***Colchester ~ East Hampton***

 Water Pollution Control Facilities

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 **Administration Operations**

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 Joint Facilities Pump Station Checks

Standard Operating Procedure

Bacon Academy Pump Station

* 611 Norwich Avenue, Colchester CT, Northwest Access Road

Effective date: January 10, 2023

**RATIONALE / PURPOSE**

* Lift stations should be inspected at least weekly. (Based on system design and capacity, more frequent inspections may be required).
* Records of these inspections must be maintained through the use of written notes, logs, notebooks, and /or computer format.
* These are to be referenced by management, operations, and maintenance crews, to ensure established procedures are being followed to ensure the maximum lifespan of all facilities and equipment.
* Documentation may also be required by outside regulatory agencies and insurance companies in the event of a spill, equipment failure, or property loss.

**INSPECTIONS**

* Weekly
* Pickup any trash on the property.
* Shovel snow within the gate and spread ice melt if needed.
* Inspect the wet well.
* Visually inspect the components outside the pump station access tube.
* Record flow totalizer.
* Record pump hours.
* Inspect lighting.
* Inspect blower.
* Inspect sump pump.
* Inspect air compressors.
* Inspect floats for proper operation and clean each float so it is free of debris, rags, and grease.
* Lift the high/low level floats up and check alarms for proper operation.
* Report any potential safety conditions observed to the Superintendent and Colchester Utilities Administrator.
* QUARTERLY – Jan, Apr, Jul, Oct
* Dust and sweep.
* Grease pumps.
* Exercise both suction and discharge valves on pumps.
* Inspection of pumps (dry well) by monitoring the minute readings (without seeing an increase) in average minutes would ensure that the impeller is free of debris and fully pumping.

**METHODS / PROCEDURES: WEEKLY CHECKLIST**

* Open the wet well and from outside the wet well inspect with a strong flashlight for excessive grease and debris build up and note the condition on the weekly checklist.
* Inspect the wet well cover, tube lid lock, Mission system alarm antenna, Eversource meter, and vents for damage or vandalism.
* Open the tube lid and ensure that the blower and lights turn on.
* Let the blower run for 3-5 minutes to evacuate the old air
* Turn on the Drager X-am 2500 gas meter (Figure: 1) by holding down the green ok on button for three seconds.
* Dräger’s X-am® 2500 accurately detects Ch4, O2, H2S and CO.
* Tie Drager X-am 2500 gas meter to a rope and lower down the tube to make sure the air throughout the space is safe to enter.
* OSHA considers a space to have a **hazardous atmosphere** if it has any of the following conditions:
	+ >10% of Ch4 of flammable gas or vapor.
	+ Hydrogen sulfide level must be maintained below 10 ppm H2S.
	+ Oxygen, levels must be above 19.5% and not exceed 23.5% oxygen.
	+ Carbon monoxide, levels must remain below 35ppm.
* If anyone of these conditions is present down inside of the chamber there will be high pitched audio alarm, visually red flashing light and the Drager X-am 2500 gas meter will be vibrating.
* If an alarm should sound and acceptable levels are exceeded, secure the area and notify supervisor immediately.
* The gas monitoring device shall remain with the entrant while in the confined space during the entire maintenance process when entry is required.
* Fill out confined space alternate entry checklist before going down tube ladder with the Drager X-am 2500 gas meter attached to your belt.
* Descend carefully down tube ladder and confirm that the blower, housing, duct work and lights are in good working order and functioning properly.
* Purge air compressors of water by opening the valve at the bottom of the tank. Close the valve when the water stops flowing. Turn the selector valve on the bubbler to purge to clear the line to wet well.
* Record on the pump station checklist pump #1 and pump #2 hours located on the front of the control panel.
* On the control panel confirm that the pumps are on in “Auto” position and take note of any alarms.
* Verify both pumps are operating in “Alternate” on the control panel.
* Check piping, valves and penetrations for leaks.
* Listen for any unusual noise while the equipment is running.
* Place your hand on the side of each pump volute to feel the surface temperature. The volutes should be cold, if either of them is warm a pump has gone air bound.
* To prime a pump that has gone air bound shut discharge valve and lift up the check valve. With the check valve up slowly open the discharge valve partially and allow water to run back into the volute.
* Below the control panel ensure that the sump pump is working by lifting up the attached float.
* Lift the station flooding alarm and verify that it is functioning properly.
* Fill out the record book on the shelf.
* Ascend the ladder to the surface, turn off the blower, close the lid and ensure the blower has turned off. Turnoff the Drager X-am 2500 gas meter by holding down the blue + button along with the green ok on button for three seconds, verify that tube lid is closed and locked before leaving, and finish up confined space permit.
* Note anything unusual and record it on the lift station checklist, write it in log book, and notify the Superintendent and Colchester Utilities Administrator by text or email.
* Before leaving the pump station ensure that the Mission cabinet, tube lid, and gate are locked.

**METHODS / PROCEDURES: QUARTERLY CHECKLIST**

* Open the tube lid and ensure that the blower and lights turn on.
* Let the blower run for 3-5 minutes to evacuate the old air.
* Turn on the Drager X-am 2500 gas meter (Figure: 1) by holding down the green ok on button for three seconds.
* Dräger’s X-am® 2500 accurately detects Ch4, O2, H2S and CO.
* Tie Drager X-am 2500 gas meter to a rope and lower down the tube to make sure the air throughout the space is safe to enter.
* OSHA considers a space to have a **hazardous atmosphere** if it has any of the following conditions:
	+ >10% of Ch4 of flammable gas or vapor.
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* If anyone of these conditions is present down inside of the chamber there will be high pitched audio alarm, visually red flashing light and the Drager X-am 2500 gas meter will be vibrating.
* If an alarm should sound and acceptable levels are exceeded, secure the area and notify supervisor immediately.
* The gas monitoring device shall remain with the entrant while in the confined space during the entire maintenance process when entry is required.
* Fill out confined space alternate entry checklist before going down tube ladder with the Drager X-am 2500 gas meter attached to your belt.
* Descend carefully down tube ladder and confirm that the blower, housing, duct work and lights are in good working order and functioning properly.
* Lower down a five-gallon bucket for trash and debris collection.
* Inspect for excessive grease and debris build up and clean with shop rags and simple green.
* Use the broom and dustpan to clean the floors.
* Place all trash and debris in the five-gallon bucket and send it back to the surface.
* Grease the pumps.
* Before exercising the valves have the lock out both pumps.
* Ensure that both pumps have been locked out before exercising the valves.
* Turn each valve fully clockwise and fully counter-clockwise and make sure to return them to their normal operating position (open).
* Unlock the pumps and return them to auto.
* Ensure that both pumps are valved properly before ascending the elevator.
* Note anything unusual and record it on the lift station checklist, write it in log book, and notify the Superintendent and Colchester Utilities Administrator by text or email.
* Before leaving the pump station ensure that all lights are turned off, and the doors and gate are locked.

Figure: 1

