Fertilizer and Agricultural Liming Materials Fee Assessment

January 2013

Report to The Joint Standing Committee on Agriculture, Conservation and Forestry

Maine Department of
Agriculture, Conservation
& Forestry
Division of Quality
Assurance & Regulations

This report is presented pursuant to LD 1602 which required the Department of Agriculture, Conservation and Forestry to review definitions related to fertilizer and liming materials regulated by Maine Department of Agriculture, Conservation and Forestry, and Maine Department of Environmental Protection, and to make recommendations for legislative consideration of definitional or other changes related to clarifying language. The Department of Agriculture, Conservation & Forestry (DACF) consulted with the Department of Environmental Protection (DEP) in preparing this assessment.

ISSUE SUMMARY

Fertilizer registrations have been required across the country and in Maine since the 1800's to ensure consumers are receiving the product as specified on the label or accompanying paperwork. Initially focused on agricultural users, today's efforts across Maine and the country focus on ensuring product quality for all consumers from agricultural uses to landscaping professionals to home owners. For the most part, guaranteed analyses of fertilizers are focused on three primary nutrients: Nitrogen, Potassium and Potash – often symbolized by their chemical acronyms N,P,K, or N, P2O5, K2O. These are each expressed in % present in the product, for example 5-10-5 means 5% N, 10% P and 5% K. Agronomists, farmers and related professionals use soil testing and crop requirements to identify the % of each nutrient required and then to acquire the correct fertilizer to meet their needs. Proper nutrient management is required to match soil and crop needs with potential consequences of excess fertilizer runoff. Not enough nutrient and crops may fail; too much nutrient and damage may occur beyond the intended crop.

The purpose of the Maine Fertilizer Registration program is to capture the data from consumer sales and confirm through field and lab testing that the product is as labeled. In 2006 the Department of Agriculture, Food and Rural Resources (now DACF), in cooperation with the University of Maine Laboratory, sampled bulk and

bagged fertilizer products and found widespread non-compliance . In 2009 the Maine Legislature authorized fees on fertilizers sold in Maine to enable the department to hire a Consumer Product Inspector (CPI) whose focus would be on fertilizer inspections and enforcement. The fees collected were not adequate in the first 2 years of the program to hire the inspector. However the fees collected to date will now support a new hire and that process was begun in late 2012. DACF expects the new staff to be trained and conducting inspections in early 2013.

In the 125th Legislature, LD 1602 was introduced to eliminate the $100 minimum fee that was in statute at that time. The remaining annual $1 per ton fee was to remain in place. The legislative intent was to relieve large bulk sellers of the need to pay the $100 fee multiple times for mixing "new products". Going forward they would pay only the $1 per ton fee based on total sales volume. This change would result in some fertilizer sellers paying as little as $1 for up to one (1) ton of sales. During the 2nd Session of the 125th Legislature, Department staff and Legislators became aware that one or more processors and sellers of residuals (processed waste, ash, sludge compost, etc.) were labeling the products they sell and/or otherwise supply to agricultural and other consumers, with nutrient information such as "Guaranteed Analysis" (Example of nutrient information includes terms such as: 5-10-5) which would trigger Maine's registration requirement and fee assessments. Also during legislative hearings ACF committee members learned that certain companies selling these materials have not been registering and paying fees. Testimony during the 2012 hearings focused on the fact that the "residual" fertilizer materials are regulated by the Maine Department of Environmental Protection (DEP) and then it was argued that the "residual" fertilizer materials therefore should not be included in Maine Department of Agriculture, Conservation & Forestry's (DACF) Quality Assurance & Regulations registration program. The ACF Committee required the department to review the DEP and ACF programs and definitions and make recommendations to improve the statute to the 2013 DACF Committee.

DACF staff has completed its summary of the relevant definitions and recommends the following for legislative consideration. Addenda A-C include supporting documentation for DEP and DACF requirements and draft legislative proposals.

I. Review definitions:

A. Fertilizer material. "Fertilizer material" means any substance containing nitrogen, phosphorus, potassium or any recognized plant nutrient element or compound which is used primarily for its plant nutrient content or for compounding mixed fertilizers except unmanipulated animal and vegetable manures. (Title 7)

B. Commercial Fertilizer: "Commercial fertilizer" includes mixed fertilizer or fertilizer materials, or both. (Title 7)

C. Mixed fertilizers: "Mixed fertilizers" means any combination or mixture of fertilizer materials designed for use or claimed to have value in promoting plant growth. (Title 7)

D. Agricultural Liming Materials: "Agricultural liming material" means a product whose calcium and magnesium compounds are capable of neutralizing soil acidity. (Title 7)

E. Plant Amendments: "Plant amendment" means any product distributed consisting of a plant-amending ingredient and other ingredients. (Title 7)

F. Soil Amendments: "Soil amendment" means any product distributed consisting of a soil-amending ingredient and other ingredients. (Title 7)

G. Agronomic Benefit: DEP rules apply to agronomic utilization activities and the storage of residuals prior to utilization. Agronomic utilization is the land application of residuals in a

controlled manner in order to: increase the nutrient content of the soil at a rate commensurate with the nutritional needs of the crop to be grown and the assimilative capacity of the soil; otherwise improve agricultural soil conditions; or provide some other horticultural benefit. Agronomic utilization includes, but is not limited to:

(1) Land application of sewage sludge, biosolids, fish by-products, food waste, secondary papermill sludge or other residuals to supply nitrogen (N), phosphorus (P), potassium (K), or other nutrients to a crop;

(2) Land application of ash, lime-mud, cement kiln dust, or other residuals as an agricultural liming agent;

(3) Land application of primary papermill sludge, flume grit, wood wastes or other high carbon residuals to control erosion, as a topsoil replacement, as mulch, or to beneficially increase soil organic matter content;

(4) Utilization of composted residuals, decontaminated soil, or other processed residuals as a fertilizer, soil amendment, topsoil replacement or mulch. (Ch. 419 DEP Rules)

Findings and Recommendations:

A review of the two agencies regulatory processes for the fertilizer and liming application of residuals shows a clear difference in purpose.

The DEP review and permit process includes the nutrients covered by DACF regulatory authority plus products that could contain heavy metals and other pollutants identified in Appendix A. The purpose of the DEP permit is to ensure contaminated residuals are properly regulated and also require that the applicant document that the nutrients (N, P, K) are appropriate for the intended use.

The DACF fertilizer and liming product registration documentation is meant to provide the consumer, including farmers, with a guaranteed and verifiable certification. These products must meet the required percentages of N, P, K, and any lime product guarantees.

-FINDING: DEP and DACF programs are not duplicative for purposes of this activity;

-FINDING: DEP ensures the waste residual products are not harmful to the environment when they are applied in a protective manner (see appendix A for DEP program information and sampling requirements);

-FINDING: DACF ensures the product(s) are as specified in Guaranteed Analyses to protect consumers (see Appendix B for DACF program and sampling requirements);

RECOMMENDATION:

The Department of Agriculture, Conservation and Forestry proposes to the 126th legislature the following concept to apply prospectively.

Apply a legislative exclusion from fertilizer and liming materials fees for residual waste products from Maine and other areas when all of the following minimum conditions are met:

a) The term "Guaranteed Analysis" cannot be specified or implied on the product label or any marketing materials; and
b) The word fertilizer is not on the product specifications except as noted below; and

c) The product is clearly labeled "Not a Fertilizer"

DACF has attached draft language in Appendix C and we look forward to working with the Committee on this issue.

Appendix A

Appendix A

DEP program information

06-096

Department of Environmental Protection

Maine Solid Waste Management Rules:

CHAPTER 405

WATER QUALITY MONITORING, LEACHATE MONITORING, AND WASTE CHARACTERIZATION

Last Revised:
June 16, 2006

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CHAPTER 405: WATER QUALITY MONITORING, LEACHATE MONITORING, AND WASTE CHARACTERIZATION

SUMMARY: This chapter establishes rules concerning site investigation; ground and surface water quality monitoring; leachate, leak detection, and leachate residue monitoring; and waste characterization programs for solid wastes.

1. General.

A. Purpose. Water quality monitoring, leachate monitoring and the characterization of wastes stored or disposed of are tools used for the detection and analysis of potential threats to public health and safety or the environment. The applicable tools are required to be implemented at solid waste facilities where the Department identifies potential threats to public health and safety or the environment because of the nature of the wastes stored or disposed of and/or the type, location, design or operation of the solid waste facilities.

B. Applicability.

(1) Licensing. The relevant requirements of this chapter apply to all landfills licensed under Chapter 401, sections 1 through 7. Relevant sections of this chapter may apply to solid waste facilities licensed under Chapters 402, 403, 409, 418 or 419.

(2) Existing facilities. The following existing solid waste facilities that are currently conducting water quality monitoring programs and/or waste characterization programs are required to modify their monitoring and/or waste characterization programs to be consistent with the provisions of this chapter:

(a) Active and inactive solid waste facilities

(b) Closed solid waste facilities that were not closed under the reduced or alternate landfill closure procedures of 38 MRSA sections 1310-E(2) or (3).

(c) Solid waste facilities initiating closure that do not qualify for closure under the reduced or alternate landfill closure procedures of 38 MRSA. sections 1310-E (2) or (3).

C. Transition.

(1) Submission of revised programs. Owners or operators of existing solid waste facilities required to monitor water or leachate quality, or to characterize wastes must submit revised monitoring and/or characterization programs, in conformance with the applicable requirements of this chapter, to the Department of review and approval as follows:

(a) Active solid waste facilities must submit revised programs in accordance with the schedule specified in the applicable facility specific chapter for submission of a revised operations manual.

(b) Inactive or closed solid waste facilities must submit revised programs within 6 months of the effective date of these rules.

All changes from the existing programs must be highlighted in the revised programs.

(2) Implementation of revised programs. Owners or operators must implement the revised water quality monitoring program during the first sampling round after the revised program is approved. Revised waste characterization programs must be implemented within 30 days of approval.

2. **Water Quality Monitoring.** The monitoring program approved for a solid waste facility must be capable of detecting any changes in ground water quality in the vicinity of the solid waste facility and/or any changes in surface water quality in the vicinity of the solid waste facility.

A. **Standards for Ground Water Monitoring.** The objective of a ground water monitoring program is to detect changes in the quality of ground water due to a solid waste facility. To accomplish this, downgradient and upgradient (or background) ground water monitoring wells must be placed in sufficient numbers to meet the standards of this chapter as determined through a hydrogeological investigation of the facility site. Areas where public health concerns or nearby sensitive receptors are threatened or have been affected may be subject to more intensive ground water monitoring requirements than provided below.

(1) Number and location of ground water monitoring wells. The number and placement of ground water monitoring wells at new or altered solid waste facilities, or existing active, inactive or closed solid waste facilities required to implement a new ground water quality monitoring program or add additional monitoring wells, must conform to the standards listed below. Where the location of existing active, inactive or closed solid waste facilities (including alterations) make it impossible to locate wells upgradient of the waste handling area, other locations for characterizing background ground water quality may be proposed for review by the Department.

(a) Horizontal well spacing must be based on site-specific conditions including ground water flow direction and rate, estimated dispersion, proximity to sensitive receptors and the nature of wastes disposed of, stored, processed or beneficially used at a solid waste facility. For landfills, it must also be based on the proposed or existing design of the landfill liner and leachate management systems. The number and location of the downgradient monitoring wells or well clusters will depend on the size of the waste handling area and the length of its downgradient perimeter. Monitoring wells must be established in sufficient numbers to detect any contamination emanating from the waste handling area.

(b) Vertical well locations must be chosen to ensure that each hydrogeologic unit is monitored.

(c) At new or expanded landfills, a minimum of two upgradient and three downgradient wells or well cluster locations must be provided. At landfills where more than five wells or well clusters are necessary, the ratio of upgradient (or background) wells to downgradient wells must be sufficient to support valid statistical analyses.

(d) At existing facilities, or where ground water contamination is suspected, the Department may require the use of geophysical techniques to aid in establishing appropriate well locations and screen elevations for additional ground water monitoring points.

(e) The downgradient monitoring wells must be located as close as practical to the solid waste boundary(s) of landfills, or the waste handling area of solid waste facilities that are not landfills, but in no case greater than 100 feet away, unless placing some of the wells at greater distances enhances the ability to detect a release from the facility. In such a case, placement of wells more than 100 feet distant may be proposed for approval by the Department

(f) All upgradient and background monitoring wells must be placed so as to avoid any facility-derived impacts both during the operating life of the facility and after closure.

(2) Sampling, Handling and Analysis of Ground Water. The ground water monitoring program must include consistent sampling procedures that are designed to ensure monitoring results that provide an accurate representation of ground water quality at all monitoring wells installed at a solid waste facility. The approved sampling protocol must be followed throughout the monitoring period of the facility so that data acquired can be compared over time and accurately represent changes in ground water quality. The following procedures must be followed during purging and sampling of monitoring wells, and the handling and analysis of the collected samples:

(a) Prior to purging. Prior to purging the well, static water level must be measured to the nearest 100th of a foot using standard techniques. If a protocol other than low flow sampling is used, well depth must be measured at least annually, or more often if suspended solids in the sample suggest that the well integrity has been impaired. Also, the ground water quality monitoring plan must include the following provisions for detecting immiscible fluids, and explosive or organic vapors, when applicable.

(i) in areas where the presence of explosive or organic vapors is suspected, appropriate instruments must be used to test and identify any constituents in the air in the well prior to purging. Results must be recorded on the field sheet.

(ii) for wells at which ground water contamination has been documented, or where contamination by non aqueous phase liquids is suspected, standing water in the well must be checked for immiscible layers or other contaminants that are lighter or heavier than water, prior to purging the well. If present, these liquids must be sampled and analyzed separately by a method described in the facility ground water monitoring plan.

(b) Purging and Sampling. Wherever possible, purging and sampling must be accomplished at low flow rates using a pump. The pump intake must be within the screened interval of the well, and the purging and sampling procedure must minimize drawdown in the well in order to minimize both the creation of artificial gradients in the vicinity of the well and the introduction of stagnant water into the well screen.

(i) purge methods, including type of pump, pumping rate, and depth of pump intake must be included in the ground water monitoring plan;

(ii) dissolved oxygen, pH and Eh must be measured inline at the discharge of the pump, in a closed flow cell; and

(iii) purge stabilization criteria. Sample collection at the same flow rate used to purge the well may occur when the following stabilization criteria are met:

a. specific conductance, dissolved oxygen and turbidity stabilize within 10% of the reading range for 3 consecutive readings;

b. pH is within 0.1 standard unit; and

c. water level is stabilized.

(c) Order of Sampling. An order for the sampling of monitoring wells must be included in a monitoring program which uses non-dedicated equipment; any changes in the sampling order must be approved by the Department.

(i) the order in which monitoring wells in the program will be sampled must consider the likelihood for contamination in each well in the respective well network. Wells at locations least likely to be found contaminated must be sampled first.

(ii) the order in which samples will be collected from each monitoring well must remain consistent over time and must be based on the parameter's volatility. The United States Environmental Protection Agency (US EPA) provides the following guidelines on order of sample collection:

a. Volatile Organic Compounds (VOCs)

b. Total Organic Carbon (TOC)

c. Total Organic Halogens (TOX)

d. any samples approved by the Department for field filtration

e. samples for field parameter measurement (usually Temperature, Dissolved Gases, Alkalinity and Specific Conductance)

f. large-volume samples for Extractable Organic Compounds

g. samples for Total Metals

h. samples for Nutrient Anion Determinations

(d) Except as otherwise approved by the Department based on site-specific characteristics, all samples must be whole and unfiltered and must be collected in a manner which produces the least possible sampling-induced turbidity.

(e) Field Analyses. All field test equipment must be calibrated at the beginning of each sampling day and checked and re-calibrated according to the manufacturer's specifications. Calibration data must be reported with the analytical results.

(f) Quality Assurance/Quality Control.

(i) Blanks and Duplicates. Unless otherwise approved by the Department based on site-specific characteristics, the following schedule for the collection and analysis of blanks and duplicates must be followed:

a. one trip blank per cooler or shipping container for VOCs each time VOCs are taken to the lab.

b. one equipment blank (final rinsate blank) per sampling event. For each piece of non-dedicated sampling equipment used, the equipment blank must be taken at the end of the sample event.

c. one duplicate for every tenth sample obtained over the course of consecutive sampling events. The duplicate sample identification must be coded such that its origin is unknown to the laboratory.

(ii) continuous chain of custody documentation must be maintained for each sample. Sample containers, preservation methods and maximum holding times must be appropriate for each parameter and method involved in the monitoring program, and must be specified in the sampling and analytical work plan for the facility.

(iii) the analytical methods used to analyze samples must be chosen in accordance with State or Federal guidance documents. Analytical methods used must, where possible, have detection limits which do not exceed one half the maximum contaminant level (MCL) or the maximum exposure guideline (MEG) for each respective parameter.

(3) Additional Standards for the Sampling of Water Supply Wells. When the sampling of water supply wells is conducted, documentation of the well location, design and sampling procedures must be provided.

(a) Location and construction records for the wells.

(i) a description of each well, including its installation, history, and treatment must be provided to the Department. A template for a "Well Description" is contained in Appendix 405.B.

(ii) a map, identifying the location of the disposal facility, and of all water supply wells sampled.

(b) Sampling procedures for the wells.

(i) samples should be collected directly from the well, where possible. Otherwise, samples must be collected as near to the well as possible and before the water is softened, filtered or heated.

(ii) if possible, samples must be collected before the water enters the pressure tank; otherwise the water must be run long enough to flush water stored in the tank and pipes.

(iii) if samples are collected from a tap, aerators, filters or other devices must be removed before sampling.

B. Standards for Surface Water Monitoring. The objective of a surface water quality monitoring program is to detect direct or indirect discharges to a classified body of water, or to detect improvements in surface water quality. Information gathered during hydrogeologic investigations, preparation of an application and ongoing monitoring of a facility must be considered in locating surface water monitoring points.

(1) Number and Locations of Surface Water Monitoring Points. For solid waste facilities at which surface water monitoring is required, a minimum of three surface water sampling locations must be established:

(a) At the locations of likely discharges;

(b) Upstream or sufficiently distant so as not to be affected by any discharges from the facility; and

(c) Downstream of the facility.

(2) Sampling, Handling and Analysis of Surface Water. The surface water monitoring program must include consistent sampling procedures that are designed to ensure results that provide an accurate representation of surface water quality at both upstream (background) and downstream monitoring points for a solid waste facility. The approved sampling protocol must be followed throughout the monitoring period of the facility so that data acquired can be compared over time and accurately represent surface water quality.

(a) Collection of Samples.

(i) samples collected from shallow water should not include bottom sediment. In shallow moving water, downstream samples must be collected first to avoid disturbing the bottom sediments.

(ii) any sample point at which water is over ten feet deep must be checked for stratification using the field parameters conductivity, pH, temperature and dissolved oxygen. Each stratum so identified must be sampled and analyzed separately.

(iii) except as otherwise specified by the Department, all samples must be whole and unfiltered and must be collected in a manner which produces the least possible turbidity.

(b) Blanks and Duplicates. Unless otherwise approved by the Department, the following schedule for the collection and analysis of blanks and duplicates must be followed:

(i) one trip blank per cooler or shipping container for VOCs each time VOCs are taken to the lab.

(ii) one equipment blank (final rinsate blank) per sampling event. The equipment blank must be taken at the end of the sample event for each piece of non-dedicated sampling equipment used.

(iii) one duplicate for every tenth sample obtained over the course of consecutive sampling events. The duplicate sample identification must be coded such that its origin is unknown to the laboratory.

(c) Sample Handling. Continuous chain of custody documentation must be maintained for each sample. Sample containers, preservation methods and maximum holding times must be appropriate for each parameter and method involved in the monitoring program, and must be specified in the sampling and analytical work plan for the facility.

(d) Laboratory Analyses. The analytical methods used to analyze samples must be chosen in accordance with State or Federal guidance documents. Analytical methods used must, where possible, have detection limits which do not exceed one half the MCL or the MEG for each respective parameter.

C. Types of Water Quality Monitoring Programs. The information below describes the various types of monitoring programs and when they must be implemented. The detection and assessment parameters to be analyzed at a landfill must be based upon those found to be present during characterization of the leachate generated by the solid waste facility, those found to be present through ground and/or surface water characterization monitoring, and those identified by the Department as reliable indicator parameters. For a solid waste facility other than a landfill, the water quality monitoring program must be based on the specific types of wastes handled at the facility.

The parameter list for water quality monitoring is found in Appendix 405.

(1) Site Characterization Monitoring. A site characterization monitoring program must be conducted at any new, expanded or existing active, inactive or closed solid waste landfill at which water quality monitoring is required, to establish the parameters to be monitored, and their concentrations as currently found in ground and surface water in the vicinity of the solid waste facility. At existing landfills, site characterization monitoring is required prior to performing detection monitoring. Existing landfills which have previously conducted site characterization monitoring and have ongoing ground and surface water quality monitoring programs found by the Department to have met the applicable water quality monitoring requirements of the May, 1989 solid waste regulations, are exempt from the ground and surface water characterization requirements of this subsection. The site characterization monitoring program at solid waste facilities other than landfills must be determined on a case-by-case basis based on the siting, design, and operations plan, and the physical and chemical characteristics of wastes to be handled at each solid waste facility.

(a) Four or more independent samples from each ground and surface water sample point approved by the Department for the characterization program are required for proper characterization of water quality. The actual number of independent samples required for water quality characterization at a sample point must be based on the rate of ground water flow, data quality and/or variability of results. Sampling events must include the extremes of seasonal water level fluctuation (yearly high and low ground water).

(b) For existing solid waste landfills which accept exclusively MSW, characterization analyses of samples from the first two sampling rounds must be conducted for the Appendix 405.A, Column 2 parameters. Subsequent sampling rounds must be for the Column 1 parameters, plus any Column 2 parameters detected in the first two sampling rounds.

(c) For all other existing solid waste landfills, characterization analyses for the first two sampling rounds must be conducted for the Column 2 parameters, less any Column 2 parameters demonstrated by analyses not to be present in or derived from leachate generated at the facility which is being characterized. Such demonstration must consist of "non-detect" results, using

laboratory methods approved by the Department for the given parameter(s) for the four most recent sampling rounds of analyses for representative and independent samples of leachate generated by the solid waste facility. For landfills without the capability of monitoring a leachate detection system and/or a leachate collection system, characterization analyses for the first two sampling rounds must be conducted for the Column 2 parameters.

(d) For proposed solid waste landfills, analyses must be conducted for the Column 2 parameters during the first two sampling rounds. Subsequent sampling rounds must be for the Column 1 parameters plus any Column 2 parameters detected in the first two sampling rounds. Results of these analyses must be submitted with the application.

(e) For a solid waste facility, other than a landfill, that is required to have a water quality monitoring program, analyses must be conducted during the first two sampling rounds for the Column 2 parameters reasonably expected to be present in any wastes to be handled at the solid waste facility in a manner which could allow leachate to enter ground or surface water. Subsequent sampling rounds must be for the Column 1 parameters plus any Column 2 parameters detected in the first two sampling rounds.

(2) Detection Monitoring. The data obtained through the site characterization monitoring program and, for landfills, the nature of leachate generated by the same or a similar landfill, must be used to establish the list of detection parameters for the solid waste facility. The purpose of detection monitoring is to detect changes in water quality throughout the active life of the facility and through the closure and post closure periods.

(a) Detection monitoring at a landfill must be conducted for the parameters listed in Column 1 of Appendix 405.A, plus any Column 2 parameters determined to be present during leachate characterization, site characterization monitoring, and as required in subparagraph (e) or (f), below.

(b) Detection monitoring at a solid waste facility other than a landfill must be conducted for the parameters listed in Appendix 405.A, Column 1 plus any Column 2 parameters determined to be present during site characterization monitoring.

(c) Sampling frequency for detection monitoring at an active solid waste facility must include three sampling events per year collected during spring (March/April), summer (July/August) and fall (October/November), unless an alternative frequency is approved or required by the Department, based on site-specific characteristics.

(d) Sampling frequency may be reduced to twice yearly (spring and fall) at an active solid waste facility at which ground water velocity is calculated to be less than 10 feet/year using conservative assumptions. Conservative assumptions must include the steepest gradient observed for the hydrogeologic unit, the maximum hydraulic conductivity measured in the hydrogeologic unit, and a maximum effective porosity for flow of 0.1, unless site-specific information or other pertinent data exists to establish a greater porosity.

(e) A landfill without the capability of monitoring a leachate detection system and/or a leachate collection system must include annual monitoring of the Column 2 parameters in the landfill's detection monitoring program.

(f) A landfill having the capacity to monitor a leachate detection system and/or a leachate collection system must monitor the leachate for the Column 2 parameters in the facility's leachate detection system and/or leachate collection system at least annually.

(g) Parameters consistently undetected in a facility's leachate, or in results from its ground water monitoring network, may be deleted from detection monitoring upon approval by the Department. Certain major ions and complex ions (sodium, potassium, magnesium, calcium, iron, bicarbonate, sulfate, and chloride) may not be deleted from a detection monitoring program.

(h) Sampling frequency and parameters for detection monitoring at a landfill which does not qualify for closure under the reduced closure procedure of 38 MRSA. Section 1310-E(2) or the alternative closure procedure of 38 MRSA. Section 1310-E(3) must continue as previously approved for the facility, unless an alternative program is established in the closing plan and post-closure care approval for the landfill. If the landfill does not have an approved monitoring program, one must be established during 1998 in accordance with the applicable requirements. The sampling frequency and parameters for closed landfills are expected to decrease throughout the post-closure period.

(i) If the results of detection monitoring indicate a possible deterioration in water quality at one or more ground water monitoring wells or surface water monitoring points, the owner/operator of the solid waste facility shall initiate an evaluation of the causes of the deterioration in water quality within 30 days of its receipt of the laboratory results. A report of the evaluation, prepared and sealed by a qualified professional, must be submitted to the Department for review and approval within 90 days of the date the evaluation is initiated. The report may be a part of the regular monitoring report or a separate document. The evaluation must include the following:

(i) a statistical analysis of the data from the monitoring program, performed in accordance with Section 3 .

(ii) an evaluation of sources other than the solid waste facility which may have caused or contributed to the possible deterioration in water quality, such as natural variation in water quality or another development.

(iii) an evaluation of possible errors, such as errors in sampling, analysis, or mathematical problems with the monitoring data. If resampling of monitoring points is performed, the samples must be independent of the previous sample; however, the sample must be collected within the same season as the original sample.

NOTE: Staff consider "possible deterioration" to mean a change in data values that appears significant after considering normal variations in the historical database and any acute events that might have triggered short-term water quality changes.

(j) Assessment monitoring must be initiated within 90 days of the date the report required by Section 2.C(2)(i), above, is submitted, unless the Department concurs that a source other than the solid waste facility is the likely source of the deterioration in water quality. Assessment monitoring must be conducted in accordance with a plan approved by the Department.

(3) Assessment monitoring. The purpose of assessment monitoring is to determine the nature and extent of a release of contaminants to ground or surface water.

(a) Proposed changes to the facility's water quality monitoring plan, prepared in accordance with the applicable rules, must be submitted at least 15 days prior to the first scheduled assessment monitoring event.

(b) Assessment monitoring frequency must include three sampling events per year collected during spring (March/April), summer (July/August) and fall (October/November) at each sample point where it is documented by a statistically significant change in concentration of a parameter that deterioration of water quality has occurred, and at its upgradient or upstream counterpart(s).

(c) Samples taken during the first two rounds of assessment monitoring must be analyzed for the Column 3 parameters. After the submission of the results from the first two rounds of assessment monitoring, an owner/operator may submit a proposal to eliminate parameters based on an analysis of those results.

(d) Assessment monitoring must continue until the Department concurs that successful corrective action, as defined in CMR 400, Section 1, has been demonstrated.

(e) As part of assessment monitoring, monitoring wells must be installed and sampled downgradient of (and in the same hydrogeologic unit as) the affected monitoring well(s) in sufficient numbers to identify the magnitude and extent of the plume. All additional wells installed under this section become part of the assessment monitoring network, but may not be required to be part of the detection monitoring network.

(4) Alternative Ground Water Monitoring Programs. After ground water quality is established at a solid waste facility, the Department will consider proposals for alternative forms of monitoring, such as leachate accounting or geophysical surveys, in lieu of or in conjunction with sampling and analysis of some of the wells required by this section. At a minimum, the applicant must submit the following documentation to justify a proposed alternative:

(a) A complete description of the proposed alternative ground water monitoring program, including a demonstration that the hydrogeological characteristics of the facility site have been considered during the development of the proposal.

(b) A discussion of the benefits of the proposed alternative ground water monitoring program.

(c) A discussion of the drawbacks and limitations of the proposed alternative ground water monitoring program.

(d) A comparison of this proposal and similar applications of alternative ground water monitoring programs.

(e) A demonstration that the proposed alternative ground water monitoring program will provide equal or superior protection of human health and the environment.

(f) A protocol for maintaining the viability of the ground water monitoring well network.

(g) A proposal for, at a minimum, annual sampling of all monitoring wells.

(h) A proposed trigger which would require the resumption of routine detection monitoring of all wells in the monitoring network.

D. Corrective Action Plans. Any solid waste facility that has implemented a corrective action plan previously approved by the Department must complete the actions specified in that plan. For all other solid waste facilities, within 90 days of the date that verification, through statistical analyses on the relevant historical database, including the two assessment monitoring events, that a statistically significant change has occurred indicating contamination of ground water or surface water, the owner/operator of the facility must complete and submit to the Department for review and approval a plan which includes evaluation of potential corrective actions and a proposal to initiate the chosen corrective action(s). The corrective actions must be designed to minimize the discharge of pollutants from the facility. An evaluation of the plan must be updated and resubmitted annually until successful corrective action has been demonstrated. The plan must include:

(1) Immediate Corrective Actions Needed. An analysis of the time frame, potential effectiveness, performance, risks and costs of the corrective actions immediately available or necessary to prevent significant threats to the environment or public health, and a schedule for implementation of those actions.

(2) Analysis of Long-Term Corrective Actions. A detailed evaluation must be completed of potential long-term corrective action(s) necessary to achieve compliance with all ground water and surface water requirements and standards to protect human health and the environment, and to control sources of releases so as to reduce or eliminate, to the maximum extent practicable, releases of Appendix 405.A, Column 3 constituents that may pose a threat to human health or the environment. The evaluation must, at a minimum, address the following:

(a) The performance, reliability, ease of implementation and potential impacts of each potential remedy identified, based on:

(i) the magnitude of existing and residual risks in terms of the likelihood of further releases due to waste remaining following implementation of a remedy;

(ii) the type and degree of long-term operation and maintenance required;

(iii) short-term and long-term health, safety, and environmental risks that each potential corrective action could pose to people and the environment; and

(iv) long-term reliability of the engineering and institutional control.

(b) The time required to begin and complete each potential remedy and when full protection would be achieved.

(c) The projected costs associated with the implementation of each potential remedy.

(d) Any federal, state or local licenses or permits required to be obtained prior to the implementation of each potential remedy.

NOTE: The potential long-term corrective actions for a solid waste facility are site-specific and will vary significantly depending on the design and age of the solid waste facility, the

completeness of the facility's historical records, the nature and extent of contaminants found in the ground or surface water, the complexity of the site hydrogeology, and the facility's proximity to sensitive receptors or other natural resources.

(3) Selection of Corrective Actions. The facility owner and/or operator, as part of the corrective action plan, shall submit to the Department a written proposal for corrective action(s) to be taken at the facility. This proposal must detail:

(a) A correction action program, and the basis for the selection of that program, including a basis for measuring and documenting the effectiveness of the proposed program. This report must include:

(i) the extent to which different corrective actions would reduce further releases, and

(ii) the ease or difficulty of implementing proposed remedies. This analysis must include the following factors: constructing the technology, operational reliability and availability of necessary equipment and specialists, and the available capacity and location of needed treatment, storage, and disposal services.

(b) A schedule for implementation of the proposed corrective action program based upon the potential risks to human health and the environment, ground water use and contamination considerations, extent and nature of the contamination, and availability of treatment and/or disposal capacity for the wastes to be removed.

(4) Implementation of Corrective Action. The facility owner and/or operator shall initiate corrective action immediately upon the Department's approval of their corrective action plan and approval of the individual actions to be taken. The owner/operator shall propose, and, upon Department approval, take any interim measures necessary to ensure protection of human health and the environment based upon the time required to develop and implement long-term corrective actions, the threat to water resources, and weather conditions that may cause pollutants to be released or migrate from the facility site.

(5) Completion of Corrective Action. The facility owner/operator shall continue corrective action and assessment monitoring until the Department finds that successful corrective action has occurred.

3. **Standards For Ground And Surface Water Data Evaluation And Reporting.** Validation of the data from the sampling of the monitoring network is required to ensure that the data is reliable and provides a valid analysis of the ground and surface water quality in the vicinity of the solid waste facility. The results of the data validation procedures must be included in the monitoring reports for the solid waste facility to verify the accuracy and precision of the reported results, and account for anomalous results.

A. **Data Validation.** Unless otherwise approved by the Department, the following data validation methods must be conducted and the results included in the monitoring report.

(1) Verification that the chain of custody for each sample is continuous.

(2) Verification that all sample holding times were met.

(3) Calculation and tabulation of the ratio between Total Dissolved Solids and Specific Conductance. All samples for which this ratio falls outside the range of 0.55-0.75 must be identified in the report.

(4) Calculation and tabulation of the relative percent difference for all duplicate samples using the formula: [|S-D|/{S+D/2}](100) where S= sample value and D=duplicate value. Relative percent difference should be calculated only where both sample and duplicate values are greater than 5 times the practical quantitation limit of the analyte. All samples for which the relative percent difference exceeds 10% must be identified in the report.

(5) Beginning with the fifth analysis for each parameter, identification and tabulation of all results which fall outside of the historical range for the given sample point. This includes ground water elevations and field parameters.

(6) Identification of all parameters present in equipment blanks.

(7) Identification of all parameters present in trip blanks.

(8) Identification of all wells whose depths have changed since their construction.

B. Statistical Analyses. Statistical analyses of data from each monitoring well must be performed annually and the results included in the facility's annual report. Statistical tests may be used to compare upgradient water quality or identification of an intra-well trend. Statistical tests shall conform to July 1992 Addendum To Interim Final Guidance for Statistical Analysis of Ground Water Monitoring at RCRA Facilities (US EPA Office of Solid Waste Permits and State Programs Division) and meet the performance standards of 40 CFR 258.53 (h). The performance standards are provided as Appendix 405.C. At any time during operational or post-closure monitoring, the Department may require the owner/operator of a facility to perform statistical analyses.

Statistical analyses will be used to:

(1) Identify any statistically significant trends in parameter concentrations in ground water as a function of time.

(2) Identify any statistically significant differences in ground water quality between downgradient sample locations and corresponding upgradient or background sample locations.

C. Reporting Requirements. Reports on ground and surface water quality must be submitted within 30 days of the date the laboratory analyses are reported, and before the next sampling event occurs. Reports may be filed in either paper or electronic format. Unless reporting under (6), below, reporting requirements for paper submission of ground and surface water monitoring must include the information listed in (1) through (5). Unless reporting under (6), below, reporting requirements for electronic submission of ground and surface water monitoring must include the initial submittal of the historical information listed in (1) and (3); subsequent submissions must include the information listed in (3) and (4). If reports are submitted in electronic format, the data validation required in (2), below, is not required; however, paper copies of the information listed in (5) must be kept at the facility and be available to Department staff upon request.

(1) A map of the facility showing the licensed facility site and waste handling area boundaries, the current waste handling area boundary and the location of each monitoring point. Illegible plans will not be accepted.

(2) Results of the data validation.

(3) Tabulation of current and historical data, including field parameters and ground water elevation data.

(4) Identification of the elevation reference datum.

(5) Identification of all ground water analytical results exceeding MCLs and/or MEGs. Copies of the laboratory data sheets, chain of custody sheets and field data sheets must be available for staff inspection, if requested, for two years after a sampling event. Field data sheets must include:

(a) Date and time each sample was collected, and the sampler's signature;

(b) Temperature and weather conditions;

(c) Purge volumes, pumping rates and purge stabilization data for each monitoring well;

(d) Presence or absence of color, odor or surface sheen on water samples;

(e) Well depth measured during last annual inspection;

(f) As-built well depth;

(g) Results of the routine well inspection, maintenance and testing;

(h) Instrument calibration data;

(i) Static water level (pre-purge) and depth to water at the time of sampling;

(j) Identification of the reference point for depth measurements; and

(k) For surface water, an estimate of the rate of flow.

(6) Alternative Reporting Requirements. At a solid waste facility where ground water and/or surface water is being monitored through a detection monitoring program, the Department will consider a request to implement a self-certification program in place of the submission of all water quality monitoring reports except the annual report for the solid waste facility.

(a) To be eligible for this alternative, the following conditions must be met and maintained for each well proposed to be part of the program:

(i) sufficient data must be available for a statistical analysis to be performed if necessary;

(ii) there must have been no exceedences of MCLs or MEGs of any parameter within the last 3 years; and

(iii) there must have been no statistically significant change in any parameter which indicates deterioration of water quality within the last 3 years.

(b) The alternative reporting program must include:

(i) a written certification, prepared by a qualified professional, must be submitted within 30 days of the date the lab analyses are reported. The certification must state that the wells in the program were sampled in accordance with the solid waste facility's approved water quality monitoring program and that the results were reviewed and found to be consistent with prior results.

(ii) the information listed in paragraph (5), above, must be kept at the solid waste facility and be available to staff of the Department upon request.

4. **Leachate, Leachate Collection, Leachate Detection System And Leachate Treatment Residue Monitoring.** A program of periodic monitoring of leachate quality and volume, leak detection system (LDS) fluid quality, volume and flow rate, and leachate treatment residue composition and generation rate must be conducted at all facilities which have a leachate collection and/or detection system. A sampling and analytical workplan must be submitted for Department review and approval. The sampling and analytical workplan for leachate treatment residue characterization must meet the requirements of Section 6. The Department-approved sampling and analytical workplan must be part of the operation manual for the facility, and must include all proposed monitoring points. Sampling schedule, methods of sample collection and preservation, analyses to be performed, quality assurance/quality control, analytical and statistical methods and reporting format must be specified. At a minimum, the following must be incorporated into the monitoring plan:

The parameter list for leachate and LDS fluid monitoring is found in Appendix 405.A.

A. Sampling points should be located as close as possible to the generation point.

B. Sampling points in primary and secondary leachate collection systems and LDSs should be adequate to sample liquids beneath each leachate collection area, landfill cell, and the leachate holding facility.

C. Leachate and LDS fluid generation rates must be reported in gallons per acre per day, using total daily flow recording.

D. Leachate and LDS fluid must initially be characterized through the sampling and analysis of four or more independent samples of the leachate and LDS fluid for the Column 3 parameters less any parameters it can be demonstrated are not present in the wastes accepted at the landfill. Operators of existing landfills with a leachate monitoring plan approved by the Department and consistent with the requirements of the 1989 solid waste rules are not required to perform an initial characterization of leachate and LDS fluid provided the wastes currently accepted are chemically consistent with wastes previously accepted.

E. Detection monitoring for leachate must be for the same parameters and at the same frequency as approved for the ground water detection monitoring program, except that leachate must be monitored for the Column 2 parameters on an annual basis, and the results reported in the landfill's annual report, unless the owner/operator can certify that no changes in the wastes delivered to the solid waste facility have occurred.

F. Parameters consistently undetected in a facility's leachate, or in results from its ground water monitoring network, may be deleted from the leachate monitoring program upon approval by the Department. The following major ions and complex ions may not be deleted from a leachate monitoring program: sodium, potassium, magnesium, calcium, iron, ammonia, bicarbonate, sulfate, chloride and nitrate.

G. Unless otherwise approved by the Department based on site-specific characteristics, or required by the landfill's Response Action Plan, sampling, analysis, and reporting requirements for LDS fluid must be as follows:

(1) Sampling and reporting of the field parameters of Column 1 must be conducted monthly, and reported with leachate and water quality information.

(2) Detection monitoring for other than field parameters must be for the same parameters and at the same frequency as approved for the ground water detection monitoring program, except that LDS fluid must be monitored for the Column 2 parameters on an annual basis, and the results reported in the landfill's annual report.

H. Leachate residues generated by on-site treatment or settlement must be analyzed prior to disposal.

5. **Standards For The Installation, Construction And Maintenance Of Wells And Piezometers, And For The Advancement Of Borings.** This section describes requirements for wells, piezometers and borings for all types of monitoring and investigations at all types of facilities.

A. Construction of wells and piezometers. Monitoring wells and piezometers must be installed in a manner that maintains the integrity of the bore hole. The design and construction of the well or piezometer directly affects the quality and representativeness of the samples collected. The following criteria must be followed during the construction of wells, piezometers and borings.

(1) Construction and installation of wells and piezometers must be appropriate to insure that ground water samples and head measurements characterize discrete hydrogeologic units; and to prevent leakage of ground water, surface water or contaminants along the well annulus. If leakage is detected it must be corrected or the well abandoned. Wells installed for the purpose of ground water sampling and analysis must be capable of producing samples low in turbidity.

(2) All ground water monitoring wells must be constructed of PVC well casing material. Monitoring well casing must have a minimum inside diameter of 2 inches. Wells constructed in unconsolidated material less than 100 feet in depth must be constructed using a minimum of schedule 40 PVC well casing.

(3) All casing must be constructed of flush threaded joints or threaded coupling joints. All joints must be fitted with an "O" ring or wrapped with Teflon tape. Solvent welded joints are not acceptable.

(4) Wells and piezometers may be placed individually or as clusters. Clusters consist of individual wells or piezometers at varying depths in close proximity, each installed in its own boring.

(5) Appropriate precautions must be taken during drilling and construction of wells and piezometers to avoid introducing contaminants into the borehole. Unless otherwise approved by the Department based on site-specific characteristics, only potable water may be used in drilling. In some cases, analysis of water used in drilling may be required.

(6) All equipment to be placed into the boring must be properly decontaminated before use at the site and between boreholes.

(7) Borings for wells and piezometers must not be placed through or into waste unless prior Department approval has been granted and sufficient safety precautions are employed.

(8) Well screens are required for all wells and for open standpipe piezometers. All screens must be factory slotted and sized to retain at least 90% of the grain size of the filter pack. Water table variations, site stratigraphy, expected contaminant behavior, and ground water flow must be considered in determining screen position and length. Unless otherwise approved by the Department based on site-specific characteristics, screens for water table observation wells and monitoring wells must not exceed 10 feet in length. Screens for piezometers must not exceed 2 feet in length. Technical justification for the screen length chosen must be provided.

(9) Well screens must be located to readily detect changes in ground water chemistry in each potentially affected hydrogeologic unit. Monitoring wells must not be screened across hydrogeologic unit boundaries. Where surficial hydrogeologic units exceed 20 feet in saturated thickness, a monitoring well cluster of two or more wells is required, the screens of which must each not exceed 10 feet in length.

(10) Proposals for alternate instrumentation for piezometric measurements in sediments with hydraulic conductivity of less than 10E-6 cm/sec may be submitted to the Department for review and approval.

(11) The sand pack surrounding the well screen must consist of clean, inert siliceous material. The sand pack must minimize the amount of fine material entering the well and must not inhibit the flow of water into the well. The sand pack must be placed in the annular space around the well screen and extend two feet or twenty percent of the screen length (whichever is greater) above the top, and six inches below the bottom, of the screen. The sand pack material must be placed using the tremie method and must avoid bridging. The sand pack must be checked for proper placement. A finer grained sand pack material (100% passing the No. 30 sieve and less than 2% passing the No. 200 sieve) six inches thick must be placed above the sand pack and below the bentonite seal.

(12) Bentonite must be placed above the sand pack using the tremie or other approved method to form a seal at least three feet thick. If pellets or chips are used, sufficient time (usually 4 to 24 hours) must be allotted to allow for sufficient hydration of the bentonite prior to placement of overlying materials.

(13) Grout of cement and bentonite, bentonite alone, or other suitable, low permeability material, if approved by the Department, must completely fill the remaining annular space to the base of the surface seal. The sealing material must set up without being diluted by formation water, and must displace water in the annular space to insure a continuous seal. The sealant must be placed under pressure using a tremie or other method approved by the Department. Backfill of native material to construct the annular seal is prohibited.

(14) A bentonite or concrete surface seal and protective, lockable steel casing must be installed around all monitoring wells and long-term observation wells and piezometers. If a concrete surface seal is constructed, it must extend from below the level of frost action at least to the ground surface. The surface seal must prevent surface water or runoff from ponding around the well casing. The protective steel casing must be set at least six inches lower than the base of the surface seal and extend approximately two inches above the top of the PVC riser. The surface seal must be designed to minimize or eliminate heaving due to frost action. Both the surface seal and the protective steel casing must be designed and constructed so that neither is mechanically coupled to the PVC riser.

The diameter of the protective casing must be at least two inches larger than the PVC riser. The protective casing, as well as the PVC riser, must be vented near the top to allow the escape of gasses and the equilibration of water level with atmospheric pressure changes. The protective casing must also have a drain hole at the base. A permanent, distinctive and readily visible marker identifying the well's designation must be affixed to the protective casing or near the well; and a means to locate the well during periods of high snow cover must also be provided. In areas of traffic, bumper guards or other suitable protection for the well are required.

B. Geologic sampling. A boring program is necessary to define site hydrogeology. Borings must be carefully sampled to provide surficial and lithological information.

(1) Borings must be continuously sampled throughout the length of the hole at all locations where surficial stratigraphy and bedrock characteristics have not previously been determined.

(2) In any additional borings not continuously sampled, samples must be taken at five foot intervals, at each stratigraphic change, and at the screened interval in surficial deposits and, in rock, as required by the Department.

(3) At a minimum, the screened interval of each surficial installation must be analyzed.

(4) At well or piezometer clusters, continuous samples must be taken from the surface to the base of the deepest boring. Other wells or piezometer borings in the cluster must be sampled at the screened interval.

(5) Bedrock must be sampled with a standard size NX or larger diameter core barrel. All other materials must be sampled using the split spoon or equivalent method.

(6) Bedrock refusal must be distinguished from boulder refusal by a minimum of ten feet of continuous rock core. Where core lithology does not conform to known bedrock characteristics, a longer core may be required to confirm bedrock refusal.

(7) Core samples must be securely stored and accessible throughout the life of the facility.

(8) Unconsolidated samples must be retained for five years after the original permit is issued. The location of the storage area must be designated in the operating record for the solid waste facility.

C. Well and piezometer development. Monitoring wells and piezometers must be constructed, installed and developed in a manner which assures that the well or piezometer is in good hydraulic contact with the hydrogeologic unit and that samples obtained will be representative of formation water. Wells installed for the purpose of ground water sampling and analysis must be capable of producing samples low in turbidity.

(1) All wells and piezometers must be developed as soon as possible after installation but not before the well seal and grout have set.

(2) Water must not be introduced into the well except with approval from the Department.

(3) Any contaminated water withdrawn during development must be properly managed.

(4) The entire saturated screened interval must be developed.

(5) Well development methods selected must insure that sediment-free water can be obtained. The Department may require multiple attempts at well development to ensure that sediment-free water can be obtained.

(6) Acceptable well development methods are specified in US EPA (1992A) "RCRA Ground-Water Monitoring: Draft Technical Guidance", and references listed therein. The development method selected must be appropriate for the stratigraphy/conditions encountered. Placement of screens in fine grained strata may require gentle development techniques to avoid pulling sediments into the well. The selected method must minimize to the greatest extent possible the amount of turbidity in the well.

D. In-situ hydraulic conductivity testing and well performance evaluation. In-situ hydraulic conductivity testing of each monitoring well must be performed to provide information on the hydraulic conductivity in the immediate vicinity of the monitoring well. A well performance evaluation must be performed on each monitoring well to determine the rate at which each well can be pumped without significant continued drawdown. In-situ hydraulic conductivity testing must be done in all monitoring wells and piezometers. The testing methods must not introduce contaminants into the well. Any contaminated water removed from the well must be properly managed.

E. Report on the Design, Construction and Development of Monitoring Wells and Piezometers. The following information on the design, construction and development of monitoring wells and piezometers must be submitted to the Department after development of monitoring wells is completed.

(1) Standard drillers logs showing driller's name, start and finish data, boring designation, casing, sampler, core barrel and hammer specifications, sample blow counts, vane readings, moisture content, location of the water table during drilling, water lost during drilling, degree of sample recovery and other appropriate information must be submitted for each boring.

(2) A well installation detail diagram with a minimum vertical scale of 1 inch equals 5 feet showing the complete borehole and the complete well or piezometer installation in cross section, including well or piezometer designation; the elevations of riser and screen and of all annular materials; the surface elevation and the of top of riser and top of protective casing. Sampling intervals, sample designations, and if practical, analytical results must also be included. Borehole stratigraphy, as interpreted by the geologist in charge of the installation is also required as part of the installation diagram. Logs of surficial deposits should include a description of matrix and clasts, mineralogy, roundness, color, odor, appearance, and behavior of materials. Rock core logs must describe the lithology, mineralogy, degree of cementation, color, grain size, and any other physical characteristics of the rock noted, percent recovery and the rock quality designation (RQD). The logging system used to provide the information must be a geological logging system. Engineering logging systems are not acceptable.

(3) Information on the method of well development used for each monitoring well and the results of the development.

F. Routine Inspection, Maintenance and Testing of Monitoring Wells. All monitoring wells must be maintained in a manner that ensures their continued performance according to design specifications over the life of the monitoring program. All results, as well as a description of any maintenance conducted, must be included in the reports submitted to the Department.

(1) Inspections of surface seals for heaving, settling and cracks must occur each time sampling and/or water elevation measurements are carried out, and the results recorded on the field sheets.

(2) At least annually, the depth of each well must be determined, and the results reported in the annual report.

(3) At each monitoring well where low-flow sampling is not used, a performance evaluation of the monitoring well must be conducted at least annually, to determine the pumping rate at which the well will be purged and sampled. This data must be included in the annual report for the facility.

G. Replacement of wells and piezometers. All wells and piezometers must be properly protected and maintained to insure their integrity. If water quality or any other data show that the integrity of a monitoring well is lost, the well must be replaced and sampled within a time period not exceeding 120 days after written notification by the Department. When a well is damaged or for any other reason cannot be sampled, the Department must be notified in writing no later than fifteen days from the discovery of the damage.

(1) A location for the replacement well or piezometer must be approved by the Department prior to its installation.

(2) The initial sample for a replacement well at MSW landfills must consist of the Appendix 405.A, Column 3 parameters.

H. Abandonment of wells, piezometers and borings. Wells, piezometers and borings abandoned for any reason must be fully and completely sealed in a manner appropriate to the geologic conditions to prevent migration of water or contaminants along the borehole. Generally such sealing must include:

(1) Removal of all material installed in the original borehole including casing, screen and annular materials to the greatest extent possible. Any casing which cannot be withdrawn intact must be ripped and perforated and then augered or washed from the hole.

(2) Sealing by pressure injection from bottom to top with cement bentonite or other appropriate material to within five feet of the ground surface. The upper five feet may be backfilled with native material, and the entire site must be restored to a safe condition. Where the surrounding geologic deposits are highly permeable, alternative methods of sealing may be required by the Department to prevent migration of grout into the surrounding formation.

(3) Documentation of the abandonment through a written description of the procedures employed, drilling methods and depths, borehole depth and volume and type of sealant employed is required.

6. Solid Waste Characterization Program

A. Applicability. All special wastes proposed for storage, processing, beneficial use, agronomic utilization, or disposal in Maine must be characterized in accordance with a Department-approved plan. Any other solid waste may also be required to be characterized in accordance with a Department-approved plan. Facilities licensed solely for the transfer, storage, and/or disposal of municipal solid waste (MSW), wood waste and/or construction or demolition debris (CDD) are exempt from the characterization requirements of this section.

Solid waste facilities licensed to accept solid wastes characterized by the generator are not required to further characterize the waste at the facility, provided the solid wastes are clearly manifested from the point of generation to the accepting facility.

B. General Program Requirements. The owner or operator of a new solid waste facility or activity required to characterize waste under these rules, or by a license or an enforcement agreement, must develop a solid waste characterization program and submit it to the Department for review and receive approval prior to handling of the wastes. This program must be designed to determine the chemical and physical characteristics of the wastes and to monitor these characteristics on an on-going basis. The owner or operator of an existing solid waste facility or activity which has previously characterized its wastes is required to meet only the ongoing characterization requirements of this section, unless an alternative program is approved by the Department or the owner or operator proposes to handle a new waste stream which requires initial and on-going characterization under this section. The program must include detailed information addressing the following:

(1) General requirements. The applicant must comply with the following requirements in developing and implementing a solid waste characterization program:

(a) For the initial characterization of a waste from a specific source, the owner or operator shall prepare and submit to the Department a detailed description of all known or potential physical and chemical characteristics of the solid waste to be accepted for handling. This must include information regarding the materials and specific process from which the waste is generated, and Material Safety Data Sheets for those chemicals that may be a major component of the waste. Information may be obtained from the facility generating the waste, analytical results from a similar facility, and/or from the chemical literature.

(b) The applicant shall also include a complete list of references for all sources of information used in this assessment.

(c) All wastes proposed to be handled under the provisions of these rules must be fully characterized unless exempted from characterization. Any statistical analysis performed must be done in accordance with the requirements of US EPA SW-846, Test Methods for Evaluating Solid Waste, Fourth Edition, Volume II, Chapter 9. Waste must not be accepted at a solid waste facility or for a solid waste activity if the TCLP - Regulatory Limits or allowable limits for additional contaminants as determined in the facility or activity license have been equaled or exceeded. This determination must be made either through TCLP testing or through calculation utilizing the methodology described in Appendix 405.E.

(d) A reduction in characterization requirements may be requested based on the generator's certification of waste history, process knowledge, and waste volume. The Department may also require additional parameters based upon the raw material, the proposed activity, or the facility.

NOTE: 22 MRSA Chapter 157-A, §567 requires that samples used to demonstrate compliance with Department programs must be analyzed at a laboratory certified for that type of analysis by the Health and Environmental Testing Laboratory, Department of Human Services, if such certification is available. For information on laboratory certification, contact the Laboratory Certification Officer, Health and Environmental Testing Laboratory at 207-287-2727.

(2) Waste Characterization Sampling and Analytical Work Plan. A waste characterization sampling and analytical work plan must be developed for initial and ongoing characterization of solid wastes, including residuals, handled under a solid waste license. The plan must include, at a minimum, a detailed description of the contaminants of concern in the waste or residual, the sampling and analytical methods used to obtain samples and quantify contaminants, and the guidance or other references used to develop the plan. The plan must be prepared in accordance with the specific analytical requirements of Section 6.C or 6.D.

The sampling plan must include:

(i) identification of parameters to be analyzed and selection rationale;

(ii) sample collection methods including a description of sampling equipment and how representative samples will be obtained;

(iii) sample point description;

(iv) sample size, sample type (e.g., grab, composite), and sample frequency;

(v) procedures for decontamination of sampling equipment prior to sampling and between the collection of successive samples;

(vi) sample container, storage and preservation procedures;

(vii) sample holding times;

(viii) sample handling, packaging, and transportation protocols;

(ix) sample documentation (labeling, chain-of-custody, log book);

(x) analytical methods;

(xi) estimated practical quantitative limits for each parameter to be quantified;

(xii) sampling and analysis quality assurance/quality control procedures; and

(xiii) data reduction, validation and reporting methods including methods of statistical interpretation of analytical results.

In order to assure adequate waste characterization, the plan must be developed in accordance with Department-approved State or Federal guidance documents.

NOTE: The applicable guidance documents include:

(1) Test Methods for Evaluating Solid Wastes Physical and Chemical Methods; US EPA, SW-846, 4th Edition;

(2) Waste Analysis Plans, A Guidance Document; US EPA, EPA/530-SW-84-012, October 1984;

(3) Procedures for Handling and Chemical Analysis of Sediment and Water Samples; US EPA/Corps of Engineers, May 1981;

(4) Standard Methods for the Examination of Water and Wastewater; APHA/AWNA/WPCF, 19th Edition, 1998;

(5) Annual Book of ASTM Standards, Sections 5 and 11; ASTM, 1988;

(6) Methods for Chemical Analysis of Water and Wastes; US EPA, EPA 600/4-79-020, March 1983;

(7) Soil Sampling Quality Assurance User's Guide; US EPA 600/4-84-043, May 1984

(8) Methods for Evaluating the Attainment of Clean-up Standards, Volume 1, Soils and Solid Media; US EPA 230/02-89-042, February, 1989;

(9) Methods for Evaluating the Attainment of Clean-up Standards, Volume 2, Ground Water; US EPA 230-R-92-014, July, 1992;

(10) ASTM Designation: D 4994-89, "Standard Practice for Recovery of Viruses from Wastewater Sludges", 1992 Annual Book of ASTM Standards: Section 11;

(11) Yanko, W.A., "Occurrence of Pathogens in Distribution and Marketing Municipal Sludges", US EPA 600/1-87-014, 1987;

(12) An equivalent State or Federal guidance document as approved by the Department.

C. Specific Analytical Requirements for the Disposal or Beneficial Use of Solid Waste. Solid wastes proposed to be disposed at a solid waste disposal facility or processed or stored prior to disposal must be characterized in conformance with the requirements of this section unless otherwise approved by the Department based on specific characteristics. Residuals approved by the Department for agronomic utilization may be disposed in a landfill approved to accept the waste, without further analysis.

(1) Exemptions. The following quantities of the specific wastes listed are exempt from the analytical requirements of this subsection provided disposal occurs in a landfill licensed by the Department. Records of disposal must be kept by the landfill operator and reported in the facility's annual report.

(a) Non-recoverable oily waste:

(i) a total of 100 cubic yards per year in a secure landfill

(ii) a total of 10 cubic yards per year in a non-secure landfill

(b) Oil, coal, wood (including ash from burn piles at licensed or exempt solid waste facilities) and multifuel boiler ash:

(i) a total of 100 cubic yards per year in a secure landfill

(ii) a total of 10 cubic yards per year in a non-secure landfill

(2) Miscellaneous Wastes. All wastes other than non-recoverable oily wastes, ashes, pulp and paper mill sludges and POTW sludges must be analyzed for the following:

(a) Complete Toxicity Characteristic Leaching Procedure (TCLP) (per US EPA Method 1311, Federal Register/Volume 55, No. 126);

(b) Totals for Aluminum, Arsenic, Barium, Boron, Cadmium, Chromium, Copper, Lead, Mercury, Molybdenum, Nickel, Selenium, Silver, and Zinc (per Methods in US EPA SW-846);

(c) Chloride, percent carbon, percent moisture, pH, phosphorus;

(d) Reactivity Characteristics;

(e) Ignitability Characteristics; and

(f) Additional parameters as identified by the applicant or the Department. These additional parameters must be based upon the raw material, the proposed activity, or the facility.

(3) Non-Recoverable Oily Waste. The requirements of this section will apply to the handling of non-recoverable oily waste. For the purposes of this section, non-recoverable oily waste will mean oil or gasoline spill debris, waste oil contaminated soil, and oil or gasoline soaked soil from the cleanup of leaking underground storage tanks (USTs).

(a) Gasoline contaminated soils and debris. All gasoline contaminated soils and debris, generated from remedial activities of underground storage tanks (USTs) (defined and regulated under 40 CFR Parts 261 and 280) must be analyzed by the TCLP for lead only. Contaminated soils and debris from surface storage facilities and surface spills must be analyzed by the TCLP for lead and benzene only. Analysis must be conducted at a frequency of one sample per source or per five hundred (500) tons, whichever is more frequent. If knowledge of the product and site history indicate that leaded gasoline was not stored at the site, TCLP-lead analysis will not be required.

(b) Waste oil contaminated soils and debris.

(i) soil contaminated with waste oil from remedial activities of USTs must be analyzed: as follows:

TCLP for metals and herbicides/pesticides,
Polychlorinated Biphenyls (PCBs),
Corrosivity (as pH),
Reactivity, and
Total Organic Halogens (TOX).

(ii) contaminated soils and debris from surface storage facilities and surface spills must also be analyzed by the TCLP for volatiles and semi-volatiles.

(iii) analysis must be conducted at a frequency of one sample per source or per two hundred fifty (250) tons, whichever is more frequent.

(iv) a facility may be licensed to accept these wastes if the results of this testing are:

PCBs<50 mg/kg (dry weight basis) ;
TCLP<Regulatory limit;
TOX<1000 ppm;
Sulfide reactivity<500 mg/kg
Cyanide reactivity<250 mg/kg

(v) if the sum of the TOX compounds detected is in excess of 1000 mg/kg, the waste may be accepted at a licensed facility if the following compounds are not detected at levels above 100 mg/kg, as determined by Method 8240 in SW-846, third edition:

Tetrachloroethylene
Trichlorofluoromethane
Trichloroethylene
Methylene Chloride
1,1,2 - Trichloroethane
Ortho-Dichlorobenzene
Carbon Tetrachloride
Chlorinated Fluorocarbons
1,1,2 - Trichloroethane
1,2,2 - Trifluoroethane

(c) Virgin petroleum-contaminated soils and debris (other than gasoline). All soils and debris contaminated with virgin petroleum product other than gasoline generated from remedial activities of USTs, surface storage facilities and surface spills must be analyzed by the TCLP for metals only. Analysis must be conducted at a frequency of one sample per source or per five hundred (500) tons, whichever is more frequent. With receipt of certification by the Department that the site involved clean up of a virgin petroleum product other than gasoline, no analytical testing is required.

(d) Other non-hazardous oil-contaminated soils may be approved for disposal on a case-by-case basis. A request for approval must be submitted, reviewed and approved by the Department prior to disposal.

(4) Oil, Coal, Wood, Multifuel Boiler and Incinerator Ash Storage and Disposal. An ash must not be accepted if the total concentration value for vanadium equals or exceeds 15,000 mg/kg unless a Department-approved operating plan to minimize fugitive emissions has been developed and implemented.

(a) Start-up ash. Start-up ash from new solid waste incinerators, biomedical waste incinerators, and fossil fuel and multi-fuel boilers must be characterized in accordance with a Department-approved plan. If the source facility is not required by a Department license to characterize its start-up ash, the accepting solid waste facility shall submit to the Department for review and approval a sampling and analytical work plan in conformance with the requirements of Section 6.B(2), above, for characterization of any start-up ash from the source facility. Once start-up characterization is complete, the appropriate analytical program as outlined below must be followed unless modified by the Department.

(b) Biomass and fossil fuel boiler ash.

(i) prior to initial acceptance at a solid waste facility, a sufficient number of samples to meet the requirements for statistical analysis as required by US EPA SW-846 must be analyzed as follows:

a. TCLP Metals (Arsenic, Barium, Cadmium, Chromium, Lead, Mercury, Selenium, Silver) per US EPA Method 1311, Federal Register/Volume 55, No. 126;

b. For beneficial use only, total Aluminum, Arsenic, Barium, Boron, Cadmium, Chromium, Copper, Lead, Mercury, Molybdenum, Nickel, Selenium, Silver, Vanadium, and Zinc per methods in US EPA SW-846;

c. For fossil fuel boiler ash only, Total Vanadium; and

d. Chloride, percent carbon, percent moisture, pH, phosphorus.

(ii) after initial characterization is complete, each biomass and fossil fuel source must be analyzed for the parameters listed above at a frequency of one representative sample quarterly, or one annually for those sources that generate less than two hundred (200) tons per year.

(c) Wood boiler ash.

(i) prior to initial acceptance at a solid waste facility, a sufficient number of samples to meet the requirements for statistical analysis as required by US EPA SW-846 as follows:

a. TCLP Metals (Arsenic, Barium, Cadmium, Chromium, Lead, Mercury, Selenium, Silver) per US EPA Method 1311, Federal Register/Volume 55, No. 126 ;

b. For beneficial use only, total Cadmium, Chromium, Copper, Lead, Mercury, Nickel, Zinc per methods in US EPA SW-846; and

c. Chloride, percent carbon, percent moisture, pH, phosphorus.

(ii) after initial characterization is complete, each wood boiler ash source must be analyzed for the parameters listed above at a frequency of one representative sample quarterly, or one annually for those sources that generate less than two hundred (200) tons per year.

(d) Ash from the open burning of wood waste, and unpainted or painted wood from construction or demolition debris. Prior to initial acceptance at a solid waste landfill facility, ash from the open burning of wood waste from each source must be analyzed by the TCLP for metals (per US EPA Method 1311, Federal Register/Volume 55, No. 126) at the following frequencies:

(i) once per year for those sources that generate less than ten (10) tons annually,

(ii) semi-annually for those sources which generate ten to twenty-five (10-25) tons annually, and

(iii) quarterly for those sources that generate greater than twenty-five (25) tons annually.

NOTE: Analyses of burn pile ash indicate that the burning of painted wood renders the ash unsuitable for agronomic utilization and may result in ash that is a hazardous waste. Facility owners should limit the amount of painted wood in burn piles to avoid the costs of disposal of a hazardous waste.

(e) Municipal solid waste incinerator ash.

(i) prior to initial acceptance at each solid waste disposal facility, a sufficient number of samples to meet the requirements for statistical analysis as required by US EPA SW-846 must be analyzed as follows:

a. TCLP Metals (Arsenic, Barium, Cadmium, Chromium, Lead, Mercury, Selenium, Silver) per US EPA Method 1311, Federal Register/Volume 55, No. 126;

b. Dioxins and furans per methods in US EPA SW-846; and

c. Chloride, percent carbon, percent moisture, pH, phosphorus.

(ii) after initial characterization is complete, for the next two calendar years each municipal solid waste incinerator ash source must be analyzed for the parameters listed above at a frequency of one representative sample per two hundred (200) tons of ash for the first one thousand (1000) tons, and then one representative sample per one thousand (1000) tons of ash, or one representative sample quarterly, whichever is more frequent.

(iii) if after two years of sampling at the above frequency it can be determined that the characteristics of the incinerator ash are consistent, each municipal solid waste incinerator ash source must be analyzed for the parameters listed above at a frequency of one representative sample per ten thousand (10,000) tons, or one representative sample quarterly, whichever is more frequent, except that dioxins and furans must be analyzed semiannually.

(f) Biomedical incinerator ash.

(i) prior to initial acceptance at each solid waste disposal facility, a sufficient number of samples to meet the requirements for statistical analysis as required by US EPA SW-846 must be analyzed as follows:

a. TCLP Metals (Arsenic, Barium, Cadmium, Chromium, Lead, Mercury, Selenium, Silver) per US EPA Method 1311, Federal Register/Volume 55, No. 126;

b. For beneficial use only, total Aluminum, Arsenic, Barium, Boron, Cadmium, Chromium, Copper, Lead, Mercury, Molybdenum, Nickel, Selenium, Silver, and Zinc per methods in US EPA SW-846; and

c. Chloride, percent carbon, percent moisture, pH, phosphorus.

(ii) after initial characterization is complete, each biomedical incinerator ash source must be analyzed for the parameters listed above at a frequency of one representative sample per one

hundred (100) tons of ash, or one representative sample annually, whichever is more frequent.

(5) Pulp and paper mill sludges and POTW sludges.

(a) Prior to initial acceptance at a solid waste facility, a sufficient number of samples to meet the requirements for statistical analysis as required by US EPA SW-846 must be analyzed as follows:

(i) Complete TCLP (per US EPA Method 1311, Federal Register/Volume 55, No. 126);

(ii) For beneficial use only, total Arsenic, Cadmium, Chromium, Copper, Lead, Mercury, Molybdenum, Nickel, Selenium, Zinc per Methods in US EPA SW-846; and

(iii) Sulfide Reactivity.

(b) After initial characterization is complete, each sludge source must be analyzed annually as listed above, except that operators of generator-owned landfills are not required to perform annual analysis provided the processes that create the waste streams or the composition of the waste streams accepted for disposal have not changed.

(6) Construction and Demolition Debris Wood Fuel.

(a) Samples for physical and chemical characterization shall be obtained by randomly taking a minimum of 20 or more sub-samples sufficient to make up a composite sample of 15 gallons. Mix the composite sample to a homogeneous state using the quartering method as follows:

(i) Mix the 15 gallon sample with shovels on a smooth, clean surface with an area large enough to handle the initial sample size (about 8'X8'), indoors at room temperature;

(ii) Shape the sample into a conical pile and quarter;

(iii) Collect the opposing quarters (about 7.5 gallons) , pulverize, blend and submit for chemical analysis for total lead and arsenic;

(iv) Combine the two remaining quarters and repeat the mixing and quartering;

(v) Collect the two opposing quarters (about 4 gallons) and air dry the sample for a minimum of 24 hours. Submit for physical analysis;

(vi) Retain the remaining quarters for additional analysis, if needed.

(b) Physical analysis shall be performed as follows:

(i) The moisture content of the sample should be approximately at equilibrium with the testing environment to prevent weight changes due to drying during analysis. Spread the sample in the testing environment on a flat surface to approximately 3 inches in thickness. Let sample sit for a minimum of 24 hours to equilibrate;

(ii) After weighing and recording the weight of the sample, run the entire sample through a 3 inch sieve. Collect materials that are over 3 inches in size and determine the percent by weight of the sample. Run the materials that are less than 3 inches in size through a #4 sieve , which has a square opening size of 0.187 inches. Collect the fine materials that pass through the #4 sieve and determine the percent by weight of the sample. Save the fine materials that did not pass through the #4 sieve for the physical separation step. Report gradation results as a percent by weight of the total sample for the following components:

- 3 inch plus
- Fines (#4 minus)

(iii) Take the material that did not pass the #4 sieve and separate manually into the following components:

- Plastics (including carpet, PVC and plastic coated wire)
- Treated wood, including painted treated wood
- Painted wood
- Non-combustible materials (exclusive of rocks, brick and concrete)
- Combustible materials

Weigh each component and determine the percent by weight of the total sample for each.

(iv) Determine the non-combustible (ash) weight of the fine materials by burning off the organic component of the fines in a high temperature furnace and weighing the resultant ash. Combine the weight of the ash with the weight of the non- combustible materials collected through visual examination and divide by the total sample weight.

(v) Complete a report narrative, clearly identifying the sample that was analyzed, describing the analytical procedures used and provide the following data results as the percent of total sample by weight:

- 3 inch plus
- Fines (#4minus)
- Plastics (including carpet, PVC and plastic coated wire)

- Treated wood
- Painted wood
- Non-combustible materials (exclusive of rocks, brick and concrete)
- Non-combustible content (ash fines and non-combustible materials)
- Combustible materials.

D. Specific Analytical Requirements for Agronomic Utilization Facilities. Solid wastes proposed for agronomic utilization must be characterized in conformance with the requirements of this section unless otherwise approved by the Department, based on specific characteristics. The frequency of sampling must be adequate to represent the residual or site conditions. Frequencies may be enumerated below or in chapter 419 of these rules. The groups of parameters that the generator may be required to analyze for depends upon the processes that generate the residual, inputs to that process and the intended use of the residual. Groups of parameters that the Department may require to be analyzed for by the generator or at sites where residuals are utilized include the following:

(1) Soil Nutrient Analysis

(a) Initial analysis. A complete soil nutrient analysis includes the following: pH; available phosphorus; available potassium; available calcium; available magnesium; cation exchange capacity (C.E.C.); percent C.E.C. saturation with potassium; percent C.E.C. saturation with calcium; percent C.E.C. saturation with magnesium; percent C.E.C. saturation with sodium; and percent organic matter. Available nitrogen may be required by the Department to be measured. It may be measured in the field using protocols such as the Pre-Sidedress Nitrogen Test.

(b) On-going analysis. A minimum of one composite topsoil sample per eight (8) acres of utilization area must be collected at the site prior to utilization each year that a residual will be land applied. Results of the analyses must be received and interpreted by the license holder prior to utilization. These results must be used as a factor in determining the amount of residual to be land applied.

(2) Initial Residual Analysis. The Department may require that generators test for the following parameters. The Department will determine testing requirements based on the proposed utilization program, an assessment of parameters likely to be in the residual, an evaluation of the chemical compounds known or suspected to be present in the waste stream from which the sludge or residuals originate, the processes used to generate the residual, the database of analytical results developed by the Department, and other factors as appropriate.

Initial analysis for target volatile organic compounds, target semi-volatile organic compounds, total PCBs, and dioxin are required for: sewage sludge generated by POTWs with an average daily flow greater than 2.5 millions of gallons/day; POTWs with pulp and paper, tannery, textile-related or other significant industrial wastewater inputs; POTWs required to enact an Industrial Pretreatment Program according to U.S. EPA regulations 40 CFR Part 403; and sludge or residuals from pulp and paper mills, tanneries, textile mills, and ash generators.

Initial analysis for target semi-volatile organic compounds, total PCBs, and dioxin are required for ash generators.

(a) Baseline Nutrients. All residuals must be analyzed for the following parameters: pH, percent dry solids, total volatile solids, Calcium, Magnesium, Iron, Chloride, Total Phosphorus, Total Potassium, Total Carbon, and Sodium.

(b) Nitrogen. Sewage sludge, papermill sludge, food wastes and other type 1B residuals must also be analyzed for Total Kjeldahl Nitrogen (TKN), Ammonia Nitrogen (NH_4), Nitrate (NO_3) and Nitrite (NO_2)

(c) Calcium Carbonate Equivalents. Woodash, lime mud, papermill sludge, lime-stabilized sewage sludge and other liming agents must also be analyzed for Calcium Carbonate ($CaCO_3$) equivalents.

(d) Total Inorganic Compounds. All residuals other than sewage sludge must be analyzed for the following total inorganic target compounds: Aluminum, Antimony, Arsenic, Barium, Boron, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc, and Cyanide. These parameters must be analyzed for using methods in SW 846.

(e) Sewage Sludge Metals. Sewage sludge must be analyzed for the following total metals: Arsenic, Cadmium, Chromium, Copper, Lead, Mercury, Molybdenum, Nickel, Selenium and Zinc.

(f) Pathogens. Following treatment by one or more of the pathogen reduction standards in Chapter 419, Section 6.D(1), residuals which may contain human pathogens may require compliance testing for one or more of the following indicator parameters: Salmonella sp., Fecal Coliform, enteric virus, or Helminth ova.

(g) Compost stability. Compost stability may be measured using one of the following methods:

(i) Aerated Pile: The compost moisture content is adjusted to between 40 and 60%. The compost is then aerated and, with the ambient air above 45° F., formed into a pile no smaller than six feet in diameter and four feet high. The temperature is measured two feet into the pile. The stability class is determined for the compost based on the highest temperature difference between the compost and ambient temperature over the course of five days.

(ii) Dewars Flask (Insulated Container). The compost moisture content is adjusted to between 40 and 60%. The compost is then aerated, and enclosed in an insulated vacuum flask connected to a continuous reading internal/external thermometer. The stability class is determined for the compost based on the highest temperature difference between the encapsulated compost and ambient temperature over the course of five days.

(iii) Respiration. The amount of CO_2 generated or O_2 consumed by a compost at a constant temperature and moisture is measured.

Other methods for determining stability may be approved by the Department on a case by case basis.

(h) Salt Toxicity. Salt toxicity must be determined by measurement of electrical conductivity, plant toxicity testing, or other methods approved by the Department.

(i) Target volatile organic compounds. All residuals other than woodash from woodash generators burning only wood waste must be analyzed for the target volatile organic compounds listed in Appendix 405.D. These parameters must be analyzed for total concentrations using methods in SW 846.

(j) Target semi-volatile compounds. A complete analysis for target semi-volatile compounds includes the Acid/Base-neutral target compounds listed in Appendix 405.D. These parameters must be analyzed for total concentrations using methods in SW 846.

(k) Total PCBs. A complete analysis for total PCBs, including, but not limited to, the arochlors listed in Appendix 405.D. Total PCBs must be analyzed for using methods in SW 846.

(l) Target pesticides. A complete analysis for target pesticides includes the pesticides listed in Appendix 405.D. These parameters must be analyzed for total concentrations using methods in SW 846.

(m) Dioxins.

(i) A complete analysis for polychlorinated dibenzo-p-dioxins (PCDDs) and polychlorinated dibenzofurans (PCDFs), also referred to as dioxin(s) and dioxin-like compounds. Sampling and analysis must be performed in accordance with EPA method 1613, EPA method 8290, or another Department-approved method.

(ii) Toxic Equivalency Factors. The results of the residual analyses must be used to calculate total 2,3,7,8-TCDD equivalents using the Toxic Equivalency Factors (TEF) in Tables 405.1 and 405.2 , which indicate the relative toxicity of mixtures of dioxins, furans and dioxin-like compounds in relationship to the toxicity of 2,3,7,8-PCDD. To calculate the total 2,3,7,8-PCDD equivalents, multiply each detect by the corresponding TEF then add all results. Reported non-detects (ND) at the method detection limit will be considered equal to 0. The TEFs from Table 405.2 will be used to determine compliance with the dioxin standard in Chapter 419 of these rules. Both calculations must be reported to the Department.

Table 405.1 -- Reporting Toxic Equivalency Factors

PCDDs	TEF	PCDFs	TEF
Mono-, Di and TriCDDs	0	Mono-, Di and TriCDFs	0
2,3,7,8-TCDDs	1	2,3,7,8-TCDFs	0.1
other TCDDs	0	other TCDFs	0
2,3,7,8-PeCDDs	0.5	1,2,3,7,8-PeCDF	0.05
other PeCDDs	0	2,3,4,7,8 PeCDF	0.5
		other PeCDFs	0
2,3,7,8-HxCDDs	0.1	2,3,7,8-HxCDFs	0.1
other HxCDDs	0	other HxCDF	0
2,3,7,8-HpCDDs	0.01	2,3,7,8-HpCDFs	0.01
other HpCDDs	0	other HpCDFs	0
OCDD	0.001	OCDF	0.001

Type	IUPAC No.	Structure	TEF
Non-ortho	77	3,3',4,4'-TCB	0.0005
	126	3,3',4.4',5-PeCB	0.1
	169	3,3',4,4',5,5'-HxCB	0.01
Mono-ortho	105	2,3,3',4,4'-PeCB	0.0001
	114	2,3,4,4',5-PeCB	0.0005
	118	2,3',4,4",5-PeCB	0.0001
	123	2',3,4,4',5PeCB	0.0001
	156	2,3,3',4,4',5-HxCB	0.0005
	157	2,3,3',4,4',5'-HxCB	0.0005
	167	2,3',4,4',5,5'-HxCB	0.00001
	189	2,3,3',4,4',5,5'-HpCB	0.0001
Di-ortho	170	2,2',3,3',4,4',5-HpCB	0.0001
	180	2,2',3,4,4',5,5'-HpCB	0.00001

Table 405.2 -- Compliance Toxicity Equivalency Factors

PCDDs	TEF	PCDFs	TEF
mono-, di and triCDDs	0	mono-, di and triCDFs	0
2,3,7,8-TCDDs	1	2,3,7,8-TCDFs	0.1
total other TCDD	0.01	total other TCDF	0.001
2,3,7,8-PeCDDs	0.5	,2,3,7,8-PeCDFs	0.1
total other PeCDD	0.005	total other PeCDF	0.001
2,3,7,8-HxCDDs	0.04	2,3,7,8-HxCDFs	0.01
total other HxCDD	0.0004	total other HxCDF	0.0001
2,3,7,8-HpCDDs	0.001	2,3,7,8-HpCDFs	0.001
total other HpCDD	0.00001	total other HpCDF	0.00001
OCDD	0	OCDF	0.001

(n) Non-hazardous determination. Initial characterization of any residual proposed for agronomic utilization must include a determination that the residual is non-hazardous. This determination must be made either through TCLP testing or through calculation utilizing the methodology described in Appendix 405.E.

(o) Other. The Department may require analysis for other parameters that, based on a description of the process generating the residual, may be in the residual in significant concentrations to adversely impact the utilization program.

(3) Follow-up Residual Analysis. Follow-up sampling and analysis. The frequency of follow-up sampling and analysis will be established by license condition, and determined based on the initial analytical results for the residual, the Department's data base of analytical results, the potential for these compounds to be present in the material, and other factors as appropriate.

Sewage sludge must be analyzed for total arsenic, cadmium, chromium, copper, lead, mercury, molybdenum, nickel, selenium and zinc at the frequency in Table 405.3 unless otherwise approved by the Department based on specific characteristics.

Table 405.3

Dry Tons of Sludge Produced Annually	Sampling and Analysis Frequency	Analysis Results - Reports Due on 15th of Month Listed
<200	Twice per year	July, January
200 - 1000,	Quarterly	April, July, October, January
1001 – 2000	Bi-monthly	March, May, July, September, November, January
>2000	Monthly	Each month

BASIS STATEMENT: The Department of Environmental Protection is promulgating this rule as directed by 38 M.R.S.A. Chapter 13 "Waste Management". This rule applies to owner and operators of solid waste facilities. It updates the water quality monitoring, leachate monitoring and waste characterization provisions of the current Chapters 401 and 405, which became effective on May 24, 1989, and Chapter 567, which became effective on October 17, 1988. The revisions to the rule incorporate statutory changes since October 1988, clarify requirements from previous regulations that have been noted as being confusing to the regulated public, and incorporate new knowledge and experience with monitoring and waste characterization.

In adopting this rule, the Department has considered all relevant information available to it, and has sought, whenever possible, to reduce any economic burdens to business and industry. Implementation or compliance with this rule will not impose additional costs on municipal, county or state government.

40 CFR Part 258 sets forth minimum federal criteria for the monitoring of ground and surface water, the monitoring of leachate, and waste characterization at landfills. This chapter is consistent with the applicable provisions of 40 CFR Part 258, and does not pose a regulatory burden more strict than Part 258.

In addition to this basis statement, the Department has filed with the Secretary of State its response to comments received during the comment period.

BASIS STATEMENT AND FISCAL NOTE FOR AMENDMENTS OF JULY 28, 1999: The Department presented draft revisions of the Solid Waste Management Rules - Chapters 400, 401, 402, 405, 409 and 418 to the Board of Environmental Protection for posting for formal public comment on March 10, 1999. The Board posted the rule revisions for rulemaking with a public comment deadline of April 23, 1999. On and immediately after March 12, 1999, written notification and copies of the draft revisions were mailed to all municipalities, all parties that had requested copies of the current Solid Waste Management Rules or had requested that they be informed of any proposed changes to those rules, and all parties that had requested notification of proposed changes to any of the Department's rules.

A legal notice outlining the nature of the proposed revisions, the timeframe of the public comment period, and how copies of the draft revisions could be obtained and comments to those revisions could be submitted was published in the Kennebec Journal, Waterville Sentinel, Bangor Daily News, Portland Press Herald and Lewiston Sun Journal newspapers on March 17, 1999.

The proposed changes address errors and omissions and make clarifications to the Maine Solid Waste Management Rules that had been identified since the rules were adopted by the Board in August of 1998. In addition, revisions to the rules were made to account for the enactment of Public Law 1999, Chapter 525 and the Board's adoption of Chapter 419 - Agronomic Utilization of Residuals.

FISCAL NOTE: The proposed revisions to Chapter 405 of the rules will not impose any additional cost on municipalities or counties. The Department also evaluated alternatives to reduce possible economic burdens to small business when drafting the proposed revisions. The revisions being proposed will reduce economic burdens to small businesses through greater accuracy and clarity in the rules.

Comments on the draft revisions to Chapter 405 were received by the following:

(BFI)	James Ecker	Browning Ferris Industries
(JCP)	James Pollock	Maine Department of Environmental Protection

These comments and the response to each are discussed in a separate document entitled "Basis Statement and Fiscal Note for the July 28, 1999 Amendments to Chapters 400, 401, 402, 405, 409 and 418".

AUTHORITY: 38 MRSA sections 341-D(1-B) and 1304(1, 1-B, 13 & 13-A)
EFFECTIVE DATE: December 6, 1983
AMENDED: May 24, 1989
EFFECTIVE DATE (ELECTRONIC CONVERSION):
May 4, 1996
REPEALED AND REPLACED:
November 2, 1998
AMENDED: September 6, 1999
AMENDED: June 16, 2006 – filing 2006-256

APPENDIX A

GROUND AND SURFACE WATER MONITORING PARAMETERS

Common Name(1)	CAS RN (2)	Column 1 (3)	Column 2(3)	Column 3
Field Parameters				
Static water elevation		X ☑	X ☑	X
Turbidity		X ☑	X ☑	X
Specific conductance		X ☑	X ☑	X
Temperature		X ☑	X ☑	X
pH		X ☑	X ☑	X
Eh			X	X
Dissolved oxygen		X ☑	X ☑	X
Monitoring well pumping rate		X ☑	X ☑	X
Surface water flow rate		X ☑	X ☑	x
Field observations (4)		X ☑	X ☑	X
Indicator Parameters				
Total Kjeldahl Nitrogen			☑	X
Ammonia	7664-41-7	X	X ☑	X
Nitrate		X	X ☑	X
Chemical Oxygen Demand		X ☑	X ☑	X
Biochemical Oxygen Demand			X	X
Total Organic Carbon		X ☑	X ☑	X
Total Dissolved Solids		X ☑	X ☑	X
Total Suspended Solids		X	X ☑	X
Bicarbonate		X ☑	X ☑	X
Sulfate		X ☑	X ☑	X
Alkalinity		X	X ☑	X
Chloride		X ☑	X ☑	X
Bromide				X
Cyanide	57-12-5		X	X
Sulfide	18496-25-8			X
Tannins/Lignins		☑	☑	
Inorganic Parameters				
Aluminum	(Total)		X ☑	X
Antimony	(Total)		X ☑	X
Arsenic	(Total)	X ☑	X ☑	X
Barium	(Total)		X ☑	X
Beryllium	(Total)		X ☑	X
Cadmium	(Total)		X ☑	X
Calcium	(Total)	X ☑	X ☑	X
Chromium	(Total)		X ☑	X
Cobalt	(Total)		X	X
Copper	(Total)		X	X
Iron	(Total)	X ☑	X ☑	X
Lead	(Total)		X ☑	X
Magnesium	(Total)	X ☑	X ☑	X

APPENDIX A

GROUND AND SURFACE WATER MONITORING PARAMETERS

Common Name	CAS RN	Column 1	Column 2	Column 3
Inorganic Parameters , Continued				
Manganese	(Total)	X ☑	X ☑	X
Mercury	(Total)		☑	X
Nickel	(Total)		X ☑	X
Potassium	(Total)	X ☑	X ☑	X
Selenium	(Total)		X ☑	X
Silver	(Total)		X	X
Sodium	(Total)	X ☑	X ☑	X
Thallium	(Total)		X	X
Tin	(Total)			X
Vanadium	(Total)		X	X
Zinc	(Total)		X	X
Organic Parameters				
VOCs (5)			X	X
ABNs (6)				X
Pesticides				
Endrin	72-20-8			X
gamma-BHC; Lindane	58-89-9			X
Methoxychlor	72-43-5			X
2,4-D; 2,4-Dichlorophenoxyacetic Acid	72-43-5			X
2,4,5-T; 2,4,5-Trichlorophenoxyacetic Acid	93-76-5			X
2,4,5-TP; Silvex	93-72-1			X

NOTES:

1. Common names are those widely used in government regulations, scientific publications, and commerce; synonyms exist for many chemicals.

2. Chemical Abstracts Service registry number ("CAS RN"). Where "Total" is entered, all species in the sample which contains this species are included.

3. Those parameters marked with an "X" are to be monitored at solid waste facilities other than wood waste or construction/demolition debris landfills. Those parameters marked with a "☑" are to be monitored at landfills for the disposal of wood waste or construction/demolition debris.

4. Any unusual conditions (colors, odors, surface sheens, etc.) noticed during purging or sampling must be reported.

5. VOCs are the 47 organic constituents listed in Appendix I of 40 CFR Part 258

6. ABNs are the organic constituents listed in Appendix II of 40 CFR Part 258 less the VOCs and Pesticides of these regulations.

APPENDIX B: WATER SUPPLY WELL DESCRIPTION

WATER SUPPLY WELL DESCRIPTION FOR _____

DATE: _____

1. Resident/Lessee/Property Owner

   Name:_____ Name:_____

   Address:_____ Address:_____

   _____ _____

   _____ _____

   Telephone:_____ Telephone:_____

2. Water used by (please check all that apply):

   ____ Private Home ____ Boarding Home
   ____ Several Families ____ Nursing Home
   ____ School ____ Bottling Plant
   ____ Church ____ Recreational Camp
   ____ Lodging Place ____ Manufacturing Facility
   ____ Eating Place ____ Agricultural Facility

   ____Other (please describe):_____

3. Number and approximate ages of persons living in residence, or otherwise served by this water source:

   _____

   _____

4. Public Water Supply Identification Number: _____

5. Well Location:

   Is the well located on this property? ____yes ____no

   If no, please provide the following information regarding the well location:

   Name or Lot Number:_____

   Property Owner: _____

   Address:_____

   _____

   _____

   Telephone:_____

WATER SUPPLY WELL DESCRIPTION FOR _____

6. Description of Well:
   A. Date installed: _____
   B. Who installed the well? Provide address if possible.
      _____..contractor_____..owner/occupant
      ____ other (describe)_____
   Name:_____
   Address:_____
   _____
   _____
   C. Type of well:
      ____dug____drilled____well point
      ____spring____lake/pond
      ____other (describe):_____
   D. Depth of well: _____
   E. Depth to bedrock or ledge (or length of casing):_____
   F. Static water level:_____
   G. Yield (in gallons/minute): _____
   H. Lining:
      ____concrete____steel casing____clay tile
      ____other (describe):_____
   I. Piping:
      ____copper____galvanized____black plastic
      ____lead____PVC
      ____other (describe):_____
   J. Covering:
      ____boards____concrete____wellhouse
      ____other (describe):_____
   K. Is the top of the well above ground? ____no____ yes
   L. Is the water being treated?____no____yes
      If yes, how is it being treated:
      ____chlorinator____softener____pH control
      ____carbon____iron removal____sediment
      ____UV____iodinator
      ____other (describe):_____

WATER SUPPLY WELL DESCRIPTION FOR _____

7. Water usage (check all that apply):
   ____drinking____cooking____bathing
   ____watering vegetable garden____swimming pool
   ____watering flower garden____watering livestock
   ____other (describe):_____

8. Well distance from potential pollution sources:
   A. cesspool _____ feet
   B. septic tank _____ feet
   C. leachfield _____feet
   D. underground tank _____ feet
   E. highway/road _____ feet
   F. garden/cropland _____ feet
   G. barnyard/pasture _____ feet
   H. cemetery _____ feet
   I. landfill _____ feet
   J. lagoon _____ feet
   K. waste pile _____ feet
   L. manufacturing facility _____ feet
   M. other _____ feet (describe:_____)

9. Type of sewage treatment:
   ____septic tank and leachfield____cesspool_____municipal
   ____other (describe): _____

10. Is the soil:
    ____ sand and gravel_____ clay_____ till____ ledge
    ____ unknown____ other (describe): _____

11. Does your water have any of the following?
    Odor:____ yes____ no
    Taste:____ yes____ no
    Cloudy:____ yes____ no
    Sediment:____ yes____ no
    Color:____ yes____ no
    Stains clothes or plumbing fixtures:____ yes____ no

12. If problems with water quality are indicated, please describe: _____

_____

_____

13. Was the water quality test requested by the resident? If yes, please state the reason for the request.

_____

_____

14. Additional comments:

_____

_____

****

DO NOT WRITE BELOW THIS LINE (FOR DEPARTMENT USE ONLY)

Project Name:_____ Date of sample collection:_____

ANALYSIS REPORT

Date results received:_____

Satisfactory:_____

Unsatisfactory:_____

Further investigation warranted? ____ yes____ no

Recommended action: _____

_____

APPENDIX C: Statistical Performance Standards of 40 CFR Part 258.53(h)

(Ground Water Sampling and Analysis Requirements)

1. The statistical method used to evaluate ground water must be appropriate for the distribution of chemical parameters. If the distribution of the chemical parameters is inappropriate for a normal theory test, then the data should be transformed or a distribution-free theory test should be used. If the distributions for the constituents differ, more than one statistical method may be needed.

2. If an individual well comparison procedure is used to compare an individual compliance well constituent concentration with background constituent concentrations or a ground water protection standard, the test must be done at a type I error level of no less than 0.01 for each testing period. If a multiple comparisons procedure is used, the Type I experiment wise error rate for each testing period must be no less than 0.05: however, the Type I error of no less than 0.01 for individual well comparisons must be maintained. This performance standard does not apply to tolerance intervals, prediction intervals, or control charts.

3. If a control chart approach is used to evaluate ground water monitoring data, the specific type of control chart and its associated parameter values must be protective of human health and the environment. The parameters must be determined after considering the number of samples in the background data base, the data distribution, and the range of the concentration values for each constituent of concern.

4. If a tolerance interval or a prediction interval is used to evaluate ground water monitoring data, the levels of confidence and, for tolerance intervals, the percentage of the population that the interval must contain, must be protective of human health and the environment. These parameters must be determined after considering the number of samples in the background data base, the data distribution, and the range of the concentration values for each constituent of concern.

5. The statistical method must account for data below the limit of detection with one or more statistical procedures that are protective of human health and the environment. Any practical quantitation limit (pql) that is used in the statistical method must be the lowest concentration level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions that are available to the facility.

6. If necessary, the statistical method must include procedures to control or correct for seasonal and spacial variability as well as temporal correlation of the data.

Appendix D: TARGET COMPOUND LIST (TCL)

	Target Volatile Organic Compounds	CAS Number
1.	Chloromethane	74-87-3
2.	Bromomethane	74-83-9
3.	Vinyl Chloride	75-01-4
4.	Chloroethane	75-00-3
5.	Methylene Chloride	75-09-2
6.	Acetone	67-64-1
7.	Carbon Disulfide	75-15-0
8.	1,1-Dichloroethene	75-35-4
9.	1,1-Dichloroethane	75-34-3
10.	1,1-Dichloroethene (total)	540-59-0
11.	Chloroform	67-66-3
12.	1,2-Dichloroethane	107-06-2
13.	2-Butanone	78-93-3
14.	1,1,1-Trichloroethane	71-55-6
15.	Carbon Tetrachloride	56-23-5
16.	Bromodichloromethane	75-27-4
17.	1,2-Dichloropropane	78-87-5
18.	cis-1,3-Dichloropropene	10061-01-5
19.	Trichloroethene	79-01-6
20.	Dibromochloromethane	124-48-1
21.	1,1,2-Trichloroethane	79-00-5
22.	Benzene	71-43-2
23.	trans-1,3-Dichloropropene	10061-02-6
24.	Bromoform	75-25-2
25.	4-Methyl-2-pentanone	108-10-1
26.	2-Hexanone	591-78-6
27.	Tetrachloroethene	127-18-4
28.	Toluene	108-88-3
29.	1,1,2,2-Tetrachloroethane	79-34-5
30.	Chlorobenzene	108-90-7
31.	Ethyl Benzene	100-41-4
32.	Styrene	100-42-5
33.	Xylenes (Total)	1330-20-7

Appendix D

	Target Semi-volatile Compounds	CAS Number
34.	Phenol	108-95-2
35.	bis(2-Chloroethyl) ether	111-44-4
36.	2-Chlorophenol	95-57-8
37.	1,3-Dichlorobenzene	541-73-1
38.	1,4-Dichlorobenzene	106-46-7
39.	1,2-Dichlorobenzene	95-50-1
40.	2-Methylphenol	95-48-7
41.	2,2'-oxybis (1-Chloropropane)#	108-60-1
42.	4-Methylphenol	106-44-5
43.	N-Nitroso-di-n-dipropylamine	621-64-7
44.	Hexachloroethane	67-72-1
45.	Nitrobenzene	98-95-3
46.	Isophorone	78-59-1
47.	2-Nitrophenol	88-75-5
48.	2,4-Dimethylphenol	105-67-9
49.	bis(2-Chloroethoxy) methane	111-91-1
50.	2,4-Dichlorophenol	120-83-2
51.	1,2,4-Trichlorobenzene	120-82-1
52.	Napthalene	91-20-3
53.	4-Chloroaniline	106-47-8
54.	Hexachlorobutadiene	87-68-3
55.	4-Chloro-3-methylphenol	59-50-7
56.	2-Methylnaphthalene	91-57-6
57.	Hexachlorocyclopentadiene	77-47-4
58.	2,4,6-Trichlorophenol	88-06-2
59.	2,4,5-Trichlorophenol	95-95-4
60.	2-Chloronaphthalene	91-58-7
61.	2-Nitroaniline	88-74-4
62.	Dimethylphthalate	131-11-3
63.	Acenaphthylene	208-96-8
64.	2,6-Dinitrotoluene	606-20-2
65.	3-Nitroaniline	99-09-2
66.	Acenaphthene	83-32-9
67.	2,4-Dinitrophenol	51-28-5
68.	4-Nitrophenol	100-02-7
69.	Dibenzofuran	132-64-9
70.	2,4-Dinitrotoluene	121-14-2
71.	Diethylphthalate	84-66-2
72.	4-Chlorophenyl-phenyl ether	7005-72-3

Appendix D

	Target Semi-volatile Compounds (continued)	CAS Number
73.	Fluorene	86-73-7
74.	4-Nitroaniline	100-01-6
75.	4,6-Dinitro-2-methylphenol	534-52-1
76.	N-nitrosodiphenylamine	86-30-6
77.	4-Bromophenyl-phenylether	101-55-3
78.	Hexachlorobenzene	118-74-1
79.	Pentachlorphenol	87-86-5
80.	Phenanthrene	85-01-8
81.	Anthracene	120-12-7
82.	Carbazole	86-74-8
83.	Di-n-butylphthalate	84-74-2
84.	Fluoranthene	206-44-0
85.	Pyrene	129-00-0
86.	Butylbenzylphthalate	85-68-7
87.	3,3'-Dichlorobenzidine	91-94-1
88.	Benzo(a)anthracene	56-55-3
89.	Chrysene	218-01-9
90.	bis(2-Ethylhexyl)phthalate	117-81-7
91.	Di-n-ocytylphthalate	117-84-0
92.	Benzo(b)fluoranthene	205-99-2
93.	Benzo(k)fluoranthene	207-08-9
94.	Benzo(a)pyrene	50-32-8
95.	Indeno(1,2,3-cd)pyrene	193-39-5
96.	Dibenz(a,h)anthracene	53-70-3
97.	Benzo(g,h,i)perylene	191-24-2

Appendix D

	Target Pesticides	CAS Number
98.	alpha-BHC	319-84-6
99.	beta-BHC	319-85-7
100.	delta-BHC	319-86-8
101.	gamma-BHC (Lindane)	58-89-9
102.	Heptachlor	76-44-8
103.	Aldrin	309-00-2
104.	Heptachlor epoxide	1024-57-3
105.	Endosulfan I	959-98-8
106.	Dieldrin	60-57-1
107.	4,4'-DDE	72-55-9
108.	Endrin	72-20-8
109.	Endosulfan II	33213-65-9
110.	4,4'-DDD	72-54-8
111.	Endosulfan sulfate	1031-07-8
112.	4,4'-DDT	50-29-3
113.	Methoxychlor	72-43-5
114.	Endrin ketone	53494-70-5
115.	Endrin aldehyde	7421-36-3
116.	alpha-Chlordane	5103-71-9
117.	gamma-Chlordane	5103-74-2
118	Toxaphene	8001-35-2

	Target PCBs	CAS Number
119.	Aroclor-1016	12674-11-2
120.	Aroclor-1221	11104-28-2
121.	Aroclor-1232	11141-16-5
122.	Aroclor-1242	53469-21-9
123.	Aroclor-1248	12672-29-6
124.	Aroclor-1254	11097-69-1
125.	Aroclor-1260	11096-82-5

Appendix E

Non-Hazardous Waste Determination

Test Methods for Evaluating Solid Wastes, USEPA, SW-846, 4th Edition ("SW-846") includes the laboratory procedures for performing Method 1311, the Toxicity Characteristic Leaching Procedure (TCLP) on a waste to determine if it contains hazardous levels of any leachable TCLP constituents. 40 CFR Part 261, Appendix II, Section 1.2 states:

> If a total analysis of the waste demonstrates that individual analytes are not present in the waste, or that they are present but at such low concentrations that the appropriate regulatory levels could not possibly be exceeded, the TCLP need not be run.

This provision allows flexibility in choosing the appropriate analysis for determining whether a waste is or may be hazardous by reason of the Toxicity Characteristic. If certain conditions are met, it may be possible to show by analysis for total parameters that a waste is not hazardous by characteristic without performing the TCLP analysis. This is done by determining the percent wet solids (per EPA SW-846, Method 1311, Section 7.1), calculating the "dilution" factor (DF), and dividing the total results for each constituent by the DF. If any *total÷DF* is less than the TCLP regulatory limit for that constituent, then the waste is not TC-hazardous, and TCLP analysis is not needed. If *total÷DF* is equal to or greater than the TCLP regulatory limit for any constituent, then the waste may be, but is not necessarily, a hazardous waste. In this case, full TCLP testing for the constituent(s) in question is required to make that determination.

TCLP analysis is done by extracting the waste with a mild aqueous acid. The fraction of the waste recovered as solid upon filtration of a sample of the waste (i.e. % wet solids - see SW-846, Method 1311, Section 7.1) determines the volume of extractant to be used (see SW-846, Sections 7.2 and 7.3). To the extent that filterable liquid is present in the waste, the extractant volume to be used is lessened.

Each unit (e.g. gram) of non-liquid waste requires the addition of twenty times its mass of extractant. Thus each gram of liquid filterable from the waste (and eventually added back to the final extract) lessens the volume of the extract by approximately nineteen grams (20 grams-1 gram=19 grams). As a result, the final volume in which all the extractable constituents are dissolved varies with the liquid content of the waste, and the "dilution" of the constituents from the waste varies. At one extreme, in the case of a waste with no filterable liquid, the mass of final extract is twenty times the mass of the original sample, resulting in a twenty-fold "dilution". At the other extreme, when the entire sample is a filterable liquid, the dilution factor is one-fold; the "extract" (the liquid) is not diluted. Such a dilution factor may be applied to the results of a totals analysis to estimate the maximum possible TCLP extract constituent concentrations for that specific waste. For this purpose, the percent filterable solids in a separate sample must be determined, and the appropriate dilution factor then determined. *The TCLP Method 1311 should be consulted for details.*

06-096

Department of Environmental Protection

Maine Solid Waste Management Rules:

CHAPTER 410

COMPOSTING FACILITIES

Effective:

December 20, 2011

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Chapter 410: COMPOSTING FACILITIES

SUMMARY: This Chapter establishes the rules of the Department for the siting, design, operation and closure of solid waste composting facilities.

1. **Applicability.** This Chapter applies to solid waste composting facilities including certain Agricultural Composting Operations. A solid waste composting facility license under the *Maine Solid Waste Management Rules: General Provisions*, 06-096 CMR 400 and this Chapter is required to locate, establish, construct or operate any new composting facility or to alter an existing composting facility, unless that facility is exempt from licensing under these rules. Agricultural Composting Operations which are not exempt from licensing under the provisions of section 1(B) of this Chapter are subject to the requirements of sections 2 through 4 or section 6 of this Chapter.

   A. **Facilities Subject to the Requirements of this Chapter.** A composting facility is any land area, structure, equipment, machine, device, system, or combination thereof that is operated to biologically decompose organic residuals under predominantly aerobic conditions and controlled temperatures between 110° and 160° F.

   B. **Facilities Not Subject to the Requirements of this Chapter.** In addition to the facilities listed in the 06-096 CMR 400(2), the following facilities conducting only the specified activities listed are exempt from the requirements of this Chapter:

NOTE: See 06-096 CMR 400(1) for a full definition of residual types. Type IA residuals are leaf, vegetative and other residuals with a C:N ratio of greater than 25:1. Type IB residuals are food and other residuals with a C:N ratio of between 25:1 to 15:1. Type IC residuals are fish and other residuals with a C:N ratio of less than 15:1. C:N refers to the ratio of available carbon to nitrogen of the raw residual prior to composting. See Appendix B of this Chapter for a list of typical C:N ratios for various residuals. The lower the initial C:N the higher the potential for generation of nuisance odors and leachate generation. Type II residuals are sewage sludge, septage, and other residuals that may contain human pathogens. Type III residuals are petroleum contaminated soils and other residuals that may contain hazardous substances above risk based standards in 06-096 CMR 418, Appendix A.

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(1) Facilities that, in any thirty (30) consecutive day period, receive for composting less than:

(a) Ten (10) cubic yards of Type IA residuals;

(b) Five (5) cubic yards of Type IB residuals; or

(c) Five (5) cubic yards of Type IC residuals;

(2) Facilities that compost domestic animal and poultry carcasses from routine events pursuant to the Maine Department of Agriculture, Food and Rural Resources *Rules and Regulations Relating to Disease Control of Domestic Animals and Poultry*, 01-001 CMR 211;

(3) Facilities that compost 10,000 cubic yards or less of animal manure per year;

NOTE: The facilities listed in section 1(B)(1) through (3) above should comply with the Department of Agriculture, Food and Rural Resources' Best Management Practices.

(4) Agricultural Composting Operations that, in any thirty (30) consecutive day period, compost a total of between five (5) and sixty (60) cubic yards of Type IB and IC residuals, and is operated in accordance with a Compost Management Plan approved by the Maine Department of Agriculture, Food and Rural Resources;

(5) Agricultural Composting Operations that compost any volume of Type IA, Type IB or Type IC waste provided that at least 70% of the finished compost product is used at appropriate agronomic rates on the farm that produced the compost within two (2) years after it is produced, and provided that the facility is operated in accordance with a Compost Management Plan approved by the Maine Department of Agriculture, Food and Rural Resources;

(6) Agricultural Composting Operations that use leaves as an amendment to compost manure provided that the facility is operated in accordance a Compost Management Plan approved by the Maine Department of Agriculture, Food and Rural Resources;

(7) Agricultural Composting Operations that compost offal provided that the facility is operated in accordance with a Compost Management Plan approved by the Maine Department of Agriculture, Food and Rural Resources;

(8) The composting of solid waste during a Department-supervised remediation, emergency response, or research project; and

(9) Composting toilets as defined the in *Maine Subsurface Wastewater Disposal Rules*, 10-144 CMR 241(1004)(0).

C. Transition and relationship to other solid waste rules.

(1) Existing licensed composting facilities:

(a) Licenses held by existing composting facilities that are now exempt from these rules in accordance with section 1(B) of this Chapter will lapse provided that the licensee has surrendered its composting facility license and has a Compost Management Plan approved by the Department of Agriculture, Food and Rural Resources.

(b) Composting facilities previously licensed pursuant to the *Maine Solid Waste Management Rules: Processing Facilities*, 06-096 CMR 409 remain in effect, subject to the conditions specified in 06-096 CMR 400(3)(E).

(2) Relationship to 06-096 CMR 409: This rule replaces those provisions of 06-096 CMR 409 that previously addressed composting facilities.

(3) Beneficial Use of Solid Waste: The beneficial use, other than agronomic utilization, of a secondary material produced by a composting facility is subject to the *Maine Solid Waste Management Rules: Beneficial Use of Solid Wastes*, 06-096 CMR 418.

(4) Agronomic utilization of residuals: The agronomic utilization of a residual produced by a composting facility is subject to the *Maine Solid Waste Management Rules: Agronomic Utilization of Residuals*, 06-096 CMR 419.

(5) Storage: Residuals produced at composting facilities and stored at other locations in Maine prior to agronomic utilization must meet the applicable standards of 06-096 CMR 419.

(6) Analysis: Characterization of waste and secondary materials required by this Chapter must be done in accordance with the applicable provisions of the *Maine Solid Waste Management Rules: Water Quality Monitoring, Leachate Monitoring, and Waste Characterization*, 06-096 CMR 405.

2. **General Licensing Requirements.** Except for facilities which are exempt from licensing pursuant to section 1.B of this Chapter or licensed under sections 5 and 6 of this Chapter, any person proposing to establish a new solid waste composting facility or alter an existing solid waste composting facility must obtain a license pursuant to 06-096 CMR 400(4) and sections 2 through 4 of this Chapter.

NOTE: 06-096 CMR 400(4) – General Licensing Criteria – is appended to this Chapter as Appendix A for ease of use.

A. **Composting Facility General Siting Standards.** At the time the application is filed with the Department, the waste handling area at a proposed composting facility may not be located:

(1) Closer than 100 feet to the solid waste boundary of an active, inactive or closed solid waste landfill;

(2) Within a 100 year flood plain;

(3) Within 100 feet of a protected natural resource;

(4) In, on or over a protected natural resource, or on land adjacent to the following areas, without first obtaining a permit pursuant to the *Natural Resources Protection Act*, 38 M.R.S.A. §§480-A to 480-BB:

(a) A coastal wetland, great pond, river, stream or brook, or significant wildlife habitat contained within a freshwater wetland; or

(b) Freshwater wetlands consisting of or containing:

(i) Under normal circumstances, at least 20,000 square feet of aquatic vegetation, emergent marsh vegetation or open water, except for artificial ponds or impoundments; or

(ii) Peatlands dominated by shrubs, sedges and sphagnum moss;

(5) Closer than 300 feet to off-site water supply wells or water supply springs;

(6) Closer than 100 feet to public roads and property boundaries;

(7) Closer than 10,000 feet to any airport runway used by turbojet aircraft, or within 5,000 feet of any airport runway used by only piston-type aircraft, when putrescible waste is to be handled outdoors in an uncovered or exposed condition.

B. Composting Facility General Design Standards.

(1) The facility process must be designed to produce a product meeting the specifications needed to distribute the product and must meet the applicable standards in 06-096 CMR 419.

(2) Design Capacity: The facility design must include composting systems and storage areas of sufficient capacity to accommodate all materials that are delivered to and generated by the facility.

(3) Environmental Monitoring Program Design: A composting facility which has been determined by the Department to pose a potential threat to public health or safety or the environment because of the nature and volume of feedstocks handled at the solid waste facility and/or the location, design and operation of the facility, must have a monitoring program designed and implemented in accordance with the applicable requirements of the 06-096 CMR 405.

(4) Leachate Control: The facility design must include provisions to contain, collect and treat all leachate and wash waters generated at the facility.

(5) Clean-up: The facility design must include provisions for the regular wash down or dry clean-up of the facility.

(6) Access: The facility design must include suitable barriers or fencing and gates to prevent unauthorized persons access to the site.

3. Application Requirements. Any person seeking to establish a solid waste composting facility under sections 2 through 4 of this Chapter must provide information sufficient to meet the standards and submission requirements of 06-096 CMR 400. The applicant must submit to the Department, on forms developed by the Department, the following information:

A. General Information.

(1) Description: A brief description of the proposed composting facility.

(2) Topographic Map: The most recent full size U.S. Geological Survey topographic map (7 1/2 minute series, if available) of the area, showing the location of the proposed facility, the property boundary, and, if handling putrescible materials, airports within 10,000 feet of the site, all clearly and accurately delineated. The map must include all surrounding areas within one mile of the proposed site.

(3) Aquifer Map: A legible copy of the most recent Maine Geological Survey Significant Aquifer Map or Sand and Gravel Aquifer map with the facility site, property boundary and waste handling area clearly and accurately delineated on the map.

(4) Tax Map: A legible copy of the local tax map(s) marked with the facility site and the names and addresses of abutters on the appropriate lots. For a person proposing outdoor composting or storage, the map must indicate all residences within 1,000 feet of the waste handling area.

(5) Flood Plain Map: If the proposed site is within 1/4 mile of a 100 year floodplain, a legible copy of the most recent Federal Emergency Management Agency (FEMA) flood insurance rate maps of the 100-year frequency floodplain, with the location of the facility and property boundary clearly and accurately delineated.

B. Site Design Characteristics. An engineering design must be submitted as part of an application. The sophistication of engineering design required to develop a site for a composting facility varies according to the physical characteristics of the site, the size and complexity of the facility, and the nature of the wastes to be composted. The following components must be included in any engineering design:

(1) Site Plan. A detailed plan of the area within 500 feet of the waste handling area, with a scale of 1 inch = 100 feet or a larger scale, clearly showing, if applicable: all structures; protected natural resources; roads; property boundaries; receiving, composting, curing and storage areas; residences; erosion and sedimentation control features; odor control structures; water supply wells and springs; water quality monitoring points; and barriers or fencing and gates to prevent unauthorized persons access to the site. For facilities involving outdoor handling of putrescible wastes in an uncovered or exposed condition, this plan must also note the direction and distance of airports within 10,000 feet of the waste and waste handling area.

(2) Plan Views of the Structures and Utilities. A large scale construction plan view drawing, with a minimum scale of 1 inch = 40 feet, clearly showing any building(s) with foundations; processing unit(s); utilities; leachate, storm water, and erosion and sedimentation control details; and, if applicable, odor control systems.

C. Composting Facility Design Characteristics.

(1) Process Design: A general description of the facility's waste composting system must be submitted. The complexity and degree of detail of the description will vary depending on the magnitude and complexity of the process. The description must include, if applicable, process flow diagram(s), the source, volume, and characteristics of wastes to be received, the products and wastes to be generated; the methods to be utilized to mix, process and store wastes and products; the processing equipment to be used on site; provisions for characterization, including analytical information demonstrating that the incoming wastes meet the classification proposed to be handled at the facility; an identification of applicable standards for the product that the facility will produce, including, residual standards from 06-096 CMR 419, or other applicable standards from these rules, and a description of how these standards will be met.

(2) Type of composting method used at the facility (i.e. static pile, aerated static pile, windrow, passive aerated windrow system, in vessel, agitated bin, etc.);

(3) Methods used in mixing, constructing compost piles or windrows, curing and storage;

(4) Mixing, windrow construction, screening, turning, and aeration equipment;

(5) Ratio of residuals and other ingredients that will be mixed together taking into account the intended use of the composted residual; and based on a recipe that balances the mixture's:

(a) Ratio of available carbon to nitrogen;

(b) Moisture content throughout the process;

(c) Bulk density throughout the pile;

(d) Volatile solids content; and

(e) pH

(6) Proposed dimensions of compost piles or windrows;

(7) Method and frequency of aeration, including turning frequency or mechanical aeration equipment;

(8) Duration of composting process, including curing or storage time; and

(9) When applicable, the standards in 06-096 CMR 419 that the residual is being processed to meet, and provisions to monitor residual temperature, oxygen and moisture or other parameters to demonstrate that the standard is met.

D. Compost Distribution and Use Plan. The applicant must submit the application information required for licensing a utilization program under 06-096 CMR 419. The applicant must describe the disposition of other materials, including residue, generated at the facility that are not covered under a beneficial use or agronomic utilization program. The Department may require financial assurance in the form of a letter of credit, escrow account, or other approved financial security to finance the cost of potential remediation or disposal of waste, residue, including compost screenings, or secondary materials.

E. Operations Manual. The applicant must submit an operations manual, containing the information required in section 4 of this Chapter.

F. Environmental Monitoring Plan. The applicant must submit an environmental monitoring plan pursuant to section 2(B)(3) of this Chapter, including a waste characterization analytical work plan, if required by the Department.

G. Odor control. Based upon the location, design, and operational procedures of the proposed facility, the applicant must demonstrate that the facility will not cause an odor nuisance. The facility may not cause more than a one hour average odor impact of 2 dilutions to threshold (2D/T), in any calendar year at any occupied buildings.

NOTE: D/T is defined by ASTM Method 679-91, "Standard Practice for Determination of Odor and Taste Thresholds By a Forced-Choice Ascending Concentration Series Method of Limits". The applicant may wish to demonstrate that it will meet this standard at the processing facility's property boundary, to ensure that nuisance odors at occupied buildings will not occur if the areas near the facility are subsequently developed.

H. Site Investigation. A subsurface investigation must be conducted whenever the proposed composting facility includes the use of *in situ* soils as any part of a soil base pad for handling solid wastes, includes structures requiring foundations, or includes subsurface wastewater holding or disposal systems. The data must consist of soil test data in the proposed handling areas from a certified professional describing and evaluating the surficial geology and/or the subsurface soils. This information must demonstrate that the facility design is compatible with the site's soil characteristics, as determined by applicable engineering standards of practice.

4. Operating Requirements. Each composting facility subject to licensing under sections 2 and 3 or section 6 of this Chapter must comply with the following operating requirements. The composting facility must be operated and maintained in a manner that assures it will meet the approved design requirements; will not contaminate ground or surface water; will not contaminate the ambient air; will not constitute a hazard to health or welfare; will not create a nuisance; and will meet the standards in 06-096 CMR 400(4). Facilities with an existing solid waste composting license are required to operate in compliance with the provisions of this section.

A. Operations Manual. All composting facilities must be operated in accordance with a Department-approved operations manual that incorporates the operating requirements of its license and these rules. This manual must be available for inspection by Department staff during normal business hours. The facility's operations manual must be updated to keep current with revisions at the composting facility.

The operations manual must include the information that would enable supervisory and operating personnel, and persons evaluating the operation of the facility, to determine the sequence of operation, policies, procedures, monitoring, maintenance, inspection, and legal requirements that must be followed for safe and environmentally sound operation on a daily and yearly basis. The composting facility must be operated and maintained in a manner that assures it will meet the approved design requirements, will not contaminate ground or surface water, contaminate the ambient air, constitute a hazard to health or welfare, create a nuisance, and will meet the standards in 06-096 CMR 400(4). The manual must address all items contained in this section including the environmental monitoring plan, if required by the Department, and the odor control plan. The manual must also include a copy of the facility license, any amendments and revisions to that license, and a copy of the applicable sections of the most recent Solid Waste Management Regulations.

B. General Operations.

(1) Personnel: The operation of the composting facility must be under the overall supervision and direction of a person qualified and experienced in the operation of that type of facility or, in the case of an innovative design, be adequately trained by responsible personnel in the operation of the facility. The facility operator must take whatever measures are necessary to familiarize all personnel responsible for operation of the facility with relevant sections of the operations manual.

(2) Equipment: Equipment must be sufficient to meet the requirements, and the operator must provide for the routine maintenance of equipment.

(3) Environmental Monitoring: If required by the Department, the operator must implement the approved environmental monitoring program, including any required waste characterization.

(4) Fire Protection: The operator shall prevent and control fires at the composting facility by complying with at least the following:

(a) Arrange for a nearby fire department to provide emergency service whenever called;

(b) Develop and implement a plan to prevent spontaneous combustion in wood waste, residual and compost piles, as applicable; and

(c) Provide and maintain sufficient on-site equipment, such as detachable fire extinguishers, for minor fires.

NOTE: Facilities should develop a fire and rescue plan in conjunction with the local fire department.

(5) Vector Control: The on-site population of disease vectors must be minimized to protect public health.

(6) Dust Control: The operator must control dust generated by the facility.

(7) Storage:

(a) Raw materials, wastes, secondary materials, residue, including compost screenings, and finished compost, must be stored on the site such that they remain suitable for the intended use and may not be stored at the facility for more than 2 years.

(b) Materials with a carbon to nitrogen ratio (C:N) of less than 20:1 or that may contain constituents that may leach into groundwater may not be stored on *in situ* soils.

(c) Wastes, secondary materials and residue, including non-compostable compost screenings, may not be stored at the site for more than 2 years.

(8) Facility Maintenance and Litter Control: The operator must provide for routine maintenance and general cleanliness of the entire facility site, including control of windblown litter.

(9) Leachate Control: The facility must contain, collect and treat all leachate and stormwater runoff mixed with leachate.

(10) Sedimentation and Erosion Control: The facility must control sedimentation and erosion during construction and operation of the facility.

(11) Residue Disposal: The facility must provide for the routine disposal of residue, including non-compostable compost screenings, from the composting operation.

C. Access to Facility:

(1) The operator must maintain suitable barriers or fencing and gates to prevent unauthorized persons access to the site. The facility gate may be unlocked or open only when an authorized person is on duty. The operator must prominently post limitations and conditions of access at each entrance to the facility, including, if applicable, the hours of operation.

(2) The operator must provide and maintain in good repair access roads at the facility site.

(3) The operator must post appropriate signs and/or other means necessary to indicate clearly where waste is to be unloaded and where the separate storage areas within the facility are located.

(4) Adequate space must be maintained to allow the unobstructed movement of emergency personnel and equipment throughout operating areas of the facility.

D. Acceptance and Distribution of Solid Waste.

(1) The composting facility may only accept wastes for which it has been specifically designed and permitted by the Department. Incoming wastes must undergo a visual inspection and, if appropriate, analysis to ensure that only wastes allowed by the facility license are accepted at the facility. All other wastes must be removed and handled at an approved facility.

(2) Waste Disposal: The operator must have procedures in place, prior to the start of operation, for disposal of residue, bypass and other solid waste, including non-compostable compost screenings, generated by the composting facility, including contingency procedures for implementation during emergencies and shutdown periods. The operator must also maintain a valid contract with a solid waste facility which has Department approval to accept the waste.

(3) The facility may not incorporate painted wood, treated wood, plywood, chipboard, plastic, wood with fasteners, nails, glue, adhesives, resins, paint or coatings, or wood that is otherwise contaminated into the composting process. All such wood, if received at the facility, must be stored separately from wood used as amendment in the composting process and disposed in an approved solid waste disposal facility.

E. Odor Control.

(1) The facility must be operated to prevent nuisance odors at occupied buildings.

(2) Facility personnel must immediately contact the Department's Solid Waste Management Division to report odor complaints received by the facility. The Department, after investigation, will determine whether the facility has caused a nuisance odor at an occupied building. Facility personnel must, within 30 days of a Department determination of an off-site odor nuisance, report to the Department's Solid Waste Management Division, in writing, causes of odor generation and completed or planned follow-up action to minimize, control, and/or treat the odors from the facility.

F. Record Keeping. The facility operator must maintain the following records and make the records available for Departmental inspection and copying for the duration of the facility operation and a minimum of two (2) years after facility closure:

(1) When applicable, as-built engineering drawings of the facility;

(2) Results of analyses required by this Chapter and/or facility license;

(3) The Department-approved operations manual meeting the requirements of this section;

(4) Copies of periodic and annual reports submitted to the Department; and

(5) Operations Log: An operations log must be kept at any composting facility that is operated to reduce the pathogen content, reduce vector attraction properties, reduce putrescibility, reduce the carbon to nitrogen ratio, or otherwise stabilize a residual. The operations log must contain the source and volume of residuals received on a daily basis; the mixture of residuals composted at the facility; composting monitoring data; date, time and type of samples obtained from the facility; and volume and type of residuals and finished compost distributed from the facility on a daily basis, including to whom the residuals and finished compost are distributed.

G. Periodic Reporting. Licensees must submit periodic reports to the Department containing the results of environmental monitoring, including waste characterization, and any other information required in accordance with the facility license. Reporting periods will be identified in the individual facility license.

H. Annual Report. By February 28th of each year, the facility operator must pay the annual facility reporting fee established in Maine law, and submit an annual report to the Department for review and approval. The annual report must include a summary of activity at the composting facility during the previous calendar year. The annual report must summarize the facility's activities, and at a minimum include the following:

(1) Volume, source and type of wastes received by the facility;

(2) Volume of compost produced;

(3) Volume of compost, raw feedstocks, waste and residue, including non-compostable compost screenings, distributed off-site, and the locations to which any such items were distributed;

(4) Volume of compost, raw feedstocks, waste, secondary material, and residue, including non-compostable compost screenings, stored on site as of December 31;

(5) A general summary of the composting operation including problems encountered and follow-up actions, changes to the facility operation, and a summary of odor or other complaints received by the facility during the previous year;

(6) A discussion of any odor problems, and a discussion of any factors, either at the facility or elsewhere, which affected the operation, design, or environmental monitoring program of the facility.

(7) Other alterations to the facility site not requiring Departmental approval that have occurred during the reporting year. Minor aspects of the facility site proposed to be changed in the current year may be described in the annual report. Changes handled in this manner are those that do not require licensing under minor revision or amendment provisions of 06-096 CMR 400; and

(8) A summary and evaluation of the past year's environmental monitoring program results, if required by the Department.

I. Facility Closure.

(1) Closure Performance Standard. The facility must be closed in a manner that minimizes the need for further maintenance; and so that the closed facility will not pollute any waters of the state, contaminate the ambient air, constitute a hazard to health or welfare, or create a nuisance. At a minimum, the applicant must remove all compost, wastes, secondary materials, leachate and leachate-contaminated sediment, and residue, including compost screenings, from the facility. The applicant must stabilize all site soils in accordance with Maine erosion and sediment control best management practices. The applicant must broom clean the facility structures and equipment.

(2) Closure Plan: The operator of a composting facility shall submit a closure plan to the Department, for review and approval, a minimum of ninety (90) days prior to the proposed date of the closure of a solid waste composting facility. The plan must include:

(a) An description of the proposed closing operation;

(b) A schedule for the removal of all stored compost, wastes, secondary material, leachate and leachate-contaminated sediment, and residue, including compost screenings; and

(c) The intended destination of all stored compost, wastes, secondary material, leachate and leachate-contaminated sediment, and residue, including compost screenings.

5. Permit-By-Rule Composting Of Wood, Leaf And Yard Wastes.

A. Applicability.

(1) New Facilities: The permit-by-rule licensing provisions of this section shall apply to owners or operators of facilities that compost Type IA residuals and grass clippings and that meet all of the standards of this section. Failure to meet any of these standards will require formal application to the Department for a license to develop and operate the solid waste composting facility under sections 2 through 4 or section 6 of this Chapter. By adopting these provisions, the Department finds that the composting of Type IA residuals and grass clippings in strict conformity with these permit-by-rule provisions will meet the standards of 06-096 CMR 400(4). Facilities licensed under this section are exempt from the requirements of 06-096 CMR 400(9). No variances to the requirements of this section may be granted.

NOTE: See 06-096 CMR 400(1) for a full definition of residual types. Type IA residuals are leaf, vegetative and other residuals with a C:N ratio of greater than 25:1 See Appendix B of this Chapter for a list of typical C:N ratios for various residuals.

(2) Existing Licensed Facilities: Composting facilities previously licensed pursuant to 06-096 CMR 409(8) remain in effect, subject to the conditions specified in 06-096 CMR 400(3)(E).

B. Standards and Operating Requirements:

(1) The composting facility may only receive Type IA residuals and grass clippings. It may not accept painted wood, treated wood, plywood, chipboard, plastic, wood with fasteners, nails, glue, adhesives, resins, paint or coatings, or wood that is otherwise contaminated.

(2) The total waste handling area may not exceed three (3) acres and total on-site storage areas may not exceed one (1) acre. Individual storage piles may not exceed 10,000 square feet.

(3) Setback Distances: At the time a complete permit-by-rule notification is submitted to the Department, proposed storage, processing, composting, or curing of any regulated residual may not lie within:

(a) 500 feet of any water supply spring;

(b) 500 feet of any water supply well and any residence, unless owned by the site operator or owner;

(c) 100 feet of any protected natural resource;

(d) In, on or over a protected natural resource, or on land adjacent to the following areas, without first obtaining a permit pursuant to the *Natural Resources Protection Act*, 38 M.R.S.A. §§480-A to 480-BB:

(i) A coastal wetland, great pond, river, stream or brook, or significant wildlife habitat contained within a freshwater wetland; or

(ii) Freshwater wetlands consisting of or containing:

a. Under normal circumstances, at least 20,000 square feet of aquatic vegetation, emergent marsh vegetation or open water, except for artificial ponds or impoundments; or

b. Peatlands dominated by shrubs, sedges and sphagnum moss;

(e) 100 feet of any property boundary;

(f) 100 feet of the solid waste boundary of an active, inactive, or closed solid waste landfill; and

(g) A 100-year flood plain.

(4) Soils: The applicant may only compost, cure and store residuals on:

(a) Soils that a Maine Certified Soil Scientist has determined are moderately well drained to well drained, as classified by the Natural Resources Conservation Service, and that are at least 24 inches above the seasonal high water table, bedrock, and sand or gravel lenses;

(b) A pad constructed with the surface at least two (2) feet above the seasonal high water table and is either composed of:

(i) Two (2) feet of glacial till (having between 15 and 35% fines) covered with a six (6)-inch drainage layer of gravel; or

(ii) Soil covered with asphalt or concrete; or

(c) A surface determined by a Maine Certified Soil Scientist, soil engineer or other qualified individual as being suitable for the proposed activity, taking into account the other aspects of the facility design; or

(d) On a land area under a permanent, roofed structure.

(5) Drainage: Surface water drainage must be diverted away from processing, composting curing, and storage areas.

(6) Slopes: Compost windrows must be constructed on a pad or surface with a maximum slope of 6%. Where necessary, the working surface for windrows must be constructed to prevent ponding.

(7) The facility must be operated so that it does not contaminate water, land or air from the handling, storage or composting of wood, leaf, and yard wastes.

(8) Inspection and access control: The operator must control unauthorized access to the site and visually inspect incoming residuals so that only Type IA residuals and grass clippings are accepted at the facility.

(9) Pile Construction: Incoming Type IA residuals must, within one week of delivery to the site, be formed into windrow piles 10 feet high by 15 to 20 feet wide at the base, or other configuration that provides for the proper conditions under which aerobic composting will occur. Windrows must run with the slope of the pad such that runoff is not trapped by the windrows.

(10) Grass: Grass clippings must be incorporated, and thoroughly mixed into established windrows at a ratio of no more than one part grass to three parts Type IA residuals (1 grass:3 carbonaceous-material) by volume within 24 hours of receipt at the facility. The composting facility must not accept grass clippings unless there is a sufficient volume of Type IA residuals available to meet this ratio.

(11) Windrow turning: The windrow must be turned at least four (4) times per year. There must be no more than six (6) months between any two (2) turnings.

(12) Distribution: Compost must be distributed for use within one (1) year of completion of the compost process, and within three (3) years of receipt of the raw materials for composting.

(13) Fire control: The operator must develop and implement a plan to prevent spontaneous combustion in residual and compost piles at the site.

(14) Annual Report: By February 28th of each year, the operator must submit an annual report covering the previous calendar year. The annual report must contain:

(a) The estimated volume of residuals received at the facility;

(b) An estimated volume of compost produced at the facility;

(c) The estimated volume of compost distributed from the facility;

(d) The estimated volume of compost and residue, including compost screenings, stored on site as of December 31st; and

(e) A description of any problems in operations encountered during the year, and steps taken to correct those problems.

(15) Closure: The facility must be closed in a manner that minimizes the need for further maintenance; and so that the closed facility will not pollute any waters of the state, contaminate the ambient air, constitute a hazard to health or welfare, or create a nuisance. At a minimum, the applicant must remove all compost, wastes, secondary materials, and residue, including compost screenings, from the facility; and broom clean the facility structures and equipment.

C. Notification Requirements. At least 15 working days prior to acceptance of Type IA residual or grass clippings at the facility for composting, the applicant shall submit to the Department a permit-by-rule notification on a form developed by the Department. This notification must include:

(1) The applicant's name, address, telephone number and contact person.

(2) The appropriate application fee.

(3) Description: A brief description of the proposed project including a description of the residual to be processed.

(4) Title, Right, or Interest: A demonstration of sufficient title, right or interest to the property proposed for development, as specified in 06-096 CMR 2(7).

(5) Topographic Map: A legible copy of the most recent full size U.S. Geological Survey topographic map (7 1/2 minute series, if available) of the area, showing the location of the proposed facility, and the property boundary clearly and accurately delineated.

(6) Flood Plain Map: If the proposed site is within 1/4 mile of a 100 year floodplain, a legible copy of the most recent Federal Emergency Management Agency (FEMA) flood insurance rate maps of the 100-year frequency floodplain, with the location of the facility and property boundary clearly and accurately delineated.

(7) Tax Map: A legible copy of the local tax map marked with the facility location and the names and addresses of abutters marked on it. The map must indicate all residences within 500 feet of the waste handling area.

(8) Soil and Pad Design: One of the following:

(a) A certification from a Maine Certified Soil Scientist that the soils where residuals will be composted and cured are moderately well-drained to well-drained, as classified by the Natural Resources Conservation Service, and that are at least 24 inches above the seasonal high water table, bedrock, and sand or gravel lenses; or

(b) A description of the pad or other surface that the residual will be composted and cured on, and which of the standards in section 5(B)(4) of this Chapter that surface meets; or

(c) A certification from a Maine Certified Soil Scientist, soil engineer or other qualified individual that the surface is suitable for the proposed activity, taking into account the other aspects of the facility design; or

(d) A certification that all composting and curing will be conducted under a permanent, roofed structure.

(9) A fire control plan to prevent spontaneous combustion in residual and compost piles.

(10) Public Notice: A copy of the public notice and other information to demonstrate that the applicant is fulfilling the requirements of 06-096 CMR 400(3).

(11) Certification: A statement signed by the facility landowner and the person responsible for the facility stating that all standards and requirements of this section will be met throughout operation and closure of the facility.

6. Reduced Procedure For Select Compost Facilities.

A. Applicability. This section applies to compost facilities that choose to follow the siting, design and operational standards in this section and compost the following residuals:

(1) Any amount of Type IA residuals; and/or

(2) Up to 400 cubic yards monthly of Type IB residuals; and/or

(3) Up to 200 cubic yards monthly of Type IC residuals or up to 200 cubic yards monthly of Type II residuals.

If the conditions of this section will not be met, or if the applicant chooses to site, design or operate the facility in a manner that would not meet the standards of this section, then the applicant must submit an application to the Department for a license to develop and operate the compost facility under sections 2 through 4 of this Chapter. Facilities licensed under this section are subject to the operating standards in section 4 of this Chapter.

B. Reduced Procedure Siting and Design Standards. In addition to the general siting and design standards contained in section 2 of this Chapter, a compost facility licensed under this section must comply with the following standards:

(1) Working surface: Mixing, composting, curing, storing or otherwise handing residuals, and compost at the facility must be on surfaces meeting one of the following standards:

(a) On soils that a Maine Certified Soil Scientist has determined are moderately well-drained to well-drained, as classified by the Natural Resources Conservation Service, and that are at least 24 inches above the seasonal high water table, bedrock, and sand or gravel deposits.

(b) On a pad that is constructed a minimum of two (2) feet above the seasonal high water table and is either composed of:

(i) a minimum of eighteen (18) inches of soil material having between 15 and 35% fines, covered with a minimal six (6)- inch drainage layer of compacted gravel; or

(ii) soil covered with asphalt or concrete.

(c) Alternative surface: On a surface determined by a Maine Certified Soil Scientist, soil engineer or other qualified individual as being suitable for the proposed activity, taking into account the other aspects of the facility design, such as a roofed structure or in-vessel system. An applicant must arrange a pre-application meeting with the Department if proposing an alternative surface under this section.

(2) Pad: At a facility handling Type IC residuals, the receiving and mixing pad must be constructed with asphalt, concrete, or other similar material. At a facility handling any amount of Type II residuals, or more than 750 cubic yards of Type IC residuals annually, the entire waste handling area must consist of a pad constructed of asphalt, concrete, or other similar material for the entire waste handling area, excluding the storage area for compost meeting the requirements of section 6(C)(5) of this Chapter.

(3) Runoff, Storm Water, and Leachate Control: Surface water drainage must be diverted away from receiving, processing, composting, curing, and storage areas. The facility must also be designed to manage runoff and collect all leachate to prevent contamination of groundwater or surface water. Water falling on the facility during a storm of an intensity up to a 25-year, 24-hour storm event must infiltrate or be detained such that the storm water rate of flow from the facility after construction does not exceed the rate prior to construction. The facility design must include provisions to contain, collect and treat any leachate and contaminated stormwater or runoff generated at the facility.

(4) Slopes: Surfaces on which composting takes place must slope between 2% and 6%, and where necessary, be graded to prevent ponding of water.

C. Operating Requirements. In addition to the operating requirements of section 4 of this Chapter, a compost facility licensed under this section is subject to the following additional operating requirements. Facilities licensed pursuant to 06-096 CMR 409(9) are subject to the operating requirements of section 4 of this Chapter, and the following additional operating requirements:

(1) Pad Inspection: All soil surfaces used for residuals mixing and composting must annually be graded clean and re-compacted. All concrete and asphalt pads must annually be scraped clean and inspected for cracks or other deformities, and repaired as needed. The operator must maintain the minimum two (2)-foot separation to bedrock, groundwater and sand or gravel deposits.

(2) Odor Control: The facility must be operated to prevent nuisance odors. The facility must:

(a) Operate and maintain the odor control system approved by the Department;

(b) Receive incoming putrescible residuals on a pile of sawdust or other sorbent, high carbon compost amendment;

(c) Contain and treat process air or cover odorous piles with a layer of finished compost or other suitable compost amendment;

(d) Properly aerate piles such that composting is aerobic throughout the pile;

(e) Blend materials to achieve a homogenous mix throughout the pile; and

(f) Alter the compost recipe as needed to alleviate odorous emissions.

(3) Pathogen treatment and vector attraction reduction: Type IC residuals with the potential to contain human pathogens and Type II residuals must be composted to achieve a Class A Pathogen Reduction and Class A Vector Attraction Reduction in accordance with 06-096 CMR 419, Appendix B, unless otherwise approved in the facility's utilization license issued under 06-096 CMR 419. To attain these standards by composting, all of the following standards must be met:

(a) Pathogen Reduction: Each particle of residual is maintained at 55 degrees Celsius or higher for at least three (3) consecutive days. For windrow systems, this standard is presumed to be met if the residual is maintained at operating conditions of 55 degrees Celsius or higher for 15 days or longer, and during the period when the compost is maintained at 55 degrees or higher, there is a minimum of five turnings of the compost pile.

(b) Vector Attraction Reduction: Residual must be treated by an aerobic composting process for 14 days or longer. During that time, the temperature of the residual must be higher than 40 degrees Celsius and the average temperature of the residual must be higher than 45 degrees Celsius.

(c) Analytical Standard: The density of *Salmonella sp.* bacteria in the finished compost must be less than three (3) Most Probable Number per four (4) grams of total solids (dry weight basis) or the density of fecal coliform in the finished compost is shown to be less than 1000 Most Probable Number per gram of total solids (dry weight basis). This analytical standard must be met at the time the compost is distributed for utilization.

(4) Static Pile Composting: The following additional standards apply to composting Type IC or Type II residuals using the static pile method:

(a) The static piles must be aerated during the active composting stage;

(b) Detention time in the static aerated pile must be at least 21 days;

(c) If an auger, tub grinder hammer mill, or other Department-approved mixer is not used to mix the initial ingredients for the pile, the pile must be broken down half way through the active composting process and re-formed.

(d) To maintain temperatures throughout the pile and control odors, the pile must be fully covered with an insulating blanket of at least 12 inches of finished compost, sawdust, or other material as approved by the Department during the active compost phase.

(5) Stability/Maturity: Residuals that have completed the active composting phase and are only destined for bulk distribution for direct agricultural uses or blending with other residuals must also be cured until the equivalent of a Dewar's stability class of III or greater is achieved and the final C:N ratio of the finished compost is less than 25:1. Additionally, compost that is destined for bagging or high-end horticultural purposes must be cured until the equivalent of a Dewar's stability class of IV or greater is achieved, the final C:N ratio is less than 25:1 and the total NH_3-N is less than 800 parts per million.

NOTE: Compost facility operators may opt to use other industry standard tests to achieve this standard, provided that they receive written approval from the Department.

(6) An operations log must be kept at the facility and made available for Department review during normal business hours. The operations log must contain the following:

(a) Source and volume of residual received on a daily basis;

(b) Date of individual pile construction and breakdown;

(c) Pile composition (mixture recipe);

(d) Date and time of turning or otherwise aerating;

(e) Process monitoring data;

(f) Date the pile is put into curing and the date it is taken out of curing;

(g) Date, time, volume, and type of samples obtained from the facility;

(h) Name of the person collecting samples at the facility.

(7) The facility may not receive more than the volumes in section 6(A) of this Chapter.

(8) Residuals must be handled on approved surfaces. Type IC and Type II residuals must be offloaded and mixed on a receiving pad meeting the standards in section 6(B)(2) of this Chapter.

D. Application Requirements. The applicant shall submit to the Department, on forms developed by the Department, information sufficient to meet the standards and submissions requirements of 06-096 CMR 400(4) and the application requirements of section 3 of this Chapter. For outdoor compost facilities, instead of the site investigation information required by section 3(H) of this Chapter, the applicant may submit a report from a Maine Certified Soil Scientist or other qualified individual that either:

(1) Verifies that the waste handling areas for the proposed facility are on soils that are moderately well-drained to well-drained, as classified by the Natural Resources Conservation Service, and are at least 24 inches above the water table, bedrock, and sand or gravel deposits; or

(2) Identifies all major limitations to the proposed development presented by the soil characteristics and describes the techniques to be used to overcome the soil limitations identified in the soil survey.

STATUTORY AUTHORITY: 38 MRSA sections 341-D(1-B) and 1304(1 & 1-B)

EFFECTIVE DATE:
February 18, 2009 – filing 2009-73

AMENDED:
December 20, 2011 – filing 2011-435

APPENDIX A: 06-096 CMR 400(4)
GENERAL LICENSING CRITERIA

4. **General Licensing Criteria.** This section contains general standards applicable to the licensing of solid waste facilities. This section also lists submissions required of applicants for new or expanded facilities in order for the Department to determine if the general licensing criteria are met. All applicants must demonstrate compliance with the criteria of this section and submit the listed submissions unless otherwise provided in the relevant facility chapter. Required submissions for amendments, minor revisions and limited permits will be determined by the Department on a case-by-case basis to determine if the proposal meets the relevant general licensing criteria.

A. Title, Right or Interest

(1) Standards. The applicant must demonstrate to the Department's satisfaction sufficient title, right or interest in all of the property which is proposed for development or use.

(2) Submissions. The applicant must submit evidence of sufficient title, right or interest as provided in Chapter 2, section 7(D).

B. Financial Ability

(1) Standards.

(a) The applicant must have the financial ability to design, construct, operate, maintain, close and (if applicable) accomplish post-closure care of the solid waste facility in a manner consistent with all applicable requirements.

(b) The applicant for a solid waste disposal facility shall provide adequate financial assurance for closure, post-closure care, and for corrective action for known releases in compliance with the financial assurance requirements of section 11.

(2) Submissions. The application must include evidence that affirmatively demonstrates that the applicant has the financial ability to undertake the proposed project, including the following information, when appropriate:

(a) Accurate cost estimates for the design, construction, operation, maintenance, closure and (if applicable) post-closure care of the solid waste facility.

(b) Evidence that funds are or will be available to design, construct, operate, maintain, close and (if applicable) accomplish post-closure care of the solid waste facility, or to contract for the same, including the following:

(i) when a financial institution is the funding source, the application must include:

a. a letter from a financial institution, governmental agency, or other funding agency indicating a commitment to provide a specified and sufficient amount of funds and the uses for which the funds may be utilized; or

b. in cases where funding is required but there can be no commitment of money until approvals are received, a letter of "intent to fund" from the appropriate

funding institution. Evidence of financing must be provided prior to project construction.

(ii) when self-financing is a funding source for the solid waste facility, the application must include:

a. the most recent corporate annual report indicating availability of sufficient funds to finance the proposed project, through self-financing, together with explanatory material interpreting the report;

b. evidence that funds are available and have been set aside for completion of the proposed project; or

c. if the applicant is a governmental entity, evidence that the entity has the bonding or other capacity to finance the proposed project.

C. Technical Ability.

(1) Standards

(a) The applicant shall have the technical ability to design, construct, operate, maintain, close and (if applicable) accomplish post-closure care of the solid waste facility in a manner consistent with state environmental requirements, including the Maine Solid Waste Laws and these rules.

(b) The applicant shall meet the civil/criminal record standards of section 12.

(2) Submissions. The application must include evidence that affirmatively demonstrates that the applicant has the technical ability to design, construct, operate, maintain, close and (if applicable) accomplish post-closure care of the solid waste facility, including information such as the following:

(a) A statement of the applicant's prior solid waste management experience or appropriate training or both;

(b) A description of the personnel who will be employed to design, construct, operate, maintain, close and (if applicable) accomplish post-closure care of the proposed facility; and

(c) The proposed owner's and operator's prior conduct as a measure of their willingness and ability to meet all terms and conditions of approval established by the Department including information addressing all of the information required in section 12.

D. Provisions for Traffic Movement.

(1) Standards. The applicant for a solid waste facility must make adequate provisions for safe and uncongested traffic movement of all types into, out of, and within the proposed solid waste facility.

(a) The major haul routes must be able to safely accommodate the number, weight and types of vehicles transporting waste to and from the proposed solid waste facility.

(b) The entrance and exit design for the proposed solid waste facility must have safe sight distances in all directions and provisions for safe turning.

(c) Improvements to roads or intersections that are necessary due to the establishment of the proposed solid waste facility must be completed prior to initial operation of the solid waste facility unless an alternative schedule is approved by the Department.

(d) Major interior travel lanes must be designed to allow continuous and uninterrupted traffic movement without posing danger to pedestrians or other vehicles.

(e) The facility road construction and maintenance must provide safe traffic movement.

(f) On-site circulation patterns must be clearly defined.

(2) Submissions. The application must contain evidence that roads and intersections in the vicinity of the proposed solid waste facility will safely and conveniently handle the traffic attributable to the facility. This evidence must include the following:

(a) An estimate of the number, weight, and types of vehicles that will be transporting waste to and from the proposed facility.

(b) A map clearly delineating the anticipated major haul routes to and from the facility to be used by vehicles serving or using the solid waste facility, with a description of the road characteristics including legal weight limits and restrictions.

(c) An identification of all sections of roads and intersections along the projected haul routes that are:

(i) congested locations, or

(ii) not rated to handle the weights or types of vehicles expected to transport solid waste to or from the facility.

(d) Identification of vehicle routing decisions that were made based on these limits and a description of any actions the applicant proposes to take.

(e) A Maine Department of Transportation inventory and analysis of traffic accidents on roads and at intersections within a quarter mile of the proposed solid waste facility entrances and exits during the most recent 3-year period. The inventory must include identification of high accident locations and identification of feasible countermeasures based on discernible accident patterns at any high accident location.

(f) Sight distances at the proposed solid waste facility entrances and exits and a copy of the Maine Department of Transportation entrance permit, if applicable, or if the solid waste facility entrance is not located on a state supported highway, evidence that a qualified professional has certified that safe sights distances will exist in all directions. This review must be conducted in conformance with the standards specified in A Policy on Geometric

Design of Highways and Streets, American Association of State Highway and Transportation Officials (1994); and the Highway Design Guide, Maine Department of Transportation (September 1990). Intersection sight distance is the length of roadway visible to the driver. It must be measured from the intersection (at a point 10 feet back from the edge of the travel way) to the centerline of the opposing lane(s).

Note: Additional information concerning safe sight distances and other access management standards applicable to Maine can be found in, Access Management Improving the Efficiency of Maine Arterials A Handbook for Local Officials, Maine Department of Transportation (1994).

(g) The nature of the interior roadways, intersections and parking facilities, including the following:

(i) road construction, number of lanes, width of road, speed limit, and traffic circulation of the proposed roads;

(ii) areas of pedestrian use;

(iii) how circulation patterns will be defined; and

(iv) how the facility roads will be maintained.

(h) A traffic study, if required by the Department. The Department will require a traffic study if the application does not contain sufficient information to determine that all of the traffic standards of this section will be met. A traffic study may also be required if a traffic standard that is not met could possibly be corrected by application or design changes that require additional information. The Department's determination that a traffic study is required may be based solely on information or comments submitted to it by the Maine Department of Transportation.

(3) Elements of a Traffic Study. A traffic study must meet the requirements of this paragraph. The year for which the study results are to be characterized is the projected first year of full operation. If the proposed solid waste facility is a multi-phase project with a projected completion date more than 5 years after the year of the study, the Department may require that the study results be characterized for the year that corresponds to the opening of the first major phase or to the timing of transportation system improvements, such as a major bridge construction project.

At a minimum, the traffic study must contain the following:

(a) A brief description of the physical characteristics of the solid waste facility. This section must identify the size of the facility site, general terrain features and unique terrain features.

(b) A regional map showing the proposed solid waste facility, each road in the vicinity of the proposed facility and proposed haul routes to and from the facility for the vehicles that will use or serve the facility.

(c) A description of traffic increases that are expected from sources other than the proposed solid waste facility and that are likely to occur in the vicinity of the proposed solid waste facility during the study period. At a minimum, the study must identify development or redevelopment proposals which have been approved, either locally or by the Department, and development or redevelopment proposals for which complete applications have been filed with and accepted by a local reviewing authority or the Department at the time of the traffic study.

(d) Trip generation calculations for the proposed solid waste facility and for other proposed development and redevelopment projects in the vicinity of the proposed solid waste facility. If data from the "Trip Generation Guide" of the Institute of Transportation Engineers, is not available for other proposed development and redevelopment projects, trip generation must be estimated in accordance with a methodology approved by the Maine Department of Transportation.

(e) A diagram of the traffic volume on roads and intersections in the vicinity of the proposed solid waste facility for both the estimated annual average daily traffic and the A.M./P.M. peak hour traffic, including turns during the peak hour. Traffic diagrams must show the following:

(i) traffic attributable to the facility and other developments.

(ii) existing traffic volume. All traffic counts must be actual counts whenever possible. Traffic counts from the Maine Department of Transportation may be used if not more than two years old.

(iii) projected traffic volume for the hours required above at the time the facility will begin full operation.

(iv) documentation, including all new traffic counts and analysis worksheets, as to how the various volumes were derived to accompany the diagrams.

(f) A capacity analysis must be performed to determine the level of service for each road and intersection in the vicinity of the proposed solid waste facility. Capacity calculations must be made for the 30th highest hour of traffic during the year that the facility would begin operation, or any other appropriate design hour approved by the Maine Department of Transportation. Where it is shown that the capacity analysis methodology will not accurately measure operating conditions or levels of service at a road or intersection, the Department may require an applicant to analyze operating conditions of an intersection or road using another methodology acceptable to the Maine Department of Transportation.

(g) The need for new traffic signals in the vicinity of the proposed development must be analyzed using the warrants in the Manual on Uniform Traffic Control Devices, US. Department of Transportation, Federal Highway Administration (1988). Although an intersection may meet the MUTCD warrants, the Maine Department of Transportation may determine that a signal is not appropriate.

(h) A determination of the available sight distances in all directions at each intersection in the vicinity of the proposed development. Intersection sight distance is the length of roadway

visible to the driver. It must be measured from the intersection (at a point 10 feet back from the edge of the travel way) to the centerline of the opposing lane(s).

(i) If the study analyses indicate that unsatisfactory levels of service or unsafe conditions exist or will occur at intersections or on roads in the vicinity of the proposed development, a description of the measures recommended to remedy the deficiencies, including the following.

(i) Recommended Improvements. A description and diagram of the location, nature, and extent of recommended improvements to roads and intersections in the vicinity of the proposed development. Accompanying this list of improvements must be preliminary cost estimates. Of the recommended improvements, those proposed for implementation must be identified.

(ii) Capacity Analysis After Improvement. A description of the anticipated results of making these improvements.

(j) A clear, concise summary of the study findings.

E. Fitting the Solid Waste Facility Harmoniously into the Natural Environment

(1) Standards

(a) The solid waste facility must have buffer strips of sufficient size and quality to adequately protect aquatic and wildlife habitat and the natural environment. The facility may not unreasonably adversely affect protected natural resources and rare, threatened and endangered plant and animal species.

(b) The solid waste facility must have a minimum of 100 feet of buffer between the facility site and those locations and habitats listed above, unless otherwise approved or required by the Department.

(2) Submissions. For solid waste facilities with waste handling areas of less than 3 acres total area, the applicant shall include letters from the Maine Department of Inland Fisheries and Wildlife and from the Natural Areas Program of the Maine State Planning Office that the facility will not unreasonably adversely impact protected significant wildlife habitat, fragile mountain areas, or rare, threatened and endangered plant or animal species. For all facilities with waste handling areas larger than 3 acres, the applicant shall include evidence that affirmatively demonstrates that the solid waste facility fits harmoniously into the natural environment. This includes the following:

(a) The proposal must include adequate buffer strips. This information must include:

(i) the location and description of the locations, habitats, and species listed above that are within or adjacent to the facility site;

(ii) the nature, location, width, and height of all buffer strips to be retained or enhanced;

(iii) the nature, location, width, and topography of all buffer strips that need to be established to restore buffer functions in areas that will be disturbed;

(iv)-provisions for the maintenance of all buffer strips and screens;

(v) a description of how buffer strips of sufficient area, width, and character will be established, maintained or enhanced to protect the locations and habitats; and

(vi) an explanation of how the proposed solid waste facility and activities will not unreasonably adversely affect protected natural resources.

(b) The application must identify all unusual natural areas on or adjacent to the facility site and must include evidence that affirmatively demonstrates that the proposed facility will not unreasonably adversely affect protected natural resources.

F. No Unreasonable Adverse Effect on Existing Uses and Scenic Character

(1) Standards. The solid waste facility may not unreasonably adversely affect existing uses and scenic character. Specifically, the facility may not:

(a) Present a bird hazard to aircraft;

(b) Have an unreasonable adverse effect on the preservation of historical sites;

(c) Unreasonably interfere with views from established public viewing areas;

(d) Generate excessive noise at the property boundary or at any protected location; or

(e) Unreasonably adversely affect existing uses of property neighboring the proposed solid waste facility.

(2) Noise Standards. The following noise standards shall apply to all solid waste facilities. Protected locations shall only include those locations defined in subsection 400.1 for which the hourly sound levels from the facility will be greater than 45 dBA.

(a) Sound Level Limits. The following hourly sound levels from routine operation of a solid waste facility must be less than or equal to;

(i) 75 dBA for daytime and nighttime hours at the facility property boundary;

(ii) 60 dBA for daytime hours and 50 dBA for nighttime hours at any protected location in an area for which the zoning, or, if unzoned, the existing use or use contemplated under a comprehensive plan, is not predominantly commercial or industrial; or

(iii) 70 dBA for daytime hours and 60 dBA for nighttime hours in an area for which the zoning, or if unzoned, the existing use or use contemplated under a comprehensive plan, is predominantly commercial or industrial.

(b) Alternative levels. If the applicant chooses to demonstrate by measurement that the daytime or nighttime pre-development ambient sound environment at any protected location exceeds the daytime or nighttime limits above, by at least 5 dBA, then the daytime or nighttime limits are 5 dBA more than the measured daytime or nighttime pre-

development ambient hourly sound level at the location of the measurement for the corresponding time period.

(c) Existing Facilities. For any protected location near an existing solid waste facility, the hourly sound level limit for routine operation of the existing facility and all future expansions of that facility is the hourly sound level written above, or at the applicant's election, the existing hourly sound level from routine operation of the facility before any expansions plus 3 dBA.

(d) All equipment used in the construction of and maintenance activities at the solid waste facility must comply with applicable local and federal noise regulations, and include environmental noise control devices in proper working condition and maintained as originally provided with the equipment by its manufacturer.

(e) Sounds associated with the following are exempt from the sound level limits of this section:

(i) routine engine sounds from registered and inspected motor vehicles:

a. while operating on public ways, or

b. that enter the facility to make a delivery or pickup and that are moving, starting or stopping, but not when they are parked with the engine running for over 60 minutes in the facility.

(ii) the unamplified human voice and other sounds of natural origin.

(iii) emergency maintenance and repairs.

(iv) facility and vehicle warning signals and alarms so long as used in appropriate circumstances.

(v) safety and protective devices installed in accordance with the devices' installation instructions.

(vi) boiler start-up, testing and maintenance operations occurring no more frequently than once per month.

(vii) test operations of emergency equipment occurring in the daytime and no more frequently than once per week.

(viii) major concrete pours that must extend after 7:00 p. m., when started before 3:00 p. m.

(ix) snow removal, landscaping and street sweeping activities.

(x) sound from a regulated development received at a protected location when the generator of the sound has been conveyed a noise easement for that location. This exemption shall only be for the specific noise, land and term covered by the easement.

(3) Submissions. Applications must include evidence that affirmatively demonstrates that the proposed solid waste facility will not unreasonably adversely affect existing uses and scenic character, including the following information:

(a) The nature, location, design, and size of all buffers and visual screens within those buffers to be established or retained;

(b) A description of the existing land uses in the vicinity of the proposed solid waste facility, all airport runways within 10,000 feet of the facility; all historic sites, protected locations and established public viewing areas within 2,000 feet;

(c) A demonstration that the solid waste facility will comply with the noise standards in paragraph 2 above and that the applicant will make adequate provision to control noise and the sound levels from each source resulting from the routine operation of the facility at the property boundary and any protected locations within the area;

(d) Evidence that acoustic enclosure for noise, buffer strips and screens, or other noise reduction measures have been considered and implemented in the design of the solid waste facility.

G. No Unreasonable Adverse Effect On Air Quality

(1) Standards. The solid waste facility may not unreasonably adversely affect air quality:

(a) The applicant must obtain an air emission license if required by 38 M.R.S.A. section 581 *et seq*. The air emissions produced from either point or non-point sources must be in conformance with the current State Implementation Plan, as approved by the Environmental Protection Agency.

(b) The applicant must control fugitive dust and nuisance odor.

(c) Open burning of solid waste other than clean or painted wood waste, is prohibited. Wood that has been treated and other wastes, such as tires or waste oil, shall not be open burned.

(2) Submissions. Applications must include evidence that affirmatively demonstrates that the proposed facility will not unreasonably adversely affect air quality, including the following information, when appropriate:

(a) Evidence that an air emission license has been or will be obtained if required.

(b) Description of the actions that the operator will undertake to control fugitive dust from the solid waste facility when a problem attributable to the facility occurs beyond the property boundary.

(c) The identification of any sources of nuisance odors from the facility.

(d) An estimation of the area that would be affected by the nuisance odor, based on general experience in dealing with the material or process that is the source of the odors.

(e) Proposed systems for enclosure of nuisance odor-producing materials and processes, and proposed uses of technology to control, reduce or eliminate odors.

NOTE: ASTME 679-79 can be used for guidance for control of nuisance odors.

(f) Evidence that the solid waste facility will not unreasonably alter climate if the facility has or is proposed to have water cooling towers.

H. No Unreasonable Adverse Effect on Surface Water Quality

(1) Standards. A solid waste facility:

(a) May not discharge any water pollutants, directly or indirectly, that affect the state classification of a surface water body, as specified in 38 M.R.S.A. section 464;

(b) May not discharge any pollutant without first obtaining a license pursuant to 38 M.R.S.A. section 413;

(c) May not degrade water quality by contributing to the phosphorous concentrations in "waterbodies most at risk from new development" as defined in Chapter 502.

(d) May not cause the discharge of a nonpoint source of pollution to waters of the United States that violates any requirement of an area-wide or State-wide water quality management plan that has been approved in compliance with section 319 of the Federal Water Pollution Control Act, as amended.

(2) Submissions. Applications must include evidence that affirmatively demonstrates that there will be no unreasonable adverse effect on surface water quality, including evidence that:

(a) The applicant will comply with all applicable stormwater management standards of Chapter 500 of the Department's rules, if the proposed facility is in the direct watershed of "waterbodies most at risk from new development".

(b) A waste water discharge license has been obtained or will be obtained, if required by 38 M.R.S.A. section 413.

I. No Unreasonable Adverse Effect On Other Natural Resources

(1) Standards. The solid waste facility may not have an unreasonably adverse effect on other natural resources in the municipality or in neighboring municipalities. The proposed solid waste facility:

(a) Must conform to the standards of the Natural Resource Protection Act, 38 M.R.S.A sections 480-A to 480-Z, if proposed to be located in, on, over, or adjacent to a protected natural resource, and

(b) Must be permitted by the federal government for any activities that require a Federal Wetlands permit.

(2) Submissions. An application must include the following information, when appropriate:

(a) Evidence that a Natural Resource Protection Act application has been submitted or will be obtained when required under that Act (38 M.R.S.A. sections 480-A to 480-Z).

(b) Complete information as to whether a Federal Wetlands permit is required and on whether a Federal Wetlands permit application has been submitted.

J. Soil Types That Are Suitable and Will Not Cause Unreasonable Erosion

(1) Standards. The solid waste facility must be located on soils suitable for the nature of the undertaking and the facility must not cause unreasonable sedimentation or erosion of soil. To meet this requirement:

(a) The soils on the facility site must be suitable for the proposed solid waste facility.

(b) The design and implementation of erosion control measures must be conducted in accordance with "The Maine Erosion and Sediment Control Handbook for Construction: Best Management Practices," prepared by the Cumberland County Soil & Water Conservation District and Maine Department of Environmental Protection (March 1991), unless other measures are approved by the Department.

(i) sediment caused by accelerated soil erosion must be minimized from runoff water before it leaves the proposed solid waste facility site or enters a protected natural resource. Suitable erosion control measures must be in place prior to any disturbance of soil.

(ii) any temporary or permanent structure designed and constructed for the conveyance of water around, through, or from the solid waste facility must be designed to limit the water flow to a non-erosive velocity.

(iii) all earth changes must be designed, constructed, and completed so that the exposed area of any disturbed land is minimized and is limited to the shortest reasonable period of time possible given the construction requirements. Permanent soil erosion control measures for all slopes, channels, ditches, and disturbed land area must be completed as specified by the Department, after final grading has been completed. Seeding must occur within 15 calendar days of final grading unless otherwise approved by the Department because of seasonal conditions. When it is not possible or practical to immediately and permanently stabilize disturbed land, temporary stabilization measures will be implemented as approved by the Department. In sensitive watersheds or on highly erodible soils or slopes of 20 percent or greater, the Department may require a more restrictive schedule for temporary and permanent stabilization of soil.

(iv) when vegetative cover is to be established as a temporary or permanent erosion control measure:

a. plant species and seeding rates must take into account soil, slope, climate, duration and use of the vegetative cover.

b. mulch must be provided at rates appropriate to ensure a minimum of soil and seed loss until vegetative cover is established.

c. reseeding must be done within a reasonable period of time if permanent vegetation is not established.

(v) all development plans must utilize existing topography and natural surroundings to the fullest extent possible.

(2) Submissions.

(a) An application must include a comprehensive erosion and sedimentation control plan that includes the following information:

(i) a statement of whether the proposed facility or activity is in the direct watershed of waterbodies most at risk from new development. For the purposes of this submission requirement, the Department will consider the direct watershed of a waterbody to be the land area that drains, via overland flow, natural or manmade drainage systems, other waterbodies or wetlands to that waterbody.

(ii) a description and location of all proposed construction activities that may result in soil disturbance,

(iii) a description and location of all existing and proposed on-site drainage,

(iv) the timing and sequence of all proposed land disturbances,

(v) a description and location of all proposed temporary and permanent erosion and sedimentation control measures, including the timing and sequence of completion and an indication of the suitability of the proposed measures to address the problems that are expected,

(vi) calculations for erosion control measures in accordance with best management practices, and

(vii) a proposed program for the maintenance of all erosion and sedimentation control facilities that will remain after construction is completed.

(b) Where applicable, the application must include a report showing that the soils are suitable to the undertaking including:

(i) test pit and soil boring information, and

(ii) an evaluation by an engineer, soil scientist, or other qualified individual.

K. No Unreasonable Risk That a Discharge to a Significant Ground Water Aquifer Will Occur

(1) Standards. The proposed solid waste facility may not pose an unreasonable risk that a discharge to a significant ground water aquifer will occur. Additionally, a solid waste disposal facility:

(a) May not overlie any significant sand and gravel aquifers;

(b) May not pose an unreasonable threat to the quality of a significant sand and gravel aquifer; and

(c) May not pose an unreasonable threat to the quality of an underlying fractured bedrock aquifer.

(2) Submissions. An application must contain the information that is required under the appropriate chapter of these rules for the particular type of facility involved.

L. Adequate Provision for Utilities and No Unreasonable Adverse Effect on Existing or Proposed Utilities.

(1) Standards. The applicant shall provide for adequate utilities and the proposed solid waste facility may not have an unreasonable adverse effect on existing or proposed utilities in the municipality or area served by those utilities.

(a) There must be adequate water supplies for the solid waste facility.

(b) Appropriate sanitary waste water disposal must exist for the solid waste facility.

(2) Submissions. An application must include evidence that affirmatively demonstrates that the applicant has made adequate provision for utilities, including water supplies, sewerage facilities and solid waste disposal, and that the proposed solid waste facility will not have an unreasonable adverse effect on existing or proposed utilities in the municipality or areas served by those utilities, including the following information, when appropriate:

(a) Verification that the facility will be served by the appropriate utilities.

(b) Evidence that a sufficient and healthful water supply will be provided.

(c) The identification of all aspects of the proposed solid waste facility that require access to or use of utilities, along with the provisions that have been made to use those utilities and to comply with any requirements and provisions of the utility.

M. Not Unreasonably Cause or Increase Flooding

(1) Standards. A solid waste facility may not unreasonably cause or increase flooding on-site or on adjacent properties nor create an unreasonable flood hazard to a structure.

(a) Except for an agronomic utilization site, a solid waste facility may not be located in a 100 year flood plain or restrict the flow of a 100 year flood.

(b) A solid waste facility must include a stormwater management system that controls run-on and run-off, and infiltrates, detains, or retains water falling on the facility site during a storm of an intensity up to and including a 25-year, 24-hour storm, such that the rate of flow of stormwater from the facility after construction does not exceed the rate of outflow of stormwater from the facility site prior to the construction of the facility.

(2) Submissions. An application must include evidence that affirmatively demonstrates that the facility will not unreasonably cause or increase flooding of the facility site or adjacent properties, will not create an unreasonable flood hazard, and will have no unreasonable effect on run-on, run-off, and/or infiltration relationships, including information such as the following, when appropriate:

(a) The most recent U.S. Geological Survey, Army Corps of Engineers or Federal Flood Insurance Administration 100-year frequency flood plain map of the area, if applicable.

(b) A narrative describing how the facility site is oriented within the watershed, identifying downstream ponds, lakes, and mapped wetland areas, and addressing the effects of facility site runoff on the watershed and nearby properties. The narrative shall also identify areas, buildings and facilities that historically flood or which may be affected by the facility site run-off and shall discuss the assumptions used in determining run-off curve numbers, time of concentration and travel time calculations for each drainage sub-area.

(c) Pre-construction drainage study plans showing existing contours, and all topographic features including but not limited to: buildings and facilities, natural and man-made drainage ways, streams, channels, culverts, cover type, elevation benchmarks and datum, catch basins, roads, drainage easements, hydrologic flow lines, hydrologic soil groups, and watershed boundaries (on and off site).

(d) Post-construction or phased drainage study plans showing final or phased contours, all relevant existing contours, and all proposed topographic and other features including but not limited to: buildings and other facilities, natural and manmade drainage ways, streams, channels, culverts, catch basins, roads, drainage easements, cover type, elevation bench marks and datum, hydrologic flow lines, hydrologic soil groups, and final or phased watershed boundaries (on and off site).

(e) Pre-construction stormwater calculations for 25-year, 24-hour storms including runoff curve numbers, time of concentration, and travel times for each sub-area.

(f) Post-construction or phased stormwater calculations for 25-year, 24-hour storms including: run-on controls, runoff curve numbers, time of concentration, and travel times for each sub-area along with calculations for routing the stormwater through detention areas and detention basins.

(g) Basin storage values and sizing calculations, including stage-storage curves and outlet velocities for each detention basin.

(h) Outlet and spillway detail and sizing calculations for each detention basin.

(i) Detail sheets showing plan and cross sectional views of the detention basins, outlet structures, emergency overflow structures, and associated riprapped areas. Basin cross sections must show and identify the water level elevations for the 25-year, 24-hour storms.

APPENDIX B: CARBON TO NITROGEN RATIOS (C:N) FOR RAW RESIDUALS COMMONLY COMPOSTED IN THE STATE OF MAINE

The following table is provided for guidance and includes many of the raw residuals that, to date, have been composted within the State of Maine. In addition to carbon to nitrogen ratio (C:N) values, percent nitrogen (% N) has been included to better characterize each residual. As a general rule, the lower the C:N the higher the putresibility of the residual and the greater the chance of producing nuisance odors. All of the following information was obtained from:

Rynk, R, ed. 1992. On-farm composting handbook. Northeast Regional Agricultural Engineering Service, Ithaca, New York. NRAES-54:106-113.

Residual	**C:N**	**Range**	**%N**	**Range**	**Type**
Mussel	2.2	--	3.6	--	IC
Blood	3.3	(3-3.5)	13.5	(13-14)	IC
Shrimp	3.4	--	9.5	--	IC
Fish	3.6	(2.6-5.0))	10.6	(6.5-14.2)	IC
Crab/Lobster	4.9	(4.0-5.4)	6.1	(4.6-8.2)	IC
Poultry Carcasses	5	--	2.4	--	IC
Hen Manure	6	(3-10)	8	(4-10)	N/A
Sewage Sludge	11	(5-16)	4.5	(2-6.9)	II
Food By-product	15	(14-16)	2.4	(1.9-2.9)	IB
Sea weed	17	(5-27)	1.9	(1.2-3.0)	IC/IB
Grass Clippings	17	(9-25)	3.4	(2.0-6.0)	IC/IB
Cull Potatoes	18	--	--	--	IB
Vegetable Produce	19	--	3.3	--	IB
Cow Manure	19	11-30	2.4	1.5-4.2	N/A
Hay	24	(15-32)	2.1	(0.7-3.6)	IB/IA
Horse Bedding	36	(22-50)	1.4	(1.4-2.3)	IB/IA
Fruit By-product	40	(20-49)	1.4	(0.9-2.6)	IB/IA
Corn Silage	41	(38-43)	1.3	(1.2-1.4)	IA
Apple Pomace	48	--	1.1	--	IA
Leaves	54	(40-80)	0.9	(0.5-1.3)	IA
Sawdust	442	(200-750)	0.24	(0.06-0.14)	IA
Newsprint	--	398-852	--	(0.06-0.14)	IA
Corrugated Cardboard	563	--	0.01	--	IA
Wood Chips	600	(451-1,313)		(0.06-0.23)	IA

06-096

Department of Environmental Protection

Maine Solid Waste Management Rules

CHAPTER 419

AGRONOMIC UTILIZATION OF RESIDUALS

Last Revised: February 8, 2012

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Chapter 419: AGRONOMIC UTILIZATION OF RESIDUALS

SUMMARY: This Chapter establishes the rules of the Department for the agronomic utilization of residuals and the storage of residuals prior to utilization.

1. Applicability.

A. Facilities and activities subject to the requirements of this Chapter.

This Chapter applies to agronomic utilization activities and the storage of residuals prior to utilization. Agronomic utilization is the land application of residuals in a controlled manner in order to: increase the nutrient content of the soil at a rate commensurate with the nutritional needs of the crop to be grown and the assimilative capacity of the soil; otherwise improve agricultural soil conditions; or provide some other horticultural benefit. Agronomic utilization includes, but is not limited to:

(1) Land application of sewage sludge, biosolids, fish by-products, food waste, secondary papermill sludge or other residuals to supply nitrogen (N), phosphorus (P), potassium (K), or other nutrients to a crop;

(2) Land application of ash, lime-mud, cement kiln dust, or other residuals as an agricultural liming agent;

(3) Land application of primary papermill sludge, flume grit, wood wastes or other high carbon residuals to control erosion, as a topsoil replacement, as mulch, or to beneficially increase soil organic matter content;

(4) Utilization of composted residuals, decontaminated soil, or other processed residuals as a fertilizer, soil amendment, topsoil replacement or mulch.

B. Facilities and activities not subject to the requirements of this Chapter. In addition to the facilities listed in Chapter 400, section 2.I, the following activities and materials are exempt from the siting, design, licensing and operating requirements of this Chapter:

Note: Manure and other agricultural wastes used as fertilizers are not residuals, and therefore are exempt from regulation under these rules. Utilization of agricultural waste is regulated by the Department of Agriculture under Chapter 565, Nutrient Management Rules (effective December 15, 1998).

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(1) Utilization of chipped, shredded or composted wood and vegetative wastes as mulch when applied less than one foot thick.

(2) Utilization of chipped, shredded or composted wood and vegetative wastes for erosion control and filter berms.

(3) Wood ash from the burning of wood wastes is not subject to the requirements of this Chapter and is not considered a solid waste if the generator submits written documentation to the department stating that the wood ash is being used as an effective substitute for a commercially available agricultural product and identifying the use of the wood ash and the

commercial product it is replacing. For the purposes of this Chapter, effective substitute includes utilization at an appropriate agronomic rate similar to the material it is replacing.

Note: "Wood wastes" is defined at 06-096 CMR 400(1)(LL11) as follows: "wood wastes" means brush, stumps, lumber, bark, wood chips, shavings, slabs, edgings, slash, sawdust and wood from production rejects, that are not mixed with other solid or liquid waste. For the purposes of this definition, "lumber" is entirely made of wood and is free from metal, plastics and coatings.

Any ash resulting from the burning of wood wastes is considered wood ash. No distinction is made between fly ash and bottom ash.

(4) The utilization as a topsoil of any of the following:

(a) 50 yds^3/yr or less of dredge materials in the area adjacent to and draining into the dredged water body;

(b) dredge materials from class AA, A and SA water bodies;

(c) dredge materials from agricultural or residential ponds, ditches and drainage ways when utilization occurs on the same property;

(d) dredge materials containing less than 15% fines (material passing the #200 sieve) from representative sampling of a minimum of four samples, or one sample per acre, whichever is more frequent; or

(e) dredge materials free from oil, grease, litter and other contaminants that is generated from normal maintenance of storm water and erosion control structures regulated under 38 MRSA. section 420-C and section 420-D.

Note: Dredging activities must still be licensed under 38 MRSA 480-A, et seq., the Natural Resources Protection Act.

(5) The agronomic utilization of any of the following residuals. The volume limit applies to the amount one generator may distribute for utilization in a calendar year. The volume limit also applies to the amount that may be received for utilization at any one site in a calendar year.

(a) 200 yds^3/yr or less of type IA residuals, such as processed woodwaste, or leaves;

(b) 100 yds^3/yr or less of type IB residuals, such as certain food processing wastes; or

(c) 50 yds^3/yr or less of type IC residual, such as fish by-products, provided the type IC residual is applied at a generally accepted agronomic rate between April 15 and July 1 and the waste is incorporated within 24 hours.

Note: See Chapter 400, section 1 for a complete definition of type IA, IB, IC, II and III residuals.

(6) The storage on 1 acre or less for up to 24 months prior to agronomic utilization of any one of the following:

(a) wood wastes provided individual storage piles do not exceed 10,000 square feet, and there are 30 foot mineral strips between piles of chipped or shredded woodwastes;

(b) sewage sludge at a Publicly Owned Treatment Works; or

(c) composted residuals that meet the standards in section 8 of this Chapter.

(7) The storage on a licensed utilization site of residuals with a solids content of greater than 12% for 12 hours or less to facilitate spreading.

C. Processing of Solid Waste

(1) A site where a generator mixes or blends a residual prior to utilization, but does not otherwise process the residual, is not subject to Chapter 409, but is subject to this Chapter.

(2) Facilities that compost, aerobically or anaerobically digest, dry, heat treat, lime stabilize or otherwise alter the stability, physical properties, pathogen content, or chemical content of residuals to meet the standards of this rule must meet the applicable standards of Chapter 409 or Chapter 410. Utilization of the residual produced by the processing facility is subject to this Chapter.

D. Beneficial Use of Solid Waste. Agronomic utilization is a type of beneficial use. Generators proposing to beneficially use solid waste or waste derived products in a manner that does not constitute agronomic utilization must meet the applicable standards of Chapter 418. Agronomic utilization of a solid waste and another beneficial use of the same solid waste may be approved in one license. Except for agronomic utilization activities covered under this Chapter, beneficial use activities approved under the provisions of Chapter 567 are subject to the transition provisions of Chapter 418.

2. Licenses for Residual Utilization and Storage

A. License required for residual utilization and storage.

(1) Utilization licenses. The Department must conclude that the licensing standards in Chapter 400 and sections 2 through 7 of this Chapter are met prior to a generator distributing a residual for utilization, unless the activity is exempt under section 1.B. This conclusion may be made in a program license, or a combination of program license and site specific utilization license. A program license must be obtained before any site specific utilization licenses are obtained. The generators of the residual must obtain the utilization license. An application must be submitted under Chapter 400 and section 7 of this Chapter, or under the permit-by-rule provisions of sections 8 and 9. For purposes of this rule, processors of solid waste are the generators of the resultant residual.

(2) Residual storage licenses. Prior to establishing a new residual storage site, or altering an existing residual storage site, the Department must conclude that the licensing standards in Chapter 400 and section 10 through 12 of this Chapter are met, unless the activity is exempt under section 1.B. This conclusion may be made in a program license, a storage site license,

or a combination of the two. Field stacking sites associated with a licensed utilization site may only be licensed to the residual generator. Other residual storage sites may be licensed to any person. The Department may approve of utilization and storage at the same location in one license, provided all of the applicable licensing criteria are met.

Note: Storage of a residual at composting or other processing facilities is subject to the standards in Chapter 409 or Chapter 410. Storage of residuals for purposes other than agronomic utilization is subject to Chapter 402 or in some beneficial use cases, Chapter 418.

(3) Inapplicability of disposal facility standards. Residual storage sites and utilization activities, including program licenses issued under Chapter 567, constitute solid waste facilities, but do not constitute solid waste disposal facilities, as defined in Chapter 400. Therefore, agronomic utilization activities and residual storage sites are not subject to the provisions specific to solid waste disposal facilities in Chapter 400 or the Maine Solid Waste Laws.

B. Program license. A program license assesses the potential benefits and risks posed by the utilization activity and determines what management practices are necessary to mitigate those risks, including what type of site specific license, if any, is required at a residual storage site or the site of utilization.

C. Site license. The generator must obtain a site license for residual utilization or storage if the Department determines in the program license that a site license is necessary in order for the Department to find that all the applicable licensing standards of Chapter 400 and this Chapter will be met.

D. Joint Utilization. Prior to more than one generator licensing the same site, the DEP must approve a joint utilization agreement that specifies the responsibilities of each generator to assure compliance with these rules, their program license, and their site licenses. The agreement must specify one party who the Department may direct to correct a deficiency at the site.

E. License transfers.

(1) Site license transfer. A generator may make application pursuant to Chapter 2, section 17 to transfer a utilization site license from another generator when both generators agree to the transfer, the receiving generator is in compliance with its program license, and the receiving generator has established title, right or interest in the site that is being transferred. When both parties generate the same kind of residual, such as sewage sludge treated to the same pathogen reduction standard, the transfer may be processed under the permit-by-rule procedures in section 9. Otherwise the license must be transferred pursuant to Chapter 2, section 17 and Chapter 400, section 3.B(3)

(2) Program transfer. When a facility that generates the residual is transferred to a new owner, the new owner must obtain Department approval to transfer the utilization program and associated site and storage licenses pursuant to Chapter 2, section 17 and Chapter 400, section 3.B(3).

F. Municipal and Public Notice of Utilization Applications. The public notice provisions of this subsection replace the public notice requirements of chapter 2, section 9, except as specified below.

(1) Program Licenses. Within 30 days prior to filing an application for a utilization or storage program license, including an application filed in accordance with section 8, an applicant shall give public Notice of Intent to File a new or amendment application, a resubmitted application that has been returned as incomplete pursuant to Chapter 2, section 7.B, or a license transfer. The notice must be published once in newspapers circulated in the area where the residual will be utilized and/or stored. In the case of state wide utilization and/or storage, the notice must be published once in a newspaper where the residual is generated and once in the Augusta daily paper on a Wednesday. The notice must include the information required by Chapter 2, section 9.A, except that the notice for section 8 applications shall include the information required by Chapter 400, section 3.B(1)(c)(iii). The location where the application is locally filled is the municipal offices where the residual is generated. The applicant does not need to notify abutters.

(2) Site Licenses. Except as specified in 2.F(3) below, an applicant for a utilization or storage site license, or site license transfer, shall give public notice in accordance with Chapter 2, section 9. This provision also applies to applications filed in accordance with section 9.

(3) One Time Use and Pilot Projects Lasting Less Than One Year. Within 30 days prior to filing an application for one time utilization or storage lasting less than one year, or a pilot project lasting less than one year, the applicant must give public Notice of Intent to File a new or amendment application, or a resubmitted application that has been returned as incomplete pursuant to Chapter 2, section 7.B. A copy of the application and the notice must be provided to the municipality(ies) in which the site is located. The notice must also be published once in a newspaper circulated in the areas where the project is located, unless the application is for a pilot project located at a site previously licensed under this Chapter. The notice must include the information required by Chapter 2, section 9.A. The applicant does not have to notify abutters.

Note: Pilot projects are to determine the feasibility of a common utilization practice. Innovative utilization activities of an experimental nature must be licensed under the provisions of 38 MRSA Section 362-A.

(4) Subsequent information. After any utilization application has been filed, if the Department determines that the applicant submits significant new or additional information or substantially modifies its application at any time after acceptance of the application as complete, the applicant shall provide additional notice to interested persons who have commented on that application. The Department may require additional public notice in accordance with this subsection, if the modifications are significant.

G. Public Notice Prior to Use of Certain Sites.

(1) At least 30 days prior to the first use of an approved individual utilization or storage site that is not the subject of a site-specific license, but is subject to a program license condition requiring prior notification to the Department of specific locations where a residual will be utilized or stored, the licensee shall provide notice of such use to the municipality in which the site is located. The notice must be mailed by certified mail or Certificate of Mailing to

the municipal office. The notice must include the information required by section 2.G(3), below.

(2) At least 30 days prior to first use of an approved individual utilization or storage site that uses or stores sludge generated at industrial facilities employing kraft wood pulping processes, the licensee shall provide notice of such use to abutters and the municipality in which the site is located. The notice must be mailed by certified mail or Certificate of Mailing to the abutters and the municipal office. The notice must include the information required by section 2.G(3) below.

Note: These notification provisions are required by 38 MRSA section 1304(13) and (13-A).

(3) The public notice must include the following information:

(a) Name, address and telephone number of the program license holder;

(b) Citation of the statutes, rules, or license under which the site is being considered for utilization or storage;

(c) Location of the activity;

(d) Summary of the activity;

(e) Anticipated date for filing the notification with the Department; and

(f) A statement that public comments on the proposed project may be provided to the Department within 10 days of the filing of the notification, together with the mailing address of the Department.

H. Surrender of Site Licenses. Pursuant to 38 MRSA 1310-N(6-D), agronomic utilization site licenses may be voluntarily surrendered by the license holder, upon Department approval. Surrender will be approved when the Department determines that all residuals transported to the site have been utilized or removed from the site in compliance with Department rules and licenses. Petitions for surrender of site licenses may also be processed in accordance with Chapter 2, section 20, "Petition for Surrender of License".

I. Transition and Relationship to Other Solid Waste Rules.

(1) Wood ash utilization program licenses held by wood ash generators that are now exempt from these rules in accordance with section 1(B)(3) of this Chapter will lapse provided that the licensee surrenders its utilization program license.

(2) These rules replace Chapter 567, which is repealed as of the effective date of these rules.

(3) Generators utilizing residuals under Chapter 567 with a site license, but without a program approval, must submit a complete application for a program license within one year of the effective date of this rule or cease their utilization program. For purposes of this subsection, a complete application means the submission requirements in section 7.A(3). Other submissions of section 7.A are only required if alterations to the utilization program have not been previously approved by the Department.

3. Siting Standards for Agronomic Utilization

A. Siting Standards for residuals containing nitrogen. The provisions of this subsection apply to utilization of residuals that have a C:N of less than 25:1, unless the residual is a compost, or unless the Department determines in a program license that mineralization or other comparable studies demonstrate that excess nitrates will not contaminate groundwater. This section also applies to utilization of other residuals which the Department has determined in a Program license readily leach contaminants which may contaminate groundwater

(1) Setbacks: The boundaries of the spreading area at a utilization site must be located a minimum distance from certain features, as specified in Table 419.1, at the time the Department receives a complete site license application. The Department may require that the generator increase setbacks if necessary to meet the standards in section 4 and Chapter 400, sections 3 and 4.

Table 419.1
Minimum Setbacks for leachable residuals

Type of Feature	Distance in Feet From Site Boundary to Feature
Public well	500
Private well	300
Property line	25
Bedrock outcrop	25
Off-site dwelling or occupied building	300
Surface water, and drainage features with mineral bottoms*	35
Down-slope soils derived from outwash or stratified drift parent materials without a minimum six inch soil cap of loamy fine sand or finer	25

*Surface waters are waters of the state that are not groundwater. Drainage features include ditches, swales, ravines and gullies.

(2) Soil cap. All soils derived from outwash or stratified drift parent materials must have a minimum six inch soil cap of loamy fine sand or finer.

(3) Minimum depth to bedrock. For established perennial crops such as hay, the bedrock must be a minimum of 10 inches below the ground surface. For other crops, including row crops, the depth to bedrock at the site must be a minimum of twenty (20) inches below the ground surface. The Department may increase bedrock separations if necessary to meet the standards in section 4 and Chapter 400, sections 3 and 4.

(4) Slope. The slope of the site may not exceed 15% for agricultural settings and 25% for forestry settings.

Note: If the utilization activity is proposed within the direct watershed of Marine waters, the site is also subject to the siting standards contained in section 3.B.

B. Siting Standards for Certain Residuals

(1) Applicability. The provisions of this section apply to any one of the following:

(a) Sewage sludge and residuals derived from sewage sludge that contain monthly average metal concentrations in excess of the applicable metal concentrations in table 419.3, column A.

(b) Ash or other liming agents that contain monthly average metal concentrations in excess of the applicable metal concentrations in table 419.4, columns A through C.

(c) Other residuals with monthly average metal concentrations in the residual that exceed the metal standards in Table 419.5, column A, unless the Department determines in a program license that the provisions of this section are not necessary in order to meet the licensing standards in section 4 and Chapter 400, sections 3 and 4.

(d) Mixtures of sewage sludge, liming agents and/or other residuals, when the ingredients in the mixture exceed their applicable metal concentrations as outlined above in section 3.B(1)(a) through (c) unless the Department determines in a program license that the provisions of this section are not necessary in order to meet the licensing standards in section 4 and Chapter 400, sections 3 and 4.

(e) Utilization of type II residuals that have not been treated to a class A pathogen standards.

(f) Utilization of residuals that contain greater than 27 ppt 2,3,7,8 TCDD equivalents.

(g) Utilization in direct marine watersheds of residuals that have a C:N of less than 25:1, unless the residual is a compost, or unless the Department determines in a program license that mineralization or other comparable studies demonstrate that excess nitrates will not contaminate surface water.

(h) Utilization of residuals, in combination with other nutrient sources, supplying more than the crop uptake rate of phosphorus.

(2) Buffers and Setbacks. Boundaries of the utilization site must be located a minimum distance from some surface water, as specified in Table 419.2, unless otherwise approved in a site specific soil erosion control plan. The Department may increase setbacks if necessary to meet the standards in section 4 and Chapter 400, sections 3 and 4.

When the generator chooses to develop a site specific soil erosion control plan, the practices contained in the plan must prevent erosion and sedimentation into water bodies for the fields where the residuals will be utilized, and otherwise prevent surface water contamination. If the generator does develop a soil erosion control plan, the plan must be implemented as approved by the Department. The plan must consider the practices listed in the State of Maine Nonpoint Source Pollution Management Plan published by the Maine Department of Environmental Protection in November of 1989 and updated in 1992. The generator must ensure that erosion control plans are reviewed and, if necessary, modified each year prior to residuals application.

Table 419.2
Minimum Buffers to Protect Surface Water

Buffer Characteristics*	Distance in Feet From Application area to marine waters, lakes, ponds, rivers, streams, brooks, and intermittent streams with mineral bottoms
0-3% slopes, wooded	35
3-8% slopes, wooded	50
8-15% slopes, wooded	100
15-25% slopes, wooded	150
0-3% slopes, non-wooded	50
3-8% slopes, non-wooded	75
8-15% slopes, non-wooded	150

* The slope and cover type refer to the buffer area, and not the adjacent utilization field. Non-wooded buffer for purposes of this table means vegetated fields, reverting fields or grassed areas, and forested areas in which more than 40 percent of the timber has been harvested in the past ten years.

(3) Setbacks. The utilization site may not be located within 300 feet of the high water mark of:

(a) surface water classified as GPA

(b) lakes, ponds and springs that are public drinking water supplies; and

(c) the shoreline within 1 mile upstream of the intake pipe on a stream or river that is a public drinking water supply.

(4) Slope. The slope of the site may not exceed 15% for agricultural settings and 25% for forestry settings.

(5) Flood plain. The utilization site may not be located within the 100 year flood plain. This provision does not apply to sites that will receive type II residuals treated to a class B pathogen treatment standard.

C. Siting Standards for Utilization of Sludge.

(1) The Department may not issue a license for a site where sludge will be utilized within 75 feet of a river, perennial stream or great pond.

(2) The Department will condition a site license to restrict the land application of sludge to no less than 50 feet from abutting property boundaries, if so requested in writing by the abutting property owner during the processing of the site specific license.

Note: The above licensing requirements are required by 38 MRSA 1310-N, subsection 2-G

4. **General Operating Standards for Agronomic Utilization.** All agronomic utilization activities must be licensed and operated to meet the following standards.

   A. **Residual suitability.** The residual must be physically and chemically suitable for the intended utilization activity, must be non-hazardous, and must be of a known and consistent quality. Ash must be conditioned with water prior to utilization to prevent fires.

   B. **Agronomic Benefit.** The residual must increase the nutrient content of the soil at a rate commensurate with the nutritional needs of the crop to be grown; otherwise improve agricultural soil conditions; or provide another horticultural benefit in which the residual meets or exceeds the generally accepted product specifications and standards for the product it is replacing. Each residual in a residual mixture must add to the agronomic benefit of the whole mixture.

   C. **Sampling Plan.**

      (1) The residual generator must develop and implement a waste characterization sampling and analytical work plan and, if required, a site monitoring plan in accordance with Chapter 405. The frequency of sampling must be adequate to represent the residual, soil or other media. The Department will require a site monitoring plan when it determines in a program or site license that a utilization program poses a potential threat to public health or safety or the environment because of the nature of the residuals utilized and/or the location, design and operation of a utilization site.

      Note: Chapter 405 requires the applicant to sample a residual for compounds that may be in the residual. The frequency of sampling must be adequate to represent the residual. Analytical requirements depend upon the processes that generate the residual, inputs to that process and the intended use of the residual.

      (2) Transition: Generators with utilization programs licensed pursuant to Chapter 567 must submit a waste characterization sampling and analytical work plan for review and approval by the Department by July 19, 2000.

      (3) Hazardous and Special Waste Handling and Exclusion Plan exemption. Utilization activities meeting the standards of this Chapter meet the intent of, and are therefore exempt from, the requirement in Chapter 400, section 9 to develop and implement a Hazardous and Special Waste Handling and Exclusion plan.

   D. **Financial and Technical Ability.** The following general licensing standards from Chapter 400, section 4 must be met:

      (1) Chapter 400, section 4.B - Financial Ability

      (2) Chapter 400, section 4.C - Technical Ability

   E. **Protection of Waters of the State**

      (1) Utilization may not pollute any water of the State and residuals may not be placed where they will be washed into waters of the state.

(2) Unless otherwise approved in a license, residuals may not be applied when the soil is frozen, snow-covered or water-saturated.

(3) Residuals must be evenly applied at or less than the maximum allowable application rates. Application rates, including additions from other nutrient sources, may not exceed the following:

(a) agronomic rates for nitrogen;

(b) 3 tons calcium carbonate equivalents per acre per year; and

(c) plant uptake rates for phosphorus when the residual is applied in the direct watershed of Waterbodies Most at Risk from New Development.

(4) Sufficient vegetative ground cover for proper nutrient uptake and erosion control must be maintained at the site. Solids buildup must not impair underlying vegetative growth, unless the residual is being utilized as a mulch or topsoil replacement.

(5) Crops must be harvested and removed from the field prior to continued utilization, unless the next year's nutrient budget is adjusted to account for the nutrients returned by the crop.

(6) All buffer zones required by these rules between the area of utilization and a surface water, and all buffer zones required by these rules between the area of utilization and a drainage feature with a mineral bottom, must be vegetated during application and during the following growing season. The buffer zone must be inspected just prior to each spreading. All areas that show evidence of erosion or channeled flow must be repaired, re-contoured, seeded, mulched and otherwise modified to create sheet flow. Nutrients of concern may not be applied to buffer zones, except as necessary to support adequate plant growth to function as a buffer.

(7) Residuals may not be applied to hydric soils unless exempt or licensed pursuant to 38 MRSA section 480-A *et seq*. For purposes of this Chapter, hydric soil means a soil that is saturated long enough during the growing season to favor the growth of hydrophilic plants.

F. Alternative Standards for Traffic Movement at Utilization sites. The standard for traffic in Chapter 400, section 4.D(1) must be met at all utilization sites . Unless demonstrated to the contrary, this standard is presumed to be met at utilization sites when either:

(1) the residual will be used as a topsoil replacement;

(2) the site is utilized one time or less every five years; or

(3) the utilization activity results in 16 or fewer additional vehicle trips per day.

G. Alternative Standards for Fitting Harmoniously into the Natural Environment. The standard for fitting harmoniously into the natural environment in Chapter 400, section 4.E(1) must be met at all utilization sites. Unless demonstrated to the contrary, this standard is presumed to be met at utilization sites when either:

(1) the residual replaces a virgin material, such as topsoil or fertilizer, in a construction project;

(2) the purpose of the utilization project is to reclaim a mined area, close a landfill, or remediate a state designated uncontrolled hazardous substance site; or

(3) the buffer requirements of Chapter 400, section 4.E(1)(b) and the applicable buffer requirements of this Chapter are met at the site of utilization and/or storage.

H. Alternative Standards for Putrescible Residuals for Protection of Air Quality and from Nuisances. The standard for no unreasonable adverse effect on air quality in Chapter 400, section 4.G must be met at all utilization sites. Unless demonstrated to the contrary, this standard is presumed to be met at utilization sites when the following standards are met:

(1) Putrescible residuals may not be land applied within 300 feet of occupied buildings other than the site owner's or operator's. The Department may require that the generator increase setbacks if necessary to prevent nuisance odors at adjacent occupied buildings;

(2) The generator must implement a site specific odor control plan to mitigate odor impacts at adjacent occupied buildings; and

(3) Notification. The generator must inform the Department each time residuals will be applied at the site at least 1 business day before spreading.

Note: This notification requirement can be satisfied with a telephone call, voice mail message, e-mail, letter or fax to the Residuals Utilization Program of the Solid Waste Division at any one of the Department's central or regional offices.

I. Additional Operational Standards for Type II residuals. The generator must ensure that the following additional operational standards are met on sites where type II residuals are utilized:

Note: "Type II residual" are residuals that may contain human pathogens, such as sewage sludge, or solids from dewatered septage. Pathogen containing residuals must be treated prior to utilization. Pathogens are microorganisms that cause diseases. The degree to which the residual is treated for pathogens and vector attraction determines its class. When residuals are treated to Class A standards, in which pathogens are reduced to ambient soil concentrations, no additional siting standards apply to utilization of that residual. When residuals are treated to Class B standards, in which pathogens are reduced by about 90%, additional siting and operational standards apply to utilization of that residual.

(1) The type II residual must be treated to a Class A or Class B vector attraction reduction standard and Class A or Class B pathogen reduction standard prior to utilization and field stacking.

(a) To meet a Class A pathogen reduction standard, the residual must be processed to meet one of the alternatives in Appendix B.2, either prior to meeting, or at the same time that the Class A vector attraction reduction requirements are met. The residual must also meet the following analytical standard at the time the residual is utilized: The density of *Salmonella sp.* bacteria in the residual must be less than three Most Probable Number per four grams of total solids (dry weight basis). In the absence of analytical data on *Salmonella sp.* this standard is presumed to have been met when the density of fecal

coliform in the residual is shown to be less than 1000 Most Probable Number per gram of total solids (dry weight basis).

(b) To meet a Class B pathogen reduction standard, the residual must be processed to meet one of the alternatives in Appendix B.3.

(c) To meet a Class A vector reduction standard, one of the standards in Appendix B.4 must be met.

(d) To meet a Class B vector reduction standard, one of the standards in Appendix B.5 must be met.

(2) At sites where residuals treated to class B pathogen reduction standards are utilized, the generator must ensure that the following additional provisions are met:

(a) Residuals are applied a minimum of fifteen (15) inches above the groundwater surface at the time of application. If residuals are injected or incorporated, a minimum of fifteen (15) inches separation must be maintained between the water table surface and the limit of incorporation or injection. Residuals treated to class B pathogen standards and that are utilized in flood plains, must be applied prior to September 15 th.

(b) The buffers and setbacks established in sections 3.B(2) and (3) must be met. Additionally, unless otherwise provided for in a site specific soil erosion control plan, the residual may not be spread within 25 feet of site waterways including gullies, ravines and swales.

(c) Food crops grown on the utilization site with harvested parts that touch a Class B with respect to pathogens residual/soil mixture and are totally above the land surface, are not harvested for at least fourteen (14) months after the last application of the residual that is treated to a Class B pathogen reduction standard.

(d) Food crops grown on the utilization site are not harvested for at least twenty (20) months after the last application of a residual that is treated to a class B pathogen reduction standard when the crops have harvested parts below the surface of the land and the residual that is treated to a class B pathogen reduction standard remains on the land surface for four months or longer prior to incorporation into the soil.

(e) Food crops grown on the utilization site are not harvested for at least thirty-eight (38) months after the last application of residual that is treated to a class B pathogen reduction standard when the crops have harvested parts below the surface of the land and the residual that is treated to a class B pathogen reduction standard remains on the land surface for less than four months prior to incorporation into the soil.

(f) Food crops, feed crops, and fiber crops grown on the utilization site are not harvested from the land for at least thirty (30) days after the last application of the residual that is treated to a class B pathogen reduction standard.

(g) Domestic animals are not allowed to graze on the land for at least thirty (30) days after the last application of the residual that is treated to a class B pathogen reduction standard.

(h) Turf grown is not harvested for at least one year after the last application of a residual that is treated to a class B pathogen reduction standard.

(i) Topsoil is not mined from a site for at least thirty-eight (38) months after the last application of a residual that is treated to a class B pathogen reduction standard.

(j) Public access to land with a high potential for public contact is restricted at the time of application and for one year after the last application of the residual that is treated to a class B pathogen reduction standard. At a minimum, signs must be placed at common entranceways, unfenced open areas, and other appropriate locations to provide notice of restricted access.

(k) Public access to land with a low potential for public exposure is restricted at the time of application and for 30 days after the last application of the residual that is treated to a class B pathogen reduction standard. If necessary, the Department may require that signs be placed at appropriate locations to provide notice of restricted access, especially at common entranceways or unfenced open areas.

J. Additional Operational Standards for residuals containing heavy metals.

(1) The residual generator must ensure that the following additional operational standards of this subsection are met on sites where residuals that have one or more of the following characteristics are utilized:

(a) Sewage sludge and residuals derived from sewage sludge that contain monthly average metal concentrations in excess of the applicable metal concentrations in table 419.3, column A.

(b) Ash or other liming agents that contain monthly average metal concentrations in excess of the applicable metal concentrations in table 419.4, columns A through C.

(c) Other residuals with monthly average metal concentrations in the residual that exceed the metal standards in Table 419.5, column A, unless the Department determines in a program license that the provisions of this section are not necessary in order to meet the licensing standards in section 4 and Chapter 400, sections 3 and 4.

(d) Mixtures of sewage sludge, liming agents and/or other residuals, when the ingredients in the mixture exceed their applicable metal concentrations as outlined above in section 4.J(1)(a) through (c) unless the Department determines in a program license that the provisions of this section are not necessary in order to meet the licensing standards in Chapter 400, sections 3 and 4.

(2) Prohibition. Sewage sludge or products derived from sewage sludge that have monthly average heavy metal concentrations in excess of the concentrations in Table 419.3, column B, must not be utilized.

(3) Buffer. The buffers and setbacks established in sections 3.B(2) and (3) must be met. Additionally, unless otherwise provided for in a site specific soil erosion control plan, the

residual may not be spread within 25 feet of site waterways including gullies, ravines and swales.

(4) Annual heavy metal loading limits. The following annual heavy metal loading limits may not be exceeded at the site of utilization, using the calculations in Appendix A.2.

(a) when sewage sludge or a residual derived from sewage sludge is utilized, the annual heavy metal loading limit for any one heavy metal may not exceed the limit in Table 419.3, column C, during any 365 day period.

(b) when ash or other liming agents are utilized, the annual heavy metal loading limit for any one heavy metal may not exceed the limit in Table 419.4, column D, during any 365 day period, unless otherwise approved by the Department in a utilization program license. The Department may waive this requirement only if the standards are not necessary in order for the activity to meet the standards in section 4 and Chapter 400, sections 3 and 4.

(c) for residuals other than sewage sludge or liming agents that are utilized, the Department may establish annual pollutant loading limits in a utilization program license based on the procedures in Appendix .B, section 2, in order to meet the standards in Chapter 400, sections 3 and 4 and this Chapter.

(5) Heavy metals in soil. The concentration of parameters in soil at utilization sites may not exceed the following, as determined by background and on-going representative soil sample analysis, unless otherwise approved by the Department in a program license: The Department may only otherwise approve this in a program license if the Department determines that these standards are not necessary in order to meet the standards in section 4 and Chapter 400, section 3 and 4.

(a) for sewage sludge, the concentrations in Table 419.3, column E;

(b) for ash or other liming agents, the concentrations in Table 419.4, column F; and

(c) for residuals other than sewage sludge or ash, the concentrations in Table 419.5, column B.

Table 419.3
Heavy Metal Standards
for sewage sludge utilization
(dry weight)

Heavy Metal	Screening Conc. in sewage sludge (mg/kg)	Ceiling conc. in sewage sludge (mg/kg)	Annual Pollutant Loading Rate at utilization site (kg/ha)	Cumulative Pollutant Loading Rate at utilization site (kg/ha)	Ceiling conc. in soil at utilization site (mg/kg)
	Column A	Column B	Column C	Column D	Column E
Aluminum	N/A	N/A			100,000
Arsenic	34	41	1.7	34	73
Barium	N/A	N/A			1500
Beryllium	N/A	N/A			7
Cadmium	10	39	1.9	39	39
Chromium	1000	3000			3000
Cobalt	N/A	N/A			70
Copper	1000	1500	75	1500	1500
Lead	300	300	15	300	300
Mercury	6	10	0.3	6	6
Molybdenum	75	75			15
Nickel	200	420	20	420	420
Selenium	100	100	5	100	100
Silver	N/A	N/A			34
Vanadium	N/A	N/A			300
Zinc	2000	2800	140	2800	2800

Table 419.4
Heavy Metal Standards
for ash and other liming agents
(dry weight)

Column:	A	B	C	D	E	F
	Screening Concentration of pollutants in ash based on the calcium carbonate equivalents of the ash (mg/kg)					
$CaCO_3$ equiv in ash	25%	50%	75%			
Parameter				Annual Metal Loading Rate (kg/ha)	Cumulative Loading Rate at Utilization site (kg/ha)	Ceiling conc in soil at utilization site (mg/kg)
Aluminum	362,383	724,767	N/A	9,750	195,000	100,000
Antimony	19	37	56	0.5	10	5
Arsenic	20	40	60	0.54	11	73
Barium	7,434	14,867	22,301	200	4,000	2,000
Beryllium	7	14	21	0.19	4	7
Cadmium	30	59	89	0.8	16	8
Chromium	141	282	424	4	76	38
Cobalt	21,836	43,672	65,508	588	11,750	5,875
Copper	5,575	11,150	16,725	150	3,000	1,500
Cyanide	35	71	106	0.95	19	10
Lead	1,394	2,788	4,181	38	750	375
Mercury	2	5	7	0.06	1	1
Molybdenum	1,812	3,624	5,436	49	975	488
Nickel	483	966	1,450	13	260	130
Selenium	19	37	56	0.5	10	5
Silver	126	253	379	3	68	34
Thallium	3	5	8	0.07	1	1
Vanadium	2,555	5,111	7,666	69	1,375	688
Zinc	10,407	20,814	31,221	280	5,600	2,800

Table 419.5
Screening Concentrations for Other Residuals
and maximum allowable soil concentrations at utilization sites
mg/kg (dry weight)

	Screening Concentration for other residuals	Ceiling Concentration in soil at Utilization sites
Inorganic Compound	Column A	Column B
Aluminum	97,500	100,000
Antimony	5	5
Arsenic	5	73
Barium	2,000	2,000
Beryllium	2	7
Cadmium	8	8
Chromium	38	38
Cobalt	5,875	5,875
Copper	1,500	1,500
Cyanide	10	10
Lead	375	375
Mercury	1	1
Molybdenum	488	488
Nickel	130	130
Selenium	5	5
Silver	34	34
Thallium	1	1
Vanadium	688	688
Zinc	2,800	2,800

K. Additional Operational Standards for Dioxin Containing Residuals. The generator must ensure that the following additional operational standards are met when utilizing residuals with greater than 27 ppt total 2,3,7,8 TCDD equivalents (dry weight):

(1) Prohibition. Residuals containing PCDDs and PCDFs greater than 250 ppt total 2,3,7,8 TCDD equivalents (dry weight) may not be land applied or utilized and may not be blended with other materials to reduce the concentration of TCDD equivalents to meet utilization standards.

(2) Depth to water table: Residuals must be applied a minimum of fifteen (15) inches above the groundwater surface at the time of application. If residuals are injected or incorporated, a minimum of fifteen (15) inches separation must be maintained between the water table surface and the limit of incorporation or injection.

(3) Buffer. The buffers and setbacks established in sections 3.B(2) and (3) must be met. Additionally, unless otherwise provided for in a site specific soil erosion control plan, the residual may not be spread within 25 feet of site waterways including gullies, ravines and swales.

(4) Soil testing and deed restrictions: For sites upon which dioxin-containing residuals are land applied, representative soil samples must be collected and analyzed for PCDD / PCDF within

three (3) months after the last application of the residual in any year. If the soil concentration is 27 ppt total 2,3,7,8-TCDD equivalents (dry weight) or greater, then the following restrictions apply:

(a) livestock and domestic fowl whose products are consumed by humans may not be pastured on sites;

(b) crops for human consumption may not be grown at sites; and

(c) the restrictions in section 4.K(4)(a) and (b) above apply to subsequent owners of the land utilization site. The licensee and/or landowner must prepare and record, in the Registry of Deeds, information and deed restrictions to provide notice to prospective purchasers and a pubic record of the location of the utilization site. The information must include that dioxin-containing residuals were land applied to that site; that soil concentrations met or exceeded 27 ppt total 2,3,7,8-TCDD equivalents (dry weight); and that subsequent owners are subject to use restrictions under this section. The generator must submit evidence to the Department that the above information, as well as site location, type of residual, date of utilization, and use restrictions have been recorded at the Registry of Deeds within sixty (60) days after obtaining soil sample analyses results.

L. Additional Operational Standards for residuals containing nitrogen. The provisions of this subsection apply to utilization of residuals that have a C:N of less than 25:1, unless the residual is a compost, or unless the Department determines in a program license that mineralization or other comparable studies demonstrate that excess nitrates will not contaminate groundwater. This section also applies to utilization of other residuals that the Department has determined in a Program license readily leach contaminants that may contaminate groundwater.

(1) The setbacks in table 419.1 must be maintained.

(2) At the time of spreading, all soil derived from outwash or stratified drift parent material must have a minimum six inch soil cap of loamy fine sand or finer. Residuals may not be spread within 25 feet up-slope from soil derived from outwash or stratified drift parent material with a cap of six inches or less.

(3) On soil with a depth to bedrock less than 20 inches, and on soils derived from outwash or stratified drift parent material, residuals must be applied during the optimal growing time for the site crop to maximize nitrate uptake. For hay crops grown on these areas, the residual may not be spread after September 15 of any year. When spreading on these soils, available nitrogen must be monitored in the soil in the root zone, and at 18 inches or just above refusal, at the beginning and end of the growing season.

(4) Depth to water table: Residuals must be applied a minimum of fifteen (15) inches above the groundwater surface at the time of application.

(5) Depth to bedrock. Residuals must be applied a minimum of 10 inches above the bedrock surface, including the limits of incorporation.

(6) Buffer. If the utilization activity is proposed within the direct watershed of Marine waters, the buffers and setbacks established in sections 3.B(2) and (3) must be met. Additionally,

unless otherwise provided for in a site specific soil erosion control plan, the residual may not be spread within 25 feet of site waterways including gullies, ravines and swales.

M. Additional Operational Standards for Phosphorus containing residuals. The following additional standards apply to utilization of residuals that will be applied, either alone or in combination with other nutrient sources, above the crop uptake rates for phosphorus.

(1) Seasonal cut-off dates. Residuals must be spread before September 15th of each year on somewhat poorly drained and poorly drained soils.

(2) Buffer. The buffers and setbacks established in sections 3.B(2) and (3) must be met. Additionally, unless otherwise provided for in a site specific soil erosion control plan, the residual may not be spread within 25 feet of site waterways including gullies, ravines and swales.

(3) Slopes. The residuals may not be spread on areas with slope gradients greater than 10% on row crops (such as corn), 15% on perennial crops (such as hay), and 25% in tree growth.

N. Additional operational standards for sludge utilization.

(1) An abutter to a sludge utilization site may request that sludge not be land applied within 50' of the abutter's property boundary. Requests must be filed with the Department in writing, and must include:

(a) the name and mailing address of the property owner requesting the setback;

(b) the name of the owner of the land upon which the residual is being spread;

(c) the physical location of the property upon which the sludge is being spread;

(d) a description of the sludge being spread; and

(e) if known, the name and mailing address of the facility generating the sludge.

(2) Pursuant to 38 MRSA 1310-N, subsection 2-G, sludge may not be land applied within 50' of an abutter's property boundary, upon notification that the Department has received a written request from the abutter to establish the setback.

5. Suspension of utilization site use.

A. Suspension action levels: Application of residuals at a utilization site must be suspended when the generator, operator or Department determines that the residual supplies the parameter of concern and one or more of the following standards have been exceeded in the site soil:

(1) Soil pH is greater than 6.5 SU, and base saturation of the soil's cation exchange capacity is less than 2.5% potassium or 10% magnesium, or its equivalent;

Note: "or its equivalent" means that alternative analytical methods may be used to evaluate compliance with this standard. For example, by measuring the concentration of potassium or magnesium in site soil, and using a reasonably conservative assumption of

what the CEC is in the site soil, the generator may demonstrate that this standard has been met.

(2) Base saturation of the soil's cation exchange capacity is greater than 15% sodium;

(3) pH of 7.5 SU;

(4) Organic matter content of 12% (dry weight basis);

(5) One or more of the following heavy metal concentrations:

(a) For sewage sludge, the concentrations in table 419.3, column E

(b) For residuals other than sewage sludge, the concentrations in table 419.5, column B;

(6) The concentration in Chapter 418 Appendix A of any parameter other than metals; or

Note: This standard does not mean that all site soils must be sampled for all the parmeters in Chapter 418, Appendix A. The site soil will have to be tested for compounds that may be reasonably expected to be found. Analytical requirements depend upon the loading rate of a contaminant to the site's soil. The frequency of sampling must be adequate to represent the soil. Environmental monitoring plans are established under Chapter 419, Section 7.B(15), during the licensing process.

(7) A plant available phosphorus concentration in excess of 100 lbs/acre, as determined by a Morgan-type extract (sodium or ammonium acetate at pH 4.8), or its equivalent.

B. Resumption. Following suspension of use under section 5.A above, utilization activities may resume at the site when the generator submits written information to the Department and, based on that and other relevant information, the Department determines that continued utilization will meet the standards in Chapter 400, sections 3 and 4, and the standards in sections 3 and 4 of this Chapter.

6. Record Keeping and Reporting

A. Record keeping requirements. Unless otherwise provided for in the program license, the residual generator must make provisions to keep the following records and make them available for Department inspection and copying for the duration of the utilization activities, and for a minimum of three (3) years after the utilization program ceases:

(1) Volume of residual generated on a yearly basis;

(2) Volumes of residual utilized, processed, disposed and stored on a yearly basis;

(3) Analytical results and residual process monitoring records pertaining to the utilization program and residual, including a record of sample locations;

(4) A list of licensed utilization sites, loading rates at those site, analytical data, all license application submissions, a copy of licenses issued by the Department and all other site specific utilization information; and

(5) Other information as specified in the utilization program license.

B. Periodic Reporting. Licensees must submit reports containing analytical data and other information in accordance with the program license.

C. Annual Report. By February 28 of each year, the generator must forward to the Department an annual report for activities during the previous calendar year that summarizes the utilization program, and includes the applicable reporting fee. Unless otherwise approved in the program license, the report must include a summary of the information in section 6.A, above.

Note: A reporting fee schedule may be obtained from the Solid Waste Division of the Department.

D. Certification Statement. All information submitted to the Department demonstrating compliance with the standards of this Chapter must be accompanied by a statement that is signed by an authorized representative of the licensee which reads, "I certify under penalty of law that I have personally examined and am familiar with the information submitted herein. Based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

7. Application Requirements for Residual Utilization. Any generator seeking to undertake a utilization activity shall provide information sufficient to demonstrate that the standards of sections 3 and 4 of this Chapter have been met. The generator shall submit to the Department, on application forms developed by the Department, the following information:

A. Submissions for program licenses.

(1) Program description. A description how the residual will be handled for the utilization program including, if applicable, the benefit to crops or soil afforded by the utilization, the weekly and annual volume of residual produced, the volume proposed for utilization, the volumes proposed for disposal, a description of the blending, mixing, or processing of residuals and the purpose of this processing, proposed application rates in tons of residual per acre of land, methods of calculating the appropriate loading rate, and a description of how the residual will be stored and transported.

(2) Residual suitability. A description of the processes that generate the residual(s) proposed for utilization and a physical and chemical description of the resultant residuals obtained in accordance with Chapter 405, section 6.

(3) Sampling. A sampling and analytical work plan meeting the standards in Chapter 405 to representatively monitor residual quality.

(4) Risk Management. A description of potential risks posed by the utilization program, and appropriate management strategies to mitigate those risks, including an identification of any additional standards in sections 3 and 4 the utilization program is subject to, and one of the following:

(a) Screening standards. A demonstration that the residual meets all of the applicable screening standards in Table 419.3 column A, Table 419.4, columns A through C, or Table 419.5, column A; and the screening standards for hazardous substances other than metals in Chapter 418, Appendix A;

Note: Not all compounds in appendix A must be analyzed for. See Chapter 405.

(b) Loading rate. Loading rate calculations done in accordance with Appendix A.2.C which demonstrate that the following standards, as applicable, will not be exceeded: annual and cumulative loading rates in Table 419.3 columns C and D, Table 419.4 columns D and E, or Table 419.5 column A; and the screening standards for hazardous substances other than metals in Chapter 418, Appendix A;

(c) Comparison studies. A comparison of characteristics of the residual to another residual for which a risk assessment has been done, demonstrating the applicability of that risk assessment; or

(d) Risk assessment. An assessment of the human health and/or environmental risks posed by contaminants of concern, and a risk management strategy. The risk management must ensure that residual utilization activities, under present or future site uses, will not result in the aggregate risk to a highly exposed individual that exceeds an Incremental Lifetime Cancer Risk of $5X10^{-6}$ or that exceeds a Hazard Index of 1/2.

(5) Site information.

(a) Site standards. The standards proposed for sites where the residual will be utilized including buffer zones and soil standards; a description of the site specific information that will be submitted to the Department for site licenses; and the proposed licensing processes for site specific utilization licenses; or

(b) Utilization instructions. The information that will be provided to the person that uses the residual, that ensures compliance with the standards of section 3 and 4, and the notice, if any, that will be provided to the Department when site specific licenses will not be obtained.

Note: More than one strategy may be appropriate for a given residual, depending on the utilization circumstances.

(6) Traffic. A demonstration that the generator will meet the alternative traffic standards in section 4.F at all utilization sites or provisions to supply site specific information.

(7) Harmoniously fitting into the environment. A demonstration that the generator will meet the alternative standards in section 4.G for fitting harmoniously into the natural environment at all utilization sites, or provisions to supply site specific information.

(8) Financial and technical ability. The application submission requirements in Chapter 400, sections 4.B(2) and 4.C(2).

(9) Municipal and Public Notice. Proof that public notice of the application has been provided as required in section 2.F.

(10) Nuisance. A demonstration that the residual does not generate offensive odors, or provisions to meet the alternative odor control standards in section 4.H at all utilization sites or provisions to supply site specific information to meet the standard in Chapter 400, section 4.G.

B. Submissions for utilization site licenses. Prior to utilizing a residual at a site, a generator must submit a complete application for a utilization site license, unless otherwise approved by the Department in a Program license. Unless otherwise approved in a program license, the utilization site application must include:

(1) Title, Right or Interest. Information demonstrating that the generator has sufficient title, right or interest in a property proposed for utilization by providing:

(a) the submissions enumerated in Chapter 2, section 7.D; or

(b) a copy of an agreement between a landowner(s) and a residual generator certifying that the owners own the land and agree to allow the utilization and, if applicable, storage of the residual on the property. The agreement must also include the signature, printed name, and address of the generator and all property owners, site location, description of the area authorized for use including acreage, and if available, the map and lot number from municipal tax maps.

(2) Project Summary. A summary of the types of crops to be grown, method of application, anticipated spreading schedule and any special management considerations for the site based on site characteristics.

(3) Site Maps.

(a) Topographical Map: The most recent 7.5 minute US Geological Survey topographic or equivalent map marking the proposed utilization boundaries and site owner's property boundaries;

(b) Site Sketch. Site sketch(es) of the proposed utilization area(s) of sufficient quality and scale, and with sufficient features to ensure that the person spreading the residual can determine appropriate utilization boundaries. At a minimum the map must depict the area suitable for utilization, buffers and setbacks, features requiring buffers and setbacks, drainage features, and the map scale, orientation, and title.

(c) Tax Map. If available, the appropriate town tax map showing the site property boundaries, the area proposed for utilization, and the names and location of abutters.

(d) Soils Map and Report. A clear copy of the appropriate United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) County medium intensity soil survey map with the site clearly outlined and a copy of the key to the soil mapping units. If the Department questions the accuracy of the map, the Department may

require a soils investigation report and site specific soils map. The report must describe the soil slope, permeability, flooding potential, drainage, depth to bedrock and/or sand or gravel deposits, along with appropriate operational standards to be employed to prevent surface or groundwater contamination.

(e) Sand and Gravel Aquifer map. If the proposed site is within 500 feet of a sand and gravel aquifer, a copy of the most recent Hydrogeologic Data for Significant Sand and Gravel Aquifer map with the proposed utilization site clearly delineated.

(f) Flood Zone Map. If the proposed site is within 500 feet of a 100 year flood zone, the most recent Federal Emergency Management Agency (FEMA) flood zone map or its equivalent with the proposed utilization site clearly delineated.

(4) Sensitive areas: A statement as to whether or not the site is located in, on, over or next to a protected natural resource, a sensitive receptor, and/or the direct watershed to Marine waters. If the site is located near one or more of these areas, provide the name of the feature and horizontal distance from nearest site boundary to the feature.

(5) Protected location: At the Department's discretion, letters from the Maine Department of Inland Fisheries and Wildlife, and from the Natural Areas Program of the Department of Conservation that the activity will not unreasonably adversely impact protected significant wildlife habitat, fragile mountain areas, or rare, threatened and endangered plant or animal species.

(6) Buffers, Erosion Control and Flooding:

(a) A description of buffer zones at the utilization sites established to meet the standards in sections 3 and 4. If the applicant is proposing a reduction in the buffers enumerated in table 419.2, a rationale for the reduction and a site specific soil erosion control plan meeting the standards in section 3.B(2).

(b) For utilization activities where the topography will be altered or structures built as part of the utilization activity, the application submissions in Chapter 400, section 4.J(2)(a) and Chapter 400, section 4.M(2). For utilization where the topography will not be altered, by meeting the standards of this Chapter, the standards in Chapter 400, section 4.J and Chapter 400, section 4.M are presumed to be met.

(7) Soil Nutrients. Representative soil nutrient analysis for the site.

(8) Traffic. A demonstration that the generator meets the alternative traffic standards in section 4.F or the traffic information required by Chapter 400, section 4.D(2).

(9) Natural environment. A demonstration that the generator meets the alternative standards found in section 4.G, or the submissions enumerated in Chapter 400, sections 4.E(2) and 4.F(3).

(10) For residuals used to supply nitrogen, phosphorus, or other nutrients, a demonstration that the site has a need for the nutrient provided by the residual in addition to other on site nutrients.

Note: Department of Agriculture Regulations, Chapter 565, effective December 15, 1998, requires farms utilizing residuals to have a licensed nutrient management specialist develop a whole farm nutrient management plan. While the plan itself need not be submitted to the Department, the information in any existing plan should form the basis for the above determination that additional nutrients are needed on a farm.

(11) For repeat utilization of putrescible residuals, a site specific odor control plan to prevent nuisance odors at adjacent occupied buildings;

(12) For a residual that is treated to a class B pathogen reduction standard, a description of the class B pathogen reduction method, a description of any class B vector attraction reduction method proposed for the site; and a copy of a statement signed by the generator, landowner and the operator of the site that ensures that the applicable site restrictions in section 4.I will be met.

(13) For residuals subject to the additional dioxin standards in section 4.K a site specific sampling and analytical work plan to monitor soil dioxin concentrations. The applicant must also submit a copy of a statement signed by the generator, landowner and, if different, the operator of the site, that specifically acknowledges the presence and concentrations of PCDDs and PCDFs in the residual to be spread, and the ability and willingness of the landowner to comply with the standards in section 4.K(4):

(14) For residuals subject to the additional standards for heavy metals in section 4.J, a site specific sampling and analytical work plan to monitor soil metal concentrations; and loading rate calculations demonstrating that applicable annual and cumulative loading rates for metals in tables 419.3, 419.4 or 419.5 will not be exceeded.

(15) Environmental monitoring program. If determined appropriate under section 4.C, a site monitoring plan meeting the standards in Chapter 405.

(16) Public Notice. Proof that public notice of the application has been provided as required in section 2.F.

(17) Joint Utilization. When more than one generator are utilizing a residual that requires a site specific license at the same site, a joint utilization agreement, meeting the standards in section 2.D.

8. Permit by rule program license for the utilization of composted residuals.

A. Applicability. The permit-by-rule licensing provisions of this section shall apply to the distribution for utilization in Maine of residuals that meet all of the standards of this section. Failure to meet any of these standards will require formal application to the Department for a license to distribute composted residuals under sections 2 through 7. The Department assumes that the distribution of composted residuals in strict conformity with these permit-by-rule provisions will meet the standards of Chapter 400, section 4 and the standards in section 2-6 of this Chapter. No variances to the requirements of this section may be granted.

Note: See Chapter 400 for a full definition of residual types. Type IA residuals are leaf, vegetative and other residuals with a C:N ration of greater than 25:1. Type IB residuals are food and other residuals with a C:N ratio of between 25:1 to 15:1. Type IC residuals are fish and

other residuals with a C:N ratio of less than 15:1. C:N refers to the ratio of available carbon to nitrogen of the raw residual prior to composting. See appendix 410.B for a list of typical C:N ratios for various residuals. Type II residuals are sewage sludge, septage, and other residuals that may contain human pathogens. Type III residuals are petroleum contaminated soils and other residuals that may contain hazardous substances above the risk based standards in Chapter 418, Appendix A.

B. Standards.

(1) Composting. The residual must be composted prior to distribution for utilization.

(2) Sampling. Sampling must be done in accordance with Chapter 405, section 6.D.

Note: Pathogens, Metals and other hazardous substances must only be measured if, based on the nature of the residuals processed and other appropriate factors, the Department determines that there is a potential for these constituents to be in the compost at levels that could pose a risk to human health or the environment.

(3) Process standard. For compost made from type II residuals or residuals that have a C:N ratio of less than 15:1, the residual must be maintained at 55 degrees Celsius or higher for three consecutive days. For windrow systems, this standard is met if the residual is generally maintained at 55 degrees Celsius or higher for 15 days or longer, and during the period when the compost is maintained at 55 degrees or higher, there is a minimum of five turnings of the compost pile.

(4) Confirmation sampling for pathogens. For composted type II residuals, the density of *Salmonella sp.* bacteria in the compost must be less than three Most Probable Number per four grams of total solids (dry weight basis). In the absence of analytical data on *Salmonella sp.* this standard is presumed to have been met when the density of fecal coliform in the compost is shown to be less than 1000 Most Probable Number per gram of total solids (dry weight basis). This analytical standard must be met at the time the compost is distributed.

(5) Heavy metal standards.

(a) Monthly concentrations of metals in the compost must be less than the concentrations in table 419.3, column A if the metals are derived from sewage sludge or dewatered septage.

(b) Monthly concentrations of metals in the compost must be less than the concentrations in table 419.5, column A, if the metals are derived a type III residual other than sewage sludge.

Note: This does not necessarily mean that compost needs to be analyzed monthly for heavy metals. See Chapter 405, section 6 for determining frequencies.

(6) Hazardous substances. For compost made from type III residuals, concentrations of hazardous substances other than heavy metals in the compost are less than the screening standards in Chapter 418, Appendix A.

(7) Sharps and synthetic objects. The residual contains less than 0.05% by weight, of synthetic objects, and contains less than one sharp object, such as broken glass, nails or needles, per 10 tons of residual based on visual inspection.

(8) Compost stability. The stability class of the compost must be measured and the generator must distribute information to compost users on the appropriate uses of the compost, based in part on the compost's stability.

(9) Salt content. For compost with a salt content greater than 2 mmhos/cm, the generator must distribute information to compost users on the appropriate uses of the compost based in part on the salt content of the material.

(10) Agronomic utilization: The compost must be distributed for agronomic utilization and each ingredient in the compost must add to the agronomic benefit of the mix as a whole.

(11) Record keeping and reporting. The generator will keep records and file an annual report of the volume of compost distributed in Maine each year in accordance with section 6.

C. Notification Requirements. At least 18 working days prior to the first shipment of any composted residual for utilization in Maine, the compost generator shall submit to the Department a permit-by-rule notification on a form developed by the Department. This notification must include:

(1) The generator's name, address, telephone number and contact person.

(2) The appropriate application fee.

(3) Public Notice. Proof that public notice of the application has been provided as required in section 2.F.

(4) Facility description. For facilities other than those licensed under Chapter 410, a brief description of the compost facility including:

(a) the volume, type and characteristics of the residuals processed at the facility, any materials added to the compost prior to distribution for utilization, and the ratio of all materials in the final compost mix;

(b) the method of composting used at the facility; and

(c) a list of federal and state environmental permits held by the facility.

(5) Process Standard. For compost made from residuals that have a C:N ratio of less than 15:1, a detailed description of how the compost temperatures and other process parameters are monitored at the facility to ensure compliance with section 8.B(3) (above).

(6) Sampling. A copy of the Sampling and Analytical Work Plan for the facility that is used to analyze the compost to ensure compliance with the compost quality standards in section 8.B (above). The plan must including a certification from a qualified chemist that the Sampling and Analytical Work Plan meets the applicable standards of Chapter 405.

(7) Marketing. A brief description of how composted residuals will be distributed in Maine and instructions for appropriate use that will be provided to the users of the compost including:

(a) The name and address of the person who prepared the compost;

(b) A statement that the compost may not be applied when the soil is frozen, snow-covered or water-saturated; such that the compost will be washed into surface water; or placed directly into surface waters or below the groundwater table, without prior approval from the Maine Department of Environmental Protection; and

(c) Recommended blending and/or loading rates based upon annual heavy metals loading, nutrients, salt content, stability, and other factors as appropriate.

(8) Certification. A statement signed by the applicant that the distribution of composted residuals will conform with the requirements of this section.

9. Permit by Rule Transfer of Site License

A. Applicability. The permit-by-rule licensing provisions of this section shall apply to the transfer of utilization site licenses that meet all of the standards of this section. Failure to meet any of these standards will require formal application to the Department for a utilization site license transfer under section 2.E. Sites transferred under this section are subject to the applicable operating standards in section 4, the operational standards contained in the site license(s), and the receiving generator's program license. No variances to the requirements of this section may be granted.

B. Standards.

(1) Both generators generate the same kind of residual, such as sewage sludge treated to a class B pathogen reduction standard;

(2) Both generators agree to the transfer;

(3) The receiving generator must be in substantial compliance with its program license;

(4) Both program licenses must require the same siting standards;

(5) The entire site is being transferred; and

(6) All residuals from the current license holder must have been properly utilized or removed from the site prior to filing the transfer notification.

C. Notification Requirements. At least 18 working days prior to transferring the license, the generator who is obtaining the site shall submit to the Department a permit-by-rule notification on a form developed by the Department. This notification must include:

(1) The generators' name, address, telephone number and contact person;

(2) The appropriate application fee;

(3) Both generators' program license numbers;

(4) Public Notice. Proof that public notice of the application has been provided as required in section 2.F.

(5) The site license number;

(6) Title, Right or Interest. Information demonstrating that the generator has sufficient title, right or interest in a property proposed for utilization by providing one of the following:

(a) submissions enumerated in Chapter 2, section 7.D; or

(b) a copy of an agreement between a landowner and a residual generator certifying that the owners own the land and allowing utilization and if applicable storage of the residual on the landowner's property. The agreement must also include the signature, name and address of the generator and all property owners, and site location;

(7) Fee. The appropriate application fee; and

(8) Certification. A statement signed by the applicant stating that all the standards in this section have been met, and all applicable requirements of these rules and the transferred license will be met.

10. Storage of Residuals Prior to Utilization. This section applies to storage of residuals prior to agronomic utilization. For purposes of this Chapter, "a field stacking facility" means a facility for the storage of residuals on a permeable surface and not under a permanent roof. For purposes of this Chapter, "contained storage facilities" means storage facilities where residuals are stored on impervious surfaces or under a roof. All residual storage sites must be sited, designed and operated to meet the standards in Chapter 400, sections 3 and 4 and the following standards:

A. General siting standards for residual storage

(1) The residual handling area must meet the setbacks in table 419.1 and 419.2, and be located greater than:

(a) 500 feet to the nearest occupied building other than those owned by the site owner or operator;

(b) 100 feet from public roads and abutting property boundaries; and

(c) 300 feet from a great pond that is a public drinking water supply.

(2) The facility may not be located on a 100 year floodplain. This prohibition does not apply to sites where residuals are field-stacked if the following standards are met:

(a) residuals are stacked for less than 30 days to facilitate a spreading;

(b) residuals are stacked only at times when the depth to the water table is 24 inches or greater; and

(c) residuals are stacked only prior to September 15th of each year.

B. General design standards for residual storage. The facility must be designed to, in conjunction with the siting standards, meet the following:

(1) The facility may not contaminate waters of the state.

(2) Except for field stacking sites, or storage facilities for type IA residuals, residual storage areas must have impervious floors and side walls, such as asphalt or concrete, sufficient to prevent untreated leachate from discharging into groundwater.

(3) The residual must be contained within the facility. The residual may not be discharged to a protected natural resource, without a license issued pursuant to 38 MRSA section 480-A *et seq.*

(4) Run-on. Runoff from land areas surrounding a storage site must be controlled or diverted away from the stored residual with berms or diversion ditches as necessary to prevent contact with the stored residual.

(5) Leachate control. The site design must have provisions to contain, collect, and, if applicable, treat leachate and run-off mixed with leachate. The design may include: roofing or covering the storage area to prevent excessive leachate generation; providing a filter strip to discharge leachate to an approved area during the growing season; on-site filtering systems, and/or a plan developed for ultimate disposal of leachate. Disposal of any wastewater, leachate and wash down waters must be in accordance with 38 MRSA section 413 et seq.

(6) The stored residual must not cause an odor or dust nuisance at an occupied building or protected location, or spontaneously combust.

(7) Access Control. For facilities storing type III residuals, and/or type II residuals that have not been treated to class A pathogen reduction standards, public access to the site must be restricted by, at a minimum, placing a sign at the access to the storage site that restricts access to authorized personnel. The Department may require that a locking gate be placed at the access to the storage site and/or fencing be installed around the facility, if necessary to meet the criteria in Chapter 400, sections 3 and 4.

(8) Traffic. The site design, in conjunction with siting and operations, must make provisions to ensure that the facility is accessible during inclement weather and meets the traffic standards in Chapter 400 section 6.D, or the alternative traffic standards in section 4.F of this Chapter.

(9) Separate Storage. If more than one residual is stored at the site, separate, labeled, storage areas must be provided for each different residual.

(10) Pursuant to 38 MRSA section 1304(13-A), for storage of sludge generated at industrial facilities utilizing kraft wood pulping processes, sludge storage sites may not be located within 300 feet of a year-round river, stream, brook or pond nor within 75 feet of any intermittent stream or brook or any natural drainage way, including gullies, swales and ravines.

C. Additional Siting and Design Standards for Field Stacking Sites. In addition to the standards in section 10.A above, the following siting and design standards apply to field stacking of

residuals that have a C:N of less than 25:1, unless the residual is a compost or unless the Department determines in a program license that mineralization or other comparable studies demonstrate that excess nitrates will not contaminate groundwater. This section also applies to utilization of other residuals that the Department has determined in a Program license readily leach contaminants that may contaminate waters of the state.

(1) Unless otherwise provided for by the Department, field stacking facilities must be located on the site where the residual will be utilized.

(2) Storage volumes. The volume of residual to be stored at the field stacking site may not exceed that required to meet the utilization requirements for one spreading season at that site.

(3) Footprint. The residuals at the field stacking site may not cover an area greater than 1/2 acre.

Note: the waste handling area may be greater than 1/2 acre

(4) Soil type: The waste handling area must have a maximum permeability in the C horizon of 2.0 inches per hour. Effective October 30, 2002, stockpile sites to be used in excess of 30 days per growing season must be on insitu soils with a C horizon that is a marine sediment, lacustrine sediment or basal till that is at least 40 inches thick.

Note: The Department intends to facilitate studies into the actual impacts to groundwater from field stacking nitrogenous materials. The information from these studies, along with site monitoring data, will be used to modify requirements for field stacking, if necessary.

(5) The waste handling area may not be located on slopes in excess of three (3) percent.

(6) The minimum depth to bedrock in the waste handling area must be 40 inches when the residual is to be stored for over 30 days. The minimum depth to bedrock in the waste handling area must be 30 inches when the residual will be stored for 30 days or less.

(7) The minimum depth to the seasonal high water table in the waste handling area must be 24 inches when the residual is stored for over 30 days. The minimum depth to the water table in the waste handling area throughout the time period that the waste will be stored must be 24 inches when the residual is stored for 30 days or less.

(8) The waste handling area may be modified to meet the standards in section 10.C(5) through (7) above, except that in no case may the waste handling area be located where the native soil is less than 30 inches to bedrock, or on hydric soils.

(9) Leachate control. Residual field stacking facilities must be sited and designed so that any leachate, or runoff mixed with leachate, is not carried beyond an approved utilization area. Applicants must develop and implement a leachate control plan, as approved by the Department, which may include filter strips during the growing season, placing residuals on a layer of sawdust, papermill fiber or similar material to absorb free liquids and inorganic nitrogen; placing hay bales and silt fences around stockpiles; forming piles to shed water; covering piles such that precipitation does not penetrate the pile; or making provisions to collect and treat leachate. The leachate control plan must have specific provisions to control leachate when the ground is not covered with vegetation, frozen, snow covered or water saturated.

Note: NRCS Practice Standard 393 may be used to design filter strips.

D. Additional Siting Standard for Storage of Sludge. The Department may not issue a license for a sludge storage site or storage facility off the site of generation that is within 250 feet of a river, perennial stream or great pond.

Note: the above licensing standard is required by 38 MRSA Section 1310-N, subsection 2-G,

11. Application requirements for residual storage. Any person seeking to store residuals prior to utilization shall provide information sufficient to demonstrate that the standards of sections 10 and 12 of this Chapter are met. The applicant shall submit to the Department, on application forms developed by the Department, the following information:

A. Submissions for Program Licenses for Storage. The following submissions are required for applications for a program license to store residuals.

(1) Summary. A brief summary of the proposed utilization program for which the storage is required.

(2) Residual Characteristics. The physical and chemical characteristics of the residual that will be stored obtained in accordance with Chapter 405, including an assessment of the environmental and human risk posed by storage of the material, including risk to groundwater and surface water, and proposed management to mitigate those risks.

(3) Siting Standards. When appropriate, the standards proposed for sites where the residual will be utilized, including:

(a) Buffer zones. A description of appropriate buffer zones at utilization sites that will be employed to meet the standards in Chapter 400, section 4, subsections E through H and the applicable standards in section 10 and 12 of this Chapter;

(b) Soils. A description of appropriate soil drainage class, depth to bedrock or other permeable layers, and slope, that will be appropriate to meet the standards in section 10.C and Chapter 400, sections 4.J and 4.K; and

(c) Other. A description of other siting standards, if any, that will ensure that the licensing standards of these rules are met.

(4) Site Licensing Procedures. Propose the situations when a site specific license will be obtained, the information that will be provided to individuals storing the residual to meet the standards in sections 10 and 12 when storage sites are not individually licensed, and the notice, if any, that will be provided to the Department when site specific storage licenses will not be obtained.

Note: More than one strategy may be appropriate for a given storage program

(5) Traffic. A demonstration that the applicant meet the alternative traffic standards in section 4.F for sites that will not be individually licensed.

(6) Public Notice. Proof that public notice of the application has been provided as required in section 2.F.

B. Submissions for Storage Site Licenses. An applicant must submit a complete application for a storage site license, unless otherwise approved by the Department in a Program license. Unless otherwise approved in a program license, the storage site application must include:

(1) Description. A brief description of the storage site, and reason for storage.

(2) Residual Characteristics. The physical and chemical characteristics of the residual that will be stored obtained in accordance with Chapter 405, including an assessment of the environmental and human risk posed by storage of the material and proposed management to mitigate those risks.

(3) Topographic Map. The most recent 7.5 minute US. Geological Survey topographic or equivalent map showing the location of the proposed site, the property boundary, and if storing putrescible residuals, airports within 10,000 feet of the site. The map must include all surrounding area within one mile of the proposed site.

(4) Chapter 400 submissions. The submission requirements of Chapter 400, section 4, subsections B, C, F, G, H, I, J, and L.

(5) Storm Water Control. A certification that the siting and/or design of the proposed site will not result in post-construction runoff that is greater than pre-construction runoff or the submission requirements of Chapter 400, section 4.M(2)

(6) Traffic Movement. A demonstration that the site meets the alternative traffic standards in section 12.A(5) or the traffic information required by Chapter 400, section 4.D(2).

(7) Fitting Harmoniously into the Natural Environment. A demonstration that the site meets the alternative standards for fitting harmoniously into the natural environment in section 12.A(9) or the information required by Chapter 400, section 4.E.

(8) Sand and Gravel Aquifer map. If the proposed site is within 500 feet of a sand and gravel aquifer, a clear copy of the most recent Hydrogeologic Data for Significant Sand and Gravel Aquifer map with the proposed storage site clearly delineated.

(9) Flood Zone Map. If the proposed site is within 500 feet of a 100 year flood zone, the most recent Federal Emergency Management Agency (FEMA) flood zone map, or equivalent map, with the proposed storage site clearly delineated.

(10) Operations manual. An operations manual meeting the standards in section 12.A(1).

(11) Environmental monitoring program. If the Department determines that it is necessary to confirm that the site will meet the standards in Chapter 400, section 4 due to the nature of the wastes stored and/or the location, design and operation of the site, a monitoring program for ground water, surface water or waste characteristics, as applicable, designed in accordance with the provisions of Chapter 405.

(12) Hazardous and special waste exclusion plan. Except for sites that only accept specific residuals from specific generators specified by Department license, a hazardous and special waste handling and exclusion plan meeting the standards in Chapter 400, section 9.

Note: A template for a hazardous and special waste handling and exclusion plan is attached as Appendix 400.A to Chapter 400.

(13) Public Notice. Proof that public notice of the application has been provided as required in section 2.F.

C. Additional application requirements for field stacking sites. Unless otherwise approved by the Department in a Program license, in addition to the application requirements in section 11.B above, the following application requirements apply to field stacking sites:

(1) Title, right or interest. The information in section 7.B(1) demonstrating Title, Right, or Interest in the project.

(2) Soils map. A clear copy of the appropriate United States Department of Agriculture (USDA.) Natural Resources Conservation Service (NRCS) County soil medium intensity soil survey map indicating the proposed spreading area, the proposed field stacking area, and the leachate treatment areas. If the Department questions the accuracy of the map, the Department may require a soils investigation report and site specific soils map demonstrating that the applicable sitting and design standards in section 10.C are met. Soils investigations must be conducted in a manner that avoids disturbing the ability of the insitu soils to prevent groundwater contamination.

(3) Narrative and site sketch. A narrative and site sketch of the storage site features and proposed structures, of sufficient detail to demonstrate compliance with the standards in section 10. The sketch must include the scale and orientation, buffers, slopes, run-on and run-off control features, and leachate management features.

(4) Odor and dust control plan. For putrescible residuals, a site specific odor control plan to treat the residual or locate, design, and operate the site to avoid nuisance odors at off site occupied buildings. For dusty residuals, a site specific dust control plan to treat the residual or locate, design, and operate the site to avoid dust at off site locations.

D. Additional application requirements for contained storage sites. Unless otherwise approved by the Department in a Program license, in addition to the application requirements in section 11.B, the following application requirements apply to residual storage sites other than field stacking sites:

(1) Title, right or interest. The application submissions in Chapter 400, section 4.A demonstrating Title, Right, or Interest in the project.

(2) Site plans and drawings. A bid ready site design and construction package showing all structures and demonstrating that the applicable standards in section 10 and 12 will be met, including the system to contain, control and treat leachate and run-off mixed with leachate.

(3) Odor control system. For the storage of putrescible residuals, either

(a) a demonstration that the site will not cause an off-site nuisance odor, including one or more of the following:

(i) a demonstration that the materials handled at the site do not generate objectionable odors;

(ii) comparative studies with similar existing sites taking into account similarities and differences in site design, throughput, proximity to neighbors, meteorological conditions and topography; or

(iii) odor dispersion modeling studies demonstrating that the site will not cause more than a one hour average odor impact of 2 dilutions to threshold (2D/T), in any calendar year at any protected location and any occupied buildings;

Note: D/T is defined by ASTM Method 679-9A. The generator may wish to demonstrate that they will meet this standard at the storage site's property boundary, in order to meet the operational requirements to not cause a nuisance when areas near the site are subsequently developed. For information on this air model, see Serjak, Tamsin, Nicholas Marchese and Robert Gaudes, 1995, "ALCOSAN and Odor Regression Analysis: The Application of a New Analytical Approach", (Prepared for Air & Waste Management Association 88th Annual Meeting and Exhibition, June 18-23, by Camp Dresser & McKee, Cambridge, MA).

(b) or a site specific odor control plan to avoid nuisance odors at off site occupied buildings including a description of how the residual will be treated prior to storage, or a detailed description and design of the system to contain, control and treat odors at the storage site.

(4) Utilities. The application submissions of Chapter 400, section 4.L(2).

12. **Operational standards for residual storage sites.** All new and existing sites storing residuals prior to agronomic utilization shall comply with the operating requirements of this section. Existing residual storage sites are required to comply with these requirements no later than July 19, 2000.

A. **General Storage Standards.** The following operational standards apply to the operation of all residuals storage sites:

(1) Operations manual.

(a) For storage sites with a site specific license for residuals storage, the licensee shall prepare, maintain, and implement an operations manual to enable facility personnel to determine the procedures that must be followed to operate the storage facility in compliance with the standards in sections 10 and 12 and the site license. A current copy of the operations manual must be available for inspection at the storage site, or in the case of a field storage site, the residual generation facility.

(b) Transition: For residual storage sites licensed under Chapter 567, and that are in effect on July 19, 1999, an operations manual must be submitted to the Department for review and approval by July 19, 2000.

(2) Odor and dust control. The stored residual must not cause an odor or dust nuisance at an occupied building or protected location.

(3) Permitted residuals only. Only those residuals specifically permitted by the Department may be accepted at the storage site. The licensee must implement the approved hazardous and special waste handling and exclusion plan, if applicable.

(4) Separate storage. Unless otherwise approved by the Department, different kinds of residuals must be stored in separate areas of the facility. Separate areas must be clearly marked with signs.

(5) Alternative Traffic Standard. The standard for traffic in Chapter 400, section 4.D(1) must be met at all utilization storage sites. This standard is presumed to be met at storage sites when either:

(a) the residual is being stored at a consecution or remediation site for a construction project, to reclaim a mined area, close a landfill, or remediate a state designated uncontrolled hazardous substance site; or

(b) the storage activity results in 16 or fewer additional vehicle trips per day.

(6) Site Access. Access gates to storage sites that have been required in a Department license must be closed and locked except when an authorized person is on duty. Access roads at the site must be maintained in good repair. Livestock must be excluded with fences from facilities that store a residual that is treated to a class B pathogen reduction standard, including leachate treatment areas, while the residual is stored at the site and for at least 30 days after the removal of the residual.

(7) Fire control. The licensee shall prevent and control fires at the solid waste site by arranging for a nearby fire department to provide emergency service, and providing sufficient on-site equipment for minor fires. The licensee must also develop and implement a plan to prevent spontaneous combustion in woodwaste, residual, and compost piles, as applicable. All ash must be conditioned with water to prevent combustion at the storage site.

Note: Facilities should develop a fire and rescue plan in conjunction with the local fire department.

(8) Erosion and Sedimentation Control. For storage sites where the topography will be altered or site soils will be disturbed, the applicant must meet the standards in Chapter 400, section 4.J(1)(b).

(9) Alternative Standards for Fitting Harmoniously into the Natural Environment. The standard for fitting harmoniously into the natural environment in Chapter 400, section 4.E(1) must be met at all utilization sites. This standard is met at utilization sites when either:

(a) the residual is being stored on a construction or remediation site for a construction project, to reclaim a mined area, close a landfill, or remediate a state designated uncontrolled hazardous substance site; or

(b) the buffer requirements of Chapter 400, section 4.E(1)(b) and the applicable buffer requirements of this Chapter are met at the site of storage.

(10) Final Construction Certification. Within 30 days following construction completion, the licensee must submit a certification to the Department that the site has been constructed in accordance with the approved drawings and specifications.

(11) Inspection. The storage site licensee must make provisions for an inspection at least annually. The licensee must record the condition of the facility, repairs required, and repairs performed.

(12) Monitoring Program.

(a) The licensee shall implement any waste characterization and environmental monitoring program as approved or conditioned in the site license.

(b) Transition: For residual storage sites licensed under Chapter 567, and that are in effect on July 19, 1999, a monitoring and/or waste characterization sampling and analytical work plan meeting the standards in Chapter 405 must be submitted to the Department for review and approval by July 19, 2000.

(13) Record-Keeping. The licensee must keep records for a minimum of five (5) years which include the annual volume of residuals placed in and removed from the site, the dates that residuals were stored at the site during the year, problems encountered during operations and their remedies, and other information as established by license condition.

(14) Reporting. On or before February 28 of each year an annual report detailing the activities for the previous year must be submitted to the Department by the licensee. The report must include a summary of the information outlined in sections 12.A(9) through (11) (above) and any other details as specified in the program and site licenses.

B. Additional operational standards for licensed field stacking sites. In addition to the operational standards in section 12.A, the following operational standards apply to field stacking sites:

(1) Solids content. The residual must have a sufficient solids content to stack and maintain a side slope such that for every 3 feet of run, the pile must rise at least one foot.

(2) Shape. Operators must form and maintain a conical shaped pile that sheds water.

(3) Pathogen treatment. Type II residuals must be treated to class A or B pathogen and vector attraction reduction standards prior to field stacking.

(4) Groundwater protection. The provisions of this subsection apply to storage of residuals that have a C:N of less than 25:1, unless the residual is a compost, or unless the Department determines in a program license that mineralization or other comparable studies demonstrate that excess nitrates will not contaminate groundwater. This section also applies to storage of residuals which the Department has determined in a Program license contain pollutants which may contaminate waters of the state.

(a) Any leachate, or runoff mixed with leachate, generated from field stacking of a residual must be managed such that pollutants are not carried beyond an approved utilization area. Applicants must develop and implement a leachate control plan, as approved by the Department, which may include filter strips, placing residuals on a layer of sawdust, papermill fiber or similar material to absorb free liquids and inorganic nitrogen; placing hay bales and silt fences around stockpiles; forming piles to shed water; covering piles such that precipitation does not penetrate the pile; or making provisions to collect and treat leachate.

(b) The residual may only be stockpiled on soils with a maximum permeability in the soil C horizon of 2.0 inches per hour;

(c) On soils with a permeability in the C horizon of between 0.6 and 2.0 inches per hour, the residual must be stockpiled on a geomembrane, stockpiled on an absorbent material with a minimum C:N ratio of 100:1, or covered with a tarp, such that contaminated water does not pass through the C soil horizon.

(d) After October 30, 2002, the residual may not be stockpiled in excess of 30 days per growing season, except on insitu soils that have a C horizon that is a marine sediment, lacustrine sediment, or basal till that is at least 40 inches thick.

Note: The Department intends to facilitate studies into the actual impacts to groundwater from field stacking nitrogenous materials. This will include studies done with the University of Maine, and data from monitoring field stockpile sites. The information from these studies will be used to modify this requirement, and the standards for field stacking residuals for 30-days or less, if necessary.

(e) The depth to bedrock in the waste handling area must be at least 40 inches when the residual is to be stored for over 30 days, and at least 30 inches when the residual will be stored for 30 days or less.

(f) The depth to the water table in the waste handling area must be at least 24 inches throughout the time period that the waste is stored.

(g) Mitigation. The licensee must, if necessary to scavenge excess soil nitrogen, take any necessary steps, including harrowing and reseeding, to sustain healthy ground cover when residuals are not stored at the site.

(h) Storage time. The residual must not be field stacked for longer than eight (8) months.

(5) Kraft sludge. Storage of sludge generated at industrial facilities utilizing kraft wood pulping processes, the maximum storage period at storage sites without impervious liners and leachate collection and treatment is 6 months. The Department may waive this requirement on a case-by-case basis for a maximum of 2 additional months when the applicant has demonstrated that the storage site is inaccessible or that utilization of the stored material would be in violation of any prohibition of land spreading on frozen, snow-covered or saturated ground. For storage of sludge generated at industrial facilities utilizing kraft wood pulping processes, storage sites without impervious liners and leachate collection systems may be used only once in any 10-year period.

Note: This standard is required by 38 MRSA section 1304(13-A).

C. Additional Siting and Operational Standards for Sludge Storage Facilities.

(1) An abutter to a sludge storage site may request that sludge not be stored within 50' of the abutter's property boundary. Requests must be filed with the Department in writing, and must include:

(a) the name and mailing address of the property owner

(b) the physical location of the property upon which the sludge is being stored;

(c) the type of sludge being stored; and

(d) the name and mailing address of the facility generating the sludge.

(2) Pursuant to 38 MRSA 1310-N, subsection 2-G, sludge may not be stored within 50' of an abutter's property, upon notification that the Department has received a written request from the abutter to establish the set-back.

D. Closure of residual storage sites

(1) Notification: The licensee of a residual storage site shall notify the Department within 10 days after the permanent closure of a licensed storage site.

(2) Closure Performance Standard. The licensed storage site must be closed in a manner that minimizes the need for further maintenance; and so that the closed site will not pollute any waters of the state, contaminate the ambient air, constitute a hazard to health or welfare, or create a nuisance. At a minimum, the licensee must remove all wastes and residuals from the site; broom clean the site structures and equipment; and in the case of field stacking sites, harrow, reseed and take any other necessary steps to sustain healthy ground cover at the site.

13. Municipal Oversight of Residuals Utilization Activities.

A. Municipal Ordinances. Pursuant to 38 MRSA section 1310-U, under the municipal home rule authority granted by the Constitution of Maine, Article VIII, Part Second and Title 30-A, section 3001, municipalities may enact ordinances with respect to residual utilization and storage that contain standards the municipality finds reasonable, provided the following standards are met:

(1) The standards contained in the ordinance may not be more strict than those contained in 38 MRSA section 1301 et seq. and these rules.

(2) The municipality must file a copy of the ordinance with the Commissioner within 30 days of its adoption.

(3) Municipal ordinances must use definitions consistent with those in Chapter 400, section 1, and this Chapter.

B. Municipal Licensing and Enforcement of Sludge Licenses. For purposes of this subsection, the term "sludge" includes municipal, commercial or industrial wastewater treatment plant sludge.

(1) Municipal Enforcement. Pursuant to Title 30-A, section 4452, section 6, a municipality, after notifying the Department, may enforce the terms and conditions of a sludge utilization or storage site permit issued by the Department under this Chapter and Chapter 400.

(2) Coordination between municipality and the Department on sludge licenses.

(a) Notification. The Department shall notify municipalities (municipal officers or their designees) in which sludge utilization sites or sludge storage sites are being proposed. Notification will be made within 14 working days of Department receipt of a complete license application. The notification will include, at a minimum, the name and address of the applicant, and analytical results of the sludge proposed to be spread in the municipality.

(b) Municipal conditions in Department Licenses. Prior to approving an application for a sludge land application site or storage facility, the Department will consult with the municipal officers or their designees in the municipality in which the site or facility is proposed, and provide them with an opportunity to suggest conditions, including additional setbacks, to be included in the license. The Department will impose those conditions that are necessary for the project to meet the licensing standards in this Chapter. If the Department does not impose conditions on a license that has been suggested in writing by the municipality, the Department will provide a written explanation to the municipality.

(c) The Department shall consult with a municipality within 10 days of receipt of a request by a sludge generator to change the terms or conditions of a sludge land application or storage facility license concerning a facility located in the municipality.

(3) Petitions concerning sludge testing protocols. A municipality may petition the Commissioner to review a generating facility's testing protocol for sludge. The Commissioner will respond to the municipality, in writing, within 10 days of receipt of a written petition. The Commissioner may order the generator to conduct an additional waste characterization test on their sludge at the generator's expense. The generator must provide a copy of the additional test results to the municipality within 30 days of receipt.

Appendix A. Loading Rate Calculations

1. Nitrogen loading rate calculations

A. The Percent of Organic Nitrogen Mineralized from Sewage Sludge must be assumed as in table 419.6, unless residual specific information obtained in accordance with Chapter 405 is available. For other residuals, the generator must determine residual mineralization rates through sampling, in accordance with Chapter 405:

Table 419.6
Percentages of Organic Nitrogen Mineralized after
Sewage sludge of various types are land applied

Years after sludge application	Type of Sewage Sludge			
	Primary and waste activated	Aerobically Digested	Anaerobically Digested	Composted
0 -1	40	30	20	10
1 - 2	20	15	10	5
2-3	10	8	5	3
3-4	5	4	3	3

B. When detailed information regarding organic sources of nitrogen from past utilization of residuals or manure and cropping practices is not available, soil organic matter must be assumed to provide 10 pounds of available nitrogen per acre per 1% organic matter over 5%. (i.e. if organic matter in soil is 6.5% the soil provides 10 lbs. x (6.5-5) = 10 lbs. x 1.5 = 15 lbs. per acre)

C. Unless otherwise approved by the Department, crop nitrogen needs must be determined based on the recommendations in the *"Soil Testing Handbook for Professionals in Agriculture, Horticulture, Nutrient and Residuals Management,* (3rd edition, 1997). Other crop needs will be determined by the Department on a case by case basis, based on recommendations from the Maine Cooperative Extension's Maine Soil Testing Service and Analytical Laboratory at the University of Maine in Orono, and other agricultural or silvicultural sources.

D. Loading rates of residuals based on Nitrogen need must be calculated as follows, based on representative residual analysis:[1]

[1]Modified from Boub, et. al. 1995.

Line	Parameter	value	Unit
1.	Available Nitrate-N = %NO_3-N[2] x 2000 lbs/ton		lbs NO_3-N / ton residual
2.	Available Ammonium-N= Recovery fraction[3] x %NH_4-N[4] x 2000 lbs/ton		lbs NH_4-N/ ton residual
3.	Available Inorganic N/ton residual = Available NH_4 [line 2] + NO_3-N [line 1]		lbs Inorganic N / ton residual
4.	Organic N = [Total N - Inorganic N [line 3]] x 2000 lbs/ton		lbs Organic N / ton residual
5.	Available Organic N = Organic N [Line 4] x mineralization rate[5]		lbs Available Organic N / ton residual
6.	Available N from the residual that was applied in previous years[6]		lbs Available Organic N / ton residual
7.	Total Plant Available N = Inorganic N [line 3] + Avail Org N [line 5]		lbs Available N / ton residual
8.	Total Available N required from residual = N needs of crop[7] - Credits from Crop History[8] - Mineralized N from previous years application [line 6]		lbs Available N/ acre-yr
9.	Residual Application (dry) Rate = N required from residual / Avail N from residual [line 8 / line 7]		dry tons residual / acre-yr
10.	Residual Application (wet) Rate = Dry Residuals Rate [line 9] / % Solids		wet tons residual / acre-yr
11.	If Applicable: Residual Application (wet) Rate per cut of hay = [line 10] / 2 cuttings		wet tons residual / acre-cutting

Note: References Cited and Other guidance on agronomic rate calculations:

Boub, Tom, George O. Estes, James R. Mitchell and David Seavey, June 1995, "Best Management Practices: Biosolids" (University of New Hampshire Cooperative Extension, UNH, Durham, NH).

EPA, December 1994, Land Applications of Sewage Sludge: A Guide for Land Appliers on the Requirements of the Federal Standards for the Use or Disposal of Sewage Sludge, 40 CFR Part 503 (EPA/831-B-93-002b, USEPA, OECA, Washington, DC).

[2]From Residual Analysis

[3] When surface applied, approximately 50% of the Ammonium NH_4-N Nitrogen will be lost to volatilization. Recovery fraction is the portion of Ammonium that does not volatilize.

[4]From Residual Analysis

[5]Mineralization rates are specified in appendix A, section 1.A above. A weighted average of these percentages may be used for combined sludges.

[6]See Appendix A, section 1.A or Section 1.B above

[7]See Hoskins, Bruce R., 1997, "Soil Testing Handbook for Professionals in Agriculture, Horticulture, Nutrient and Residuals Management, 3rd edition (Formerly Soil Testing Handbook for Professional Agriculturists), (Maine Soil Testing Service, 5722 Deering Hall, University of Maine, Orono, ME).

[8]This includes the pounds of nitrogen per acre available to the crops from corn silage, animal manure, and / or cover crops.

EPA, October 1983, Process Design Manual: Land Application of Municipal Sludge (USEPA, Environmental Research Laboratory, Cincinnati OH, EPA-625/1-83-016).

Hoskins, Bruce R., 1997, "Soil Testing Handbook for Professionals in Agriculture, Horticulture, Nutrient and Residuals Management, 3rd edition (Formerly Soil Testing Handbook for Professional Agriculturists), (Maine Soil Testing Service, 5722 Deering Hall, University of Maine, Orono, ME).

Huddleston, J.H. and M.P. Ronayne, September 1995, Manual 8: Guide to Soil Suitability and Site Selection for Beneficial Use of Domestic Wastewater Biosolids (Cooperative Extension Service, Agricultural Communications, Oregon State University, Administrative Services A422, Corvallis, OR 97331-2119).

2. Pollutant Loading Calculations

A. Annual Pollutant Loading Rate Calculation. To determine the annual loading rate of heavy metals or other pollutants at a utilization site, use equation 419.1 as follows

(equation 419.1)

$$APLR = LR * RP_C * .001$$

where:
APLR - Annual Pollutant Loading Rate in kg-pollutant/ha
LR - Residual loading rate in mt-residual/ha (amount of residual applied in a year)
RP_C - Pollutant concentration in the residual in mg-pollutant/kg-residual
.001 - Conversion factor = 1,000 kg/mt * 0.000001 kg/mg

B. Cumulative Pollutant Loading Rate Calculation. To determine the cumulative pollutant loading rate of heavy metals or other pollutants at a utilization site, sum the annual pollutant loading rates for the site, as shown in equation 419.2.

(Equation 419.2)

$$CPLR = APLR_1 + APLR_2 + ... APLR_n$$

(equation 419.4)

where:
CPLR - Cumulative Pollutant Loading Rate in kg-pollutant/ha at the site
$APLR_1$ - Annual Pollutant Loading Rate during the first year in kg-pollutant/ha
$APLR_2$ - Annual Pollutant Loading Rate during the second year in kg-pollutant/ha
$APLR_n$ - Annual Pollutant Loading Rate during the nth, or most recent, year in kg-pollutant/ha

C. Estimation of soil pollutant concentration increase based on residual pollutant concentration. To estimate the pollutant concentration in soil that will result from the cumulative loading of a pollutant in a residual at a site, use equation 419.3:

(equation 419.3)

$SI = (RPc * LR * SL) / (2000)$

Where:

SI - Cumulative soil concentration increase in mg-pollutant/kg-soil

RP_C - Pollutant concentration in the residual in mg-pollutant/kg-residual
LR - Residual loading rate in mt-residual/ha/yr (amount of residual applied in a year)
SL - Site Life, or the number of times the residual will be applied at the site in 100 years, in years.
2000 - is the assumed dry mass of soil in mt/ha (dry weight) in a plow layer 15 cm thick (based on a bulk density of 1.33 g/cm^3)

D. Common Conversions.

(1) Dry tons / acre * 2.24 = Dry metric tons / hectare

(2) Wet tons * (% solids * 0.01) = Dry Tons

(3) Approximation based on weight of water: wet tons/acre * 239.7 gallons/ton = gallons/acre

(4) Approximation based on weight of water: 1 yd^3 sludge = $27ft^3/yd^3$ * 63.0 lb/ft^3 = 1700 lbs

(5) Approx. based on weight of water: 1 yd^3 sludge = 1700 lbs/yd^3 ÷ 2000 lb/ton = 0.85 tons

(6) Approx. based on weight of soil: lb/acre ÷ 2 = ppm

(7) lb/acre * 1.121 = kg/ha

(8) 1 acre = 43,560 ft^2

(9) 1 acre of soil six inches deep = approx. 2,000,000 lbs

(10) 1 lb = 0.453 kg

(11) 1 lb P = 2.29 lb P_2O_5 (phosphoric acid)

(12) 1 lb K = 1.2 lb K_2O (potash)

(13) 1 ppm (in water) = 1 mg/l

(14) 1 ppm (in soil) = 1 mg/kg

(15) soil metal concentration in soil (ppm) = loading rate (lbs/acre) / 2

Appendix B. Pathogen and Vector Attraction Reduction Standards

1. **Special Definitions.** For the purposes of this Chapter, the following terms have the following meanings:

   A. Aerobic digestion is the biochemical decomposition of organic matter in sewage sludge into carbon dioxide and water by microorganisms in the presence of air.

   B. Anaerobic digestion is the biochemical decomposition of organic matter in sewage sludge into methane gas and carbon dioxide by microorganisms in the absence of air.

   C. Density of microorganisms is the number of microorganisms per unit mass of total solids (dry weight) in the sewage sludge.

   D. Land with a high potential for public exposure is land that the public uses frequently. This includes, but is not limited to, playgrounds, public parks, athletic fields, cemeteries, plant nurseries, construction sites in urban areas, and turf farms.

   E. Land with a low potential for public exposure is land that the public uses infrequently. This includes, but is not limited to, agricultural land, forests, and/or reclamation sites located in an unpopulated or rural area; remote lands; or securely fenced land.

   F. Pathogenic organisms are disease-causing organisms. These include, but are not limited to, certain bacteria, protozoa, viruses, and viable helminth ova.

   G. pH means the logarithm of the reciprocal of the hydrogen ion concentration, corrected to a standard temperature of 25 degrees Celsius.

   H. Specific oxygen uptake rate (SOUR) is the mass of oxygen consumed per unit time per unit mass of total solids (dry weight basis) in the sewage sludge.

   I. Total solids are the materials in sewage sludge that remain as residue when the sewage sludge is dried at 103 to 105 degrees Celsius.

   J. Unstabilized solids are organic materials in sewage sludge that have not been treated in either an aerobic or anaerobic treatment process.

   K. Vector attraction is the characteristic of sewage sludge that attracts rodents, flies, mosquitoes, or other organisms capable of transporting infectious agents.

   L. Volatile solids is the amount of the total solids in sewage sludge lost when the sewage sludge is combusted at 550 degrees Celsius in the presence of excess air.

2. **Class A pathogen reduction process standards.** Class A pathogen reduction standards must be met through one of the following processes:

   A. **Composting** - Through the process of composting, the temperature of the residual is maintained at 55 degrees Celsius or higher for three consecutive days. For windrow systems, this standard is presumed to be met if the residual is generally maintained at 55 degrees or higher for 15 days or

longer, and during the period when the compost is maintained at 55 degrees or higher, there is a minimum of five turnings of the compost pile.

B. Thermophilic aerobic digestion. Liquid residual is agitated with air or oxygen to maintain aerobic conditions and the mean cell residence time of the residual is 10 days at 55 to 60 degrees Celsius.

C. Beta ray irradiation. Residual is irradiated with beta rays from an accelerator at dosages of at least 1.0 megarad at room temperature (ca 20 degrees Celsius).

D. Gamma ray irradiation. Residual is irradiated with gamma rays from certain isotopes, such as ^{60}Cobalt and ^{137}Cesium, at dosages of at least 1.0 megarad at room temperature (ca 20 degrees Celsius).

E. Pasteurization. The temperature of the residual is maintained at 70 degrees Celsius or higher for 30 minutes or longer.

F. Heat Drying. Residual is dried by direct or indirect contact with hot gases to reduce the moisture content of the residual to 10 percent or lower. Either the temperature of the residual particles exceeds 80 degrees Celsius or the wet bulb temperature of the gas in contact with the residual as the residual leaves the dryer exceeds 80 degrees Celsius.

G. Heat Treatment. Liquid residual is heated to a temperature of 180 degrees Celsius or higher for 30 minutes.

H. Time and temperature. The temperature of the residual must be maintained at a specific value for a period of time as specified in one of the following:

(1) When the percent solids of the residual is seven percent or higher, the temperature of the residual must be 50 degrees Celsius or higher; the time period must be 20 minutes or longer; and the temperature and time period must be determined the following equation (419.4), except when small particles of residual are heated by either warmed gases or an immiscible liquid:

EQUATION (419.4):

$$D = (131{,}700{,}000) \div 10^{0.1400t}$$

Where: D=time in days
t=temperature in degrees Celsius.

(2) When the percent solids of the residual is seven percent or higher and small particles of residual are heated by either warmed gases or an immiscible liquid, the temperature of the residual must be 50 degrees Celsius or higher; the time period must be 15 seconds or longer; and the temperature and time period must be determined using equation (419.4).

(3) When the percent solids of the residual is less than seven percent and the time period is at least 15 seconds, but less than 30 minutes, the temperature and time period must be determined using equation (419.4).

(4) When the percent solids of the residual is less than seven percent; the temperature of the residual is 50 degrees Celsius or higher; and the time period is 30 minutes or longer, the temperature and time period must be determined by using equation (419.5).

EQUATION (419.5)

$D=50{,}070{,}000 \div 10^{0.1400t}$.

Where: D=time in days
t=temperature in degrees Celsius.

I. **Alkaline Stabilization.** The pH of the residual must be raised to above 12 and must remain above 12 for 72 hours. The temperature of the residual must be above 52 degrees Celsius for 12 hours or longer during the period that the pH of the residual is above 12. At the end of the 72 hour period during which the pH of the residual is above 12, the residual must be air dried to achieve a percent solids in the residual greater than 50 percent.

J. **Other.** Other methods for the treatment of residuals will be approved on a case by case basis, when the generator demonstrates, at a minimum, that the proposed process can meet the following standards, and under what operating conditions the following standards are met. Once approved, the process must be operated under the conditions that are established by the Department as meeting, at a minimum, the following Class A pathogen reduction standards.

(1) The density of *Salmonella sp.* bacteria in the residual must be less than three Most Probable Number per four grams of total solids (dry weight basis).

(2) The density of fecal coliform in the residual is shown to be less than 1000 Most Probable Number per gram of total solids (dry weight basis).

(3) The density of enteric viruses in the residual after pathogen treatment is less than one Plaque-forming Unit per four grams of total solids (dry weight basis).

(4) The density of viable helminth ova in the residual after pathogen treatment is less than one per four grams of total solids (dry weight basis)

3. **Class B pathogen reduction process standards.** Class B pathogen reduction standards must be met through one of the following processes:

A. **Alkaline stabilization.** Sufficient alkali material, such as lime, is added to the residual to raise the pH of the residual to 12 after two hours of contact.

B. **Aerobic digestion.** Residual is agitated with air or oxygen to maintain aerobic conditions for a specific mean cell residence time at a specific temperature. Values for the mean cell residence time and temperature must be between 40 days at 20 degrees Celsius and 60 days at 15 degrees Celsius.

C. **Air drying.** Residual is dried on sand beds or on paved or unpaved basins. The residual dries for a minimum of three months. During two of the three months, the ambient average daily temperature is above zero degrees Celsius.

D. **Anaerobic digestion.** Residual is treated in the absence of air for a specific mean cell residence time at a specific temperature. Values for the mean cell residence time and temperature must be between 15 days at 35 to 55 degrees Celsius and 60 days at 20 degrees Celsius.

E. **Composting.** In a compost system the minimum temperature of all the residual is 40 degrees Celsius or higher for five days. For four hours during the five days, the temperature in the compost pile exceeds 55 degrees Celsius.

F. **Test Out.** Seven samples of the residual must be less than either 2,000,000 Most Probable Number per gram of total solids (dry weight basis) or 2,000,000 Colony Forming Units per gram of total solids (dry weight basis).

G. **Other.** Other methods for the treatment of residuals will be approved on a case by case basis, when the generator demonstrates that the proposed process meets the standards in section 4 and Chapter 400, sections 3 and 4.

4. **Class A vector attraction reduction standards.** Class A vector attraction reduction standard must be met through one of the following process:

A. In an aerobic or anaerobic digestion process, the mass of volatile solids in the residual must be reduced by a minimum of 38 percent (see calculation procedures in "Environmental Regulations and Technology - Control of Pathogens and Vector Attraction in Sewage sludge," EPA-625/R-92/013, 1992, US. Environmental Protection Agency, Cincinnati, Ohio 45268). This standard does not apply to a composting process.

B. When the 38 percent volatile solids reduction requirement in Appendix B.4.A (above) cannot be met for an anaerobically digested sewage sludge, vector attraction reduction can be demonstrated by digesting a portion of the previously digested sewage sludge anaerobically in the laboratory in a bench-scale unit for 40 additional days at a temperature between 30 and 37 degrees Celsius. When at the end of the 40 days the volatile solids in the sewage sludge at the beginning of that period is reduced by less than 17 percent, vector attraction reduction is achieved.

C. When the 38 percent volatile solids reduction requirement in Appendix B.4.A (above) cannot be met for an aerobically digested sewage sludge, vector attraction reduction can be demonstrated by digesting a portion of the previously digested sewage sludge that has a percent solids of two percent or less aerobically in the laboratory in a bench-scale unit for 30 additional days at 20 degrees Celsius. When at the end of the 30 days, the volatile solids in the sewage sludge at the beginning of that period is reduced by less than 15 percent, vector attraction reduction is achieved.

D. The specific oxygen uptake rate (SOUR) for residual treated in an aerobic digestion process must be equal to or less than 1.5 milligrams of oxygen per hour per gram of total solid (dry weight basis) at a temperature of 20 degrees Celsius. This standard does not apply to a composting process.

E. Residual must be treated by composting or in an other aerobic process for 14 days or longer. During that time, the temperature of the residual must be higher than 40 degrees Celsius and the average temperature of the residual must be higher than 45 degrees Celsius.

F. The pH of residual must be raised to 12 or higher by alkali addition and, without the addition of more alkali, must remain at 12 or higher for two hours and then at 11.5 or higher for an additional 22 hours.

Note: The pH does not have to be 11.5 at the time of application.

G. The percent solids of residual that does not contain unstabilized solids generated in primary wastewater treatment process must be equal to or greater than 75 percent based on the moisture content and total solids prior to mixing with other materials.

H. The percent solids of residual that contains unstabilized solid generated in a primary wastewater treatment process must be equal to or greater than 90 percent based on the moisture content and total solids prior to mixing with other materials.

I. Other methods for the treatment of residuals will be approved on a case by case basis, when the generator demonstrates that the proposed process meets the standards in section 4 and Chapter 400, sections 3 and 4.

5. **Class B vector attraction reduction standards.** Class B vector attraction reduction standards must be met through one of the following residual handling practices:

A. Residual must be injected below the surface of the land. No significant amount of the residual must be present on the land surface within one hour after the residual is injected. When the residual that is injected below the surface of the land is Class A with respect to pathogens, the residual must be injected below the land surface within eight hours after being discharged from the pathogen treatment process.

B. Residual applied to the land surface must be incorporated into the soil within six hours after application. When the residual that is incorporated into the soil is Class A with respect to pathogens, the residual must be applied to or placed on the land within eight hours after being discharged from the pathogen treatment process.

C. The pH of residual must be raised to 12 or higher by alkali addition and, without the addition of more alkali, must remain at 12 or higher for two hours and then at 11.5 or higher for an additional 22 hours.

D. Other methods for the treatment of residuals will be approved on a case by case basis, when the generator demonstrates that the proposed process meets the standards in section 4 and Chapter 400, sections 3 and 4.

STATUTORY AUTHORITY: 38 MRSA section 1304(1), (13) and (13-A).

EFFECTIVE DATE:
April 21, 1985 (as Chapter 567, Rules for Land Application of Sludge and Residuals)

AMENDED:
October 8, 1986 (Part D added)
October 17, 1988 - Sections D-1 and E
December 5, 1989 - Section D
December 23, 1989 - Section C and A-3
December 23, 1989 - Section B-4
September 23, 1990 - Part D
July 27, 1991 - Part D
January 4, 1994 - Part D

EFFECTIVE DATE (ELECTRONIC CONVERSION):
May 4, 1996

NON-SUBSTANTIVE CORRECTIONS:
February 16, 1997 - Duplicate paragraphs from Part D removed; Part D and E appendices renamed; Part E referenced in Table of Contents, Part C Table of Contents referencers corrected, page numbers in Table of Contents corrected.
January 13, 2000 - renumbered 11(C), 12(B)(4); corrected font problem in Appendix B(2)(D).

REPEALED AND REPLACED:
July 19, 1999 - Chapter 567 replaced by Chapter 419, Agronomic Utilization of Residuals

AMENDED:
December 19, 1999

EFFECTIVE DATE: February 8, 2012

Fiscal Note: These rules will have minimal fiscal impact on municipalities and counties. Municipalities or counties that are generators of residuals and that choose to agronomically utilize those residuals will have no additional responsibilities beyond those of other generators. Municipalities are allowed under section 13 to enforce the terms and conditions of sludge utilization licenses, but are not obligated to do so. The Department is required to ensure that municipalities are contacted regarding license conditions, but municipalities are not obligated to respond.

Fiscal Note for revision: The proposed revisions to the rules will not impose any additional cost on municipalities or counties. The Department also evaluated alternatives to reduce possible economic burdens to small business when drafting the proposed revisions. The revisions being proposed will reduce economic burdens to small business through greater accuracy and clarity in the rules, and through increased flexibility.

06-096

Department of Environmental Protection

Maine Solid Waste Management Rules

CHAPTER 419

AGRONOMIC UTILIZATION OF RESIDUALS

Last Revised: December 18, 2012

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Chapter 419: AGRONOMIC UTILIZATION OF RESIDUALS

SUMMARY: This Chapter establishes the rules of the Department for the agronomic utilization of residuals and the storage of residuals prior to utilization.

1. Applicability

A. Facilities and Activities Subject to the Requirements of this Chapter

This Chapter applies to agronomic utilization activities and the storage of residuals prior to utilization. Agronomic utilization is the land application of residuals in a controlled manner in order to: increase the nutrient content of the soil at a rate commensurate with the nutritional needs of the crop to be grown and the assimilative capacity of the soil; otherwise improve agricultural soil conditions; or provide some other horticultural benefit. Agronomic utilization includes, but is not limited to:

(1) Land application of sewage sludge, biosolids, fish by-products, food waste, secondary paper mill sludge or other residuals to supply nitrogen (N), phosphorus (P), potassium (K), or other nutrients to a crop;

(2) Land application of ash, lime-mud, cement kiln dust, or other residuals as an agricultural liming agent;

(3) Land application of primary paper mill sludge, flume grit, wood wastes or other high carbon residuals to control erosion, as a topsoil replacement, as mulch, or to beneficially increase soil organic matter content;

(4) Utilization of composted residuals, decontaminated soil, or other processed residuals as a fertilizer, soil amendment, topsoil replacement or mulch.

B. Facilities and Activities not Subject to the Requirements of this Chapter. In addition to the facilities listed in Chapter 400, section 2.I, the following activities and materials are exempt from the siting, design, licensing and operating requirements of this Chapter:

Note: Manure and other agricultural wastes used as fertilizers are not residuals, and therefore are exempt from regulation under these rules. Utilization of agricultural waste is regulated by the Department of Agriculture under Chapter 565, Nutrient Management Rules (effective December 15, 1998).

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(1) Utilization of chipped, shredded or composted wood and vegetative wastes as mulch when applied less than one foot thick.

(2) Utilization of chipped, shredded or composted wood and vegetative wastes for erosion control and filter berms.

(3) Wood ash from the burning of wood wastes is not subject to the requirements of this Chapter and is not considered a solid waste if the generator submits written documentation to the department stating that the wood ash is being used as an effective substitute for a commercially available agricultural product and identifying the use of the wood ash and the commercial product it is replacing. For the purposes of this Chapter, effective substitute includes utilization at an appropriate agronomic rate similar to the material it is replacing.

Note: "Wood wastes" is defined at 06-096 CMR 400(1)(LLll) as follows: "wood wastes" means brush, stumps, lumber, bark, wood chips, shavings, slabs, edgings, slash, sawdust and wood from production rejects, that are not mixed with other solid or liquid waste. For the purposes of this definition, "lumber" is entirely made of wood and is free from metal, plastics and coatings.

Any ash resulting from the burning of wood wastes is considered wood ash. No distinction is made between fly ash and bottom ash.

(4) The utilization as a topsoil of any of the following:

(a) 50 yds^3/yr or less of dredge materials in the area adjacent to and draining into the dredged water body;

(b) dredge materials from class AA, A and SA water bodies;

(c) dredge materials from agricultural or residential ponds, ditches and drainage ways when utilization occurs on the same property;

(d) dredge materials containing less than 15% fines (material passing the #200 sieve) from representative sampling of a minimum of four samples, or one sample per acre, whichever is more frequent; or

(e) dredge materials free from oil, grease, litter and other contaminants that are generated from normal maintenance of storm water and erosion control structures regulated under 38 MRSA. section 420-C and section 420-D.

Note: Dredging activities must still be licensed under 38 MRSA 480-A, et seq., the Natural Resources Protection Act.

(5) The agronomic utilization of any of the following residuals. The volume limit applies to the amount one generator may distribute for utilization in a calendar year. The volume limit also applies to the amount that may be received for utilization at any one site in a calendar year.

(a) 200 yds^3/yr or less of Type IA residuals, such as processed woodwaste, or leaves;

(b) 100 yds^3/yr or less of Type IB residuals, such as certain food processing wastes; or

(c) 50 yds^3/yr or less of Type IC residual, such as fish by-products, provided the Type IC residual is applied at a generally accepted agronomic rate between April 15 and July 1 and the waste is incorporated within 24 hours.

Note: See Chapter 400, section 1 for a complete definition of Type IA, IB, IC, II and III residuals.

(6) The storage on 1 acre or less for up to 24 months prior to agronomic utilization of any one of the following:

(a) wood wastes provided individual storage piles do not exceed 10,000 square feet, and there are 30 foot mineral strips between piles of chipped or shredded woodwastes;

(b) sewage sludge at a Publicly Owned Treatment Works; or

(c) composted residuals that meet the standards in section 8 of this Chapter.

(7) The storage on a licensed utilization site of residuals with a solids content of greater than 12% for 12 hours or less to facilitate spreading.

C. Processing of Solid Waste

(1) A site where a generator mixes or blends a residual prior to utilization, but does not otherwise process the residual, is not subject to Chapter 409, but is subject to this Chapter.

(2) Facilities that compost, aerobically or anaerobically digest, dry, heat treat, lime stabilize or otherwise alter the stability, physical properties, pathogen content, or chemical content of residuals to meet the standards of this rule must meet the applicable standards of Chapter 409 or Chapter 410. Utilization of the residual produced by the processing facility is subject to this Chapter.

D. Beneficial Use of Solid Waste. Agronomic utilization is a type of beneficial use. Generators proposing to beneficially use solid waste or waste derived products in a manner that does not constitute agronomic utilization must meet the applicable standards of Chapter 418. Agronomic utilization of a solid waste and another beneficial use of the same solid waste may be approved in one license. Except for agronomic utilization activities covered under this Chapter, beneficial use activities approved under the provisions of Chapter 567 are subject to the transition provisions of Chapter 418.

2. Licenses for Residual Utilization and Storage

A. License Required for Residual Utilization and Storage

(1) Utilization Licenses. The Department must conclude that the licensing standards in Chapter 400 and sections 2 through 7 of this Chapter are met prior to a generator distributing a residual for utilization, unless the activity is exempt under section 1.B. This conclusion may be made in a program license, or a combination of program license and site specific utilization license. A program license must be obtained before any site specific utilization licenses are obtained. The generators of the residual must obtain the utilization license. An application must be submitted under Chapter 400 and section 7 of this Chapter, or under the permit-by-rule provisions of sections 8 and 9. For purposes of this rule, processors of solid waste are the generators of the resultant residual.

(2) Residual Storage Licenses. Prior to establishing a new residual storage site, or altering an existing residual storage site, the Department must conclude that the licensing standards in Chapter 400 and section 10 through 12 of this Chapter are met, unless the activity is exempt under section 1.B. This conclusion may be made in a program license, a storage site license, or a combination of the two. Field stacking sites associated with a licensed utilization site may only be licensed to the residual generator. Other residual storage sites may be licensed to any person. The Department may approve of utilization and storage at the same location in one license, provided all of the applicable licensing criteria are met.

Note: Storage of a residual at composting or other processing facilities is subject to the standards in Chapter 409 or Chapter 410. Storage of residuals for purposes other than agronomic utilization is subject to Chapter 402 or in some beneficial use cases, Chapter 418.

(3) Inapplicability of Disposal Facility Standards. Residual storage sites and utilization activities, including program licenses issued under Chapter 567, constitute solid waste facilities, but do not constitute solid waste disposal facilities, as defined in Chapter 400. Therefore, agronomic utilization activities and residual storage sites are not subject to the provisions specific to solid waste disposal facilities in Chapter 400 or the Maine Solid Waste Laws.

B. Program License. A program license assesses the potential benefits and risks posed by the utilization activity and determines what management practices are necessary to mitigate those risks, including what type of site specific license, if any, is required at a residual storage site or the site of utilization.

C. Site License. The generator must obtain a site license for residual utilization or storage if the Department determines in the program license that a site license is necessary in order for the Department to find that all the applicable licensing standards of Chapter 400 and this Chapter will be met.

D. Joint Utilization. Prior to more than one generator licensing the same site, the DEP must approve a joint utilization agreement that specifies the responsibilities of each generator to assure compliance with these rules, their program license, and their site licenses. The agreement must specify one party who the Department may direct to correct a deficiency at the site.

E. License Transfers

(1) Site License Transfer. A generator may make application pursuant to Chapter 2, section 17 to transfer a utilization site license from another generator when both generators agree to the transfer, the receiving generator is in compliance with its program license, and the receiving generator has established title, right or interest in the site that is being transferred. When both parties generate the same kind of residual, such as sewage sludge treated to the same pathogen reduction standard, the transfer may be processed under the permit-by-rule procedures in section 9. Otherwise the license must be transferred pursuant to Chapter 2, section 17 and Chapter 400, section 3.B(3)

(2) Program Transfer. When a facility that generates the residual is transferred to a new owner, the new owner must obtain Department approval to transfer the utilization program and associated site and storage licenses pursuant to Chapter 2, section 21 and Chapter 400, section 3.B(3).

F. Municipal and Public Notice of Utilization Applications. The public notice provisions of this subsection replace the public notice requirements of Chapter 2, section 14, except as specified below.

(1) Program Licenses. Within 30 days prior to filing an application for a utilization or storage program license, including an application filed in accordance with section 8, an applicant shall give public Notice of Intent to File a new or amendment application, a resubmitted application that has been returned as incomplete pursuant to Chapter 2, section 11.B, or a license transfer. The notice must be published once in newspapers circulated in the area

where the residual will be utilized and/or stored. In the case of state wide utilization and/or storage, the notice must be published once in a newspaper where the residual is generated and once in the Augusta daily paper on a Wednesday. The notice must include the information required by Chapter 2, section 14.A, except that the notice for section 8 applications shall include the information required by Chapter 400, section 3.B(1)(c)(iii). The location where the application is locally filled is the municipal offices where the residual is generated. The applicant does not need to notify abutters.

(2) Site Licenses. Except as specified in 2.F(3) below and section 9 of this Chapter, an applicant for a utilization or storage site license, or site license transfer, shall give public notice in accordance with Chapter 2, section 14. This provision also applies to applications filed in accordance with section 10.

(3) One Time Use and Pilot Projects Lasting Less Than One Year. Within 30 days prior to filing an application for one time utilization or storage lasting less than one year, or a pilot project lasting less than one year, the applicant must give public Notice of Intent to File a new or amendment application, or a resubmitted application that has been returned as incomplete pursuant to Chapter 2, section 11.B. A copy of the application and the notice must be provided to the municipality(ies) in which the site is located. The notice must also be published once in a newspaper circulated in the areas where the project is located, unless the application is for a pilot project located at a site previously licensed under this Chapter. The notice must include the information required by Chapter 2, section 14.A. The applicant does not have to notify abutters.

Note: Pilot projects are to determine the feasibility of a common utilization practice. Innovative utilization activities of an experimental nature must be licensed under the provisions of 38 MRSA Section 362-A.

(4) Subsequent Information. After any utilization application has been filed, if the Department determines that the applicant submits significant new or additional information or substantially modifies its application at any time after acceptance of the application as complete, the applicant shall provide additional notice to interested persons who have commented on that application. The Department may require additional public notice in accordance with this subsection, if the modifications are significant.

G. Public Notice Prior to Use of Certain Sites

(1) At least 30 days prior to the first use of an approved individual utilization or storage site that is not the subject of a site-specific license, but is subject to a program license condition requiring prior notification to the Department of specific locations where a residual will be utilized or stored, the licensee shall provide notice of such use to the municipality in which the site is located. The notice must be mailed by certified mail or Certificate of Mailing to the municipal office. The notice must include the information required by section 2.G(3), below.

(2) At least 30 days prior to first use of an approved individual utilization or storage site that uses or stores sludge generated at industrial facilities employing kraft wood pulping processes, the licensee shall provide notice of such use to abutters and the municipality in which the site is located. The notice must be mailed by certified mail or Certificate of Mailing to the abutters and the municipal office. The notice must include the information required by section 2.G(3) below.

Note: These notification provisions are required by 38 MRSA section 1304(13) and (13-A).

(3) The public notice must include the following information:

(a) Name, address and telephone number of the program license holder;

(b) Citation of the statutes, rules, or license under which the site is being considered for utilization or storage;

(c) Location of the activity;

(d) Summary of the activity;

(e) Anticipated date for filing the notification with the Department; and

(f) A statement that public comments on the proposed project may be provided to the Department within 10 days of the filing of the notification, together with the mailing address of the Department.

H. Surrender of Site Licenses. Pursuant to 38 MRSA 1310-N(6-D), agronomic utilization site licenses may be voluntarily surrendered by the license holder, upon Department approval. Surrender will be approved when the Department determines that all residuals transported to the site have been utilized or removed from the site in compliance with Department rules and licenses. Petitions for surrender of site licenses may also be processed in accordance with Chapter 2, section 23, "Petition for Surrender of License".

I. Transition and Relationship to Other Solid Waste Rules

(1) Wood ash utilization program licenses held by wood ash generators that are now exempt from these rules in accordance with section 1(B)(3) of this Chapter will lapse provided that the licensee surrenders its utilization program license.

(2) These rules replace Chapter 567, which is repealed as of the effective date of these rules.

(3) Generators utilizing residuals under Chapter 567 with a site license, but without a program approval, must submit a complete application for a program license within one year of the effective date of this rule or cease their utilization program. For purposes of this subsection, a complete application means the submission requirements in section 7.A(3). Other submissions of section 7.A are only required if alterations to the utilization program have not been previously approved by the Department.

3. Siting Standards for Agronomic Utilization

A. Siting Standards for Residuals Containing Nitrogen. The provisions of this subsection apply to utilization of residuals that have a C:N of less than 25:1, unless the residual is a compost, or unless the Department determines in a program license that mineralization or other comparable studies demonstrate that excess nitrates will not contaminate groundwater. This section also applies to utilization of other residuals which the Department has determined in a Program license readily leach contaminants which may contaminate groundwater

(1) Setbacks. The boundaries of the spreading area at a utilization site must be located a minimum distance from certain features, as specified in Table 419.1, at the time the Department receives a complete site license application. The Department may require that the generator increase setbacks if necessary to meet the standards in section 4 and Chapter 400, sections 3 and 4.

Table 419.1
Minimum Setbacks for Leachable Residuals

Type of Feature	Distance in Feet From Site Boundary to Feature
Public well	500
Private well	300
Property line	25
Bedrock outcrop	25
Off-site dwelling or occupied building	300
Surface water, and drainage features with mineral bottoms*	35
Down-slope soils derived from outwash or stratified drift parent materials without a minimum six inch soil cap of loamy fine sand or finer	25

*Surface waters are waters of the state that are not groundwater. Drainage features include ditches, swales, ravines and gullies.

(2) Soil Cap. All soils derived from outwash or stratified drift parent materials must have a minimum six inch soil cap of loamy fine sand or finer.

(3) Minimum Depth to Bedrock. For established perennial crops such as hay, the bedrock must be a minimum of 10 inches below the ground surface. For other crops, including row crops, the depth to bedrock at the site must be a minimum of twenty (20) inches below the ground surface. The Department may increase bedrock separations if necessary to meet the standards in section 4 and Chapter 400, sections 3 and 4.

(4) Slope. The slope of the site may not exceed 15% for agricultural settings and 25% for forestry settings.

Note: If the utilization activity is proposed within the direct watershed of Marine waters, the site is also subject to the siting standards contained in section 3.B.

B. Siting Standards for Certain Residuals

(1) Applicability. The provisions of this section apply to any one of the following:

(a) Sewage sludge and residuals derived from sewage sludge that contain monthly average metal concentrations in excess of the applicable metal concentrations in Table 419.3, column A.

(b) Ash or other liming agents that contain monthly average metal concentrations in excess of the applicable metal concentrations in Table 419.4, columns A through C.

(c) Other residuals with monthly average metal concentrations in the residual that exceed the metal standards in Table 419.5, column A, unless the Department determines in a program license that the provisions of this section are not necessary in order to meet the licensing standards in section 4 and Chapter 400, sections 3 and 4.

(d) Mixtures of sewage sludge, liming agents and/or other residuals, when the ingredients in the mixture exceed their applicable metal concentrations as outlined above in section 3.B(1)(a) through (c) unless the Department determines in a program license that the provisions of this section are not necessary in order to meet the licensing standards in section 4 and Chapter 400, sections 3 and 4.

(e) Utilization of Type II residuals that have not been treated to a class A pathogen standards.

(f) Utilization of residuals that contain greater than 27 ppt 2,3,7,8 TCDD equivalents.

(g) Utilization in direct marine watersheds of residuals that have a C:N of less than 25:1, unless the residual is a compost, or unless the Department determines in a program license that mineralization or other comparable studies demonstrate that excess nitrates will not contaminate surface water.

(h) Utilization of residuals, in combination with other nutrient sources, supplying more than the crop uptake rate of phosphorus.

(2) Buffers and Setbacks. Boundaries of the utilization site must be located a minimum distance from some surface water, as specified in Table 419.2, unless otherwise approved in a site specific soil erosion control plan. The Department may increase setbacks if necessary to meet the standards in section 4 and Chapter 400, sections 3 and 4.

When the generator chooses to develop a site specific soil erosion control plan, the practices contained in the plan must prevent erosion and sedimentation into water bodies for the fields where the residuals will be utilized, and otherwise prevent surface water contamination. If the generator does develop a soil erosion control plan, the plan must be implemented as approved by the Department. The plan must consider the practices listed in the State of Maine Nonpoint Source Pollution Management Plan published by the Maine Department of Environmental Protection in November of 1989 and updated in 1992. The generator must ensure that erosion control plans are reviewed and, if necessary, modified each year prior to residuals application.

Table 419.2
Minimum Buffers to Protect Surface Water

Buffer Characteristics*	Distance in Feet From Application area to marine waters, lakes, ponds, rivers, streams, brooks, and intermittent streams with mineral bottoms
0-3% slopes, wooded	35
3-8% slopes, wooded	50
8-15% slopes, wooded	100
15-25% slopes, wooded	150
0-3% slopes, non-wooded	50
3-8% slopes, non-wooded	75
8-15% slopes, non-wooded	150

* The slope and cover type refer to the buffer area, and not the adjacent utilization field. Non-wooded buffer for purposes of this table means vegetated fields, reverting fields or grassed areas, and forested areas in which more than 40 percent of the timber has been harvested in the past ten years.

(3) Setbacks. The utilization site may not be located within 300 feet of the high water mark of:

(a) surface water classified as GPA

(b) lakes, ponds and springs that are public drinking water supplies; and

(c) the shoreline within 1 mile upstream of the intake pipe on a stream or river that is a public drinking water supply.

(4) Slope. The slope of the site may not exceed 15% for agricultural settings and 25% for forestry settings.

(5) Flood Plain. The utilization site may not be located within the 100 year flood plain. This provision does not apply to sites that will receive Type II residuals treated to a class B pathogen treatment standard.

C. Siting Standards for Utilization of Sludge

(1) The Department may not issue a license for a site where sludge will be utilized within 75 feet of a river, perennial stream or great pond.

(2) The Department will condition a site license to restrict the land application of sludge to no less than 50 feet from abutting property boundaries, if so requested in writing by the abutting property owner during the processing of the site specific license.

Note: The above licensing requirements are required by 38 MRSA 1310-N, subsection 2-G

4. **General Operating Standards for Agronomic Utilization.** All agronomic utilization activities must be licensed and operated to meet the following standards.

   A. **Residual Suitability.** The residual must be physically and chemically suitable for the intended utilization activity, must be non-hazardous, and must be of a known and consistent quality. Ash must be conditioned with water prior to utilization to prevent fires.

   B. **Agronomic Benefit.** The residual must increase the nutrient content of the soil at a rate commensurate with the nutritional needs of the crop to be grown; otherwise improve agricultural soil conditions; or provide another horticultural benefit in which the residual meets or exceeds the generally accepted product specifications and standards for the product it is replacing. Each residual in a residual mixture must add to the agronomic benefit of the whole mixture.

   C. **Sampling Plan**

      (1) The residual generator must develop and implement a waste characterization sampling and analytical work plan and, if required, a site monitoring plan in accordance with Chapter 405. The frequency of sampling must be adequate to represent the residual, soil or other media. The Department will require a site monitoring plan when it determines in a program or site license that a utilization program poses a potential threat to public health or safety or the environment because of the nature of the residuals utilized and/or the location, design and operation of a utilization site.

      Note: Chapter 405 requires the applicant to sample a residual for compounds that may be in the residual. The frequency of sampling must be adequate to represent the residual. Analytical requirements depend upon the processes that generate the residual, inputs to that process and the intended use of the residual.

      (2) Transition. Generators with utilization programs licensed pursuant to Chapter 567 must submit a waste characterization sampling and analytical work plan for review and approval by the Department by July 19, 2000.

      (3) Hazardous and Special Waste Handling and Exclusion Plan Exemption. Utilization activities meeting the standards of this Chapter meet the intent of, and are therefore exempt from, the requirement in Chapter 400, section 9 to develop and implement a Hazardous and Special Waste Handling and Exclusion plan.

   D. **Financial and Technical Ability.** The following general licensing standards from Chapter 400, section 4 must be met:

      (1) Chapter 400, section 4.B - Financial Ability

      (2) Chapter 400, section 4.C - Technical Ability

   E. **Protection of Waters of the State**

      (1) Utilization may not pollute any water of the State and residuals may not be placed where they will be washed into waters of the state.

      (2) Unless otherwise approved in a license, residuals may not be applied when the soil is frozen, snow-covered or water-saturated.

(3) Residuals must be evenly applied at or less than the maximum allowable application rates. Application rates, including additions from other nutrient sources, may not exceed the following:

(a) agronomic rates for nitrogen;

(b) 3 tons calcium carbonate equivalents per acre per year; and

(c) plant uptake rates for phosphorus when the residual is applied in the direct watershed of Waterbodies Most at Risk from New Development.

(4) Sufficient vegetative ground cover for proper nutrient uptake and erosion control must be maintained at the site. Solids buildup must not impair underlying vegetative growth, unless the residual is being utilized as a mulch or topsoil replacement.

(5) Crops must be harvested and removed from the field prior to continued utilization, unless the next year's nutrient budget is adjusted to account for the nutrients returned by the crop.

(6) All buffer zones required by these rules between the area of utilization and a surface water, and all buffer zones required by these rules between the area of utilization and a drainage feature with a mineral bottom, must be vegetated during application and during the following growing season. The buffer zone must be inspected just prior to each spreading. All areas that show evidence of erosion or channeled flow must be repaired, re-contoured, seeded, mulched and otherwise modified to create sheet flow. Nutrients of concern may not be applied to buffer zones, except as necessary to support adequate plant growth to function as a buffer.

(7) Residuals may not be applied to hydric soils unless exempt or licensed pursuant to 38 MRSA section 480-A *et seq*. For purposes of this Chapter, hydric soil means a soil that is saturated long enough during the growing season to favor the growth of hydrophilic plants.

F. Alternative Standards for Traffic Movement at Utilization Sites. The standard for traffic in Chapter 400, section 4.D(1) must be met at all utilization sites . Unless demonstrated to the contrary, this standard is presumed to be met at utilization sites when either:

(1) the residual will be used as a topsoil replacement;

(2) the site is utilized one time or less every five years; or

(3) the utilization activity results in 16 or fewer additional vehicle trips per day.

G. Alternative Standards for Fitting Harmoniously into the Natural Environment. The standard for fitting harmoniously into the natural environment in Chapter 400, section 4.E(1) must be met at all utilization sites. Unless demonstrated to the contrary, this standard is presumed to be met at utilization sites when either:

(1) the residual replaces a virgin material, such as topsoil or fertilizer, in a construction project;

(2) the purpose of the utilization project is to reclaim a mined area, close a landfill, or remediate a state designated uncontrolled hazardous substance site; or

(3) the buffer requirements of Chapter 400, section 4.E(1)(b) and the applicable buffer requirements of this Chapter are met at the site of utilization and/or storage.

H. Alternative Standards for Putrescible Residuals for Protection of Air Quality and from Nuisances. The standard for no unreasonable adverse effect on air quality in Chapter 400, section 4.G must be met at all utilization sites. Unless demonstrated to the contrary, this standard is presumed to be met at utilization sites when the following standards are met:

(1) Putrescible residuals may not be land applied within 300 feet of occupied buildings other than the site owner's or operator's. The Department may require that the generator increase setbacks if necessary to prevent nuisance odors at adjacent occupied buildings;

(2) The generator must implement a site specific odor control plan to mitigate odor impacts at adjacent occupied buildings; and

(3) Notification. The generator must inform the Department each time residuals will be applied at the site at least 1 business day before spreading.

Note: This notification requirement can be satisfied with a telephone call, voice mail message, e-mail, letter or fax to the Residuals Utilization Program of the Solid Waste Division at any one of the Department's central or regional offices.

I. Additional Operational Standards for Type II Residuals. The generator must ensure that the following additional operational standards are met on sites where Type II residuals are utilized:

Note: "Type II Residuals" are residuals that may contain human pathogens, such as sewage sludge, or solids from dewatered septage. Pathogen containing residuals must be treated prior to utilization. Pathogens are microorganisms that cause diseases. The degree to which the residual is treated for pathogens and vector attraction determines its class. When residuals are treated to Class A standards, in which pathogens are reduced to ambient soil concentrations, no additional siting standards apply to utilization of that residual. When residuals are treated to Class B standards, in which pathogens are reduced by about 90%, additional siting and operational standards apply to utilization of that residual.

(1) The Type II residual must be treated to a Class A or Class B vector attraction reduction standard and Class A or Class B pathogen reduction standard prior to utilization and field stacking.

(a) To meet a Class A pathogen reduction standard, the residual must be processed to meet one of the alternatives in Appendix B.2, either prior to meeting, or at the same time that the Class A vector attraction reduction requirements are met. The residual must also meet the following analytical standard at the time the residual is utilized: The density of *Salmonella sp.* bacteria in the residual must be less than three Most Probable Number per four grams of total solids (dry weight basis). In the absence of analytical data on *Salmonella sp.* this standard is presumed to have been met when the density of fecal coliform in the residual is shown to be less than 1000 Most Probable Number per gram of total solids (dry weight basis).

(b) To meet a Class B pathogen reduction standard, the residual must be processed to meet one of the alternatives in Appendix B.3.

(c) To meet a Class A vector reduction standard, one of the standards in Appendix B.4 must be met.

(d) To meet a Class B vector reduction standard, one of the standards in Appendix B.5 must be met.

(2) At sites where residuals treated to Class B pathogen reduction standards are utilized, the generator must ensure that the following additional provisions are met:

(a) Residuals are applied a minimum of fifteen (15) inches above the groundwater surface at the time of application. If residuals are injected or incorporated, a minimum of fifteen (15) inches separation must be maintained between the water table surface and the limit of incorporation or injection. Residuals treated to class B pathogen standards and that are utilized in flood plains, must be applied prior to September 15th.

(b) The buffers and setbacks established in sections 3.B(2) and (3) must be met. Additionally, unless otherwise provided for in a site specific soil erosion control plan, the residual may not be spread within 25 feet of site waterways including gullies, ravines and swales.

(c) Food crops grown on the utilization site with harvested parts that touch a Class B with respect to pathogens residual/soil mixture and are totally above the land surface, are not harvested for at least fourteen (14) months after the last application of the residual that is treated to a Class B pathogen reduction standard.

(d) Food crops grown on the utilization site are not harvested for at least twenty (20) months after the last application of a residual that is treated to a Class B pathogen reduction standard when the crops have harvested parts below the surface of the land and the residual that is treated to a Class B pathogen reduction standard remains on the land surface for four months or longer prior to incorporation into the soil.

(e) Food crops grown on the utilization site are not harvested for at least thirty-eight (38) months after the last application of residual that is treated to a Class B pathogen reduction standard when the crops have harvested parts below the surface of the land and the residual that is treated to a class B pathogen reduction standard remains on the land surface for less than four months prior to incorporation into the soil.

(f) Food crops, feed crops, and fiber crops grown on the utilization site are not harvested from the land for at least thirty (30) days after the last application of the residual that is treated to a Class B pathogen reduction standard.

(g) Domestic animals are not allowed to graze on the land for at least thirty (30) days after the last application of the residual that is treated to a Class B pathogen reduction standard.

(h) Turf grown is not harvested for at least one year after the last application of a residual that is treated to a Class B pathogen reduction standard.

(i) Topsoil is not mined from a site for at least thirty-eight (38) months after the last application of a residual that is treated to a Class B pathogen reduction standard.

(j) Public access to land with a high potential for public contact is restricted at the time of application and for one year after the last application of the residual that is treated to a Class B pathogen reduction standard. At a minimum, signs must be placed at common entranceways, unfenced open areas, and other appropriate locations to provide notice of restricted access.

(k) Public access to land with a low potential for public exposure is restricted at the time of application and for 30 days after the last application of the residual that is treated to a Class B pathogen reduction standard. If necessary, the Department may require that signs be placed at appropriate locations to provide notice of restricted access, especially at common entranceways or unfenced open areas.

J. Additional Operational Standards for Residuals Containing Heavy Metals

(1) The residual generator must ensure that the following additional operational standards of this subsection are met on sites where residuals that have one or more of the following characteristics are utilized:

(a) Sewage sludge and residuals derived from sewage sludge that contain monthly average metal concentrations in excess of the applicable metal concentrations in table 419.3, column A.

(b) Ash or other liming agents that contain monthly average metal concentrations in excess of the applicable metal concentrations in table 419.4, columns A through C.

(c) Other residuals with monthly average metal concentrations in the residual that exceed the metal standards in Table 419.5, column A, unless the Department determines in a program license that the provisions of this section are not necessary in order to meet the licensing standards in section 4 and Chapter 400, sections 3 and 4.

(d) Mixtures of sewage sludge, liming agents and/or other residuals, when the ingredients in the mixture exceed their applicable metal concentrations as outlined above in section 4.J(1)(a) through (c) unless the Department determines in a program license that the provisions of this section are not necessary in order to meet the licensing standards in Chapter 400, sections 3 and 4.

(2) Prohibition. Sewage sludge or products derived from sewage sludge that have monthly average heavy metal concentrations in excess of the concentrations in Table 419.3, column B, must not be utilized.

(3) Buffer. The buffers and setbacks established in sections 3.B(2) and (3) must be met. Additionally, unless otherwise provided for in a site specific soil erosion control plan, the residual may not be spread within 25 feet of site waterways including gullies, ravines and swales.

(4) Annual Heavy Metal Loading Limits. The following annual heavy metal loading limits may not be exceeded at the site of utilization, using the calculations in Appendix A.2.

(a) when sewage sludge or a residual derived from sewage sludge is utilized, the annual heavy metal loading limit for any one heavy metal may not exceed the limit in Table 419.3, column C, during any 365 day period.

(b) when ash or other liming agents are utilized, the annual heavy metal loading limit for any one heavy metal may not exceed the limit in Table 419.4, column D, during any 365 day period, unless otherwise approved by the Department in a utilization program license. The Department may waive this requirement only if the standards are not necessary in order for the activity to meet the standards in section 4 and Chapter 400, sections 3 and 4.

(c) for residuals other than sewage sludge or liming agents that are utilized, the Department may establish annual pollutant loading limits in a utilization program license based on the procedures in Appendix .B, section 2, in order to meet the standards in Chapter 400, sections 3 and 4 and this Chapter.

(5) Heavy Metals in Soil. The concentration of parameters in soil at utilization sites may not exceed the following, as determined by background and on-going representative soil sample analysis, unless otherwise approved by the Department in a program license: The Department may only otherwise approve this in a program license if the Department determines that these standards are not necessary in order to meet the standards in section 4 and Chapter 400, section 3 and 4.

(a) for sewage sludge, the concentrations in Table 419.3, column E;

(b) for ash or other liming agents, the concentrations in Table 419.4, column F; and

(c) for residuals other than sewage sludge or ash, the concentrations in Table 419.5, column B.

Table 419.3
Heavy Metal Standards
for sewage sludge utilization
(dry weight)

Heavy Metal	Screening Conc. in sewage sludge (mg/kg)	Ceiling conc. in sewage sludge (mg/kg)	Annual Pollutant Loading Rate at utilization site (kg/ha)	Cumulative Pollutant Loading Rate at utilization site (kg/ha)	Ceiling conc. in soil at utilization site (mg/kg)
	Column A	Column B	Column C	Column D	Column E
Aluminum	N/A	N/A			100,000
Arsenic	34	41	1.7	34	73
Barium	N/A	N/A			1500
Beryllium	N/A	N/A			7
Cadmium	10	39	1.9	39	39
Chromium	1000	3000			3000
Cobalt	N/A	N/A			70
Copper	1000	1500	75	1500	1500
Lead	300	300	15	300	300
Mercury	6	10	0.3	6	6
Molybdenum	75	75			15
Nickel	200	420	20	420	420
Selenium	100	100	5	100	100
Silver	N/A	N/A			34
Vanadium	N/A	N/A			300
Zinc	2000	2800	140	2800	2800

Table 419.4
Heavy Metal Standards
for ash and other liming agents
(dry weight)

Column:	A	B	C	D	E	F
	Screening Concentration of pollutants in ash based on the calcium carbonate equivalents of the ash (mg/kg)					
$CaCO_3$ equiv in ash	25%	50%	75%			
Parameter				Annual Metal Loading Rate (kg/ha)	Cumulative Loading Rate at Utilization site (kg/ha)	Ceiling conc in soil at utilization site (mg/kg)
Aluminum	362,383	724,767	N/A	9,750	195,000	100,000
Antimony	19	37	56	0.5	10	5
Arsenic	20	40	60	0.54	11	73
Barium	7,434	14,867	22,301	200	4,000	2,000
Beryllium	7	14	21	0.19	4	7
Cadmium	30	59	89	0.8	16	8
Chromium	141	282	424	4	76	38
Cobalt	21,836	43,672	65,508	588	11,750	5,875
Copper	5,575	11,150	16,725	150	3,000	1,500
Cyanide	35	71	106	0.95	19	10
Lead	1,394	2,788	4,181	38	750	375
Mercury	2	5	7	0.06	1	1
Molybdenum	1,812	3,624	5,436	49	975	488
Nickel	483	966	1,450	13	260	130
Selenium	19	37	56	0.5	10	5
Silver	126	253	379	3	68	34
Thallium	3	5	8	0.07	1	1
Vanadium	2,555	5,111	7,666	69	1,375	688
Zinc	10,407	20,814	31,221	280	5,600	2,800

Table 419.5
Screening Concentrations for Other Residuals
and maximum allowable soil concentrations at utilization sites
mg/kg (dry weight)

	Screening Concentration for other residuals	Ceiling Concentration in soil at Utilization sites
Inorganic Compound	Column A	Column B
Aluminum	97,500	100,000
Antimony	5	5
Arsenic	5	73
Barium	2,000	2,000
Beryllium	2	7
Cadmium	8	8
Chromium	38	38
Cobalt	5,875	5,875
Copper	1,500	1,500
Cyanide	10	10
Lead	375	375
Mercury	1	1
Molybdenum	488	488
Nickel	130	130
Selenium	5	5
Silver	34	34
Thallium	1	1
Vanadium	688	688
Zinc	2,800	2,800

K. Additional Operational Standards for Dioxin Containing Residuals. The generator must ensure that the following additional operational standards are met when utilizing residuals with greater than 27 ppt total 2,3,7,8 TCDD equivalents (dry weight):

(1) Prohibition. Residuals containing PCDDs and PCDFs greater than 250 ppt total 2,3,7,8 TCDD equivalents (dry weight) may not be land applied or utilized and may not be blended with other materials to reduce the concentration of TCDD equivalents to meet utilization standards.

(2) Depth to Water Table. Residuals must be applied a minimum of fifteen (15) inches above the groundwater surface at the time of application. If residuals are injected or incorporated, a minimum of fifteen (15) inches separation must be maintained between the water table surface and the limit of incorporation or injection.

(3) Buffer. The buffers and setbacks established in sections 3.B(2) and (3) must be met. Additionally, unless otherwise provided for in a site specific soil erosion control plan, the residual may not be spread within 25 feet of site waterways including gullies, ravines and swales.

(4) Soil Testing and Deed Restrictions. For sites upon which dioxin-containing residuals are land applied, representative soil samples must be collected and analyzed for PCDD / PCDF within three (3) months after the last application of the residual in any year. If the soil concentration

is 27 ppt total 2,3,7,8-TCDD equivalents (dry weight) or greater, then the following restrictions apply:

(a) livestock and domestic fowl whose products are consumed by humans may not be pastured on sites;

(b) crops for human consumption may not be grown at sites; and

(c) the restrictions in section 4.K(4)(a) and (b) above apply to subsequent owners of the land utilization site. The licensee and/or landowner must prepare and record, in the Registry of Deeds, information and deed restrictions to provide notice to prospective purchasers and a public record of the location of the utilization site. The information must include that dioxin-containing residuals were land applied to that site; that soil concentrations met or exceeded 27 ppt total 2,3,7,8-TCDD equivalents (dry weight); and that subsequent owners are subject to use restrictions under this section. The generator must submit evidence to the Department that the above information, as well as site location, type of residual, date of utilization, and use restrictions have been recorded at the Registry of Deeds within sixty (60) days after obtaining soil sample analyses results.

L. Additional Operational Standards for Residuals Containing Nitrogen. The provisions of this subsection apply to utilization of residuals that have a C:N of less than 25:1, unless the residual is a compost, or unless the Department determines in a program license that mineralization or other comparable studies demonstrate that excess nitrates will not contaminate groundwater. This section also applies to utilization of other residuals that the Department has determined in a Program license readily leach contaminants that may contaminate groundwater.

(1) The setbacks in table 419.1 must be maintained.

(2) At the time of spreading, all soil derived from outwash or stratified drift parent material must have a minimum six inch soil cap of loamy fine sand or finer. Residuals may not be spread within 25 feet up-slope from soil derived from outwash or stratified drift parent material with a cap of six inches or less.

(3) On soil with a depth to bedrock less than 20 inches, and on soils derived from outwash or stratified drift parent material, residuals must be applied during the optimal growing time for the site crop to maximize nitrate uptake. For hay crops grown on these areas, the residual may not be spread after September 15 of any year. When spreading on these soils, available nitrogen must be monitored in the soil in the root zone, and at 18 inches or just above refusal, at the beginning and end of the growing season.

(4) Depth to Water Table. Residuals must be applied a minimum of fifteen (15) inches above the groundwater surface at the time of application.

(5) Depth to Bedrock. Residuals must be applied a minimum of 10 inches above the bedrock surface, including the limits of incorporation.

(6) Buffer. If the utilization activity is proposed within the direct watershed of Marine waters, the buffers and setbacks established in sections 3.B(2) and (3) must be met. Additionally, unless otherwise provided for in a site specific soil erosion control plan, the residual may not be spread within 25 feet of site waterways including gullies, ravines and swales.

M. Additional Operational Standards for Phosphorus Containing Residuals. The following additional standards apply to utilization of residuals that will be applied, either alone or in combination with other nutrient sources, above the crop uptake rates for phosphorus.

(1) Seasonal Cut-Off Dates. Residuals must be spread before September 15th of each year on somewhat poorly drained and poorly drained soils.

(2) Buffer. The buffers and setbacks established in sections 3.B(2) and (3) must be met. Additionally, unless otherwise provided for in a site specific soil erosion control plan, the residual may not be spread within 25 feet of site waterways including gullies, ravines and swales.

(3) Slopes. The residuals may not be spread on areas with slope gradients greater than 10% on row crops (such as corn), 15% on perennial crops (such as hay), and 25% in tree growth.

N. Additional Operational Standards for Sludge Utilization.

(1) An abutter to a sludge utilization site may request that sludge not be land applied within 50' of the abutter's property boundary. Requests must be filed with the Department in writing, and must include:

(a) the name and mailing address of the property owner requesting the setback;

(b) the name of the owner of the land upon which the residual is being spread;

(c) the physical location of the property upon which the sludge is being spread;

(d) a description of the sludge being spread; and

(e) if known, the name and mailing address of the facility generating the sludge.

(2) Pursuant to 38 MRSA 1310-N, subsection 2-G, sludge may not be land applied within 50' of an abutter's property boundary, upon notification that the Department has received a written request from the abutter to establish the setback.

5. Suspension of Utilization Site Use

A. Suspension Action Levels. Application of residuals at a utilization site must be suspended when the generator, operator or Department determines that the residual supplies the parameter of concern and one or more of the following standards have been exceeded in the site soil:

(1) Soil pH is greater than 6.5 SU, and base saturation of the soil's cation exchange capacity is less than 2.5% potassium or 10% magnesium, or its equivalent;

Note: "or its equivalent" means that alternative analytical methods may be used to evaluate compliance with this standard. For example, by measuring the concentration of potassium or magnesium in site soil, and using a reasonably conservative assumption of what the CEC is in the site soil, the generator may demonstrate that this standard has been met.

(2) Base saturation of the soil's cation exchange capacity is greater than 15% sodium;

(3) pH of 7.5 SU;

(4) Organic matter content of 12% (dry weight basis);

(5) One or more of the following heavy metal concentrations:

(a) For sewage sludge, the concentrations in table 419.3, column E

(b) For residuals other than sewage sludge, the concentrations in table 419.5, column B;

(6) The concentration in Chapter 418 Appendix A of any parameter other than metals; or

Note: This standard does not mean that all site soils must be sampled for all the parameters in Chapter 418, Appendix A. The site soil will have to be tested for compounds that may be reasonably expected to be found. Analytical requirements depend upon the loading rate of a contaminant to the site's soil. The frequency of sampling must be adequate to represent the soil. Environmental monitoring plans are established under Chapter 419, Section 7.B(15), during the licensing process.

(7) A plant available phosphorus concentration in excess of 100 lbs/acre, as determined by a Morgan-type extract (sodium or ammonium acetate at pH 4.8), or its equivalent.

B. Resumption. Following suspension of use under section 5.A above, utilization activities may resume at the site when the generator submits written information to the Department and, based on that and other relevant information, the Department determines that continued utilization will meet the standards in Chapter 400, sections 3 and 4, and the standards in sections 3 and 4 of this Chapter.

6. Record Keeping and Reporting

A. Record Keeping Requirements. Unless otherwise provided for in the program license, the residual generator must make provisions to keep the following records and make them available for Department inspection and copying for the duration of the utilization activities, and for a minimum of three (3) years after the utilization program ceases:

(1) Volume of residual generated on a yearly basis;

(2) Volumes of residual utilized, processed, disposed and stored on a yearly basis;

(3) Analytical results and residual process monitoring records pertaining to the utilization program and residual, including a record of sample locations;

(4) A list of licensed utilization sites, loading rates at those site, analytical data, all license application submissions, a copy of licenses issued by the Department and all other site specific utilization information; and

(5) Other information as specified in the utilization program license.

B. Periodic Reporting. Licensees must submit reports containing analytical data and other information in accordance with the program license.

C. **Annual Report.** By February 28 of each year, the generator must forward to the Department an annual report for activities during the previous calendar year that summarizes the utilization program, and includes the applicable reporting fee. Unless otherwise approved in the program license, the report must include a summary of the information in section 6.A, above.

Note: A reporting fee schedule may be obtained from the Solid Waste Division of the Department.

D. **Certification Statement.** All information submitted to the Department demonstrating compliance with the standards of this Chapter must be accompanied by a statement that is signed by an authorized representative of the licensee which reads, "I certify under penalty of law that I have personally examined and am familiar with the information submitted herein. Based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

7. **Application Requirements for Residual Utilization.** Any generator seeking to undertake a utilization activity shall provide information sufficient to demonstrate that the standards of sections 3 and 4 of this Chapter have been met. The generator shall submit to the Department, on application forms developed by the Department, the following information:

A. **Submissions for Program Licenses**

(1) Program Description. A description how the residual will be handled for the utilization program including, if applicable, the benefit to crops or soil afforded by the utilization, the weekly and annual volume of residual produced, the volume proposed for utilization, the volumes proposed for disposal, a description of the blending, mixing, or processing of residuals and the purpose of this processing, proposed application rates in tons of residual per acre of land, methods of calculating the appropriate loading rate, and a description of how the residual will be stored and transported.

(2) Residual Suitability. A description of the processes that generate the residual(s) proposed for utilization and a physical and chemical description of the resultant residuals obtained in accordance with Chapter 405, section 6.

(3) Sampling. A sampling and analytical work plan meeting the standards in Chapter 405 to representatively monitor residual quality.

(4) Risk Management. A description of potential risks posed by the utilization program, and appropriate management strategies to mitigate those risks, including an identification of any additional standards in sections 3 and 4 the utilization program is subject to, and one of the following:

(a) Screening Standards. A demonstration that the residual meets all of the applicable screening standards in Table 419.3 column A, Table 419.4, columns A through C, or Table 419.5, column A; and the screening standards for hazardous substances other than metals in Chapter 418, Appendix A;

Note: Not all compounds in Appendix A must be analyzed for. See Chapter 405.

(b) Loading Rate. Loading rate calculations done in accordance with Appendix A.2.C which demonstrate that the following standards, as applicable, will not be exceeded: annual and cumulative loading rates in Table 419.3 columns C and D, Table 419.4 columns D and E, or Table 419.5 column A; and the screening standards for hazardous substances other than metals in Chapter 418, Appendix A;

(c) Comparison Studies. A comparison of characteristics of the residual to another residual for which a risk assessment has been done, demonstrating the applicability of that risk assessment; or

(d) Risk Assessment. An assessment of the human health and/or environmental risks posed by contaminants of concern, and a risk management strategy. The risk management must ensure that residual utilization activities, under present or future site uses, will not result in the aggregate risk to a highly exposed individual that exceeds an Incremental Lifetime Cancer Risk of $5X10^{-6}$ or that exceeds a Hazard Index of 1/2.

(5) Site Information

(a) Site Standards. The standards proposed for sites where the residual will be utilized including buffer zones and soil standards; a description of the site specific information that will be submitted to the Department for site licenses; and the proposed licensing processes for site specific utilization licenses; or

(b) Utilization Instructions. The information that will be provided to the person that uses the residual, that ensures compliance with the standards of section 3 and 4, and the notice, if any, that will be provided to the Department when site specific licenses will not be obtained.

Note: More than one strategy may be appropriate for a given residual, depending on the utilization circumstances.

(6) Traffic. A demonstration that the generator will meet the alternative traffic standards in section 4.F at all utilization sites or provisions to supply site specific information.

(7) Harmoniously Fitting into the Environment. A demonstration that the generator will meet the alternative standards in section 4.G for fitting harmoniously into the natural environment at all utilization sites, or provisions to supply site specific information.

(8) Financial and Technical Ability. The application submission requirements in Chapter 400, sections 4.B(2) and 4.C(2).

(9) Municipal and Public Notice. Proof that public notice of the application has been provided as required in section 2.F.

(10) Nuisance. A demonstration that the residual does not generate offensive odors, or provisions to meet the alternative odor control standards in section 4.H at all utilization sites or provisions to supply site specific information to meet the standard in Chapter 400, section 4.G.

B. Submissions for Utilization Site Licenses. Prior to utilizing a residual at a site, a generator must submit a complete application for a utilization site license, unless otherwise approved by the

Department in a Program license. Unless otherwise approved in a program license, the utilization site application must include:

(1) Title, Right or Interest. Information demonstrating that the generator has sufficient title, right or interest in a property proposed for utilization by providing:

(a) the submissions enumerated in Chapter 2, section 7.D; or

(b) a copy of an agreement between a landowner(s) and a residual generator certifying that the owners own the land and agree to allow the utilization and, if applicable, storage of the residual on the property. The agreement must also include the signature, printed name, and address of the generator and all property owners, site location, description of the area authorized for use including acreage, and if available, the map and lot number from municipal tax maps.

(2) Project Summary. A summary of the types of crops to be grown, method of application, anticipated spreading schedule and any special management considerations for the site based on site characteristics.

(3) Site Maps

(a) Topographical Map: The most recent 7.5 minute US Geological Survey topographic or equivalent map marking the proposed utilization boundaries and site owner's property boundaries;

(b) Site Sketch. Site sketch(es) of the proposed utilization area(s) of sufficient quality and scale, and with sufficient features to ensure that the person spreading the residual can determine appropriate utilization boundaries. At a minimum the map must depict the area suitable for utilization, buffers and setbacks, features requiring buffers and setbacks, drainage features, and the map scale, orientation, and title.

(c) Tax Map. If available, the appropriate town tax map showing the site property boundaries, the area proposed for utilization, and the names and location of abutters.

(d) Soils Map and Report. A clear copy of the appropriate United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) County medium intensity soil survey map with the site clearly outlined and a copy of the key to the soil mapping units. If the Department questions the accuracy of the map, the Department may require a soils investigation report and site specific soils map. The report must describe the soil slope, permeability, flooding potential, drainage, depth to bedrock and/or sand or gravel deposits, along with appropriate operational standards to be employed to prevent surface or groundwater contamination.

(e) Sand and Gravel Aquifer Map. If the proposed site is within 500 feet of a sand and gravel aquifer, a copy of the most recent Hydrogeologic Data for Significant Sand and Gravel Aquifer map with the proposed utilization site clearly delineated.

(f) Flood Zone Map. If the proposed site is within 500 feet of a 100 year flood zone, the most recent Federal Emergency Management Agency (FEMA) flood zone map or its equivalent with the proposed utilization site clearly delineated.

(4) Sensitive Areas. A statement as to whether or not the site is located in, on, over or next to a protected natural resource, a sensitive receptor, and/or the direct watershed to Marine waters. If the site is located near one or more of these areas, provide the name of the feature and horizontal distance from nearest site boundary to the feature.

(5) Protected Location. At the Department's discretion, letters from the Maine Department of Inland Fisheries and Wildlife, and from the Natural Areas Program of the Department of Conservation that the activity will not unreasonably adversely impact protected significant wildlife habitat, fragile mountain areas, or rare, threatened and endangered plant or animal species.

(6) Buffers, Erosion Control and Flooding

(a) A description of buffer zones at the utilization sites established to meet the standards in sections 3 and 4. If the applicant is proposing a reduction in the buffers enumerated in table 419.2, a rationale for the reduction and a site specific soil erosion control plan meeting the standards in section 3.B(2).

(b) For utilization activities where the topography will be altered or structures built as part of the utilization activity, the application submissions in Chapter 400, section 4.J(2)(a) and Chapter 400, section 4.M(2). For utilization where the topography will not be altered, by meeting the standards of this Chapter, the standards in Chapter 400, section 4.J and Chapter 400, section 4.M are presumed to be met.

(7) Soil Nutrients. Representative soil nutrient analysis for the site.

(8) Traffic. A demonstration that the generator meets the alternative traffic standards in section 4.F or the traffic information required by Chapter 400, section 4.D(2).

(9) Natural Environment. A demonstration that the generator meets the alternative standards found in section 4.G, or the submissions enumerated in Chapter 400, sections 4.E(2) and 4.F(3).

(10) For residuals used to supply nitrogen, phosphorus, or other nutrients, a demonstration that the site has a need for the nutrient provided by the residual in addition to other on site nutrients.

Note: Department of Agriculture Regulations, Chapter 565, effective December 15, 1998, requires farms utilizing residuals to have a licensed nutrient management specialist develop a whole farm nutrient management plan. While the plan itself need not be submitted to the Department, the information in any existing plan should form the basis for the above determination that additional nutrients are needed on a farm.

(11) For repeat utilization of putrescible residuals, a site specific odor control plan to prevent nuisance odors at adjacent occupied buildings;

(12) For a residual that is treated to a class B pathogen reduction standard, a description of the class B pathogen reduction method, a description of any class B vector attraction reduction method proposed for the site; and a copy of a statement signed by the generator, landowner and the operator of the site that ensures that the applicable site restrictions in section 4.I will be met.

(13) For residuals subject to the additional dioxin standards in section 4.K a site specific sampling and analytical work plan to monitor soil dioxin concentrations. The applicant must also submit a copy of a statement signed by the generator, landowner and, if different, the operator of the site, that specifically acknowledges the presence and concentrations of PCDDs and PCDFs in the residual to be spread, and the ability and willingness of the landowner to comply with the standards in section 4.K(4):

(14) For residuals subject to the additional standards for heavy metals in section 4.J, a site specific sampling and analytical work plan to monitor soil metal concentrations; and loading rate calculations demonstrating that applicable annual and cumulative loading rates for metals in tables 419.3, 419.4 or 419.5 will not be exceeded.

(15) Environmental Monitoring Program. If determined appropriate under section 4.C, a site monitoring plan meeting the standards in Chapter 405.

(16) Public Notice. Proof that public notice of the application has been provided as required in section 2.F.

(17) Joint Utilization. When more than one generator are utilizing a residual that requires a site specific license at the same site, a joint utilization agreement, meeting the standards in section 2.D.

8. Permit by Rule Program License for the Utilization of Composted Residuals

A. Applicability. The permit-by-rule licensing provisions of this section shall apply to the distribution for utilization in Maine of residuals other than Type II residuals that meet all of the standards of this section. Failure to meet any of these standards will require formal application to the Department for a license to distribute composted residuals under sections 2 through 7. The Department assumes that the distribution of composted residuals in strict conformity with these permit-by-rule provisions will meet the standards of Chapter 400, section 4 and the standards in section 2 through 6 of this Chapter. No variances to the requirements of this section may be granted.

Note: 38 M.R.S.A. § 1304(18) prohibits the Department from licensing the utilization and distribution of compost derived from Type II residuals under the permit-by-rule provisions of this section. See Chapter 400 for a full definition of residual types. Type IA residuals are leaf, vegetative and other residuals with a C:N ratio of greater than 25:1. Type IB residuals are food and other residuals with a C:N ratio of between 25:1 to 15:1. Type IC residuals are fish and other residuals with a C:N ratio of less than 15:1. C:N refers to the ratio of available carbon to nitrogen of the raw residual prior to composting. See Appendix 410.B for a list of typical C:N ratios for various residuals. Type II residuals are sewage sludge, septage, and other residuals that may contain human pathogens. Type III residuals are petroleum contaminated soils and other residuals that may contain hazardous substances above the risk based standards in Chapter 418, Appendix A.

B. Standards

(1) Composting. The residual must be composted prior to distribution for utilization.

(2) Sampling. Sampling must be done in accordance with Chapter 405, section 6.D.

Note: Metals and other hazardous substances must only be measured if, based on the nature of the residuals processed and other appropriate factors, the Department determines that there is a potential for these constituents to be in the compost at levels that could pose a risk to human health or the environment.

(3) Heavy Metal Standards

(a) Monthly concentrations of metals in the compost must be less than the concentrations in table 419.3, column A if the metals are derived from sewage sludge or dewatered septage.

(b) Monthly concentrations of metals in the compost must be less than the concentrations in table 419.5, column A, if the metals are derived from a Type III residual.

Note: This does not necessarily mean that compost needs to be analyzed monthly for heavy metals. See Chapter 405, section 6 for determining frequencies.

(4) Hazardous Substances. For compost made from Type III residuals, concentrations of hazardous substances other than heavy metals in the compost are less than the screening standards in Chapter 418, Appendix A.

(5) Sharps and Synthetic Objects. The residual contains less than 0.05% by weight, of synthetic objects, and contains less than one sharp object, such as broken glass, nails or needles, per 10 tons of residual based on visual inspection.

(6) Compost Stability. The stability class of the compost must be measured and the generator must distribute information to compost users on the appropriate uses of the compost, based in part on the compost's stability.

(7) Salt Content. For compost with a salt content greater than 2 mmhos/cm, the generator must distribute information to compost users on the appropriate uses of the compost based in part on the salt content of the material.

(8) Agronomic Utilization. The compost must be distributed for agronomic utilization and each ingredient in the compost must add to the agronomic benefit of the mix as a whole.

(9) Record Keeping and Reporting. The generator will keep records and file an annual report of the volume of compost distributed in Maine each year in accordance with section 6.

C. **Notification Requirements.** At least 15 working days prior to the first shipment of any composted residual for utilization in Maine, the compost generator shall submit to the Department a permit-by-rule notification on a form developed by the Department. This notification must include:

(1) The generator's name, address, telephone number and contact person.

(2) The appropriate application fee.

(3) Public Notice. Proof that public notice of the application has been provided as required in section 2.F.

(4) Facility Description. For facilities other than those licensed under Chapter 410, a brief description of the compost facility including:

(a) the volume, type and characteristics of the residuals processed at the facility, any materials added to the compost prior to distribution for utilization, and the ratio of all materials in the final compost mix;

(b) the method of composting used at the facility; and

(c) a list of federal and state environmental permits held by the facility.

(5) Sampling. A copy of the Sampling and Analytical Work Plan for the facility that is used to analyze the compost to ensure compliance with the compost quality standards in section 8.B above. The plan must including a certification from a qualified chemist that the Sampling and Analytical Work Plan meets the applicable standards of Chapter 405.

(6) Marketing. A brief description of how composted residuals will be distributed in Maine and instructions for appropriate use that will be provided to the users of the compost including:

(a) The name and address of the person who prepared the compost;

(b) A statement that the compost may not be applied when the soil is frozen, snow-covered or water-saturated; such that the compost will be washed into surface water; or placed directly into surface waters or below the groundwater table, without prior approval from the Maine Department of Environmental Protection; and

(c) Recommended blending and/or loading rates based upon annual heavy metals loading, nutrients, salt content, stability, and other factors as appropriate.

(7) Certification. A statement signed by the applicant that the distribution of composted residuals will conform with the requirements of this section.

9. Permit by Rule Site License for the Utilization of Digested Type IA, IB and IC Residuals

A. Applicability. Only digested Type IA, IB and IC residuals that have received program approval from the Department, and which meet all the standards of this section, may qualify for a permit-by-rule under this section. For the purposes of this Chapter, the term "digested" means that the residual has undergone aerobic digestion or anaerobic digestion as defined in Appendix B(1) of this Chapter. Failure to meet any of these standards will require a complete license application pursuant to sections 2 through 7 of this Chapter. The Department presumes that the utilization of digested Type IA, IB and IC residuals in strict conformity with these permit by rule provisions will meet the standards in the *Solid Waste Management Rules: General Provisions*, 06-096 CMR 400(4) and sections 2 through 6 of this Chapter. No variances to the requirements of this section may be granted.

Note: See 06-096 CMR 400 for a full definition of Type IA, IB and IC residuals. Type IA residuals are leaf, vegetative and other residuals with a C:N ratio of greater than 25:1. Type IB residuals are food and other residuals with a C:N ratio of between 25:1 to 15:1. Type IC

residuals are fish and other residuals with a C:N ratio of less than 15:1. C:N refers to the ratio of available carbon to nitrogen of the raw residual. See 06-096 CMR 410 Appendix B for a list of typical C:N ratios for various residuals.

B. Standards. To qualify for a permit-by-rule, all of the following standards must be met. Failure to meet any of these standards will require formal application to the Department for a utilization site license pursuant to sections 2 through 7 of this Chapter.

(1) Only digested Type IA, IB and IC residuals approved in the applicant's agronomic utilization program license shall be utilized at the site. The applicant must continue to adhere to all requirements in its agronomic utilization program license.

(2) Residuals proposed for utilization must meet the Class A vector attraction reduction standards of Appendix B(4)(A) of this Chapter.

(3) Only digested Type IA, IB and IC residuals meeting the screening concentration standards in Table 419.5 of this Chapter, or residual-specific ceiling concentrations established in the applicant's program license, may be utilized at the site.

(4) The loading rate of the digested Type IA, IB and IC residuals shall be commensurate with the nutritional needs of the crop to be grown.

Note: Department of Agriculture Regulations, *Nutrient Management Rules*, 01-001 CMR 565, requires farms utilizing residuals to have a licensed nutrient management specialist develop a whole farm nutrient management plan. While the plan itself need not be submitted to the Department (DEP), the information in any existing plan should form the basis for the above determination that additional nutrients are needed on a farm.

(5) The spreading area must meet the applicable minimum setbacks in section 3.A and 3.B of this Chapter.

(6) Digested Type IA, IB and IC residuals must be applied a minimum of 10 inches above the bedrock surface on established perennial crops such as hay and 20 inches above the bedrock surface for other/row crops, including the limits of incorporation.

(7) Digested Type IA, IB and IC residuals must be applied a minimum of 15 inches above the groundwater surface at the time of application.

(8) Digested Type IA, IB and IC residuals shall not be spread on areas with slope gradients greater than 15%.

(9) Digested Type IA, IB and IC residuals may not be applied when the site is frozen, snow covered or water saturated; such that the digested Type IA, IB and IC residuals will be washed into surface water; or placed directly into surface waters or below the groundwater table.

(10) Digested Type IA, IB and IC residuals may not be stockpiled at the utilization site.

(11) The generator must inform the Department each time the digested Type IA, IB and IC residuals will be applied at the site at least one working day before the anticipated date of spreading. This notification requirement can be satisfied in person, with a telephone call,

voice mail message, e-mail, letter, or fax to the Residuals Utilization Unit of the Division of Solid Waste Management at the Department's central office or appropriate regional office.

(12) Record Keeping and Reporting. The generator shall keep records and file an annual report of the volume of digested Type IA, IB and IC residuals utilized in Maine each year in accordance with section 6 of this Chapter.

(13) Certification. A statement signed by the applicant that the utilization of the digested Type IA, IB and IC residuals will conform to the requirements of this section.

C. **Notification Requirements.** The applicant shall submit to the Department, a permit-by-rule notification in sufficient time for Department receipt at least 15 working days prior to the anticipated first date of agronomic utilization of the digested Type IA, IB and IC residuals at a site. The permit-by-rule notification shall be on a form provided by the Department. Within 15 working days of receipt of the permit-by-rule notification, the Department shall mail notice to the applicant indicating whether the notification meets the permit-by-rule notification provisions of this section. If the notice to the applicant is not mailed within 15 working days of receipt, the permit-by-rule notification is deemed accepted.

The notification must include:

(1) The applicant's name, address, telephone number, e-mail address, and contact person.

(2) Public Notice. Proof that public notice of the application has been provided as required in 06-096 CMR 400(3)(B)(1)(c).

(3) Title, Right, or Interest. Information demonstrating that the generator has sufficient title, right, or interest in a property proposed for utilization by providing:

(a) The submissions enumerated in 06-096 CMR 2(11)(D); or

(b) A copy of an agreement between a landowner(s) and a residual generator certifying that the owners own the land and agree to allow the utilization of the residual on the property. The agreement must also include the signature, printed name, and address of the generator and all property owners, site location, description of the area authorized for use including acreage, and if available, the map and lot number from municipal tax maps.

(4) The applicant's digested Type IA, IB and IC residual agronomic utilization program license number.

(5) Site Maps

(a) Topographical Map. A clear, legible copy of the most recent 7.5 minute US Geological Survey topographic or equivalent map marked with the proposed utilization boundaries and site owner's property boundaries.

(b) Site Sketch. Clear legible site sketch(es) of the proposed utilization area(s) of sufficient quality and scale, and with sufficient features to ensure that the person spreading the residual can determine appropriate utilization boundaries. At a minimum the map must depict the area suitable for utilization, buffers and setbacks, features requiring buffers and setbacks, drainage features, and the map scale, orientation, and title.

(c) Soils Map. A clear, legible copy of the appropriate United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) County medium intensity soil survey map with the site clearly outlined and a copy of the key to the soil mapping units.

(d) Sand and Gravel Aquifer Map. If the proposed site is within 500 feet of a sand and gravel aquifer, a clear, legible copy of the most recent Hydrogeologic Data for Significant Sand and Gravel Aquifer map with the proposed utilization site clearly delineated.

(6) Soil Nutrients. Representative soil nutrient analysis for the site.

(7) Travel directions from the site of generation to the utilization site, anticipated spreading schedule, estimated volume or tonnage, and acreage involved.

(8) A statement by the applicant that the utilization of the digested Type IA, IB and IC residuals will conform to the requirements of this section.

(9) The appropriate application fee.

10. Permit by Rule Transfer of Site License

A. Applicability. The permit-by-rule licensing provisions of this section shall apply to the transfer of utilization site licenses that meet all of the standards of this section. Failure to meet any of these standards will require formal application to the Department for a utilization site license transfer under section 2.E. Sites transferred under this section are subject to the applicable operating standards in section 4, the operational standards contained in the site license(s), and the receiving generator's program license. No variances to the requirements of this section may be granted.

B. Standards

(1) Both generators generate the same kind of residual, such as sewage sludge treated to a class B pathogen reduction standard;

(2) Both generators agree to the transfer;

(3) The receiving generator must be in substantial compliance with its program license;

(4) Both program licenses must require the same siting standards;

(5) The entire site is being transferred; and

(6) All residuals from the current license holder must have been properly utilized or removed from the site prior to filing the transfer notification.

C. Notification Requirements. At least 15 working days prior to transferring the license, the generator who is obtaining the site shall submit to the Department a permit-by-rule notification on a form developed by the Department. This notification must include:

(1) The generators' name, address, telephone number and contact person;

(2) The appropriate application fee;

(3) Both generators' program license numbers;

(4) Public Notice. Proof that public notice of the application has been provided as required in section 2.F.

(5) The site license number;

(6) Title, Right or Interest. Information demonstrating that the generator has sufficient title, right or interest in a property proposed for utilization by providing one of the following:

(a) submissions enumerated in Chapter 2, section 7.D; or

(b) a copy of an agreement between a landowner and a residual generator certifying that the owners own the land and allowing utilization and if applicable storage of the residual on the landowner's property. The agreement must also include the signature, name and address of the generator and all property owners, and site location;

(7) Fee. The appropriate application fee; and

(8) Certification. A statement signed by the applicant stating that all the standards in this section have been met, and all applicable requirements of these rules and the transferred license will be met.

11. Storage of Residuals Prior to Utilization. This section applies to storage of residuals prior to agronomic utilization. For purposes of this Chapter, "a field stacking facility" means a facility for the storage of residuals on a permeable surface and not under a permanent roof. For purposes of this Chapter, "contained storage facilities" means storage facilities where residuals are stored on impervious surfaces or under a roof. All residual storage sites must be sited, designed and operated to meet the standards in Chapter 400, sections 3 and 4 and the following standards:

A. General Siting Standards for Residual Storage

(1) The residual handling area must meet the setbacks in table 419.1 and 419.2, and be located greater than:

(a) 500 feet to the nearest occupied building other than those owned by the site owner or operator;

(b) 100 feet from public roads and abutting property boundaries; and

(c) 300 feet from a great pond that is a public drinking water supply.

(2) The facility may not be located on a 100 year floodplain. This prohibition does not apply to sites where residuals are field-stacked if the following standards are met:

(a) residuals are stacked for less than 30 days to facilitate a spreading;

(b) residuals are stacked only at times when the depth to the water table is 24 inches or greater; and

(c) residuals are stacked only prior to September 15th of each year.

B. General Design Standards for Residual Storage. The facility must be designed to, in conjunction with the siting standards, meet the following:

(1) The facility may not contaminate waters of the state.

(2) Except for field stacking sites, or storage facilities for Type IA residuals, residual storage areas must have impervious floors and side walls, such as asphalt or concrete, sufficient to prevent untreated leachate from discharging into groundwater.

(3) The residual must be contained within the facility. The residual may not be discharged to a protected natural resource, without a license issued pursuant to 38 MRSA section 480-A *et seq.*

(4) Run-On. Runoff from land areas surrounding a storage site must be controlled or diverted away from the stored residual with berms or diversion ditches as necessary to prevent contact with the stored residual.

(5) Leachate Control. The site design must have provisions to contain, collect, and, if applicable, treat leachate and run-off mixed with leachate. The design may include: roofing or covering the storage area to prevent excessive leachate generation; providing a filter strip to discharge leachate to an approved area during the growing season; on-site filtering systems, and/or a plan developed for ultimate disposal of leachate. Disposal of any wastewater, leachate and wash down waters must be in accordance with 38 MRSA section 413 et seq.

(6) The stored residual must not cause an odor or dust nuisance at an occupied building or protected location, or spontaneously combust.

(7) Access Control. For facilities storing Type III residuals, and/or Type II residuals that have not been treated to class A pathogen reduction standards, public access to the site must be restricted by, at a minimum, placing a sign at the access to the storage site that restricts access to authorized personnel. The Department may require that a locking gate be placed at the access to the storage site and/or fencing be installed around the facility, if necessary to meet the criteria in Chapter 400, sections 3 and 4.

(8) Traffic. The site design, in conjunction with siting and operations, must make provisions to ensure that the facility is accessible during inclement weather and meets the traffic standards in Chapter 400 section 6.D, or the alternative traffic standards in section 4.F of this Chapter.

(9) Separate Storage. If more than one residual is stored at the site, separate, labeled, storage areas must be provided for each different residual.

(10) Pursuant to 38 MRSA section 1304(13-A), for storage of sludge generated at industrial facilities utilizing kraft wood pulping processes, sludge storage sites may not be located within 300 feet of a year-round river, stream, brook or pond nor within 75 feet of any intermittent stream or brook or any natural drainage way, including gullies, swales and ravines.

C. **Additional Siting and Design Standards for Field Stacking Sites.** In addition to the standards in section 10.A above, the following siting and design standards apply to field stacking of residuals that have a C:N of less than 25:1, unless the residual is a compost or unless the Department determines in a program license that mineralization or other comparable studies demonstrate that excess nitrates will not contaminate groundwater. This section also applies to utilization of other residuals that the Department has determined in a Program license readily leach contaminants that may contaminate waters of the state.

(1) Unless otherwise provided for by the Department, field stacking facilities must be located on the site where the residual will be utilized.

(2) Storage Volumes. The volume of residual to be stored at the field stacking site may not exceed that required to meet the utilization requirements for one spreading season at that site.

(3) Footprint. The residuals at the field stacking site may not cover an area greater than 1/2 acre.

Note: the waste handling area may be greater than 1/2 acre .

(4) Soil Type. The waste handling area must have a maximum permeability in the C horizon of 2.0 inches per hour. Effective October 30, 2002, stockpile sites to be used in excess of 30 days per growing season must be on insitu soils with a C horizon that is a marine sediment, lacustrine sediment or basal till that is at least 40 inches thick.

Note: The Department intends to facilitate studies into the actual impacts to groundwater from field stacking nitrogenous materials. The information from these studies, along with site monitoring data, will be used to modify requirements for field stacking, if necessary.

(5) The waste handling area may not be located on slopes in excess of three (3) percent.

(6) The minimum depth to bedrock in the waste handling area must be 40 inches when the residual is to be stored for over 30 days. The minimum depth to bedrock in the waste handling area must be 30 inches when the residual will be stored for 30 days or less.

(7) The minimum depth to the seasonal high water table in the waste handling area must be 24 inches when the residual is stored for over 30 days. The minimum depth to the water table in the waste handling area throughout the time period that the waste will be stored must be 24 inches when the residual is stored for 30 days or less.

(8) The waste handling area may be modified to meet the standards in section 10.C(5) through (7) above, except that in no case may the waste handling area be located where the native soil is less than 30 inches to bedrock, or on hydric soils.

(9) Leachate Control. Residual field stacking facilities must be sited and designed so that any leachate, or runoff mixed with leachate, is not carried beyond an approved utilization area. Applicants must develop and implement a leachate control plan, as approved by the Department, which may include filter strips during the growing season, placing residuals on a layer of sawdust, paper mill fiber or similar material to absorb free liquids and inorganic nitrogen; placing hay bales and silt fences around stockpiles; forming piles to shed water; covering piles such that precipitation does not penetrate the pile; or making provisions to collect and treat leachate. The leachate control plan must have specific provisions to control

leachate when the ground is not covered with vegetation, frozen, snow covered or water saturated.

Note: NRCS Practice Standard 393 may be used to design filter strips.

D. Additional Siting Standard for Storage of Sludge. The Department may not issue a license for a sludge storage site or storage facility off the site of generation that is within 250 feet of a river, perennial stream or great pond.

Note: the above licensing standard is required by 38 MRSA Section 1310-N, subsection 2-G,

12. Application Requirements for Residual Storage. Any person seeking to store residuals prior to utilization shall provide information sufficient to demonstrate that the standards of sections 10 and 12 of this Chapter are met. The applicant shall submit to the Department, on application forms developed by the Department, the following information:

A. Submissions for Program Licenses for Storage. The following submissions are required for applications for a program license to store residuals.

(1) Summary. A brief summary of the proposed utilization program for which the storage is required.

(2) Residual Characteristics. The physical and chemical characteristics of the residual that will be stored obtained in accordance with Chapter 405, including an assessment of the environmental and human risk posed by storage of the material, including risk to groundwater and surface water, and proposed management to mitigate those risks.

(3) Siting Standards. When appropriate, the standards proposed for sites where the residual will be utilized, including:

(a) Buffer Zones. A description of appropriate buffer zones at utilization sites that will be employed to meet the standards in Chapter 400, section 4, subsections E through H and the applicable standards in section 10 and 12 of this Chapter;

(b) Soils. A description of appropriate soil drainage class, depth to bedrock or other permeable layers, and slope, that will be appropriate to meet the standards in section 10.C and Chapter 400, sections 4.J and 4.K; and

(c) Other. A description of other siting standards, if any, that will ensure that the licensing standards of these rules are met.

(4) Site Licensing Procedures. Propose the situations when a site specific license will be obtained, the information that will be provided to individuals storing the residual to meet the standards in sections 10 and 12 when storage sites are not individually licensed, and the notice, if any, that will be provided to the Department when site specific storage licenses will not be obtained.

Note: More than one strategy may be appropriate for a given storage program

(5) Traffic. A demonstration that the applicant meet the alternative traffic standards in section 4.F for sites that will not be individually licensed.

(6) Public Notice. Proof that public notice of the application has been provided as required in section 2.F.

B. Submissions for Storage Site Licenses. An applicant must submit a complete application for a storage site license, unless otherwise approved by the Department in a Program license. Unless otherwise approved in a program license, the storage site application must include:

(1) Description. A brief description of the storage site, and reason for storage.

(2) Residual Characteristics. The physical and chemical characteristics of the residual that will be stored obtained in accordance with Chapter 405, including an assessment of the environmental and human risk posed by storage of the material and proposed management to mitigate those risks.

(3) Topographic Map. The most recent 7.5 minute US. Geological Survey topographic or equivalent map showing the location of the proposed site, the property boundary, and if storing putrescible residuals, airports within 10,000 feet of the site. The map must include all surrounding area within one mile of the proposed site.

(4) Chapter 400 Submissions. The submission requirements of Chapter 400, section 4, subsections B, C, F, G, H, I, J, and L.

(5) Storm Water Control. A certification that the siting and/or design of the proposed site will not result in post-construction runoff that is greater than pre-construction runoff or the submission requirements of Chapter 400, section 4.M(2)

(6) Traffic Movement. A demonstration that the site meets the alternative traffic standards in section 12.A(5) or the traffic information required by Chapter 400, section 4.D(2).

(7) Fitting Harmoniously into the Natural Environment. A demonstration that the site meets the alternative standards for fitting harmoniously into the natural environment in section 12.A(9) or the information required by Chapter 400, section 4.E.

(8) Sand and Gravel Aquifer Map. If the proposed site is within 500 feet of a sand and gravel aquifer, a clear copy of the most recent Hydrogeologic Data for Significant Sand and Gravel Aquifer map with the proposed storage site clearly delineated.

(9) Flood Zone Map. If the proposed site is within 500 feet of a 100 year flood zone, the most recent Federal Emergency Management Agency (FEMA) flood zone map, or equivalent map, with the proposed storage site clearly delineated.

(10) Operations Manual. An operations manual meeting the standards in section 12.A(1).

(11) Environmental Monitoring Program. If the Department determines that it is necessary to confirm that the site will meet the standards in Chapter 400, section 4 due to the nature of the wastes stored and/or the location, design and operation of the site, a monitoring program for ground water, surface water or waste characteristics, as applicable, designed in accordance with the provisions of Chapter 405.

(12) Hazardous and Special Waste Exclusion Plan. Except for sites that only accept specific residuals from specific generators specified by Department license, a hazardous and special waste handling and exclusion plan meeting the standards in Chapter 400, section 9.

Note: A template for a hazardous and special waste handling and exclusion plan is attached as Appendix 400.A to Chapter 400.

(13) Public Notice. Proof that public notice of the application has been provided as required in section 2.F.

C. Additional Application Requirements for Field Stacking Sites. Unless otherwise approved by the Department in a Program license, in addition to the application requirements in section 11.B above, the following application requirements apply to field stacking sites:

(1) Title, Right or Interest. The information in section 7.B(1) demonstrating Title, Right, or Interest in the project.

(2) Soils Map. A clear copy of the appropriate United States Department of Agriculture (USDA.) Natural Resources Conservation Service (NRCS) County soil medium intensity soil survey map indicating the proposed spreading area, the proposed field stacking area, and the leachate treatment areas. If the Department questions the accuracy of the map, the Department may require a soils investigation report and site specific soils map demonstrating that the applicable sitting and design standards in section 10.C are met. Soils investigations must be conducted in a manner that avoids disturbing the ability of the insitu soils to prevent groundwater contamination.

(3) Narrative and Site Sketch. A narrative and site sketch of the storage site features and proposed structures, of sufficient detail to demonstrate compliance with the standards in section 10. The sketch must include the scale and orientation, buffers, slopes, run-on and run-off control features, and leachate management features.

(4) Odor and Dust Control Plan. For putrescible residuals, a site specific odor control plan to treat the residual or locate, design, and operate the site to avoid nuisance odors at off site occupied buildings. For dusty residuals, a site specific dust control plan to treat the residual or locate, design, and operate the site to avoid dust at off site locations.

D. Additional Application Requirements for Contained Storage Sites. Unless otherwise approved by the Department in a Program license, in addition to the application requirements in section 11.B, the following application requirements apply to residual storage sites other than field stacking sites:

(1) Title, Right or Interest. The application submissions in Chapter 400, section 4.A demonstrating Title, Right, or Interest in the project.

(2) Site Plans and Drawings. A bid ready site design and construction package showing all structures and demonstrating that the applicable standards in section 10 and 12 will be met, including the system to contain, control and treat leachate and run-off mixed with leachate.

(3) Odor Control System. For the storage of putrescible residuals, either

(a) a demonstration that the site will not cause an off-site nuisance odor, including one or more of the following:

(i) a demonstration that the materials handled at the site do not generate objectionable odors;

(ii) comparative studies with similar existing sites taking into account similarities and differences in site design, throughput, proximity to neighbors, meteorological conditions and topography; or

(iii) odor dispersion modeling studies demonstrating that the site will not cause more than a one hour average odor impact of 2 dilutions to threshold (2D/T), in any calendar year at any protected location and any occupied buildings;

Note: D/T is defined by ASTM Method 679-9A. The generator may wish to demonstrate that they will meet this standard at the storage site's property boundary, in order to meet the operational requirements to not cause a nuisance when areas near the site are subsequently developed. For information on this air model, see Serjak, Tamsin, Nicholas Marchese and Robert Gaudes, 1995, "ALCOSAN and Odor Regression Analysis: The Application of a New Analytical Approach", (Prepared for Air & Waste Management Association 88th Annual Meeting and Exhibition, June 18-23, by Camp Dresser & McKee, Cambridge, MA).

(b) or a site specific odor control plan to avoid nuisance odors at off site occupied buildings including a description of how the residual will be treated prior to storage, or a detailed description and design of the system to contain, control and treat odors at the storage site.

(4) Utilities. The application submissions of Chapter 400, section 4.L(2).

13. Operational Standards for Residual Storage Sites. All new and existing sites storing residuals prior to agronomic utilization shall comply with the operating requirements of this section. Existing residual storage sites are required to comply with these requirements no later than July 19, 2000.

A. General Storage Standards. The following operational standards apply to the operation of all residuals storage sites:

(1) Operations Manual

(a) For storage sites with a site specific license for residuals storage, the licensee shall prepare, maintain, and implement an operations manual to enable facility personnel to determine the procedures that must be followed to operate the storage facility in compliance with the standards in sections 10 and 12 and the site license. A current copy of the operations manual must be available for inspection at the storage site, or in the case of a field storage site, the residual generation facility.

(b) Transition. For residual storage sites licensed under Chapter 567, and that are in effect on July 19, 1999, an operations manual must be submitted to the Department for review and approval by July 19, 2000.

(2) Odor and Dust Control. The stored residual must not cause an odor or dust nuisance at an occupied building or protected location.

(3) Permitted Residuals Only. Only those residuals specifically permitted by the Department may be accepted at the storage site. The licensee must implement the approved hazardous and special waste handling and exclusion plan, if applicable.

(4) Separate Storage. Unless otherwise approved by the Department, different kinds of residuals must be stored in separate areas of the facility. Separate areas must be clearly marked with signs.

(5) Alternative Traffic Standard. The standard for traffic in Chapter 400, section 4.D(1) must be met at all utilization storage sites. This standard is presumed to be met at storage sites when either:

(a) the residual is being stored at a consecution or remediation site for a construction project, to reclaim a mined area, close a landfill, or remediate a state designated uncontrolled hazardous substance site; or

(b) the storage activity results in 16 or fewer additional vehicle trips per day.

(6) Site Access. Access gates to storage sites that have been required in a Department license must be closed and locked except when an authorized person is on duty. Access roads at the site must be maintained in good repair. Livestock must be excluded with fences from facilities that store a residual that is treated to a class B pathogen reduction standard, including leachate treatment areas, while the residual is stored at the site and for at least 30 days after the removal of the residual.

(7) Fire Control. The licensee shall prevent and control fires at the solid waste site by arranging for a nearby fire department to provide emergency service, and providing sufficient on-site equipment for minor fires. The licensee must also develop and implement a plan to prevent spontaneous combustion in woodwaste, residual, and compost piles, as applicable. All ash must be conditioned with water to prevent combustion at the storage site.

Note: Facilities should develop a fire and rescue plan in conjunction with the local fire department.

(8) Erosion and Sedimentation Control. For storage sites where the topography will be altered or site soils will be disturbed, the applicant must meet the standards in Chapter 400, section 4.J(1)(b).

(9) Alternative Standards for Fitting Harmoniously into the Natural Environment. The standard for fitting harmoniously into the natural environment in Chapter 400, section 4.E(1) must be met at all utilization sites. This standard is met at utilization sites when either:

(a) the residual is being stored on a construction or remediation site for a construction project, to reclaim a mined area, close a landfill, or remediate a state designated uncontrolled hazardous substance site; or

(b) the buffer requirements of Chapter 400, section 4.E(1)(b) and the applicable buffer requirements of this Chapter are met at the site of storage.

(10) Final Construction Certification. Within 30 days following construction completion, the licensee must submit a certification to the Department that the site has been constructed in accordance with the approved drawings and specifications.

(11) Inspection. The storage site licensee must make provisions for an inspection at least annually. The licensee must record the condition of the facility, repairs required, and repairs performed.

(12) Monitoring Program

(a) The licensee shall implement any waste characterization and environmental monitoring program as approved or conditioned in the site license.

(b) Transition. For residual storage sites licensed under Chapter 567, and that are in effect on July 19, 1999, a monitoring and/or waste characterization sampling and analytical work plan meeting the standards in Chapter 405 must be submitted to the Department for review and approval by July 19, 2000.

(13) Record-Keeping. The licensee must keep records for a minimum of five (5) years which include the annual volume of residuals placed in and removed from the site, the dates that residuals were stored at the site during the year, problems encountered during operations and their remedies, and other information as established by license condition.

(14) Reporting. On or before February 28 of each year an annual report detailing the activities for the previous year must be submitted to the Department by the licensee. The report must include a summary of the information outlined in sections 12.A(9) through (11) (above) and any other details as specified in the program and site licenses.

B. Additional Operational Standards for Licensed Field Stacking Sites. In addition to the operational standards in section 12.A, the following operational standards apply to field stacking sites:

(1) Solids Content. The residual must have a sufficient solids content to stack and maintain a side slope such that for every 3 feet of run, the pile must rise at least one foot.

(2) Shape. Operators must form and maintain a conical shaped pile that sheds water.

(3) Pathogen Treatment. Type II residuals must be treated to class A or B pathogen and vector attraction reduction standards prior to field stacking.

(4) Groundwater Protection. The provisions of this subsection apply to storage of residuals that have a C:N of less than 25:1, unless the residual is a compost, or unless the Department determines in a program license that mineralization or other comparable studies demonstrate that excess nitrates will not contaminate groundwater. This section also applies to storage of residuals which the Department has determined in a Program license contain pollutants which may contaminate waters of the state.

(a) Any leachate, or runoff mixed with leachate, generated from field stacking of a residual must be managed such that pollutants are not carried beyond an approved utilization area. Applicants must develop and implement a leachate control plan, as approved by the

Department, which may include filter strips, placing residuals on a layer of sawdust, paper mill fiber or similar material to absorb free liquids and inorganic nitrogen; placing hay bales and silt fences around stockpiles; forming piles to shed water; covering piles such that precipitation does not penetrate the pile; or making provisions to collect and treat leachate.

(b) The residual may only be stockpiled on soils with a maximum permeability in the soil C horizon of 2.0 inches per hour;

(c) On soils with a permeability in the C horizon of between 0.6 and 2.0 inches per hour, the residual must be stockpiled on a geomembrane, stockpiled on an absorbent material with a minimum C:N ratio of 100:1, or covered with a tarp, such that contaminated water does not pass through the C soil horizon.

(d) After October 30, 2002, the residual may not be stockpiled in excess of 30 days per growing season, except on insitu soils that have a C horizon that is a marine sediment, lacustrine sediment, or basal till that is at least 40 inches thick.

Note: The Department intends to facilitate studies into the actual impacts to groundwater from field stacking nitrogenous materials. This will include studies done with the University of Maine, and data from monitoring field stockpile sites. The information from these studies will be used to modify this requirement, and the standards for field stacking residuals for 30-days or less, if necessary.

(e) The depth to bedrock in the waste handling area must be at least 40 inches when the residual is to be stored for over 30 days, and at least 30 inches when the residual will be stored for 30 days or less.

(f) The depth to the water table in the waste handling area must be at least 24 inches throughout the time period that the waste is stored.

(g) Mitigation. The licensee must, if necessary to scavenge excess soil nitrogen, take any necessary steps, including harrowing and reseeding, to sustain healthy ground cover when residuals are not stored at the site.

(h) Storage Time. The residual must not be field stacked for longer than eight (8) months.

(5) Kraft Sludge. Storage of sludge generated at industrial facilities utilizing kraft wood pulping processes, the maximum storage period at storage sites without impervious liners and leachate collection and treatment is 6 months. The Department may waive this requirement on a case-by-case basis for a maximum of 2 additional months when the applicant has demonstrated that the storage site is inaccessible or that utilization of the stored material would be in violation of any prohibition of land spreading on frozen, snow-covered or saturated ground. For storage of sludge generated at industrial facilities utilizing kraft wood pulping processes, storage sites without impervious liners and leachate collection systems may be used only once in any 10-year period.

Note: This standard is required by 38 MRSA section 1304(13-A).

C. Additional Siting and Operational Standards for Sludge Storage Facilities

(1) An abutter to a sludge storage site may request that sludge not be stored within 50' of the abutter's property boundary. Requests must be filed with the Department in writing, and must include:

(a) the name and mailing address of the property owner

(b) the physical location of the property upon which the sludge is being stored;

(c) the type of sludge being stored; and

(d) the name and mailing address of the facility generating the sludge.

(2) Pursuant to 38 MRSA 1310-N, subsection 2-G, sludge may not be stored within 50' of an abutter's property, upon notification that the Department has received a written request from the abutter to establish the set-back.

D. Closure of Residual Storage Sites

(1) Notification: The licensee of a residual storage site shall notify the Department within 10 days after the permanent closure of a licensed storage site.

(2) Closure Performance Standard. The licensed storage site must be closed in a manner that minimizes the need for further maintenance; and so that the closed site will not pollute any waters of the state, contaminate the ambient air, constitute a hazard to health or welfare, or create a nuisance. At a minimum, the licensee must remove all wastes and residuals from the site; broom clean the site structures and equipment; and in the case of field stacking sites, harrow, reseed and take any other necessary steps to sustain healthy ground cover at the site.

14. Municipal Oversight of Residuals Utilization Activities

A. Municipal Ordinances. Pursuant to 38 MRSA section 1310-U, under the municipal home rule authority granted by the Constitution of Maine, Article VIII, Part Second and Title 30-A, section 3001, municipalities may enact ordinances with respect to residual utilization and storage that contain standards the municipality finds reasonable, provided the following standards are met:

(1) The standards contained in the ordinance may not be more strict than those contained in 38 MRSA section 1301 *et seq.* and these rules.

(2) The municipality must file a copy of the ordinance with the Commissioner within 30 days of its adoption.

(3) Municipal ordinances must use definitions consistent with those in Chapter 400, section 1, and this Chapter.

B. Municipal Licensing and Enforcement of Sludge Licenses. For purposes of this subsection, the term "sludge" includes municipal, commercial or industrial wastewater treatment plant sludge.

(1) Municipal Enforcement. Pursuant to Title 30-A, section 4452, section 6, a municipality, after notifying the Department, may enforce the terms and conditions of a sludge utilization or storage site permit issued by the Department under this Chapter and Chapter 400.

(2) Coordination between municipality and the Department on sludge licenses.

(a) Notification. The Department shall notify municipalities (municipal officers or their designees) in which sludge utilization sites or sludge storage sites are being proposed. Notification will be made within 14 working days of Department receipt of a complete license application. The notification will include, at a minimum, the name and address of the applicant, and analytical results of the sludge proposed to be spread in the municipality.

(b) Municipal Conditions in Department Licenses. Prior to approving an application for a sludge land application site or storage facility, the Department will consult with the municipal officers or their designees in the municipality in which the site or facility is proposed, and provide them with an opportunity to suggest conditions, including additional setbacks, to be included in the license. The Department will impose those conditions that are necessary for the project to meet the licensing standards in this Chapter. If the Department does not impose conditions on a license that has been suggested in writing by the municipality, the Department will provide a written explanation to the municipality.

(c) The Department shall consult with a municipality within 10 days of receipt of a request by a sludge generator to change the terms or conditions of a sludge land application or storage facility license concerning a facility located in the municipality.

(3) Petitions Concerning Sludge Testing Protocols. A municipality may petition the Commissioner to review a generating facility's testing protocol for sludge. The Commissioner will respond to the municipality, in writing, within 10 days of receipt of a written petition. The Commissioner may order the generator to conduct an additional waste characterization test on their sludge at the generator's expense. The generator must provide a copy of the additional test results to the municipality within 30 days of receipt.

Appendix A. Loading Rate Calculations

1. Nitrogen Loading Rate Calculations

A. The Percent of Organic Nitrogen Mineralized from Sewage Sludge must be assumed as in table 419.6, unless residual specific information obtained in accordance with Chapter 405 is available. For other residuals, the generator must determine residual mineralization rates through sampling, in accordance with Chapter 405:

Table 419.6
Percentages of Organic Nitrogen Mineralized after
Sewage sludge of various types are land applied

Years after sludge application	Type of Sewage Sludge			
	Primary and waste activated	Aerobically Digested	Anaerobically Digested	Composted
0 -1	40	30	20	10
1 - 2	20	15	10	5
2-3	10	8	5	3
3-4	5	4	3	3

B. When detailed information regarding organic sources of nitrogen from past utilization of residuals or manure and cropping practices is not available, soil organic matter must be assumed to provide 10 pounds of available nitrogen per acre per 1% organic matter over 5%. (i.e. if organic matter in soil is 6.5% the soil provides 10 lbs. x (6.5-5) = 10 lbs. x 1.5 = 15 lbs. per acre)

C. Unless otherwise approved by the Department, crop nitrogen needs must be determined based on the recommendations in the *"Soil Testing Handbook for Professionals in Agriculture, Horticulture, Nutrient and Residuals Management,* (3rd edition, 1997). Other crop needs will be determined by the Department on a case by case basis, based on recommendations from the Maine Cooperative Extension's Maine Soil Testing Service and Analytical Laboratory at the University of Maine in Orono, and other agricultural or silvicultural sources.

D. Loading rates of residuals based on Nitrogen need must be calculated as follows, based on representative residual analysis:[1]

[1]Modified from Boub, et. al. 1995.

Line	Parameter	value	Unit
1.	Available Nitrate-N = %NO_3-N[2] x 2000 lbs/ton		lbs NO_3-N / ton residual
2.	Available Ammonium-N= Recovery fraction[3] x %NH_4-N[4] x 2000 lbs/ton		lbs NH_4-N/ ton residual
3.	Available Inorganic N/ton residual = Available NH_4 [line 2] + NO_3-N [line 1]		lbs Inorganic N / ton residual
4.	Organic N = [Total N - Inorganic N [line 3]] x 2000 lbs/ton		lbs Organic N / ton residual
5.	Available Organic N = Organic N [Line 4] x mineralization rate[5]		lbs Available Organic N / ton residual
6.	Available N from the residual that was applied in previous years[6]		lbs Available Organic N / ton residual
7.	Total Plant Available N = Inorganic N [line 3] + Avail Org N [line 5]		lbs Available N / ton residual
8.	Total Available N required from residual = N needs of crop[7] - Credits from Crop History[8] - Mineralized N from previous years application [line 6]		lbs Available N/ acre-yr
9.	Residual Application (dry) Rate = N required from residual / Avail N from residual [line 8 / line 7]		dry tons residual / acre-yr
10.	Residual Application (wet) Rate = Dry Residuals Rate [line 9] / % Solids		wet tons residual / acre-yr
11.	If Applicable: Residual Application (wet) Rate per cut of hay = [line 10] / 2 cuttings		wet tons residual / acre-cutting

Note: References Cited and Other guidance on agronomic rate calculations:

Boub, Tom, George O. Estes, James R. Mitchell and David Seavey, June 1995, "Best Management Practices: Biosolids" (University of New Hampshire Cooperative Extension, UNH, Durham, NH).

EPA, December 1994, Land Applications of Sewage Sludge: A Guide for Land Appliers on the Requirements of the Federal Standards for the Use or Disposal of Sewage Sludge, 40 CFR Part 503 (EPA/831-B-93-002b, USEPA, OECA, Washington, DC).

[2]From Residual Analysis

[3] When surface applied, approximately 50% of the Ammonium NH_4-N Nitrogen will be lost to volatilization. Recovery fraction is the portion of Ammonium that does not volatilize.

[4]From Residual Analysis

[5]Mineralization rates are specified in appendix A, section 1.A above. A weighted average of these percentages may be used for combined sludges.

[6]See Appendix A, section 1.A or Section 1.B above

[7]See Hoskins, Bruce R., 1997, "Soil Testing Handbook for Professionals in Agriculture, Horticulture, Nutrient and Residuals Management, 3rd edition (Formerly Soil Testing Handbook for Professional Agriculturists), (Maine Soil Testing Service, 5722 Deering Hall, University of Maine, Orono, ME).

[8]This includes the pounds of nitrogen per acre available to the crops from corn silage, animal manure, and / or cover crops.

EPA, October 1983, Process Design Manual: Land Application of Municipal Sludge (USEPA, Environmental Research Laboratory, Cincinnati OH, EPA-625/1-83-016).

Hoskins, Bruce R., 1997, "Soil Testing Handbook for Professionals in Agriculture, Horticulture, Nutrient and Residuals Management, 3rd edition (Formerly Soil Testing Handbook for Professional Agriculturists), (Maine Soil Testing Service, 5722 Deering Hall, University of Maine, Orono, ME).

Huddleston, J.H. and M.P. Ronayne, September 1995, Manual 8: Guide to Soil Suitability and Site Selection for Beneficial Use of Domestic Wastewater Biosolids (Cooperative Extension Service, Agricultural Communications, Oregon State University, Administrative Services A422, Corvallis, OR 97331-2119).

2. Pollutant Loading Calculations

A. Annual Pollutant Loading Rate Calculation. To determine the annual loading rate of heavy metals or other pollutants at a utilization site, use equation 419.1 as follows

(equation 419.1)

$$APLR = LR * RP_C * .001$$

where:
APLR - Annual Pollutant Loading Rate in kg-pollutant/ha
LR - Residual loading rate in mt-residual/ha (amount of residual applied in a year)
RP_C - Pollutant concentration in the residual in mg-pollutant/kg-residual
.001 - Conversion factor = 1,000 kg/mt * 0.000001 kg/mg

B. Cumulative Pollutant Loading Rate Calculation. To determine the cumulative pollutant loading rate of heavy metals or other pollutants at a utilization site, sum the annual pollutant loading rates for the site, as shown in equation 419.2.

(Equation 419.2)

$$CPLR = APLR_1 + APLR_2 + ... APLR_n$$

(equation 419.4)

where:
CPLR - Cumulative Pollutant Loading Rate in kg-pollutant/ha at the site
$APLR_1$ - Annual Pollutant Loading Rate during the first year in kg-pollutant/ha
$APLR_2$ - Annual Pollutant Loading Rate during the second year in kg-pollutant/ha
$APLR_n$ - Annual Pollutant Loading Rate during the nth, or most recent, year in kg-pollutant/ha

C. Estimation of Soil Pollutant Concentration Increase Based on Residual Pollutant Concentration. To estimate the pollutant concentration in soil that will result from the cumulative loading of a pollutant in a residual at a site, use equation 419.3:

(equation 419.3)

$SI = (RPc * LR * SL) / (2000)$

Where:

SI - Cumulative soil concentration increase in mg-pollutant/kg-soil

RP_C - Pollutant concentration in the residual in mg-pollutant/kg-residual

LR - Residual loading rate in mt-residual/ha/yr (amount of residual applied in a year)

SL - Site Life, or the number of times the residual will be applied at the site in 100 years, in years.

2000 - is the assumed dry mass of soil in mt/ha (dry weight) in a plow layer 15 cm thick (based on a bulk density of 1.33 g/cm^3)

D. Common Conversions

(1) Dry tons / acre * 2.24 = Dry metric tons / hectare

(2) Wet tons * (% solids * 0.01) = Dry Tons

(3) Approximation based on weight of water: wet tons/acre * 239.7 gallons/ton = gallons/acre

(4) Approximation based on weight of water: 1 yd^3 sludge = $27ft^3/yd^3$ * 63.0 lb/ft^3 = 1700 lbs

(5) Approx. based on weight of water: 1 yd^3 sludge = 1700 lbs/yd^3 ÷ 2000 lb/ton = 0.85 tons

(6) Approx. based on weight of soil: lb/acre ÷ 2 = ppm

(7) lb/acre * 1.121 = kg/ha

(8) 1 acre = 43,560 ft^2

(9) 1 acre of soil six inches deep = approx. 2,000,000 lbs

(10) 1 lb = 0.453 kg

(11) 1 lb P = 2.29 lb P_2O_5 (phosphoric acid)

(12) 1 lb K = 1.2 lb K_2O (potash)

(13) 1 ppm (in water) = 1 mg/l

(14) 1 ppm (in soil) = 1 mg/kg

(15) soil metal concentration in soil (ppm) = loading rate (lbs/acre) / 2

Appendix B. Pathogen and Vector Attraction Reduction Standards

1. **Special Definitions.** For the purposes of this Chapter, the following terms have the following meanings:

   A. Aerobic digestion is the biochemical decomposition of organic matter in sewage sludge into carbon dioxide and water by microorganisms in the presence of air.

   B. Anaerobic digestion is the biochemical decomposition of organic matter in sewage sludge into methane gas and carbon dioxide by microorganisms in the absence of air.

   C. Density of microorganisms is the number of microorganisms per unit mass of total solids (dry weight) in the sewage sludge.

   D. Land with a high potential for public exposure is land that the public uses frequently. This includes, but is not limited to, playgrounds, public parks, athletic fields, cemeteries, plant nurseries, construction sites in urban areas, and turf farms.

   E. Land with a low potential for public exposure is land that the public uses infrequently. This includes, but is not limited to, agricultural land, forests, and/or reclamation sites located in an unpopulated or rural area; remote lands; or securely fenced land.

   F. Pathogenic organisms are disease-causing organisms. These include, but are not limited to, certain bacteria, protozoa, viruses, and viable helminth ova.

   G. pH means the logarithm of the reciprocal of the hydrogen ion concentration, corrected to a standard temperature of 25 degrees Celsius.

   H. Specific oxygen uptake rate (SOUR) is the mass of oxygen consumed per unit time per unit mass of total solids (dry weight basis) in the sewage sludge.

   I. Total solids are the materials in sewage sludge that remain as residue when the sewage sludge is dried at 103 to 105 degrees Celsius.

   J. Unstabilized solids are organic materials in sewage sludge that have not been treated in either an aerobic or anaerobic treatment process.

   K. Vector attraction is the characteristic of sewage sludge that attracts rodents, flies, mosquitoes, or other organisms capable of transporting infectious agents.

   L. Volatile solids is the amount of the total solids in sewage sludge lost when the sewage sludge is combusted at 550 degrees Celsius in the presence of excess air.

2. **Class A Pathogen Reduction Process Standards.** Class A pathogen reduction standards must be met through one of the following processes:

   A. Composting. Through the process of composting, the temperature of the residual is maintained at 55 degrees Celsius or higher for three consecutive days. For windrow systems, this standard is presumed to be met if the residual is generally maintained at 55 degrees or higher for 15 days or longer, and during the period when the compost is maintained at 55 degrees or higher, there is a minimum of five turnings of the compost pile.

B. Thermophilic Aerobic Digestion. Liquid residual is agitated with air or oxygen to maintain aerobic conditions and the mean cell residence time of the residual is 10 days at 55 to 60 degrees Celsius.

C. Beta Ray Irradiation. Residual is irradiated with beta rays from an accelerator at dosages of at least 1.0 megarad at room temperature (ca 20 degrees Celsius).

D. Gamma Ray Irradiation. Residual is irradiated with gamma rays from certain isotopes, such as ^{60}Cobalt and ^{137}Cesium, at dosages of at least 1.0 megarad at room temperature (ca 20 degrees Celsius).

E. Pasteurization. The temperature of the residual is maintained at 70 degrees Celsius or higher for 30 minutes or longer.

F. Heat Drying. Residual is dried by direct or indirect contact with hot gases to reduce the moisture content of the residual to 10 percent or lower. Either the temperature of the residual particles exceeds 80 degrees Celsius or the wet bulb temperature of the gas in contact with the residual as the residual leaves the dryer exceeds 80 degrees Celsius.

G. Heat Treatment. Liquid residual is heated to a temperature of 180 degrees Celsius or higher for 30 minutes.

H. Time and Temperature. The temperature of the residual must be maintained at a specific value for a period of time as specified in one of the following:

(1) When the percent solids of the residual is seven percent or higher, the temperature of the residual must be 50 degrees Celsius or higher; the time period must be 20 minutes or longer; and the temperature and time period must be determined the following equation (419.4), except when small particles of residual are heated by either warmed gases or an immiscible liquid:

EQUATION (419.4):

$$D = (131{,}700{,}000) \div 10^{0.1400t}$$

Where: D=time in days
t=temperature in degrees Celsius.

(2) When the percent solids of the residual is seven percent or higher and small particles of residual are heated by either warmed gases or an immiscible liquid, the temperature of the residual must be 50 degrees Celsius or higher; the time period must be 15 seconds or longer; and the temperature and time period must be determined using equation (419.4).

(3) When the percent solids of the residual is less than seven percent and the time period is at least 15 seconds, but less than 30 minutes, the temperature and time period must be determined using equation (419.4).

(4) When the percent solids of the residual is less than seven percent; the temperature of the residual is 50 degrees Celsius or higher; and the time period is 30 minutes or longer, the temperature and time period must be determined by using equation (419.5).

EQUATION (419.5)

$D=50{,}070{,}000 \div 10^{0.1400t}$

Where: D=time in days
t=temperature in degrees Celsius.

I. **Alkaline Stabilization.** The pH of the residual must be raised to above 12 and must remain above 12 for 72 hours. The temperature of the residual must be above 52 degrees Celsius for 12 hours or longer during the period that the pH of the residual is above 12. At the end of the 72 hour period during which the pH of the residual is above 12, the residual must be air dried to achieve a percent solids in the residual greater than 50 percent.

J. **Other.** Other methods for the treatment of residuals will be approved on a case by case basis, when the generator demonstrates, at a minimum, that the proposed process can meet the following standards, and under what operating conditions the following standards are met. Once approved, the process must be operated under the conditions that are established by the Department as meeting, at a minimum, the following Class A pathogen reduction standards.

(1) The density of *Salmonella sp.* bacteria in the residual must be less than three Most Probable Number per four grams of total solids (dry weight basis).

(2) The density of fecal coliform in the residual is shown to be less than 1000 Most Probable Number per gram of total solids (dry weight basis).

(3) The density of enteric viruses in the residual after pathogen treatment is less than one Plaque-forming Unit per four grams of total solids (dry weight basis).

(4) The density of viable helminth ova in the residual after pathogen treatment is less than one per four grams of total solids (dry weight basis)

3. **Class B Pathogen Reduction Process Standards.** Class B pathogen reduction standards must be met through one of the following processes:

A. **Alkaline Stabilization.** Sufficient alkali material, such as lime, is added to the residual to raise the pH of the residual to 12 after two hours of contact.

B. **Aerobic Digestion.** Residual is agitated with air or oxygen to maintain aerobic conditions for a specific mean cell residence time at a specific temperature. Values for the mean cell residence time and temperature must be between 40 days at 20 degrees Celsius and 60 days at 15 degrees Celsius.

C. **Air Drying.** Residual is dried on sand beds or on paved or unpaved basins. The residual dries for a minimum of three months. During two of the three months, the ambient average daily temperature is above zero degrees Celsius.

D. Anaerobic Digestion. Residual is treated in the absence of air for a specific mean cell residence time at a specific temperature. Values for the mean cell residence time and temperature must be between 15 days at 35 to 55 degrees Celsius and 60 days at 20 degrees Celsius.

E. Composting. In a compost system the minimum temperature of all the residual is 40 degrees Celsius or higher for five days. For four hours during the five days, the temperature in the compost pile exceeds 55 degrees Celsius.

F. Test Out. Seven samples of the residual must be less than either 2,000,000 Most Probable Number per gram of total solids (dry weight basis) or 2,000,000 Colony Forming Units per gram of total solids (dry weight basis).

G. Other. Other methods for the treatment of residuals will be approved on a case by case basis, when the generator demonstrates that the proposed process meets the standards in section 4 and Chapter 400, sections 3 and 4.

4. Class A Vector Attraction Reduction Standards. Class A vector attraction reduction standard must be met through one of the following process:

A. In an aerobic or anaerobic digestion process, the mass of volatile solids in the residual must be reduced by a minimum of 38 percent (see calculation procedures in "Environmental Regulations and Technology - Control of Pathogens and Vector Attraction in Sewage sludge," EPA-625/R-92/013, 1992, US. Environmental Protection Agency, Cincinnati, Ohio 45268). This standard does not apply to a composting process.

B. When the 38 percent volatile solids reduction requirement in Appendix B.4.A (above) cannot be met for an anaerobically digested sewage sludge, vector attraction reduction can be demonstrated by digesting a portion of the previously digested sewage sludge anaerobically in the laboratory in a bench-scale unit for 40 additional days at a temperature between 30 and 37 degrees Celsius. When at the end of the 40 days the volatile solids in the sewage sludge at the beginning of that period is reduced by less than 17 percent, vector attraction reduction is achieved.

C. When the 38 percent volatile solids reduction requirement in Appendix B.4.A (above) cannot be met for an aerobically digested sewage sludge, vector attraction reduction can be demonstrated by digesting a portion of the previously digested sewage sludge that has a percent solids of two percent or less aerobically in the laboratory in a bench-scale unit for 30 additional days at 20 degrees Celsius. When at the end of the 30 days, the volatile solids in the sewage sludge at the beginning of that period is reduced by less than 15 percent, vector attraction reduction is achieved.

D. The specific oxygen uptake rate (SOUR) for residual treated in an aerobic digestion process must be equal to or less than 1.5 milligrams of oxygen per hour per gram of total solid (dry weight basis) at a temperature of 20 degrees Celsius. This standard does not apply to a composting process.

E. Residual must be treated by composting or in another aerobic process for 14 days or longer. During that time, the temperature of the residual must be higher than 40 degrees Celsius and the average temperature of the residual must be higher than 45 degrees Celsius.

F. The pH of residual must be raised to 12 or higher by alkali addition and, without the addition of more alkali, must remain at 12 or higher for two hours and then at 11.5 or higher for an additional 22 hours.

Note: The pH does not have to be 11.5 at the time of application.

G. The percent solids of residual that does not contain unstabilized solids generated in primary wastewater treatment process must be equal to or greater than 75 percent based on the moisture content and total solids prior to mixing with other materials.

H. The percent solids of residual that contains unstabilized solid generated in a primary wastewater treatment process must be equal to or greater than 90 percent based on the moisture content and total solids prior to mixing with other materials.

I. Other methods for the treatment of residuals will be approved on a case by case basis, when the generator demonstrates that the proposed process meets the standards in section 4 and Chapter 400, sections 3 and 4.

5. **Class B Vector Attraction Reduction Standards.** Class B vector attraction reduction standards must be met through one of the following residual handling practices:

A. Residual must be injected below the surface of the land. No significant amount of the residual must be present on the land surface within one hour after the residual is injected. When the residual that is injected below the surface of the land is Class A with respect to pathogens, the residual must be injected below the land surface within eight hours after being discharged from the pathogen treatment process.

B. Residual applied to the land surface must be incorporated into the soil within six hours after application. When the residual that is incorporated into the soil is Class A with respect to pathogens, the residual must be applied to or placed on the land within eight hours after being discharged from the pathogen treatment process.

C. The pH of residual must be raised to 12 or higher by alkali addition and, without the addition of more alkali, must remain at 12 or higher for two hours and then at 11.5 or higher for an additional 22 hours.

D. Other methods for the treatment of residuals will be approved on a case by case basis, when the generator demonstrates that the proposed process meets the standards in section 4 and Chapter 400, sections 3 and 4.

STATUTORY AUTHORITY: 38 MRSA section 1304(1), (13) and (13-A)

EFFECTIVE DATE:
April 21, 1985 (as Chapter 567, Rules for Land Application of Sludge and Residuals)

AMENDED:
October 8, 1986 (Part D added)
October 17, 1988 - Sections D-1 and E
December 5, 1989 - Section D
December 23, 1989 - Section C and A-3
December 23, 1989 - Section B-4
September 23, 1990 - Part D
July 27, 1991 - Part D
January 4, 1994 - Part D

EFFECTIVE DATE (ELECTRONIC CONVERSION):
May 4, 1996

NON-SUBSTANTIVE CORRECTIONS:
February 16, 1997 - Duplicate paragraphs from Part D removed; Part D and E appendices renamed; Part E referenced in Table of Contents, Part C Table of Contents referencers corrected, page numbers in Table of Contents corrected.

REPEALED AND REPLACED:
July 19, 1999 - Chapter 567 replaced by Chapter 419, Agronomic Utilization of Residuals

AMENDED:
December 19, 1999

NON-SUBSTANTIVE CORRECTIONS:
January 13, 2000 - renumbered 11(C), 12(B)(4); corrected font problem in Appendix B(2)(D).

AMENDED:
February 8, 2012 - filing 2012-14
December 18, 2012 – filing 2012-345

DEPARTMENT OF ENVIRONMENTAL PROTECTION
LICENSING FEE SCHEDULE
Effective: November 1, 2012 to October 31, 2013

AIR QUALITY

Code	Description	Processing Fee	Licensing Fee
70	part 70 air license (c. 140)	(see I & II below)	(see I & II below)
71	major & minor source license (c.115)	(see I & II below)	(see I & II below)
72	non-metalic mineral processing plant	-	$100
75	property, sales & use tax exemption certification	$376	$31
76	variance	(see I & II below)	(see I & II below)

I. All licensed air emission sources pay an annual license fee assessed based on the sum of all licensed allowable air pollutants, except for carbon monoxide, and reported emissions of hazardous air pollutants.

a. The annual license fee is:

Annual licensed emissions, in tons	**Fee per ton**
from 1 to 1,000	$ 8.20
from 1,001 to 4,000	$16.43
additional emissions over 4,001	$24.61

The minimum annual license fee is $376 and the maximum annual license fee is $225,661.

b. An **air quality surcharge** of $2.14 for every 1,000 air quality units is added to the annual license fee for sources subject to Chapter 137 reporting requirements for hazardous air pollutants. Air quality units are determined by multiplying the toxicity score of a hazardous air pollutant by the estimated emission on that pollutant.

Sources that exceed the minimum air quality surcharge floor of $150 are required to pay an air quality surcharge up to the maximum of $75,578.

II. Billing dates for the annual license fee and surcharge ("annual fees") are based on the anniversary date of the original license. A source's annual fees will be due by the end of February, May, August or November every year, as billed by D.E.P. Failure to pay annual fees within 30 days of the quarterly due date is grounds for revocation of the license.

III. New applications must include estimated annual fees before that application is accepted for processing. There are no additional fees for minor revisions, amendments, transfers or renewals.

REMEDIATION & WASTE MANAGEMENT - OIL

Code	Description	Processing Fee	Licensing Fee **
90	vessels at anchorage	-	*
91	oil terminal - fixed facility	-	-
92	oil terminal - mobile vessel	-	-
93	underground tank removal waiver	-	-
94	underground petroleum storage tank siting variance	-	-
97	waste oil storage facility	$2,500	$500

* Fee is ½¢ per deadweight ton each 30 days or part thereof at anchorage.
** *Licensing Fee* is assessed annually, unless noted otherwise.

REMEDIATION & WASTE MANAGEMENT - HAZARDOUS WASTE

Code	Description	Processing Fee	Licensing Fee **
H9	hazardous waste ("hw") commercial storage facility	$2,500	$500
HA	hw - commercial storage facility subject to facility development	$2,500	$500
H8	hw - storage facility	$2,500	$500
HB	hw - storage facility subject to facility development	$2,500	$500
H7	hw - commercial treatment facility	$7,000	$1,000
HC	hw - commercial treatment facility subject to facility development	$7,000	$1,000
HD	hw - onsite treatment facility	$4,000	$1,000
HE	hw - onsite treatment facility subject to facility development	$4,000	$1,000
HO	hw - commercial disposal facility	$10,000	$1,500
HF	hw - commercial disposal facility subject to facility development	$10,000	$1,500
HI	hw - disposal facility	$10,000	$1,500
H6	hw - disposal facility subject to facility development	$10,000	$1,500
H5	hw - all other commercial facilities	$2,500	$500
H4	hw - all other commercial facilities subject to facility development	$2,500	$500
H3	hw - all other non-commercial facilities	$2,500	$500
H2	hw - all other non-commercial facilities subject to development	$2,500	$500
HW	hw - commercial combined facility	variable	variable
H1	hw - commercial combined facility subject to facility development	variable	variable
HX	hw - combined facility	variable	variable
HY	hw - combined facility subject to facility development	variable	variable
HZ	hw - mobile facility	$2,500	$500
HG	hw - post closure license	$2,000	$500
HJ	hw - post closure order	-	-
HK	hw - interim license	-	variable
HL	abbreviated license ("al") - beneficial reuse onsite	$75/$400*	$100/$200*
HM	al - beneficial reuse offsite	$75/$400*	$100/$200*
HN	al – elementary neutralization	$75/$400*	$100/$200*
HO	al - thermal treatment	$75/$400*	$100/$200*
HP	al - discharge to POTWs	$75/$400*	$100/$200*
HQ	al - reuse in wastewater treatment	$75/$400*	$100/$200*
HR	al - transfer facility	$400	-
HS	al - PCB storage	$400	$200
HT	al - precious metal recovery	$75/$400*	$100/$200*
HU	al - volume reduction unit	$75/$400*	$100/$200*
HV	al - other facility treatment in tank	$75/$400*	$100/$200*
RA	al - haz waste reuse in a solid form	$75/$400*	$100/$200*
RB	al - electronics demanufacturing facility	$75/$400*	$100/$200*

* Fee for ≤1,000 kilograms per month/Fee for >1,000 kilograms per month

** *Licensing Fee* is assessed annually, unless noted otherwise.

REMEDIATION & WASTE MANAGEMENT - BIOMEDICAL WASTE

Code	Description	Processing Fee	Licensing Fee **
BA	biomedical waste transfer facility	$1,000	$500
BB	biomedical waste transfer facility license-by-rule	$500	$250
BC	biomedical waste treatment facility	$3,500	$1,000
BD	biomedical waste treatment facility - site law	$5,000	$1,000
BG	petition to use alternate treatment	$1,000	-

** *Licensing Fee* is assessed annually, unless noted otherwise.

REMEDIATION & WASTE MANAGEMENT - SOLID WASTE

Code	Description	Processing Fee	Licensing Fee
WB	existing non-secure municipal landfill <15,000 people	$5,272	$1,506*
WC	non-secure municipal landfill >15,000 people	$5,272	$5,272*
WD	secure landfill	$7,352	$12,805*
	minor revision for secure landfill	$846	$141
WE	secure landfill for woodwaste, landclearing, and demolition debris	$4,230	$7,050*
	minor revision for secure woodwaste, landclearing, and demolition debris landfill	$423	$141
WF	non-secure woodwaste, land clearing, and demolition debris landfill ≤6 acres	$987	$1,130*
WN	closing plan for secure landfills	$2,259	$2,259
WO	closing plan for non-secure landfills	$752	$752
W1	alternative approval of a municipal landfill closing plan	$376	$376
WQ	landfill preliminary information reports	$263	$263
WR	landfill license transfers	$752	$263
W5	public benefit determination	$246	$246
W6	post-closure report	$246	$246
WG	incineration - MSW/special waste	$5,272	$7,532*
WW	incineration-license transfers	$266	$266
WH	reduced procedure transfer station - storage facility	$831	$263*
WH	transfer station - storage facility	$1,130	$263*
WI	tire storage facility	$603	$677*
WK	processing facility other than composting or residuals	$1,054	$1,054*
WV	beneficial use - fuel substitution	$987	$705*
WL	on-going beneficial use other than utilization without risk-assessment	$987	$282*
WM	on-going beneficial use other than utilization with risk-assessment	$1,974	$705*
W3	one-time beneficial use other than utilization without risk-assessment	$987	$282
W4	one-time beneficial use other than utilization with risk-assessment	$1,974	$705
W7	beneficial use – reduced procedure – on going	$543	$135*
W8	beneficial use – reduced procedure – one time	$543	$135
WS	special waste disposal-one time =/< 6 cubic yards	$74	$74
WT	special waste disposal - one time > 6 cubic yards	$150	$150
WU	special waste disposal - routine	$452	$452
WX	transfer other than for a landfill or incineration facility	$150	$150
WZ	pilot project	$74	$74
88	experimental license	$263	$263
-	permit-by-rule for ongoing activities	$143	$143*
-	Permit-by-rule for one-time activities	$143	$143
-	transfer of a permit-by-rule	$143	-

* *Licensing Fee* assessed annually.

The fee for **minor revisions** at solid waste facilities other than landfills is $282. The fee for **condition compliance** is $142. The fee for **amendments** is one half the processing fee, plus one half the licensing fee. The fee for **renewals** is one half the processing fee, plus the full licensing fee.

REMEDIATION & WASTE MANAGEMENT - SEPTAGE FACILITIES

Code	Description	Processing Fee	Licensing Fee
S1	municipal septage management compliance (septage designation)	$74	$38
S2	septage non-utilization site (disposal)	$775	$376*
S3	septage utilization site	$775	$376*
S4	septage storage site	$74	$112*
S7	septage license transfer	$143	$143

* *Licensing Fee* assessed annually.

The fee for **minor revisions** is $282. The fee for **condition compliance** is $142. The fee for **amendments** is one half the processing fee, plus one half the licensing fee. The fee for **renewals** is one half the processing fee, plus the full licensing fee.

REMEDIATION & WASTE MANAGEMENT - SLUDGE & RESIDUALS

Code	Description	Processing Fee	Licensing Fee
SB	industrial/papermill/short-paper fiber sludge utilization program license	$603	$603
SH	industrial sludge utilization site	$225	$376*
SC	biosolids/sewage sludge/municipal sludge utilization program license	$452	$414
SI	municipal sludge utilization site	$112	$301*
SD	bioash/CKD/lime-mud/other ash or liming agent utilization program license	$452	$414
SJ	Bioash utilization site	$112	$301*
SE	wood ash utilization program approval	$452	$112
SK	wood ash utilization site	$74	$188*
SF	food waste/food by-product/fish by-product utilization program license	$452	$112
SL	food waste utilization site	$74	$188*
SG	other waste utilization program license	$452	$263
SM	other waste utilization site	$74	$188*
ST	utilization storage <3,500 cubic yards	$287	$251*
SU	utilization storage ≥3,500 cubic yards	$575	$251*
SV	utilization - other	$453	$263*
SX	utilization - license transfer	$151	$151
SY	utilization - one-time	$74	$74
SZ	utilization - pilot project	$74	$74
-	permit-by-rule for ongoing activities	$143	$143*
-	permit-by-rule for one-time activities	$143	$143
-	transfer of a permit-by-rule	$143	-

* *Licensing Fee* assessed annually.

The fee for **minor revisions** is $282. The fee for **condition compliance** is $142. The fee for **amendments** is one half the processing fee, plus one half the licensing fee. The fee for **renewals** is one half the processing fee, plus the full licensing fee.

REMEDIATION & WASTE MANAGEMENT - COMPOSTING & RESIDUAL PROCESSING

Code	Description	Processing Fee	Licensing Fee
CB	compost type IA leaf and yard waste	$225	$225*
CF	compost type 1B & 1C residual <750 yds^3/yr	$225	$225*
CG	compost type 1B & 1C residual >750 yds^3/yr	$225	$225*
CH	residual processing type II <3500 yds^3/yr	$987	$705*
CI	residual processing type II ≥3500 yds^3/yr	$1,974	$1,198*
CJ	residual processing type III <3500 yds^3/yr	$987	$705*
CK	residual processing type III ≥3500 yds^3/yr	$1,974	$1,198*
CL	other septage and residual processing <750 yds^3/yr	$526	$526*
CM	other septage and residual processing >750 yds^3/yr	$1,053	$1,053*
CX	compost & residual processing license transfer	$141	$141
CZ	compost & residual processing pilot project	$70	$70
-	permit-by-rule for ongoing activities	$141	$141*
-	permit-by-rule for one-time activities	$141	$141
-	transfer of a permit-by-rule	$141	-

* *Licensing Fee* is assessed annually.

The fee for **minor revisions** is $282. The fee for **condition compliance** is $142. The fee for **amendments** is one half the processing fee, plus one half the licensing fee. The fee for **renewals** is one half the processing fee, plus the full licensing fee.

LAND & WATER QUALITY – MAINE'S STORMWATER LAW*

Code	Description	Processing Fee	Licensing Fee
NA	stormwater (sw) at risk - solely vegetative	$213	$53
	-- each additional whole acre	$106	$26
NB	sw at risk - structural	$427	$106
	-- each additional whole acre	$213	$53
NI	sw, all other - solely vegetative	$213	$53
	-- each additional whole acre	$106	$26
NJ	sw, all other - structural	$427	$106
	-- each additional whole acre	$213	$53
-	sw, permit-by-rule (P.B.R.)	$58	-
-	sw, P.B.R. lake at risk >1ac. disturbed, <20,000 sq/ft impervious	$58	
-	sw, P.B.R. lake at risk >1ac. disturbed	$58	

* If D.E.P. has a M.O.A. with the local SWCC to review projects, the processing fees for structural or vegetative erosion control will be reduced to $105, and a $52 processing fee is assessed for each additional whole acre of impervious or disturbed area. The licensing fee does not change.

The fee for a **minor revision** is $142. The fee for an **amendment** is one half the processing fee, plus one half the licensing fee. Except for first-time renewals eligible for permit-by-rule, the fee for a **renewal** is one half the processing fee, plus the full licensing fee.

LAND & WATER QUALITY - MPDES GENERAL CONSTRUCTION PERMIT

Code	Description	Processing Fee	Annual Licensing Fee
E1	NOI - 1 to 3 acres, E&S Plan not required or reviewed elsewhere	$95	-
E2	NOI - 3 to 5 acres, E&S Plan required but not reviewed elsewhere	$127	-

LAND & WATER QUALITY - DAMS AND HYDRO

Code	Description	Processing Fee	Licensing Fee
32	water quality certification for storage	$1,506	-
33	water quality certification, no increase in capacity	$452*	$74*
34	maintenance/repair only	$210	$74
35	new/expanded generating capacity	$677*	$74*
36	dams, water levels	$150	-
37	dams, abandonment	-	-
3D	dams, release of impoundment	-	-
3A	hydro licensing, first consultation	$1,474	-
3B	hydro licensing, second consultation	$1,474	-

* Fee per megawatt

The fee for a **minor revision** is $142. The fee for an **amendment** is one half the processing fee, plus one half the licensing fee, the **minor amendment** fee is $1,000. The fee for a **renewal** is one half the processing fee, plus the full licensing fee.

LAND & WATER QUALITY - WINDPOWER

Code	Description	Processing Fee	Licensing Fee
ES	certification of small scale development	$1,000	-

LAND & WATER QUALITY – INDUSTRIAL STORMWATER

Code	Description	Processing Fee	Annual Licensing Fee
MN	NOI - multi-sector general permit - industrial facilities	-	$300

LAND & WATER QUALITY - NATURAL RESOURCES PROTECTION ACT

NRPA fees in the following table apply to all projects which alter less than 20,000 square feet of a protected natural resource, and all projects in a coastal sand dune. (Fees for projects impacting greater than 20,000 sq. ft. are wholly based on the pro-rata table.)

Code	Description	Processing Fee	Licensing Fee
08	water quality certification other than hydro	-	-
2A	shoreline stabilization on a great pond	$210	$74
2B	other activity on a great pond	$210	$74
2C	fragile mountains areas	$210	$74
2D	irrigation ponds	$210	$74
2E	cranberry bogs	$210	$74
2F	activity adjacent to protected natural resources	$210	$74
2G	alteration of wetland of special significance	$210	$74
DW	deer wintering area	$210	$74
IW	inland waterfowl area	$210	$74
TW	tidal waterfowl area	$210	$74
BN	seabird nesting island	$210	$74
FS	shorebird feeding & staging areas	$210	$74
VP	significant vernal pools	$210	$74
GW	significant groundwater well	$5,152	$2,207
OT	off shore energy development	$361	$90
4C	coastal wetland, fill or structure >1,000 sq. ft and below mean high water or over wetland vegetation	$361	$90
4D	shoreline stabilization in a coastal wetland	$361	$90
4E	other activity on a coastal wetland	$361	$90
4P	coastal: docks, piers, or wharves	$361	$90
4F	sand dune: commercial building >2,500 sq/ft, residential building >5000 sq/ft, or buildings >35 ft. tall unless height related to posts	$5,272	$2,259
4I	sand dune: residential building >2,500 sq/ft & <5000 sq/ft & <35 ft. tall	$707	$177
4G	sand dune: beach nourishment or restoration	$210	$74
4H	sand dune: other activity	$361	$90
4J	front dune building	$361	$90
4K	back dune building	$361	$90
4L	front dune, new house variance	$929	$309
4M	sand dune: post or piling variance	$706	$177
L4	stream alteration, fill in floodway	$210	$74
L5	stream alteration, shoreline stabilization	$210	$74
L6	stream alteration, other	$210	$74
MB	mitigation bank	$210	$74
MC	mitigation credit	$141	-
TA	freshwater wetland, Tier 1 / 0 - 4,999 sq. ft.	$35	-
TB	freshwater wetland, Tier 1 / 5,000 - 9,999 sq. ft.	$75	-
TC	freshwater wetland, Tier 1 / 10,000 - 14,999 sq. ft.	$150	-
TE	freshwater wetland fill, Tier 2 / 15,000 - 43,560 sq. ft.	(see below @#)	-
TF	freshwater wetland alteration, Tier 2 / 15,000 - 43,560 sq. ft.	(see below @#)	-
TG	freshwater wetland fill, Tier 3, > 43,560 sq. ft.	(see below @#)	-
TH	freshwater wetland alteration, Tier 3, > 43,560 sq. ft.	(see below @#)	-
-	permit by rule	$70	-
-	condition compliance	$120	-

LAND & WATER QUALITY - NATURAL RESOURCES PROTECTION ACT (CON'T)

[#] The following fees are used to calculate the application cost for projects which alter 20,000 square feet or more of freshwater wetland; square feet proposed for alteration is multiplied by each fee.

Description	Processing Fee	Licensing Fee
alteration involving fill or structure	0.0219/sq. ft.	0.0073/sq.ft.
alteration; other (e.g., removal of vegetation, flooding, dredging)	0.0056/sq. ft.	0.0019/sq.ft.*

*not to exceed $6,995

The fee for a minor revision of all NRPA permits except codes TA, TB & TC is $142; the fee a minor revision of permit codes TA, TB & TC is $35 if there is no change in square footage. NRPA permits cannot be **amended** and are transferred or extended using a P.B.R. application.

LAND & WATER QUALITY - SITE LOCATION

Code	Description	Processing Fee	Licensing Fee
06	delegation of authority to a municipality	-	-
18	airport development	$6,026	$3,013
19	medical facility development	$6,026	$3,013
20	paper mill development	$6,026	$3,013
21	lumber products sawmill development	$6,026	$3,013
22	school development	$6,026	$3,013
23	shopping center development	$6,026	$3,013
24	non-hydro utility development	$6,026	$3,013
25	warehouse development	$6,026	$3,013
26	other non-residential structure development	$6,026	$3,013
27	pipeline development	$6,026	$3,013
28	recreational site development	$6,026	$3,013
39	industrial park/commercial development	$692*	$692*
85	transient lodging development	$6,026	$3,013
87	multi-family or condominium development	$6,026	$3,013
L0	great american neighborhood	$74*	$74*
L1	residential subdivision development of affordable housing	$74*	$74*
L2	residential subdivision development with public water & sewer	$263*	$263*
L3	all other residential subdivision development	$376*	$376*
MX	mixed use:		
	residential/condo	(see below @[#])	(see below @[#])
	residential/non-residential	(see below @[##])	(see below @[##])
L8	metallic mining	(see below @[###])	(see below @[###])
T1	traffic 100-200 pce's (scoping only)	$752	-
	traffic 100-200 pce's full permit	-	$2,259
T2	traffic 100-200 pce's advance ruling (scoping only)	$752	-
	traffic 100-200 pce's advance ruling full permit	-	$2,259
T3	traffic > 200 pce's	$752	$2,259
T4	traffic > 200 pce's advance ruling	$752	$2,259
-	planning permit (pertains to any site project except subdivisions)	$6,026	$3013
-	notice of intent to comply, roundwood	-	$250

* Fee per lot; all residential subdivisions capped at $30,000.
** *Licensing Fee* assessed annually.
[#] Processing and licensing fee for types L1, L2, L3, and 87.
[##] Processing and licensing fee for types L1, L2, L3, and 39.
[###] Preapplication and processing fees for type L8 are special fees, licensing fees must be set by the department prior to the issuance of the permit.

The fee for a **minor revision, condition compliance, renewal,** or **transfer** is $142. The fee for an **amendment** is one half the processing fee, plus one half the licensing fee; the **minor amendment** fee is $1,000. The fee for reissuance of a permit after expiration is the licensing fee provided the application is submitted within 1 year of expiration and no substantive changes have occurred in the permitting standards.

LAND & WATER QUALITY - MINING & EXCAVATIONS

Code	Description	Processing Fee	Licensing Fee
14	mining, except gravel, topsoil, landfill clay or metallic mineral	$2,259	$1,479
80	gravel extraction	$2,202	$1,479
	notice of intent to comply w/ borrow pit or quarry standards	-	$250
	notice of borrow pit or quarry expansion	-	$250
	variance from excavation standards: general	-	$250
	variance from excavation standards: excavation below the water table or externally drained	-	$500
	variance from excavation standards: topsoil salvage	-	$125
	variance from quarry standards: general	-	$250
	variance from quarry standards: excavation below the water table or externally drained	-	$500
	variance from quarry standards: topsoil salvage or air blasts & ground vibration	-	$125
	fee if <2,500 cubic yards extracted	-	$100*
	fee if >2,500 cubic yards extracted	-	$400*
81	topsoil mining	$2,226	$1,458

* *Licensing Fee* assessed annually.

LAND & WATER QUALITY - WASTEWATER DISCHARGE

I. All facilities licensed to discharge pollutants to the waters of the state must pay annual waste discharge license fees. For existing licensees, the annual waste discharge fee will be the previous year fee adjusted by the Consumer Price Index.

I-A. The annual fee for existing licenses is due on the anniversary date of the license or such other date initially established by the Department. This date, once established, remains the scheduled date for payment of annual fees for that license.

I-B. The annual fee for any new application, or existing license that is reclassified to a new license type category, will be the median fee for the assigned category and must be paid at the time of filing.

I-C. With the exception of transfers of licenses for discharges from residential or commercial OBDs, no additional fees are assessed for license renewals, amendments, minor modifications or other revisions.

I-D. A fee of $100 is required for transfer of licenses for discharges from residential or commercial OBDs.

I-E. Failure to pay the annual fee within 30 days of the due date is sufficient grounds for revocation of the license, and may also result in collection actions or formal enforcement, including monetary penalties.

Code	Description (Category)	Type of fee	Basis	Median fee	Water Quality Improvement surcharge
5A	residential overboard discharge (OBD) up to 600 GPD	annual fee	2011 bill amount	$243	$75
5B	residential OBD over 600 GPD	annual fee	2011 bill amount	$329	$75
5C	commercial OBD	annual fee	2011 bill amount	$468	$75
5D	publicly owned OBD	annual fee	2011 bill amount	$331	$75
5J	sanitary wastewater, commercial (non-OBD)	annual fee	2011 bill amount	$754	
6A	POTW, <10,000 GPD, no sig. industrial waste	annual fee	2011 bill amount	$321	-
6B	POTW, 10K to 100K GPD, no sig. industrial waste	annual fee	2011 bill amount	$420	**
6C	POTW, 100K to 1M GPD, no sig. industrial waste	annual fee	Average of 2009 - 2011 bills	$648	**
6D	POTW, 1M to 5M GPD, no sig. industrial waste	annual fee	Average of 2009 - 2011 bills	$1,366	**
5M	POTW >5 MGD or with significant industrial waste	annual fee	Average of 2009 - 2011 bills	$4,783	**

LAND & WATER QUALITY - WASTEWATER DISCHARGE (CON'T)

Code	Description (Category)	Type of fee	Basis	Median fee	Water Quality Improvement Surcharge
5N	major industrial facility process wastewater	annual fee	Average of 2009 - 2011 bills	$20,667	-
5O	minor industrial facility process wastewater	annual fee	2011 bill amount	$1,275	-
5P	food handling or packaging wastewater	annual fee	2011 bill amount	$692	-
6E	fish rearing facility <100K GPD	annual fee	2011 bill amount	$328	-
6F	fish rearing facility >100K GPD	annual fee	2011 bill amount	$833	-
5R	non-contact cooling water	annual fee	2011 bill amount	$202	-
5S	miscellaneous or incidental non-process wastewater from industrial or commercial sources	annual fee	2011 bill amount	$381	-
5T	municipal combined sewer overflow	annual fee	2011 bill amount	$433	-
5U	aquatic pesticide application	annual fee	2011 bill amount	$676	-
5V	snow dumps	annual fee	2011 bill amount	$337	-
5W	salt and sand storage pile	annual fee	2011 bill amount	$450	-
5X	log storage permit	annual fee	2011 bill amount	$443	-
5Y	general permit coverage	annual fee	2011 bill amount	$172	-
5Z	experimental discharge license	annual fee	2011 bill amount	$944	-
51	creation of mixing zone	flat fee	$5,638	-	-
54	formation of sanitary district	flat fee*	$422	-	-
6G	marine aquaculture facility	annual fee	$324	-	-
6H	marine aquaculture - general permit	annual fee	$140	-	-

** Water Quality Improvement fees for municipal dischargers and CSO communities total $25,000 and $12,000 respectively statewide. The statewide total CSO fee amount of $12,000 is divided among CSO communities based on their prior three-year average flows. The statewide total $25,000 closed area fee is divided among coastal communities based on estimates by the Department of Marine Resources of the acreage closed to harvest by each discharger.

II. The following fees are required for applications for property tax and sales and use tax exemption certification and for NPDES permit water quality certification.

Code	Description	Processing Fee	Licensing Fee
63	property tax exemption certification	$376	$31
64	sales & use tax exemption certification	$373	$31
68	water quality certification for a NPDES permit	-	-

ATS Code	Description	Appl Process Fee	Appl Lic Fee / Annual	Total Application Fee - New	Annual Report Fee**
BRWM - SLUDGE & RESIDUALS					
SB	Utilization Prog Lic-Indus/Papermill/Short-PaperFiber Sludge	$603	$603*	$1,206	$181
SH	Utilization W/PrgLic-Indus/Papermill/Short-PaperFiber Sludge	$225	$376*	$601	$98
SC	Utilization Prog License-Biosolids, Sewage/Municipal Sludge	$452	$414*	$866	$128
SI	Utilization W/PrgLic-Biosolids, Sewage/Municipal Sludge	$112	$301*	$413	$71
SD	Utiliz Prog Lic-Bioash/CKD/LimeMud/Other Ash or Liming Agent	$452	$414*	$866	$128
SJ	Utiliz W/PrgLic-Bioash/CKD/LimeMud/Other Ash or Liming Agent	$112	$301*	$413	$71
SE	Utilization Program License - Wood Ash	$452	$112*	$564	$68
SK	Utilization With a Program License - Wood Ash	$74	$188*	$262	$45
SF	Utilization Program License-Food Waste, Food/Fish By-Product	$452	$112*	$564	$68
SL	Utilization W/PrgLic-Food Waste, Food/Fish By-Product	$74	$188*	$262	$45
SG	Utilization Program License - Other Wastes	$452	$263*	$715	$98
SM	Utilization With a Program License - Other Wastes	$74	$188*	$262	$45
ST	Agronomic Utilization Storage <3,500 cubic yards	$287	$251*	$538	$79
SU	Agronomic Utilization Storage >= 3,500 cubic yards	$575	$251*	$826	$108
SV	Agronomic Utilization-Other	$453	$263*	$716	$98
SX	Agronomic Utilization-License Transfer	$151	$151	$302	
SY	Agronomic Utilization-One Time	$74	$74	$148	
SZ	Agronomic Utilization-Pilot Project	$74	$74	$148	
	permit by rule for on-going activities	$143	$143*	$286	$43
	permit by rule for one-time activities	$143	$143	$286	
	license transfer of a permit by rule	$143		$143	

ATS Code	Description	Appl Process Fee	Appl Lic Fee / Annual	Total Application Fee - New	Annual Report Fee**
COMPOST					
CB	Compost Facility-Type IA/Leaf & Yard Waste	$225	$225*	$450	$68
CF	Compost Facility-Type IB/IC Residual <750 cy/yr	$225	$225*	$450	$68
CG	Compost Facility-Type IB/IC Residual >750 cy/yr	$225	$225*	$450	$68
CH	Compost Facility-Type II (sludge meets DEP req) <3500 cy/yr	$987	$705*	$1,692	$240
CI	Compost Facility-Type II (sludge meets DEP req) >3500 cy/yr	$1,974	$1,198*	$3,172	$437
CJ	Compost Facility-Type III(sludge not meet DEP req)<3500cy/yr	$987	$705*	$1,692	$240
CK	Compost Facility-Type III(sludge not meet DEP req)>3500cy/yr	$1,974	$1,198*	$3,172	$437
CL	Other Septage & Residual Processing <750 cy/yr	$526	$526*	$1,052	$158
CM	Other Septage & Residual Processing >750 cy/yr	$1,053	$1,053*	$2,106	$316
CX	Compost & Residual Processing - License Transfer	$141	$141	$282	
CZ	Compost & Residual Processing - Pilot Project	$70	$70	$140	
	permit by rule for on-going activities	$141	$141*	$282	$42
	permit by rule for one-time activities	$141	$141	$282	
	license transfer of a permit by rule	$141		$141	

* Denotes amount for both application licensing and annual license fees.
Annual license fees are due annually beginning one year after license issuance.

**Annual report fees are due annually beginning 5 years after license issuance.
Annual report fees = 1/5(annual fee plus 1/2 processing fee)

The fee for amendments is one half the processing fee plus one half the licensing fee.

The fee for renewals is one half the processing fee plus the full licensing fee.

The fee for all Condition Compliance is $142

2011 Residuals Utilization Summary* - Licensed by Maine Department of Environmental Protection (Compiled by MDEP: 10/12)

Type of Residual	Volume (yd^3)
Direct Land Application	
Ash	30,888
Boralex Ashland	1,186
Boralex Fort Fairfield	11,788
Domtar	74
Georgia Pacific	1,423
GN Bowater	8,840
Huber Engineered Wood	1,774
Lincoln P&T	1,020
Louisana Pac.	2,293
Maine Woods	117
Pinetree Power	395
Verso Paper	1,978
Liming Other (Lime Mud, SPF, PCC)	38,078
Cascades Auburn	11,115
Domtar	10,614
IMERYS	3,413
Lincoln P&T	1,205
SAPPI Fine Paper	9,155
Specialty Minerals	2,576
WWTP Sludge	16,250
Augusta Sanitary	4,337
Bethel WPCF	3
Bingham WWTF	55
Blue Hill WWTF	93
Brunswick SD	893
Charleston Correctional	19
Eastport	30
Grand Isle WWTP	32
Houlton Water Co.	239
LAWPCA	8,617
Lubec WWTP	25
Machias WWTF	133
Madawaska PC	54
McCain Foods	6
Mechanic Falls WWTF	101
Norridgewock WWTF	97
Presque Isle SD	799
Quality Egg	43
Richmond Util. Distr.	172
Saint Agatha	55
Skowhegan	319
Van Buren	128
Sludge Pellets (Milorganite, NEFCO)	(Bag Sales)
N-Viro	102,669
Fish/Food/Other Processing Waste	6,918
FMC BioPolymer, Inc.	45,224
KKWWD	570
McCain Foods USA, Inc.	5,972
Tate and Lyle	376

Type of Residual	Volume (yd^3)
Composted	
WWTP Sludge	79,342
LAWPCA	13,404
Dyer	88
Boulder Pines	550
Kennebunkport WWTP	139
Kingfield, Town of	60
Pat Jackson, Inc.	2,460
Old Town WWTP	2,430
Interstate Septic	60
Rum-Mex. Sewer Distr.	2,746
Scarborough San. Dist.	2,900
Skowhegan WWTP	939
Paris Utility District	381
Hawk Ridge (N.E.W.S.)	51,362
Winslow Public Works	100
Wilton WWTF	477
Yarmouth WWTP	1,246
Pulp/Mill Sludge	15,902
Hawk Ridge (N.E.W.S)	15,902
Fish/Food	7,866
Marcel DuBois	1,128
Sandy River Recycling*	42
Benson Farm	750
Maine's Best (Prosser)*	50
Little River Compost	660
Ricker Farm	50
N.E. Compost*	50
Coast of Maine	2,170
Interstate Septic	145
Doug Gott	131
Knox Ridge Farm*	2,048
Hawk Ridge (N.E.W.S.)	181
J&L Compost(Earthly)	250
Portland/Maine Waste	211
Wood Ash	4,956
Kennebunkport WWTP	1,200
Old Town WWTP	1,424
Rum.-Mex. Sewer Dist.	2,332
Leaf and Yard Waste	39,017
Acton, Town of	400
Augusta, City of	508
City of Bath	1,180
Belgrade, Town of	400
Brewer, City	1,500
Brunswick,Town	8,000
Bucksport, Town	50
Town of Calais	110
Mid Maine Solid Waste	16
Northern Katahdin Valley	100

Type of Residual	Volume (yd^3)
Composted (cont)	
Piscataqua Landscaping	950
Benson Farm	2,000
Dyer	176
Town of Jay	469
Kittery, Town of	666
Ricker Farm	196
Millinocket, Town of	2,800
Oakland, Town of	100
Commercial Recycling	2,435
Skowhegan, Town of	890
City of S. Portland	7,369
West Gardiner Trans. St.	110
Town of Winslow	250
Lincoln County Recycling	375
Yarmouth, Town of	4,700
Yarmouth WWTP	2,267
Cumberland, Town of	1,000
Other (Manure, etc.)	42,668
Marcel DuBois	525
Brewer, City	50
Mid Maine Solid Waste	10
Cumberland, Town of	500
Benson Farm	1,000
Donald Fitzpatrick	317
Pineland Farms	29,100
Coast of Maine	725
Aroostook Research	136
Interstate Septic	1,521
Skowhegan, Town of	330
Hawk Ridge (N.E.W.S.)	7,964
J&L Compost(Earthly)	100
Portland/Maine Waste	390

Type of Residual	Volume (yd^3)
Manufactured Topsoil	
Ash	40
Robbins Lumber	40
Liming Other (Lime Mud, SPFand PCC)	274
Cascades Auburn	274

Totals	(yd^3)	Tons[1]
Total Residual Land Application 2011	196,205	146,103
Total Composted 2011	190,744	142,913
Total Manufactured Topsoil 2011	314	236

[1]Conversion factor = yd^3 x 0.75 (assumes 1500 lbs./yd^3)

* - Volumes derived from 2011 Annual Report of Facility Activities

- Volumes derived from 2009 Annual Report of Facility Activities

Appendix B

Appendix B

DACF Program Information

Title 7, Chapter 103, PRODUCTS CONTROLLED

Subchapter 5: FERTILIZERS

§741. Title

This subchapter shall be known as the "Maine Commercial Fertilizer Law".

§742. Definitions

As used in this subchapter, unless the context otherwise indicates, the following terms shall have the following meanings. [1979, c. 541, Pt. A, § 54 (amd).]

1. **Brand.** "Brand" means a term, design or trademark used in connection with one or several grades of commercial fertilizer.
2. **Bulk fertilizers.** "Bulk fertilizers" means commercial fertilizer distributed in a non-packaged form.
3. **Commercial fertilizer.** "Commercial fertilizer" includes mixed fertilizer or fertilizer materials, or both.
4. **Commissioner.** "Commissioner" means the Commissioner of Agriculture, Food and Rural Resources or his authorized agent. [1979, c. 731, § 19 (amd).]
5. **Distribute; distributor.** "Distribute" means to offer for sale, sell, barter or otherwise supply commercial fertilizers. The term "distributor" means any person who distributes.
6. **Fertilizer material.** "Fertilizer material" means any substance containing nitrogen, phosphorus, potassium or any recognized plant nutrient element or compound which is used primarily for its plant nutrient content or for compounding mixed fertilizers except unmanipulated animal and vegetable manures.
7. **Grade.** "Grade" means any commercial fertilizer having a specific and the same guarantee.
8. **Guaranteed analysis.** "Guaranteed analysis":

A. "Guaranteed analysis" shall mean the minimum percentage of plant nutrients claimed in the following order and form:

Total Nitrogen (N) ..... per cent

Available Phosphoric Acid (P(subscript)2(subscriptend)O(subscript)5(subscriptend)).....per cent

Soluble Potash (K(subscript)2(subscriptend)O) ..... per cent

B. "Guaranteed analysis" in paragraph A includes:

(1) For unacidulated mineral phosphatic materials and basic slag, both total and available phosphorus or phosphoric acid and the degree of fineness. For bone, tankage and other organic phosphatic materials, total phosphorus or phosphoric acid.

(2) Additional plant nutrients expressed as the elements, when permitted by the commissioner.

9. **Mixed fertilizers.** "Mixed fertilizers" means any combination or mixture of fertilizer materials designed for use or claimed to have value in promoting plant growth.
10. **Official sample.** "Official sample" means any sample of commercial fertilizer taken by the commissioner.
11. **Per cent or percentage.** "Per cent" or "percentage" means the percentage by weight.
12. **Person.** "Person" includes individual, partnership, association, firm and corporation.
13. **Registrant.** "Registrant" means the person who registers commercial fertilizer under this

subchapter.

14. Singular and plural. Words importing the singular number may extend and be applied to several persons or things and words importing the plural number may include the singular.

15. Ton. "Ton" means a net weight of 2,000 pounds avoirdupois.

PL 1979, Ch. 541, §A54 (AMD).
PL 1979, Ch. 731, §19 (AMD).

§743. Registration

Each brand and grade of commercial fertilizer must be registered before being offered for sale, sold or distributed in this State. The application for registration must be submitted to the commissioner on forms furnished by the commissioner and must be accompanied by an annual fee of $100 per product. All registrations expire on December 31st or in a manner consistent with the provisions as to license expiration of the Maine Administrative Procedure Act, Title 5, section 10002, whichever is later. The commissioner may issue a registration for a one-year, 2-year or 3-year period. Registrations for a period in excess of one year may only be issued with the agreement of or at the request of the applicant. The fee for a 2-year registration is 2 times the annual fee. The fee for a 3-year registration is 3 times the annual fee. The commissioner may refuse to register or renew or may suspend or cancel registration for failure to comply with this subchapter or with rules adopted pursuant to this subchapter. This refusal, suspension or cancellation is considered rulemaking as that term is defined in the Maine Administrative Procedure Act, Title 5, chapter 375 and notice and opportunity for a hearing must be provided in a manner consistent with the Maine Administrative Procedure Act, Title 5, chapter 375. The application must include the following information: [2005, c. 12, Pt. EEE, §1 (amd).]

1. Weight. The net weight;

2. Brand and grade. The brand and grade;

3. Analysis. The guaranteed analysis;

4. Registrant's name and address. The name and address of the registrant; and [2001, c. 670, §2 (amd).]

5. Additional information. Additional information as required in rules adopted by the department. [2001, c. 670, §3 (new).]

The fees so collected by the commissioner shall be deposited in the General Fund. [1979, c. 672, Pt. A, §23 (rpr).]

A distributor shall not be required to register any brand and grade of commercial fertilizer which is already registered under this subchapter by another person.

The plant nutrient content of each and every brand and grade of commercial fertilizer must remain uniform for the period of registration.

PL 1977, Ch. 694, §73,74 (AMD).
PL 1979, Ch. 672, §A22,23 (AMD).
PL 1989, Ch. 888, §2 (AMD).
PL 1997, Ch. 454, §2 (AMD).
PL 2001, Ch. 670, §1-3 (AMD).
PL 2005, Ch. 12, §EEE1 (AMD).

§744. Labeling

Any commercial fertilizer distributed in this State in containers shall have placed on or affixed to the container a label setting forth in clearly legible form the information required by section 743, subsections 1 to 5.

If distributed in bulk, a written or printed statement of the information required by section 743, subsections 1 to 5, shall accompany delivery and be supplied to the purchaser at time of delivery.

§745. Inspection, sampling and analysis

It shall be the duty of the commissioner to inspect and sample for analysis in accordance with section 485 commercial fertilizers distributed within this State at such time and place to such an extent as he may deem necessary to determine whether such commercial fertilizers are in compliance with this subchapter. The commissioner is authorized to enter upon any public or private premises during regular business hours in order to have access to commercial fertilizers, subject to this subchapter and the rules and regulations pertaining thereto.

The methods of sampling, sample preparation and analysis shall be those adopted from sources such as the AOAC International . The commissioner, in determining for administrative purposes whether a commercial fertilizer is deficient in any component, shall be guided solely by the official sample as defined and obtained and analyzed as provided for in this section.

When the inspection and analysis of an official sample indicate a commercial fertilizer has been adulterated or misbranded, the results of analysis shall be forwarded by the commissioner to the distributor or manufacturer. Upon request within 30 days, the commissioner shall furnish to the registrant a portion of the sample concerned.

§746. Misbranding

No person shall distribute misbranded fertilizer. A commercial fertilizer shall be deemed to be misbranded:

1. False or misleading statements. If false or misleading statements concerning its agricultural value are made on the container or in any advertising matter accompanying or associated with the commercial fertilizer;

2. Distributed under another name. If it is distributed under the name of another fertilizer;

3. Container not labeled as required. If its container is not labeled as required in section 744 and in regulations prescribed under this subchapter;

4. Information required placed conspicuously. If any word, statement or other information required by or under authority of this subchapter to appear on the label or labeling is not prominently placed thereon with such conspicuousness, as compared with other words, statements, designs or devices in the labeling, and in such terms as to render it likely to be read and understood by the ordinary individual under customary conditions of purchase and use;

5. Not registered and fee not paid. If it is a grade of commercial fertilizer which is not registered with the commissioner and the prescribed fee paid in accordance with this subchapter.

§747. Adulteration

No person shall distribute an adulterated commercial fertilizer. A commercial fertilizer shall be deemed to be adulterated:

1. Quality, etc. not in conformity. If its weight, composition, quality, strength or purity do not conform in each particular to the claims made upon the affixed guaranty;

2. Deleterious materials. If it contains any material in sufficient amount to be deleterious to growing plants or any deleterious or harmful substances in sufficient amount to render it injurious to beneficial plant life, animals, humans, aquatic life, soil or water; or [2001, c. 670, §4 (amd).]

3. Other materials. If it is found to contain any pulverized leather, hair, ground hoofs, horns, wool waste, peat, garbage tankage or any nitrogenous ingredients derived from any inert material whatsoever, unless the same has been so treated as to be available as plant food as determined by the methods adopted by the AOAC International , without an explicit printed statement of fact, conspicuously affixed to the package of such fertilizer and accompanying and going with every lot or package of the same, in which fertilizer the above named materials aid in making up the required or guaranteed analysis.

PL 2001, Ch. 670, §4 (AMD).

§748. Regulations, standards and definitions

The commissioner is charged with the enforcement of this subchapter, and is empowered to promulgate and adopt, in a manner consistent with the Maine Administrative Procedure Act, such reasonable rules and regulations as may be necessary to carry into effect the full intent and meaning of this subchapter. The commissioner is empowered to adopt regulations establishing definitions and standards for commercial fertilizer ingredients and such other regulations as may be necessary for the enforcement of any provisions of this subchapter. [1977, c. 694, Â§ 75 (amd).]

1. "Withdrawal from sale" orders. When the commissioner has reasonable cause to believe a commercial fertilizer is being distributed in violation of any of the provisions of this subchapter, or of any of the prescribed regulations under this subchapter, he may issue and enforce a written or printed "withdrawal from sale" order warning the distributor not to dispose of the fertilizer in any manner until written permission is given by the commissioner or the court. The commissioner shall release the commercial fertilizer so withdrawn when the provisions and regulations have been complied with and all costs and expenses incurred in the withdrawal have been paid. The issuance of such an order shall not be considered licensing or an adjudicatory proceeding, as defined by the Maine Administrative Procedure Act. If compliance is not obtained within 30 days, the commissioner may begin proceedings for condemnation. [1977, c. 694, Â§ 76 (amd).]

2. Condemnation and confiscation. Any lot of commercial fertilizer, not in compliance with this subchapter, shall be subject to seizure on complaint of the commissioner to a court of competent jurisdiction in the area in which said commercial fertilizer is located. In the event the court finds the said commercial fertilizer to be in violation of this subchapter, and orders the condemnation of said commercial fertilizer, it shall be disposed of in any manner consistent with the quality of the commercial fertilizer and the laws of the State. In no instance shall the disposition of said commercial fertilizer be ordered by the court without first giving the claimant an opportunity to apply to the court for release of said commercial fertilizer or for permission to process or relabel said commercial fertilizer to bring it into compliance with this subchapter.

PL 1977, Ch. 694, §75,76 (AMD).

§749. Enforcement

This subchapter shall be administered by the commissioner. [1979, c. 541, Pt. A, § 55 (amd).]

PL 1979, Ch. 541, §A55 (AMD).

§750. Short Weight.

If any fertilizer in the possession of a consumer is found by the commissioner to be short in weight, the guarantor of that fertilizer shall, within 30 days after official notice from the commissioner, submit to the consumer a penalty payment of two times the value of the actual shortage.

§751. Violations

1. Violation. A person, firm or corporation may not violate this subchapter or a rule adopted pursuant to this subchapter. [2003, c. 452, Pt. B, §11 (new); Pt. X, §2 (aff).]

2. Penalty. The following penalties apply to violations of this section. [2003, c. 452, Pt. B, §11 (new); Pt. X, §2 (aff).]

A. A person who violates subsection 1 commits a civil violation for which a fine of not more than $500 may be adjudged.

[2003, c. 452, Pt. B, §11 (new); Pt. X, §2 (aff).]

B. A person who violates subsection 1 after having previously violated subsection 1 commits a civil violation for which a fine of not more than $1,000 may be adjudged.

C. Penalty for total nitrogen, available phosphate, and soluble potash – (1) If the analysis shall

show that a fertilizer is deficient in one or more of its guaranteed primary plant nutrients beyond the investigational allowances and compensations as established by rule or (2) if the overall index value of the fertilizer is below the level established by rule, a penalty payment of two (2) times the value of such deficiency or deficiencies shall be assessed. When a fertilizer is subject to a penalty payment under both (1) and (2), the larger penalty payment shall apply.

D. Penalty payment for other deficiencies – Deficiencies beyond the investigational allowances as established by rule, which the registrant is required to or may guarantee, shall be evaluated and penalty payments prescribed by the Commissioner.

E. All penalty payments assessed under this section (C and D) shall be paid by the registrant to the consumer of the lot of fertilizer represented by the sample analyzed within three months after the date of notice from the Commissioner to the registrant, receipts taken and therefore and promptly forwarded to the consumer. If said consumer cannot be found, the amount of the penalty payments shall be paid to the Commissioner who shall deposit the same in the appropriate state fund allocated for fertilizer.

F. For the purpose of determining the commercial value to be applied, the Commissioner shall determine by the invoice charged to the consumer, the values per unit of nitrogen, available phosphate, and soluble potash in fertilizers in this state. The values determined shall be used in determining and assessing penalty payments.

[2003, c. 452, Pt. B, §11 (new); Pt. X, §2 (aff).]

01 DEPARTMENT OF AGRICULTURE, FOOD AND RURAL RESOURCES

001 DIVISION OF QUALITY ASSURANCE & REGULATIONS

Chapter 350: REGULATIONS UNDER THE MAINE COMMERCIAL FERTILIZER LAW

SUMMARY: The purpose of this chapter is to set forth uniform standards for labeling, registration and regulation of fertilizers.

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1. DEFINITIONS

1. "Biosolids" means a primary organic solid material produced by wastewater treatment processes that can be beneficially recycled for its plant nutrient content and soil amending characteristics. Biosolids also include "Sludge" as defined in 38 M.R.S. §1303-C (28-A).

2. "Coated Slow Release Fertilizer" means a product containing sources of water soluble nutrients, release of which in the soil is controlled by a coating applied to the fertilizer.

3. "Commercial Value Found" means the number determined by the sum obtained from adding the percentage of Total Nitrogen (N), Available Phosphate (P_2O_5) and Soluble Potash (K_2O).

4. "Commercial Value Guaranteed" means the number determined by the sum obtained from adding the percentage guaranteed of Total Nitrogen, Available Phosphate (P_2O_5) and Soluble Potash (K_2O).

5. "Fertilizer Grade" means the minimum guarantee of available plant food expressed in terms of total Nitrogen (not ammonia), Available Phosphate and Soluble Potash. The values for Total Nitrogen (N), Available Phosphate (P_2O_5) and Soluble Potash (K_2O), expressed as the grade must coincide with the guaranteed analysis statement. Only one set of values may be used in the grade designation and with the exception of Specialty Fertilizer, the grade must be expressed in whole numbers.

6. "Guarantee" means Guaranteed Analysis.

7. "Guaranteed Analysis" means the minimum percentage of Total Nitrogen (N), available Phosphate (expressed as percent P_2O_5), water soluble Potassium (expressed as percent K_2O) and other nutrients present in quantities that conform to Chapter 350 section III.

8. "Investigation Allowance" means an allowance for variations inherent in the taking, preparation and analysis of an official sample of fertilizer.

9. "Lot" means an identifiable quantity of fertilizer that can be sampled officially according to the Association of Official Analytical Chemists (AOAC) International procedures, up to and including a freight car load or 50 tons maximum, or that amount contained in a single vehicle, or that amount delivered under a single invoice.

10. "Overall Index Value" means the value obtained from the calculation: (Commercial Value Found) x 100/(Commercial Value Guaranteed).

11 "Primary Nutrients" means the following plant foods: Nitrogen (N); Available Phosphate (P_2O_5); and Soluble Potash (K_2O).

12. "Secondary and Micro Plant Nutrients" means those nutrients, other than primary nutrients, that are essential for the normal growth of plants and that may need to be added to the growth medium. Secondary plant nutrients include calcium, magnesium, sulfur, molybdenum, nickel, sodium and zinc.

13. "Slow release" or "controlled release" means a fertilizer containing a plant nutrient in a form which delays its availability for plant uptake and use after application, or which extends its availability to the plant significantly longer than a reference "rapidly available nutrient fertilizer" such as ammonium nitrate or urea, ammonium phosphate, or potassium chloride. Such delay of initial availability or extended time of continued availability may occur by a variety of mechanisms. These mechanisms may include controlled water solubility of the material (by semi permeable coatings, occlusion, or by inherent water insolubility of polymers, natural nitrogenous organics, protein materials, or other chemical forms), by slow hydrolysis of water soluble low molecular weight compounds, or by other means.

14. "Specialty Fertilizer" means a fertilizer that is distributed for non-farm use. Specialty fertilizers may be guaranteed in fractional units of less than one percent of total nitrogen, available phosphate, and soluble potash: provided, further, that fertilizer materials, bone meal, manures, and similar materials may be guaranteed in fractional units.

15. "Unit" means twenty (20) pounds of plant food or one percent (1%) of a ton.

16. "Waste Material" means material defined as "hazardous matter", "hazardous substance", "hazardous waste", "residual", "septage" or "solid waste" in federal, state and local laws, including, but not limited to the Maine Hazardous Waste, Septage and Solid Waste Management Act, 38 M.R.S. §1301 *et seq.*; the Maine Hazardous Matter Control Act, 38 M.R.S. §1317 *et seq.*; and the Maine Uncontrolled Hazardous Substance Sites Law, 38 M.R.S. §1361 *et seq.*; as well as the rules promulgated under these statutes.

2. REGISTRATION

1. Each brand and grade of commercial fertilizer must be registered in accordance with the requirements of Title 7 M.R.S. §743 before being offered for sale, sold or distributed in the State of Maine.

2. Applications for the registration of fertilizers manufactured from or containing "waste materials", as that term is defined in Chapter 350 section 1.(16), and applications for registration of fertilizers containing materials which may be considered deleterious as defined 7 M.R.S. §747 subsection 2, Deleterious Materials, must include the following information:

A. Specific identification of any and all waste materials and/or deleterious materials contained in the fertilizer, including but not limited to their nature, composition, and source; and

B. An analysis of materials contained in the fertilizer by an independent laboratory verifying compliance with the standards for metals as established in Chapter 350 section 8;

3. When reviewing an application for the registration of a fertilizer, the Commissioner of the Department of Agriculture, Food, and Rural Resources may submit the application for registration to the Maine Department of Environmental Protection and/or the Maine Department of Human Services for a review and evaluation of any potential deleterious or harmful impact on the environment, public health, and animal health. In addition, where a fertilizer is subject to the application requirements of the Agronomic Utilization of Residual Rules administered by the Maine Department of Environmental Protection, 06-096 c. 419 ("Chapter 419") as well as these rules, the Commissioner of the Department of Agriculture, Food and Rural Resources shall require the applicant for registration under these rules to first obtain all the permits or licenses required by DEP under Chapter 419 and to submit copies of those permits or licenses along with its application under these rules.

4. Warning or Caution statements are required on the label for any product which contains any material in sufficient amount to be deleterious or harmful as stated in Title 7 M.R.S. section 747 subsection 2, Deleterious Materials.

3. PLANT NUTRIENTS

1. In addition to Total Nitrogen (N), Available Phosphate (P_2O_5), and Soluble Potash (K_2O), other plant nutrients when mentioned in any form or manner shall be registered and shall be guaranteed. Guarantees shall be made on the elemental basis, sources of the elements guaranteed and proof of availability shall be provided to the Maine Department of Agriculture upon request. Except guarantees for those water soluble nutrients labeled for ready to use foliar fertilizers, ready to use specialty liquid fertilizers, hydroponic or continuous liquid feed programs and guarantees for potting soils, the following percentages represent the minimum concentrations for any secondary or minor nutrients contained in fertilizers which may be accepted for registration:

Element	Minimum Conc., %
Calcium (Ca)	1.0000
Magnesium (Mg)	0.5000
Sulfur (S)	1.0000
Boron (B)	0.0200
Chlorine (Cl)	0.1000
Cobalt (Co)	0.0005
Copper (Cu)	0.0500
Iron (Fe)	0.1000
Manganese (Mn)	0.0500
Molybdenum (Mo)	0.0005
Nickel	0.0010
Sodium (Na)	0.1000
Zinc (Zn)	0.0500

2. Only fertilizers containing one or more of the above listed plant nutrients, with guaranteed amounts meeting the minimum concentrations, may be accepted for registration. Any of the above listed plant nutrients which are guaranteed must appear, in the order listed, immediately following guarantees for the primary nutrients of nitrogen, phosphate and potash.

4. FERTILIZER DEFICIENCY – INVESTIGATIONAL ALLOWANCES

1. A commercial fertilizer shall be deemed deficient if the analysis of any nutrient is below the guaranteed percentage by an amount exceeding the values in the following schedule, or if the overall index value of the fertilizer is below 98%.

Guarantee, percent	Nitrogen (N)	Avail. Phosphate (P_2O_5)	Sol. Potash (K_2O)
	Investigational Allowance, percent		
04 or less	0.49	0.67	0.41
05	0.51	0.67	0.43
06	0.52	0.67	0.47
07	0.54	0.68	0.53
08	0.55	0.68	0.60
09	0.57	0.68	0.65
10	0.58	0.69	0.70
12	0.61	0.69	0.79
14	0.63	0.70	0.87
16	0.67	0.70	0.94
18	0.70	0.71	1.01
20	0.73	0.72	1.08
22	0.75	0.72	1.15
24	0.78	0.73	1.21
26	0.81	0.73	1.27
28	0.83	0.74	1.33
30	0.86	0.75	1.39

2. For values not listed in the above schedule, calculate the appropriate value by interpolation.

3. The overall index value is calculated by comparing the commercial value guaranteed with the commercial value found and shall be determined by using the following formula:

   A. The calculation of the overall index value shall be determined by multiplying 100 times the commercial value found and dividing by the commercial value guaranteed.

4. Secondary and minor elements shall be deemed deficient if any nutrient's concentration is below the guaranteed percentage by an amount exceeding the values in the following schedule:

Element	Investigational Allowance
Calcium	0.2 unit + 5% of guarantee
Magnesium	0.2 unit + 5% of guarantee
Sulfur	0.2 unit + 5% of guarantee
Boron	0.003 unit + 15% of guarantee
Cobalt	0.0001 unit + 30% of guarantee
Chlorine	0.005 unit + 10% of guarantee
Copper	0.005 unit + 10% of guarantee
Iron	0.005 unit + 10% of guarantee
Manganese	0.005 unit + 10% of guarantee
Molybdenum	0.0001 unit + 30% of guarantee
Sodium	0.005 unit + 10% of guarantee
Zinc	0.005 unit + 10% of guarantee
The maximum allowance when calculated in accordance to the above shall be 1 unit (1%).	

5. FERTILIZERS NOT MEETING STANDARDS FOR INGREDIENTS

1. Any fertilizer failing to meet the standards for ingredients established by Chapter 350 sections 3 or 4 will not be accepted for registration.

2. If it is determined that a fertilizer fails to meet the standards for ingredients established by Chapter 350 sections 3 or 4 after it is registered, then the registration of that fertilizer may be suspended or cancelled in accordance with 7 M.R.S. §743.

3. Nothing in this subsection shall be construed as a limitation of the Department of Agriculture, Food and Rural Resources' authority under 7 M.R.S. Chapter 103, subchapter 5.

6. FERTILIZER LABELING

1. The following information, in the format presented, is the minimum required for all fertilizer labels. For packaged products, the information must appear either on the front or back of the package and occupy at least the upper-third of the package, or the information may be printed on a tag and securely attached to the package. This information shall be in a readable and conspicuous form. For bulk products, the information must be contained on a printed form, which must accompany the fertilizer and be supplied to the purchaser at time of delivery.

   A. Net Weight

   B. Brand

   C. Grade (Provided that the grade shall not be required when no primary nutrients are claimed)

D. Guaranteed Analysis

Total Nitrogen (N)..... _____%
_____% Ammoniacal Nitrogen
_____% Nitrate Nitrogen
_____% Water Insoluble Nitrogen
_____% Urea Nitrogen
_____% (Other recognized and determinable forms of Nitrogen)
Available Phosphate (P_2O_5)..... _____%
Soluble Potash (K_2O)..... .... _____%
(Other nutrients, elemental basis)..... _____%

E. Sources of nutrients, when shown on the label, shall be listed below the completed guaranteed analysis statement.

F. Name and address of registrant

G. Directions for use for fertilizer distributed to the end user:

(1) For specialty fertilizer, minimum directions for use shall include:

(a) Recommended application rate or rates in units of weight or volume per unit of area coverage (where application rates are given in volume, the label shall provide sufficient information to calculate the application rates by weight);

(b) Application timing and minimum intervals to apply the product when plants can utilize nutrients; and

(c) The statement "Apply Only as Directed" or a statement of similar designation.

(2) For all other fertilizers, minimum directions for use shall include at least one of the following:

(a) A statement such as:

Use in accordance with recommendations of a qualified individual or institution (such as a certified crop advisor, agronomist, or university crop extension publication) or apply according to recommendations in your approved nutrient management plan; or

(b) Detailed directions for a specific use.

2. Product Labels that Meet Metal Guidelines for metals set forth in Chapter 350 section 8 may include the following statement on the label:

"When applied as directed, this product meets the guidelines for metals adopted by the Association of American Plant Food Control Officials."

7. SLOWLY RELEASED PLANT NUTRIENTS

1. No fertilizer label shall bear a statement indicating that certain plant nutrients contained in a fertilizer are released slowly over a period of time, unless the slow release components are identified and guaranteed at a level of at least 15% of the total guaranteed for that nutrient(s).

2. Products with recognized slow release properties include:

   A. Water insoluble products, such as natural organics, ureaform materials, urea-formaldehyde products, isobutylidene diurea, and oxamide;

   B. Coated slow release products, such as sulfur coated urea and other encapsulated soluble fertilizers;

   C. Occluded slow release products, where fertilizers or fertilizer materials are mixed with waxes, resins, or other materials and formed into particles; and

   D. Products containing water soluble nitrogen such as ureaform materials, urea-formaldehyde products, methylenediurea (MDU), dimethylenetriurea (DMTU), dicyanodiamide (DCD). The terms, "water insoluble", "coated slow release", "slowly available water soluble", and "occluded slow release" are accepted as descriptive of these products, provided the manufacturer can show a testing program substantiating the claim.

3. Until more appropriate methods are developed, AOAC International Method 970.04 (15th Edition) shall be used to confirm the coated slow release and occluded slow release nutrients and others whose slow release characteristics depend on particle size. AOAC International Method 945.01 (15th Edition) shall be used to determine the water insoluble nitrogen or organic materials

8. ADULTERATED MATERIALS

1. Fertilizers containing guaranteed amounts of phosphates and/or micronutrients shall be deemed to be adulterated when they contain metals in amounts greater than the levels of metals established by the following table[1]:

Metals	ppm per 1% P_2O_5	ppm per 1% Micronutrients[3]
1. Arsenic	13	112
2. Cadmium	10	83
3. Cobalt	136	2,228[4]
4. Lead	61	463
5. Mercury	1	6
6. Molybdenum	42	300[4]
7. Nickel	250	1,900
8. Selenium	26	180
9. Zinc	420	2,900[4]

To use the Table:

Multiply the percent guaranteed P_2O_5 or sum of the guaranteed percentages of all micronutrients (Iron, Manganese, Zinc, etc.) in each product by the value in the appropriate column in the Table to obtain the maximum allowable concentration (ppm) of these metals. The minimum value for P_2O_5 utilized as a multiplier shall be 6.0. The minimum value for micronutrients utilized as a multiplier shall be 1. If a product contains both P_2O_5 and micronutrients multiply the Guaranteed percent P_2O_5 by the value in the appropriate column and multiply the sum of the guaranteed percentages of the micronutrients by the value in the appropriate column. Utilize the higher of the two resulting values as the maximum allowable concentrations.

2. Biosolids, and all compost products[4], shall be deemed to be adulterated when they exceed the levels of metals permitted by the United States Environmental Protection Agency Code of Federal Regulations, 40 CFR Part 503 or 06-096 CMR 419. Dried biosolids and manure, as well as manipulated manure products either separately or in combination, shall also be deemed adulterated when they exceed the levels of metal permitted by the United States Environmental Protection Agency Code of Federal Regulations, 40 CFR Part 503 or 06-096 CMR 419. Hazardous waste derived fertilizers (as defined by EPA) shall be deemed to be adulterated when they exceed the levels of metals permitted by the United States Environmental Protection Agency Code of Federal Regulations, 40 CFR Parts 261, 266 and 268.

Footnotes:

[1] Woltering, Daniel M. 2004. Health Risk Assessment for Metals in Inorganic Fertilizers: Development and Use in Risk Management. In Environmental Impact of Fertilizer on Soil and Water. Hall, William L. Jr. and Wayne P. Robarge, Editors. American Chemical Society Symposium Series No. 872. p124-147.

[2] These guidelines are not intended to be used to evaluate horticultural growing media claiming nutrients but may be applied to the sources of the nutrients added to the growing media.

[3] Micronutrients (also called minor elements) are essential for both plant growth and development and are added to certain fertilizers to improve crop production and/or quality. These micronutrients are defined by AAPFCO's Official Fertilizer Term, T-9.

[4] Only applies when not guaranteed.

[5] Includes all compost products separately or in combination with biosolids, manure or manipulated manure, even those registered as fertilizers (making nutrient claims).(Official 2003)

STATUTORY AUTHORITY: 7 MRS §748

EFFECTIVE DATE:
April 11, 2010 – filing 2010-122

Subchapter 5-A: AGRICULTURAL LIMING MATERIALS

7 §761. TITLE

This subchapter shall be known and may be cited as the "Maine Agricultural Liming Materials Act." [1987, c. 425, §§ 1, 3 (NEW).]

SECTION HISTORY
1987, c. 425, §§1,3 (NEW).

7 §762. DEFINITIONS

As used in this subchapter, unless the context indicates otherwise, the following terms have the following meanings. [1987, c. 425, §§ 1, 3 (NEW).]

1. Agricultural liming materials. "Agricultural liming material" means a product whose calcium and magnesium compounds are capable of neutralizing soil acidity.

[1987, c. 425, §§ 1, 3 (NEW) .]

2. Brand. "Brand" means the term, designation, trademark, product name or other specific designation under which an individual agricultural liming material is offered for sale.

[1987, c. 425, §§ 1, 3 (NEW) .]

3. Bulk. "Bulk" means a nonpackaged form.

[1987, c. 425, §§ 1, 3 (NEW) .]

4. Burnt lime. "Burnt lime" means a material made from limestone which consists essentially of calcium oxide or a combination of calcium oxide with magnesium oxide.

[1987, c. 425, §§ 1, 3 (NEW) .]

5. Calcium carbonate equivalent. "Calcium carbonate equivalent" means the acid neutralizing capacity of an agricultural liming material expressed as a weight percentage of calcium carbonate.

[1987, c. 425, §§ 1, 3 (NEW) .]

6. Commissioner. "Commissioner" means the Commissioner of Agriculture, Conservation and Forestry.

[2009, c. 2, §6 (COR); 2011, c. 657, Pt. W, §6 (REV) .]

7. Distribute; distributor. "Distribute" means to offer for sale, sell, barter or otherwise supply agricultural liming materials. The term "distributor" means any person who is engaged in the business of distributing agricultural liming materials.

[1987, c. 425, §§ 1, 3 (NEW) .]

8. Fineness. "Fineness" means the percentage by weight of the material which will pass federal standard sieves of specified sizes. In promulgating rules relating to fineness, the commissioner shall be guided by recommendations established by the American Society for Testing Materials.

[1987, c. 425, §§ 1, 3 (NEW) .]

9. High magnesium. "High magnesium" means lime designated as high-mag or dolomitic which must contain at least 5% magnesium.

[1987, c. 425, §§ 1, 3 (NEW) .]

10. Hydrated lime. "Hydrated lime" means a material, made from burnt lime, which consists essentially of calcium hydroxide or a combination of calcium hydroxide with magnesium oxide and magnesium hydroxide.

[1987, c. 425, §§ 1, 3 (NEW) .]

11. Industrial by-product. "Industrial by-product" means any industrial waste or by-product containing calcium or calcium and magnesium in forms that will neutralize soil acidity.

[1987, c. 425, §§ 1, 3 (NEW) .]

12. Label. "Label" means any written or printed matter on or attached to the package or on the delivery ticket which accompanies bulk shipments.

[1987, c. 425, §§ 1, 3 (NEW) .]

13. Limestone. "Limestone" means a material capable of neutralizing soil acidity, consisting essentially of calcium carbonate or a combination of calcium carbonate with magnesium carbonate.

[1987, c. 425, §§ 1, 3 (NEW) .]

14. Marl. "Marl" means a granular or loosely consolidated loam composed largely of clays, sea shell fragments and carbonates of calcium and magnesium.

[1987, c. 425, §§ 1, 3 (NEW) .]

15. Percent or percentage. "Percent" or "percentage" means by weight.

[1987, c. 425, §§ 1, 3 (NEW) .]

16. Person. "Person" means individual, partnership, association, firm or corporation.

[1987, c. 425, §§ 1, 3 (NEW) .]

17. Ton. "Ton" means a net weight of 2,000 pounds avoirdupois or metric weight, if and when appropriate and in accordance with rules.

[1987, c. 425, §§ 1, 3 (NEW) .]

18. Weight. "Weight" means the weight of undried material as offered for sale.

[1987, c. 425, §§ 1, 3 (NEW) .]

SECTION HISTORY
1987, c. 425, §§1,3 (NEW). RR 2009, c. 2, §6 (COR). 2011, c. 657, Pt. W, §6 (REV).

7 §763. LABELING

1. Contents of label. Agricultural liming materials distributed in the State shall have affixed to each package in a conspicuous manner on the outside of the package, a plainly printed, stamped or otherwise marked label, tag or statement or, in the case of bulk sales, a delivery slip setting forth at least the following information:

A. The name and principal office address of the manufacturer or distributor; [1987, c. 425, §§ 1, 3 (NEW).]

B. The brand or trade name of the material; [1987, c. 425, §§ 1, 3 (NEW).]

C. The identification of the type of agricultural liming material according to section 762; [1987, c. 425, §§ 1, 3 (NEW).]

D. The net weight of the agricultural liming material; [1987, c. 425, §§ 1, 3 (NEW).]

E. A statement expressing minimum total neutralizing value stated as calcium carbonate equivalence and the minimum calcium carbonate equivalence derived from magnesium sources; and [1987, c. 425, §§ 1, 3 (NEW).]

F. The minimum percent of the agricultural liming material by weight passing through federal standard sieves as prescribed by rules adopted by the commissioner. [1987, c. 425, §§ 1, 3 (NEW).]

[1987, c. 425, §§ 1, 3 (NEW) .]

2. False or misleading information prohibited. No information or statement may appear on any package, label, delivery slip or advertising matter which is false or misleading relative to the quality, analysis, type or composition of the agricultural liming material.

[1987, c. 425, §§ 1, 3 (NEW) .]

3. Adulterated material. In the case of any material which has been adulterated subsequent to packaging, labeling or loading and before delivery to the consumer, a plainly marked notice to that effect shall be affixed by the vendor to the package or delivery slip to identify the kind and degree of the adulteration.

[1987, c. 425, §§ 1, 3 (NEW) .]

4. Posting of statement. At every site from which agricultural liming materials are delivered in bulk and at every place where consumer orders for bulk deliveries are placed, there shall be conspicuously posted a copy of the label required by this section for each brand and type of agricultural liming material sold in bulk.

[1987, c. 425, §§ 1, 3 (NEW) .]

5. Rule concerning calcium and magnesium content. When the commissioner finds, after a public hearing held in a manner consistent with the Maine Administrative Procedure Act, Title 5, chapter 375, that the requirement for expressing the calcium and magnesium in elemental form will not impose an economic hardship on distributors and users of agricultural liming materials by reason of conflicting labeling requirements among the states, he may require that the minimum percentage of calcium carbonate and magnesium carbonate be expressed in the following form:

Total calcium (Ca) ..... percent

Total magnesium (Mg)..... percent

The effective date of the rule shall be not less than 6 months following the issuance of the rule and, for a period of 2 years following the effective date of the rule, the equivalent of calcium and magnesium may also be shown in the form of calcium carbonate and magnesium carbonate.

SECTION HISTORY
1987, c. 425, §§1,3 (NEW). 1987, c. 425, §§ 1, 3 (NEW).

7 §764. PROHIBITED ACTS

No person may sell or offer for sale any agricultural liming material in this State unless it complies with this subchapter and rules adopted under this subchapter. No person may sell or offer for sale any agricultural liming material in this State containing materials that are or will be deleterious to plant or animal life, when the agricultural liming material is applied at rates recommended by a soils testing laboratory. [1987, c. 425, §§ 1, 3 (NEW).]

SECTION HISTORY
1987, c. 425, §§1,3 (NEW).

7 §765. REGISTRATION

1. Registration required; fee. Each separately identified agricultural liming product shall be registered before being offered for sale, sold or distributed in the State. The application for registration shall be submitted to the commissioner on forms furnished or approved by the commissioner and shall be accompanied by a fee of $50. Upon approval by the commissioner, a copy of the registration shall be furnished to the applicant. All registrations expire on December 31st of each year.

[1987, c. 425, §§1, 3 (NEW) .]

2. Fees; nonlapsing fund. The commissioner shall collect all fees under this subchapter and section 743-A and deposit them with the Treasurer of State in a separate account to be used for carrying out this subchapter and subchapter 5, including the cost of inspection, sampling and analysis of commercial fertilizers and agricultural liming materials. These funds do not lapse, but remain in a carry-over account.

[2009, c. 393, §4 (AMD) .]

3. Registration not required if already registered. A distributor shall not be required to register any brand of agricultural liming material which is already registered under this subchapter by another person, provided that the label does not differ in any respect.

[1987, c. 425, §§1, 3 (NEW) .]

SECTION HISTORY
1987, c. 425, §§1,3 (NEW). 2009, c. 393, §4 (AMD).

7 §766. REPORT OF TONNAGE

1. By registrants. On or before September 1st in each year each registrant shall file with the commissioner, on forms prescribed by the commissioner, the number of tons of each agricultural liming material sold during the 12 months preceding July 1st of that year. A fee of $1 per ton sold during the 12 months preceding July 1st of that year must accompany the form.

[2011, c. 607, §2 (AMD) .]

2. Commissioner's report. The commissioner may publish and distribute annually, to each agricultural liming material registrant and other interested persons, a composite report showing the tons of agricultural liming material sold in the State.

[1987, c. 425, §§ 1, 3 (NEW) .]

SECTION HISTORY

1987, c. 425, §§1,3 (NEW). 2009, c. 393, §5 (AMD). 2011, c. 607, §2 (AMD).

7 §767. INSPECTION; SAMPLING; ANALYSIS

1. Commissioner shall inspect, analyze, test. The commissioner, or his authorized agent, shall sample, inspect, analyze and test the agricultural liming materials distributed within this State to determine whether the agricultural liming materials are in compliance with this subchapter. The commissioner, individually or through his agent, may enter upon any public or private premises or carriers during regular business hours in order to have access to agricultural liming materials subject to this subchapter and rules adopted under this subchapter and to the records relating to their distribution.

[1987, c. 425, §§ 1, 3 (NEW) .]

2. Methods of analysis and sampling. The methods of analysis and sampling shall be those approved by the commissioner and shall be guided by the Association of Official Analytical Chemists procedures.

[1987, c. 425, §§ 1, 3 (NEW) .]

3. Adulterated or misbranded materials. When the inspection and analysis of an official sample indicate an agricultural liming material has been adulterated or misbranded, the results of analysis shall be forwarded by the commissioner to the registrant and to the distributor of the sample. If the registrant or distributor, within 30 days of notification, requests a portion of the test sample then the commissioner shall furnish, within 30 days of this request, a portion of the sample to the registrant or distributor who made the request.

[1987, c. 425, §§ 1, 3 (NEW) .]

SECTION HISTORY
1987, c. 425, §§1,3 (NEW).

7 §768. STOP SALE ORDERS

1. Issuance of order. The commissioner may issue a written "stop sale, use or removal" order to the owner or custodian of any lot of agricultural liming materials when the commissioner determines that a violation of this subchapter has taken place. The order must include a notice that the owner or custodian may request a review of the determination of the commissioner at a hearing by filing a written request with the commissioner.

[1987, c. 425, §§ 1, 3 (NEW) .]

2. Hearing. Within 10 days of receipt of a request for a hearing under subsection 1, the commissioner shall hold a hearing in accordance with the Maine Administrative Procedure Act, Title 5, chapter 375, subchapter IV. Upon the hearing, the commissioner shall either rescind the order or, for good cause shown, continue the order.

[1987, c. 425, §§ 1, 3 (NEW) .]

3. Release of materials. When the requirements of this subchapter have been met and all costs and expenses incurred in connection with the withdrawal have been paid, the commissioner shall release the agricultural liming materials held under this section by terminating the "stop sale, use or removal" order and issuing a release order. The issuance of the release order shall not be considered licensing or an adjudicatory proceeding, as defined by the Maine Administrative Procedure Act, Title 5, chapter 375.

[1987, c. 425, §§ 1, 3 (NEW) .]

SECTION HISTORY
1987, c. 425, §§1,3 (NEW).

7 §769. FINES FOR VIOLATIONS

1. Violation. A person, firm or corporation may not violate this subchapter or a rule adopted pursuant to this subchapter.

[2003, c. 452, Pt. B, §12 (NEW); 2003, c. 452, Pt. X, §2 (AFF) .]

2. Penalty. The following penalties apply to violations of this section.

A. A person who violates subsection 1 commits a civil violation for which a fine of not more than $100 may be adjudged. [2003, c. 452, Pt. B, §12 (NEW); 2003, c. 452, Pt. X, §2 (AFF).]

B. A person who violates subsection 1 after having previously violated subsection 1 commits a civil violation for which a fine of not more than $200 may be adjudged. [2003, c. 452, Pt. B, §12 (NEW); 2003, c. 452, Pt. X, §2 (AFF).]

[2003, c. 452, Pt. B, §12 (NEW); 2003, c. 452, Pt. X, §2 (AFF) .]

3. Application. This subchapter may not be construed as requiring the commissioner or the commissioner's agent to bring suit or institute seizure proceedings as a result of minor violations of this subchapter when the commissioner believes that the public interest will be best served by a suitable notice of warning in writing.

[2003, c. 452, Pt. B, §12 (NEW); 2003, c. 452, Pt. X, §2 (AFF) .]

SECTION HISTORY
1987, c. 425, §§1,3 (NEW). 2003, c. 452, §B12 (RPR). 2003, c. 452, §X2 (AFF).

7 §770. RULES FOR ADMINISTRATION

The commissioner after reasonable notice and hearing may promulgate and enforce rules for the administration of this subchapter, in a manner consistent with the Maine Administrative Procedure Act, Title 5, chapter 375, and grant exemptions from specific requirements of this subchapter as, from time to time, may be required. [1987, c. 425, §§ 1, 3 (NEW).]

SECTION HISTORY
1987, c. 425, §§1,3 (NEW).

01-001 DEPARTMENT OF AGRICULTURE, FOOD & RURAL RESOURCES

DIVISION OF REGULATIONS

Chapter 315: AGRICULTURAL LIMING MATERIALS REGULATIONS

Section 1. Labeling

A. The following information is the minimum information required for all lime labels and shall apply to both bagged and bulk liming materials.

1. **Basic information required**

a. Name and principal office address of the manufacturer or distributor

b. Brand name

c. Type of material

d. Calcium carbonate equivalent

e. % Elemental calcium and magnesium

f. "Guaranteed Dry Weight Analysis" statement ---

g. Fineness classification

h. % Moisture (A moisture content over 5% will be required on the label)

i. Net weight

B. All required labeling Information for agricultural liming materials shall be conspicuously posted at each site from which agricultural liming materials are delivered, stored or sold in bulk.

C. All agricultural liming material labels shall contain a statement expressing the minimum total neutralizing value stated as calcium carbonate equivalence. The minimum neutralizing value shall not be lower than 60%.

D. The minimum percent of elemental calcium, calcium carbonate and calcium oxide and elemental magnesium, magnesium carbonate and magnesium oxide contained on the label of agricultural liming materials shall be expressed in the following form and format.

Total Calcium (Ca)..... %
Calcium Carbonate (Ca Co ..... %
Calcium Oxide (CaO) ..... %
Total Magnesium (Mg)..... %
Magnesium Carbonate (MgCo3)..... %
Magnesium Oxide (MgO)..... %

E. Fineness classifications listed on agricultural liming material labels will include fine, medium and coarse sized classifications.

1. The sieve-size minimums for each classification shall be as follows:

Classification	**Sieve Size Minimums**
Fine-sized	95% through 20-mesh 60% through 60-mesh 50% through 100-mesh
Medium-sized	90% through 20-mesh 50% through 60-mesh 30% through 100-mesh
Coarse-sized	All materials failing to meet minimums for either of above classifications.

2. Fineness classification system will be used for all material types except for Burnt lime, Hydrated lime and Marl.

STATUTORY AUTHORITY: 7 MRSA ' 770 (Supp. 1987-88)

EFFECTIVE DATE:
January 1, 1989

EFFECTIVE DATE (ELECTRONIC CONVERSION):
May 4, 1996

CONVERTED TO MS WORD:
May 20, 2008

Appendix C

Appendix C

Draft legislative proposal

DRAFT Legislative Language

7 §742. Definitions

"Biosolids" means municipal sewage sludge that is a primarily organic, semisolid product resulting from the wastewater treatment process that can be beneficially recycled, including material derived from biosolids, and septic tank sludge, also known as septage.

"Unpackaged biosolids" means biosolids distributed in a loose, unpackaged form such as, but not limited to, tote bags, tote tanks, bins, tanks, trailers, spreader trucks, railcars, and pick-up truckloads or other containers provided by the final user solely for transport of the material.

"Packaged biosolids" means biosolids distributed in a container provided by the distributor of the material.

"Commercial fertilizer" means a substance containing one or more recognized fertilizer materials baring a guaranteed analysis on the product label of a packaged product or the accompanying delivery paperwork or invoice of a bulk fertilizer. It does not include unmanipulated animal and vegetable manures .

7 §743-B. EXEMPTION

"Sections 743 and 743-A. do not apply to unpackaged biosolids and packaged biosolids derived primarily from residuals regulated by the Department of Environmental Protection under Title 38, Chapter 13 and by DEP Rule Chapter 419 or 410 that do not meet the definition of a Commercial Fertilizer. Unpackaged biosolids and packaged biosolids derived primarily from residuals that do not meet the definition for commercial fertilizer must include a legible and conspicuous disclaimer on their labeling. The disclaimer must specifically state that the product is "not a commercial fertilizer" and that any nutrient claims are estimates or averages and are not guaranteed.

Packaged biosolids that meet the definition for commercial fertilizer must be registered as commercial fertilizer."

All costs for sampling and testing associated with complaints received by the department concerning unpackaged biosolids and packaged biosolids that fall under this exemption shall be the responsibility of the person , firm, company or corporation selling or providing the unpackaged biosolids and packaged biosolids.

7 §764-A. Exemption

§764 does not apply to unpackaged (Bulk) industrial by-products derived primarily from residuals regulated by the Department of Environmental Protection under Title 38, Chapter 13 and by Rule Chapter 419 or 410. Industrial by-products must include a legible and conspicuous disclaimer on their labeling. The disclaimer must specifically state that the product is an "Industrial by-product" and any claims of neutralizing value and fineness are estimates or averages and are not guaranteed.

All costs for sampling and testing associated with complaints received by the Department concerning industrial by-products that fall under this exemption shall be the responsibility of the person , firm, company or corporation selling or providing the industrial by-product.

Industrial by-products exempted under this section need not comply with §765 & §766.