

Solid Waste Management Facility Guidelines for Municipal Waste Transfer

Effective July 5, 2023



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1 About this Guideline

The purpose of this guideline is to provide guidance and outline the acceptable minimum requirements for siting, constructing, operating and rehabilitating a Solid Waste Management Facility for transfer, storing, and processing of municipal solid waste (MSW Transfer Facility). Final assessment of applications for an approval for the construction and operation of a MSW Transfer Facility will be on a case-by-case basis. Nova Scotia Environment and Climate Change (herein referred to as the Department) may impose terms and conditions in an Approval that exceed the minimum requirements outlined below to prevent adverse effects.

2 Legislation

This guideline references the following provincial Acts, Regulations and Departmental Guidelines, as amended from time to time.

- (a) *Environment Act, S.N.S. 1994-95, c.1*
- (b) *Solid Waste-Resource Management Regulations*
- (c) *Activities Designation Regulations*
- (d) *Sulphide Bearing Material Disposal Regulations*
- (e) *Approval and Notification Procedures Regulations*
- (f) Contingency Planning Guidelines
- (g) Guidelines for Environmental Noise Measurement and Assessment

3 Definitions

For the purpose of this guideline, a term defined in the *Activities Designation Regulations* Division III Part 2 or *Solid Waste Resource Management Regulations* has the same meaning when used in this guideline.

“abandoned” means site operations have stopped for a minimum of 36 consecutive months or notification of abandonment has been received in accordance with the *Approval and Notification Procedures Regulations*.

“**active area**” means the area occupied by any structure(s), storage area, processing location, leachate treatment systems, settling ponds, and/or wastewater management infrastructure, associated with municipal solid waste. The active area excludes access roads.

“**industrial waste**” means garbage, refuse, sludge, rubbish, tailings, debris, litter and other discarded materials resulting from industrial or commercial activities requiring Approval under Division V of the Activities Designation Regulations.

“**professional hydrogeologist**” means a person with hydrogeology training and experience, licensed to practice in Nova Scotia in accordance with the Geoscience Profession Act or professional engineer.

4 Guideline

4.1 Siting and Separation Distance Requirements

- (1) Applications for Approval to construct or expand a MSW Transfer Facility must be accompanied by a letter from the municipal unit stating that the proposed MSW Transfer Facility meets all applicable zoning, planning restrictions and such other by-laws as may be required.
- (2) Unless otherwise provided for in this Section or directed in an Approval issued by the Department, a MSW Transfer Facility must meet the minimum separation distances measured from the boundary of the active area to the feature listed in Table 1.
 - (a) Separation distances apply only to features present on the date the Approval Application is received by the Department.
 - (b) The minimum separation distances do not apply to the approved active area if the Approval was issued prior to the effective date of this Guideline, unless the MSW Transfer Facility has been abandoned or fails to maintain an active Approval.
 - (c) Future expansion of the active area for existing facilities must meet the separation distances.
- (3) An Administrator may impose additional terms and conditions in an Approval increasing a minimum separation distance in Table 1, in order to prevent adverse effects.

Table 1: Minimum separation distances

Feature	Horizontal Distance (m)
A) Watercourse (top of bank) and Wetland (boundary) or marine water body	30
B) Property line of MSW Transfer Facility (PID(s))	30
C) Municipal drinking water supply	See section 5) below
D) Foundation of any off-site structure used for commercial, industrial, residential, or institutional purpose	90
E) Off-site dug or drilled drinking water supply well (other than municipal drinking water supply)	90

- (4) An Administrator may reduce the minimum separation distance required for item B in Table 1, if the Administrator is satisfied that the reduction would not cause an adverse effect and the applicant has provided both of the following:
 - (a) a copy of an easement which has been recorded in the registry of deeds, from the affected property owner(s) granting and permitting the encroachment on the minimum separation distance; and
 - (b) a satisfactory written explanation of why the alternate separation distance is necessary including evidence that reduced separation distances at the site will not create the potential for adverse effects.
- (5) For item C in Table 1, the minimum separation distances for municipal drinking water supply are as follows:
 - (a) outside the municipal drinking water supply's Source Water Protection Area, and
 - (b) outside the boundary of any provincially designated Protected Water Area.
- (6) An Administrator may reduce the minimum separation distance required for item C in Table 1 if the Administrator is satisfied that the reduction would not cause adverse effects and the applicant for an Approval has provided the following:
 - (a) a satisfactory written explanation of why the alternate separation distance is necessary; and

- (b) written confirmation from the municipal drinking water supply operator that they are satisfied that the reduced separation distance creates no potential adverse effects and (1) would not contravene any regulations or by-laws applicable to the municipal drinking water supply, or municipal source water protection plans.
- (7) An Administrator may refuse to approve a reduction in the minimum separation distances in Table 1, if any of the following apply:
- (a) allowing the reduced separation distance would cause adverse effects which do not align with the intent of the Act, Regulations or this Guideline;
 - (b) the reasons or evidence provided supporting the request to reduce the minimum separation distance are insufficient and do not in the opinion of the Administrator align with the intent of the Act, Regulations, or this Guideline; or
 - (c) the minimum separation distances set out in Table 1 can be met.

4.2 General MSW Transfer Facility Design, Construction, and Operation

- (1) The MSW Transfer Facility design must be prepared and signed by a professional engineer.
- (2) The MSW Transfer Facility design must be approved by an Administrator prior to construction.
- (3) All phases of construction shall be overseen by a professional engineer, or technologist who works under the supervision of a professional engineer.
- (4) Written certification by a professional engineer is required, within 6 weeks of project completion, stating that the construction and installation of the MSW Transfer Facility meets the requirements of the approved drawings and specifications.
- (5) The certification must confirm that all as-built drawings and any other relevant documentation have been turned over to the Approval Holder(s) by the professional engineer.
- (6) Facilities for storing, transferring, and processing of MSW must be designed and constructed in accordance with the following minimum requirements, unless otherwise provided in the Approval. All facilities must have:
 - (a) Controlled entry and exit infrastructure;
 - (b) Weigh scales;

- c) Legible signage at the entrance of the MSW Transfer Facility that includes:
 - (i) days and hours of operation,
 - (ii) a list of acceptable/unacceptable waste, and
 - (iii) emergency contact numbers
 - (d) Features to minimize the generation of leachate and odours from the MSW. These features shall require the enclosure of the MSW tipping floor or container to minimize the infiltration of precipitation and the release of odours.
 - (i) The receiving floor for the tipping of municipal solid waste shall be impermeable.
 - (e) Leachate management system consisting of infrastructure and monitoring systems designed to collect, monitor, control, and treat leachate from MSW prior to being discharged into the environment. The system shall:
 - (i) have a leachate collection and removal network in the active transfer area;
 - (ii) function year round; and,
 - (iii) have a means of monitoring all treated leachate discharges.
 - (f) Exposed areas stabilized to prevent erosion and sedimentation.
- (7) All facilities must have the following operational requirements:
- (a) Direct supervision of the MSW Transfer Facility is required during the hours it is open and accepting materials.
 - (b) Litter must be controlled.
 - (c) Measures must be in place to prevent illegal dumping and vandalism;
 - (d) Air quality, noise, odours, and dust must be controlled and as a minimum follow the requirements stated in Appendix B
 - (e) An effective vector control program that includes but is not limited to birds, insects, and rodents, must be in place.
 - (i) If the Department deems the vector control inadequate, additional control measures or changes to the operation may be required.
 - (f) Daily inspections must occur to maintain good housekeeping practice and appropriate action is to be taken to reduce vector and litter problems.

- (g) Standard procedures are required that address any complaints associated with the MSW Transfer Facility which would include:
 - (i) immediately investigate the cause of the complaint and undertake immediate and appropriate action, to correct the problem;
 - (ii) record all complaints and document the date, time, name, address and telephone number of the individual lodging the complaint. The record shall also state any cause of the complaint and the action taken;
 - (iii) the observed wind direction, temperature and other atmospheric conditions at the time of the occurrence which resulted in a complaint;
- (8) Waste acceptance
 - (a) Unless otherwise approved by an Administrator, Facilities can only accept and store, transfer, and process MSW and are prohibited from accepting C&D debris, industrial waste, hazardous waste, liquid waste, or asbestos waste.
 - (b) All loads of waste are to be inspected prior to unloading for the presence of unacceptable waste including C&D, industrial waste, hazardous waste, liquid waste, or asbestos waste.

4.3 Groundwater, Surface Water and Leachate

- (1) Surface water draining and controls infrastructure for the active area is required, including but not limited to, sedimentation ponds.
- (2) A groundwater, surface water and leachate monitoring program, including monitoring wells and surface water sampling locations, in accordance with Appendix "A" is required. The plan must be prepared by, signed by, and carried out under the supervision of a professional hydrogeologist.
 - (a) The Department reserves the right to modify groundwater, surface water and leachate monitoring locations, parameters and frequency and to require remedial measures based on the results of monitoring data and/or site inspections.
 - (b) An applicant can request an alternate to the required groundwater, surface water and leachate monitoring program where:
 - (i) the MSW Transfer Facility operation is limited to storage, transfer and processing, and;

- (ii) the applicant demonstrates to the satisfaction of the Department that alternative design is capable of achieving an equivalent or higher level of protection. Any proposal for an alternative design will be assessed on the technical merits of the design and will be evaluated on a case-by-case basis.
- (3) Groundwater, surface water and leachate quality compliance criteria will be set by the Department for each site and these criteria must be met by the Approval Holders.
- (4) The determination of compliance criteria both on and off sites by the Department includes an evaluation of the protection of groundwater quality for drinking water resources as well as protection of surface water quality for healthy aquatic life.
- (5) Information in Appendix A indicates how elevated natural background, or baseline groundwater conditions for sites may be accounted for in submissions to the Department, with respect to monitoring and potential triggers for action.
- (6) The Approval Holder(s) shall replace, at their expense, any water supply which has been lost or damaged as a result of the designated activity, as authorized and required by the Department.

4.4 Alternate Design, Construction, and Operation

- (1) The Department may require additional design features including, but not limited to, liner systems, leachate treatment systems and other control infrastructure. Additional requirements may be based on the volume and type of material to be disposed of, as well as the proximity and type of receptors that could be impacted.
- (2) In the event an alternate design to the minimum requirements is proposed, it is the responsibility of the applicant to demonstrate to the satisfaction of the Department the alternative design can achieve an equivalent or higher level of protection. Any proposal for an alternative design will be assessed on the technical merits of the design and will be evaluated on a case-by-case basis.

4.5 Records

- (1) The following records are to be maintained for a period of five (5) years and made available to the Department upon request:
 - (a) The quantities and type of waste per load received;
 - (b) The quantities and types of materials forwarded to a municipal landfill, other approved facility, or diverted for beneficial reuse.

- (c) The quantities and type of any other unauthorized wastes removed and sent for disposal at an approved facility and the name of the receiving facility;
 - (d) Complete records of inspections, maintenance, repairs;
 - (e) The details of any release to the environment;
 - (f) The complaints received and the steps taken to determine the cause of the complaint, the corrective measures taken to alleviate the cause and prevent its recurrence;
 - (g) A copy of the Annual Report, and;
 - (h) Any other information requested by the Department.
- (2) Records are to be submitted on an annual basis in accordance with the requirements of the DATACALL as operated by DivertNS on behalf of the Department.
- (3) An Operation and Maintenance Manual with the following information is required to be kept at the MSW Transfer Facility at all times and made available to the Department upon request:
- (a) Drawings and specifications of the MSW Transfer Facility;
 - (b) A complete description of the operational procedures;
 - (1) Monitoring well logs and surface water monitoring logs, including the location plans showing the monitoring points;
 - (d) Contingency plans to deal with wastes that are not acceptable for disposal;
 - (e) A procedure for maintaining the disposal records including the names of the generator and carrier for the materials; and
 - (f) A copy of the Approval.
- (4) A contingency plan, in accordance with the Department's Contingency Planning Guideline, as amended from time to time, is required on how emergency issues including but not limited to fire, explosions and spills will be addressed. The contingency plan:
- (a) Must be reviewed and updated annually, or more frequently whenever equipment or procedures change;
 - (b) Must be communicated to staff, including any changes;
 - (c) Must be located at the site at all times and made available to the Department or fire and emergency personnel, if requested; and

- (d) Shall be sent to the local fire department.
- (e) Employees are to be trained in accordance with the contingency plan and those training records are to be kept at the MSW Transfer Facility for a period of 5 years and made available to the Department, if requested.
- (f) All necessary materials and equipment must be available at all times to respond to emergencies in accordance with the MSW Transfer Facility's Contingency Plan.

4.6 Annual Report

- (1) Each year an Annual Report for ground water, surface water and leachate is to be prepared. The Report shall be prepared and signed by a professional hydrogeologist and include, but not be limited to, the following information:
 - (a) A summary of all groundwater, surface water and leachate monitoring data specified in Appendix A and compared with applicable criteria. The data is to be presented in table format;
 - (b) A review of field methodologies, including sampling techniques;
 - (c) A description of the groundwater, surface water and leachate monitoring network;
 - (d) A review of the current groundwater, surface water and leachate monitoring program and recommendations or modifications, as applicable;
 - (e) The current and historical static water elevation data in tabular format, groundwater gradients and flow direction;
 - (f) The current and historical groundwater, surface water and leachate quality including an analysis of spatial and temporal trends with comparison to applicable water quality objectives and historical (baseline) data in tabular format, as applicable;
 - (g) Laboratory certificates of analysis, as applicable;
 - (h) The identification of any non-compliance with the groundwater, surface water and leachate compliance criteria set for the MSW Transfer Facility; and,
 - (i) Any current or proposed corrective actions to address non-compliance issues identified.
- (2) The annual report shall be available in hard copy and digital format, maintained for the duration of the approval, and made available to the Department upon request.

4.7 Rehabilitation and Closure

- (1) A final rehabilitation plan is to be submitted to the Department for Approval at least sixty (60) days prior to abandonment of the MSW Transfer Facility.
- (2) The rehabilitation plan shall include but not be limited to the description of the:
 - (a) Construction and maintenance of a surface water management system;
 - (b) Post-closure monitoring programs at the site, including, but not limited to, the inspection and maintenance of the leachate management, surface water and groundwater monitoring; and
 - (c) Decommissioning/removal of buildings and auxiliaries.
- (3) The rehabilitation plan shall be implemented once deemed acceptable by the Department.

APPENDIX A:

Groundwater, Surface Water and Leachate Monitoring Program

Operation and Monitoring

Groundwater Monitoring

Prior to the establishment or expansion of a MSW Transfer Facility, a groundwater monitoring plan is to be prepared by a professional hydrogeologist and submitted to the Department for review and acceptance. The groundwater monitoring network must be designed to adequately characterize and monitor groundwater quality, considering geological and hydrogeological conditions and all potential sources of contamination, as well as established points of compliance. Each MSW Transfer Facility must have a groundwater monitoring program which includes, but is not limited to the following:

- (1) The location and design of groundwater monitoring wells including:
 - (a) A minimum of one groundwater monitoring well installed hydraulically up-gradient of the MSW Transfer Facility;
 - (b) A minimum of three monitoring wells installed hydraulically down-gradient and surrounding of the MSW Transfer Facility;
 - (c) An evaluation of monitoring well completion depths, including the potential need for multi-level installations, to be acceptable to the Department;
 - (d) Groundwater monitoring well locations may include compliance points established at some distance outside the MSW Transfer Facility active area, adjacent to surface watercourses and in intermediary or other areas of the site, as required by the Department.
 - (e) The number and location of monitoring wells will be dependent on the size of the MSW Transfer Facility active area and site conditions. These locations are to be provided to the Department for review and acceptance. In most cases, more than the minimum (4) groundwater wells will be required due to the size of sites and location of water resource features.
- (2) Sampling methodologies must use industry best practices and include, but not be limited to the following:
 - (a) correct purging of monitoring wells prior to sampling, and
 - (b) field filtering for groundwater dissolved parameters.

- (3) Representative samples of groundwater within the MSW Transfer Facility shall be:
 - (a) A minimum baseline collection of one year groundwater data with quarterly measurement is required (i.e. every 3 months) prior to commencement of site operations, or as otherwise approved by the Department. Parameters sampled are to include those in column 1 of Schedule 1 for quarterly samples and column 3 of Schedule 1 for one (1) annual sample.
 - (b) For a minimum of 2 years following commencement of site operations, sampling obtained quarterly from all groundwater monitoring wells and analyzed for the parameters listed in column 1 of Schedule 1; and
- (4) After the minimum two-year sampling period, the Approval Holder can request the frequency of sampling be reduced to semi-annual sampling by submitting a report providing rational acceptable to the Department.
- (5) The Department reserves the right to modify groundwater monitoring well locations, parameters, and frequency, and to require remedial measures based on the results of monitoring data and/or site inspections.

Surface Water and Leachate Monitoring

A program for monitoring surface water and leachate quality, quantity, and biological features shall be conducted including, at a minimum, the following:

- (6) Representative samples of surface water and leachate being discharged from the MSW Transfer Facility and of any waterbody, including upstream control locations (which must be included during the same event as sampling of any other surface water locations), which may be affected by leachate, stormwater runoff, or sediment from the MSW Transfer Facility, shall be:
 - (a) Obtained quarterly, and be analyzed for the parameters listed in column 2 of Schedule 1 and for other parameters of concern identified in the surface water assessment or as required by the Department;
- (7) Annual monitoring of biological features to assess the composition and any changes to the benthic community present in any waterbody, located downstream of active areas of the MSW Transfer Facility, that may be affected by leachate, stormwater runoff, or sediment from the MSW Transfer Facility;
- (8) The Department reserves the right to modify surface water locations, parameters and frequency, and to require remedial measures based on the results of monitoring data and/or site inspections.

Schedule 1: Groundwater, Leachate and Surface Water Monitoring Parameters

PARAMETER GROUP	COLUMN 1	COLUMN 2
	Groundwater	Surface Water and Leachate
General Chemistry and Metals	Alkalinity	Alkalinity
	Aluminum	Aluminum
	Ammonia	Ammonia
	Antimony	Antimony
	Arsenic	Arsenic
	Barium	Barium
	Boron	Boron
	Cadmium	Cadmium
	Calcium	Calcium
	Chloride	Chloride
	Chromium	Chromium
	Conductivity	Conductivity
	Copper	Copper
	Iron	Iron
	Lead	Lead
	Magnesium	Magnesium
	Manganese	Manganese
	Mercury	Mercury
	Nickel	Nickel
	Nitrate	Nitrate
Nitrite	Nitrite	
Total Kjeldahl Nitrogen	Total Kjeldahl Nitrogen	
pH	pH	
Hardness	Hardness	
Total Phosphorus	Total Phosphorus	

PARAMETER GROUP	COLUMN 1	COLUMN 2
	Groundwater	Surface Water and Leachate
General Chemistry and Metals (continued)	Potassium	Potassium
	Sodium	Sodium
		Suspended Solids
	Total Dissolved Solids	Total Dissolved Solids
	Sulphate	Sulphate
	Uranium	Uranium
	Vanadium	Vanadium
	Zinc	Zinc
Organics		Biochemical Oxygen Demand (BOD ₅)
	Chemical Oxygen Demand	Chemical Oxygen Demand
	Dissolved Organic Carbon	Total Organic Carbon
	Phenol	Phenol
Field Parameters		Temperature
	pH	pH
	Conductivity	Conductivity
		Dissolved Oxygen
	Monitoring well water level	Flow

APPENDIX B: Air Quality, Noise and Odour

Air Quality

- (1) Air emissions from the MSW Transfer Facility cannot contribute to an exceedance of the maximum permissible ground level concentrations of the contaminants specified in the Air Quality Regulations.
- (2) Monitoring of ambient air contaminants shall be conducted at the request of the Department.
 - (a) The number and location of the monitoring station(s) shall be established by a qualified person retained by the Approval Holder(s) and
 - (b) The proposed plan submitted to the Department for acceptance; this may include point(s) beyond the property boundary of the Site.
- (3) The use of oil as a dust suppressant is prohibited.

Noise

- (4) Noise generated from the activity must comply with the equivalent sound level criteria identified in the Nova Scotia Environment and Labour “Guidelines for Environmental Noise Measurement and Assessment” dated May 18, 2005, as amended from time to time.
- (5) Noise shall be monitored at the request of the Department. The number and location of the monitoring station(s) for noise measurement shall be established by a qualified person retained by the MSW Transfer Facility. The proposed plan must be deemed acceptable by the Department.

Odours

- (6) Procedures shall be in place to ensure that odours from any material are minimized, and
- (7) If the Department determines that the designated activity is generating excessive odours, the Approval Holder(s) shall be required to take any measures required by the Department to address those odours, including but not limited to reducing or ceasing operation.

