CHAPTER 378: VARIANCE CRITERIA FOR THE EXCAVATION OF ROCK, BORROW, TOPSOIL, CLAY OR SILT AND PERFORMANCE STANDARDS FOR THE STORAGE OF PETROLEUM PRODUCTS

Summary: This chapter describes the standards and submissions required for evaluating variance applications under 38 MRSA §490-D, Performance Standards for Excavations and 38 MRSA §490-Z, Performance Standards for Quarries. It also includes the performance and design standards for the onsite storage of petroleum products.

1. **Applicability.** This rule provides procedures for variances from the performance standards for the mining of rock, borrow, topsoil, clay, or silt as set forth in 38 MRSA §§ 490-D and 490-Z. Certain standards are not subject to variance, as provided in §§ 490-D and 490-Z. The rule also provides the performance and design standards for the onsite storage of petroleum products.

2. **Approval standards for variances.** The Department shall approve a variance when it finds that the applicant has demonstrated that the proposed activity meets the following standards.

   A. **Lower water quality.** The activity will not violate any state water quality law, including those governing the classification of the State's waters.

   B. **Interfere with natural groundwater flow.** The activity will not adversely interfere with the natural flow of groundwater.

   C. **Existing uses.** The activity will not adversely interfere with existing uses.

   D. **Public safety.** The activity will not adversely affect the health, safety and general welfare of the public.

   E. **Flooding.** The activity will not unreasonable cause or increase the flooding of adjacent properties **or create an unreasonable flood hazard to any structure.**

   F. **Soil erosion.** The activity will not cause unreasonable erosion of soil.

   G. **Harm to habitats.** The activity will not unreasonably harm any significant wildlife habitat, freshwater wetland plant habitat, threatened or endangered plant habitat, aquatic habitat, travel corridor, fresh water, estuarine, or marine fisheries, or other aquatic life.

3. **Submissions.** This section outlines submission requirements related to the variance approval standards described in Section 2, above.

   A. **Separation of less than five feet from seasonal high water table.** If any part of the excavation is to be less than five feet from the seasonal high water table, the following submissions are required.

      (1) A plan of the site showing the locations of test pits, borings, monitoring wells, seismic lines, or other subsurface investigations undertaken to establish the elevation of the seasonal high water table. If these investigations have intercepted the seasonal high water table, or otherwise provide evidence of its location, the plan must show the elevations of the seasonal high water table at those points.

The contours of the seasonal high water table must be shown throughout the areas in which excavation is proposed to be less than five feet from the seasonal high water table.

(2) Logs and other supporting documentation of the subsurface investigations conducted to establish the elevation of the seasonal high water table.

(3) A plan for regular monitoring of water table elevations at representative locations within the excavation and in the immediate vicinity, and regular reporting of data to the department, at intervals to be determined by the department. During each year of pit operation, water table elevations must be monitored biweekly during April, May, and June, and once in September, December, and March. At least one year of background water level data must be obtained from these wells prior to any excavation to within less than five feet of the seasonal high water table.

(4) The department reserves the right to require more or less frequent monitoring of water table elevations if, in the opinion of the department, such monitoring is necessary to evaluate the impact of the excavation on water supply wells or protected natural resources. Cases in which more or less monitoring might be required include the following:

(a) The department may, at its discretion, require less frequent monitoring of water table elevation if it determines that a statistical analysis of the data shows no evidence of unanticipated changes in water table elevation.

(b) The department may require resumption of the original frequency, or substitute another frequency, in the event of evidence of declining water quality in areas impacted by the excavation or changes in water table elevation not anticipated in the study submitted to meet the requirements of this variance.

(c) The use of pre-existing data shall be subject to approval by the department The applicant shall discuss the manner and time in which the data were acquired, the analytical or investigative methods used and any other factors relevant to the quality and applicability of the data.

B. Excavation into groundwater. If any part of the proposed excavation will be below the elevation of the seasonal high water table, the following submissions are required in addition to the submissions required under subsection A above.

(1) A plan of the site showing the estimated post-development water table contours. This plan must show, at a minimum, all areas in which the elevation of the water table is likely to be impacted by the development, and must specifically address the potential impact on any pre-development water supply wells or protected natural resources in the vicinity of the excavation.

(2) Measurements of the safe yield and water quality of any water supply well within that area in which the elevation of the water table will be impacted by the development. For the purposes of this rule, "safe yield" is defined as the amount of water which can be withdrawn from a well without producing adverse effects

on the quality or quantity of water available to that well, protected natural resources, or other users of groundwater.

(3) Provisions for regular analysis of the water table data for the site, for the purpose of comparing the data to the estimated post-development water table. This analysis must be submitted to the department on an annual basis, unless another interval is specifically required by the department, until the department determines that reclamation of the excavation is complete.

(4) Provisions for quarterly measurement of groundwater quality in the vicinity of the excavation. Water quality of upgradient and downgradient wells must be measured for at least the following parameters: iron, manganese, extractable petroleum hydrocarbons (EPH), volatile petroleum hydrocarbons (VPH), pH, and specific conductivity. If explosives are used in the excavation, the applicant must also monitor levels of nitrate or other applicable parameters which are likely residues of explosives. At least one year of background data must be obtained from these wells prior to any excavation in the area proposed for excavation below the water table.

(5) The department reserves the right to require more or less monitoring parameters if, in the opinion of the department, such monitoring is necessary to evaluate the impact of the excavation on water supply wells or protected natural resources. Cases in which more or less monitoring might be required include the following:

(a) The Department may, at its discretion, reduce the list of monitored parameters if it determines that a statistical analysis of the data shows no evidence of declining groundwater quality.

(b) Cases in which such additional parameters might be required include, but are not limited to: evidence of declining water quality in areas impacted by the excavation; proximity of the excavation to a known contaminant source, such as a landfill, hazardous waste site, engineered septic system, or waste discharge site.

(c) The use of pre-existing data shall be subject to approval by the department The applicant shall discuss the manner and time in which the data were acquired, the analytical or investigative methods used and any other factors relevant to the quality and applicability of the data.

C. Reclamation requirements for excavation activities conducted below the seasonal high water table. In the event of excavation below the seasonal high water table, the operator of the mining activity must reclaim the affected area as a pond according to the following standards.

(1) The water supply to the pond must be sufficient to maintain the approximate water elevation specified in the design of the pond under normal circumstances. The bottom of the pond must be undulating to provide a variety of water depths.

(2) In order to provide suitable conditions for safety and egress, shallow areas of less than 3 feet in water depth must exist along the shoreline. These areas must be graded to a slope no steeper than 4H to 1V.

(3) To increase the pond's productivity, the shoreline must be irregular in shape.

(4) A pond may not be smaller than one-half acre.

D. **Externally drained pits.** If any area of an excavation or quarry regulated under 38 M.R.S.A. §490-B or 38 M.R.S.A. §490-X will be externally drained at any time during the development, operation, or use of the site, then that portion of the operation must have a stormwater management plan for the control and treatment of runoff. The following standards and submission requirements must be met.

(1) Site Plan. Submit a topographic plan of the operation showing all areas disturbed or developed as a result of the operation, including all buildings, processing facilities, stormwater management structures, excavation areas, roads, stockpile areas, and existing and proposed contours. The plan must clearly indicate by boundary line the portion(s) of the operation that will be externally drained.

(2) Basic standard for erosion control, maintenance, and housekeeping. Externally drained excavations or quarries must meet the basic standard identified at 06-096 CMR 500.4(A) and the submission requirements identified at 06-096 CMR 500.8(C).

(3) General standards for stormwater quality. If the externally drained excavation or quarry is not located in the direct watershed of any lake, then the excavation or quarry must meet the general standard identified at 06-096 CMR 500.4(B)(2)) and the submission requirements identified at 06-096 CMR 500.8(D). For purposes of calculating volumes and sizing buffers for this standard, areas exposed for mining or stockpiling of rock, gravel, borrow, topsoil, clay, or silt shall be considered impervious area.

(4) Phosphorus standard for stormwater quality. If the externally drained excavation or quarry is located in the direct watershed of any lake, then that portion must meet the phosphorus standard identified at 06-096 CMR 500.4(C) and the submission requirements identified at 06-096 CMR 500.8(D). For purposes of determining phosphorus export for the phosphorus standard, areas exposed for mining or stockpiling of rock, gravel, borrow, topsoil, clay, or silt shall have a phosphorus export equal to that of pavement unless the Department approves alternate export rates.

(5) Urban impaired stream standard. If the externally drained area of an excavation or quarry is three acres or more of impervious area and is located in the watershed of an urban-impaired stream or stream segment listed in 06-096 CMR 502, Appendix B, then the excavation or quarry must meet the urban-impaired stream standard identified at 06-096 CMR 500.4(D). For purposes of determining the compensation fees and mitigation credits needed for the urban impaired stream standard, areas exposed for mining or stockpiling of rock, gravel, borrow, topsoil, clay, or silt shall be considered non-roof impervious area. Reclamation of existing and proposed mining areas regulated under 38 M.R.S.A. §490-B or 38 M.R.S.A. §490-X may not be used as compensation credit for meeting the urban-impaired stream standard.

(6) Flooding standard for stormwater quantity. Externally drained excavations or quarries, must meet the flooding standard identified in 06-096 CMR 500.4.D for both site operation and post-reclamation conditions. The following information must be provided to the department.

(a) A narrative describing the operation layout, the pre-excavation hydrology, the hydrology changes resulting during operations, the hydrology changes after reclamation, and the stormwater management measures to be put in place to prevent stormwater quantity impacts on and off the site.

(b) A pre-excavation drainage plan, at a scale and contour interval to be determined by the department, showing drainage subcatchment boundaries, flow paths, reaches, storage areas, cover type boundaries, and soil type boundaries.

(c) A site operation drainage plan, at a scale and contour interval to be determined by the department, showing drainage subcatchment boundaries, flow paths, reaches, storage areas, cover type boundaries, and soil type boundaries.

(d) A post-reclamation drainage plan, at a scale and contour interval to be determined by the department, showing drainage subcatchment boundaries, flow paths, reaches, storage areas, cover type boundaries, and soil type boundaries.

(e) Pre-excavation runoff rate and runoff volume calculations for the 2-year, 10-year, and 25-year storms, including runoff curve number computations and time-of-concentration calculations for each drainage subcatchment; a reach description and routing analysis for each drainage conveyance; and pond description and pond routing analysis for each runoff storage structure.

(f) Site operation runoff rate and runoff volume calculations for the 2-year, 10-year, and 25-year storms, including runoff curve number computations and time-of-concentration calculations for each drainage subcatchment; a reach description and routing analysis for each drainage conveyance; and pond description and pond routing analysis for each runoff storage structure.

(g) Post-reclamation runoff rate and runoff volume calculations for the 2-year, 10-year, and 25-year storms, including runoff curve number computations and time-of-concentration calculations for each drainage subcatchment; a reach description and routing analysis for each drainage conveyance; and pond description and pond routing analysis for each runoff storage structure.

NOTE: Acceptable stormwater methodologies and models include "TR-20 Computer Program for Project Formulation – Hydrology," Second Edition, U. S. Department of Agriculture, Soil Conservation Service (March 1986); "TR-55

Urban Hydrology for Small Watersheds," Second Edition, U. S. Department of Agriculture, Soil Conservation Service (June 1986); "WIN TR-55 2003.00.24 Microcomputer Program" (January 12, 2003); and "HEC-HMS Flood Hydrology Package," U. S. Army Corps of Engineers (January 2001). Any methodology or model other than those listed must have prior approval from the department.

(h) A detail sheet showing the plan and cross section views for each proposed stormwater management basin, pond, or other storage structure which identifies the permanent pool elevation (if any) and the peak water levels in the basin, pond, or structure due to runoff from the 2-year, 10-year, and 25-year, 24-hour storms.

(i) A detail and specifications sheet for each basin's, pond's, or storage structure's embankment construction, impoundment construction, outlet control structure fabrication and installation, and emergency spillway construction.

(j) Logs for soil borings or test pits done at the location of each proposed stormwater management basin, pond, or other storage structure.

NOTE: Siting and design specifications for stormwater management basins and ponds can be found in 06-096 CMR 500 Appendix E and in Volume III of the department's manual Stormwater Management for Maine (January 2006).

(7) Easements and covenants. If the externally drained portion of the operation will require specific off-site areas for the control, disposal, or treatment of stormwater runoff, then these off-site areas must be protected from alteration through easements or covenants in accordance with the standards in 06-096 CMR 500.4(F).

(8) Management of stormwater discharges. The discharge of concentrated runoff from stormwater management basins or ponds must be to areas that have received concentrated flows before development of the operation. If an operation must discharge flows through an open-channel or pipe to any point that is not an open channel, an inlet to a storm drain system, or a natural or man-made impoundment, then the discharge will only be allowed if flow can be converted to sheet flow through use of a properly designed level spreader meeting the criteria in 06-096 CMR 500.5(A).

(9) Plans and calculations for the proposed stormwater management system must be signed by and bear the sealed of a professional engineer registered in Maine and qualified to undertake the design.

(10) Nothing in 06-096 CMR 378.3(D) may be construed to supersede or replace the Erosion and Sedimentation Control Standard established in 38 M.R.S.A. §490-D(8).

E. **Larger working pits.** The financial assurance provisions below apply to any excavations with a working pit larger than 10 acres. Financial assurance is designed to ensure that the operator satisfactorily meets all requirements of 38 M.R.S.A. §490-D and 38 M.R.S.A. §490-Z. Financial assurance must cover the affected land.

(1) The amount of financial assurance required is determined by the department. The type of financial assurance must be as described under this rule. The amount of financial assurance must be, at a minimum, the estimated cost to a third party for completing the reclamation for all disturbed areas, and all areas expected to be disturbed within the upcoming year.

(2) The permittee shall pay into a reclamation fund established for the benefit of the department as follows.

(a) The reclamation fund must be funded by the permittee through cash deposits, letter of credit, or surety.

(b) The initial deposit for reclamation costs, identified above, must be made prior to site disturbance. Subsequent payments must be made on or prior to the next subsequent anniversary date of permit issuance, and annually thereafter.

(c) Annual deposits or increases in the required reclamation fund amount must be made from the beginning of the operation to the end of the operation and until the successful completion of all reclamation activities. Without limitations changes in the amount in the fund may be required by the department due to modifications of the permit, changed financial conditions or site conditions, technology changes, inflation, anticipated changes in mining activity and corrective action, and reclamation. The permittee shall annually report to the department, subject to the department's approval, an estimate of cost changes as provided in this rule. The permit remains in effect only if all required deposits or increases are made within 30 days of the due date provided in this rule. The obligation to make deposits or adjust the letter of credit or bond amount ceases only upon approval from the department.

(d) When computing the annual inflation adjustment for reclamation, the department and the permittee must use the Implicit Price Deflator for Gross National Product as published by the U.S. Department of Commerce in "Survey of Current Business".

(e) The department may, at its discretion, grant approval for the withdrawal by the permittee of portions of the reclamation fund upon the permittee's verification that the sums authorized have been used solely for their intended, and department-authorized, purposes provided the remaining funds are sufficient to cover expenses required by this rule. In any event, 25% of the total financial assurance obligations must be retained in the trust fund until all reclamation is completed.

(f) If a permit is suspended, revoked, or not renewed, the permittee must continue to make deposits according to this rule.

(g) The financial assurance cost estimates must be made in U.S. dollars in accordance with established estimating practices and must not incorporate any salvage value that may be realized by the sale of

materials, wastes, site structures or equipment, land, or other assets associated with the site.

(h) If a permittee fails to post required financial assurance, the department must issue a notice of violation to the permittee.

(3) The following requirements apply to all financial institutions issuing a letter of credit under this rule.

(a) The letter of credit must be unconditional, irrevocable, issued for a period of at least one year, and otherwise in a form satisfactory to the department. At least 90 days before the expiration date, the financial institution issuing the letter of credit must notify the permittee and the department if the letter of credit will not be renewed for an additional one year period, and the letter of credit must so provide. If the permittee is unable to obtain a letter of credit that complies with this rule prior to 45 days before the expiration of the current letter of credit, the department shall immediately draw all funds under the letter of credit and deposit those in the reclamation fund. The permittee shall also take all other measures necessary to maintain the letter of credit as provided herein and to assure such letters do not expire unless replaced with another duly qualified letter.

(b) The letter of credit must be issued so as to be drawn upon unconditionally by the department to meet the terms of the trust fund or otherwise at the call of the department.

(c) The financial institution issuing the letter of credit shall meet the following financial criteria, and must be reviewed no less often than annually by the department:

(i) It has assets of not less than $50 million.

(ii) It has Tier 1 leverage capital, as defined by its primary federal regulator, of not less than 6% of total assets.

(iii) Its unsecured long-term debt, if rated, is rated A or better by Moody's Investor Service or A or better by Standard and Poor's.

(iv) Its parent company, if any, has Tier 1 leverage capital, as defined by its primary federal regulator, of not less than 5% of total assets on a consolidated basis.

(v) Its parent company's unsecured long-term debt, if rated, is rated Baa or better by Moody's Investors Service or BBB or better by Standard and Poors.

(vii) The proposed letter of credit must be submitted to the department for review and approval.

(viii) In the event the department delivers to the financial institution a certificate so requesting and signed by the department, the financial institution shall draw down the full amount available under the letter of credit specified in the certificate and shall deposit to the department's reclamation fund the amount drawn down.

In the event that an issuer of a letter of credit ever fails to meet these criteria, the department shall immediately order the permittee to replace it with a properly qualifying letter of credit, failing which the department shall immediately call the letter of credit.

(4) The following requirements apply to all surety bonds provided under this rule.

(a) The bond must be issued for a period of at least one year and in a form acceptable to the department. At least 90 days before the expiration date, the surety company issuing the bond must notify the permittee and the department if the bond will not be renewed for an additional one year period. The text of the bond must include a provision for notice of cancellation. If the bond will not be renewed, the permittee shall immediately replace it.

(b) The bond must be issued so as to be drawn upon unconditionally by the department.

(c) The surety must be U.S. Treasury listed and licensed to do business in the State of Maine.

(d) The surety issuing the bond must have its unsecured long-term debt rated "A" or better by Standard and Poors or "A" or better by Moody's Investor Service.

(e) The department will not accept the bond of a surety company which has failed or delayed in making payments on a forfeited surety bond.

(f) The proposed bond must be submitted to the department for review and approval.

(g) In the event that an issuer of a bond ever fails to meet these requirements, the permittee must replace it with a properly qualifying surety.

(h) In the event the department delivers to the surety company a certificate so requesting and signed by the department, the surety company must pay the full amount available under the bond specified in the certificate and deposit that sum to the department's reclamation fund.

(5) The following requirements apply when releasing financial assurance.

(a) When requesting close-out or release of financial assurance, the permittee must notify the department. The department shall make an inspection of the area, and if it finds that reclamation has been properly completed, in accordance with the requirements of these rules, applicable laws and the terms and conditions of the permittee's permit, it must notify the permittee.

(b) When the department makes a determination to release funds, it must notify the financial institution or surety company and the permittee in writing of the decision. At that time, the department must supply the financial institution or surety company and permittee with written approval to transfer the excess funds or to close the account. The department does not release the permittee from any reclamation or corrective action requirements or third party liability as a result of releasing any funds.

(c) If at any time the department finds that reclamation of the affected area is not proceeding in accordance with these rules, applicable laws and the permit, the department under the authority of 38 M.R.S.A. §490 may initiate forfeiture proceedings against the fund filed by permittee.

F. Side slopes steeper than 2.5H to 1V. These requirements apply to all externally drained pits. They may apply to internally drained pits if the department determines that there is a reasonable possibility of adverse impact on adjacent properties or protected natural resources due to failure of a slope steeper than 2.5-to-1. The slope stability analysis must consist of the following components.

(1) A detail sheet showing the cross section of the slope proposed to be graded to a slope steeper than 2.5H to 1V. The cross section must show the slope's soil stratigraphy (i.e., the different soil layers in the slope), the location of springs or seeps, and the location of any perched water tables.

(2) For each soil layer, a description of the soil (e.g. fine sand or coarse gravel), the thickness of the soil layer, the soil unit weight, if angle of internal friction (if a granular soil), and the soil cohesive shear strength (if a cohesive soil).

(3) The calculations for the slope stability analysis must show the slope's safety factor against failure.

(4) Photographs showing the existing condition of the slope.

If the department determines that there is not a reasonable possibility of adverse impact on adjacent properties or protected natural resources due to failure of a slope steeper than 2.5-to-1 in an internally drained pit, the applicant shall notify the department and include in this notification a drawing showing the location of the proposed steeper slopes and a narrative describing how those slopes will be stabilized.

NOTE: In most cases the slope will have only one or two soil layers. The applicant can obtain values for unit weight, angle of internal friction, and cohesive shear

strength from laboratory tests or from data published in geotechnical textbook design manuals.

NOTE: The applicant can do the analysis by hand calculation, by computer, or (for limited cases) by using published stability charts. For analyses using soil properties obtained from laboratory tests, the slope factor of safety should be greater than 1.10. For analyses using soil properties obtained from general data in reference books, the slope factor of safety should be greater than 1.25.

G. **Excavating closer than 100 feet to a public road.** If any part of the excavation will be less than 100 feet to a public road, the following information must be submitted to support the variance application.

(1) A plan showing the location of the existing slope, the road and its associated right-of-way.

(2) Evidence that adequate provisions for safety and visual screening will be made and maintained, if applicable.

(3) Photographs showing the condition of the existing natural buffer between the public road and the excavation.

4. **Terms and conditions.** Unless otherwise stated in the variance approval, the operation and reclamation of a mining operation is subject to the following standard conditions.

A. **Standard conditions**

(1) Approval of variation from plans. The granting of this variance approval is dependent upon and limited to the proposals and plans contained in the variance application and supporting documents submitted and affirmed to by the applicant. Any variation from these plans, proposals, and supporting documents is subject to review and approval prior to implementation. Any such variation undertaken without approval of the department is in violation of 38 M.R.S.A. §483-A and is subject to penalties under 38 M.R.S.A. §349.

(2) Initiation of development within two (2) years. If the construction or operation of the activity is not begun within two years, this variance approval shall lapse and the applicant may reapply to the department. The applicant may not begin construction or operation of the development until a new variance approval is granted. Re-applications must state the reasons why the development was not begun within 2 years from the granting, and may include information submitted in the initial variance application by reference.

(3) Approval shown to contractors and agents. Work done by a contractor or agent of the applicant may not begin before the contractor or agent has been provided with a copy of this variance approval.

(4) Compliance with all terms and conditions of approval. The applicant shall submit all reports and information requested by the department to demonstrate compliance with the terms and conditions of this approval.

B. **Special conditions.** In addition to the standard conditions, the department may, as a term or condition of the variance approval, establish any reasonable requirement deemed necessary to ensure that the excavation or quarry operation meets the licensing criteria of 38 MRSA §§ 490-D and 490-Z. Such conditions must address themselves to specifying particular means of satisfying minor or easily corrected problems, or both, and may not substitute for or reduce the applicant's burden to show that each of the licensing criteria of the 38 MRSA §§ 490-D and 490-Z has been met.

5. **Performance and design standards for the storage of petroleum products.** The owner or operator of an excavation or rock quarry where more than 1320 gallons of petroleum products will be stored must submit a spill prevention control and countermeasures plan to the Department for review at least 45 days before beginning operation. The plan must detail the specific measures for secondary containment, spill prevention control and countermeasures, equipment maintenance, inspections, and staff training as required by the Federal Environmental Protection Agency Regulation, 40 CFR 112. The following standards address the storage of petroleum products at excavation sites and rock quarries.

A. **Performance standards for secondary containment**

(1) Secondary containment is required for all fixed storage of petroleum products. Secondary containment may be provided by concrete or steel dikes, earth berms, or the use of double-walled tanks. The volume of the storage capacity of the secondary containment structure must be at least 110% of the volume of the largest tank within that secondary structure, after allowing for the volume of tanks, footings and other solid objects within the containment structure.

(2) If onsite refueling is necessary for equipment, such as loaders, crushers, concrete batch facilities, and hot mix asphalt facilities, a specific refueling area must be designated, and located on impermeable material such as concrete or asphalt pavement.

(3) A minimum five-foot separation distance must be maintained between the lowest point of the containment structure (including sumps and drains) and the seasonal high water table.

(4) The filler tube for the fuel storage tank must be within the secondary containment structure or within a structure which drains to the secondary containment. Storage tanks must be equipped with direct-reading gauges and have a venting capacity suitable for the filling and withdrawal rates. Storage tanks must also be equipped with emergency vents as required by NFPA-30.

(5) If piping or hoses containing petroleum products or other potential contaminants cross areas likely to receive traffic, they must be protected from damage using best engineering practices. These lines may be elevated; this elevation must be clearly posted on the structure suspending the lines. If piping or hoses are installed in protective conduit, they must be installed such that they remain visible on all sides within the conduit. Fuel piping must not be buried or partially buried unless installed in accordance with the requirements of Chapter 691 of the Department's rules. Fuel piping must not be installed in direct contact with soil.

(6) The use of fuel, gasoline, or kerosene to prevent the adhesion of asphalt to truck beds is prohibited.

(7) Provisions must be made for the removal of precipitation from the containment structure, unless the containment area is enclosed within a structure or completely covered by a roof. Accumulated stormwater in a containment structures located within 300 feet of a surface water must be discharged through an oil/water separator to 15 ppm or less of oil and grease and may not have a visible sheen or other evidence of contamination. If accumulated stormwater is not treated to this level it must be transported off site by a licensed waste oil or hazardous waste contractor for disposal.

If the containment structure is located more than 300 feet from surface water, removal of accumulated water requires a visual evaluation of the water quality in the sump or low area of the structure. Any water exhibiting a sheen, or containing tarry or greasy lumps or sludge, may not be discharged onto the ground until the contamination is removed and no further evidence of contamination is present. If the contaminated water cannot be treated on site such that it no longer has any visible evidence of contamination, it must be transported off site by a licensed waste oil or hazardous waste contractor for disposal.

(8) The Department may as a condition of operation require the owner or operator to install monitoring wells in the vicinity of onsite petroleum product storage. If monitoring wells are required by the Department, groundwater must be monitored for MTBE, extractable petroleum hydrocarbons (EPH) and volatile petroleum hydrocarbons (VPH).

(9) The requirements for setback from drinking water supply wells for onsite fuel storage are as follows:

(a) A minimum 300-foot setback must be maintained between the fuel storage area and a private drinking water well not owned or controlled by the operator.

(b) Fuel storage areas must be at least 1000 feet from a public drinking water well and are prohibited from the source water protection area of any public drinking water well, if the area is mapped by the Department of Health and Human Services as described under 30-A M.R.S.A. §2001(20-A).

NOTE: Variance options may be available under Chapter 692

B. Design standards for concrete dikes

(1) These structures must have concrete walls and floors.

(2) Minimum dike sizes are based on the volume of the largest tank, plus approximately 12 inches of additional dike wall height as freeboard for rain and

excess fluid collection. In no case may the volume of the containment structure be less than 110% of the largest tank within it, after allowing for the volume of the tanks, footings and other objects within the containment structure.

(3) All seams and joints must be caulked, including pipe penetrations. No piping or conduits may penetrate the dike floor or the wall below the height necessary to contain 110% of the volume of stored product.

(4) A low-point sump is required for removal of rain or spilled liquid. A permanently mounted hand pump is suggested for liquid removal.

(5) Access and exit ramps may be cast as part of the containment structure.

C. Design standards for containment berms

(1) The floor of the fuel storage area and the berm must be constructed of low permeability earthen materials with a maximum permeability of 5 x 10-7 cm/sec, such as fine-grained till or clay.

(2) The earthen material must be free of any stones greater than two inches in diameter, and other deleterious material such as roots and other debris.

(3) The floor of the storage area must have a minimum thickness of six inches, and must be compacted to 95 percent standard proctor. If a thickness of greater than six inches is placed, the material must be placed in six-inch lifts, and each lift compacted separately. Compaction of multiple lifts must be done with a sheepsfoot roller or the equivalent in order to assure bonding between the lifts.

(4) The berm surrounding the area must be at least one foot in height, and constructed of similar low-permeability material, placed in six-inch lifts with each lift compacted to 95 percent standard proctor.

(5) The compacted base and berm must then be covered with at least twelve inches of gravel in order to protect the impermeable layer from damage. The berm area must be protected by the use of vegetation or other structural measures to prevent damage from weather.

(6) Concrete or asphalt ramps must be used for crossings of earth berms whenever possible. Access ramps may be located on uphill sides of the containment area, but must still crest along the axis of the berm and above grade to prevent runoff from entering the containment area. The access ramp must be clearly marked, and other access blocked, to prevent damage to the berm from repeated vehicle and foot traffic.

(7) Containment areas with liners or compacted earthen floors must have these surfaces protected from the effects of vehicle passage. In areas subject to vehicular or foot traffic, a minimum of one foot of coarse sand or fine gravel should be placed above the liner or earth floor. An appropriately specified geotextile must be placed above earth floors to prevent damage to the compacted liner.

(8) Pipes through an earth liner must have an anti-seep collar installed around the pipe within the earth liner. No piping or conduits may penetrate the liner below the height necessary to contain 110% of the volume of stored product.

D. Design standards for double-walled tanks

(1) Double-walled tanks must be equipped with a monitoring tube to allow for manual or electronic monitoring of the tank's interstitial space for the presence of liquid.

(2) The tank must be equipped with an audible overfill alarm set to go off at 90% tank capacity, an automatic shutoff device set to shut off product flow to the tank when it reaches 95% capacity and a liquid level gauge accessible to the delivery operator.

(3) The tank must be equipped with an emergency vent for the interstitial space of the tank plus an emergency vent for each tank chamber.

E. Equipment maintenance

(1) Under no circumstances may oil or other fluids be drained, topped off, or changed in the pit except when unavoidable due to the location of fixed equipment such as screeners, crushers, and asphalt plant. When draining oils or fluids from fixed equipment, precautionary measures such as portable drip pans or the use of vacuuming devices must be taken to ensure that no spills occur.

(2) No waste oil, lubricants, antifreeze, or other potential contaminants may be stored on the site unless they are stored securely within a maintenance garage or equivalent structure. These structures must have impermeable floors and may not have floor drains. The floor of any storage area must have a raised lip or sill in order to contain any product spilled onto the floor and to allow for easy and complete clean up.

(3) No washing of equipment may occur in the pit or in any area where the wash water could contaminate groundwater or surface water.

(4) In the event that a piece of equipment breaks down within the pit, the operator must tow the equipment out of the mining area rather than attempt to repair it in place. Exceptions: (A) extremely minor repairs such as replacing belts or wires; or (B) in the event that towing the disabled vehicle out of the active excavation would potentially result in a greater spill; or cause greater damage to the disabled piece of equipment; or (C) in the event that towing would create an unsafe condition. The operator must take precautionary measures to ensure that any potential leak of contaminants is contained and cleaned up immediately.

F. Safety measures

(1) Fuel storage tanks require high level alarms set to go off when the tank reaches 90% capacity, to prevent overfill spills. Outlet valves and power switches for pumps must be locked securely when not in use.

(2) A responsible person must be present at all times during a refueling operation and must remain at arms reach of the fuel-hose nozzle at all times.

(3) A spill kit, clearly labeled as such, must also be kept on site in a building or water tight container. All employees involved with petroleum storage or handling must be familiar with the location and use of the spill kit. At a minimum, the spill kit must contain loose oil absorbent materials, oil absorbent pads, and a nonsparking shovel. In addition, liquid tight drums or other containers with a minimum volume of 35 gallons must also be kept on site to hold contaminated materials.

G. Inspections, reports and training

(1) Fuel lines and oil bearing lines must be inspected on a weekly basis, with a record of the inspection kept in a logbook and signed by a responsible person.

(2) Secondary containment structures must be inspected on a weekly basis to ensure the integrity of the containment structure. If double-walled tanks are used to provide secondary containment the interstitial space of the tank must be checked weekly, unless the interstitial space is monitored electronically. A record of the inspection must be kept in a logbook and signed by a responsible person. Key items in regular inspection of the containment structures must include the following: the presence of oily water in the containment area; soil or dike lining color changes; presence of hydrocarbon odors in the immediate area, visual observance of tanks, pumps, valves and pipe connections; and determination of accumulated liquids contained in the area.

(3) Employees must be trained in conducting inspections of petroleum storage facilities for evidence of leaks and deterioration of equipment and structures which may lead to potential spills. Employees must be trained in spill containment procedures and clean-up procedures.

H. Spill containment and clean-up

(1) All spills or leaks must be treated as emergencies and cleaned up immediately.

(2) The operator must immediately notify the Maine DEP 24-hour oil spill hotline at 1-800-482-0777.

(3) The first step in any attempt to minimize the damage due to a spill or leak is to stop the flow of the potential contaminant, if possible, by closing all valves, uprighting overturned containers, or raising hoses to prevent siphoning.

(4) If the spill or leak cannot be stopped, containment measures, such as berms, must be constructed at once. If the magnitude of a spill is such that product is flowing across the ground, priority must be given to preventing the flow of the spill toward water bodies or drainage ditches, by methods such as placement of soil berms in advance of the spill, blocking culverts and drainage ditches with absorbent pads or pillows, covering drains and catch basins with rubber pads, and similar measures.

(5) Typically minor spills are absorbed by the upper few inches of soil; this material should be dug up with shovels or power equipment and stored in or on impervious containers until properly disposed of. Acceptable containers include metal or plastic drums, back of a dump truck, or trash cans in good condition, with lids, or impermeable tarps with another tarp placed over the top of the contaminated material pile. All contaminated material storage piles must be covered to prevent precipitation onto the contaminated material.

(6) There are several measures available for the disposal of contaminated soils, including use of the petroleum-contaminated soil in an asphalt plant. Under no circumstances, however, should any permanent disposal method be used without the approval of the Department of Environmental Protection Spill Response Unit. The temporary storage methods described above must be utilized until the approved method of final disposal can be implemented.

I. Maine State Fire Marshal's Requirements for Above Ground Petroleum Storage

(1) A permit must be obtained from the Maine State Fire Marshal's Office for all petroleum storage tanks to remain on site for more than 180 days.

(2) All petroleum storage tanks, regardless of whether they are subject to the permit requirements of the State Fire Marshal's Office, must meet all applicable standards of the State Fire Marshal's Office.

J. Protection of Significant Sand and Gravel Aquifers

(1) Fuel storage on a sand and gravel aquifer mapped as a high yield aquifer (exceeding 50 gallons per minute) is prohibited.

(2) Fuel storage on a sand and gravel aquifer mapped as a moderate yield aquifer (10- 50 gallons per minute) is allowed provided that not more than 1100 gallons of fuel are stored and all fuel tanks meet the requirements specified in 06-096 CMR 692.

NOTE: For larger oil storage facilities, the Department may grant a variance. See Chapter 692.

NOTE: The Maine DEP GIS Unit is now offering selected data to the public via Google Earth. This interactive map for mine sites contains the locations of mine sites licensed by the department, sand and gravel aquifer layers, public water supply buffers, town lines and topographic maps.The software programs Google Earth and/or the Google Earth Plugin will allow viewing of this data.

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38 M.R.S.A. Section 341-D

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