

**APPENDIX D**

**2019 LEACHATE MANAGEMENT SYSTEM  
MAINTENANCE LOG**

**2019 LEACHATE MANAGEMENT SYSTEM (LMS)  
MAINTENANCE LOG  
CROSSROADS LANDFILL**

DATE	LMS LOCATION	MAINTENANCE TASK
<b>January</b>		
1-Jan	Site Wide	Adjusted all Dwyer gauges.
2-Jan	Phase 12B	Pulled both Primary Leachate Collection (LC) System bubbler tubes, inspected, cleaned.
2-Jan	Phase 9UD	Rewired pump circuit to enable "hand" pumping.
4-Jan	West Central Pump Station	Replaced three primary breakers for incoming power.
5-Jan	Phase 8B	Replaced communication antenna.
7-Jan	South Central Pump Station	Reset the VFD for Pump #1.
11-Jan	Phase 123	Replaced defective wiring for the Primary LC System VFD.
18-Jan	Site Wide	Adjusted all Dwyer gauges.
21-Jan	Pump Station E	Tested motor windings for Pump #1, reset starters for normal operations.
21-Jan	Phase 12B	Reset the Dwyer gauge for Primary LC System.
22-Jan	Phase 8C'	Replaced communication antenna.
24-Jan	Phase 12A	Evacuated stormwater from leachate pump vault caused by a clogged catch basin in the perimeter drainage swale.
24-Jan	Phase 12B	Evacuated stormwater from leachate pump vault caused by a clogged catch basin in the perimeter drainage swale.
26-Jan	Pump Station E	Investigated a level signal loss alarm. Removed transmitter, cleaned and reinstalled.
<b>February</b>		
6-Feb	Site Wide	Adjusted all Dwyer gauges.
19-Feb	Phase 10B	Installed two new thermostat controls for heaters in leachate pump vault.
20-Feb	Site Wide	Blew down all Primary LC & Secondary Leak Detection (LD) bubbler tubes.
21-Feb	Phase 10A	Installed new IFC 300 (W) flow meter converter for Primary LC System.
22-Feb	Phase 8C'	Installed new 3HP pump for Primary LC System.
27-Feb	Phase 123	Installed new relay module for Primary LC System pump control.
28-Feb	West Central Pump Station	Replaced hose clamps and hardware for pump in interstitial space.
<b>March</b>		
5-Mar	Phase 11B	Installed new 2" ASCO Hat solenoid valve.

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8-Mar	Site Wide	Adjusted all Dwyer gauges.
11-Mar	Leachate Storage Tank Facility	Evacuated external (loadout) containment sump.
13-Mar	Leachate Storage Tank Facility	Installed sump pump in concrete secondary containment area to manage stormwater.
20-Mar	Leachate Storage Tank Facility	Changed oil in both MTX loadout pump motors..
20-Mar	Phase 11B	Pulled Primary LC System & Secondary LD System bubbler tubes, cleaned, inspected and reinstalled.
20-Mar	Phase 11B	Removed and repaired Dwyer gauge for Secondary LD System.
20-Mar	Phase 11B	Removed and inspected Secondary LD System pipelines and checked valve.
25-Mar	Phase 7	Pulled Primary LC System & Secondary LD System bubbler tubes, cleaned, inspected and reinstalled.
26-Mar	Vacuum Tank	Installed new tire on trailer.
26-Mar	Vacuum Tank	Repaired hose for suction line on pump.
26-Mar	Vacuum Tank	Repaired valve handle for intake pipe.
26-Mar	Sitewide	Evacuated LMS containment sumps and manholes as required.
27-Mar	Phase 123	Installed new relay for the Primary LC System motor VFD.
27-Mar	Phase 11B	Removed and repaired electro-gauge for Secondary LD System.
<b>April</b>		
4-Apr	Phase 10A	Installed new wiring to existing flowmeter converter for Primary LC System.
5-Apr	Pump Station E	By-passed existing wiring from intrinsic barrier to PLC due to damaged conduit by re-wiring for level probe for operation.
5-Apr	Phase 123	Installed new relay module for Secondary LD System.
6-Apr	Phase 12A	Installed new IFC 090 flow meter converter for Primary LC System.
6-Apr	Phase 8	Installed second LMS communication antenna and repeater.
8-Apr	Phase 10A	Installed mast and antenna for LMS communication radio.
8-Apr	Phase 8C'	Installed new antenna and coaxial cable for LMS communication radio.
8-Apr	Site Wide	Inspected LMS leak detection manholes.
8-Apr	Site Wide	Evacuated LMS leak detection and containment manholes that required service.

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8-Apr	Site Wide	Adjusted all Dwyer gauges on site.
18-Apr	Site Wide	Evacuated LMS leak detection and containment manholes that required service.
23-Apr	Phase 12A	Evacuated LMS leak detection manhole.
24-Apr	Phase 8C'	Installed new omni antenna for LMS communication radio.
24-Apr	Phase 9B	Installed new mast and omni antenna for LMS communication radio.
24-Apr	Phase 8C'	Installed new solar cabinet for LMS Repeater.
26-Apr	Phase 8C'	Installed new prosoft radio for Primary LC System.
26-Apr	Phase 8C'	Installed new polyphaser cable for Primary LC System.
27-Apr	Site Wide	Evacuated LMS leak detection and containment manholes that required service.
27-Apr	Leachate Storage Tank Facility	Evacuated external (loadout) containment area sump.
27-Apr	Vacuum Tank	Installed new tire on trailer.
29-Apr	Asbestos Pump Station	Third Party installed breaker box for service disconnect.
29-Apr	Phase 12B	Reprogrammed radio due to communication loss.
<b>May</b>		
7-May	Phase 8B	Installed new IFC 300 (W) flowmeter converter and Optiflux 4000 flowtube for the Primary LC System.
8-May	Phase 12B	Installed used IFC 090 flow meter converter and used Optiflux 300 flowtube for the Primary LC System.
8-May	Phase 10B	Pulled Primary LC & Secondary LD System bubbler tubes, inspected, cleaned.
13-May	Phase 12A	Pulled Primary LC & Secondary LD System bubbler tubes, inspected, cleaned.
15-May	Phase 8B	Reprogrammed new IFC 300 (W) flowmeter converter for correct span.
16-May	Site Wide	Adjusted all Dwyer gauges.
17-May	Site Wide	Turned off heaters in leachate pump vaults and control panels.
20-May	Site Wide	Evacuated LMS leak detection manholes that required service.
23-May	Phase 8C'	Installed new level probe for Primary LC System.
23-May	Phase 8C'	Third Party rodded and vacuumed two 24-inch Primary LC riser pipes.
28-May	Site Wide	Adjusted all Dwyer gauges.

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29-May	Leachate Storage Tank Facility	Cleaned sumps within containment area.
<b>June</b>		
4-Jun	Phase 8C'	Removed 2" underdrain flow tube for inspection.
5-Jun	Site Wide	Adjusted all Dwyer gauges.
6-Jun	Phase 8C'	Sent out 2" underdrain flow tube for 3rd party evaluation.
19-Jun	Vacuum Tank	Repaired two tires.
20-Jun	Vacuum Tank	Serviced vacuum tank engine, changed pump oil.
20-Jun	Phase 12A	Replaced two grounding rings on Primary LC system flowtube.
20-Jun	Site Wide	Evacuated LMS leak detection and containment manholes that required service.
<b>July</b>		
1-Jul	Site Wide	Adjusted all Dwyer gauges.
2-Jul	West Central Pump Station	Installed new 30A breaker for pump circuit.
5-Jul	Phase 10B	Installed new air compressor for bubbler system.
8-Jul	Phase 8A	Removed used Optiflux 300 flowtube for 3rd party evaluation.
8-Jul	Phase 8A	Installed new Optiflux 300 flowtube for the Primary LC System.
10-Jul	Phase 7	Installed new IFC 300 (W) flowmeter converter and Optiflux 4000 flowtube for the Primary LC System.
13-Jul	Site Wide	Adjusted all Dwyer gauges.
17-Jul	Phase 8C'	Installed new breaker for 3 phase power due to phase loss.
17-Jul	Phase 11	Installed new breaker for 3 phase power due to phase loss.
19-Jul	West Central Pump Station	Replaced the control circuit breaker in control panel.
20-Jul	Phase 7	Installed new Primary LC level probe and transmitter.
29-Jul	Phase 7	Installed new driver software for level display.
<b>August</b>		
1-Aug	Phase 8C'	Installed new 3HP pump to existing motor for Primary LC System.
2-Aug	Phase 11	Pulled Primary LC System & Secondary LD System bubbler tubes, cleaned, inspected and reinstalled.

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2-Aug	Phase 9C	Installed new level probe in Primary LC System.
6-Aug	Phase 9C	Pulled Primary LC System & Secondary LD System bubbler tubes, cleaned, inspected and reinstalled.
6-Aug	Phase 12B	Inspected and tested Primary LC System IFC 080 flowmeter converter.
7-Aug	Phase 8C'	Installed new 3HP pump to existing motor for Primary LC System.
8-Aug	Phase 8C'	Inspected both 3" titan check valves for Primary LC System.
9-Aug	Phase 8C'	Tested control circuit for the 3HP pump for Primary LC System.
9-Aug	Site Wide	Evacuated LMS containment manholes that required service.
12-Aug	Phase 9B	Installed new 2HP motor for Primary LC System.
13-Aug	Phase 8C'	Installed new 3HP motor for Primary LC System.
14-Aug	Phase 12B	Installed spare test IFC 090 flowmeter converter to troubleshoot flow rate.
15-Aug	Phase 10B	Pulled Primary LC System & Secondary LD System bubbler tubes, cleaned, inspected and reinstalled.
19-Aug	Phase 10A	Pulled and cleaned 3" check valve for Primary LC System.
20-Aug	Phase 10A	Installed new transmitter for the level probe for the Primary LC System.
21-Aug	Phase 10A	Installed new digital display panel for level probe.
22-Aug	Phase 10A	Replaced the 3" techno check valve for Primary LC System.
26-Aug	Phase 8C'	Removed the 3HP Primary LC pump and motor assembly to troubleshoot.
27-Aug	Phase 8C'	Completely rewired the Primary LC pump motor lead from bulkhead.
27-Aug	Phase 8C'	Rewired the four-way plug connector in vault.
27-Aug	Site Wide	Adjusted all Dwyer gauges.
27-Aug	Phase 8C'	Installed new 3HP pump to existing motor for Primary LC System.
28-Aug	Phase 11B	Tested the solenoid valve in the Secondary LD System.
29-Aug	Phase 8C'	Installed new starter for 3HP motor for Primary LC System.
29-Aug	Phase 9C	Removed and cleaned pump contactors for Primary LC System.
30-Aug	Phase 8C'	Removed 3HP motor/pump assembly and replaced with new 2HP assembly for the Primary LC System.

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<b>September</b>		
5-Sep	Phase 8C'	Removed blind flanges on Primary LC lines for 3rd party inspection using a robotic camera.
8-Sep	Site Wide	Adjusted all Dwyer gauges.
11-Sep	Leachate Storage Tank Facility	Removed, cleaned and reinstalled Auma valve by 3rd party.
12-Sep	Phase 8C'	Third party performed annual cleaning and camera of Primary LC system collection lines.
12-Sep	South Central Pump Station	Repaired remote controller for Pump #2.
12-Sep	Phase 12B	Replaced the IFC 080 flowmeter converter with IFC 090 flowmeter convrter for the Primary LC System.
12-Sep	Phase 11A	Removed all fittings on unused 24" riser pipe end plate for use in Phase 8C' acid wash hook up.
13-Sep	Phase 8C'	Fabricated two flanges for 8C' Primary LC system cleanout line.
15-Sep	Leachate Recirculation Truck	Repaired starter wiring on pump motor.
15-Sep	Phase 8C'	Installed blind flange on 24" riser pipe end plate.
16-Sep	Phase 8C'	Third party conducted acid flush.
16-Sep	Phase 8C'	Assembled flange/quick disconnect on Primary LC system cleanout lines for third party consultant performing acid flush.
17-Sep	South Central Pump Station	Replaced load-out pump controller fuse to reset pump fault.
17-Sep	Phase 8A	Reset on/off set points for Primary LC system Pump #1.
20-Sep	South & West Central Pump Stations	Introduced defoamer agent to manage excess foam.
23-Sep	Phase 8C'	Installed a VFD for Primary LC System Pump #2.
24-Sep	West Central Pump Station	Installed two new jumpers from MST fiber connector to the patch panel.
24-Sep	Phase 9A	Installed new digital display for level probe for the Primary LC System.
24-Sep	Site Wide	Evacuated LMS leak detection and containment manholes that required service.
26-Sep	Phase 10A	Due to power surge, installed new transmitter for the level probe and Precision Digital display for the Primary LC System.
<b>October</b>		
2-Oct	Site Wide	Adjusted all Dwyer gauges.
2-Oct	Phase 11B	Installed blind flanges on riser pipes.
2-Oct	Phase 12B	Installed blind flanges on riser pipes.

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5-Oct	Leachate Storage Tank Facility	Changed oil in both MTX loadout pump motors..
7-Oct	Site Wide	Adjusted all Dwyer gauges.
9-Oct	Phase 8C'	Removed both radio communication repeater units from the landfill.
9-Oct	Phase 8C'	Disassembled the large solar array/repeater used for Leachate Management System radio communication.
11-Oct	Site Wide	Adjusted all Dwyer gauges.
16-Oct	Vacuum Tank	Repaired vacuum tank suction valve.
16-Oct	Vacuum Tank	Replaced flat tire with new tire.
16-Oct	Phase 12B	Replaced one airline and filter from compressor to the bubbler system.
16-Oct	Pump Station "E"	Reset breaker for Pump #1.
16-Oct	Phase 9C	Replaced panel heater.
16-Oct	West Central Pump Station	Replaced panel heater.
18-Oct	Site Wide	Performed LMS leak detection and containment manhole inspections.
21-Oct	Phase 12B	Removed Primary LC System flow tube for inspection.
22-Oct	Phase 12B	Installed refurbished Primary LC System flow tube.
28-Oct	Vacuum Tank	Replaced flat tire with new tire.
28-Oct	Phase 9A	Pulled Secondary LD System bubbler tube and cleaned.
29-Oct	West Central Pump Station	Applied defoamer agent to control excess foam.
31-Oct	Phase 10A	Removed Primary LC System bubbler tube and electronics.
<b>November</b>		
1-Nov	Phase 10A	Installed new Primary LC System level probe.
1-Nov	Site Wide	Adjusted all Dwyer gauges.
4-Nov	Site Wide	Turned on all leachate pump vaults and control panel heaters.
4-Nov	Phase 10A	Installed new level display for Primary LC System.
5-Nov	Phase 10A	Commissioned the new level display.
5-Nov	Site Wide	Adjusted all Dwyer gauges.



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6-Nov	Leachate Storage Tank Facility	Exercised all valves.
6-Nov	Leachate Storage Tank Facility	Checked oil in both MTX loadout pump motors.
6-Nov	Leachate Storage Tank Facility	Commissioned the primary tank recirculation pump.
7-Nov	Tanker Truck	Winterized truck.
7-Nov	Phase 10A	Reprogrammed/spanned Primary LC System level probe.
11-Nov	Vacuum Tank	Drained and winterized.
11-Nov	Leachate Storage Tank Facility	Installed two temporary heaters in control room.
13-Nov	Phase 10B	Pulled Secondary LD System bubbler tubes, inspected, cleaned, and reinstalled.
14-Nov	Phases 4 & 5 Secondary & Underdrain	Graduated 5-gallon buckets for leachate flow test (i.e., bucket test).
15-Nov	Phase 10B	Installed new level display for Primary LC System.
16-Nov	Phase 10B	Programmed level probe for proper display level.
18-Nov	Leachate Storage Tank Facility	Removed both secondary containment sump pumps for winter operation.
19-Nov	Leachate Storage Tank Facility	Replaced leaking ball valve at discharge pump.
21-Nov	Leachate Storage Tank Facility	Replaced a portion of valve heat trace.
21-Nov	Site Wide	Adjusted all Dwyer gauges.
22-Nov	Phase 10B	Cleaned one Primary LC System check valve.
<b>December</b>		
2-Dec	Site Wide	Adjusted all Dwyer gauges.
5-Dec	Phase 11	Removed, cleaned, inspected Phase 11A, 11B, 11C Primary LC System bubbler tubes.
9-Dec	Phase 8C'	Installed new VFD drive for Primary LC System 2HP motor.
13-Dec	Site Wide	Adjusted all Dwyer gauges.
19-Dec	Site Wide	Increased t-stat for heaters in leachate pump vaults.