06-096 DEPARTMENT OF ENVIRONMENTAL PROTECTION

Chapter 691: RULES FOR UNDERGROUND OIL STORAGE FACILITIES

Maine Department of Environmental Protection

Chapter 691
RULES FOR UNDERGROUND OIL STORAGE FACILITIES

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Chapter 691 RULES FOR UNDERGROUND OIL STORAGE FACILITIES

SUMMARY: This rule requires registration of all new and existing underground petroleum tanks. It establishes standards for the siting and installation of new facilities, and the operation and closure of all types of underground oil storage facilities. The rule also outlines requirements for reporting and clean-up of leaks or other oil pollution at underground storage facilities.

1. **Legal Authority.** This rule is authorized under 38 MRSA, sections 561 et seq. These sections of Maine law authorize and direct the Board of Environmental Protection to develop rules for the registration, siting, design, installation, replacement, operation and closure of underground oil storage facilities and tanks, except tanks used to store propane.

2. **Preamble.** It is the purpose of this rule, consistent with legislative policy, to provide necessary controls over underground oil storage facilities to ensure the protection of Maine's ground water resources from oil discharges and leaks and of public health, safety, welfare and the overall environment.

3. **Definitions.** The following terms as used in this rule have the following meaning:

   A. **Ancillary equipment.** "Ancillary equipment" means devices including but not limited to, piping fittings, flanges, valves and pumps used to distribute, meter or control the flow of oil to or from an underground oil storage tank.

   B. **Board.** "Board" means the Maine Board of Environmental Protection.

   C. **Cathode.** "Cathode" means the electrode of an electrochemical cell at which reduction occurs.

   D. **Cathodic protection tester.** "Cathodic protection tester" means an underground oil storage tank installer certified by the Maine Board of Underground Storage Tank Installers, or an underground oil storage tank inspector also meeting the requirements of Appendix M of this rule.

   E. **Cathodically protected.** "Cathodically protected" means the use of a technique, consistent with the National Association of Corrosion Engineers (NACE) International publication, “Standard Recommended Practice ~~for~~ Corrosion Control of Underground Storage Tank Systems by Cathodic Protection,” RP-0285-2002, or “Standard Recommended Practice, Control of External Corrosion on Underground or Submerged Metallic Piping Systems”, RP-0169-2002, to

prevent the corrosion of a metal surface by making that surface the cathode of an electrochemical cell.

F. Cathodic protection monitoring. "Cathodic protection monitoring," means a process of measuring the structure to electrolyte potential to determine whether a cathodically protected structure is being adequately protected against corrosion. Cathodic protection monitoring shall be performed according to the requirements of Appendix A.

G. Class I liquids. "Class I liquids," means liquids having a flash point below 100 degrees F.

H. Commissioner. "Commissioner" means the Commissioner of the Maine Department of Environmental Protection.

I. Contamination. "Contamination" for the purposes of this rule only and as applied to groundwater, surface water and soils, means oil pollution attributable to an underground oil storage facility and exceeding any one of the following standards:

(1) The presence of free product or an oil sheen;

(2) Primary drinking water standards adopted by the Maine Department of Human Service's Bureau of Health under 22 MRSA, section 2611;

(3) Maximum exposure guidelines developed and recommended by the Maine Department of Human Service's Bureau of Health;

(4) A statistically significant increase in the concentration of measured parameters at on-site or down-gradient locations by comparison with representative background values, as demonstrated by statistical methods and procedures using a 95% level of confidence, approved by the commissioner and consistent with the provisions of 40 CFR subsection 264.97 (except that where the "Regional Administrator" is referred to, the "commissioner" is meant).

(5) Gasoline or diesel range organic concentrations in soil exceeding 5 and 10 parts per million, respectively; or

(6) Soils visibly stained or discolored by a heavy oil.

J. Continuous monitoring. "Continuous monitoring" means the use of a monitoring device capable of automatic, continuous unattended operation, which will provide a clear, audible or visual indication of the presence of liquid hydrocarbons or hydrocarbon vapors outside of a primary hydrocarbon container or the loss of the primary containment structure's integrity.

K. **Corrosion expert.** "Corrosion expert" means a person who is certified by the commissioner pursuant to 38 MRSA, section 567-A and Appendix N of this rule, as qualified to engage in the practice of corrosion control on buried or submerged metal piping systems and metal tanks.

L. Corrosion-induced leak. "Corrosion-induced leak" means any discharge of oil from an underground oil storage facility or tank caused by the deterioration of materials that comprise the facility or tank because of a reaction with the internal or external environment of the facility or tank.

M. Daily inventory and reconciliation. "Daily inventory and reconciliation" means accounting practices for oil stock control, including at a minimum: (1) a record of all bulk liquid receipts; (2) a record of all liquid dispersed from the facility; (3) a daily reconciliation between sales, use, receipts and inventory-on-hand; and (4) a monthly summary of inventory results maintained in accordance with the requirements of section 5(D)(1) of this rule.

N. Department. "Department" means the Maine Department of Environmental Protection composed of the board and the commissioner.

O. Discharge. "Discharge" means any spilling, leaking, pumping, pouring, emitting, escaping, emptying, or dumping.

P. Double-walled tank. "Double-walled tank" means an underground oil storage tank providing no less than 300-degree secondary containment, interstitial space monitoring and secondary containment for pressurized product delivery pipe connections.

Q. Emergency situation. "Emergency situation" means any unforeseen circumstances where the installation or replacement of an underground oil storage facility or tank is required to protect the public health, safety, and welfare.

R. Existing underground oil storage facility or existing underground oil storage tank. "Existing underground oil storage facility" or "existing underground oil storage tank" means any facility or tank, as defined in subsections WW and XX, that was fully installed as of April 19, 1990, and the location of which has not changed.

S. Facilities used for consumption on the premises. "Facilities used for consumption on the premises," means underground oil storage facilities not used to store motor fuels or waste oil, or in the marketing and distribution of oil to others. This includes underground heating oil storage facilities where the product is consumed on the premises or by the owner or operator of the facility.

T. Facilities used for marketing and distribution. "Marketing and distribution facility" means any underground oil storage facility where oil is stored for eventual resale.

U. Free product. "Free product" means nonaqueous phase liquid oil or petroleum.

V. Gallon. "Gallon" means a unit of volume in the U.S. Customary System, used in liquid measure, equal to four (4) quarts, or 3.785 liters.

W. Gasoline. "Gasoline" means a volatile, highly flammable liquid with a flash point of less than 100^{o} F obtained from the fractional distillation of petroleum.

X. Heavy oil. "Heavy oil" means forms of oil that must be heated during storage, including, but not limited to #5 and #6 oils.

Y. Impressed current cathodic protection system. "Impressed current cathodic protection system," means a cathodic protection system that relies on direct current supplied by a power source external to the electrode system.

Z. In service. "In service" means that a tank or facility has had product added or removed for its intended purpose during a consecutive 12-month period.

AA. Leak. "Leak" means a loss or gain of 0.1 gallons or more per hour as determined by a precision test or other tank and piping tightness test methods capable of detecting a 0.1 gallon or more per hour product loss or gain.

BB. Monitoring well. "Monitoring well" means a dug or drilled, cased well or other device used to detect oil in ground water and constructed as specified in appendices F and G of this rule, that can be used for detecting the presence of at least one-eighth of an inch of oil.

CC. Motor fuel. "Motor fuel" means oil that is motor gasoline, aviation gasoline, #1 or #2 diesel fuel or any grade of gasohol typically used in the operation of a vehicle or motor engine.

DD. Occurrence. "Occurrence" means a contamination incident or prohibited discharge associated with one or more tanks or piping at an underground oil storage facility within one year.

EE. Oil. "Oil" means oil, oil additives, petroleum products and their by-products of any kind and in any form including, but not limited to, petroleum, fuel oil, sludge, oil refuse, oil mixed with other nonhazardous waste, crude oils and all other liquid hydrocarbons regardless of specific gravity. For the purposes of this rule, oil does not include propane.

FF. Operator. "Operator" means any person who is in control of and responsible for the daily operation of an underground oil storage facility or tank.

GG. Out-of-service underground oil storage facility or tank. "Out-of- service underground oil storage facility" and "out-of-service underground oil storage tank" means any such facility or tank, as defined in subsections VV and WW, neither receiving nor dispensing oil, but to be returned to service or awaiting abandonment pursuant to section 11 of this rule.

HH. Owner. "Owner" means any person whom alone, or in conjunction with others owns an underground oil storage facility.

II. Person. "Person" means any natural person, firm, association, partnership, corporation, trust, the State and any agency of the State, governmental entity, quasi-governmental entity, the United States and any agency of the United States and any other legal entity.

JJ. Piping line tightness test. "Piping line tightness test" means a precision test, as defined under subsection LL, to determine the presence of a leak in the piping components of a facility. Volumetric and non-volumetric tests may be used. All piping tightness tests must be conducted in accordance with the requirements of Appendix B.

KK. Pneumatic test. "Pneumatic test" means an air pressure test, performed in accordance with the requirements of Appendix C of this rule.

LL. Precision test. "Precision test" means a tank or piping line tightness test, approved by the commissioner, that is capable of detecting a leak, a loss or gain of 0.1 gallon per hour with a probability of detection of at least 95 percent and a probability of false alarm of five (5) or less percent as determined by an independent testing laboratory using protocols approved by the U.S. Environmental Protection Agency or a nationally recognized independent testing organization, including, but not limited to, the American Society for Testing and Materials (ASTM) and the National Work Group on Leak Detection Evaluations.

MM Private water supply. "Private water supply" means any dug, drilled or other type of well or spring or other source of water, which collects water for human or animal consumption and is not a public water supply.

NN. Public drinking water supply. "Public drinking water supply" means any well or other source of water that furnishes water to the public for human consumption for at least 15 connections, regularly serves an average of at least 25 individuals daily at least 60 days out of the year, or that supplies bottled water for sale. For the purpose of defining "sensitive geologic area" under subsectionQQ, a well or other source of water that is a public drinking water supply solely because the

water is used to make beverages for public sale or consumption is deemed to be a private drinking water supply.

OO. Replacement facility. "Replacement facility" means an underground oil storage facility where one or more of the following major components are replaced: a tank; piping; leak detection equipment; or overfill prevention or containment equipment. Minor repairs to a facility component, or other repairs conducted in accordance with the requirements of this rule, do not trigger the definition of a replacement facility.

NOTE: Except where specified otherwise in the rule, only the major component replaced will need to meet the rule's design and installation requirements for new and replacement facilities. It is not the intent of this definition to require the upgrade of an entire facility in the event one component is replaced.

PP. Secondary containment. "Secondary containment" means a system installed so that any material that is discharged or has leaked from the primary containment is prevented from reaching the soil or ground water outside the system for the anticipated period of time necessary to detect and recover the discharged material. Such a system may include, but is not limited to, impervious liners with a maximum hydraulic conductivity of 10^{-6} cm/sec and compatible with the products stored, double-walled tanks and piping, or any other method approved by the commissioner that is technically feasible and effective, and meets the requirements of section 5(B)(2).

QQ. Sensitive geologic areas. "Sensitive geologic areas" means any of the following: 1) significant ground water aquifers, as defined in subsection RRbelow; 2) locations within 1,000 feet of a public drinking water supply; or 3) locations within 300 feet of a private drinking water supply. Sensitive geologic areas around surface water bodies shall include all areas within 1000 feet of the intake point of a public water system, except on rivers and streams where it will only include areas within a 1000 feet of the intake point and upstream on either shore. All areas within 300 feet of the intake point in a lake, pond or other surface water body used for a private water supply system shall be considered a sensitive geological area, except on rivers and streams where it will only include areas 300 feet upstream on either shore of the intake point.

RR . Significant ground water aquifer. "Significant ground water aquifer" means a porous formation of ice-contact and glacial outwash sand and gravel, as identified by the current Maine Geological Survey maps, that contains significant recoverable quantities of water which is likely to provide drinking water supplies.

NOTE: Significant Sand and Gravel Aquifer Maps are available from the Maine Geological Survey, Department of Conservation, 22 State House Station, Augusta, Maine 04333-0022.

SS. Site assessment. "Site assessment" means a determination at the time of facility or tank closure, of the occurrence of a prohibited leak or discharge of oil, and of the presence or absence of oil contamination in the soils or the waters of the State. Site assessments must be limited to the underground oil storage facility and must use cost-effective, reliable and technically feasible investigation techniques.

TT. Statistical inventory analysis. "Statistical inventory analysis" or "statistical inventory reconciliation" means a process of evaluating the various sources of errors present in daily inventory records and capable of detecting a leak or discharge of 0.1 gallons per hour with a 95 percent probability and a 5 percent chance of a false alarm as determined by an independent testing laboratory using U.S. Environmental Protection Agency's approved standardized test procedures, conducted in accordance with the requirements of section 5(D)(2).

UU. Tank tightness test. "Tank tightness test" means a precision test, as defined under subsection LL. Tank tightness tests may include volumetric tank tightness tests or non-volumetric tank tightness tests. Tank tightness tests must be conducted in strict accordance with Appendix B and the manufacturer's operating procedures and any protocols identified by an independent testing laboratory as required to meet the performance standards of subsection LL.

VV. Temporarily out of service facility or tank. "Temporarily out of service facility" and "temporarily out of service tank" means a facility that has received written permission from the department to remain inactive for an additional 12 months, in accordance with section 11 of this rule.

WW. Underground oil storage facility. "Underground oil storage facility," also referred to as "facility," means any underground oil storage tank or tanks, as defined in subsection XX, together with associated piping and dispensing facilities located under any land at a single location and used, or intended to be used, for the storage or supply of oil, as defined in this rule. Underground oil storage facility also includes piping located under any land at a single location associated with above ground storage tanks and containing 10 percent or more of the facility's volume capacity

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NOTE: Underground piping associated with an aboveground oil storage facility, regardless of percent of facility volume, must be installed, operated, maintained and abandoned in accordance with this rule and other requirements of 38 M.R.S.A, section 570-K governing aboveground oil storage facilities. Piping associated with oil terminals, most aboveground home heating oil facilities, and liquefied petroleum and natural gas facilities are exempt.

XX. Underground oil storage tank. "Underground oil storage tank" also referred to as "tank," means any container, 10% or more of its volume being beneath the surface of the ground and which is used, or intended to be used, for the storage, use, treatment, collection, capture or supply of oil as defined in this subchapter, but does not include any tanks situated in an underground area if these tanks or containers are situated upon or above the surface of a floor and in such a manner that they may be readily inspected. For the purpose of this rule, "underground oil storage tank" does not include underground propane storage tanks, underground oil water separators, storm water and **emergency** catch basins, and hydraulic lift tanks. Overflow tanks associated with oil-water separators are still considered an underground oil storage tank.

YY. Underground oil storage tank inspector. Any person certified under 32 M.R.S.A., section 10002 to inspect underground oil storage tanks and facilities.

ZZ. Underground oil storage tank installer. Any person certified under 32 M.R.S.A., section 10002 to install underground oil storage tanks and facilities.

AAA. Volumetric tank tightness test. "Volumetric tank tightness test" means a hydrostatic tank tightness test or precision test conducted at constant hydrostatic pressure at the bottom of the tank; where instrumentation noise is 3 to 5 times less than the minimum detectable leak rate; where temperature sensors provide adequate spatial coverage of tank; and where calibration of all instrumentation can be field checked. A volumetric or hydrostatic tank tightness test must be performed in accordance with Appendix B of this rule.

BBB. Waste oil. "Waste oil" means petroleum-based oil which, through use or handling, has become unsuitable for its original purpose due to the presence of impurities or loss of original properties. It must have sufficient liquid content to be free flowing. Waste oil is further defined in the department Waste Oil Management Rules, chapter 860, section 5.

CCC. Waste oil dealer. "Waste oil dealer" means any person in the business of transporting or handling more than 1,000 gallons of waste oil for the purpose of resale in a calendar month. A person, who collects or stores waste oil on the site of generation, whether or not for the purpose of resale, is not a waste oil dealer.

DDD. Waste oil tank. "Waste oil tank" means an underground oil storage tank used for the collection and storage of waste oil.

3-A. Siting Restrictions for New Facilities

A. Applicability. This section applies to siting of all proposed new underground oil storage facilities used to store motor fuel or used in the marketing and distribution of oil to others, except where noted in subsection B below. The siting of underground waste oil facilities is also governed by this section. All facility components designed to contain oil in a liquid or vapor phase are subject to the requirements of this section. This section sets forth standards for siting of new facilities over significant sand and gravel aquifers mapped by the Maine Geological Survey (MGS) in the Maine Department of Conservation. This section does not apply to new facilities registered in accordance with section 4 and installed prior to August 1, 2002.

NOTE: Additional standards for siting new facilities within the source water protection area of a public drinking water supply mapped by the Department of Human Services and in the vicinity of public and private water supplies are contained in 38 M.R.S.A. section 563-C.

B. Exemptions. This section does not apply to:

(1) Heating oil facilities used for consumption on the premises;

(2) Replacement or expansion of a facility registered and installed before July 1, 2002, provided the replacement or expansion occurs on the same property and the owner or operator continues to pay the annual registration fee;

(3) Conversion of an aboveground oil storage facility registered and installed before July 1, 2002 to an underground oil storage facility, provided the conversion occurs on the same property; or

(4) Underground piping associated with an aboveground oil storage facility.

C. Prohibition. A person may not register, install or cause to be installed a new facility within a significant sand and gravel aquifer (herein referred to as "aquifer") mapped by the Maine Geological Survey.

NOTE: Significant Sand and Gravel Aquifer maps are available for inspection in most municipal offices and are available from the Maine Geological Survey, (207) 287-2801. Electronic versions are available from the Maine Office of Geographic Information Systems through the State of Maine Internet website.

D. Variances. Upon application by the owner of the proposed facility, the commissioner may grant a variance to the above siting prohibition where the owner demonstrates to the commissioner's satisfaction that paragraph 1 or 2 below applies, and in the case of paragraph 2, that the aquifer does not have a

high potential as a future public drinking water resource as defined in paragraph 3.

(1) Variance for Facility on a Low Yield or Polluted Aquifer. The proposed facility site has a low potential for future use as a public or private drinking water supply because one of the following circumstances apply:

(a) A site-specific hydrogeological investigation demonstrates that the proposed facility site does not overlie an aquifer even though it is mapped as such by the Maine Geological Survey;
(b) A public water system services all water users within 1000 feet upgradient and 2000 feet downgradient of the proposed facility site, and the site is in an urban area or an area made up of dense commercial land uses, industrial land uses, or dense residential development not served by public sewer;
(c) The installation of drinking water supply wells within 1000 feet upgradient or within 2000 feet downgradient is prohibited by property deed restrictions, municipal land use ordinance, or a zoning rule of the Maine Land Use Regulation Commission (LURC);
(d) Hydrogeological studies or ground water quality testing data show that the aquifer underlying the proposed facility site is polluted with one or more man-made contaminants in concentrations exceeding federal maximum contaminant levels (MCLs), or a State MCL or maximum exposure guideline (MEG) established by the Maine Bureau of Health, and the aquifer's ground water has not been and is not now the subject of a commissioner-supervised remediation effort with the goal of the eventual restoration of or the protection of ground water in the aquifer to a quality suitable for human consumption; or
(e) Other documentation demonstrating to the commissioner's satisfaction that the aquifer is unsuitable or unavailable as a future public or private drinking water resource.

(2) Variance for Facility on a Moderate Yield Aquifer.
(a) The proposed facility site is on an aquifer, or a portion thereof, mapped by the Maine Geological Survey as having a moderate potential for future use as a water supply resource, with yields generally less than 50 gallons per minute as confirmed by a commissioner-approved hydrogeological test conducted in accordance with Appendix T; and
(b) The facility will be designed and installed to include a combination of complementary leak and spill prevention equipment, discharge monitoring equipment, stand-by remediation system equipment, or other engineering and monitoring measures that collectively are more stringent than State or federal requirements and that are determined by the commissioner to further reduce the risk of oil discharges and the likelihood of future ground water contamination.

The following is an example of a combination of additional facility design and monitoring measures for applicable motor fuel facilities that would meet with the commissioner's approval by minimizing the risk of discharges in the product dispensing system and of overfills, as well as improving the detection of routine small discharges to the environment:

(i) installation of suction piping systems and liquid tight dispenser sumps with continuous leak monitoring;
(ii) annual sump tightness testing;
(iii) installation of flush mounted 25-gallon overfill spill containment buckets; and
(iv) the installation and sampling of a ground water monitoring well network surrounding the facility.

Where ground water monitoring wells are installed, they must be sampled quarterly and samples analyzed in accordance with Appendix S of this rule. For facilities storing gasoline, samples must be analyzed for gasoline, benzene, and methyl tertiary butyl ether (MTBE). For facilities storing diesel fuel, heating oil or waste oil, fuel oil analyses must be performed. The installation and sampling of any ground water monitoring wells must be conducted under the supervision of a Maine-certified geologist. Positive results must be reported to the commissioner as evidence of a possible leak in accordance with section 5(D) or section 7(D), as applicable. Monitoring wells must be made accessible to the commissioner or the commissioner's agents for inspection and collection of water samples in accordance with Chapter 2 of the department rules.

(3) Variance Prohibited for Facility on a High Potential Aquifer. The commissioner shall not grant a variance from the prohibition of Section 3-A(C) if any part of the proposed facility site overlies a mapped aquifer that has high potential as a future public drinking water resource. A high potential aquifer is any part of a mapped aquifer that has good to excellent potential ground water yield, generally exceeding 50 gallons per minute, and good water quality. High potential aquifers include:

(a) Any area designated on a Maine Geological Survey "Significant Sand and Gravel Aquifer Map" as a surficial deposit generally with yields greater than 50 gallons per minute;
(b) An aquifer or ground water resource protection zone as designated in a municipal ordinance or a LURC zoning rule;
(c) The source water or recharge area of a community public drinking water system supply well that is in the process of being developed, or within 1000 feet of such a well, whichever is greater, provided the aquifer has been found to yield more than 50 gallons per minute, based on hydrogeological pump test data and analysis by a Maine-certified geologist; or

(d) A portion of a mapped aquifer that, based on a borehole test conducted in the center of a proposed facility site and in accordance with Appendix T of this rule, is expected to yield more than 50 gallons per minute.

(4) Processing of Variance Applications. Processing of applications for a variance under this section including, but not limited to, application requirements, public notice, and appeal procedures, are governed by Chapter 2 of department rules except as specified below.

(5) Variance Application. A variance request application must be submitted in writing on forms provided by the commissioner. In addition to the requirement set forth in Chapter 2 of department rules, the application must include at a minimum the following information:

(a) The registration materials required under section 4 of this chapter;
(b) The names and mailing addresses of all abutters to the property on which the facility is proposed;
(c) A plan view of the proposed facility showing the precise location and footprint of all facility components that will contain oil in either a liquid or vapor phase;
(d) The map coordinates of each corner of the facility footprint and any proposed ground water monitoring wells to sub-meter precision and accuracy in a format compatible with the State of Maine Geographical Information System;

NOTE: The Maine Geographic Information System (GIS) uses as a standard the UTM (Universal Traverse Mercator) system. The datum system used is the NAD83 (North American Datum 1983) version.

(e) If a variance is sought under paragraph (2) of this subsection, identification and a description of the design, installation, monitoring or other engineering and operating enhancements that will supplement the requirements of this chapter and a narrative explaining how the enhancements further minimize the risk of oil discharges and the likelihood of future ground water contamination; and

(f) If a variance is sought under paragraph (1) of this subsection, a written report supporting the variance request. If the report includes ground water quality or other hydrogeological data that was collected and interpreted in support of the variance request, the data and its written analysis must be certified by a Maine-certified geologist. If the variance request is based on a municipal land use ordinance, the report must include a copy of the relevant sections of the ordinance and a copy of the relevant land use mapping, certified by an authorized official of that municipality as being current and true copies. The proposed facility site location shall be accurately shown on the land use map.

NOTE: A pre-application meeting with the Department is recommended to ensure the applicant understands the variance requirements as they may apply to the specific proposed facility site. Such meetings usually avoid misunderstandings of expectations and processing delays.

(6) Public Notice Requirements. Within 30 days before filing an application, the applicant shall provide notice by certified mail of the application to the following persons:

(a)To the chief administrative officer and planning board chairperson of the municipality in which the facility is proposed to be located, or to the county commissioners and the LURC director if the facility is proposed in an unorganized township or plantation;
(b) To the local public water utility or other community public water provider, if any;
(c) To abutters of the property on which the facility is proposed;
(d) To other interested persons who have requested in writing of the commissioner to receive variance notices, a list of such persons and their mailing addresses to be maintained by the commissioner; and
(g) By publication once in a newspaper generally circulated in the area where the facility is proposed.

The notice must include the information listed in Chapter 2 of department rules.

(7) Public Meeting. In lieu of or in addition to holding a hearing on the application as provided under Chapter 2 of department rules, the commissioner may hold a public informational meeting where deemed appropriate for the applicant to provide information about the variance request to interested parties. If the commissioner decides to hold a public meeting, notice must be sent at least 10 business days prior to the meeting to the applicant, abutters, the local public water utility or community water provider, the planning board chairperson and chief administrative officer of the municipality in which the facility is proposed (or the LURC director and appropriate county commissioners if the facility is proposed in an unorganized township or plantation) and other interested persons who have requested in writing of the commissioner to receive variance notices, a list of such persons and their mailing addresses to be maintained by the commissioner.

(8) Notice of Appeal Rights. A copy of the commissioner's decision on the variance request must be provided to the applicant, abutters, the local public water utility or community water provider, and the planning board chairperson and chief administrative officer of the municipality in which the facility is proposed (or the LURC director and county commissioners if the facility is proposed in an unorganized township or plantation). Copies also must be

provided to other interested persons upon request. Each copy must be accompanied by a plain statement of the rights of administrative and judicial review of the decision and the time within which those rights must be exercised.

4. Registration of Underground Oil Storage Facilities

A. All underground oil storage tanks and facilities must be registered regardless of use, size or type of petroleum product stored therein and regardless of whether the tanks and facilities are in service or out of service.

B. A person may not install, or cause to be installed, a new or replacement underground oil storage tank, piping or facility without first having: 1) filed registration materials with the commissioner in accordance with subsection I, which materials have been deemed complete by the commissioner at least ~~5~~ 10 business days prior to installation; 2) sent a copy of the materials and any subsequent amendments to the chief administrative official of the municipality having jurisdiction, or in the case of an unorganized township to the Maine Land Use Regulation Commission (LURC); 3) retained a copy to be made available on site to department employees, agents or authorized representative and to municipal officials; and 4) paid the registration fee in accordance with subsection J.

C. No person may retrofit an existing underground oil storage facility with leak detection, overfill prevention equipment or other design or installation changes without first having filed a registration amendment in accordance with subsection M.

D. Registration materials that are not in conformance with this rule will not be accepted by the commissioner.

E. Written acknowledgment from the commissioner is acceptable evidence that a new, retrofitted or replacement tank or facility has been properly registered. The commissioner will determine the completeness of the registration materials and notify the registrant within 10 business days of receipt.

F. A person who installs, or causes to be installed, a new or replacement underground storage facility, or retrofits an existing facility, after 10 business days of the commissioner's receipt of the registration form, without first having received confirmation that the registration is complete, does so at the person’s own risk. If it is determined that the facility was not installed in accordance with the regulations, the tank owner shall bring the facility into conformance with these regulations.

G. When an emergency situation occurs, the time requirement of subsection B may be waived by the commissioner upon petition of a facility registrant if: 1) the registrant can demonstrate to the commissioner that an emergency situation exists; and 2) the municipality or the Maine LURC having jurisdiction has been notified by the registrant that the facility is being installed without the 10 day notice due to an emergency situation.

H. For existing facilities, the information required for registration must be submitted to the commissioner and a copy provided to the chief administrative official of the municipality having jurisdiction, or in the case of an unorganized township to the Maine Land Use Regulation Commission (LURC) in accordance with this section. No person may operate, maintain or store oil in an underground oil storage facility, unless each underground oil storage tank at that facility has been properly registered with the commissioner and a copy of the registration materials has been received by the chief administrative official of the municipality having jurisdiction, or in the case of an unorganized township to the Maine LURC.

I. Registrations must be submitted on forms developed by the commissioner and containing the following information:

(1) The name, mailing address and telephone number of the owner;

(2) The name, mailing address and telephone number of the operator;

(3) The name, street address and telephone number of the facility;

(4) The location of the facility compatible with the State of Maine Geographic Information System (GIS). If a new facility or a facility expansion, adequate GIS location information to determine if the facility meets the siting restrictions of 38 M.R.S.A Section 563-C and Section 3-A of this rule;

(5) The name, mailing address and telephone number of an individual to contact with questions on the registration materials submitted;

(6) The location of the facility relative to a sensitive geologic area, including: (a) whether a private water supply exists within 300 feet of the tanks; (b) if any person owns, operates, or utilizes any private water supply within 300 feet of the tanks; (c) whether a public water supply exists within 1,000 feet of the tanks; and (d) whether the facility is located on a significant ground water aquifer, as defined by this rule;

(7) The location of the facility relative to a 100 year flood plain as mapped by the Federal Emergency Management Agency (FEMA), or in the absence of such maps, as indicated by the presence of flood plain soils or the flood of record.

NOTE: Federal Emergency Management Agency maps are available at most municipal offices.

(8) The size of each tank and each internal storage compartments (if more than one) measured in gallons;

(9) The type of tank(s) and piping, including the materials used for construction and the type of pumping system;

(10) The type of product(s) stored in each tank;

(11) For a new or replacement facility or retrofitting of an existing facility, the installer's name, signature and certification number assigned by the Maine Board of Underground Storage Tank Installers;

(12) For a new or replacement facility, a site drawing of the facility containing the location of all new or replacement tanks, including: (a) distance and direction measurements that are sufficient to locate all underground portions of the facility, (b) details of secondary containment and interstitial space leak detection monitoring equipment, (c) locations of any monitoring wells; (d) all piping associated with the new or replacement facility;

(13) The best estimate of the date of installation for each existing tank and its warrantee expiration date, if available;

(14) For new and replacement tanks, the expiration date of the tank manufacturer's warranty;

(15) For retrofitting an existing underground oil storage facility, the information required in paragraphs 1, 2, 3, 4, 8, 9, 11 and 12 above must be provided on the required registration amendment, as well as information on the type of leak detection, overfill prevention, or other equipment to be installed;

(16) Any other information required by federal law or regulation; and

NOTE: 1984 amendments to federal law (Subtitle I of the Resource Conservation and Recovery Act, Section 9002 et seq.) require an underground tank notification program and specify informational requirements for that program. Registration forms meeting all federal and state informational requirements are available from the department. A tank owner is not required to send a copy of the completed form to the U.S. Environmental Protection Agency in addition to the commissioner.

(17) Certification of the accuracy of the information by the tank owner or the owner's permanent full time employee. The certification cannot be signed by the installer or other subcontractor, unless the tank is owned by the installer.

J. Registration fees. The owner or operator of an underground oil storage facility shall pay an annual registration fee to the commissioner of $35 for each tank located at the facility, except that single family homeowners are not required to pay a fee for a tank at their personal residence. Annual payments must be paid on or before January 1st of each calendar year in order to maintain an effective registration for the upcoming year. Registrations for new tanks shall include payment of the annual registration fee. Registration of a replacement facility shall

not require that an additional fee be paid or accompany the registration amendment if the annual fee has been previously paid.

K. It is the responsibility of the facility owner to register all tanks. Where the facility owner cannot be determined or is disputed, it is the responsibility of the property owner to register all facilities and tanks located on his property.

L. Registration number. The commissioner will assign a unique registration number to each facility and to each tank at a facility. These registration numbers shall be provided to the owner or operator and shall be used for annual re-registration and in all subsequent correspondence regarding registered facilities and tanks. The owner or operator shall post the registration number or certificate in a prominent location at the facility.

M. Registration amendments. The owner or operator of an underground oil storage tank shall file an amended registration form with the commissioner and the Maine Land Use Regulation Commission or municipality having jurisdiction whenever there is a change in the information required pursuant to subsection I such amendments must be received by the commissioner within 10 business days of the change, except that amendments for installation of leak detection, overfill and spill protection, other underground oil storage facility equipment, or the re-installation of tanks must be submitted at least 10 business days before installation. There is no fee for filing an amended registration. No amendment is required for repairs.

NOTE: A change in the facility ownership or operator requires the submission of a registration amendment.

N. Supplier notification requirement. Any person who sells a tank intended to be installed as an underground oil storage tank shall notify the purchaser in writing of the purchaser's registration obligations under this section.

O. Wherever these rules require that information or notice be submitted to the commissioner or department, failure to provide such notice or information in the manner required by these rules or providing false information constitutes a violation of these rules.

P. Notifications at time of facility sale or transfer. Prior to the sale or transfer of any real estate where an underground oil storage facility is located, the owner of the real estate shall file a written notice with the purchaser or transferee. The notice shall disclose the existence of the underground oil storage facility, its registration number or numbers, the real estate where the facility is located, whether or not the facility has been abandoned in place and that the facility is subject to this rule, including the registration requirements of this section. A change in facility ownership requires the new owner or operator to amend the facility registration within 10 business days of the transfer of ownership by

providing the commissioner written notice of the change, including the facility name and registration number; and the name, mailing address and telephone number of the new owner.

5. Regulation of Underground Oil Storage Facilities Used to Store Motor Fuels or Used in the Marketing and Distribution of Oil

A. Applicability

(1) This section and its requirements apply to all facilities and tanks used to store motor fuel or used in the marketing and distribution of oil to others, except where noted below.

(2) This section does not apply to field constructed tanks and airport aviation fuel pressurized hydrant piping, which must comply with sections 8 and 10 of this rule, respectively.

B. Design and installation standards for new and replacement facilities

(1) General design requirements

(a) All new and replacement tanks must be constructed of fiberglass reinforced plastic (hereafter "fiberglass"), cathodically protected steel, or other equally noncorrosive material approved by the commissioner. Piping and below ground ancillary equipment in contact with soil or water must be constructed of fiberglass, cathodically protected steel or other corrosion-resistant or noncorrosive materials approved by the commissioner.

(i) It is the responsibility of the facility owner to demonstrate to the satisfaction of the commissioner that the materials are noncorrosive or corrosion resistant and meet or exceed the performance standards listed below.

(ii) All new or replacement facilities must be listed and constructed in accordance with the standards contained in the following:

Steel Tanks - Underwriters Laboratories 58 and 1746; or Underwriters Laboratories Canada S603.-2000;

Fiberglass Tanks - Underwriters Laboratories 1316;

Cathodically Protected Tanks and Piping - National Association of Corrosion Engineers (NACE) International, RP-0285-2002, ~~or~~ Steel Tank Institute (STI) Tank Standard R892-91 or Petroleum Equipment Institute RP-100-2000;

Composite Tanks - UL 1746 or Steel Tank Institute (STI) Composite Tank Standard (F894-02);

Non-Metallic and Fiberglass Piping - Underwriters Laboratories of Canada Guide ULC-107.7 or Underwriters Laboratories Subject 971.

Pipe Connectors - Underwriters Laboratories Standard 567;

Flexible Connectors - Underwriters Laboratories of Canada Standard ULC/CAN -S633-; and

Steel Piping - National Fire Protection Association Standards 30 or 31, American Petroleum Institute Publications 1615 and 1632, and National Association of Corrosion Engineers (NACE) International Standard RP- 0169-2002.

NOTE: Fiberglass clad steel and other steel composite tanks need not be provided with galvanic or impressed current cathodic protection if constructed with secondary containment and interstitial space monitoring in accordance with the standards of this subsection.

(iii) Impressed current cathodic protection systems must be designed by a corrosion expert and according to the standards described in the National Corrosion Engineers (NACE) International Recommended Practice
RP 0285-2002 and RP-0169-2002, and installed under the supervision of a corrosion expert and by a Maine certified underground oil storage tank installer.

(b) All facility construction materials must be chemically and physically compatible with the product to be stored.

NOTE: Gasoline underground oil storage facilities with a monthly throughput of 10,000 gallons or more in any one month are required to install vapor control equipment in accordance with Chapter 118 of the department air quality rules.

(2) Leak detection

(a) All new and replacement facilities must be designed to provide secondary containment for all facility components routinely containing product, including tanks, product piping, other below ground ancillary equipment and product dispensers. New and replacement tanks and product piping must have continuous interstitial space monitoring. All piping sumps including dispenser sumps and pans shall be provided with continuous leak detection monitoring.

(b) Interstitial space monitoring of tanks and piping must be able to detect a loss or gain in the interstitial space from a leak in the primary or secondary containment structure of 150 gallons or more within 30 days of a leak or discharge.

(c) For facilities with a secondary containment liner in the tank or piping excavation, the secondary containment system must be designed in accordance with Appendix O.

(d) Suction piping exemption. Suction piping designed and installed in accordance with this rule is not required to have secondary containment.

(3) Overfill and spill prevention equipment. Facility owners and operators shall take measures to prevent releases due to spilling or overfilling. New and replacement facilities must include:

(a) A liquid tight spill catchment basin of a minimum capacity of 15 gallons for each tank fill, which is sealed around the fill pipe and will collect any spillage during product delivery. When only the overfill bucket is retrofitted or replaced, the largest capacity catchment basin feasible from 5 to 15 gallons must be installed.

(b) Overfill prevention equipment that will:

(i) automatically shut off flow into the tank when the tank is no more than 95 percent full;

(ii) alert the transfer operator when the tank is no more than 90 percent full by restricting flow into the tank or triggering a high-level audible alarm (vent whistles are not considered a high-level alarm); or

(iii) restrict flow 30 minutes prior to overfilling, alert the operator with a high level alarm one-minute before overfilling or automatically shut off flow into the tank so that none of the fittings located on the top of the tank are exposed to product.

Vent float valves that restrict flow may not be used on a suction system or where pump-off unloading is used.

(c) Sumps or pans of adequate dimensions must be located and installed under all product dispensers in such a manner as to collect all product leaks and discharges from dispenser piping and equipment to prevent oil reaching the environment

(d) Bulk plants and other distribution facilities where oil is transferred to tank trucks or railroad tank cars must include a system to prevent oil spills and overfills from reaching the environment. Installation of a system to catch or direct the flow of loading area spills and overfills is required. Any such system must be able to handle at least an individual overfill or spill of 100 gallons, and must include one of the following:

(i) An impermeable curbed loading pad, a catchment basin, an underground oil storage tank or other containment system;

(ii) An oil water separator discharging to a public wastewater treatment facility or the waters of the State, licensed by the department pursuant to 38 MRSA, sections 413 and 543; or

(iii) Other loading rack overfill containment approved by the commissioner.

Subsurface discharges of potentially oil contaminated stormwater is prohibited unless licensed by the Department in accordance with 38 M.R.S.A., sections 413 and 543

(4) General facility installation requirements

(a) No person may install an underground oil storage facility or a portion thereof unless that person is a properly certified underground oil storage tank installer with the appropriate class of certification in accordance with 32 M.R.S.A., section 10001 et seq., and has paid the required certification fee.

NOTE: The Maine certified installer shall be present and supervising all aspects of the UST facility installation.

(b) An underground oil storage tank installer may not install an underground storage facility if the installer has been placed on inactive status or if the installer's certification has been suspended or revoked under 32 M.R.S.A., section 10015, and has not been reinstated.

(c) An underground oil storage facility may not be installed unless the entire facility has been registered in accordance with section 4 of this rule.

(d) An underground oil storage tank or piping may not be installed within one foot of the closest bedrock.

(e) All phases of the installation of an impressed current cathodic protection system must be conducted under the direct supervision of a corrosion expert. The tank, piping and other portions of the facility other than the impressed current system may be installed by a Maine certified underground oil storage tank installer without such supervision.

(f) All new and replacement steel tanks and piping with cathodic protection must be monitored within 6 to 12 weeks of completion of installation by a cathodic protection tester in accordance with Appendix A of this rule.

(g) Certification of proper installation: Owners of new and replacement facilities shall ensure that the installer(s) provides certification to the commissioner within 30 days of completion of installation; that the facility's materials, design and installation are in compliance with the requirements of this rule. This certification shall be provided in writing on a form provided by the commissioner.

(h) No used or previously installed fiberglass, cathodically protected steel, or other tank meeting the requirements of section 5(B) may be reinstalled, unless the owner has supplied the commissioner with satisfactory documentation that the manufacturer will warranty that tank against internal and external corrosion and structural failure for a period of at least 10 years, after which the tank or piping must be properly abandoned in accordance with section 11 of this rule. Reinstallation of a tank requires an amendment of the facility registration in accordance with section 4(M) of this rule. The warranty documentation shall accompany the submission of the registration amendment. Used piping may not be reinstalled.

(5) Installation requirements for new and replacement tanks

(a) New and replacement tanks and facilities must be installed in conformance with the requirements of Appendix D, except field constructed tanks which must be installed in accordance with section 8 of this rule.

(b) If a tank is replaced, all associated piping not constructed of fiberglass, cathodically protected steel, or another equally noncorrosive material approved by the commissioner also must be replaced. Replacement piping must be designed and installed in accordance with this rule. If product piping is replaced and structural damage to the associated tank has occurred, impairing its physical integrity, the tank also must be replaced if not constructed of fiberglass, cathodically protected steel, or other non corrosive material approved by the commissioner. Any replacement tank must be designed and installed in accordance with this rule. Repairs of damaged fiberglass, cathodically protected steel and other commissioner approved noncorrosive material tanks may only be made if conducted in

accordance with sections 5(D)(16) or (17). Tanks that can not be repaired must be abandoned in accordance with section 11.

(6) Installation requirements for new and replacement piping

(a) All underground piping must be designed and installed in conformance with the requirements of Appendix E, except airport aviation fuel pressurized hydrant piping, which must comply with section 10 of this rule.

(b) All underground piping in contact with soil or water must be constructed of fiberglass or cathodically protected steel. Other noncorrosive materials may be used when approved by the commissioner.

(i) It is the responsibility of the tank owner to demonstrate to the satisfaction of the commissioner that the materials are noncorrosive.

NOTE: Galvanized piping does not meet the requirement for corrosion protection of tanks or piping, and does not meet the criteria for cathodic protection as stated in the National Association of Corrosion Engineers International, Recommended Practices 0285-95.

(ii) All new or replacement non-metallic product piping must be listed by Underwriters Laboratories for underground use. Cathodically protected piping must be constructed and installed in conformance with the National Association of Corrosion Engineers (NACE) International, Recommended Practices, Publication No. 0169-2002, or Petroleum Equipment Institute (PEI) Recommended Practice RP100-2000.

(iii) Other than field coating limited to vertical fill pipes, vertical vent risers and piping joints, field coating of steel pipe for product delivery lines is prohibited except where supervised and inspected by a corrosion expert.

(c) Product lines must be installed in a single trench between the tank area and each pump island. Underground vent lines must be installed in a single trench. All product and vent lines shall slope toward the tank area at a minimum of 1/8 inch per foot.

NOTE: The department recommends placing colored, plastic tape in the excavation trench for FRP and plastic piping runs to warn excavator operators and to help locate piping in the future.

(d) Secondary containment and cathodic protection of vertical, direct drop fill pipes is not required if the fill pipe is constructed of Schedule 40 steel and is uniformly coated with a minimum of 1/8 inch of fiberglass resin, bitumastic coating or epoxy coating. The pipe surface must be properly prepared and the coating allowed to cure. Offset fill pipes require secondary containment and interstitial leak detection.

(e) Piping shall be installed such that in-line piping leak detectors and overfill prevention equipment operate in accordance with manufacture specifications and the requirements of this rule.

(7) Installation requirements for leak detection and overfill/spill prevention equipment

(a) Leak detection and overfill/spill prevention alarms and shutoff equipment must be installed and operating prior to the start of the facility's operation and in accordance with manufacturer specifications, including proper calibration of electronic equipment.

(b) Piping and dispenser sumps and pans must be liquid tight to an elevation at least three (3) inches above the liquid level required to activate the leak detection sensor.

NOTE: No penetration of a sump for a piping or other sump entrance within three (3) inches of the leak detection sensor activation level should ensure meeting the above tightness standard.

C. Retrofitting requirements for existing facilities

(1) Existing facility owners shall retrofit or institute a leak detection method, capable of detecting a leak in the tank, product piping and other portions of the facility normally containing product. Such leak detection must be capable of detecting a leak within 30 days of occurrence with a probability of detection of at least 95 percent and a 5 percent or less probability of a false positive as determined by an independent testing laboratory, using U.S. Environmental Protection Agency approved testing protocols. Leak detection methods found to meet the above performance standards and tested using other protocols approved by nationally recognized independent testing organizations may be used. Examples include, but are not limited to, the American Society of Testing and Materials and the National Work Group on Leak Detection Evaluations. Acceptable methods are listed in paragraph 2 below. Facility owners shall have leak detection in operation by December 1, 1990, for facilities with pressurized piping and by December 1, 1991, for facilities with suction piping. Existing facilities with secondary containment

with interstitial space monitoring for all tanks, product piping and associated below ground ancillary equipment as well as tanks installed with an impervious barrier sloped to a monitoring sump in accordance with Appendix G are considered to meet this requirement. Facilities with suction piping installed such that the piping is sloped so that the contents of the pipe will drain back into the tank if suction is lost, and only one check valve is located in a piping line with the check valve located directly below and as close as possible to the pump, may have until December 1, 1993 to implement leak detection. Where an existing tank has leak detection meeting the requirements of this rule, the associated product piping must be provided leak detection in accordance with the time schedule and other provisions of this subsection. If the mandatory removal date for a nonconforming facility under 38 MRSA, section 563-A, precedes the leak detection compliance schedule outlined above, the facility owner shall comply with the removal schedule in section 563-A.

(2) Acceptable leak detection methods for existing facilities are any one of the following:

(a) Monthly reconciliation of daily product inventory data in accordance with Appendix I and an annual precision test of all tanks and piping. All facilities intending to use or using this method must install drop tubes in the fill pipes. An annual statistical inventory analysis, conducted in accordance with section 5(D)(2) or other commissioner approved methods of facility leak detection capable of detecting a leak rate of 0.1 gallons per hour with a 95 percent probability of detection and 5 percent probability of false alarm**,** may be substituted for a precision test for the purposes of this paragraph. In addition, all pressurized piping must be retrofitted with an automatic in-line leak detector capable of detecting a leak of 3 or more gallons per hour at 10 pounds per square inch line pressure within 1 hour of its occurrence with a 95 percent probability and a 5 percent probability of false alarm.

NOTE: Use of daily inventory data and annual statistical inventory analyses are unlikely to provide results meeting the performance standards of section C(1) above for power generator or high volume (average monthly throughput exceeding 75,000 gallons) tanks. Another method of leak detection is recommended.

(b) Continuous or manual monitoring for free product in ground water monitoring wells installed in the excavated area, and as close as technically feasible around the tank or tanks, accompanied by one of the methods listed below in paragraph 2(e) of this subsection to detect a leak from piping not installed in accordance with section 5(B)(2). Continuous monitoring devices and manual monitoring methods must be capable of

detecting the presence of at least one-eighth inch of free product on the ground water surface in monitoring wells. Monitoring wells must be installed in accordance with Appendix F and the following requirements:

(i) The ground water table is not more than 20 feet from the ground surface; and

(ii) Soils between the tank and monitoring wells shall consist of gravel, coarse to medium sands, or other permeable materials with a hydraulic conductivity of not less than 0.01 centimeters per second.

(c) Continuous vapor monitoring in the unsaturated soil zone of all elements of the facility, using sufficient sampling points to detect a leak or discharge of oil from any point in the facility. Vapor monitoring must meet the following requirements:

(i) The method shall test for oil vapors or tracer compounds within the soil gas of the excavation zone;

(ii) Materials used as backfill are gravel, sand or crushed rock and are sufficiently porous to readily allow diffusion of vapors from leaks or discharges into the excavation area, with a hydraulic conductivity of 10^{-3} cm/second or greater

(iii) The stored oil product or any tracer compound placed in the facility, is sufficiently volatile to result in a vapor level that is detectable by the monitoring devices located in the excavation zone. All tracer compounds shall be approved by the commissioner prior to use;

(iv) The measurement of vapors by the monitoring device is not rendered inoperative by the ground water table, rainfall, or soil moisture or other known interferences so that a leak or discharge could go undetected for more than 30 days. The ground water table shall be below the tank or piping excavation zone;

(v) The level of background contamination in the excavation zone or elsewhere in close proximity to the facility will not interfere with the method used to detect leaks or discharges;

(vi) The excavation zone is assessed by a Maine certified installer or the equipment manufacturer's representative to ensure compliance with the suitability requirements above in this paragraph, and to establish the number and locations of vapor monitoring wells or ports such that leaks or discharges will be detected from any portion of the facility that routinely contains product. At a minimum, one vapor monitoring

well must be located within 5 feet of each pump and dispenser, and at each end of each tank; and

(vii) Vapor monitoring wells or ports are clearly marked and secured to avoid unauthorized access or tampering.

(viii) All monitoring components shall meet manufacturer's specifications and shall be installed according to manufacturer specifications.

(d) Automatic tank gauging systems that include electronic line leak detectors on all pressurized lines, that are capable of detecting a 0.1 gallon per hour leak from the tank and associated piping, and that conduct a satisfactory test at least once every 30 days.

(e) Automatic tank gauging, that can detect a 0.2 gallon per hour loss conducted at least monthly, plus daily product inventory conducted in accordance with section 5(D) of these rules. To detect a leak or discharge from piping not installed in accordance with section 5(B)(2), one of the methods listed below in paragraph C(2)(f) of this section also must be implemented.

(f) When an existing tank is to be monitored for leaks by ground water monitoring wells or by automatic in-tank gauging, not capable of detecting a leak in piping, associated existing piping must be monitored for leaks using one of the following methods:

(i) Secondary containment with continuous interstitial space monitoring;

(ii) For pressurized piping, an automatic in-line leak detector and an annual piping line tightness test; or

(iii) Replacement with self monitoring suction piping designed and installed in accordance with requirements for new and replacement piping in this section and Appendix E.

(g) Where only existing piping requires leak detection, one of the following methods must be used:

(i) Secondary containment with continuous interstitial space monitoring;

(ii) For pressurized piping, an automatic in-line leak detector, and an annual piping line tightness test; or

(iii)Replacement with self monitoring suction piping designed and installed in accordance with requirements for new and replacement piping in this section and Appendix E.

(h) Other facility leak detection systems approved by the commissioner that can detect at least a 0.1 gallon per hour leak rate with at least a 95 percent probability and a 5 percent or less chance of false alarm, as determined by an independent testing laboratory using U.S. Environmental Protection Agency (EPA) approved testing protocols, or by other testing protocols approved by a nationally recognized independent testing organization.

(3) Overfill and spill prevention equipment must be retrofitted at all facilities constructed of fiberglass, cathodically protected steel or other noncorrosive materials approved by the commissioner in accordance with section 5(B) by December 22, 1998.

(4) Facilities that do not comply with the retrofitting requirements of this subsection shall cease operation on the date upon which retrofitting was required, and close in accordance with section 11 of this rule.

D. Monitoring, maintenance, operating and inspection requirements for existing, new and replacement facilities

(1) Daily inventory requirements. Except as provided in paragraph 3 below, the owner or operator of facilities shall maintain and reconcile daily inventory for each day that oil is being added to or withdrawn from the facility or tank.

(a) Daily inventory must be conducted so as to be able to detect a leak or discharge of at least 1 percent of throughput on a monthly basis and must include all the following:

(i) The daily measurement of product and water levels in each tank for each day product is added or removed. Measurement of product levels may be made by a stick gauge reading. Water level measurements may be made by using water paste and a gauge stick. Electronic or mechanical level measuring devices which measure product and water levels are also acceptable. Product level and water levels are to be measured to the nearest one-eight of an inch (1/8").

(ii) The measurement of product levels, before and after any deliveries.

(iii) Product dispensing is metered and recorded within Maine Department of Agriculture's weight and measure standards or an accuracy of six (6) cubic inches for every five (5) gallons of product withdrawn.

(iv) Daily reconciliation of tank measurements and pump meter readings shall be performed to determine daily loss or gain of product. The reading of pump meter readings and product delivery receipts shall not in itself constitute adequate inventory records.

(v) A log book shall be kept at the facility which includes each measurement and the initials of the individual taking and recording the pump meter readings and the actual product and water level measurements.

(b) All inventory data must be summarized monthly and must include the total cumulative loss or gain for the preceding month.

NOTE: See Appendix I for an example of a daily inventory data sheet. Practices described in the American Petroleum Institute Publication 1621, "Recommended Practice for Bulk Liquid Stock Control at Retail Outlets", may be used, where applicable, as guidance in meeting the daily inventory requirements of this rule.

(2) Statistical Inventory Analysis

(a) Except as provided in paragraph 3 below, the owner of each tank shall be responsible for having an annual statistical inventory analysis performed for each of the owner's tanks, and reporting the results of the analysis to the commissioner on or before July 1 of each year The analysis must include an evaluation of the various sources of error present in daily inventory records, including the following:

(i) identifying and removing large measurement errors;

(ii) identifying unrecorded additions or removals of oil;

(iii) detecting errors in metering oil from the tank;

(iv) estimating the potential for temperature differential to induce spurious trends or conceal real trends;

(v) establishing that residual errors contain no systematic components and reflect on the normal errors of measurement;

(vi) evaluating the quality of the data provided and the adequacy of operator procedures to detect leaks if present;

(vii) identifying persistent daily physical loss which could be consistent with leakage; and

(viii) determining values and dates for any delivery errors and any unexplained one time gains or losses.

(b) The report of the analysis results also must contain the following facility information:

(i) Name of the facility;

(ii) Municipality in which the facility is located;

(iii) Name of the owner;

(iv) Registration numbers assigned by the commissioner to the facility and to the tanks;

(v) Certification by tank owner and the agent conducting the analysis that the results are true and accurate to the best of his or her knowledge; and

(vi) Dates of inventory data used in the analysis.

(c) The requirement for statistical inventory analysis must be met only if the inventory records submitted are capable of being analyzed with conclusive results. The following attributes constitute cause for invalidation of an analysis:

(i) Excessively large and other clearly erroneous measurements of inventory-on-hand;

(ii) Excessively large unexplained removals or additions of product;

(iii) Failure to take daily readings of inventory-on-hand;

(iv) Excessive data recording errors; or

(v) Evidence of the use of an incorrect conversion chart or persistent faulty gauging.

(d) A statistical inventory analysis resulting in an inconclusive finding due to poor quality product inventory readings, pump error, tank tilt or other reasons must be redone, following correction of likely errors, using new daily inventory data and submitted to the commissioner within 75 days of receipt of the initial statistical analysis.

(e) All tank owners shall maintain the results of all annual statistical inventory analysis for each underground storage tank in accordance with section 5(D)(19) (f). Only statistical inventory analyses by methods meeting the definition and performance standards of section 3(TT) shall be accepted by the commissioner.

(3) Exemptions from daily product inventory and annual statistical inventory analyses. The following tanks are exempt from the requirements of paragraphs 1 and 2 above: tanks supplying fuel to a power generator; tanks with an average monthly throughput exceeding 75,000 gallons over the prior 12 months; double-walled tanks with continuous interstitial space leak detection; and existing tanks constructed of fiberglass, cathodically protected steel or other commissioner approved noncorrosive material and which are monitored for leaks by a method able to detect a product loss or gain of 0.1 gallons or less per hour with a 95 percent or greater level of confidence. These exemptions are only applicable if the following conditions are met.

(a) Product piping associated with the tank has secondary containment, a self-monitoring suction product delivery system or another form of commissioner approved leak detection able to reliably detect leaks of 0.1 gallons or more per hour; and

(b) The tank and piping are installed and operated in accordance with the other requirements of this rule.

(4) Operation and Monitoring Requirements for Galvanic Cathodic Protection Systems

(a) All galvanic cathodic protection systems must be operated and maintained to continuously provide adequate corrosion protection to the underground metal components of the facility routinely storing or containing oil, and in a manner that ensures no leaks occur during the operational life of the facility. Adequate corrosion protection is indicated by a cathodic protection test reading of at least negative 0.85 volts. Steel composite tanks without secondary containment and continuous interstitial space monitoring must comply with this requirement.

(b) All cathodically protected tanks and piping must have an accurate structure to soil potential reading performed upon installation or repair and annually thereafter. The cathodic protection testing must be conducted by a qualified certified underground tank installer or inspector. A tank inspector shall also be approved as a cathodic protection tester in accordance with Appendix M.

(c) When repairs to cathodic protection systems are made or underground work is performed at the site, the cathodic protection shall be monitored 6 to 12 weeks after such work has been completed, to assure that the system is functioning properly.

(d) Monitoring must be performed in accordance with the requirements of Appendix A.

(e) Repairs of a galvanic cathodic protection system must be completed by a Maine Certified Underground Oil Tank Installer within 180 days of a failed test.

(f) The results of all monitoring and repairs must be kept in a logbook in accordance with section 5 (D)(19).

(5) Monitoring Requirements for Impressed Current Cathodic Protection Systems

(a) All impressed current cathodic protection systems must be operated and maintained to continuously provide adequate corrosion protection to all underground metal components of the facility routinely storing or containing oil, and in a manner that ensures that no leaks occur during the operating life of the facility. Adequate corrosion protection is indicated bycathodic protection tests, conducted in accordance with Appendix A.

(b) A monthly voltage reading and inspection of the rectifier meter on all facilities must be performed using the impressed current system of corrosion protection. All readings, inspection results and repairs must be recorded in a logbook, which must be kept in accordance with the recordkeeping requirements of 5(D)(19).

(c) A certified installer, or a certified inspector who has also been certified by NACE International as a cathodic protection tester shall measure the structure to soil and structure-to-structure potentials, the rectifier voltage and current output as part of an on-site test and inspection at least once per year.

(d) Repairs to an impressed current cathodic protection system must be supervised by a corrosion expert and adhere to NACE International RP285-95.

(6) Operation, maintenance and testing of in-line leak detectors. In-line leak detection devices must be maintained to properly operate in accordance with this rule at all times while the piping contains oil. The facility owner or operator shall ensure all in-line leak detectors are tested for proper operation in accordance with manufacturer instructions upon installation and at least once each calendar year thereafter. Tests of in-line leak detectors must be conducted by a certified underground oil storage tank installer, or inspector who is also certified by the manufacturer of the equipment, where such manufacturer certification is available. Improperly operating leak detectors must be repaired or replaced by a certified underground oil storage tank installer, within 30 days. A log of all tests, maintenance, and repairs must be maintained by the owner in accordance with the record keeping requirements of section 5(D)(19).

(7) Overfill and spill prevention

(a) The facility owner or operator shall ensure that a representative of the owner, operator or oil transporter is physically present during and monitors all product deliveries or transfers.

(b) Operation, maintenance and testing of overfill and spill prevention equipment. All overfill and spill prevention equipment must be maintained to properly operate at all times while the facility is in operation, and in accordance with the requirements of this rule. Overfill and spill prevention alarms and shutoff systems must be tested at least annually and recalibrated, if necessary, in accordance with manufacturer's instructions. Testing and recalibration must be conducted by a Maine certified underground oil tank installer, or inspector who is also certified by the manufacturer of the equipment, if such manufacturer certification is available. . Repairs of automatic overfill and spill prevention alarm and shutoff systems must be done by a Maine certified underground oil storage tank installer, within 30 days. A log recording all tests, maintenance and repairs must be maintained by the owner in accordance with section 5(D)(19). Spill buckets must be kept clean of water and debris such that the buckets' full capacity is maintained and available to catch overfills. Spill buckets must be inspected and, if necessary, cleaned before and after each product delivery.

Loading rack catchment and containment systems at new and replacement bulk plants or other distribution facilities shall be maintained by the owner or operator in accordance with API Standard 2610 and to capture an overfill or spill incident of at least 100 gallons.

(8) General operation, maintenance and testing of leak detection equipment requirements

(a) All leak detection equipment must be maintained to operate at all times while the facility contains oil, and in accordance with the performance standards of this rule and the manufacturer's instructions.

(b) Continuous automated or electronic leak detection equipment must be tested at least annually and recalibrated if needed. Testing and recalibration must be conducted in accordance with the manufacturer's instructions by either a Maine certified underground oil storage tank installer, or inspector who is also certified by the manufacturer of the equipment, if such manufacturer certification is available.

(c) Repairs of continuous, automated or electronic leak detection equipment must be conducted within 30 days by a Maine certified underground oil storage tank installer. If the leak detection system is not properly operating within 30 days of discovery of a problem, the commissioner must be notified in writing by the owner or operator.

(d) A log of all tests, maintenance and repairs must be maintained by the owner in accordance with section 5(D)(19).

(e) Test records must include at a minimum the following information: facility name, address and registration number, tank(s) and piping tested (tank number), test method used; test date(s); test's leak detection threshold; date and time of last product delivery; length of any applicable waiting period; product level during test, and the length of time of the test.

(9) Automatic Tank Gauging (ATG) Systems

(a) ATG systems used to meet the leak detection retrofitting requirements of section 5(C)(1) for existing facilities must be installed as a permanent component of the facility.

(b) Test must be conducted at 60 percent or more of tank capacity.

(c) ATG systems must monitor at the tank bottom for water level gains of more than 1/2 inch.

(d) ATG systems must be operated with a back-up system to preserve test data in the event of a power outage.

(e) ATG systems must print or record test results at least once every 30 days. Test records must be maintained in accordance with section 5(D)(19) and must include the test dates; the tests' leak detection threshold; water levels; the date and time of the last prior product delivery; the length of any applicable waiting period; product level; and test length.

(10) Precision testing

(a) Results of all annual precision tests conducted to meet the annual leak detection requirements of section 5(C)(2)(a) for an existing facility, must be submitted to the commissioner or his representative by the facility owner. The test results must be submitted by July 1. The test results must also be maintained and be available for inspection in accordance with section 5 (D)(19) of this rule. Each test record must contain the following information: facility name, address, and registration number; tank(s) and piping tested (tank number); tank volume and product stored; test method

used; test date; test's threshold; length of waiting period; product level during test; and the actual length of time to conduct test,

(b) The commissioner may require precision testing as defined in this rule of all tanks and piping at a facility showing evidence of a possible leak, as defined in section 5(D)(11) below.

(c) Results of precision tests conducted in follow-up to evidence of a possible leak and in accordance with section 12(B) of this rule, must also be submitted to the commissioner by the person conducting the test.

(11) Evidence of a possible leak or discharge

(a) Evidence of a possible leak or discharge includes, but is not limited to, any one of the following:

(i) A positive analysis for oil or evidence of oil in a ground water monitoring well or monitoring results from any leak detection equipment or method indicating a possible leak, release or discharge.

(ii) Any sheen or other visual or olfactory evidence of oil found in a monitoring well, or in water or soil in a tank or piping excavation or a test pit.

(iii) Any unexplained loss or gain of 1.0 percent of the throughput of each storage system over a 30-day period, as indicated by the recording and reconciliation of daily inventory records.

(iv) Failure of a piping line tightness test, as defined in section 3(JJ) or a tank tightness test as defined in section 3(UU), which indicate a leak of 0.1 gallons per hour or greater.

(v) Failure of a precision test as defined in section 3 (LL), other than a piping or tank tightness test which indicates a loss or gain of 0.1 gallons per hour or greater.

(vi) Unexplained losses detected through a statistical analysis of inventory records or an indication in the statistical inventory analysis that the inventory data provided were insufficient to perform an accurate analysis.

(vii) The excessive accumulation of water in a tank, evidenced by a rise in water level of greater than one-half inch (1/2") for an 8 to 12 hour period, except where the cause of the water accumulation is storm water runoff intrusion and is promptly corrected.

(viii) Reduced flow in a remote pumping system equipped with an in-line leak detector, unless the system returns to normal operating flows within one hour of the first discovery that day.

(ix) Pump hesitation, vibration, meter stripping or air elimination, attributable to a loss of prime for product lines, which operate under a suction system.

(x) Discovery of oil on or under abutting properties, including nearby utility conduits, sewer lines, buildings, drinking water supplies, groundwater or soil.

(xi) Evidence of the presence of oil or water entering into the interstitial space of a secondary containment facility, or a significant drop in the liquid level of a hydrostatically monitored interstitial space as specified by the tank or leak detection equipment manufacturer's instructions.

(xii) Any actual leaks or discharges of oil found on the premises, including, but not limited to, spills, overfills and leaks, whether or not cleaned up.

(12) Product compatibility. Only oil and petroleum products chemically and physically compatible with the materials, from which the tank, piping and other components of the facility routinely containing product are constructed, may be stored. Prior to storing alcohol blended fuel exceeding 10 percent alcohol in fiberglass tanks or piping, the owner must contact the tank and piping manufacturers to determine its long-term compatibility with the composition of the fiberglass resins. Written documentation of product compatibility for alcohol blended fuel and a fiberglass facility must be maintained at the owner's place of business or the facility.

(13) Leak or discharge reporting requirements

(a) A tank owner or operator shall report to the commissioner as soon as possible, but no later than within 24 hours any evidence of a possible leak or discharge of oil, including but not limited to those listed in section 5(D)(11).

(b) A certified underground tank installer remover or inspector finding evidence of a possible leak or discharge of oil must report it to the facility owner or operator, and the commissioner, as soon as possible, but no later than within 24 hours of discovery.

NOTE: TO REPORT A LEAK, SPILL OR OTHER DISCHARGE OF OIL, CALL TOLL FREE 1-800-482-0777.

(c) Notwithstanding the above, discharges of 10 or less gallons of oil that occur above the surface of the ground onto a concrete or asphalt paved surface, and not reaching ground water or surface waters of the State need not be reported to the commissioner if the owner or operator complies with all of the following requirements:

(i) The discharge is fully cleaned up within 24 hours of discovery.

(ii) A written log is maintained at the facility or the owner's place of business in accordance with section 5(D)(19), recording for each discharge the date of discovery, its source, the general location of the discharge on the facility, the date and method of cleanup, and the signature of the facility owner or operator certifying the accuracy of the log.

(iii) The spill log must be made available upon request within 24 hours for inspection by personnel and authorized agents of the commissioner.

(d) Under 38 M.R.S.A., section 568(4), any person who causes or is responsible for a discharge to ground water is not subject to any fines or civil penalties for the discharge if the person promptly reports and removes that discharge in accordance with the rules and orders of the commissioner, and the board.

(14) Manual sampling of ground water-monitoring wells

(a) Where monitoring wells have been installed at an underground oil storage facility and are intended to meet the leak detection requirements of section 5(C), the owner or operator must sample those wells weekly by withdrawing a sample from each monitoring well on site and examining the sample visually for a sheen or other evidence of oil, and by smelling the sample for the odor of "oil." Weekly sampling shall be performed in accordance with the procedures required in Appendix H.

(b) Records of each sampling must be maintained in a logbook in accordance with section 5(D)(19). The logbook must include the date and time of sampling, the initials of the person performing the sampling, and a record of the inspection of all monitoring well samples. The logbook must be available upon request to any department employee, agent or authorized representative and to any municipal official.

NOTE: A sample log sheet is provided in Figure 3 of Appendix H.

(c) Upon discovery of any evidence of a possible leak as defined in section 5(D)(11) of this rule, the owner of the tank shall cause notice to be given to the commissioner as soon as possible but not later than 24 hours from the time of discovery. The tank owner shall then obtain samples from all ground water monitoring wells for laboratory analysis in accordance with the procedures required in Appendix H. Investigation and corrective action requirements of section 12 of this rule must be followed.

(d) Where laboratory analysis is required, all monitoring wells must be sampled and the samples analyzed for the presence of methyl tertiary butyl ether (MTBE), benzene and gasoline or fuel oil in accordance with the requirements of Appendix S of this rule. The monitoring wells must be sampled and all samples must be handled in conformance with the requirements of Appendix H. The results of all hydrocarbon analysis must be maintained in accordance with section 5(D)(19).The detection of hydrocarbons in concentrations exceeding the reporting limits must be reported to the commissioner by the facility owner or operator as soon as possible, but not later than 24 hours from the time of discovery.

(15) Manual interstitial space monitoring

(a) Where secondary containment is provided for leak detection without continuous monitoring, the owner or operator shall sample the interstitial space once per week for evidence of a leak or discharge of oil, and the inflow of ground water.

(b) The interstitial space of double walled tanks must be monitored in accordance with the instructions of the tank or leak detection equipment manufacturer.

(c) When piping with secondary containment sloped to a monitoring sump or man-way has been installed, and continuous electronic monitoring has not been installed, the owner or operator shall physically check the man-way or sump weekly for visual evidence of oil.

(d) For facilities where secondary containment is provided by an excavation liner, the monitoring wells must be sampled weekly for evidence of a leak or discharge in accordance with the procedures for monitoring well sampling outlined in section 5(D)(14).

(e) A record of each inspection or sampling event must be maintained in a logbook in accordance with section 5(D)(19). The log must include the date and time of each monitoring event, what was found, and the initials of the person doing the monitoring.

(16) Interior relining of new and existing facilities

(a) Tanks may be relined provided that, prior to lining, the tank has passed a precision test and is free of perforations, except fiberglass tanks that have failed may be relined or repaired if the cause of failure will be completely repaired to the satisfaction of the commissioner and a warranty is provided by the person performing the repairs. The warranty must be for a minimum of 10 years and must warranty the tanks against internal and external corrosion and structural failure. A fiberglass tank that once failed a precision test, and was subsequently lined, must be precision tested prior to be placed back in operation. Where a fiberglass tank with a leak is lined, the tank must be properly abandoned pursuant to the section 11 of this rule upon expiration of the warranty.

(b) The following requirements also apply to relining activities:

(i) After relining, fiberglass tanks must pass a precision test.

(ii) The material used as a liner must be compatible with the product to be stored in the tank.

(iii)The lining procedure must be performed in accordance with the procedures outlined in American Petroleum Institute Recommended Practice No. 1631.

(iv) Piping may not be relined.

(v) The owner of the facility shall amend the facility's registration in accordance with section 4(M) of this rule and maintain records of relining for the remaining operating life of the lined tank that demonstrate compliance with this paragraph.

NOTE: Interior lining of a nonconforming unprotected steel tank does not extend the deadline for abandonment of the tank under 38 M.R.S.A., section 563-A.

(17) Repairs other than relining

(a) Repairs are allowed in accordance with this paragraph to tanks and piping constructed of fiberglass, cathodically protected steel and other noncorrosive materials approved by the commissioner.

(b) Repairs allowed of tank and piping not constructed of fiberglass, cathodically protected steel or other noncorrosive materials approved by the commissioner are limited to correcting loose fittings and joints. Repairs of corrosion induced or product incompatibility caused leaks are

prohibited. Steel tanks and piping with corrosion induced leaks must be closed in accordance with section 11 of this rule.

(c) Repairs to fiberglass, cathodically protected steel and other approved noncorrosive material tanks and piping must be properly conducted by a Maine certified underground tank installer or by the manufacturer's authorized representative under the supervision of a Maine certified underground tank installer.

(d) Tank and piping repairs are to be conducted in accordance with manufacturer specifications or in accordance with the National Fire Protection Association Standard 30, "Flammable and Combustible Liquids Code".

(e) Repairs jeopardizing the manufacturer's original warrantee are prohibited.

(f) Repaired tanks and piping must be precision tested before going back into operation, except where the repair only included tightening of a loose union, coupling or flexible connector.

(g) Repairs to a cathodic protection system must be conducted in accordance with the NACE International. Recommended Practices 0285-2002 and 0169-2002. Repairs to a galvanic cathodic protection systems must be conducted by a certified installer. Repairs to an impressed current, cathodic protection system must be supervised by a corrosion expert and a Maine certified tank installer.

(h) Within 6 to 12 weeks of a repair to a cathodic protection system, the owner or operator shall have the system tested by a certified installer, or certified inspector also certified as a cathodic protection tester in accordance with Appendix A

(i) Owners must maintain records of each repair of the type listed in this paragraph for the remaining life of the facility.

(18) Financial responsibility requirements

(a) The owner or operator of a new, replacement or existing tank or facility shall demonstrate to the commissioner that the owner or operator has the ability to assure the costs of corrective action and for compensating third parties for bodily injury, property damage and loss of income caused by sudden and non-sudden releases, leaks or discharges from an underground oil storage facility.

(b) Owners or operators shall maintain an ability to assume financial responsibility in accordance with this rule in at least the following per-occurrence amounts.

(i) Owners or operators of all marketing or distribution facilities and motor fuel facilities that handle an average of more than 10,000 gallons of oil per month based on the previous year's throughput shall maintain $1 million.

(ii) All other owners or operators of marketing, distribution and motor fuel underground oil storage facilities shall maintain $500,000.

(c) Owners or operators shall maintain an ability to assume financial responsibility in accordance with this rule in at least the following annual aggregate amounts.

(i) For owners or operators of one (1) to 100 tanks, $1 million; and

(ii) For owners or operators of 101 or more tanks, $2 million.

(d) The amounts of assurance required under this section exclude legal costs.

(e) A facility owner or operator may use any one or combination of the financial responsibility mechanisms listed below in meeting the requirements of subparagraphs a through d above and of the U.S. Environmental Protection Agency's financial responsibility requirements for underground storage tanks containing petroleum:

(i) Self insurance meeting the financial test of self insurance under 40 CFR, Part 280.95;

(ii) Guarantee meeting the requirements of 40 CFR, Part 280.96;

(iii) Liability insurance or risk retention group coverage meeting the requirements of 40 CFR, Part 280.97;

(iv) Surety bond meeting the requirements of 40 CFR, Part 280.98;

(v) Letters of credit meeting the requirements of 40 CFR, Part 280.99;

(vi) Trust fund meeting the requirements of 40 CFR, Part 280.102; or

(vii) The Maine Ground Water Oil Cleanup Fund in accordance with the eligibility requirements and financial assurance limits of 38 MRSA, sections 568-A and 569-A, in combination with one or more of the other above mechanisms to assure full coverage of third party damage liability in accordance with the minimum financial assurance requirements of sections 5(D)(18)(a) and 5(D)(18)(b) above.

(f) Municipalities, counties, school administrative districts and Indian tribes may use, in addition to the mechanisms listed in paragraph (e) above, any one or combination of the following financial assurance mechanisms:

(i) Local government bond rating test in accordance with 40 CFR Part 280.104;

(ii) Self insurance when meeting the local government financial test and the provisions of 40 CFR Part 280.105;

(iii) Local government guarantee meeting the requirements of 40 CFR Part 280.106; and

(iv) A local government dedicated trust fund meeting the requirements of 40 CFR Part 280.107.

(g) An owner or operator may replace one financial assurance mechanism for another, provided that at all times the owner or operator maintains an effective financial assurance mechanism or combination of mechanisms that satisfy the requirements of this paragraph.

(h) Financial assurance mechanisms may be canceled or not renewed in accordance with 40 CFR, Part 280.109.

(i) The facility owner or operator shall maintain financial responsibility records at the facility or at the owner's place of business in accordance with 40 CFR Part 280.17.

(j) In the event of bankruptcy or other financial responsibility incapacity of the facility owner or operator, or a provider of financial assurance; the notification and financial responsibility replacement requirements of 40 CFR, Part 280.114 must be met.

(k) An owner or operator is no longer required to maintain financial responsibility under this rule after a tank or facility has been properly closed in accordance with section 11 of this rule, and if corrective action is required by the commissioner, after the corrective action has been completed to the commissioner's satisfaction and in accordance with section 12 and other rules or orders of the commissioner and board.

(19) Maintenance of records. All logs, monitoring results and other records required by this section must be maintained for a minimum of three (3) years. Except where specifically stated otherwise, facility records must be kept at the facility or the owner’s primary place of business , and made

readily available to the commissioner, the commissioner's representatives and agents, and municipal officials within 36 hours.

(20) Annual compliance inspection requirements. The owner of a facility is responsible for ensuring that the entire facility is inspected annually for compliance with the applicable requirements of this rule, 38 M.R.S.A., subchapter II-B, and department rules regarding stage I gasoline balance systems contained in chapter 118, where applicable. The owner shall have any deficiencies detected during an inspection corrected as necessary to bring the facility into compliance with the requirement cited above.

The facility owner shall submit annual inspection results to the commissioner on or before July 1, 2003, and each July 1st thereafter. The inspection results must be recorded on a form provided by the commissioner and must include a certification statement, signed by an underground oil storage tank installer or inspector certified by the Maine Board of Underground Oil Storage Tank Installers. Such a certification must certify that the entire facility was inspected and any deficiencies discovered have been corrected. Inspection and correction records must also be maintained in accordance with section 5(D)(19). All corrections must be completed prior to the annual July 1st reporting deadline.

NOTE: Under Maine statue (38 M.R.S.A., section563(9)(B), the commissioner may issue an administrative order to enforce the annual inspection requirements above. Such orders may include ceasing receipt of product deliveries to, and the overall operation of, the portion of the facility in violation of this requirement.

E. Facility closure and abandonment

(1) The closure, abandonment or temporary discontinuance of service of a facility or any part thereof must be conducted in accordance with section 11 of this rule.

(2) Mandatory facility closure. In accordance with section 564(5) of 38 M.R.S.A., a tank and its associated piping must be taken out of operation and properly abandoned upon the expiration date of the manufacturer's tank warranty. This requirement does not apply until January 1, 2008 to a tank installed before December 31, 1985 that has been retrofitted to meet the requirements of this section of the rule.

6. Regulation of Heating Oil Facilities Used for Consumption on the Premises or by the Owner or Operator

A. Applicability

(1) This section applies to all underground heating oil or process oil storage facilities used for consumption on the premises or by the owner or operator of the facility.

(2) This section does not apply to motor fuel, marketing, distribution facilities, waste oil facilities, field constructed tanks or heavy oil facilities except where specifically stated otherwise.

B. Design and installation requirements for new and replacement facilities

(1) General design requirements

(a) The installation of new or replacement tanks and piping constructed of bare steel or asphalt coated steel is prohibited.

(b) All new and replacement tanks must be constructed of fiberglass reinforced plastic (hereafter referred to as fiberglass), cathodically protected steel, or other noncorrosive material approved by the commissioner. Piping and other below ground ancillary equipment in contact with soil or water must be constructed of fiberglass, cathodically protected steel or other equally noncorrosive materials approved by the commissioner.

(i) It is the responsibility of the facility owner to demonstrate to the satisfaction of the commissioner that the materials are noncorrosive and meet or exceed the required performance standards listed below in this paragraph.

(ii) All new or replacement facilities must be listed and constructed in accordance with the standards contained in the following:

Steel tanks - Underwriters Laboratories 58 and 1746;

Fiberglass Tanks - Underwriters Laboratories 1316;

Cathodically Protected Tanks and Piping - National Association of Corrosion Engineers RP-0285-2002 and RP 0169-2002; Steel Tank Institute (STI) Tank Standard R892-91; or Petroleum Equipment Institute RP-100-2000

Composite Tanks -UL 1746 or Steel Tank Institute (STI) Composite Tank Standard (F894-02);

Fiberglass, Flexible or other Non-metallic Piping - Underwriters Laboratories of Canada Guide CAN/ULC-107.7; or Underwriters Laboratories Subject 971;

Pipe Connectors - Underwriters Laboratories Standards 567;

Flexible Connectors - Underwriters Laboratories of Canada Standard CAN 4-S633; and

Steel Piping - National Fire Protection Association Standards 30 or 31, American Petroleum Institute Publication 1632, or National Association of Corrosion Engineers Standard RP-0169-2002.

NOTE: Fiberglass clad steel and other steel composite tanks need not be provided with galvanic or impressed current cathodic protection if designed and constructed with secondary containment and interstitial space monitoring in accordance with standards of this subsection.

(iii) Impressed current cathodic protection systems shall be designed by a corrosion expert and according to standards described in the National Corrosion Engineers Recommended Practice 0285-2002 and RP 0169-2002, and installed under the supervision of a corrosion expert. Other portions of the facility may be installed by a Maine certified installer without such supervision.

(c) Used or previously installed fiberglass or cathodically protected tanks may not be re-installed unless the owner has supplied the commissioner with satisfactory documentation that the manufacturer will warranty the tanks against internal and external corrosion and structural failure, for a period of at least 10 years, after which the tanks must be properly abandoned in accordance with section 11 of this rule. Re-installation of a tank requires an amendment of the facility registration in accordance with section 4(M) of this rule. The warranty documentation shall accompany the submission of the registration amendment. Used piping may not be reinstalled.

(d) All facility construction materials must be chemically and physically compatible with the product to be stored.

(2) Leak detection. All new and replacement facilities must be provided with secondary containment for all facility components routinely containing product, including tanks, product piping (including supply and return lines) and below ground ancillary equipment. New and replacement tanks and

product piping must have continuous interstitial space monitoring. Interstitial space monitoring for heating oil facilities must be able to detect a loss or gain in the interstitial space from a leak in primary or secondary containment structure of 150 gallons or more within 30 days of a leak or discharge. Leak detection probes are to be installed at the lowest point of each leak monitoring location. For facilities with a secondary containment within the tank or piping excavation; the secondary containment system must be designed in accordance with Appendix O.

(3) Overfill and spill prevention equipment. New and replacement tanks with a capacity in excess of 1,100 gallons must have the following spill and overfill prevention equipment:

(a) A liquid tight spill catchment basin, sealed around each tank fill pipe and having a minimum capacity of 15 gallons to collect spillage during product delivery; and

(b) Overfill prevention equipment that will automatically shut off flow into the tank when the tank is no more than 95 percent full, or alert the transfer operator when the tank is no more than 90 percent full by restricting flow into the tank or triggering a high-level audible alarm.

(c) The use of vent float valves is prohibited on a tank that will receive pressurized oil deliveries because of the danger of rupturing the tank or overfilling the fill pipe.

(4) General installation requirements for new and replacement facilities

(a) No underground oil storage facility or tank may be installed unless the facility has been registered in accordance with section 4 of this rule.

(b) No person may install an underground oil storage facility or a portion thereof unless that person is a properly certified underground oil storage tank installer with the appropriate class of certification in accordance with 32 M.R.S.A., sections 10001-10015, and has paid the required certification fee.

(c) A certified underground oil storage tank installer may not install an underground storage tank if the installer has been placed on inactive status or if the installer's certification has been suspended or revoked under 32 M.R.S.A., section 10015, and has not been reinstated.

NOTE: No person may connect an underground storage tank used to store heating oil to a boiler or furnace unless that person is a master oil technician or a journeyman working under the supervision of a master oil technician licensed by the Oil and Solid Fuel Board under 32 M.R.S.A., section 2311 et seq., and rules administered by the Oil and Solid Fuel Board.

(d) If a tank is replaced, all associated underground piping not meeting the design requirements of this rule must be replaced. Any replacement piping must be designed and installed in accordance with this rule. If product piping is replaced and structural damage to the associated tank has occurred, impairing its physical integrity, the associated tank must also be replaced if not constructed of fiberglass, cathodically protected steel, or other noncorrosive materials approved by the commissioner. Repairs of damaged fiberglass, cathodically protected steel, and other commissioner approved noncorrosive material tanks may only be made if conducted in accordance with sections 5(D)(16) or (17). Tanks that can not be repaired must be abandoned in accordance with section 11.

(e) An accurate structure to soil potential measurement must be performed by a certified tank installer or a certified cathodic protection tester in accordance with Appendix A upon installation of all galvanic cathodic protection systems.

(f) All phases of the installation of an impressed current cathodic protection system must be supervised on-site by a corrosion expert. The tank, piping and other portions of the facility other than the impressed current system may be installed by a Maine certified underground oil storage tank installer without such supervision.

(g) No underground oil storage tank or piping may be installed within 1 foot of the bedrock surface.

(h) Leak detection and overfill/spill prevention alarms and shutoff equipment must be installed and operational prior to the start of the facility's operation and in accordance with manufacturer specifications, including proper calibration of electronic equipment.

(i) Certification of installation. Owners of new and replacement facilities shall ensure that the installers certify to the commissioner, within 30 days of completion of installation, that the facility materials, design and installation comply with the requirements of this rule. This certification must be provided in writing on a form provided by the commissioner.

(5) Installation requirements for new and replacement tanks

(a) All tanks must be installed in conformance with the requirements of Appendix D.

(b) All tanks must be installed in accordance with the manufacturer's instructions.

(6) Installation requirements for new and replacement piping

(a) All underground piping in contact with soil or water must be installed in conformance with Appendix E; except that pressurized airport aviation fuel hydrant piping must also be installed in accordance with section 10.

(b) All underground piping in contact with soil or water must be constructed of fiberglass, cathodically protected steel or other noncorrosive materials approved by the commissioner.

(i) For #1 and #2 heating oil facilities, copper piping meeting, the requirements of National Fire Protection Association Code 31, Installation of Oil Burning Equipment, may be used for supply and return lines. All connections between a cathodically protected steel tank and the copper piping must incorporate dielectric fittings that electrically isolate the tanks from the piping.

(ii) Schedule 40 PVC (polyvinyl chloride) piping may be used for secondary containment for #2 heating oil facilities if it is at least twice the diameter of the internal piping.

(iii) When installing copper piping inside fiberglass, PVC or other piping to provide secondary containment, supply and return lines must be provided with spacers to separate the lines and prevent wear due to vibration and friction.

NOTE: Primary pipe spacers can be provided by using 6-inch lengths of 1/4 inch thick polyethylene foam tubing insulation placed every 10 feet of pipe.

(iv) It is the responsibility of the facility owner to demonstrate to the satisfaction of the commissioner the materials are noncorrosive.

(v) All new or replacement non-metallic piping must be listed by Underwriters Laboratories and installed in accordance with manufacturer instructions. Cathodically protected piping must be constructed and installed in conformance with the National Association of Corrosion Engineers, Recommended Practices,

Publication No. 0285-95, or Steel Tank Institute (STI) Standard RP 892-89.

(vi) Secondary containment and cathodic protection of vertical, direct drop fill pipes is not required if the fill pipe is constructed of Schedule 40 steel and is uniformly coated with a minimum of 1/8 inch of fiberglass resin, bitumastic coating or epoxy coating. The pipe surface must be properly prepared and the coating allowed to cure. Offset fill pipes require secondary containment and interstitial space monitoring. Where secondary containment with interstitial space monitoring is not technically feasible, another leak detection system may be used upon prior approval of the commissioner.

C. Operation, maintenance, testing and inspection requirements for new, replacement and existing facilities

(1) The owner or operator shall report any evidence of a possible leak, as defined in section 5(D)(11) of this rule, or other evidence of a discharge to the commissioner within 24 hours of discovery. A certified underground tank installer, inspector or remover finding evidence of a possible leak or oil discharge must report it to the facility owner or operator, and the commissioner, as soon as possible, but no later than within 24 hours of discovery. Notwithstanding the above, discharges of 10 or less gallons of oil that occur above the surface of the ground onto a concrete or asphalt paved surface, and that do not reach ground water or surface waters of the State need not be reported to the commissioner if the owner or operator complies with all of the following requirements:

(a) The discharge is cleaned up within 24 hours of discovery.

(b) A written log is maintained at the facility or the owner's place of business recording for each discharge the date of discovery, its source, the general location of the discharge on the facility, the date and method of cleanup, and the signature of the facility owner or operator certifying the accuracy of the log.

(c) The log is readily available for inspection upon request by personnel and authorized agents of the commissioner within 24 hours.

NOTE: To report a leak or discharge at any time 24 hours a day, seven (7) days a week call 1-800-482-0777.

(2) If a facility has a cathodic protection system, it must be operated, monitored and maintained in accordance with section 5(D)(4) or (D)(5) of this rule.

(3) For existing facilities with ground water monitoring wells for leak detection, the monitoring wells must be sampled weekly and the results must be recorded in a log book in the same manner as required under section 5(D)(14).

(4) The owner or operator of an existing facility with leak detection equipment other than ground water monitoring wells, shall test for leaks monthly and maintain a log at the facility, including the date, the presence or absence of evidence of a leak or discharge and the name of the individual conducting the test.

(5) Continuous interstitial space or other continuous leak detection monitoring equipment must be maintained in accordance with section 5(D) of this rule.

(6) The owner or operator shall operate and maintain the spill prevention and overfill prevention equipment to ensure it is operating properly at all times in accordance with the requirements of section 5(D) of this rule.

(7) The owner or operator shall operate and maintain the cathodic protection systems in accordance with the requirements of section 5(D) of this rule.

(8) Bare or asphalt coated steel tank or piping may not be structurally repaired for use as part of an underground oil storage facility.

(9) Tanks only may be relined in accordance with section 5(D)(16) of this rule. Repairs to tanks and piping other than relining must be in accordance with section 5(D)(17).

(10) Oil product may not be stored in a facility of a design or construction with which it is not chemically or physically compatible.

(11) The owner shall conduct an annual facility compliance inspection, correcting any deficiencies found, in accordance with section 5(D)(20) of this rule.

(12) Maintenance of records. All facility records and logs required by this rule must be maintained and available in accordance with section 5(D)(19).

D. Facility closure and abandonment. Closure, abandonment, or temporary discontinuance of service of a facility or any part thereof must be in accordance with section 11 of this rule.

7. Regulation of Facilities for the Underground Storage of Waste Oil

A. Applicability

These rules apply to any person, except a waste oil dealer, who stores or proposes to store waste oil in underground tanks. Waste oil dealers are subject to Chapter 860, the department Waste Oil Management Rules.

B. Design and installation standards for new and replacement facilities

(1) All tanks and associated piping used for the underground storage of waste oil must be registered in accordance with section 4 of this rule.

(2) The installation of new and replacement tanks constructed of bare steel or asphalt coated steel is prohibited.

(3) All new and replacement tanks must be installed by a Class 2 underground oil storage tank installer who has been properly certified pursuant to 32 M.R.S.A., sections 10001-10015.

(4) New and replacement waste oil tanks, associated piping and other facility components routinely containing oil must be equipped with secondary containment with continuous interstitial space monitoring, designed and installed in accordance with section 5(B)except as provided below.

(5) Piping for a new or replacement waste oil facility supplying a waste oil furnace or boiler may not use PVC piping for secondary containment but instead must be constructed of fiberglass, cathodically protected steel or other noncorrosive materials approved by the commissioner.

(6) Fill and removal pipes at new and replacement facilities must be installed with a spill overfill collection box with a capacity of at least 3 gallons with a liquid tight seal around the fill pipe that will collect spillage during product delivery.

(7) In addition to the siting restrictions in section 3-A of this rule or 38 M.R.S.A., subsection 563-C, new and replacement underground waste oil facilities may not be located in the following areas:

(a) Beneath a building or other permanent structure; or

(b) Within 25 feet of a classified body of surface water.

(8) No used or previously installed fiberglass, cathodically protected steel, or other tank meeting section 5(B) of this rule may be re-installed unless the owner has provided the commissioner with satisfactory documentation that the manufacturer will warrantee the tank or piping against internal and

external corrosion and structural failure for a period of at least 10 years, after which the tank or piping must be properly abandoned in accordance with the requirements of section 11 of this rule. Re-installation of a tank or piping requires an amendment of the facility registration in accordance with section 4(M) of this rule. The warranty documentation shall accompany the submission of the registration amendment. Used piping may not be re-installed.

(9) Certification of proper installation. Owners of new and replacement facilities shall ensure that the installer(s) provides certification to the commissioner within 30 days of completion of installation; that the facility's materials, design and installation are in compliance with the requirements of this rule. This certification must be provided in writing on a form provided by the commissioner.

C. Retrofitting requirements for existing facilities. Existing waste oil facilities constructed of fiberglass, cathodically protected steel, or other equally noncorrosive materials approved by the commissioner, but without secondary containment and continuous interstitial space monitoring pursuant to subsection B(4) above, must provide by December 22, 1998, leak detection and overfill and spill prevention in accordance with the requirements of section 5(C) of this rule.

D. Operation, maintenance, testing and inspection requirements for existing, new and replacement facilities

(1) All cathodically protected steel tanks, piping and other ancillary equipment must be operated, and maintained in accordance with section 5(D)(4) or (D)(5), and Appendix A of this rule.

(2) Leak detection and overfill and spill prevention systems must be operated and maintained in accordance with the requirements of section 5(D) of this rule.

(3) The owner or operator shall report to the commissioner any evidence of a possible leak, as defined in section 5(D)(11), or discharge of oil. The report must be made promptly upon discovery and under no circumstances more than 24 hours from the time of discovery of the possible leak or discharge. A certified underground tank installer, inspector or remover finding evidence of a leak or oil discharge must report it to the facility owner or operator, and the commissioner, as soon as possible, but no later than within 24 hours of discovery. Notwithstanding the above, discharges of 10 or less gallons of oil, occurring above the surface of the ground onto a concrete or asphalt paved surface and not reaching ground water or surface waters of the State, do not need to be reported to the commissioner if the owner or operator complies with all of the following requirements:

(a) The discharge is cleaned up within 24 hours of discovery.

(b) A written log is maintained recording for each discharge the date of discovery, its source, the general location of the discharge on the facility, the date and method of cleanup, and the signature of the facility owner or operator certifying the accuracy of the log.

NOTE: To report a leak or discharge at any time, 24 hours a day, seven (7) days a week, call 1-800-482-0777.

(4) The owner or operator shall maintain a log at the facility, recording the date, results, and the individual conducting the annual tests of cathodic protection and leak detection systems.

(5) Only waste oil tanks constructed of cathodically protected steel, fiberglass or another noncorrosive material approved by the commissioner may be relined. Such tanks must be relined in accordance with section 5(D)(16) of this rule. Repairs other than relining must be conducted in accordance with section 5(D)(17).

(6) Waste oil may not be stored in a facility of a design and construction with which it is not chemically or physically compatible.

(7) Hazardous substances as defined in 38 M.R.S.A., subsection 1362(1), may not be added to or stored at a waste oil facility.

NOTE: The addition of degreasers, solvents and other hazardous substances to a waste oil tank may make the waste oil a hazardous waste. Hazardous wastes must be stored, manifested, transported and disposed in accordance with department hazardous waste regulations, Chapters 850 through 857.

(8) All owners or operators of waste oil facilities shall provide financial responsibility coverage in accordance with the requirements of section 5(D)(18) of this rule.

(9) Maintenance of records. Required facility records and logs must be maintained and available in accordance with section 5(D)(19) of this rule.

(10) The owner must conduct an annual facility compliance inspection, correcting any deficiencies found in accordance with section 5(D)(20) of this rule.

E. Closure of underground waste oil storage facilities. Underground waste oil storage tanks and associated piping must be abandoned in accordance with section 11 of this rule.

8. Regulation of Field Constructed Underground Oil Storage Tanks

A. Applicability

(1) This section applies to all underground oil storage tanks where the primary containment structure is constructed at the location of installation and is not delivered to the installation site without further assembly required.

(2) This section applies to tanks constructed of steel, concrete, fiberglass reinforced plastic, fiberglass and other materials.

B. Design and installation requirements for new and replacement field constructed tanks

(1) General design requirements

(a) Bare steel and asphalt coated steel tanks are prohibited.

(b) Concrete, fiberglass reinforced plastic, fiberglass and riveted steel tanks are prohibited.

(c) All new and replacement steel tanks must be cathodically protected and coated with a suitable dielectric material. The cathodic protection system must be designed by a corrosion expert to adequately protect all parts of a tank from corrosion by maintaining a negative structure to soil potential of at least 0.85 volts. Cathodic protection systems must be designed in accordance with National Association of Corrosion Engineers Standard RP 0285-2002 "Corrosion Control of Underground Storage Tank Systems by Cathodic Protection".

(d) New and replacement steel tanks must be designed by a professional engineer in compliance with Maine's professional regulation statute, and constructed in accordance with Underwriters Laboratories Standard 1746, "Corrosion Protection Systems for Underground Storage Tanks", and American Petroleum Institute Standard 650 "Welded Steel Tanks for Oil Storage".

(e) Piping connected to field constructed tanks must be designed and constructed in accordance with the requirements of sections 5, 6, 7, 9 or 10 depending on type of facility and piping system proposed.

(2) Leak detection. All new and replacement field constructed tanks must be provided with secondary containment and continuous interstitial space monitoring. Secondary containment using an excavation liner must be designed and installed in accordance with Appendix O.

(3) Overfill and spill prevention equipment. New and replacement tanks must be installed with overfill and spill prevention equipment in accordance with section 5(B)(3) or section 6(B)(3) depending on facility type.

(4) General installation requirements

(a) No new or replacement field constructed underground oil storage tank may be installed unless the facility has been registered in accordance with section 4 of this rule.

(b) New and replacement field constructed tanks shall be assembled and installed according to good engineering practices under the surveillance of a professional engineer registered in Maine or otherwise working in compliance with 32 MRSA, section 1351 et. seq. The engineer shall be responsible for supervising all phases of assembly and installation. At least 60 days prior to tank registration, design and installation plans must be submitted to the commissioner for review and approval. The plan must include, at a minimum:

(i) Secondary containment and leak detection installation details;

(ii) Overfill and spill prevention equipment installation;

(iii) Anchoring;

(iv) Excavation and backfill specifications; and

(v) Cathodic protection system installation.

(c) Installation of the cathodic protection system must be supervised by a corrosion expert.

(d) If a tank is replaced, all associated piping not meeting the design and installation requirements of this section must be replaced except if the piping is part of an airport hydrant piping system. If product piping attached to a field constructed tank is replaced and structural damage to the associated tank has occurred, the tank also must be replaced if not designed and installed in accordance with this section.

(e) Certification of proper installation. Owners of new and replacement facilities shall ensure that the project engineer certifies to the commissioner, within 30 days of completion of installation; that the facility materials, design and installation are in compliance with the requirements of this rule. This certification must be provided in writing on a form provided by the commissioner.

C. Retrofitting requirements for existing motor fuel, marketing or distribution field constructed tanks

(1) Leak detection must be retrofitted at existing field constructed tanks in accordance with section 5 of this rule.

(2) Overfill and spill prevention equipment must be retrofitted by December 1, 1993, at all existing field constructed tanks made of fiberglass, cathodically protected steel, or other noncorrosive materials approved by the commissioner, in accordance with section 5(B)(3) of this rule.

D. Operation, maintenance, testing, and inspection requirements for new, replacement and existing tanks

(1) Tanks that are part of a motor fuel, marketing or distribution facility must be operated in accordance with section 5(D) of this rule, except that the requirements of sections 5(D)(1) and (2) do not apply.

(2) Tanks that are part of a heating oil facility for consumptive use by the owner or operator must be operated in accordance with section 6(C).

(3) Tanks that are a part of a waste oil facility must be operated in accordance with section 7(C).

(4) Notwithstanding the above, repairs must be conducted in accordance with sections 5(D)(16) and (17), except that a repair may be designed by and conducted under the surveillance of a professional engineer in accordance with Maine's professional regulation statutes.

(5) The owner shall conduct an annual facility compliance inspection and correct any deficiencies found in accordance with section 5(D)(20) of this rule.

E. Closure and abandonment of underground field constructed oil storage tanks

(1) Tanks must be abandoned in accordance with section 11, except that owners of concrete tanks larger than 20,000 gallons capacity may be granted a variance by the commissioner from the requirement under the following conditions:

(a) An alternate method of closure or long term maintenance is proposed that is equally protective of the environment, public health, safety and welfare.

(b) Discharges of oil will be remediated to the satisfaction of the commissioner;

(c) Public access is controlled;

(d) A notice of the presence of underground oil storage tanks is permanently attached to the deed of the parcel upon which the tanks are located, including at a minimum, a description of the tanks, their size, types of product stored, and their surveyed location; and

(e) Written notice has been provided to the local fire department having jurisdiction indicating that a variance is being sought from the requirements of section 11.

The commissioner may approve, deny, or approve with conditions a variance under this paragraph.

(2) The owner or operator of a field constructed tank shall conduct a site assessment in accordance with section 11(A) and Appendix P prior to the completion of facility closure.

9. Regulation of Facilities for the Underground Storage of Heavy Oils

A. Applicability

(1) This section applies to all underground oil storage facilities intended for storing or containing heavy oil, oil that must be heated during storage, including but not limited to #5 and #6 oil.

(2) This section applies to # 4 oil storage facilities only when the oil must be heated during storage.

B. Design and installation requirements for new and replacement facilities.

(1) General design requirements

(a) Where a field constructed tank is proposed at a heavy oil facility, the general design requirements for heating oil facilities under sections 6(B)(1) or 8(B) must be followed.

(b) All facility construction materials must be physically and chemically compatible with the product to be stored, including the temperature at which the product is to be stored. Fiberglass or plastic jacketed components may not be installed in facilities where the oil temperature will exceed 150^{O}F.

(2) Leak detection. New and replacement heavy oil facilities must provide leak detection in conformance with the leak detection requirements for other heating oils in section 6(B)(2) or field constructed tanks in section 8(B)(2), including secondary containment with continuous interstitial space monitoring.

(3) Overfill and spill prevention equipment requirements are the same as those for other heating oils under section 6(B)(3) of this rule.

(4) Installation requirements for new and replacement heavy oil facilities.

(a) An underground oil storage facility or tank may not be installed unless the facility has been registered in accordance with section 4 of this rule.

(b) No person may install an underground heavy oil storage facility unless that person is a properly certified Class 2 underground oil storage tank installer in accordance with 32 M.R.S.A., section 10001 et seq., and has paid the certification fee.

(c) A certified underground oil storage tank installer may not install an underground oil storage tank if the installer has been placed on inactive status or if the installer's certification has been suspended or revoked pursuant to 32 M.R.S.A., section 10015

(d) If a tank is replaced, all associated underground piping not meeting the design requirements of this rule must be replaced. Any replacement piping must be designed and installed in accordance with this rule. If product piping is replaced and structural damage to the tank has occurred, the associated tank also must be replaced if not constructed of fiberglass, cathodically protected steel, or other noncorrosive materials approved by the commissioner. Repairs of damaged fiberglass, cathodically protected steel, and other commissioner approved tanks may only be made if conducted in accordance with sections 5(D)(16) or (17). Tanks that can not be repaired must be abandoned in accordance with section 11.

(e) New and replacement heavy oil facilities must be installed in accordance with National Fire Protection Association Code 31 and the requirements of section 6(B)(4), (5) and (6), except that the installation of copper and PVC piping is prohibited and the heating system must be electrically isolated from the cathodic protection system if the tank is steel.

(f) New and replacement fiberglass and plastic jacketed steel tanks must be provided with continuous product temperature monitoring equipment, installed in accordance with the manufacturer's specifications.

C. Operation, maintenance, testing and inspection requirements for new, replacement and existing heavy oil facilities

(1) Heavy oil facilities must be operated in accordance with the requirements for other heating oil facilities in section 6(C) of this rule.

(2) The owner or operator of heavy oil facilities with fiberglass or plastic jacketed steel tanks or piping shall monitor representative product temperature within the tank daily to ensure it does not exceed tank and piping manufacturer's specifications or limits. Product temperature readings must be recorded, including date, temperature, and the initials of the person taking the measurements or readings. Temperature records must be maintained at the facility for 3 years and be available to department personnel and representatives or municipal officials.

(3) Product temperature measurement equipment must be maintained in good operating condition. Such equipment must be tested and if necessary, calibrated, at least annually by a properly trained representative of the owner or operator, a certified installer or an authorized representative of the manufacturer.

(4) Fiberglass and jacketed steel facilities may not be operated above 150°F.

(5) The owner shall conduct an annual facility compliance inspection and correct any deficiencies found in accordance with section 5(D)(20) of this rule.

D. Closure requirement. Heavy oil tanks must comply with the requirements of section 11.

10. Regulation of Pressurized Airport Aviation Fuel Hydrant Piping Systems

A. Applicability

(1) This section applies to all underground pressurized airport aviation fuel hydrant piping systems, including associated pressurized transmission piping, that are a part of an underground oil storage facility.

(2) Underground tanks storing aviation fuel must comply with section 5 or 8 of these rules, as applicable.

B. Design, construction and installation requirements for new and replacement pressurized airport hydrant piping systems

(1) General design and construction requirements

(a) Bare steel and asphalt coated steel piping are prohibited.

(b) All new and replacement steel piping in contact with soil or water must be cathodically protected and coated with a suitable dielectric material. The cathodic protection system must be designed by a corrosion expert to adequately protect all parts of the piping system from corrosion by maintaining a negative structure to soil potential of at least 0.85 volts. Cathodic protection systems shall be designed in accordance with National Association of Corrosion Engineers Standard RP-0285-2002.

(c) Piping must be designed by a professional engineer in compliance with Maine professional regulation statutes, and constructed in accordance with American National Standards Institute (ANSI) standard for "Chemical Plant and Petroleum Refinery Piping", ANSI/ASME B 31.1.

(2) Leak detection. All new and replacement airport hydrant piping routinely containing oil must be provided with secondary containment and continuous interstitial space monitoring. Secondary containment using an excavation liner must be designed and installed in accordance with Appendix O.

(3) General installation requirements

(a) No new or replacement airport hydrant piping may be installed unless the facility and piping have been registered in accordance with section 4 of this rule.

(b) New and replacement airport hydrant piping must be installed according to good engineering practices using welded joints and under the supervision of a professional engineer registered in Maine or otherwise working in

compliance with 32 M.R.S.A., section 1351 et seq. The engineer shall be responsible for surveillance of all phases of installation. Installation plans must be submitted for department review and approval at least 60 days prior to new or replacement piping registration and must include at a minimum:

(i) Secondary containment and leak detection installation details;

(ii) Excavation and backfill specifications;

(iii) Pipe material specifications;

(iv) Welding specifications; and

(v) Cathodic protection system installation

(c) Installation of the cathodic protection system must be supervised by a corrosion expert.

(d) If airport hydrant piping is replaced, any underground oil storage tank not constructed of fiberglass, cathodically protected steel, or other commissioner approved noncorrosive materials in conformance with sections 5 or 8 of this rule must be replaced at the same time.

(e) New and replacement piping must be installed in accordance with ANSI B31.3.

(f) Welded joints must be radiograph inspected.

(g) Hydrant pits must be liquid tight and must drain to an oil water separator, or other commissioner approved collection and treatment system.

(h) Certification of installation. Owners of new and replacement facilities shall ensure that the project engineer certifies to the commissioner, within 30 days of completion of installation, that the facility materials, design and installation meet the requirements of this rule. This certification must be provided in writing on a form provided by the commissioner.

C. Retrofitting requirements for existing airport hydrant piping systems

(1) Existing airport hydrant piping systems without secondary containment and interstitial space monitoring or another form of leak detection in compliance with section 5(B)(2) of this rule, shall retrofit or implement one of the following leak detection methods by December 1, 1991:

(a) An annual hydrostatic test of the entire piping line conducted at 150 percent of maximum design operating pressure, or maximum transient surge pressure, whichever is greater. Test shall be conducted for a minimum of four (4) hours and otherwise in accordance with API Recommended Practice 1110, "Pressure Testing of Liquid Petroleum Pipelines".

(b) Continuous vapor or tracer monitoring in the unsaturated soil zone, using sufficient sampling points to detect a leak or discharge of oil from any point in the piping. Vapor monitoring must meet the requirements specified in section 5(C)(2)(c) of this rule.

(c) Other leak detection systems approved by the commissioner that can reliably detect a loss of at least 40 gallons per day.

(2) Existing airport hydrant piping systems constructed of steel may retrofit corrosion protection in accordance with 38 M.R.S.A., section 563-A(l-A) as an alternative to abandonment or replacement, provided a corrosion induced leak has not occurred and the system is not located in a sensitive geological area. To be eligible for this exemption, the facility owner or operator must demonstrate to the commissioner's satisfaction that the airport hydrant piping system does not leak 40 gallons or more per day and that any leaks are not directly or indirectly due to corrosion. Cathodic protection must be designed by a corrosion expert and installed in accordance with the standards of section 10(B) above. Leak detection must be retrofitted at the same time cathodic protection is retrofitted.

D. Operation, maintenance, testing and inspection requirements for new, replacement and existing hydrant piping systems

(1) Airport aviation fuel hydrant piping systems must be operated in accordance with section 5(D) of this rule, except that the requirements of 5(D)(1) and (2) do not apply; and

(2) Repairs of new, replacement and existing piping must be in accordance with good engineering practice and under the surveillance of a Maine professional engineer. Upon completion, the repaired section must be tested for leaks and for proper operation of the cathodic protection system. A report describing the repairs made and test results must be submitted by the owner or operator to the commissioner for approval.

(3) Annual inspection requirements. The owner shall conduct an annual facility compliance inspection and correct any deficiencies found in accordance with section 5(D)(20) of this rule.

E. Closure and abandonment. Closure and abandonment of airport hydrant piping systems must be in accordance with section 11 of this rule.

11. Regulations for Closure of Underground Oil Storage Facilities

A. Facility closure requirements

(1) The owner or operator of an underground oil storage facility or tank that has been or is intended to be out-of-service for a period of more than 12 months must close the facility or tank in accordance with this section unless the tank owner has received written permission from the commissioner to remain temporarily out of service in accordance with the requirements of subsection B below. Closure must include:

(a) Proper abandonment of tanks, piping and other facility components;

(b) Emptying and cleaning tanks of all liquids and accumulated sludge;

(c) Storage or disposal of removed tanks in accordance with this section;

(d) Completion of a site assessment in accordance with the requirements of Appendix P for all types of facilities or a portion thereof, except on-site consumptive use heating oil facilities (other than heavy oil facilities), and farm and residential motor fuel tanks of 1,100 gallons or less capacity and where the product is used only by the tank owner or operator; and

(e) Clean-up of discharges and leaks to the satisfaction of the commissioner in accordance with section 12 of this rule.

NOTE: A site assessment and site assessment report are required as part of facility or tank closure for heavy oil tanks but not for #2, kerosene and other heating oils stored in the same location as they are consumed. Only heating oils heated during storage meet the definition of a heavy oil in this rule.

(2) When ownership of the facility or tank is unknown, the current landowner is responsible for facility closure.

NOTE: Maine statute (38 M.R.S.A. section 563-A) requires closure of nonconforming tanks in accordance with this rule no later than October 1, 1998.

B. Temporarily out of service facilities and tanks

(1) When a facility has been or is intended to be temporarily out-of-service for a period exceeding 3 months and not exceeding 12 consecutive months, the owner or operator shall:

(a) Continue operation and maintenance of the corrosion protection system in accordance with the applicable requirements of this rule;

(b) Continue leak detection in accordance with the applicable requirements of this rule, unless all product is emptied from the tank with no more than one (1) inch of residual left;

(c) Leave vent lines open and functioning;

(d) Cap and secure all other lines, pumps, man ways and ancillary equipment;

(e) Submit an annual compliance inspection report in accordance with section 5(D)(20) of this rule and 38 M.R.S.A., subsection 563(9); and

(f) Report and investigate evidence of a leak or discharge in accordance with section 12 of this rule.

(2) A tank owner may apply in writing for approval of the commissioner to allow a facility to remain temporarily out-of-service for more than 12 consecutive months when:

(a) The owner can provide documentation that the facility is not leaking;

(b) The requirements of paragraph (1) above are met; and

(c) The facility is constructed in compliance with the applicable requirements of this rule .

(3) The owner of a temporarily out-of-service facility, regardless of the length of time , may bring the facility back into service if in compliance with the requirements of this rule, and the facility passes a precision test prior to returning to service. The facility's registration must also be amended in accordance with section 4 of this rule

C. Abandonment by removal

(1) Tanks, piping or facilities that have been out of service for 12 months must be removed within 60 days unless a written request has been made and has not been acted upon or unless written permission has been granted by the commissioner under section 11(B).

(2) Removal of tanks and facilities must be conducted in the sequence required in Appendix J to the satisfaction of the commissioner. For facilities listed in section 11(A)(1)(d), a site assessment must be conducted at the time of removal in accordance with Appendix P.

(3) As required under 38 M.R.S.A., section 566-A(5), removal of Class 1 liquid tanks or facilities, as of September 28, 1991, must be conducted under the direct, on-site supervision of an underground oil storage tank installer or remover certified pursuant to 32 M.R.S.A., section 10001 et seq., or fire fighting personnel certified by the commissioner.

NOTE: The above requirement applies to gasoline facilities and possibly other liquid petroleum products such as aviation fuel. Fire prevention requirements of these rules may also be enforced by State and local fire officials.

(4) If underground oil storage tanks that have been removed are stored, the following provisions apply:

(a) Areas chosen for storage may not be accessible to the general public.

(b) Inverted tanks may be stored with unplugged openings. While being transported, openings are to be tightly plugged, screwed plugs must be used and one plug must have an 1/8 inch vent hole to prevent the tank from being subjected to an excessive pressure differential caused by extreme temperature changes.

(c) All stored underground oil storage tanks must be labeled with the warning noted in paragraph (5)(c) below.

(d) Any scale or sludge released by the tank prior to and during storage must be disposed of in accordance with Chapter 851 of department Hazardous Waste Management Rules.

(5) If underground oil storage tanks that have been removed are sold or reused, the following provisions apply:

(a) Bare steel and asphalt coated steel tanks shall not be re-installed for use as an underground oil storage facility;

(b) Fiberglass and cathodically protected tanks or piping may be re-installed, if the tank owner has supplied the commissioner with satisfactory documentation that the manufacturer will warranty the facility for a period of at least 10 years for internal and external corrosion and structural failure, after which the tanks or piping must be properly abandoned pursuant to this section. A written statement attesting to the validity of the warranty, signed by the tank manufacturer, and provided to the commissioner constitutes the only proof of warranty coverage.

(c) All transactions must be accompanied by a bill of sale indicating the former use of the tank. The bill of sale must contain the following warning:

Tank Has Contained Leaded Gasoline or Flammable Liquid
(use applicable designation)
Not Gas-Free
Not Suitable for Food or Drinking Water

(d) The tank must be clearly marked with the notice stated in paragraph (c) above, in legible letters not less than one (1) inch high, regardless of the condition of the tank.

(e) Abandoned underground oil storage tanks are prohibited from use for above ground storage of oil, except where approved by the Maine State Fire Marshal or where a Maine professional registered engineer, or other person meeting the requirements of Maine professional regulation statutes and rules governing professional engineers practicing in Maine, certifies that the tank meets all applicable specifications and requirements in UL 142 and NFPA 30**.**

D. Abandonment by filling in place

(1) Abandoned facilities and tanks must be removed, except where the owner can demonstrate to the commissioner that removal is not physically possible or practicable because the tank or other component of the facility to be removed is:

(a) Located beneath a building or other permanent structure that cannot be practically replaced;

(b) Of a size and type of construction that it cannot be removed;

(c) Inaccessible to heavy equipment necessary for removal; or

(d) Positioned in such a manner that removal would endanger the structural integrity of nearby tanks.

(2) A facility or tank owner may apply to the commissioner for a variance to abandon a facility or tank in place rather than abandon the tank or facility by removal. The variance may be granted if the commissioner finds that:

(a) Abandonment by removal is not possible or practicable due to circumstances other than those listed in paragraph 1 above; and

(b) The granting of a variance shall not pose a threat to a private or public drinking water supply or the quality of ground water, and is consistent with the intent of this rule.

(3) All facilities to be abandoned in place shall do so by following the procedures outlined in Appendix K in sequence. For facilities listed in section 11(A)(1)(d), a site assessment must be conducted at the time of abandonment in accordance with Appendix P of this rule.

E. Notification requirements

(1) The owner or operator of a facility or tank, which is to be closed or abandoned, shall notify the commissioner and the local fire department having jurisdiction. This notice must be in writing and received by the commissioner at least 30 days prior to abandonment, except that when ownership of the facility or tank is unknown, the current property owner is responsible for compliance with the requirements of this section. This notice must include:

(a) The name, mailing address, and telephone number of the owner;

(b) The mailing address and location of the facility;

(c) The size(s) of tank(s) to be abandoned or taken out-of-service;

(d) The type(s) of product(s) most recently stored in each tank;

(e) The registration number of the facility and tank(s) if registered under this rule;

(f) If the tank has contained a Class I liquid, the inverting procedure and, if applicable, the cleaning location;

(g) If the tank last contained a Class I liquid or contained a Class I liquid in the 12 months prior to closure, the name and signature of the Maine certified tank installer, gasoline tank remover or fire official supervising the facility closure;

(h) If abandonment in place is planned, the criteria used for justifying abandonment in place, as listed in section 11(D)(1) above;

(i) The approximate age of the tank, if known; and

(j) The date upon which the facility or tank is to be removed or when a variance has been granted pursuant to section 11(C) of this rule, the date on which the tank or facility will be properly abandoned on site.

(2) The tank owner shall keep a permanent record of the tank location, the date of abandonment, and the method of conditioning the tank for abandonment.

(3) The tank owner is responsible for attaching, to the deed of the property on which the tank is located, a notice that an underground oil storage tank has been abandoned in place pursuant to section 11(C). The deed notation must be executed within 30 days of completion of the abandonment.

12. Discharge and Leak Investigation, Response and Corrective Action Requirements

A. General requirements

(1) In accordance with 38 M.R.S.A. section 568, any facility owner or operator or other responsible party, as defined in 38 M.R.S.A. section 562-A(17), when a leak, spill or other prohibited discharge of oil occurs, shall immediately undertake to remove that discharge to the satisfaction of the commissioner, and in accordance with the requirements of this section. In determining the extent of a corrective action, the commissioner and the commissioner's staff shall consider the potential for human exposure and for adverse effects on public safety, health and welfare as well as the environment.

(2) Any evidence of a possible leak or discharge of oil as defined in section 5(D)(11) of this rule, any spill or overfill, or any other discharge of oil must be reported to the commissioner within 24 hours of discovery. Notwithstanding the above, discharges of 10 or less gallons of oil that occur above the surface of the ground onto a concrete or asphalt paved surface, and that do not reach ground water or surface waters of the State, need not be reported to the commissioner if the owner or operator complies with all of the following requirements:

(a) The discharge is cleaned up within 24 hours of discovery.

(b) A written log is maintained at the facility or the owner's place of business in Maine recording for each discharge, the date of discovery, its source, the general location of the discharge at the facility, the date and method of cleanup, and the signature of the facility owner or operator certifying the accuracy of the log.

(c) The log is readily available for inspection by department personnel, authorized agents of the commissioner, and municipal officials.

NOTE: Discharges of oil may be reported by calling the department's toll free telephone number, 1-800-482-0777.

(3) Any person who causes, or is responsible for, a discharge to ground water in violation of 38 M.R.S.A. section 543, is not subject to any fines or penalties for violation of section 543 for the discharge if that person promptly reports and removes that discharge in accordance with this rule as well as other rules or orders of the commissioner and the board.

(4) All hydrogeological investigation and corrective action plans required under this section must be certified and stamped by a Maine certified geologist, a

registered Maine professional engineer, or a geologist or engineer otherwise in compliance with the Maine professional regulation statutes for geologists or engineers. Geological and hydrogeological interpretations must be certified and stamped by a geologist. Contaminated soil and ground water treatment system design plans must be stamped by an engineer. Implementation of corrective actions must be supervised by a Maine certified geologist, a Maine registered professional engineer, or an engineer or geologist otherwise working in compliance with Maine's professional regulation statutes. Individuals providing the above professional services should be knowledgeable in underground oil storage facility investigation and remediation.

(5) Leaks and discharges of oil shall be investigated and corrected using techniques that are cost-effective, reliable and technically feasible.

(6) Upon determination that an oil discharge has occurred at a facility, that facility may resume partial or full operation while corrective action is taken unless the commissioner determines that a return to operation would interfere with investigation and remediation efforts, and would therefore result in a threat to public health and safety and the environment.

B. Leak investigation and confirmation requirements

(1) The facility owner or operator, or other responsible party shall immediately investigate and confirm all suspected leaks, spills or other discharges of oil to the commissioner's satisfaction within 20 business days of discovery, or another reasonable time period approved by the commissioner, using the following steps or another procedure approved by the commissioner:

(a) Leak detection check. If the facility has leak detection in accordance with this rule and it indicates a possible leak, a check for failures of the leak detection system may be conducted prior to precision testing if the check is concluded within 3 business days of the initial discovery of evidence of a possible leak or discharge. All components of the leak detection system for tanks and piping must be checked for proper operation, recalibrated if an automated or electronic system, and monitored in accordance with the requirements of this rule and if applicable, the manufacturer's instructions. Monitoring must be conducted for 5 consecutive days. For manual leak detection systems, monitoring must be conducted daily. Records of the findings of the leak detection check and monitoring must be provided to the commissioner. If leak detection monitoring results are conclusive and do not indicate a leak, further investigation is not needed, unless there is other environmental contamination or physical evidence indicating a leak or discharge of oil. If the leak detection results indicate a leak, are inconclusive or the facility does not have leak detection meeting the requirements of this rule, the owner, operator or other responsible party

shall conduct a precision test of the facility in accordance with subparagraph b. If leak detection indicates a leak, the owner, operator or other responsible party shall abandon, repair or replace facility components in accordance with appropriate sections of this rule. In addition the owner or operator of a motor fuel facility shall also comply with the testing and replacement procedures outlined below in paragraph (d) below.

NOTE: Performing an additional statistical inventory analysis is not an acceptable option under the leak detection check requirements because of the delay to collect the 30 to 60 days of daily product inventory data required by this method.

(b) Precision test. When a possible leak is not attributed to a failure of the leak detection system under subparagraph a the owner, operator or other responsible party shall have a precision test conducted of the facility to determine whether and where a leak exists. This test shall be conducted by an independent third party. If an initial precision test is either inconclusive or indicates a failure, the owner or operator may recheck the results by re-testing within two weeks of receipt of the initial test results. A copy of all precision test results must be submitted to the commissioner by the facility owner and the tester.

(i) If precision testing indicates a leak (2 test failures or a single uncontested test failure), the owner, operator or other responsible party shall abandon, repair or replace facility components in accordance with appropriate sections of this rule and initiate a site assessment in accordance with paragraph 1(c) below and undertake corrective actions as specified in subsection C below. In addition, the owner or operator of a motor fuel facility shall also comply with the replacement procedures outlined below in paragraph (d) of this section.

(ii) If results from a commissioner-approved and properly conducted precision test of the facility conclusively indicates that a leak does not exist, and if no environmental contamination or other physical evidence is the basis for suspecting a leak or discharge, further investigation is not required. The commissioner may, however, require additional precision testing or an in-situ site assessment in accordance with paragraph (c) below for environmental contamination by oil if initial precision tests are inconclusive or improperly conducted.

(iii)The facility owner, operator or other responsible party shall conduct a site assessment as described below in sub-paragraph c of this section if precision test results do not indicate a leak exists but evidence of

environmental contamination or other physical evidence is the basis for suspecting a leak.

(c) Site assessment.

(i) The objectives of the site assessment are as follows:

(a) Determine the presence or absence of a leak or oil discharge where contamination is most likely to be present on the facility site;

(b) Identify the presence of free product and soils contaminated above the notification levels in Appendix P of this rule;

(c) Determine the degree of a threat to ground water quality; and

(d) Consider the nature of the oils stored at a facility, the cause for suspecting a leak or discharge, the type of backfill and soils, the depth of ground water, the depth of bedrock, and other factors appropriate for identifying the presence and source of a leak or other discharge.

(ii) The site assessment must be conducted in accordance with procedures outlined in Appendix P of this rule. To verify the presence or absence of a leak or oil discharge at an operating facility in follow-up to the requirements of paragraphs (b)(ii) or (iii) above, in-situ hydrogeological investigation procedures outlined in paragraph 7 of Appendix P must be followed.

(iii) If site assessment results for the excavation zone and other areas of the facility site indicate that a leak, spill or other discharge of oil has occurred, the owner or operator shall properly abandon, repair or replace facility components and begin corrective actions in accordance with subsection C below.

(iv) If the site assessment results for the excavation zone and other areas of the facility site do not indicate a leak, spill or other discharge of oil has occurred, further investigation is not required.

(d) Within 30 working days of discovery of evidence of a possible leak or another time period approved by the commissioner, the owner, operator or other responsible party shall submit a report on the steps taken and the findings of leak investigation and confirmation efforts. The report must include the name, address, and telephone number of the person to contact for more information, and a site assessment report meeting the requirements of Appendix P except that the reporting deadline is as specified above in this subparagraph.

NOTE: 38 M.R.S.A., section 568(6), allows for reimbursement by the department of documented removal costs incurred by a tank owner or operator where a tank or facility was required by the commissioner to be removed or closed upon evidence of a leak or discharge, but later determined by a site assessment or hydrogeological investigation not to be a source of a leak or oil discharge. The facility owner or operator under these circumstances also may apply for economic damages such as loss of income through the 3rd party damage claim process outlined in 38 M.R.S.A., section 569-A.

C. Minimum corrective action requirements

(1) Initial response and abatement measures

(a) Identify and mitigate fire, explosion and vapor hazards to the satisfaction of the commissioner and the local public safety agency having jurisdiction within 24 hours of discovery of a leak or discharge or another time period approved by the commissioner.

(b) Take immediate action to prevent any further discharge of oil from the facility to the environment within 24 hours of discovery of leak or discharge, or another time period approved by the commissioner. This includes ceasing use and removing from those tanks and associated piping suspected or tested to be leaking as much oil as necessary to entirely stop the discharge. All tanks and piping shall be abandoned in accordance with section 11.

(c) Remove the tanks and associated piping as soon as possible in accordance with section 11 of this rule except that compliance with the waiting period between notification and abandonment is hereby waived.

(d) Prevent further migration of oil into surrounding soils and ground water and surface water, including the removal of any free product in the vicinity of the tanks and piping or other source of leak or discharge. Recovery of free product shall be initiated immediately upon discovery and followed by submission of a free product abatement plan, meeting the requirements of paragraph 2 of this subsection, minimum corrective actions.

(e) Continue to monitor and mitigate any additional fire and safety hazards posed by vapors or free product that has migrated from the excavation zone and entered into structures, sewers and utility conduits.

(f) Soil remediation. Remediate all oil saturated soils and all soils contaminated above an action level established by the commissioner on a

case by case basis, and measured by laboratory analyses and using the field headspace vapor measurement technique described in Appendix Q or another field analytical technique at least as accurate and sensitive approved by the commissioner. Prior to the filling of any tank or piping excavation, an adequate number of soil samples must be collected for laboratory analysis to determine whether additional soil remediation is required by the commissioner. A minimum of 2 such samples must be collected at a minimum-from soils to be analyzed by the field headspace technique and to bracket the range of hydrocarbon concentrations found in the field, and analyzed in a laboratory. Acceptable laboratory methods and performance standards to be used to analyze soil samples are found in Appendix S. In cases involving low risks of public exposure or of damage to important ground water resources, the commissioner may approve an exception to the soil sample testing requirements above. To expedite remediation decisions in such cases, the commissioner may rely solely on approved field analytical methods and test data in making soil remediation decisions without laboratory confirmation analyses.

(g) Soil treatment. The method and location of contaminated soil treatment or processing (in-situ or above ground) must be approved by the commissioner and, if to be treated off the facility site, must comply with applicable regulations administered by the department.

(h) Soil disposal. Oil contaminated soils may be disposed at a Maine landfill that is specifically licensed by or otherwise has been approved by the commissioner or department for such disposal or treatment. This paragraph does not preclude disposal at a properly licensed out of state disposal or treatment facility.

(i) Sampling water supply wells. The closest water supply wells to the facility, private or public, located at or surrounding the facility in all directions and within 1000 feet of the facility must be sampled and analyzed for gasoline, heating oil, diesel fuel hydrocarbons, benzene or MTBE as required by the commissioner. When wells are found contaminated, sampling must continue to the next furthest well(s) in the same general direction from the facility until it is certain all water supplies contaminated by a leak or discharge are identified. The commissioner may require other water supplies suspected to be contaminated also to be sampled as well as additional chemical analyses, as site conditions warrant. The owners of all wells sampled shall be provided with a copy and explanation of the results within seven days. If a public drinking water supply is found to be contaminated, the Bureau of Health in the Maine Department of Human Services must be notified within 24 hours of discovery. Water samples must be analyzed in accordance with the requirements of Appendix S.

(j) Treatment of contaminated private water supply wells. Owners of private water supplies found to be contaminated shall be offered and provided with point-of-entry (POE) water treatment within 15 days of the discovery of contamination. Such treatment shall reliably reduce the level of contamination below primary drinking water standards and Maine Bureau of Health maximum exposure guidelines. For water supplies contaminated with gasoline or heating oil below 1 ppm or MTBE below 100 ppb, two granulated activated charcoal filters of adequate volume, installed in series may be used. Contamination above these levels requires treatment by aeration. Other point-of-entry treatment systems may be used when demonstrated to be effective and reliable in reducing oil contamination and approved by the commissioner. If treatment does not reduce contamination levels below required health standards, the commissioner may require different or additional interim remedial measures to avoid human exposure to oil contaminants or other contaminants present due to the oil contamination.

(k) Treatment of contaminated public water supplies. The commissioner may require contaminated public water supply wells to be provided by the owner, operator or other responsible party with treatment adequate to reduce oil concentrations and other contaminant concentrations below primary drinking water standards and Maine Bureau of Health maximum exposure guidelines. The treatment system must be designed by a professional engineer registered in Maine or working in conformance with Maine professional regulation statutes and rules, and be approved by the commissioner, the Maine Bureau of Health and the public water supply owner.

(l) Water supply monitoring requirements

(i) Affected water supplies must be monitored by sampling once every 3 months before, between and after treatment devices for as long as the system is operating. Water shall be analyzed for total gasoline and benzene, total heating oil, diesel oil or other applicable parameters as required by the commissioner. Water supply sampling and analyses must be conducted in accordance with Appendix S.

(ii) Water supplies found to be contaminated with oil below established health standards must be monitored every 3 months for total gasoline hydrocarbons and benzene, total heating oil hydrocarbons or other applicable parameters required by the commissioner. Water supplies located in close proximity to and adjoining to contaminated ones must, along with other wells deemed by the commissioner to be at significant risk of contamination, also be monitored in accordance with the above requirements.

(iii) Monitoring of contaminated water supplies and supplies deemed at significant risk of contamination must continue until either use of the supply is discontinued, four (4) consecutive quarterly monitoring results do not detect contamination by oil or its components, or monitoring is suspended by the commissioner because in his judgment it is no longer needed.

(iv) Monitoring results must be provided to the commissioner and the water supply owner within 7 days of receipt.

(m) Point-of-entry treatment devices must be maintained in proper operating condition until completion to commissioner satisfaction of a potable replacement drinking water supply or the completion of long-term correction actions and settlement of third party damage claims.

(n) Within 30 days after confirmation of a leak or other discharge of oil, the owner, operator or other responsible party shall submit a written report to the commissioner summarizing the initial response and abatement measures taken, their effectiveness, any resulting data or laboratory analyses, documentation that affected parties and the Maine Bureau of Health have been properly notified and the need for hydrogeological characterization and investigation of the extent of contamination, or for additional abatement measures.

(o) Upon consideration of the level and type of contamination, the sensitivity of the geological setting of the facility, the presence of possible receptors, and proximity to important ground water or surface water resources; the commissioner may require an hydrogeological investigation in accordance with paragraph 4 below as well as additional initial abatement measures.

(2) Free product recovery. Free oil product must be recovered or removed to the satisfaction of the commissioner at all sites where found. A free product abatement plan shall be submitted for the review and prior approval of the commissioner. The free product abatement plan must be submitted within 30 days of discovering free product or another time period approved by the commissioner. Such a plan must include, at a minimum:

(a) Methods for product control. Control of free product migration and the removal or recovery of all free product that is technically feasible shall be the minimum objectives of any abatement plan. Free product removal or recovery must be conducted in a manner that minimizes the spread of contamination into previously uncontaminated zones using techniques appropriate to the hydrogeological conditions of the site, and that properly treats, discharges or disposes of recovery byproducts.

(b) Methods to handle any flammable products in a safe and competent manner to prevent fires or explosions.

(c) The name of the person(s) responsible for implementing free product removal or recovery procedures.

(d) The estimated quantity, type and thickness of free product observed or measured in wells, bore holes and excavations.

(e) The location of any discharge of dissolved phase oil contaminated water. Any discharge of free oil product or a free product and water emulsion is prohibited.

(f) The type of treatment to be applied to and the effluent quality expected from any discharge.

(g) The disposition and handling of recovered free product.

(h) If removal is to include soil gas venting, the quality and quantity of expected air emissions.

(3) Hydrogeological investigation of the extent of contamination.

(a) The objectives of the initial hydrogeological investigation are to characterize the geology of the facility and the surrounding area, to determine the concentration and extent of soil and ground water contamination, to determine the direction and rate of contamination movement, to identify what resources and receptors are at significant risk of contamination and to determine the need for and the objectives of long-term corrective actions. The initial hydrogeological investigation study must cover the facility site and those areas known or suspected to be contaminated by oil.

(b) The following existing data, where available, must be compiled and reviewed:

(i) Soils maps;

(ii) Aerial photographs;

(iii) Well logs for all contaminated wells and wells on properties abutting a parcel with a contaminated well and all other wells within 500 feet of the facility;

(iv) A property tax map or other base map at a scale of 1"=500' or less showing existing structures, property ownership, surrounding land

uses, rights-of-way, roads, existing underground utilities and public and private water supply wells that are contaminated, on a land parcel abutting a parcel with a contaminated well or within 1000 feet of the facility;

(v) Surface water bodies, including intermittent streams, wetlands and flood plains;

(vi) Regional bedrock geology; and

(vii) Surficial geology.

(c) Fracture trace analysis. Conduct a fracture trace analysis if contamination of ground water in the bedrock is documented or likely. The analysis must include measurement of fractures observed in bedrock outcrops and on aerial photographs, on a site plan, a U.S. Geological Survey quadrangle, a rose diagram or a polar plot. The relationship between observed fracture patterns to well yields and contamination movement must be determined. A summary and analysis of available published studies of bedrock fractures relevant to the investigation site also must be provided.

(d) Develop ground water and contamination contour maps of the facility using existing wells, where available and at least 4 ground water monitoring wells located in the surrounding impacted area, one of which must be located upgradient (dry wells do not count toward the 4-well minimum). The maps must include the surveyed location of ground water monitoring wells, ground water elevations (measured to the nearest one hundredth of a foot), ground water contours, contamination levels and contours, current and past locations of tanks and piping, location of subsurface waste disposal system and any dry wells, and the locations of sewer and any other underground utility lines.

(e) The following minimum data must be collected and logged during the boring of ground water monitoring wells:

(i) Soil and subsoil conditions and types (described using the unified soil classification system);

(ii) Presence and depth of confining strata;

(iii) Presence, depth of free oil products;

(iv) Depth of water table;

(v) Presence and depth of bedrock; and

(vi) Continuous split spoon logging screening for oil contaminated soils above the water table with a flame or photo ionization field sampling instrument, using the methodology outlined in Appendix Q or another technique of comparable precision and reliability approved by the commissioner.

(f) Water quality sampling and analyses requirements are:

(i) Each well must be properly developed and allowed to stabilize prior to sampling;

(ii) Samples must be collected in accordance with the department "Ground Water Sampling Manual for Underground Tank Sites" or by another collection method approved by the commissioner;

(iii) Samples must be analyzed in a laboratory at a minimum for gasoline or diesel range organics, as appropriate, or by another comprehensive hydrocarbon laboratory method approved by the commissioner;

(iv) Whenever gasoline contamination is suspected, sample analyses must include methyl tertiary butyl ether (MTBE) and benzene;

(v) Other chemical analyses may be required by the commissioner where needed to assess the extent of and the public health risk of contamination;

(vi) Laboratory analysis of water samples must be conducted in accordance with the requirements of Appendix S; and

(vii) At least 2 complete rounds of sampling are required from all monitoring points, including surrounding water supply wells, at least one month apart.

(g) Nearby surface water bodies likely to be affected must be sampled for oil contamination.

(h) Within 90 days of a commissioner request to perform a hydrogeological investigation, or another time period approved by the commissioner, the owner, operator or other responsible parties shall submit a report of the findings and conclusions of the initial hydrogeological investigation to the commissioner for review and approval. The following data, results and conclusions must be included in the report:

(i) Data and sample collection and analysis methods used;

(ii) Hydrogeological site description addressing the general geological setting of the site, potential and present contamination hazards, bedrock and overburden interconnection, extent and location of ground water and soil contamination, the direction and rate of contamination migration, ground water and surface water resources at risk of contamination, identification of water supply wells contaminated or at imminent risk of contamination, and identification of receptors at risk of hydrocarbon vapor problems;

(iii) Soil, ground water and surface water quality data, including all field and laboratory data, and the relationship of measured contaminant levels to State of Maine and federal allowable contaminant standards or guidelines;

(iv) Minimum data and findings to be presented in tables, figures or appendices:

(a) Detailed site/locus map;

(b) Sufficient geologic maps or cross sections to illustrate the site's geological setting;

(c) Ground water contour map;

(d) Map of bedrock fractures and lineaments;

(e) Geophysical survey map, if any;

(f) Table or map showing water quality sampling results;

(g) Soil sampling results;

(h) Boring logs and well installation details; and

(i) All testing laboratory reports and results.

(v) Recommendations addressing the need and objectives for additional hydrogeological investigation or monitoring, and the need for additional immediate abatement measures and/or corrective actions for long-term remediation of oil discharges;

(vi) Upon review of the initial hydrogeological investigation study report, the commissioner may require the owner, operator or other responsible party to undertake further investigations to determine the need and feasibility of long-term corrective actions, or the commissioner may

require responsible parties to undertake long-term corrective action in accordance with paragraph D below of this section.

D. Long-term corrective actions may be required to provide replacement potable drinking water, to mitigate the risk of contamination to private and public drinking water supplies or important ground water or surface water resources, to prevent human exposure to petroleum vapors, to control fire and explosion hazards, to protect or restore important biological resources, and to otherwise protect the public health, safety and the environment. Because of the site specific needs and objectives of long-term corrective actions, the owner, operator or other responsible party may be required by the commissioner to submit for approval a long-term corrective action plan. The schedule for submitting, the format, additional information needs, the overall contents and the objectives of the long-term corrective action plan will be determined by the commissioner on a site by site basis.

E. Public information and participation requirements

(1) At the time of submission to the commissioner, copies of the leak investigation and confirmation report, the initial response and abatement report, the free product abatement plan, the initial hydrogeological investigation report and the long-term corrective action plan must be sent by certified mail by the owner, operator or other responsible party to the chief municipal officer with jurisdiction or the county commissioners if in an unorganized township, who are responsible for ensuring these documents are available to the public for inspection at the municipal or county offices. The leak investigation and confirmation report and free product abatement plan also must be provided to the local fire chief with jurisdiction.

(2) The owner, operator or other responsible party shall provide a copy of the leak investigation and confirmation report by certified mail to owners of land parcels abutting the facility and to holders of an easement or a right-of-way for an underground utility conduit on the facility or along a public or private road abutting the facility.

(3) Prior to approving a long-term corrective action plan, the commissioner may hold a public meeting to inform and to solicit comments from impacted residents, abutting landowners and local officials. The commissioner shall provide written notice 7 days in advance of such a meeting to affected parties, including at a minimum impacted residents and the chief municipal officer, and the responsible parties, if known. When a long-term corrective action effort is to be terminated prior to meeting the objectives of the long-term corrective action plan, the commissioner shall provide written notice by certified mail to the chief municipal officer with jurisdiction or the county commissioners if an unorganized township, and to residents who have suffered oil contamination.

F. When technically feasible and cost effective, the commissioner may require ground water sample location and quality data to be submitted in an electronic form compatible with the Maine Geographic Information System and Ground Water Database. The format shall be provided by the commissioner.

G. Nothing in this section limits department authority or discretion under 38 M.R.S.A. section 568 to order or undertake immediate remedial or corrective action at sites where evidence of contamination by oil is present.

13. Severability. If any provision of this rule is declared invalid or ineffective by a court decision, the decision does not invalidate any other provision of this rule.

Appendix A: Requirements for Cathodic Protection Monitoring

1. For Galvanic Cathodic Protection Systems:

A. All measurements must be made by placing a saturated copper/copper sulfate reference electrode in direct contact with the soil electrolyte.

B. The copper/copper sulfate electrode must be placed over the center line of each tank and within 1 foot of each piping run. For single-walled tanks a minimum of three (3) measurements are to be made over the center line of each tank, one at each end and one at the tank's midpoint. For double-walled tanks, a minimum of one voltage measurement over each tank's midpoint is required.

C. All measurements must be recorded using a direct current voltage measuring device with a minimum of 10 megohms input impedance, accurate to at least + 1% at 1 volt.

D. A measurement of at least negative 0.85 volts must be recorded for each test location and each metallic facility component, including tanks piping, and connectors that are cathodically protected.

E. The tank owner shall maintain, repair or replace the system in accordance with the recommendations of the National Association of Corrosion Engineers, Recommended Practices 0285-2002 whenever the system does not register a negative voltage reading of at least 0.85 volts for each tank or piping run, except as provided for in paragraph G, below.

F. The frequency of cathodic protection monitoring must be consistent with the requirements outlined in section 5(D)(4) and (5).

G. When a negative voltage of at least 0.85 volts is not achieved upon installation, the measurement must be repeated within 6 months. Upon failing to achieve a negative voltage of at least 0.85 volts after the 6-month period, the tank owner shall comply with paragraph E, above.

2. For Impressed Current or Galvanic Cathodic Protection Systems

Test methods and criteria as described in the National Association of Corrosion Engineers TM 0101-2001, Measurement Techniques Related to Criteria for Cathodic Protection on Underground or Submerged Metallic Tank Systems, or TM 0497-2002, Measurement Techniques Related to Criteria for Cathodic Protection on Underground or Submerged Metallic Piping Systems, are to be used to monitor impressed current systems. These methods for testing galvanic systems may be used with prior written approval of the commissioner.

NOTE: Structure to soil potentials measured when the soil is frozen may be inaccurate because of the increased resistance of the soil electrolyte. Cathodic protection monitoring schedules should be planned to avoid frozen soil conditions.

Appendix B: Requirements for Tank and Piping Line Tightness Tests

1. Volumetric tank tightness test requirements:

A. For all tanks without overfill and spill prevention equipment installed in accordance with section 5(B)(3) or 6(B)(3) and properly operating, all tests must be conducted by overfilling the tank at least to grade level. For tanks with operating overfill and spill prevention equipment meeting the requirements of this rule, tests may be conducted if the tank is at least 60 percent full, provided the test is in accordance with manufacturer protocols and with any limitations determined by independent testing in accordance with U.S. Environmental Protection Agency approved protocols, or other protocols approved by a nationally recognized independent testing organization, including but not limited to the ASTM and the National Work Group on Leak Detection Evaluations.

B. All tests must take into consideration all variables which, may affect the determination of a leak rate, including, but not limited to, temperature, pressure, external water table elevation, vapor pockets and tank end deformation.

C. External water table elevation must be verified via a tank area monitoring well at time of testing for each tank location.

D. All tests must be performed in strict conformity to allof the testing equipment manufacturer's operating procedures, and the following standard protocols:

(1) Tests must not be conducted during a fluctuating ground water table;

(2) Height-to-volume conversion factors must be measured rather than calculated;

(3) The test must be conducted under nearly constant hydrostatic pressure; and

(4) If the tank is less than 95% full during the volumetric test then the ullage space must also be tested using an appropriate tank tightness test method.

2. Other tank tightness tests requirements:

A. All other tank tightness tests must be performed in strict conformity to the manufacturer's protocols as used in the method's independent performance testing.

B. The groundwater elevation must be measured at the time of testing via an observation well.

3. Piping line tightness test requirements:

A. All pressurized product piping tests must be performed at 150% operating pressure**,** or if performed at a lower pressure, it must be able to obtain a leak rate equivalent or smaller than that determined by the piping test method's independent performance testing in accordance with U.S. Environmental Protection Agency approved protocols.

B. All tests must be performed in strict conformity to all of the testing equipment manufacturer's standard operating procedures. In addition, the test must be run a minimum of one hour.

4. Other requirements:

A. All testing technicians shall be certified by the manufacturer of the testing equipment.

B. All test results must include the following information in order to be accepted by the commissioner:

(1) Facility name, address, registration and tank number, and the product stored;

(2) Whether the facility components tested passed or failed, and the measured leak rate;

(3) The method's threshold for declaring a leak; and

(4) Certification that the test method has been performed according to the manufacturer's protocols used in the third party evaluation.

C. Written test results must be submitted to the commissioner by the facility owner and the tester when conducted to verify evidence of a possible leak. Routine annual precision tests conducted to meet the requirements of section 5(C)(2)(a) of this rule need only to be submitted by the facility owner.

Appendix C: Requirements for Pneumatic (Air) and Other Pre-installation Tightness Testing

For Piping And Tanks:

1. Air pressure testing of tanks and piping shall only be performed on new, empty tanks and piping, which have never contained product, and the manufacturer has not specified an alternate means of tightness testing.

2. When conducting an air pressure test on metallic tanks or piping, all external joints, seams and connections shall be soaped.

3. The test shall be maintained for a minimum of 1 hour, and all soaped areas shall be visually inspected for bubbles or any other indication of a leak.

4. Any loss of pressure or appearance of bubbles shall constitute failure of the test.

Piping:

5. Underground piping shall be physically isolated from the tank prior to the test.

6. Underground primary piping shall be air tested to 150% of the maximum anticipated pressure of the system, but not less than fifty (50) pounds per square inch (psi) gauge at the highest point of the system.

7. Underground secondary piping must be tightness tested before being backfilled in accordance with manufacturers' instructions.

Tanks:

8. Tanks shall be tested before being covered, enclosed or placed in service.

9. Primary tanks must be air tested at not less than three (3) pounds per square inch (psi) and not more than five (5) pounds per square inch (psi) gauge. Gauges used during air testing of tanks must have a maximum limit of 10-15 pounds per square inch (psi).

10. The interstial space of double-walled tanks must be tightness tested following the manufacturer's instructions.

Appendix D: Installation Requirements Applicable to New and Replacement Tanks

1. All new and replacement tanks and associated leak detection and overfill and spill prevention equipment must be installed in accordance with manufacturer's instructions and the following nationally accepted codes of practice: American Petroleum Institute Publication 1615, "Installation of Underground Petroleum Storage Systems"; Petroleum Equipment Institute (PEI) Publication RP 100-2000, "Recommended Practices for Installation of Underground Liquid Storage Systems"; and National Fire Protection Association Code 30, 30A or 31.

   NOTE: Tank installation instructions may require specific sized pea stone or gravel. Instructions also may specify mechanical compaction or layered placement of bedding and backfill. Always consult the installation instructions provided by the manufacturer, prior to installation.

2. Cathodically protected steel tanks must be set on a firm base and surrounded on all sides with at least 12 inches of noncorrosive inert material, such as clean sand, pea stone, or gravel, well tamped in place. The tanks must be placed in the hole with care, making sure not to scrape the protective coating off coated tanks, or damage attached cathodic protection components. Cathodic protection systems require electrical wiring connected to the tank at each end and at its centerline, and accessible for voltage readings at the ground surface as well as three (3) locations along the centerline of the tank to place a reference electrode in contact with the soil.

3. Cathodically protected steel underground tanks must be covered with a minimum of 2 feet of sand, pea stone or gravel, or with not less than 1 foot of sand on top of which is placed a slab of reinforced concrete not less than 4 inches thick. This fill must be free of debris, boulders, large rocks or other materials that may cause abrasions to the protective coating of the tank. When tanks are, or are likely to be, subjected to traffic, they must be protected from damage from vehicles passing over them by at least 3 feet of backfill or, 18 inches of well-tamped backfill plus 6 inches of reinforced concrete or 8 inches of asphalt paving. When asphalt or reinforced concrete paving is used as part of the protection, it must extend at least 1 foot horizontally beyond the perimeter of the tank in all directions.

4. All cathodically protected steel and nonmetallic fiberglass tanks must be installed in accordance with manufacturer instructions. The minimum depth of cover is as specified in section 3 above.

5. New underground tanks must be tested for tightness before being covered or placed in use by a test method approved by the manufacturer. If a pneumatic test is conducted, it should be done in conformance with the requirements of Appendix C.

NOTE: Air pressure testing when petroleum vapors are present in the tank may result in explosion, and shall not be conducted after petroleum product has been placed in the tank.

6. All temporary supports must be removed prior to final backfilling.

7. All electrical wiring must be performed in accordance with the current State of Maine electrical code.

8. Anchoring is required when a tank is installed in an area where groundwater will be in contact with the tank or in a 100 year flood plain as mapped by the Federal Emergency Management Agency (FEMA), or if such mapping is unavailable, as determined by the flood of record or by the presence of flood plain soils. When anchoring tanks equipped with cathodic protection, the hold downs must be electrically isolated from the tank. Anchoring of all tanks must be performed in accordance with the tank manufacturer's specification or PEI Publication RP 100-2000.

NOTE: FEMA flood plain maps are available for inspection at most municipal offices.

Appendix E: Installation Requirements for New and Replacement Piping

1. All new and replacement piping, sumps and associated leak detection must be installed in accordance with the manufacturer's instructions and the following nationally accepted codes of practice: American Petroleum Institute Publication 1615, "Installation of Underground Petroleum Storage Systems", Petroleum Equipment Institute (PEI) Publication RP 100-2000, "Recommended Practices for Installation of Underground Liquid Storage Systems", STI Standard R 892, and NFPA 30, 30A and 31.

2. Before underground piping is installed, the trench must receive as a minimum a 6-inch deep bed of well compacted noncorrosive material such as clean sand, pea stone or gravel. All trenches must be wide enough to permit at least 6 inches of noncorrosive backfill material around all lines.

3. Prior to being covered or placed in service, all new and replacement piping must be tested for tightness by a method approved by the manufacturer. Air pressure tests are to be conducted in accordance with the requirements of Appendix C, and hydrostatic tests must be conducted in accordance with the requirements of Appendix B.

4. All temporary supports must be removed prior to final backfilling.

5. All vent piping for storage of Class I liquids must extend at least 12 feet above the ground surface and be positioned such that vapors will not pose a hazardous condition.

6. Fill piping for storage of Class I liquids must be set back from any building opening in accordance with National Fire Protection Association Codes 30, 30A or 31.

7. Product supply lines used in conjunction with pressurized pumping systems must be installed with a product line leak detection device. All leak detection devices must be tested for proper operation before the remote pumping system is used after initial installation and once annually thereafter. All leak detectors must be capable of detecting a leak at a rate of at least 3 gallons per hour at a line pressure of 10 psi within one hour of occurrence with a 95 percent probability of detection and a 5 percent probability of false alarm.

8. A crash valve must be installed under dispensers of pressurized pumping systems in accordance with the National Fire Protection Code 30A.

9. Conventional suction systems must have no more than one check valve per pump. The check valve must be located as close to the pump as possible, such that any leaks in the line will result in a return of product to the tank. Supply and return piping for a facility storing oil for an emergency standby generator are exempt from this

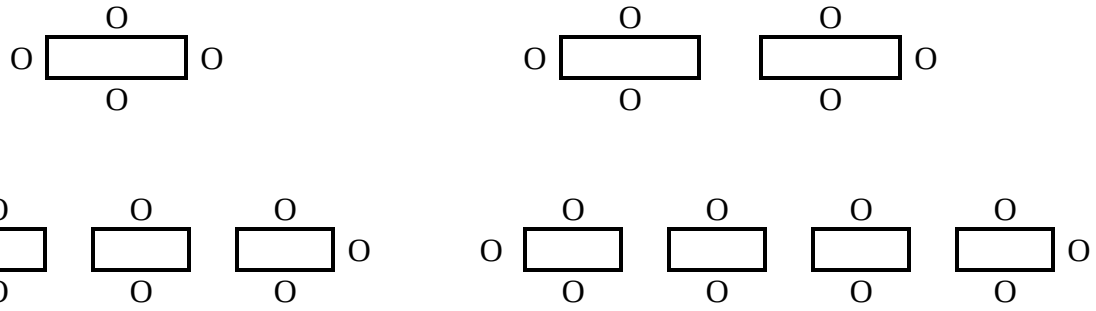
requirement if secondary containment with continuous interstitial space monitoring is provided in accordance with section 5(B)(2) of this rule.

10. When the product dispenser of a motor fuel facility is at a lower elevation than all or a portion of the tank height, an anti-siphon ("normally closed") valve must be installed as close as physically possible to the start of the down-gradient run of the product piping in order to prevent the loss of the tank contents in the event of a piping leak.

Appendix F: Specifications and Requirements for Vertical Ground Water Monitoring Wells at Existing Facilities

These requirements only apply to existing facilities, fully installed as of April 19, 1990.

1. Sufficient number of vertical ground water monitoring wells must be installed to detect a leak from every tank by including a minimum of four monitoring wells for each tank or where more than one tank is installed in the same continuous excavation, the minimum number of monitoring wells shall be installed as diagrammed below:



When more than one tank is installed in a continuous excavation hole, alternate numbers and positioning of ground water monitoring wells may be used when determined by a Maine registered professional engineer or Maine certified geologist as capable of detecting a leak or discharge from every tank and meeting the performance and installation requirements of section 5(C) of this rule. Such an alternate ground water monitoring plan must be certified by a Maine registered professional engineer or Maine certified geologist, and submitted to the commissioner as part of the facility's registration materials.

2. Monitoring wells must be a minimum of 2 inches in diameter.

3. The slotted zone must extend at least 5 feet into the water table and at least 5 feet above the groundwater surface, as determined at the time of installation; or when installed within a secondary containment liner, the slotted zone must extend to within 6 inches of the low point of the liner.

4. The screened portion of the well must be a minimum of 10 feet in length and must be factory slotted with a slot size of .010 inch.

5. Monitoring wells must be installed with a cap at the bottom of the slotted section of the well.

6. Monitoring wells must not be constructed of schedule 20 PVC "sewer" or leach field piping.

7. Monitoring wells must be constructed of flush joint, threaded schedule 40 PVC or other materials and designs approved by the commissioner.

8. Monitoring wells must be numbered such that all monitoring and testing results are easily correlated to a specific monitoring well location.

9. All monitoring wells must be equipped with liquid-proof lockable caps.

10. Monitoring wells must be properly distinguished from fill pipes.

11. The area around the screened portion of the well shall be surrounded by a porous medium (e.g. sand, gravel or pea stone).

12. The outside of the monitoring wells risers must be sealed using bentonite or a similar product to a depth of 1 1/2 feet below ground surface.

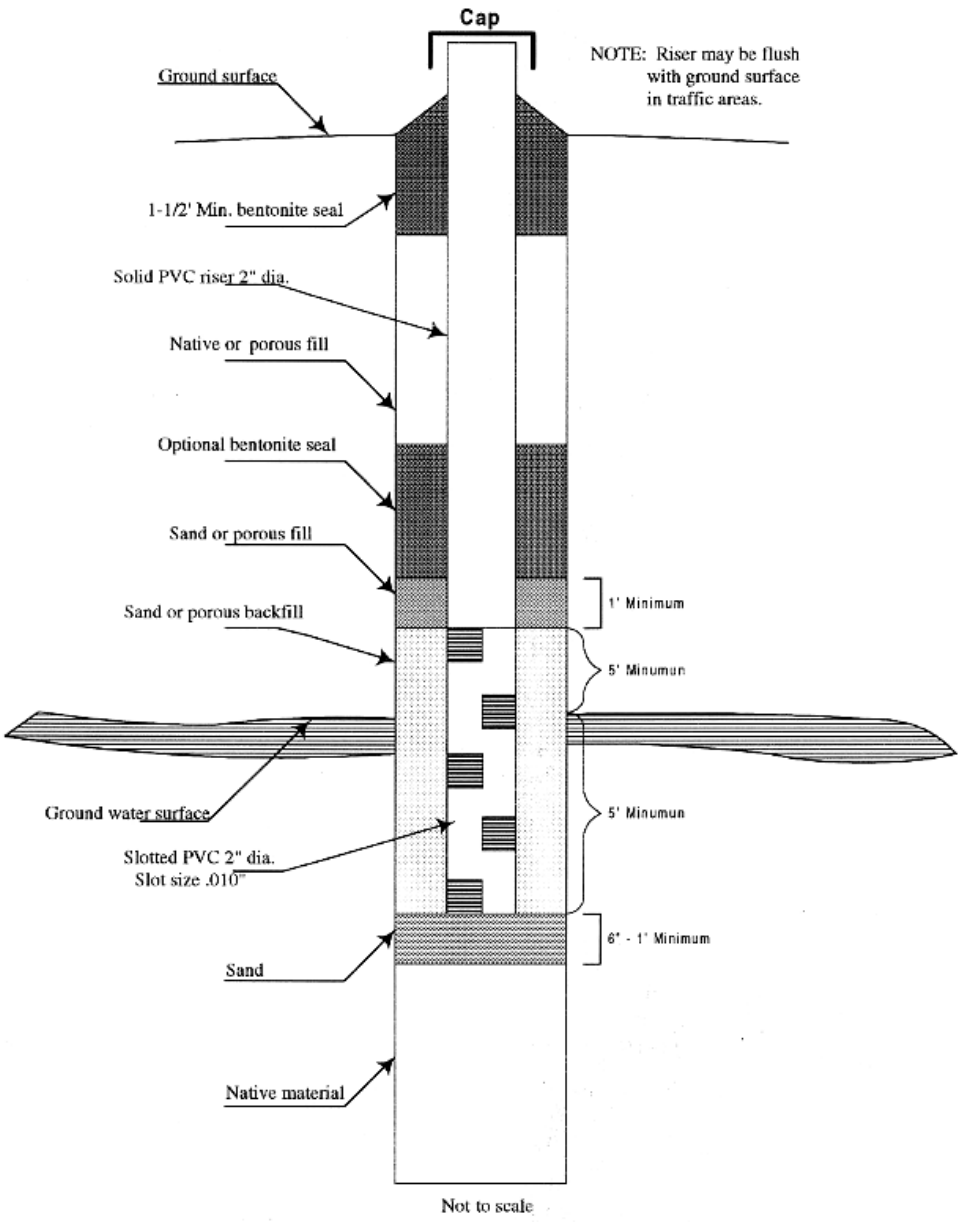
13. Monitoring wells located in traffic areas must be cut off at ground level, clearly marked, and fitted with a limited access cover in accordance with PEI Publication RP 100-2000 or properly protected from vehicles.

14. Any damaged monitoring well must be repaired or replaced as soon as possible after discovery of the damage, but at least within 45 days.

FOR INSTALLATION IN A TANK EXCAVATION

FIGURE I

VERTICAL MONITORING WELL



Appendix G: Specifications and Requirements for Monitoring Wells with Impervious Barriers

1. Monitoring wells must be constructed in conjunction with an impermeable membrane, impervious structure or other approved device that is resistant to hydrocarbons, sloped to a sump such that all leaks or discharges will be detected in a product monitoring device (see Figure 2).

2. The impermeable barrier must slope to a 24 inch deep sump, at a slope of 1/4 inch per foot.

3. The impermeable barrier must extend 18 inches beyond each side of the tank(s).

4. The impermeable barrier must run under the entire length of the tank being monitored.

5. The barrier must be placed under the bedding material and shall not be in direct contact with the tank.

6. Monitoring wells must be constructed in accordance with the specifications and requirements of Appendix F, except that the well must be placed in the sump as illustrated in Figure 2.

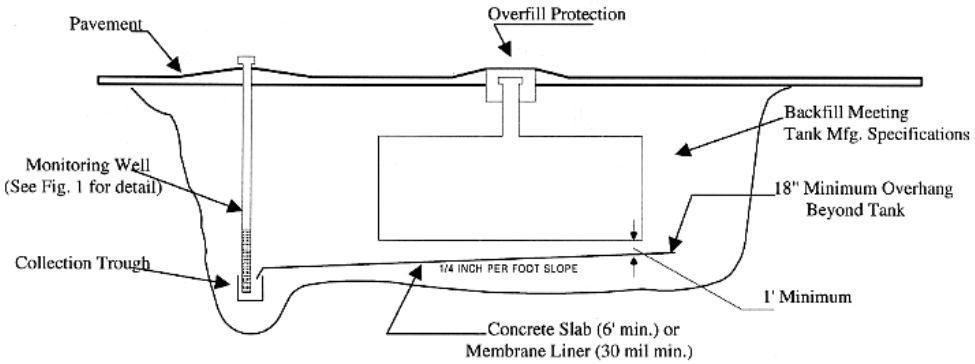
7. Any damaged or non-functioning monitoring well must be repaired or replaced as soon as possible after discovery of the damage, but at least within 45 days.

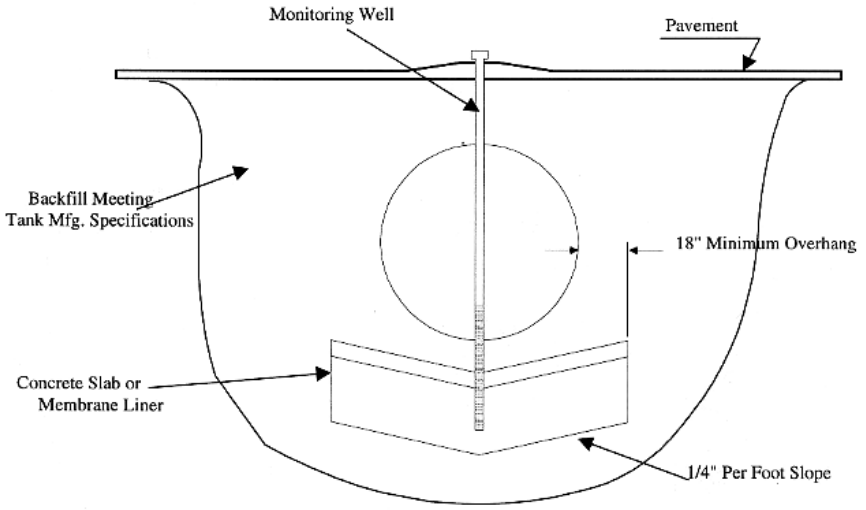
8. In locations where the seasonal high ground water table elevation is above that of the barrier, the combination of an impervious barrier and monitoring well does not qualify as leak detection under section 5(B) of this rule.

FIGURE 2.

MONITORING WELL AND IMPERMEABLE LINER

FIG. 2 MONITORING WELL AND IMPERMEABLE LINER





NOTES:

- DRAWINGS NOT TO SCALE
- FOR USE WHERE WATER TABLE IS AT LEAST 15' BELOW GRADE AND FOR INSTALLATIONS OVER BEDROCK
- OTHER CONFIGURATIONS MEETING APPENDIX G PERFORMANCE STANDARDS MAY BE ACCEPTABLE

Appendix H: Procedures for Weekly Monitoring, Handling, and Obtaining Samples for Laboratory Analysis

These procedures are specifically for manual sampling of ground water monitoring wells used as leak detection to meet the requirements of section 5(D)(14) of this rule.

NOTE: Due to the extreme sensitivity of laboratory analytical equipment, it is very important that all bailers, pumps and sample vials be kept clean. A contaminated pump or bailer may cross-contaminate monitoring wells or falsely indicate the presence of hydrocarbons in the ground water. It is also important that the person taking the sample have clean hands free of any grease, oil or gas.

For Weekly Monitoring Perform Steps 1 through 7.

1. All equipment used shall be washed with a detergent soap and triple rinsed with water which is known to be uncontaminated to ensure the device is clean. The individual(s) performing the sampling shall wash their hands thoroughly prior to sampling.

2. Measure and record the distance from the top of the casing to the water surface.

3. Measure and record the distance from the top of the casing to the bottom of the well.

4. After checking for free product using a clear bailer and when the volume of water in the well is sufficient remove several bailer volumes of water.

5. Lower the bailer into the well and remove a sample. Pour the contents of the bailer into a clear container.

6. Inspect the sample for free product or an oily sheen. Smell the sample for olfactory evidence of oil.

7. Record the results in a logbook which, shall be kept at the facility. A sample log sheet is attached in Figure 3.

NOTE: Commercially available pastes, which change color upon contact with hydrocarbons can be spread on a weighted, plastic tape measure or measuring stick and lowered the depth of the well. Pastes are also available which will change color upon contact with water. The use of these pastes are an acceptable method of determining water levels and detecting product in monitoring wells for the purpose of complying with weekly monitoring requirements. The use of an oil/water interface probe is also acceptable.

8. Prior to obtaining samples for laboratory analysis, remove 3 well volumes of water from each well. The water may be removed by bailing or pumping the well. For 2-inch wells, remove about 2.5 gallons of water for every 5 feet of well water.

9. After a sufficient volume of water has entered the well, take a sample for analysis.

10. Samples shall be poured into vials designed for sampling volatile organics. Standard sampling vials are glass, 30-50 milliliters in volume with a Teflon cap. Obtain the sample vials from the lab where the analysis will be performed. Care shall be taken, such that no air bubbles are in the sample vial. Record the sample vial number and the monitoring well number, such that the laboratory analysis may be correlated to a specific well location.

11. Samples shall be securely packed and shipped the same day or in accordance with the protocols for the analysis being conducted. Samples shall be kept cool and not exposed to heat. A record shall be kept of all dates and shipping arrangements. Samples must be analyzed in accordance with the requirements of Appendix S of this rule.

12. For monitoring wells which, are installed with the impervious barrier, which contains less then two (2) feet of water, do not attempt to remove three well volumes of water. It may be necessary to sample the well during or after periods of rain whenever possible.

13. For monitoring wells which, do not have enough water to obtain a sample, measure the depth of the well to insure the well is not filled in or has not collapsed. Using a gauge stick or hard plastic tape, apply paste which, will turn color upon contact with hydrocarbons. Record the results of both measurements for each well in the logbook.

FIGURE 3

SAMPLE WEEKLY MONITORING WELL LOG SHEET

Monitoring Well No.	1	2	3	4	5	6	7	8
1. Date of Sampling								
2. Time of Sampling								
3. Distance from Casing to Ground Water								
4. Distance from Casing to Bottom of Well								
5. Method for Determining Water Levels								
6. Instrument Cleaned (Washed and Triple Rinsed)								
7. Instrument Used (Bailer, Pump, etc.)								

8. Results of Sight and Smell Test								
9. Initials of Person Performing the Sampling								

10. Comments

Appendix I: Sample Daily Inventory Reporting Log

KEEP THIS COMPLETED FORM FOR 3 YEARS

MONTHLY FUEL REPORT/DAILY INVENTORY

Month/Year _____

Facility & Location: _____ Registration Number: _____

Tank Size and Fuel Type: _____ Certified By: _____

Date	Opening Inventory (Book Inventory of Previous Day)	Gallons Pumped	Gallons Delivered	Book Inventory Balance	Closing Stick Inventory	Cumulative Over or <Short>	Inches Water	Initials
Math Check		-	+	=				

Leak Check: Sum of Gallons Pumped (_____) x .01 = _____

IF SUM OF "CUMULATIVE OVER OR SHORT" IS GREATER THAN LEAK CHECK RESULT IT IS CONSIDERED EVIDENCE OF A POSSIBLE LEAK AND YOU MUST NOTIFY DEP AT (207) 287-2651.

Log Sheet #1

Appendix J: Requirements for Abandonment of Underground Oil Storage Tanks by Removal

1. The top of the tank must be exposed.

2. All piping must be drained and flushed into the tank or other suitable container such that no waste water or product is released to the environment (1 or 2 gallons of water should be sufficient to flush piping).

3. All liquid that can be pumped out must be removed, and any liquids that cannot be used for their originally intended purpose must be disposed of in accordance with the department Waste Oil Management Rules, Chapter 860. UL listed explosion proof equipment must be used to remove Class I liquids. Hoses to remove product must be inserted to the low end of the tank which, may still contain product. Flammable vapors from vacuum trucks removing oil from a tank or facility must be vented at least 12 feet above the ground surface, effective September 28, 1991.

4. The fill (drop) tube must be removed. Fill, gauge, and product lines must be disconnected. The open ends of all lines must be capped or plugged. All tank openings that will not be used in the inerting procedure also must be plugged. Only the vent line will remain connected and open until the inerting procedure is complete. The vent line must be at least 12 feet above the ground surface.

NOTE: Due to the potential of waste oil tank explosions, the department strongly recommends treating all waste oil tanks as a Class I liquid tank except where testing shows the internal atmosphere not to be explosive.

5. All tanks that contained Class I liquids must be inerted prior to removing the tank from the ground using one of the following methods:

   (a) The tank can be inerted with dry ice in the amount of 1.5 pounds per 100 gallons of tank capacity. Dry ice shall be crushed and distributed evenly over the greatest possible area. During the inerting process, all necessary precautions to prevent ignition in the entire area shall be taken.

   (b) The tank can be inerted using nitrogen or another inert gas approved by the commissioner, introduced at low pressure at the bottom of the tank. Inerting is considered complete when oxygen levels in the tank are measured at less than 6 percent.

   (c) The tank can be rendered vapor free by air purging in accordance with API 1604. Air purging is considered complete when an explosimeter indicates an atmosphere inside the tank of less than 10 percent of the LEL while an oxygen meter indicates greater than 14 percent oxygen. Air purging using air moving equipment found on a vacuum truck is not allowed.

(d) The tank can be removed if the tank atmosphere is overrich as defined by a reading greater than 15 percent product vapor by volume using a percent product vapor instrument.

NOTE: An explosimeter by itself is not considered a product vapor instrument. If uncertain of an instrument's capability for testing above the Upper Explosive Limit, contact the manufacturer.

(e) The tank can be removed if the tank atmosphere is found to be oxygen deficient as defined by an oxygen reading of less than 6 percent.

During any of the above inerting, purging or removal procedures, all necessary precautions to prevent ignition in the area must be taken, including but not limited to: grounding and bonding of equipment; use of explosion proof or intrinsically safe equipment; ambient air monitoring of the surrounding area; and pedestrian and traffic control. All weather and ambient atmospheric conditions must be evaluated prior to inerting or purging, including but not limited to air exchange, wind direction and humidity. All air monitoring instruments must be calibrated according to the manufacturer's specifications. Measurements with air monitoring instruments must be taken at the following points: one foot from the bottom of the tank; at its lowest end; the middle of the tank's diameter; and at the tank opening.

NOTE: All contaminated soil must be removed or otherwise cleaned up to the satisfaction of the department.

6. All holes, including corrosion holes, must be plugged or capped before the tank is moved from the site, except that one 1/8 inch vent hole must be left to prevent the tank from being subjected to an excessive pressure differential caused by extreme temperature changes.

7. If transported, the tanks must be scraped to remove all loose backfill material adhering to the tank.

8. All tanks removed from the ground, regardless of condition, must be labeled with the following information: Tank Has Contained Leaded Gasoline (or Flammable Liquid) NOT GAS FREE.

NOTE: U. S. Department of Transportation regulations (49 CFR Section 172.500 et seq.) also require tanks which have not been purged but are being transported to be labeled on the ends and sides with a "Flammable" placard with the appropriate UN Number (1203 or 1993) attached.

9. If transported, the tank must be secured on a truck such that the 1/8 inch vent hole is located on the uppermost point on the tank.

10. All piping must be removed from the ground whenever practicable. Piping that cannot be removed must be blown clear of residual product with an inert gas and securely plugged at all ends. All necessary precautions to prevent spillage or ignition in the entire area must be taken.

11. Some tank disposal facilities require that tanks be cleaned of sludge and residues prior to accepting the tank. Any cleaning and temporary storage operations must be performed at a site acceptable to local public safety officials and not on a sensitive geologic area, as defined in section 3 of this rule. Any cleaning operation involving flammable materials or generating flammable vapors must be performed at a remote site where public access can be restricted by fencing or other suitable means 24 hours/day. Tank cleaning may be performed at the site where the tank is removed only with the permission of the local public safety official.

NOTE: If cleaning a tank at the site of its removal, it is recommended that the tank be cleaned while still in its excavation hole, the safest location in the event of an explosion or fire.

12. The only acceptable means of disposal of underground oil storage tanks are: (a) sale to a properly approved junk or scrap dealer; (b) disposal at a tank processing facility meeting the criteria of Appendix L of these rules and approved by the department; (c) use as culverts provided that (i) tanks are steam cleaned prior to use and any resides are properly cleaned and disposed of and (ii) such use will not violate any other laws, regulations, or permits promulgated under federal, state, or local jurisdiction; or (d) other techniques for disposal of tanks, provided the expressed written approval of the department and the State Fire Marshal's office has been obtained.

13. Tanks must be stored with all bung holes open and positioned at a 45 degree angle down from horizontal to prevent rain from entering the tank and to allow vapors to escape.

Appendix K: Requirements for Abandonment of Underground Oil Storage Facilities by Filling in Place

1. Piping must be drained and flushed into the tank.

2. All liquid that can be pumped out, including that liquid requiring a hand pump to remove, must be removed and any liquids that cannot be used for their originally intended purpose must be disposed of in accordance with department Waste Oil Management Rules, Chapter 860. UL approved explosion proof equipment must be used to remove Class I tanks that may still contain product. Flammable vapors from a vacuum truck removing oil from a tank or facility must be vented at least 12 feet above the ground surface, effective September 28, 1991. All sludge will also be removed, handled, stored and disposed of in accordance with Chapter 851 of department hazardous waste rules. Where it can be demonstrated to department satisfaction that a sludge is not a hazardous waste, it may be disposed at a solid waste disposal facility licensed for such wastes.

3. The top of the tank must be exposed.

4. The fill (drop) tube must be removed. Fill, gauge, and product lines must be disconnected. Open ends of all lines, except the vent line, must be capped or plugged.

NOTE: Due to the potential of waste oil tank explosions, the department strongly recommends treating all waste oil tanks as a Class I liquid tank except where testing shows the internal atmosphere not to be explosive.

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5. All tanks that contained Class I liquids must be rendered inert by using one of the following methods:

   (a) The tank can be inerted with dry ice in the amount of 1.5 pounds per 100 gallons of tank capacity. Dry ice shall be crushed and distributed evenly over the greatest possible area. During the inerting process, all necessary precautions to prevent ignition in the entire area must be taken.

   (b) The tank can be inerted using nitrogen or an other inert gas approved by the commissioner, introduced at low pressure at the bottom of the tank. Inerting is considered complete when oxygen levels in the tank are measured at less than 6 percent.

   (c) The tank can be rendered vapor free by air purging in accordance with API 1604. Air purging is considered complete when an explosimeter indicates an atmosphere inside the tank of less than 10 percent of the LEL while an oxygen meter indicates greater than 14 percent oxygen. Air purging using air moving equipment found on a vacuum truck is not allowed.

(d) The tank can be considered inert if the tank atmosphere is found overrich as defined by a reading greater than 15 percent product vapor by volume using a percent product vapor instrument.

NOTE: An explosimeter by itself is not considered a product vapor instrument. If you are uncertain of an instrument's capability for testing above the Upper Explosive Limit (UEL), contact the manufacturer.

(e) The tank can be considered inert if the tank atmosphere is found to be oxygen deficient as defined by an oxygen reading of less than 6 percent.

During any of the above inerting, purging or removal procedures, all necessary precautions to prevent ignition in the entire area shall be taken, including but not limited to: grounding and bonding of equipment; the use of explosion proof or intrinsically safe equipment; ambient air monitoring of the surrounding area; and pedestrian and traffic control. All weather and ambient atmospheric conditions must be evaluated prior to inerting or purging, including, but not limited to, air exchange, wind direction, and high humidity. All air monitoring instruments must be calibrated according to the manufacturer's specifications. Measurements with air monitoring instruments must be taken at the following points: one foot from the bottom of the tank; at its lowest end; the middle of the tank's diameter; and at the tank opening.

6. Vapors from the tank must be vented at least 12 feet above the ground surface.

7. A suitable, solid, inert material must be introduced through the hole in the top of the tank. The following materials are suitable for this purpose:

(a) Sand. Sand that is free of rocks is suitable for filling. It may be poured dry as long as it flows freely. When the tank is nearly full, sand should be washed into the tank with a nominal amount of water and puddled to cause the sand to flow to the tank ends. The use of large amounts of water must be avoided.

(b) Sand and Earth Fill. The tank can be (1) filled with sand to about 80 percent of the calculated capacity, and (2) filled to overflowing for the remaining capacity using a mixture of soil and water in a free-flowing mud.

(c) Cement or mortar.

Appendix L: Requirements for Underground Oil Storage Tank Processing Facilities

1. Applicability.

A. The requirements of this Appendix apply to underground oil storage tank processing facilities where tanks used for the storage of oil and abandoned by removal are cleaned, temporarily stored and processed prior to recycling or re-use of their materials.

B. For the purpose of this appendix, the cleaning operation of a tank processing facility includes those areas and activities where vapors, liquids, solids, sludge, rust, scale and other residues are removed and cleaned from an abandoned underground oil storage tank, including buffers, structures, roads and equipment.

C. For the purpose of this Appendix, the processing operation of a tank processing facility includes those areas and activities where cleaned tanks are cut, crushed, reduced in volume or otherwise modified prior to sale or re-use of their materials.

2. Siting. Underground oil storage tank processing facilities may not be located:

A. On a coastal sand dune, as defined in 38 M.R.S.A., section 480-B(1);

B. On a coastal wetland as defined in 38 M.R.S.A., section 480-B(2);

C. On a freshwater wetland, as defined in 38 M.R.S.A., section 480-B(4);

D. On a flood plain, as defined in Chapter 400 of the department rules;;

NOTE: In most areas of Maine, the flood plains have been mapped by the Federal Emergency Management Agency (FEMA). Maps are available at most municipal offices.

E. Within a public water system's source water protection area as mapped by the Maine Bureau of Health, or a sensitive geological area as defined in section 3(QQ) of this rule;

F. Within 300 feet of a classified body of surface water as defined in Chapter 400 of the department rules; or

G. Within 100 feet of an adjacent property boundary.

NOTE: If the area of a facility, including all operations, temporary storage areas, structures, roads and buffers exceeds 3 acres, the owner also must obtain approval under the Site Location of Development Law, 38 M.R.S.A., sections 481 et seq., and the Maine Waste Management Law, 38 M.R.S.A., sections 1302 et seq.

3. Design

A. The entire facility must be surrounded by a fence or otherwise secured to the commissioner's satisfaction to prevent unauthorized access to the tanks. Signs stating "Caution - Flammable Materials", "No Smoking" and "No Entry of Unauthorized Personnel" must be placed along the fence at intervals no greater than 50 feet.

B. A 25-foot fire protection buffer must be cleared of combustible materials on all sides of the facility. This buffer must be maintained at all times free of all structures, equipment, cleaned tanks and other facility activities. Overhanging branches and vegetation must be cut back to distances safe from fire and explosion. The fire buffer may lie outside the fenced portion of the facility.

NOTE: Graveling the area and removing the vegetation are examples of means that would normally achieve this purpose.

C. The facility must be equipped with fire protection equipment of the size, quantity, type and location directed by local fire officials or by the commissioner. Equipment must be kept operable at all times.

D. The facility must be equipped with a means of communication (such as a telephone or two-way radio) with fire and medical emergency personnel.

E. A contingency plan meeting the requirements of 40 CFR 264.52 must be developed to provide for prompt response to fire and explosion hazards, and for containment and removal of any spilled material. A copy of the contingency plan must be sent to the commissioner and to local public safety officials. A copy must be kept at the facility at all times.

F. Cleaning Operations Design

(1) Any area underlying a cleaning operation must be surrounded by a berm of sufficient height to contain all residues, cleaners and precipitation that may be contaminated by these substances. This area and berm must be underlain by a clay or synthetic liner, which in turn must be completely covered by a firm, continuous working surface (such as concrete) that is compatible with hydrocarbons. The area must be equipped with a collection system which,

contains for removal of all solid and liquid tank residues, cleaners, and all precipitation that may be contaminated by these substances.

(2) A clay liner must be at least two feet thick and must have a permeability no greater than 10^{-7} cm/sec. A synthetic liner must be at least 40 mils thick and must be of a material compatible with all residual tank contents and cleaners. It must be installed in accordance with the manufacturer's specifications. An independent professional engineer or authorized liner manufacturer's representative shall observe the entire installation and testing, and shall certify to the department that the installation, testing and repairs occurred in accordance with the manufacturer's specifications. Either a clay or synthetic liner must extend at least 10 feet in all directions beyond all tanks requiring containment, and must be anchored to the berm in a secure fashion.

(3) The collection sump, tanks, and all equipment must be of adequate size to contain the volumes of tank residues, cleaners, and any contaminated precipitation that will be generated. They must be constructed of materials compatible with the wastes generated.

(4) A tank is deemed clean when:

(a) all loose scale has been removed from the inside of tanks walls;

(b) all solid and liquid residues have been removed from tanks walls; and

(c) the tank has been ventilated by air, steam, or some other means so that its atmosphere does not exceed 10% of the Lower Explosive Limit (LEL).

G. Processing Operations Design

(1) Processing operations areas must be physically isolated from the cleaning operations area such that no flammable or explosive hazards exist in the processing areas due to cleaning operations.

(2) Processing operations areas need not be lined, but must be maintained in a manner so that processing debris (e.g. cuttings, etc.) can be collected and removed.

H. Temporary Storage Area Design

(i) Tanks at a processing facility may be temporarily stored on site for less than 12 months, provided the following conditions are met:

(a) All tanks must be stored in a "chocked" condition to prevent rolling, and must have the top openings (manufactured openings or bungs) open and located at a 45 degree angle from the ground to prevent rainfall from

entering and to facilitate venting. Any corrosion or non-manufactured holes must be plugged.

(b) A 3-foot separation must be maintained between all tanks to allow weekly inspection for leakage and cleanup of spills. Any tanks found to be leaking must be immediately cleaned in accordance with these rules.

(c) Any discharge of oil to soil or groundwater in any unlined portion of the facility must be immediately reported and removed to department satisfaction.

(2) Under no circumstances must a tank be stored or remain at a facility for a period exceeding 1 year from the date of the tanks arrival at the facility.

4. Operation

A. All tanks arriving at a processing facility must be brought immediately into a secured area and inspected. The inspector shall note tank condition (severe corrosion, splits, number & size of holes) and evidence of leaks such as product on outside tank surfaces, or adhering contaminated soil. This information must be recorded in a facility log book.

B. Following inspection, all tanks must be marked conspicuously and permanently with a serial number assigned by the facility, date of receipt and product last stored, if known.

C. Any tanks containing liquids must be pumped dry immediately following inspection. Any pumping or removal of liquids must be conducted in a lined portion of the facility. Any liquid-free tanks may then be brought to a temporary storage area provided they are stored in accordance with Appendix L section 11(H) of this rule.

D. Solid and liquid residues from tank cleaning or processing will be disposed of in compliance with appropriate federal, state and local laws, regulations and ordinances. All residues are presumed to be hazardous waste, requiring disposal under the provisions of the department Hazardous Waste Management Rules, Chapters 850-857, unless testing or other information establishes, in accordance with Chapter 850, that they are not.

NOTE: Sludge and solid wastes found to be non-hazardous are special wastes subject to the requirements of Chapter 405 of departments rules. Liquid petroleum wastes found to be nonhazardous are waste oils subject to the requirements of Chapter 860 of department rules.

E. After tank identification, cleaned tanks must be brought to the processing operation area unless stored in accordance with paragraph C above. Tanks not

cleaned upon arrival must be taken to a cleaning operations area, unless stored in accordance with paragraph C above.

F. The facility must maintain a log book at the facility at all times. It must be kept current and made available to department inspectors upon request. The log book must contain the following information for each tank:

(1) facility-assigned serial number;

(2) location from which tank was removed;

(3) tank size;

(4) contents when last in use;

(5) tank condition upon arrival (e.g. sound, badly corroded, number of holes);

(6) date cleaned;

(7) date processed; and

(8) final disposition (sold whole, cut up, crushed).

In addition the log book must include information on types and volumes of all residues generated, how they were disposed of, and when. All records must be kept for at least three years.

G. Groundwater monitoring must be conducted at the facility. A groundwater monitoring plan, developed and certified by a Maine certified geologist, must be submitted to the commissioner with the facility application. The plan must provide for a minimum of one upgradient and three down-gradient wells, located and screened to detect releases of hydrocarbons as early as practicable.

Appendix M: Cathodic Protection Tester Certification Requirements

1. The requirements of this Appendix apply only to individuals not certified by the Maine Board of Underground Tank Installers for underground oil facility installation. Maine certified installers are considered to automatically meet the definition of a cathodic protection tester as long as their installer certification remains valid.

2. An underground storage tank inspector is approved by the commissioner as a cathodic protection tester when certified by the Maine Board of Underground Storage Tank Installers in accordance with 32 M.R.S.A. section 10010(6)(C);

Appendix N: Corrosion Expert Certification Requirements

1. The commissioner may certify a person as a corrosion expert on finding that the person has a thorough knowledge of the physical sciences and the principles of engineering and mathematics acquired by professional education and related practical experience and is qualified to engage in the practice of corrosion control on buried or submerged metal piping systems and metal tanks. Only individuals may be certified.

2. Criteria for certification by the commissioner.

   A. Documentation of valid certification by the National Association of Corrosion Engineers (NACE) as a qualified corrosion expert; or

   B. Registration as a professional engineer in Maine, and certification or licensing, by a professional organization or educational institution other than NACE, based on adequate education and experience in corrosion control of buried or submerged metal piping systems and metal tanks.

3. Application procedures:

   A. On an application form provided by the commissioner, applicants must provide the following information and certify its accuracy.

      (i) Applicant's name, business mailing address, and telephone number;

      (ii) Documentation of NACE or other professional or educational institution's certification;

      (iii) Documentation of Maine registration as a professional engineer, if needed;

      (iv) Description of relevant work experience, college courses (including transcript) and other technical training courses; and

      (v) Three written professional references.

   B. Upon the review and approval of an application as meeting all the certification criteria of this rule and 38 MRSA, section 567-A(2), the commissioner shall issue a certificate valid for 12 months.

   C. Requests for recertification must be made to the commissioner in writing 30 days prior to expiration of the existing certificate. The commissioner may deny a request for recertification request on any one of the following grounds: a documented improper installation of corrosion protection not in accordance with the requirements of this rule; the expiration or loss of NACE or other professional certification; or loss of a valid professional license as a registered Maine

professional engineer. An individual who has lost his or her certification may reapply after 12 months for recertification consistent with requirements of paragraph 2 above.

D. The commissioner may undertake enforcement actions corrosion experts for violations of this rule, in accordance with the provisions of 38 MRSA, subsection 347-A.

Appendix O: Design and Installation Standards for Secondary Containment Using an Excavation Liner

1. Tank and piping excavation liners must be constructed of synthetic materials, compatible with the product to be stored and sufficiently thick and impermeable to direct a leak or discharge to a monitoring point and permit its detection. Soil, clay, bentonite-sealed soil and asphalt liners are prohibited.

2. Liners must have a permeability of 10^{-6} cm/sec or less for the product to be stored. Concrete excavation liners must be sealed or coated on the inner wall with an oil compatible sealant or coating compound.

3. Synthetic liners must be at least 0.03 inches thick and installed in accordance with manufacturer specifications. All liner panels must be factory seamed or field seamed by an authorized representative of the manufacturer.

4. For cathodically protected tanks and piping, the liner must be installed so that it does not interfere with the proper operation of the cathodic protection system. Sacrificial anodes must be located within the excavation liner.

5. Ground water, soil moisture, or rainfall must not render the interstitial leak detection or sampling method inoperative so that a release could go undetected for more than 30 days.

6. The site must be assessed to ensure that the secondary liner is always above the ground water and not in a 25 year flood plain, unless the liner and leak detection system are designed for use under such conditions.

7. Monitoring wells to be used for leak detection in tank excavation liners must be designed and installed in accordance with Appendix F of this rule.

8. For tanks with an internally fitted liner, continuous, automated leak detection between the liner and the inner wall must be provided.

9. Excavation liners for piping must drain to a monitoring sump or to the interstitial space monitoring system for the tank.

Appendix P: Requirements for a Site Assessment at Facility Closure or Tank Abandonment

1. The purpose of a site assessment at the time of facility closure or abandonment is to determine if discharges of oil have occurred requiring notification of the commissioner and corrective action by the owner, operator or another responsible party.

2. General requirements:

   A. A site assessment meeting all the requirements of this Appendix must be completed prior to the completion of facility closure or the abandonment of any portion of a facility in accordance with section 11 of this rule. This would include abandonment of only piping.

   NOTE: See the accompanying chart on the following page for a summary of the site assessment requirements of this Appendix.

   B. Site assessor qualifications. If a tank or facility is located within a sensitive geologic area, as defined by this rule, the site assessment must be supervised by, and the site assessment report must be certified by, a Maine certified geologist, registered professional engineer, or other persons meeting the requirements of Maine's professional regulation statutes and regulations for geologists or professional engineers practicing in Maine. As provided under 38 M.R.S.A., subsection 563-B(1), closure site assessment for facilities not located in a sensitive geologic area are exempt from the above qualification standards for the person conducting the assessment.

   C. The findings of all site assessments conducted pursuant to this rule must be presented in a written report with supporting data, addressing the requirements of this Appendix.

   D. One copy of all site assessment reports conducted pursuant to this rule must be submitted to the commissioner in an envelope endorsed "UST Site Assessment", by the facility owner at the following address within 45 days of tank and piping removal or abandonment in place: UST Program Administrator, MDEP-BRWM, 17 SHS, Augusta ME 04333-0017.

      If a site assessment finds evidence of a discharge, two additional copies of the site assessment report must be submitted at the same time, one to the commissioner at the above address and one to the chief municipal official of the municipality within which the facility is located or to the county commissioners if located in an unorganized township.

   E. Site assessment reports must follow the following general format:

(1) Summary cover sheet including, owner, operator and facility name, Maine facility and tank registration numbers, date of site assessment and whether evidence of a discharge or leak was found;

(2) Purpose of site assessment;

(3) Facility and site location;

(4) Facility and site history;

(5) Description of the site assessment methods utilized, including field instrument methods, laboratory methods and quality assurance/quality control (QA/QC) procedures followed;

NOTE: This chart summarizes the process of conducting a site assessment at the time of closure or abandonment of a tank or facility. It is for general information only and should not be relied upon without reference to the text of the appendix.

(6) Findings of site assessment; and

(7) Recommendations and conclusions.

3. The following information must be included in all site assessments:

A. Mailing and street address of facility;

B. Tax map and lot number;

C. U.S. Geological Survey 7 1/2 minute (15 minute if 7 1/2 minute is not available) topographical map showing the precise location of the facility ; and

D. A facility layout plan showing locations of property boundaries, tanks, product and vent lines, dispensers, on-site wells or surface water bodies, subsurface waste water disposal systems, dry wells, sewer lines and underground utilities.

4. The following additional land use information must be provided where evidence of a discharge of oil has been found:

A. A description of surrounding land uses and the extent of public drinking water service to all abutters and the surrounding area;

B. The location of possible contamination receptors including, at a minimum, private water supplies within 300 feet of the facility, public water supplies within 2000 feet of the facility, surface water bodies, utility conduits, and structures with a basement or crawl space; and

C. A determination if the facility is located in a sensitive geologic area as defined by this rule.

5. If evidence of a discharge of oil is found, the site assessment must also include the following facility and site history information:

A. History of site ownership and operation, if known, for previous 10 years, including:

(1) Name, current mailing address of all current site and facility owners and operators; and

(2) Years of ownership and operation of each previous owner and, if known, operator.

B. Past and present land use(s) of site and facility.

C. Current and past product storage and distribution system, including:

(1) Date of installation of all tanks;

(2) Tanks or piping abandoned in place;

(3) Size and construction of tanks and piping;

(4) Type and length of time specific oil products stored;

(5) Summary of results of daily product inventory reconciliation for the operating life of current and if available, previous facilities;

(6) Tank and piping repairs, replacements and/or removals, and the condition of removed or repaired facility components for the operating life of the facility, if known;

(7) All precision test results, if performed, for previous and current facility, if available;

(8) Availability and results of leak detection monitoring if any, including ground water monitoring wells;

(9) Other evidence of a leak or discharge as defined in section 5(D)(9) of this rule, and associated with the current or a previous facility at the same location;

(10) Date and description of all known leaks or discharges on the site including type of oil, quantity lost and recovered, cleanup actions taken and off-site effects, if any; and

(11) Summary of work performed and results of previous site assessments and contamination investigations.

D. A completed copy of the department report form, documenting the department's initial decision concerning the need for and goals of remediation for contaminated soil and, if applicable, ground water.

6. Site Assessment Requirements when Tanks or Piping are Removed:

A. Tanks, piping and other underground facility components must be inspected visually upon removal for presence of holes, loose fittings and joints, cracks, fractures and evidence of oil stains. If any of the conditions above are found the facility owner or operator shall notify the commissioner of the occurrence of a discharge within 24 hours of discovery.

B. The tank and piping excavation must be inspected visually for any evidence of a discharge of oil, including oil stained or saturated soil, strong petroleum vapors

emitted from soil or an oil sheen on groundwater in the excavation. The presence of any of the above conditions is considered an indication of a discharge of oil and must be reported to the commissioner within 24 hours of discovery by the facility owner or operator and before the excavation hole is filled. The owner shall immediately proceed with an investigation and corrective action measures in accordance with section 12 of this rule.

NOTE: OSHA regulations governing entering excavations and confined spaces should be strictly followed. Excavations should not be entered if above 20% of Lower Explosive Limit (LEL), or less than 19.2% or greater than 25% oxygen.

C. The entire facility must be inspected visually for surface spills and discharges. Such spills and discharges must be reported to the commissioner in accordance with section 12(A).

D. Upon visual discovery of evidence of a leak or discharge of oil at a heavy oil facility and reporting such to the commissioner, the site assessment investigation at the time of closure may be terminated, except where a tank or piping was located on or in bedrock in which case the presence of contaminated ground water must be investigated in accordance with paragraph 6(E). At all other facilities, investigations must proceed further as required by this paragraph.. The tank and piping excavation areas must be screened for oil vapors using a field instrument, such as a flame ionization detector (FID) or photoionization detector (PID)**,** calibrated to set points established or approved by the commissioner for the instrument make and the type of oil. Samples must be collected from areas showing the highest readings and analyzed by laboratory analysis, or using the field methodologies described in Appendix Q or another method of similar accuracy and sensitivity approved by the commissioner. The commissioner must be notified by the owner or operator within 24 hours of any laboratory analysis or field jar or polyethylene bag headspace reading equal to or exceeding a notification level shown in the table below. Readings below the notification level do not need to be reported to the commissioner if there is no other evidence or indication of a discharge at the facility. When using a field method for analysis of soil suspected to be contaminated with more than one of the oil products listed in the table below, the notification level for the least volatile oil must be used. Only laboratory results analyzed by a method meeting the requirements of Appendix S will be accepted.

Notification Levels (ppm)

Soil Contaminant	FID	PID	Laboratory
gasoline	100	100	5
kerosene	100	100	10
#2 fuel oil / diesel	100	100	10
waste oil	NA	100	10

NOTE: A list of PID instruments and their calibration set points is available from the department. The department also has developed a protocol whereby manufacturers of other instruments may generate calibration data for department evaluation.

E. Where a tank or piping run has been installed on or in bedrock without adequate soil backfill or bedding to test for contamination, a minimum of two down gradient ground water monitoring wells must be installed under the supervision of a Maine certified geologist or Maine registered professional engineer. Additional wells may be required by the commissioner for tanks with more than 20,000 gallons capacity. Monitoring wells must be sampled for visual and olfactory evidence of oil as well as for dissolved phase product using a hydrocarbons laboratory analysis method meeting the requirements of Appendix S and appropriate for the oil products stored at the facility in the past. Other comprehensive hydrocarbon laboratory methods may be used if approved by the commissioner. If gasoline was stored at the facility, analyses must include methyl tertiary butyl ether (MTBE) and benzene. The detection of oil must be reported to the commissioner within 24 hours by the facility owner or operator. This subparagraph applies to all facilities required to do a site assessment, including heavy oil facilities.

7. Site Assessment Requirements when Tanks and Piping are Abandoned In Place:

A. The requirements of this section apply whenever a facility or any portion of a facility are abandoned in place and are not removed. If a tank, piping section or other underground component is not removed, these requirements only apply to that particular portion of the entire facility.

B. All visible portions of the facility must be inspected for evidence of a leak, spill, overfill or other discharge, including areas around the fill and vent pipes.

C. Evidence of contaminated soils from a tank leak must be determined by either of the methods below:

(1) A minimum of two soil borings must be made per tank, located as close as technically feasible to intersect any oil contamination from the surface to below the estimated depth of the tank bottom or to bedrock or below the groundwater table, whichever is shallower. Additional number of borings may be required by the commissioner for tanks with more than 20,000 gallons capacity. The borings must be logged and screened continuously for oil vapors using a photo or flame ionization field instrument as removed from the ground. A sample must be taken from soil showing the highest reading for the jar headspace analysis using the method outline in Appendix Q or another commissioner approved method of comparable accuracy and sensitivity.

(2) Other subsurface investigation methods approved by the commissioner.

D. If piping is not removed such that entire excavation can be inspected, then a soil gas survey must be conducted along the length of the excavation where physical soil characteristics, ground water depth and product type allow. An alternate subsurface investigation may be conducted in lieu of a soil gas survey if approved by the commissioner.

E. When a facility was installed on or into bedrock, when borings encounter bedrock before reaching an elevation below that of the bottom of the tank or piping, or when ground water is encountered prior to reaching the depth below that of the tank or piping; a minimum of two ground water monitoring wells must be installed down gradient, as close as feasible. For tanks greater than 20,000 gallons capacity, the commissioner may require additional monitoring wells. Monitoring wells must be sampled for visual and olfactory evidence of oil as well as for dissolved phase gasoline, diesel fuel or heating oil, depending on the oil products stored at the facility in the past. If gasoline was stored at the facility, analyses must include methyl tertiary butyl ether (MTBE). Only results from a laboratory method meeting the requirements of Appendix S will be accepted. The detection of oil must be reported to the commissioner within 24 hours by the facility owner or operator.

F. When the above site assessment procedures for a facility to be abandoned in place are not technically feasible, another procedure may be used when approved by the commissioner prior to the initiation of facility closure.

8. When technically feasible and cost-effective, the commissioner may require ground water sample location and quality data to be submitted in an electronic form compatible with the Maine Geographic Information System and Ground Water Database. The format for such data will be provided by the commissioner.

Appendix Q: Field Determination of Soil Hydrocarbon Content by Jar / Poly Bag Headspace Technique

1. **Introduction.** The following is a procedure acceptable to the commissioner for determination of the hydrocarbon content of soils contaminated only by oil and petroleum products. A soil sample is placed in a sealed jar or polyethylene bag and the volatile hydrocarbons are allowed to come to equilibrium with the jar headspace. The headspace hydrocarbon concentration is then measured with a calibrated photo- or flame-ionization (PID or FID) instrument, approved by the commissioner.

2. **Applicability.** This procedure is intended for estimating gasoline, #2 heating oil, diesel fuel, kerosene, and other chemically and physically similar oil contamination in mineral soils, having water contents between bone-dry and saturation. The procedure is not intended for estimating concentrations of heavy oils, lubricating oils, waste oil, and other low volatility hydrocarbon products. Soil grain size distribution and organic carbon content may effect the partitioning of hydrocarbon between soil, liquid, and vapor phases. Weathering of the hydrocarbon product also will decrease the proportion of volatile and soluble constituents, thereby decreasing instrument response. None of these limitations invalidate the method as a technique for approximation of low-level petroleum hydrocarbon concentrations.

3. **Equipment Required.**

   A. Shovel; trowel;

   B. Lab containers (VOA or SVOA) of type and quantity for hydrocarbon to be sampled at expected concentrations;

   NOTE: Laboratory should be consulted in advance to determine their needs.

   C. Metal dial-type thermometer, -10^{o}C to 50^{o}C;

   D. (Jar headspace method only) Glass, wide-mouthed, metal screw-top, 16 oz. jars, with cardboard lid liner removed, and 1/4" hole drilled through center of lid;

   E. (Jar headspace method only) Roll of heavy duty aluminum foil;

   F. (Poly bag method only) 1-quart, Zip-Lock® type polyethylene bags;

   G. Means of measuring 250 gm soil sample, plus or minus 10 gms. (e.g., a "calibrated" container, a "Weight Watchers" spring balance);

   H. Photoionization (PID), or flame ionization (FID) instrument approved by the commissioner;

NOTE: A list of approved instruments and their calibration set points is available from the commissioner. The department also has developed a protocol whereby manufacturers of other instruments may generate calibration data for commissioner evaluation and approval. Copies are available from the Bureau of Remediation and Waste Management.

I. Calibration equipment for instrument chosen; and

J. Decontamination equipment including soapy water and clean distilled water in squirt bottles or pressurized canisters.

4. Analytical Procedure.

A. Determine the location at which the sample is to be taken. If possible, identify an uncontaminated location at the same site from which soil of similar texture and moisture content can be obtained, to serve as a field "blank".

B. Measure a 250 gm. sample of the soil into a wide-mouthed jar or polyethylene bag. In so far possible, samples should be mineral soil free of vegetation and stones larger than 1/2" in diameter. Seal the samples immediately in the jars by placing a square of foil over the mouth and screwing on the lid, and the bag by zipping the closure. Sufficient air should be left in the bag so that the instrument can withdraw an adequate headspace sample.

C. Repeat this procedure for three (3) more samples, all gathered within a 2'x2' area.

D. Shake the jars for 30 seconds to thoroughly mix the contents. If bags are used, they may be kneaded until the contents are uniform.

E. Measure the samples' temperature by sacrificing one jar or bag. If necessary, adjust all sample temperatures to between $15^{o}C$ and $25^{o}C$ by bringing sample containers into a warm vehicle or immersing in a water bath. In warm weather, samples should be kept in a shaded, ventilated area during headspace development and analysis.

F. Allow at least 15 minutes but not more than 1 hour for soil hydrocarbons to reach equilibrium with the headspace.

G. If samples are to be taken for laboratory analysis, they should be collected and preserved per laboratory protocols at this time. Preferably, these samples should bracket a wide range of hydrocarbon concentrations including the highest and lowest concentration at the site.

H. Warm up and calibrate the PID or FID instrument to be used to the calibration set point determined by the commissioner for the make of instrument in use and the product(s) present at the facility.

NOTES:

1. These calibration set points have been established by testing the instruments against weathered petroleum headspace surrogates. Therefore no conversion of the readings to their benzene equivalent is necessary.

2. The UV source in PID instruments should be cleaned at least weekly per the manufacturer's recommended procedure. Both PID and FID instruments must be recalibrated after four hours of continuous use, as well as at the beginning of field use, since their calibration may drift with battery condition.

I. Shake the jars or knead the bags again for thirty (30) seconds.

J. Measure the samples' headspace concentration. If the jar headspace technique is used, break the foil seal through the drilled hole in the jar lid using a pencil or nail. Insert the instrument's probe about 1/2" into the jar. If using the poly-bag technique, insert the probe through the bag opening while squeezing the bag tight around the probe. Record the highest reading that remains steady for 1-2 seconds (i.e., that is not due to instrument needle inertia). Repeat this step until all jars have been measured.

NOTE: Both PID and FID instruments withdraw a headspace sample from the jar. In the jar headspace technique, air replaces this sample, diluting the headspace as it is being measured. In the poly-bag technique, the bag collapses as its headspace is used by the instrument. In either case it is important to obtain an instrument reading immediately after the seal is broken -- preferably within 10 seconds. Once a jar or bag has been used, it may not be used again, even if sufficient time is allowed to re-establish headspace equilibrium.

K. Repeat all steps at each other location of interest at the site. Finally, repeat all steps for the "field blank" obtained from the uncontaminated location.

L. Average the three readings obtained from each soil sample within each 2'x2' area. Blank results must be reported but must not be used to adjust the readings obtained on other samples.

NOTE: Because calibration set points have been established by testing the instruments against weathered petroleum headspace surrogates, no conversion of the readings to their benzene equivalent is necessary.

Appendix R: List of National Standards and Codes Cited

1. American National Standards Institute (ANSI), 1430 Broadway, NY 10018

   - Chemical Plant and Petroleum Refinery Piping, ANSI/ASME B31.1, 2001.

2. American Petroleum Institute (API), 1220 L Street, Northwest, Washington, DC 20005-40.

   - Welded Steel Tanks for Oil Storage, API Standard 650, Revision 1998.

   - Closure of Underground Petroleum Storage Tanks, API Recommended Practice 1604, 3rd Edition, 1996;

   - Installation of Underground Petroleum Storage Systems, API Publication 1615, 5th Edition, 1996;

   - Bulk Liquid Stock Control at Retail Outlets, API Recommended Pratices 1621, 5th Edition, May1993.

   - Interior Lining of Existing Steel Underground Storage Tanks, API Recommended Practice 1631, 5th Edition, June, 2001;

   - Pressure Testing of Liquid Petroleum Pipelines,Recommended Practice 1110, 4th Edition, 1997.

   - Design, Construction, Operation, Maintenace, and Inspection of Terminal & Tank Facilities, API Standard 2610, 1st ed., July 1994.

3. National Association of Corrosion Engineers (NACE) International, 1440 South Creek Drive, Houston, Texas 77084-4906.

   - Standard Recommended Practice, Corrosion Control of Underground Storage Tank Systems by Cathodic Protection, NACE Standard RP-0285 2002 Edition

   - Standard Recommended Practice, Control of External Corrosion on Underground or Submerged Metallic Piping Systems, NACE Standard RP 0169-2002.

   - Standard Test Method, Measurement Techniques Related to Criteria for Cathodic Protection on Underground or Submerged Metallic Tank Systems, NACE Standard TM0101-2001.

- Standard Test Method, Measurement Techniques Related to Criteria for Cathodic Protection on Underground or Submerged Metallic Piping Systems, NACE Standard TM 0497-2002.

4. National Fire Protection Association (NFPA), 11 Tracy Drive, Avon, MA 02322.

- Flammable and Combustible Liquids Code, NFPA 30-2000

- Code for Motor Fuel Dispensing Facilities and Repair Garages, NFPA 30A-2000.

- Standard of the Installation of Oil Burning Equipement, NFPA 31,2001.

5. Petroleum Equipment Institute (PEI), P. O. Box 2380, Tulsa, Oklahoma 74101.

- Recommended Practices for Installation of Underground Liquid Storage Systems, PEI Publication RP 100-2000,

6. Steel Tank Institute (STI),5700 Oakwood Rd, Lake Zurich, IL 60047.

- Recommeded Practice for Corrosion Protection of Underground Piping Networks Associated with Liquid Storage and Dispensing Systems, R892-91.

- Act 100S specification of External Corrosion Protection of FRP Composite, Steel USTS, F894-02.

7. Underwriters Laboratories Inc. (UL), 333 Pfingsten Road, Northbrook, Illinois 60062-2096.

- Steel Underground Tanks for Flammable and Combustible Liquids UL Standard 58,December 13, 1996.

- Nonmetallic Underground Piping for Flammable Liquids , UL Standard 971, October 30, 1995.

- Glass-Fiber Reinforced Plastic Underground Storage Tanks for Petroleum Products, Alcohols, and Alcohol- Gasoline Mixture. UL Standard 1316. January 7, 1994.• External Corrosion Protection Systems for Steel Underground Storage Tanks, UL Standard 1746, July 27, 1993.

- Pipe Connectors for Petroleum Products and LP-Gas. UL Standard 567. June 7,1996.

8. Underwriters Laboratories of Canada, 7 Underwriters' Road, Toronto, ON, M1R3B4

- Underground Steel Tanks CAN/ULC-S603-2000.

- Glass Fiber Reinforced Plastic Pipe and Fittings for Flammable Liquids, ORO-C107-7-1993.

- Flexible Underground Hose Connectors, UL Canada Standard CAN/ULC-S633, 1999..

Appendix S: Department Approved Laboratory Analytical Methods and Performance Standards for Analyses of Oil and its Constituents in Water and Soil

1. All chemical laboratory analyses of soil and water samples required by these rules must meet the requirements of this Appendix. Sampling and analyses will be conducted in accordance with quality assurance procedures approved by the commissioner. The commissioner may require test methods and parameters other than those listed in this Appendix to address site specific circumstances.

2. Diesel fuel, heating fuel and waste oil sample testing. Acceptable laboratory methods for the analysis of soil and water for contamination include those listed below.

   A. Modified Method for Determination Diesel Range Organics (DRO), Maine Health and Environmental Testing Laboratory (HETL) Method 4.1.25, Sept. 6, 1995.

   B. Waste oil that is not suspected of being a hazardous waste is to be analyzed using the same method as for Diesel Range Organics, HETL Method 4.1.25.

   C. Heavy oils in soil only, by U.S. Environmental Protection Agency Method 418.1, Total Petroleum Hydrocarbons (TPH).

   D. Heavy oil - TPH (418.1) will not be accepted for water analyses because of high detection limit (1 ppm).

   E. Other laboratory methods for diesel fuel range organics, waste oil and heavy oil approved or required by the commissioner, such as indicator parameters, for specific site conditions or circumstances.

3. Gasoline and gasoline constituents sample testing. Acceptable laboratory methods for the analysis of soil and water contamination include those listed below.

   A. Modified Method for Determining Gasoline Range Organics (GRO), Maine Health and Environmental Testing Laboratory (HETL) Method 4.2.17, Sept. 6, 1995.

   B. MTBE - U. S. Environmental Protection Agency Method 8260

   C. Benzene -U. S. Environmental Protection Agency Method 8260

   D. BTEX -U. S. Environmental Protection Agency Method 8260

   E. Other laboratory methods for testing for the presence and concentrations of gasoline or its constituents, approved by or required by the commissioner, such as indicator parameters for specific site conditions or circumstances.

4. Other soil or water analytes. When testing for analytes other than those listed in paragraphs 2 and 3 above, the laboratory methods must be approved by the commissioner prior to the collection of samples.

5 Performance standards.

A. For water analyses by the GRO or DRO Methods, the Minimum Reporting Level (MRL), as defined in the Methods, is to be equal to or lower than the Maine Bureau of Health's published Maximum Exposure Guidelines (MEG), a commissioner approved site specific clean-up standard, or an alternate performance standard approved by the commissioner.

B. For soil analyses by the GRO and DRO methods, the Minimum Reporting Level (MRL) as defined in the Methods, is to be equal to or lower than the Maine Bureau of Health's published maximum Exposure Guidelines (MEG), a commissioner approved site specific clean-up standard, or an alternate performance standard approved by the commissioner.

C. For water analyses, other than GRO and DRO; the Estimated Quantitation Limit (EQL), as determined by EPA guidelines, SW-846, is to be equal to or lower than the Maximum Contaminant Level (MCL) or primary drinking water standard, and in the absence of a MCL, is to be less than the Maine Bureau of Health's published Maximum Exposure Guideline (MEG) for that test parameter.

D. For soil analyses by methods other than GRO and DRO; the Estimated Quantitation Limit (EQL), as determined by EPA guidelines SW-846, is to be equal to or less than five (5) parts per million for gasoline analyses and less than 10 parts per million for fuel oil analyses or an alternate performance standard approved by the commissioner. For analytes other than gasoline or fuel oil the EQL is to be less than or equal to one-half the applicable MCL or MEG.E. All laboratory analytical data submitted to the commissioner pursuant to this rule must come from a laboratory certified under the applicable requirements of the Maine Department of Human Services Comprehensive and Limited Environmental Laboratory Rules.

NOTE: Pursuant to GRO and DRO laboratory method descriptions, the presence of a material outside the gasoline or diesel fuel range on a chromatogram should be included on the respective laboratory report.

APPENDIX T: Determination of the Water Supply Potential of a Proposed New Underground Oil Storage Facility Site On a Mapped Significant Sand and Gravel Aquifer

If the site of the proposed facility falls within a zone mapped as generally yielding 10 to 50 gallons per minute (g.p.m.), but possibly more than 50 gallons per minute in some locations, the applicant must implement a limited hydrogeological evaluation to determine whether the site is located on a previously unrecognized high yield zone (well yield greater than 50 g.p.m.) of the aquifer.

The evaluation may be as extensive as the applicant chooses, but at a minimum it must demonstrate to the commissioner's satisfaction whether or not a properly constructed well in the sand and gravel aquifer beneath the site would yield greater than 50 gallons per minute. The design of the evaluation, the field work and the written report must be supervised and certified by a Maine-certified geologist with demonstrated expertise in hydrogeology.

The Sand and Gravel Aquifer Mapping Program at the Maine Geological Survey has used a single-borehole evaluation to estimate the projected long-term yield of aquifers in areas where no other information is available. The techniques are described on pages 15-18 of Maine Geological Survey Open File No. 98-2, Hydrogeology and Water Quality of Significant Sand and Gravel Aquifers in Parts of Piscataquis and Somerset Counties, Maine, 1998, Nichols, W. J., Neil, C. D., Locke, D. B. and Foley, M. E. (authors). The method requires a borehole advanced to the bedrock surface with continuous soils sampling. Geological information along with the grain size analysis of the soils samples will be used to estimate the hydraulic conductivity of the strata, and the aquifer thickness will be used to calculate a transmissivity value and to estimate the long-term yield of a well at that location. An evaluation using this methodology is the minimum that the commissioner would accept. The commissioner would also accept the results of a properly conducted and interpreted pumping test.

NOTE: Copies of the above referenced technical document are available from the Department or the Maine Geological Survey.

AUTHORITY: 38 MRSA, section 561 et. seq.

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