facility, one at the main door, and one near the entrance to the electrical equipment room/ operations center. Both were inspected, fully charged

and up to date. However, there was no fire extinguisher at the rear door on the northwestern corner of the building. In addition, the fire extinguisher at the main door did not have signage above it to identify its location, and was otherwise difficult to locate unless you were standing at the door.

Figure 4 - Flammable storage cabinet.

Ladders in use were properly rated, properly set up, and seemed to be in good condition. Safety harnesses on a cable system attached to the ceiling were present at the top of the raised platform walkway that led to top of the primary tank, for the use of personnel having to walk on the platform at the top of the tank (Figure 5). One potential concern was the effect that chlorine gas, or contaminants present in the treatment train may have on the harnesses, which were left hanging above the open tank. These should be re-located from above the tank when not in use, and should be periodically inspected for both wear and potential chemical degradation.

Hand and power tools were kept on shelves, or in storage bins, along with other parts and equipment. Near the garage door there were a number of tools stored on the wall on tool hangers (Figure 5). The racks did not have stops on the ends to prevent the tools from potentially being dislodged when handling drums or performing other work in that area. The tool racks should be equipped with stops on the ends to better secure tools from falling down.

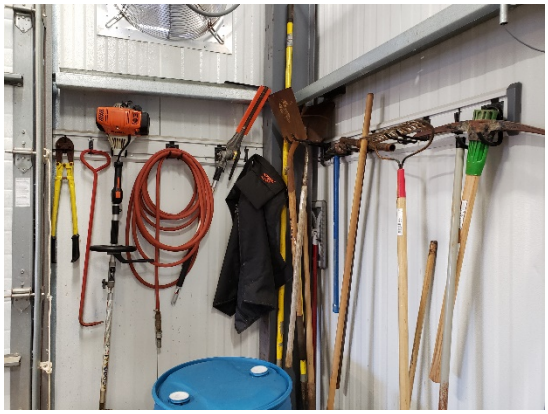
Figure 5 - Hanging equipment

In addition, it was noted that many of the outlets within the building were not ground-fault circuit interrupter (GFCI)-type outlets. As much of the activities within the treatment building involve working around water/ liquids, it is recommended to review the requirements for outlets within the treatment building, and consider replacing them as appropriate.

Site Operations

Site operations were not observed during the audit; however, employees were interviewed to discuss operations and evaluate potential issues related to sampling and monitoring at the site. The primary safety hazards were associated with Lock-out/ Tagout (LOTO) of equipment during maintenance operations, performance of sampling in permit-required confined spaces, and mowing and groundskeeping.

- The established LOTO procedures appeared clear, the qualified personnel identified, and the appropriate equipment was available on site.
- For confined-space entry (CSE) operations, work practices have been established to prevent the need for entering most of the confined spaces. However, none of the permit-required confined spaces were labeled as such, there were no posted warning signs at any of the identified locations.

- CSE entry/ fall protection was maintained at the site in the storage container. This equipment is not frequently used so it is recommended that periodic inspection and maintenance of this equipment be performed to ensure that the equipment is safe for use prior to being needed. This should be in addition to inspections just prior to use.

Access of some of the extraction well vaults, even without entry, posed a risk of personnel falling a considerable distance down the manhole (Figure 6). In those instances, temporary fall barriers or rails should be installed to prevent accidental falls. Toe boards should be present to prevent accidental falls of tools or equipment into the vaults, requiring entry to recover them.

Figure 6 – Collection sump EW-4 - fall hazard and CSE

In addition to CSE monitoring, there is a sampling point on the Polishing Pond that is accessed via a floating dock. During the audit, the dock was tilted, unstable, and did not appear to be in good condition. This dock should be re-built, or otherwise repaired to prevent falls into the Polishing Pond (Figure 7).

Mowing operations at the site keep grass short in areas accessed during monitoring, limiting exposure to ticks and making access easier. The mowing is done using a riding mower kept at the site. There are different operators currently trained to use the mower, however, on occasion new personnel are brought on to perform mowing.

- Anyone operating any powered or riding equipment at the site should be trained in the safe operation of the equipment, including performing of safety checks, correct operation, operational limits (slopes, etc.), and equipment maintenance requirements.
- New staff should be trained and tested by a competent person familiar with the equipment prior to being authorized to operate it. This training should be documented.
- All staff operating riding mowers should have periodic ‘competency checks’ performed and documented to ensure they are capable of operating and maintaining the equipment safely.

Figure 7 – Polishing Pond sampling dock

Recommendations

The following actions are recommended for consideration at the Fort Edward Landfill:

1. Site personnel should evaluate use of the electrical equipment area as a primary staging area for operations, and should consider if there is a risk of arc-flash or electrocution hazard for personnel working in proximity to the energized equipment.
2. The building ventilation system should be tested on a periodic basis both using the manual switch, and also by testing the sensor directly to confirm that it is calibrated properly and still capable of detecting the chlorine.
3. Installation of appropriate signage at each permit-required confined space sampling location to identify it as such.
4. Periodic inspection of CSE equipment to ensure it is ready for use, in addition to inspection just prior to use.
5. Use temporary fall protection/ fall barriers with toe boards around open manholes during sampling activities, even if entry is not required, to prevent accidental falls of personnel or equipment.
6. Competency evaluation of new operators prior to operating mowing equipment at the site; periodic re-evaluation of operators to document proficiency and knowledge of safe operation of mowing equipment, including riding mowers and hand-held trimming equipment.
7. Evaluation of the flammable storage cabinet within the storage container, and installation of an active or passive ventilation to the outside of the container to fresh air to prevent accumulation of flammable fumes within the storage container.
8. The outside of the storage container should have an appropriate NFPA/ HazCOM placards identifying that flammable materials are stored within.
9. Confirm that building HazCom placards conform to current standards.
10. Installation of fire extinguishers at each building egress point, and including appropriate signage above the installation point to identify the location of each fire extinguisher to site personnel.

11. Re-location of fall protection harnesses away from open tank areas to prevent potential deterioration of harness material from exposure to chlorine or site contaminants. Monthly inspection of harnesses to check for deterioration.
12. Provide closed-end racks for hand tools stored on the wall near the garage door, to prevent tools from potentially falling on staff if bumped.
13. If falling ice continues to be a significant hazard, consider constructing a vestibule over the rear doorway to protect workers from falling ice.
14. Many of the outlets within the building were not GFCI-type outlets. As much of the activities within the treatment building involve working around water/ liquids, it is recommended to review the requirements for outlets within the treatment building, and consider replacing them as appropriate.
15. The Polishing Pond sampling dock should be re-built, or otherwise repaired to prevent falls into the Polishing Pond.

Please feel free to contact me or Jeremy Wyckoff if you have any questions, or would like further clarification on any of the recommendations provided herein.