



GUIDELINE 29 – FOR THE DEVELOPMENT OF OPERATING PLANS FOR EXISTING MUNICIPAL SOLID WASTE LANDFILLS

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Many operators of existing landfills are faced with the need to develop operating plans for their facilities. These plans are needed to provide direction in the daily and longer-term operations of the facility. For operators who are uncertain about the long-term future of their facility, the operating plan should provide a smooth transition into an upgraded facility or a closure which is consistent with the North Dakota Solid Waste Management Rules. All operating plans should provide for the ongoing closure of filled areas in compliance with the North Dakota Solid Waste Management Rules. The North Dakota Department of Environmental Quality (Department) has additional information available upon request. The following outline lists the minimum components of an operating plan.

- I. General Information. All operating plans for solid waste management units or facilities should include the following general information:
 - A. The activities conducted or to be conducted which require a permit under this rule and the general types of wastes handled, stored, processed, recovered, or disposed;
 - B. The name, mailing address, and location of the facility for which the operation plan is prepared;
 - C. The name, mailing address, and telephone number of the operator and, if the operator is a government agency, corporation, company, or partnership, that of the process agent or other person who will serve as the primary contact with the Department;
 - D. If different from the operator, the name, mailing address, and telephone number of the landowner, along with a signed letter from such owner to the Department allowing access to the property for conducting investigations as may be necessary to determine its suitability as a site for a solid waste management unit or facility;
 - E. The name, mailing address, and telephone number of the zoning authority of jurisdiction (if any), and the current zoning status of the property on which the facility is located or to be located;
 - F. Operation plans for industrial waste landfills, surface impoundments, or municipal landfills should be reviewed by a qualified professional to indicate that the plan meets the location standards, the design and construction standards, and other requirements of NDAC Article 33.1-20.

[Note: North Dakota law (NDCC 43-19.1-28) states that the "State and its political subdivisions, including counties, cities, townships . . . shall not engage in the construction of public works . . . when the contemplated expenditure for the project shall exceed the sum of two hundred thousand dollars unless the engineering drawings and specifications and estimates have been prepared by, and the construction is executed under the supervision of a registered professional engineer."]

- II. Technical information. The detailed technical information which must be included in the completed operation plan is described below.
- A. If not already completed, a soil survey should be performed which identifies the available suitable plant growth material to be removed and saved for site closure. If adequate amounts of suitable plant growth material are not available onsite, the survey or assessment must specify an alternate source of the material or alternate reclamation procedures to ensure post closure revegetation.
- B. The engineering plans for the site must include:
1. General site plans drawn at a scale of not less than one inch equals one hundred feet [30.5 meters] and with a contour interval not greater than five feet [1.5 meters], which clearly depict the following:
 - a. The existing topography of the site and pertinent geological features, (e.g., sinks, outcrops);
 - b. The proposed waste disposal areas;
 - c. The locations of the permanent onsite benchmarks, with reference data as required;
 - d. The location of streams, springs, other existing bodies of water, water supply wells, residences, and airports within two miles of the site and property lines, at least as necessary to demonstrate compliance with the standards of NDAC Article 33.1-20;
 - e. Planned ground water and surface water monitoring locations and the proposed compliance boundary;
 - f. Soil boring and cross section locations; and
 - g. The location of all one-hundred-year flood plain boundaries on the site.
 2. Facility development plans drawn to the same scale as those required in paragraph 1 which show the following:
 - a. The proposed excavated contours and the locations and elevations of dikes, berms, and trenches to be utilized in waste disposal operations or for prevention of flooding;
 - b. The location of onsite borrow areas and cover material storage areas;
 - c. Topsoil and subsoil stockpile areas;
 - d. The planned development of the site, illustrating the phases or progression of operational areas to be filled with methods to be used;

- e. Run-on diversion and runoff containment from the work areas illustrating the locations and slopes of ditches and dikes, the directions of water flow, and all containment areas;
 - f. The locations of temporary erosion control measures (e.g., temporary sediment basins, stone filters, terraces, silt fences) and permanent erosion control measures (e.g., permanent sediment basins, riprap, energy dissipators, ditch stabilization, terraces, pipe drains);
 - g. The locations of all existing and proposed utilities, structures (including fences and gates), tree plantings, and roads;
 - h. The locations of leachate collection/treatment reservoirs and associated piping (if required);
 - i. The locations of all gas migration control devices or structures (if required);
 - j. The source area, type, and characteristics of any soil liner or final cap material to be used (if required).
3. Closure plans drawn to the same scale as those required in paragraph 1 which show the following:
- a. The proposed final contours of the site upon closure which portray runoff and run-on controls for the completed facility, and which illustrate the locations and slopes of ditches, drains, and drop structures to be utilized for such removal/diversion and the directions of flow; and
 - b. The locations of final monitoring wells, borings, and cross sections for the closure plan.
4. Detailed system diagrams, drawn at a suitable scale, which depict the following:
- a. Typical sections of all dikes, trenches, diversion ditches, sediment basins, energy dissipators, and other erosion and run-on/runoff control structures;
 - b. Typical sections of leachate collection/treatment reservoirs and associated piping (if required);
 - c. Typical sections of gas migration control devices and structures (if required);
 - d. Ground water monitoring well installations (if required);
 - e. Sections of soil buffer/liner/leachate collection systems (if required);
 - f. Sections of final cap/cover and any barrier systems or layers; and
 - g. Sections of access roads to and on the site.

5. Appropriate cross sections (minimum of three, drawn at a scale of not less than one inch equals one hundred feet [30.5 meters], which clearly depict the following information:
 - a. The original ground surface elevations;
 - b. Soil borings and, if required, monitoring wells;
 - c. The site's geology and hydrology;
 - d. The proposed excavation depths;
 - e. The proposed final elevations;
 - f. The configuration of the soil buffer/liner/leachate collection system (if required), including slopes;
 - g. Cells, lifts, and associated berms and dikes, and onsite roadways;
 - h. The configuration and slopes of the final cover system (including any required cap); and
 - i. The configuration of any gas migration control features (if required).
- C. The plan must include a narrative description of the operations with appropriate references to the system diagrams, engineering plans, and available hydrogeological and geological information. The narrative should provide the following information as clearly as possible:
 1. The name of the individual responsible for operation and maintenance of the facility;
 2. The location of the facility and access to the site using roads and highways;
 3. The barriers, signs, procedures, and other measures to be used to control access to and use of the facility;
 4. The methods and sequence of operation;
 5. The anticipated types and volumes of solid wastes to be disposed and the sources which generate the waste (including a description of the rural and urban service area, if applicable);
 6. The number of acres to be filled and the total number of acres to be permitted, including buffer zone acreage. If the site is to be developed in accordance with a phased development plan, each phase or parcel must be separately addressed;
 7. The waste handling and covering program, including, but not necessarily be limited to, descriptions of the following activities:
 - a. Unloading, spreading, and compacting operations;

- b. The frequencies and depths of initial, intermediate, and final cover;
 - c. The cover materials to be utilized, including the estimated volumes needed (show initial, intermediate, and final earthwork calculations), sources and availability; and
 - d. Winter operations (if different) including appropriate measures to provide cover material.
- 8. The operating equipment to be utilized (including backup equipment) and their source and availability;
 - 9. The structures and procedures to be used in controlling and collecting blowing litter;
 - 10. How run-on and runoff collection, holding and erosion control facilities will be managed, including sampling, testing, and the disposition of collected wastes and residues and a comparison of before and after flows in drainageways leaving the site;
 - 11. How leachate collection and holding facilities will be managed, including the sampling, testing, and disposition of collected leachate (if required);
 - 12. The dust control measures to be taken and when they would be implemented;
 - 13. The fire safety precautions and procedures, the types and availability of onsite fire suppression equipment and/or the arrangements made with the local fire protection agency;
 - 14. The services available to facility personnel, including shelter, drinking water, hand washing and toilet facilities and communications equipment;
 - 15. How liners and cover systems will be inspected and/or tested during construction or installation for uniformity, damage, and imperfections (if required);
 - 16. How the migration of explosive gases will be controlled (if necessary);
 - 17. The planned ground water monitoring program (if required) including, but not necessarily limited to, descriptions of the following:
 - a. The number and location of wells or other monitoring points;
 - b. Monitoring well construction;
 - c. The parameters to be monitored for and the frequency of sampling;
 - d. Sampling and analytical procedures and methods to be used; and
 - e. The methods of recording sampling and analytical results and reporting the results to the Department.

18. An engineering statement of the site flood frequency exposure and describe flood protection measures to be taken (if site located within a one-hundred-year flood plain);
19. The potential impacts the facility may have on endangered or threatened species of plants, fish, or wildlife or their habitat;
20. The type of information proposed for the annual report; and
21. Any previous or planned operator training.

The purpose of this guideline is to help provide for the orderly cleanup, development, and closure of landfills in the states that are required to provide updated operating plans. These guidelines will help facility owners/operators assess their operation and begin instituting operational procedures that will help minimize long-term costs and impact to hazardous health and the environment. Please contact the Department if you should have any questions or require additional information at 701-328-5166.