Checklist for Solid Waste Disposal Areas

Applicant Name:
(as indicated on the *Permit Application Transmittal Form*)

The following application information is required for applications to discharge from solid waste disposal areas as defined in section 22a-430-6(b) of the Regulations of Connecticut State Agencies (RCSA). Completing this attachment will fulfill the regulatory requirements of sections 22a-430-4(c)(20)(E), 22a-209-4(b)(2)(A), and 22a-209-14(e) RCSA. A copy of this checklist and all required submittals must be included with the *Permit Application for Wastewater Discharges* (DEP-WD-APP-100) and the *Permit Application for the Construction and Operation of a Solid Waste Facility* (DEP-SW-APP-100).

*Check the box preceding each document, to identify which is included with this checklist; indicate **"NA"** if it does not apply. Unless specifically noted, all supporting documents listed must be included and submitted with this checklist.*

☐ (1) The latest version of a United States Geological Survey quadrangle map at a scale of one inch equal to two thousand feet which shows the North arrow and identifies the location of the solid waste disposal area and the area lying within a one mile radius of the boundaries of such location.

The following detailed maps *(numbers 2 through 5)* must be produced, minimally, at a scale of one inch equal to five hundred feet, and must show the North arrow, topography at a contour interval no greater than ten feet and all pertinent features, noting natural and artificial features, within a minimum one half mile radius of the boundaries of the disposal area:

☐ (2) An area map of the site showing, at a minimum, the following physical features:

(A) all existing and proposed above-ground and underground man-made structures and installations;

(B) all roads, railways and other transportation corridors;

(C) all property boundaries and names and addresses of adjacent property owners and all landowners within the area of potentially impacted ground waters as identified on the latest assessor's map;

(D) all adjacent land uses as identified on the latest existing land use maps;

(E) all rights of way, easements, or other interests on the land upon which the solid waste disposal area and its ground water zone of influence are located, including but not limited to all such interests held by gas, sewer, water, and electric utilities;

(F) all areas served by a public water system as defined in section 25-33d of the Connecticut General Statutes (CGS);

(G) all areas served by public sewer; and

(H) all public and private water supply wells and all other water supply wells including but not limited to wells used for industrial or agricultural water supply.

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☐ (3) A water resources map of the site which includes, at a minimum, identification of:

(A) all wetlands, tidal wetlands, watercourses, and other waters as defined in sections 22a-38(15), 22a-29(2), 22a-38(16) and 22a-367 CGS, respectively;

(B) all floodplains as defined in section 25-68b CGS;

(C) all coastal areas as defined in section 22a-93 CGS;

(D) all potential well fields as defined in section 22a-354a CGS;

(E) all public and private water supply wells and all other water supply wells including but not limited to wells used for industrial or agricultural water supply;

(F) the surface water quality classification goal(s) of all surface waters as identified on maps adopted pursuant to section 22a-426 CGS;

(G) the ground water quality classification goal(s) of all ground waters as identified on maps adopted pursuant to section 22a-426 CGS; and

(H) all aquifer protection areas as defined in section 22a-354(h)(10) CGS.

☐ (4) A bedrock geology map of the site which includes identification of the type of bedrock, location of outcrops, bedrock and surface topography, strike and dip of bedding planes or foliation, fault lines, fractures, and any other structural features.

☐ (5) A surficial materials map of the site which includes types of unconsolidated deposits and soils, and isopach contours of unconsolidated deposits.

☐ (6) Detailed site map(s) at a scale of one inch equal to no greater than one hundred feet with topographic contours at an interval of two or five feet, showing the North arrow, and the entire solid waste disposal area. The site map(s) shall include identification of the following:

(A) topographic contours;

(B) for new solid waste disposal areas or lateral expansions, the proposed topographic contours after site preparation;

(C) proposed final topographic contours;

(D) all existing and proposed test pit, boring, and observation and monitoring well locations;

(E) all existing and proposed surface water monitoring locations;

(F) locations of existing and proposed fill limits including location of fill limit markers;

(G) all existing and proposed above-ground and underground man-made structures and installations, including but not limited to on-site buildings, fences, gates, and roads;

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(6) (H) locations of property boundaries, buffer zones and screening;

(I) all rights of way, easements, or other interests on the land upon which the solid waste disposal area and its ground water zone of influence are located, including but not limited to all such interests held by gas, sewer, water, and electric utilities;

(J) the areal extent of the existing and predicted leachate plume to the point of discharge to a surface water;

(K) the existing and potential ground water elevations at the site;

(L) identification of the location of cross-sections prepared in accordance with paragraph (8) of this checklist; and

(M) the type and location of all existing and proposed sedimentation and erosion controls.

☐ (7) Detailed site map(s) at a scale and topographic contour interval equal to the maps required by paragraph (6) of this checklist showing the North arrow, the entire solid waste disposal area, and all monitoring locations. The site map(s) shall include identification of the following:

(A) Contours of surface water elevations at each surface water monitoring location and ground water elevations and corresponding point data at each monitoring location for each measurement period and for each hydrogeologic stratum in which ground water elevations are measured. Elevations shall be based on a minimum of two sets of measurements from all surface water monitoring stations, available wells, test pits, springs and borings. Measurements shall be taken during spring high water levels, unless otherwise approved by the Department of Environmental Protection (DEP).

(B) Spatial distribution, using point data and concentration isopleths of three representative leachate parameters measured at each monitoring location during high and low rainfall months and for each hydrogeologic stratum sampled.

☐ (8) A minimum of four intersecting cross-sections through the site, two of which shall be along lines parallel and two of which shall be along lines perpendicular to the general direction of ground water flow. Each cross-section shall document the stratigraphic variation across the site, and depict the following at a horizontal scale equal to the maps required by paragraph (6) of this checklist:

(A) existing, site preparation and final grades after closure;

(B) location, total depth, screen location, and logs of wells or test borings used to construct the cross-section;

(C) maximum and minimum recorded ground water elevations;

(D) ground water flow nets;

(E) vertical and horizontal direction of ground water flow within and across each geologic formation;

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(8) (F) depth of the existing and predicted ground water zone of influence;

(G) bedrock surface and structure; and

(H) the stratigraphy of the unconsolidated deposits.

☐ (9) A detailed report describing the existing and projected water quality impacts of the discharge. The report shall include, at a minimum, the following:

(A) A summary of the site history identifying past and present land uses at the site and other historical sources of impacts to the quality of ground water and adjacent surface waters at the site for the past thirty (30) years. Such summary shall include, but need not be limited to, a description of past and present land uses at the site and at properties adjacent to the site, identification and addresses of present owners of adjacent property, identification of easements on the site, previous site improvements, identification of the types of materials and wastes stored or disposed of on-site, analysis of aerial photographs of the site, and a synopsis of the purpose, methods and results of any previous environmental investigations or conditions at the site.

(B) An explanation of the map(s) prepared pursuant to paragraphs (2), (3), (4), (5), (6), (7), and (8) of this checklist.

(C) A statement by each affected utility identified on the area map(s) that the proposed activity protects these utilities in compliance with applicable standards.

(D) A description of the hydrogeologic interaction at the site between the surficial and bedrock geology, the ground water flow, surface water and the leachate discharge.

(E) All boring logs, construction and development details, and other supporting documentation associated with monitor wells installed for the purpose of preparing the hydrogeologic descriptions. Prior to preparation of the application, you may wish to consult with DEP for information about monitor well installation.

(F) A compilation of data on the quality of ground water and surface water entering or adjacent to the site for the purposes of characterizing ambient water quality at the site and identifying the degree and extent of the leachate plume. Such compilation shall include, at a minimum, the following:

(i) samples taken from (1) surface water monitoring locations upstream and downstream from the solid waste disposal area; (2) monitoring wells located at or adjacent to the site in areas which are or which could potentially be affected by the leachate discharge from the solid waste disposal area; and (3) a representative sample of all water supply wells within a one-quarter mile of the boundaries of the existing or proposed solid waste disposal area provided such representative sample shall be chosen in accordance with a sampling program which identifies the number and location of wells and discussion of why such a sampling program is representative of ground water quality for such area;

(ii) a minimum of two sampling events, one month apart, shall be taken from all monitoring locations, monitoring wells, and water supply wells described pursuant to paragraph (9)(F)(i) of this checklist;

(9) continued on next page

(9) (F) (iii) leachate parameters as defined in section 22a-430-3 RCSA as amended, shall be used to characterize the discharge and its impact on water quality. In addition, DEP may determine that other parameters are necessary to characterize the discharge and its impact on water quality. (A listing of the leachate parameters as defined in section 22a-430-3 RCSA is included following this checklist.)

(iv) all existing water quality data including, at a minimum, quality assurance and quality control protocols for the collection and analysis of ground water and surface water samples, the analytical methods used and their method detection limits. The results of all such water quality data shall be presented on graphs which depict parameter concentrations on the ordinate and sampling events on the abscissa for each monitoring location and each pertinent hydrogeologic stratum; and

(v) precipitation hydrographs.

(G) An estimate of the quantity of the existing and proposed leachate discharge volume(s) calculated on a daily, monthly and annual basis using site area and discharge rates in accordance with the following:

(i) For discharges of leachate from unlined solid waste disposal areas to ground water, calculate the discharge volume using fifty percent of the average annual rainfall for the region in which the site is located for the entire disposal area.

(ii) For discharges of leachate from new lined solid waste disposal areas to ground water, calculate the discharge volume using five-hundred and fifty (550) gallons per day per acre for the entire disposal area. An alternative discharge volume of one-hundred (100) gallons per day per acre for the entire disposal area may be used only if the lined solid waste disposal area will not be receiving ash residue from a municipal resource recovery facility.

(iii) For discharges of leachate from new lined solid waste disposal areas to other than ground water, calculate the maximum daily discharge volume using a twenty-four hour, twenty-five year storm applied to the active portion of the disposal area for the region in which the site is located. The active portion is defined as that part of a solid waste disposal area that has received or is receiving wastes and that has not been closed in accordance with section 22a-209-14 RCSA.

(H) A leachate quality characterization shall be developed for the purposes of evaluating possible impacts of the discharge to the waters of the state. Such characterization shall consider the type of waste disposed of, on-site testing, testing of similar landfills, or published literature. Such characterization shall be developed using the leachate parameters as defined in section 22a-430-3 RCSA as amended, and any other substances necessary to characterize the discharge and its impact on water quality, and the following:

(i) for discharges to the ground water, the concentration of each leachate parameter which exceeds 95 percent of all concentrations measured for each such leachate parameter;

(ii) for discharges other than to the ground water, the concentration of each leachate parameter which exceeds 50 percent of all concentrations measured for each such leachate parameter.

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(9) (I) A detailed discussion of the possible impact of the existing and/or proposed leachate discharge in terms of the conformance of such discharge with the Connecticut Water Quality Standards and water quality criteria published pursuant to section 304(a) of the Clean Water Act. Such discussion shall be prepared in accordance with the following:

(i) For discharges to ground water, evaluate such impact for the bedrock and unconsolidated deposits at the site boundary, adjacent wetlands and surface waters, and existing or potential water supply wells. The evaluation shall be based on the leachate quality characterization described in paragraph (9)(H) of this checklist and the estimate of the quantity of the existing and proposed discharge volumes calculated in paragraphs (9)(G)(i) or (9)(G)(ii) of this checklist. In evaluating such impacts, the applicant shall assume that the underlying geologic formations do not have any capacity to physically, chemically or biologically alter, retard, or attenuate the water quality impacts of the leachate discharge. For water quality impacts from the leachate discharge, the applicant shall consider the average existing ambient ground water and surface water quality for each parameter. Predicted surface water impacts shall be estimated using seven day, ten year low flows obtained from stage measurements or calculated from the United States Geological Survey Connecticut Basin Reports or an equivalent low flow for areas affected by tidal exchange or which are flow regulated.

(ii) For discharges to a POTW, evaluate such impact in accordance with section 22a-430-4(t) RCSA. The evaluation shall be based on the leachate quality characterization described in paragraph (9)(H) and the estimate of the quantity of the existing and proposed discharge volumes described in paragraph (9)(G)(iii) of this checklist.

(iii) For discharges to a surface water, evaluate such impact based on the leachate quality characterization described in paragraph (9)(H) of this checklist and the estimate of the quantity of the existing and proposed discharge volumes described in paragraph (9)(G)(iii) of this checklist. For water quality impacts from the leachate discharge, the applicant shall consider the average ambient surface water quality for each parameter. Predicted surface water impacts shall be estimated using seven day, ten year low flows obtained from stage measurements or calculated from the United States Geological Survey Connecticut Basin Reports or an equivalent low flow for areas affected by tidal exchange or which are flow regulated.

☐ (10) Except as provided below, all applicants for permits to discharge to a surface waterbody (i.e., for new and existing discharges) must perform a Discharge Toxicity Evaluation (DTE) in accordance with section 22a-430-4(c)(21)(B) RCSA and submit the results of the DTE as Attachment O, Table 6.

Exceptions:

A DTE need *not* be performed or submitted with this application *if*:

- this application is for a permit to discharge sewage from a POTW; or
- a DTE covering all discharges to surface waters at the site has been previously approved by DEP; or

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Checklist for Solid Waste Disposal Areas (continued)

(10)

- the applicant has been specifically exempted from submission of a DTE for the discharge(s), in writing by DEP, in accordance with section 22a-430-4(c)(21)(C) RCSA, prior to submittal of this application (see instructions).

  Note: For discharges to a POTW, a DTE may be required depending on the nature of the discharge. In this case, you will be notified by DEP after submitting your application.

☐ (11) A detailed plan suitable for field use by the operator for the construction, operation, and management of the solid waste disposal area. Such plan shall ensure that the solid waste disposal area is operated and maintained to: minimize the size of the working face of such area; provide for and maintain adequate cover; minimize erosion, run-on, and the infiltration of stormwater into the soil and the generation of leachate; and maximize stormwater runoff which has not been in contact with the solid waste. At a minimum, such plan shall include a description of the following:

(A) area, volume, and expected site life of the entire solid waste disposal area;

(B) type of solid wastes proposed to be accepted at the solid waste disposal area, the methods of measuring and monitoring waste, the monitoring parameters and schedule and provisions for the inspection of waste as it is deposited at the working face;

(C) details and sequence of construction of the solid waste disposal area;

(D) orientation, sequence and construction of lifts and cells which minimizes the infiltration of stormwater into the soil;

(E) location, and the dimensions, and construction of access roads and a description of traffic flows;

(F) type and amount of equipment and the number and responsibilities of staff to ensure compliance with any approved plan of operation;

(G) daily operations, controls necessary to protect public health safety and welfare, dust and odor controls, decomposition gas controls, fire protection, vector controls, emergency procedures, communications equipment, regular maintenance schedules, and information to be recorded and recording procedures;

(H) proposed fiscal or institutional controls which will ensure the proper operation, maintenance, and closure;

(I) a system of dispersion berms, trenches or other drainage structures to prevent stormwater from infiltrating the soil and contacting the waste, and to direct water away from the solid waste disposal area;

(J) daily and intermediate cover materials of low permeability;

(K) removal of snow from the disposal area; and

(L) a stormwater discharge system that includes a sedimentation and erosion control basin capable of containing a 24-hour, 25-year design storm. A stormwater discharge system is subject to the permit requirements of section 22a-430 CGS and sections 22a-430-3 and 22a-430-4 RCSA.

☐ (12) A plan for a ground and surface water quality monitoring program, including but not limited to quality assurance and quality control protocols for the collection of all surface water and ground water samples, a listing of the leachate parameters to be monitored at each monitoring location, their respective analytical methods and method detection limits, precipitation hydrographs for the site, and a schedule for performing and reporting the results of such monitoring program to DEP. Such program shall be designed to evaluate whether the ground water zone of influence is within the right of possession of the permittee, and that the leachate discharge will conform with Water Quality Standards and water quality criteria published pursuant to section 304(a) of the Clean Water Act.

☐ (13) A plan for a monthly inspection and monitoring program of the perimeter and side slopes of the solid waste disposal area, the banks of surface waters, and any wetlands adjacent to the solid waste disposal area to identify the degree and extent of leachate seeps or iron oxide precipitation. At a minimum the following shall be included as part of such plan:

(A) All persistent leachate seeps shall be identified and shall be sampled and analyzed for the leachate parameters as defined in section 22a-430-3 RCSA as amended, and any other substances necessary to characterize the discharge and its impact on water quality. Such sample collection and analyses shall be performed in accordance with the requirements of paragraph (12) of this checklist. Persistent leachate seeps are defined as active discharges, which have been identified at any one location in three consecutive inspections events.

(B) Submittal of a report which includes, at a minimum, a map drawn to a scale of one inch equal to one hundred feet showing the location and extent of all leachate seeps or iron oxide precipitation, and which describes the chemical composition of the leachate seeps, any sampling results, the discharge rate, and which includes a plan for remediation of such seeps or iron oxide precipitation and a schedule for carrying out the remediation plan.

☐ (14) A plan for closure of the solid waste disposal area which includes but is not limited to provisions for the grading of slopes, placement of final cover, and stabilization with soils and vegetation to minimize erosion, run-on, and infiltration in accordance with the applicable requirements of section 22a-209 RCSA.

☐ (15) A plan for post-closure maintenance and monitoring of the solid waste disposal area and the ground water zone of influence to ensure the minimization of leachate generation and the monitoring of ground water and pertinent surface waters for a period of time which is adequate to protect the environment and is at least 30 years. At a minimum such plan shall:

(A) identify all persons that will be legally responsible for the solid waste disposal area following closure;

(B) provide for financial guarantees to ensure the long term monitoring and maintenance of the facility as provided for in section 22a-209-4 (i) RCSA;

(C) provide for post-closure inspection, monitoring, and maintenance of the solid waste disposal area and the remediation of any damage to or deficiencies in its liner system, final cover, security facilities, or monitoring or treatment systems or facilities;

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(15) (D) provide for post-closure operation of such treatment system as is provided for leachate.

(E) provide a discussion of post-closure use.

Place a check mark preceding each of the following to verify that the requirements have been met.

☐ (16) Except as provided in section 22a-209-14(a) and (b) RCSA, a solid waste disposal area for the disposal of residue shall be provided with a liner system which includes a leachate collection system and a leak detection zone, and a leachate treatment and discharge system. The liner system shall be constructed and operated in accordance with the requirements set forth in section 22a-209-14(g) RCSA. To the extent possible, these requirements shall be implemented to facilitate treatment of residue before disposal and retrieval of residue after disposal.

☐ (17) The operator of a solid waste disposal area for the disposal of residue shall utilize any means, including but not limited to inspection of material to be disposed, necessary to ensure that no residue deposited in a cell contains material capable of penetrating or puncturing any portion of the liner.

☐ (18) In accordance with Title 40 of the Code of Federal Regulations, Part 258 (RCRA Subtitle D), the applicant must demonstrate that the facility is constructed and operated in accordance with the following location restrictions:

(A) airport safety;

(B) floodplains;

(C) wetlands;

(D) fault areas;

(E) seismic impact zones;

(F) unstable areas.

(19) *Please respond to the following questions:*

☐ Yes ☐ No Is the proposed facility consistent with the Solid and Hazardous Waste Land Disposal Siting Policy adopted by DEP?

☐ Yes ☐ No Is the proposed facility consistent with the latest adopted State Solid Waste Management Plan?

☐ Yes ☐ No Is the proposed facility consistent with the criteria in the latest adopted Connecticut Water Quality Standards?

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Checklist for Solid Waste Disposal Areas (continued)

(19) *Please respond to the following question(s):*

☐ Yes ☐ No Has the applicant applied for an amendment to reclassify the ground water quality for the solid waste disposal area to a classification of GC pursuant to section 22a-426 CGS and the latest adopted Connecticut Water Quality Standards? For more information concerning amendments of ground water quality classification, call the Water Discharge Program at 860-424-3705.

☐ Yes ☐ No Does the applicant have the right of possession, by means of fee interest or easement, to the zone of influence of the existing and/or proposed solid waste disposal area?

☐ Yes ☐ No Is the zone of influence of the existing and/or proposed solid waste disposal area located, in whole or in part, within an aquifer protection area as defined in section 22a-354(h)(10) CGS?

☐ Yes ☐ No Is there any potable water supply well located within the zone of influence of the existing and/or proposed solid waste disposal area, or located such that recharge of such well from the zone of influence could be induced by pumpage?

☐ Yes ☐ No Is the existing and/or proposed solid waste disposal area located, in whole or in part, within any tidal wetlands as defined under section 22a-29 CGS?