Petroleum Remediation Program
Glossary of Terms

Acceptance Criteria
The conditions that instrument must meet to ensure that data obtained will be valid and acceptable for decision making.

Annular Space
The space between the well casing/well screen and the wall of the borehole or in the case of a multiple cased well, all space(s) between casing(s) and all space between the outer casing and the wall of the borehole.

Applicant
"Applicant" means the owner or operator of an underground oil storage facility or an aboveground oil storage facility that has suffered a discharge of oil and who is seeking coverage of eligible clean-up costs and 3rd-party damage claims from the fund.

Approved Facility
An in-state facility licensed by the MEDEP or out-of-state facility with similar approvals that accepts petroleum contaminated ground water or soil. Examples include Publicly Owned Wastewater Treatment Plants, Sanitary Sewer Districts, Special Waste Landfills, Soil Processing Facilities.

Aquifer
A water-bearing layer of natural earth materials that will yield water in a to a well or spring.

Arsenic
A naturally occurring mineral that is used in industrial processes such as pesticide production and can be concentrated as a result of mining and ore smelting. Arsenic occurs naturally in ferric hydroxide minerals present in Maine aquifer materials (soil and bedrock) and can be desorbed from the aquifer and dissolved into groundwater under certain geochemical settings (reduced conditions). Under rare instances the biodegradation of petroleum contaminated groundwater may generate geochemical conditions that results in reductive dissolution and desorption of ferric hydroxide minerals and liberate arsenic from the aquifer.

Arsenic Contamination
Detection of arsenic in groundwater or a water supply above the maximum contaminant level (MCL) of 10 micrograms per liter (ug/l).

Applicant
The owner or operator of an underground oil storage facility or an aboveground oil storage facility that has suffered a discharge of oil and who is seeking coverage of eligible clean-up costs and 3rd-party damage claims from the fund.

Backfill
A General term that describes non-manufactured material used to fill the borehole or the annular space in a borehole that is derived from locally sourced natural materials of an unspecified composition. Is sometimes referred to as natural backfill material.

Background Contaminants
"Background Contaminants" means those contaminants that are not due to the release of contaminants at the Hazardous Substance Site. The background contaminants may be naturally occurring in the environment (e.g., arsenic) or man-made (e.g., DDT). Note Hazardous Substance Site activity may chemically transform or release naturally occurring substances into other environmental media. These additional concentrations of the naturally occurring substance that are released from the Hazardous Substance Site activity are not representative of natural background concentrations. For example, biological degradation of buried organic materials (such as tannery wastes) at a site can deprive the subsurface of oxygen, causing changes to subsurface chemical conditions that favor elements (like arsenic) to become more soluble in groundwater. In this case, the increase in arsenic in groundwater may be consideredis a site-related contaminant and a consideration in remediation of the site, even though it came from the parent rock, rather than the site waste.

Background Locations
"Background Locations" means areas with relevant media (e.g. soil, groundwater, air) that are similar to the Hazardous Substance Site (i.e., media with similar physical characteristics), that have been influenced to the same degree by regional deposition, runoff, or other contaminant inputs, but where contaminants released at the Hazardous Substance Site have not come to be located. Some chemicals may be present in background locations because of both natural and man-made conditions (such as naturally occurring arsenic and arsenic from pesticide applications or mining operations).

Baseline Water Quality Analysis
Groundwater or water supply analysis for arsenic, dissolved iron, dissolved manganese, pH, dissolved oxygen (DO), oxidation reduction potential (ORP), and specific conductance.

Basement
The bottom floor of a building located partially or totally below grade.

Big Blue 20-inch Pentek Filter
A 20-inch POE water cartridge filter made by Pentek (Pentair) using a carbon block filter to remove nuisance petroleum odors when concentrations are present below the RAG values in a water supply.

Borehole
The hole in the earth formed by the drilling equipment that can be used to construct a well.

Boring Log
A written record of information the describes the soil or rock removed from the hole by the drilling machine.

Bridging
What happens when grout or other materials lodge against the side of the borehole and prevent the material from traveling to the bottom of the space, forming unwanted voids and spaces in the borehole or annular space in the borehole.

Building Envelope
The below grade interface and connections between the building elements and the surrounding environment (foundation, backfill, piping, sump, utilities, penetrations, groundwater, soil) where an exchange or transmission of vapors is possible. The zone of the building envelope can change with seasons and groundwater table elevation.

Bump Test
Measure known concentration to determine if the instrument meets the acceptance criteria.

Calibration Gas
Containerized gas certified to have known concentrations of volatile compounds.

Calibration Standards
Packets of liquid standards that are used with the water quality meters.

Cap or Varmint Guard
A cap or varmint guard can be installed on top of the exhaust pipe. The cap may be useful to keep precipitation out of the system and disperse vapor when the air flow through from the system is low. A varmint guard may be useful in keeping small animals from entering the system.

Community Public Water System
A public water system which serves at least fifteen service connections used by year-round residents or regularly serves at least 25 year-round residents. (Year-round is defined as permanent residence greater than six months.) Examples include water utilities, mobile home parks, apartment buildings, and nursing homes.

Complete Inhalation Pathway
A pathway is considered complete when the indoor air concentration exceeds the RAG for the appropriate risk scenario and the exceedance is directly attributed to the vapor migration pathway between the VSM to the occupied building.

Compliance and Technical Assistance Unit
The Compliance and Technical Assistance Unit within Bureau of Water Quality, Division of Water Quality Management is composed of wastewater inspectors and engineers responsible for reviewing compliance at wastewater pretreatment facilities and POTW's.

Conceptual Site Model
A written or pictorial representation of an environmental system, the extent of the contaminant source, and the biological, physical and chemical processes that determine the transport of contaminants from sources through environmental media to environmental receptors within the system. (ASTM E1689 - 95 (2014), Standard Guide for Developing Conceptual Site Models for Contaminated Sites).

Construction Fill
As defined in *Maine Solid Waste Management Rules, General Provisions* 06-096 C.M.R. ch. 400 (last revised April 6, 2015)Chapter 400 – Solid Waste Management Rules: General Provisions, "Construction fill" means fill that may contain solid waste utilized to provide material for construction projects such as roads, parking lots, buildings or other structures. It does not include fill needed to re-contour an area within a landfill or where

no further construction is occurring. If the construction fill contains solid waste other than inert fill, the use of the fill is regulated under 06-096 C.M.R. ch 418.

Contamination

Contamination means a site with any of the following conditions:

1) The presence of LNAPL.
2) The presence of petroleum hydrocarbon constituents at concentrations exceeding the RAGs or MCLs adopted by the Maine Department of Health and Human Services under 22 M.R.S. §2611.
3) 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 percent level of confidence, approved by the Commissioner and consistent with the provisions of Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities, 40 C.F.R. §264.97 as amended up to July 1, 2018 (except that where the "Regional Administrator" is referred to, the "Commissioner" is meant);
4) Contamination includes soil and water where petroleum hydrocarbons are detected above the laboratory practical quantitation level using the MADEP VPH or EPH analyses.
5) Contamination includes soil and water where motor fuel additives are detected above the laboratory practical quantitation level using the appropriate laboratory methods to detect the additives at levels consistent with the appropriate RAGs and are associated with the presence of motor fuels.
6) Soils visibly stained or discolored by the presence of heavy oil or present above a notification level (06-096 C.M.R. ch. 691, Appendix Q).

Contaminant

“Contaminant” means chemicals that are hazardous substance, as defined in Maine’s Uncontrolled Sites Law, which references the Superfund definition of hazardous substances.

Contaminant of Concern

A contaminant that has been released at a site and risk evaluation indicates that mitigation or remediation is necessary to prevent exposure to the contaminant.

Contaminant or Chemical of Potential Concern (COPC)

A “Chemical of Potential Concern” or “Contaminant of Potential Concern” (COPC) means a contaminant that may have been released at a site and further risk evaluation is warranted.

Contractor

The contractor hired by the MEDEP/BRWM to install the SSDS. Depending on the needs of the installation, the contractor may or may not be a certified radon mitigation installer.

Cost Guide

The Department’s Fund Coverage Cost Eligibility Guide (December 4, 2017).

Crawl Space
Crawl space is a room with a low ceiling that is too small for a living space and located at or below grade.

Data Quality Objective (DQO)
Data Quality Objectives (DQOs) are qualitative and quantitative statements that specify the quality and quantity of data needed to support technical decisions during site assessments. DQOs are developed by considering the purpose of collecting the data and the intended use of the data.

Dewater
The process of lowering the ground water elevation in an excavated area that is flooded with rainwater or ground water.

Discharge
Discharge means any spilling, leaking, pumping, pouring, emitting, escaping, emptying, or dumping of oil (38 MRSA, S562-A).

Drain Check Valve
The drain check valve allows water to drain out but prevents outside air from being sucked into the SSDS.

Eligible Clean-up Costs
Eligible clean-up costs are defined in State law (38 M.R.S. § 562-A) to mean those costs that:

a) Are necessary to clean up discharges of oil to the satisfaction of the Commissioner;
b) Are cost effective and technologically feasible and reliable;
c) Effectively mitigate or minimize damages; and
d) Provide adequate protection of the public health and welfare and the environment.

Environmental Covenant; Covenant
"Environmental covenant" or "covenant" means a servitude arising under an environmental response project and documented in a recordable instrument (usually a deed) that imposes activity and use limitations on a parcel of land. "Environmental covenant" does not include a municipal ordinance, a voluntary or other remedial action plan or action plan condition, or an administrative or judicial order, even if it imposes activity or use limitations.

Environmental Footprint
The term is broad and includes all impacts to the natural environment. Specifically, the effect that an activity has on the environment, which includes the amount of natural resources impacted by the action (excavation, investigation) and the amount of harmful gases that the activity produces (excavation, trucking, treatment, etc.). The term includes but is not limited to the carbon footprint of an activity.

Environmental Media Management Plan
An “Environmental Media Management Plan (EMMP)” describes property owner obligations and procedures to ensure owners, contractors, employees, or other persons

engaged in site disturbance activities appropriately manage impacted groundwater, soil, air, and other media to prevent human health and environmental impacts.

Environmental Professional
A person meeting the educational, training, and experience requirements as set forth in 40 CFR Section 312.10(b). 40 CFR Section 312.10(b) includes (1) a person who possesses sufficient specific education, training, and experience necessary to exercise professional judgment to develop opinions and conclusions regarding conditions indicative of releases or threatened releases on, at, in, or to a property, sufficient to meet the objectives and performance factors in Section 312.20(e) and (f). (2) Such a person must: (i) hold a current Professional Engineer's or Professional Geologist's license or registration from a state, tribe, or US territory and have the equivalent of three (3) years of full-time relevant experience ; or (ii) be licensed or certified by the federal government, a state, tribe, or U.S. territory to perform environmental inquiries territory and have the equivalent of three (3) years of full-time relevant experience ; or (iii) have a Baccalaureate or higher degree from an accredited institution of higher education in a discipline of engineering or science and the equivalent of five (5) years of full-time relevant experience; or (iv) have the equivalent of ten (10) years of full-time relevant experience. (3) An EP should remain current in his or her field through participation in continuing education or other activities.

Exposure Pathway / Complete Exposure Pathway
"Exposure Pathway" means the route a contaminant takes from its source (where it began) to its end point, and how people can come into contact or otherwise are exposed to the contaminant. An exposure pathway has five parts: a source of contamination (such as a leaking tank), an environmental medium and transport mechanism (such as movement through groundwater), a point of exposure (such as a private well), a route of exposure (eating, drinking, breathing, or touching), and a receptor population (people potentially or actually exposed). An exposure pathway is termed a completed exposure pathway only when all five parts are present.

Exposure Point
"Exposure Point" means an area of potential contact between a person and a hazardous substance.

Exposure Point Concentration
"Exposure Point Concentration (EPC)" means the concentration of contaminant that an individual would be exposed to in the relevant medium at the exposure point. Calculation of an appropriate EPC for site specific risk assessment is described in Attachment B (of the RAGs).

Extractable Petroleum Hydrocarbons (EPH)
Massachusetts Department of Environmental Protection's Method for the Determination of Extractable Petroleum Hydrocarbons (EPH).
https://www.mass.gov/guides/compendium-of-analytical-methods-cam#-petroleum-hydrocarbon-methods-

Fan
A radon mitigation fan designed to be used to remove soil gas. Two typical brand names are RadonAway® and Fantech®.

Filter Sand
A manufactured or processed sand material of a select particle size designed to remove or filter particles from water and keep them from entering the borehole or well that has been constructed in the borehole.

Fire Collar
Fire Collar is a material encasing a pipe which passes through a wall. The fire collar's intent is to maintain the fire rating of the barrier material. Fire collars are required whenever a pipe goes through a wall between a garage and the house. These firestops are used for plastic piping penetrations of fire rated barriers so that the fire rating of the barrier is maintained. The fire collar installs around the pipe and is anchored to the wall. If a fire occurs that is hot enough to soften the pipe and heat up the fire stop, the material expands and crushes the pipe to produce an air stop between the rooms.

Fund
The Maine Ground and Surface Waters Clean-up and Response Fund.

Fund Insurance Program
The Fund Insurance Program is the State program established under 38MRS, §568-A, to cover eligible costs associated with the clean-up of discharges from oil storage facilities. The program uses public funds from the Maine Ground and Surface Water Clean-up and Response Fund to cover eligible clean- up costs and third-party damages.

Granular Activated Carbon (GAC)
A filter media used to remove dissolved organic and inorganic contaminants from water and remove volatile organics from air to reduce emissions and control indoor air odors. GAC is a form of processed carbon designed to have small, micropores to increase surface areas available for adsorption or chemical reactions. GAC is made from raw organic carbonaceous materials such as coconut shells, nut shells, peat, wood, or coal.

GAC Indoor Air Scrubber
A portable indoor air filter using granular activated carbon to remove volatile organic contamination from the air.

Gross Contamination
Presence of Free Product LNAPL, heavily contaminated soil, heavily contaminated groundwater, heavily contaminated surface water, or heavily contaminated indoor air. Petroleum is readily apparent through visual or olfactory senses.

Grout
A low permeability manufactured material specially formulated as a cement product, such as neat cement, bentonite slurry, bentonite chips, bentonite pellets, granular bentonite, or other materials that have equivalent sealing properties. Numerous grout products are available, and a proper match of grout to method is essential. When cured, grout can be flowable, formable, or ridged depending on the formulated mixture of lime, bentonite, and sand.

Hazard Quotient
The "Hazard Quotient (HQ)" is a calculation used to determine whether an adverse health risk, other than cancer, might occur to an individual exposed to a given contaminate at a site. Specifically, the HQ applies to non-carcinogenic effects and is the

ratio of estimated site-specific exposure to a single chemical from a site over a specified period (exposure level) to the estimated daily exposure level at which no adverse health effects are likely to occur (toxicity guideline).

Hazard Index
The "Hazard Index (HI)" is the sum of the Hazard Quotients and is used to calculate whether an adverse health risk, other than cancer, might occur to an individual exposed to contaminants at a site. Specifically, the HI applies to non-carcinogenic effects and means the sum of hazard quotients for substances that affect the same target organ or organ system. The Hazard Index is estimated as the Average Daily Dose or Average Daily Exposure for the exposure period divided by the Reference Dose or Reference Concentration, respectively. The Hazard Index is also described as a weighted sum of the exposure measures for the mixture component chemicals. The "weight" factor according to dose addition should be a measure of the relative toxic strength, sometimes called "potency."

Hazardous Substance
"Hazardous Substances" are chemicals that might pose a health risk if individuals are exposed to them above a specific dose. For purposes of this guidance, Hazardous Substance has the same meaning as defined under the Maine Uncontrolled Hazardous Substance Sites Act, 38 M.R.S. § 1362(1), which defines "Hazardous Substances" as:

1. Any substance identified by the Board of Environmental Protection under Section 1319-O;
2. Any substance identified by the Board of Environmental Protection under Section 1319;
3. Any substance designated pursuant to the United States Comprehensive Environmental Response, Compensation and Liability Act of 1980, Public Law 96-510, Sections 101 and 102 (Superfund);
4. Any toxic pollutant listed under the United States Federal Water Pollution Control Act, Section 307(a);
5. Any hazardous air pollutant listed under the United States Clean Air Act, Section 112;
6. Any imminently hazardous chemical substance or mixture with respect to which the Administrator of the United States Environmental Protection Agency has taken action pursuant to the United States Toxic Substances Control Act, Section 7; and
7. Waste oil as defined in Section 1303-C.

Hazardous Substance Site
"Hazardous Substance Site" or "site" means any site where hazardous substances have come to be located.

Historic Recognized Environmental Condition
As defined in the ASTM Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process, ASTM E- 1527-13. A past release of any hazardous substances or petroleum products that has occurred in connection with the property and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted use criteria established by a regulatory authority, without subjecting the property to any required controls. (for example, property use restrictions, activity and use limitations, institutional controls, or engineering controls).

Before calling the past release a historic recognized environmental condition, the environmental professional must determine whether the past release is a recognized environmental condition at the time the Phase I Environmental Site Assessment is conducted (for example, if there has been a change in regulatory criteria). If the EP considers the past release to be a recognized environmental condition at the time the Phase I ESA is conducted, the condition shall be included in the conclusions section of the (Phase I ESA) report as a recognized environmental condition.

Hydraulically Sealed
The process of sealing a well with grout that does not use backfill.

Hydraulic Sealing Material
See Grout

Hydrocarbon Fractions
EPH/VPH methods report concentrations for specific carbon ranges that represent the remainder of the TPH mixture after the target compound concentrations have been subtracted. The hydrocarbon fractions analyzed by each analysis includes the following:

Hydrocarbon Fraction	Analytical Method
C9-C18 aliphatics	EPH
C19-C36 aliphatics	EPH
C11-C22 aromatics	EPH
C5-C8 aliphatics	VPH
C9-C12 aliphatics	VPH
C9-C10 aromatics	VPH

Hydrocarbon Target Compounds
EPH/VPH methods report concentrations for specific petroleum target compounds. The specific target compounds include poly aromatic hydrocarbons (PAHs), benzene, toluene, ethyl benzene, xylene, and MTBE. EPH/VPH methods do not analyze for lead or lead scavengers. Lead and lead scavenger compounds must be analyzed using appropriate analyses based on the CSM and Data Quality Objectives.

Incremental Lifetime Cancer Risk
The “Incremental Lifetime Cancer Risk (ILCR)” is the method used to calculate the increased, upper-bound risk of cancer that might occur to an individual exposed to contaminants at a site, with the exposure averaged over a lifetime. Specifically, ILCR means the incremental probability of an individual developing cancer over a lifetime as a result of exposure to a contaminant.

Inert Fill
As defined in 096 C.M.R. ch. Chapter 400 – Solid Waste Management Rules: General Provisions, “Inert fill” is clean soil material, including soil from road ditching and sand from winter sand cleanup; rock; bricks; crushed clean glass or porcelain; aged, fully-hardened asphalt; and cured concrete; that are not mixed with other solid or liquid waste, and are not derived from an ore mining activity.

Lead
Lead can be present in groundwater at some petroleum spill sites, high octane racing fuel, aviation gas (AvGas) and at older sites (pre-1986) where leaded motor fuel was stored and spilled.

Lead Scavengers
The common Lead Scavenger chemicals are ethylene dibromide (EDB) and 1,2dichloroethane (1,2 DCA).

Leaded Fuels
Fuels that contain lead and lead scavengers. Gasoline known to have been manufactured before 1979 is presumed to be leaded. According to Maine Chapter 691 Rule for Underground Oil Storage Facilities, lead was prohibited in gasoline as of January 1, 1996. Facilities operating prior to 1996 will need to determine the presence or absence of lead and lead scavengers. Lead continues to be used in high octane fuel and certain aviation fuel.

LNAPL Light Non-Aqueous Phase Liquid
A liquid having a specific gravity less than one and is composed of one or more organic compounds that are immiscible or sparingly soluble in water and is observable to be separate from water. The term encompasses all potential occurrences of LNAPL including free, residual, mobile, entrapped, and visible petroleum sheen.

Lines of Evidence/Multiple Lines of Evidence
Lines of Evidence is an approach of collecting, observing, documenting direct and indirect information to develop a dimensional understanding of a situation that can be evolving, as in the impacts or remedial progress at a residential heating oil tank spill. Typically, there is not a solitary piece of information (evidence) that adequately defines the situation, so it is necessary to collect multiple pieces of information to confidently comprehend the situation or status.

Low Level Waste
Nuclear water that does not fit into the categorical definitions for intermediate-level waste (ILW), high-level waste (HLW), spent nuclear fuel (SNF), transuranic waste (TRU), or certain byproduct materials known as 11e (2) wastes, such as uranium mill tailings. Low-level waste includes items that have become contaminated with radioactive material or have become radioactive through exposure to neutron radiation.

Maine CDC Drinking Water Guidelines
(https://www.maine.gov/dhhs/mecdc/environmental-health/eohp/wells/index.htm)
Maine CDC transitioned to using the Environmental Protection Agency's (EPA) drinking water standards and health advisory levels for contaminants found in well water in Maine and no longer maintains separate Maximum Exposure Guidelines (except for radon). The Maine CDC established an MCL for MTBE of 35 ug/L (https://www.maine.gov/dhhs/mecdc/environmental-health/eohp/wells/documents/mtbe.PDF).

Maine Licensed Geologist
A professional geologist licensed by the State of Maine under to Title 32, Chapter 73.

Maine Professional Engineer
A professional engineer licensed by the State of Maine under Title 32, Chapter 19

Methyl tert-Butyl Ether (MTBE)
An alcohol compound added to gasoline (circa 1979-20065?) used to boost octane as a replacement for Lead.

Micro Manometer
A micro manometer measures the pressure of a test location relative to atmosphere in inches of water column. It can be used to determine the area of influence by measuring the pressure difference in the test holes.

Monitoring Well
A well specifically used to observe the elevation of the water table or potentiometric surface, or to measure the water quality of a water-bearing zone. This includes piezometers.

Mounting Bracket
A mounting bracket is used to install a fan in an attic or similar location where the piping can't provide enough support.

New Equipment
Any equipment, not currently listed here, purchased by the Department, intended for field measurement of site conditions, that require calibration by the manufacturer.

Non-Transient, Non-Community Public Water Supply Well
A non-community public water system that serves at least 25 of the same persons for six months or more per year. Examples include schools, office buildings, factories.

Oil
As defined in statue, 38 M.R.S., §562-A, means 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 non-hazardous waste, crude oils, and other liquid hydrocarbons regardless of specific gravity.

Oil Storage Facility
As defined in 38 MRS, § 562-A, and means tanks together with associated piping, transfer and dispensing facilities, used to store or supply oil at a fixed location for more than 4 consecutive months per year. If less than 10% of the facility capacity is beneath the surface of the ground, the facility is an above ground oil storage facility, or AST. All other storage facilities are underground storage tanks (UST) facilities, including facilities with tanks located wholly above the ground surface if associated underground piping contains 10% or more of the facility's total capacity.

One-way Floor Drain
A one-way valve for floor drains allows water to pass through while sealing out soil gases including odor. A typical brand name for one-way valves is Dranjer™. Dranjer™ floor drains can retrofit existing non-valved floor drains or be installed during the construction of a new floor depending on the type of Dranjer™ floor drain used.

Over-Drilling
A drilling process that uses a drill bit that is larger in diameter than the original borehole drilled to install the well. The larger drill bit is advanced over, or surrounding the original borehole so that all of the well construction material (PVC, grout, filter sand, etc.) can be removed from the original borehole.

Pathway
For the purposes of SSDS design, pathway is defined as the migration of vapors into a building from soil gas immediately beneath the building floor or sub-slab. Migration pathways along a utility trench into a sidewall of a building may not be mitigated by a SSDS. Additionally, indoor vapors from source(s) within the building may not be mitigated from a SSDS.

Per- and Poly fluoroalkyl Substances (PFAS)
Synthetic (man-made) organofluorine chemical compounds that have multiple fluorine atoms attached to an alkyl chain that includes PFOA, PFOS, GenX, and many other chemicals. PFAS have been manufactured and used in a variety of industries since the 1940s, notably fire-fighting foams. There is evidence that exposure to PFAS can lead to adverse human health effects.

Perm
A perm is a unit of measure for water vapor permeance or water vapor transmission given a certain differential in partial pressures on either side of a material or membrane. The material and thickness of the material factor into the perm rating. The perm rating reflects the ability of a material to block transmission of vapors. A low perm rating indicates low transmission. Very low perm materials are considered vapor barriers and moderate perm materials are considered vapor retarders. The building science industry classifies a material as vapor impermeable if it has a perm rating of 0.1 or less. Vapor impermeable material qualifies as a vapor barrier.

Petrogenic Hydrocarbons
Hydrocarbons produced from pure petroleum sources including refined and unrefined petroleum products like crude oil, gasoline, heating oil, and pure petroleum based asphalt coatings.

Petroleum Contaminated Soil
As defined in *Beneficial Use of Solid Wastes*, 06-096 C.M.R. ch. 418 (last revised July 8, 2018), “Petroleum contaminated soil” means soil that has been verified through sampling and analysis, and site-specific documentation provided by the generator, to have been contaminated by a discharge/release of petroleum. Petroleum contaminated soil may include soil with naturally occurring concentrations of chemicals (e.g. arsenic); and petroleum additives (e.g. ethanol) except for lead.

Petroleum Related Contaminants
Contaminants related to, or associated with, a petroleum release such as arsenic, and lead in accordance with the Conceptual Site Model and confirmed with site sampling (RWM-PP-006 and RWM-PP-007).

Petroleum Remediation Program

The Petroleum Remediation Program is the portion of the petroleum program that focuses on remediation of soil, water, and air that are contaminated by and with petroleum hydrocarbons. This includes UST, AST, piping, transportation, and other related activities that cause the release of petroleum hydrocarbons to the environment.

Petroleum Remediation Site
Any petroleum site in Maine where a risk-based remedial action is currently on-going, in the planning stages of remediation, being evaluated to determine if remedial action is needed, being monitored after remedial actions are complete, or an evaluation has been completed and remediation is warranted based on the CSM. Once a site has been closed it is no longer considered a petroleum remediation site unless it is reopened, or a new release occurs.

Photo-Ionization Detector (PID)
A PID uses ultraviolet light to break down VOCs based on their ionization potential (IP) and the lamp energy. The detector measures the ions and provides a concentration reading in parts per billion (ppb) or parts per million (ppm). The accuracy of the reading is dependent on many factors including but not limited to the humidity of the sample being analyzed, contaminants present (i.e. VOCs and SVOCs), IP of the individual contaminants being analyzed, concentration range of the contaminants present at the site, age and condition of the PID lamp, linear response of the detector response to the target contaminant concentration, and the quality control practices of the operator. The PID cannot determine specific VOCs present without establishing a site-specific correlation factor. Therefore, it is susceptible to interferences from multiple sources of VOCs. The PID is an inexpensive detector for many VOCs within a narrow IP window. PIDs are hand-held portable instruments that produce instantaneous readings and operate continuously. Their primary use is for monitoring possible exposure to VOCs from petroleum fuels, solvents, and degreasers. Other applications include assessing performance of a SSDS by measuring the VOC concentration of the soil gas inside the exhaust pipe and assessment of vapor source strength and location, by measuring the concentration of the soil gas in test holes and cracks in the floor.

PID/FID
An instrument designed to measure ionizable organic compounds in air using either a Photo Ionizing Detector (PID) or a Flame ionizing detector (FID).

Point of Entry System (POE)
A point of entry treatment system is a whole-house (building) water treatment solution at or before the point the water enters the building.

Point of Use System (POU)
A point of use treatment system is not a whole-house (building) water treatment solution. A POU provides treatment at individual point of use location that serves one faucet.

Potability Test
Includes the following parameters: pH, Chloride, e.Coli bacteria, Fluoride, Total Hardness, Nitrate Nitrogen, Coliform Total, Nitrite Nitrogen, Arsenic, Calcium, Copper, Iron, Magnesium, Manganese, Uranium, and Radon.
https://www.maine.gov/dhhs/mecdc/environmental-health/eohp/wells/mewellwater.htm

Private Drinking Water Well

This is defined in statute (38 MRSA, §1392) as a well that is used to supply water for human consumption and is not a public water supply well. Individual household wells are the most prevalent example. A well used exclusively for livestock, animals or plants does not meet this definition.

Professional Judgement
The application of the accumulated knowledge and experience of an Environmental Professional gained through relevant training and formal education that results in making informed decisions based on the conceptual site model. These decisions will guide the courses of action that are appropriate in specific circumstances. For this SOP, decisions are routinely made by a Maine licensed geologist, a Maine licensed professional engineer, or geologist or engineer otherwise in compliance with Maine's professional regulation statutes.

Project Lead
As defined in the RAGs, the "project lead" is the agency, group, or organization that is the primary leader and funder for remedial activities at the site and generally hires the contractor that undertakes the remediation. The project lead may be the site owner/operator or other Potential Responsible Party, a state or federal agency, a developer, or other person.

Project Team
The project team includes DEP staff within BRWM that are simultaneously assigned and actively involved in a petroleum release case that requires remediation of soil, water, or air. The project team may include members of the Division of Response Services, Division of Technical Services, Division of Petroleum Management, and the Division of Remediation. Additionally, the team may include environmental consulting technical staff hired by the MEDEP or a responsible party.

Project Team Leader
The project leader is the BRWM team member who is directing actions to be taken at the site, maintains communications with affected property owners, occupants of the property, and other project team members, documents site activities, and approves payment of invoices for the project. During the initial response action, the OHMR is the project team leader until a referral has been made. After the referral is completed, the project team will decide who the project leader shall be based on the site specific needs. If a referral is made to the Petroleum Project Management Unit then the assigned project manager becomes the project team leader.

Protected Natural Resource
As defined by Natural Resources Protection Act 38 M.R.S. §480-B (8) (2007), protected natural resource 38 M.R.S. §480-B (8) means coastal sand dune systems, coastal wetlands, significant wildlife habitat, fragile mountain areas, freshwater wetlands, community public water system primary protection areas, great ponds or rivers, streams or brooks, as these terms are defined in 38 M.R.S. §480-B.

Public Drinking Water Supply Well
A water supply for the following types of water systems, as defined by the State of Maine Department of Health and Human Services Drinking Water Program:

Community Public Water System – A public water system which serves at least fifteen service connections used by year-round residents or regularly serves at least 25 year-round residents. (Year-round is defined as permanent residence greater than six months.) Examples include water utilities, mobile home parks, apartment buildings, and nursing homes.

Non-Transient, Non-Community Public Water Supply Well – A non-community public water system that serves at least 25 of the same persons for six months or more per year. Examples include schools, office buildings, factories.

Public Water
"Public water", or "public drinking water supply" means any well or other source of drinking water that furnishes water for human consumption for 15 service connections, regularly serves an average of at least 25 individuals daily at least 60 days out of the year, or supplies bottled water for sale.

Publicly Owned Treatment Works (POTW)
POTW's can be municipal wastewater treatment plants, sanitary districts, or sewer districts.

Pyrogenic Hydrocarbons
Hydrocarbons produced by incomplete combustion of organic material and is not directly related to pure petroleum sources. Pyrogenic hydrocarbons may be found in ash, coal ash, rubber products (tires), asphalt, coal tar, and coal tar based products (some asphalt coatings).

Radon
A colorless and odorless gas present in soils and dissolved in groundwater that is produced from the natural decay of uranium and radium present in Maine bedrock and soils.

Radon-T
The Radon-T base is used as a 4" schedule 40 PVC receiver stub through a newly poured concrete slab. The base has knockouts in four directions and will fit over a 4" diameter perforated HDPE drainage pipe. For a two-way connection, use a continuous piece of drainage pipe with a 4" square cut out of the top. The base will fit over the top of the pipe.

Receptor
An entity or resource that may be at risk of impact from petroleum contamination. Receptors could include humans, ecological systems, and surface water resources.

Referral Project
A referral project (referral) is a petroleum release case that is referred to Technical Services (TS) the case requires TS staff to remediate soil, water, or air prevent exposure to an identified receptor.

Risk-Based Remedial Action
A remedial action that is based on the risks to human health and the environment based on site data as evaluated in accordance with the Remedial Action Guidelines Petroleum

Addendum. It does not include remedial actions based on a site-specific license requirements or statutes that require specific target cleanup levels.

Roof Flashing
A rubber roof gasket is a rubber roofing material with a hole for the discharge pipe to fit through. It is required for any piping penetration through a roof in order to prevent leakage. Depending on the type of roof gasket, they can be installed from on top of the roof or from inside the attic.

Rubber Coupling
A flexible rubber coupling is used to connect the fan to the PVC pipe. The coupling helps to dampen the noise and the vibration from the pipe. One typical brand name for a flexible rubber coupling is Fernco®.

Sample Location
The location where the water sample is collected (i.e. kitchen faucet, outside spigot, pressure tank, before filter, after filter, before softener, well head, etc.) at a given sample point.

Sample Point Name
The unique name assigned to the sample point that is consistent with the sample point name in EGAD and GIS. The sample point name is used to designate the sample point on the Chain of Custody and associated site maps.

Sample Port
An SSDS sample port is a ¼" hole in the effluent side of the fan used when taking an air measurement with a summa canister or a PID.

Secondary Water Quality Analysis
Groundwater or water supply analysis for major ions (calcium, sodium, magnesium, potassium, chlorine, sulfate, and nitrate), alkalinity, total organic carbon, and methane.

Sediment
For the purposes of this document only, sediment is defined as any granular material and/or fine organic material that is located beneath water for most the year. Materials that are located under water but are frequently exposed (e.g. tidal areas) are considered soils for purposes of this guidance.

Site-Specific Remedial Action Guideline
As defined in the MEDEP Remedial Action Guidelines include:

- Statewide Ground Water & Drinking Water Remediation Guidelines for Petroleum Related Compounds
- Soil Remediation Guidelines Based on Petroleum Leaching to Ground Water
- Soil Remediation Guidelines for Petroleum Target Compounds and Hydrocarbon Fractions
- Applicable human exposure scenarios:
    - Residential
    - Recreational/park user
    - Outdoor commercial/industrial worker
    - Construction/excavation worker

Slab on Grade
Slab on grade is a concrete floor at grade level without a basement or crawl space. The slab may or may not have a frost wall or a footing.

Smoke Pen
Smoke pen is a small "pen shaped" device that emits an inert smoke. It can be used to test pressure gradients and air movement. Disposable puffers using titanium tetrachloride and moisture to make smoke are not recommended for use since a byproduct of making smoke with titanium tetrachloride is hydrochloric acid.

Soil Gas
Air located in void spaces between the soil particles above the saturated zone. The air may contain contamination vapors, which may be described as soil vapors.

Soil Gas Sample
An air sample collected from the void space between the subsurface soil particles. This includes sub-slab samples where the soil gas sampled is beneath a concrete slab or near slab samples where the soil gas sampled is adjacent to a slab or foundation.

Source
A source could consist of contaminants carried in liquid, vapor, groundwater or soil gas as follows:

1.1.1 Liquid contaminants, such as oil or solvents, spilled inside a building may travel through cracks, floor/wall seams, or holes through the floor (i.e., a sump). Likewise, oil spilled adjacent to a building may also migrate below or through a foundation wall and underneath a building. The vapors underneath the floor are drawn into the living space due to pressure differentials between the building and the soil gas. An SSDS does not address vapors from contaminated materials already in the living space such as the concrete floor.

1.1.2 Vapor clouds from solvent handling inside a building (e.g., dry cleaner machine, solvent storage, parts cleaners) may penetrate concrete floors and condense in the subsurface resulting in a vapor source beneath the slab. This is not a migration pathway for petroleum hydrocarbons.

1.1.3 Dissolved contaminants within groundwater (i.e., a plume) may migrate underneath a building where the concentration of volatile petroleum hydrocarbons or VOC's at the top of the water table facilitate vapor transport to the soil gas and into an overlying building.

1.1.4 Contaminants within soil gas may migrate in the vadose zone away from a remote source area that is not facilitated by groundwater flow and intrude into a building. This is not a typical migration pathway for petroleum hydrocarbons as vapors degrade relatively close to the source. MEDEP/BRWM/Tech Services considers remote source area to be petroleum saturated soil or LNAPL that is greater than 30 feet laterally and greater than 6 feet vertically from a receptor.

Stack Effect
The overall upward movement of air inside a building that results from heated air rising and escaping through openings in the building superstructure (i.e., the part of the building that is entirely above ground level), thus causing an indoor pressure level that is typically lower than that in the soil gas beneath or surrounding the building foundation.

Standard Operating Procedure (SOP)
The term Standard Operating Procedure (SOP) is the description of a prescribed method that must be used by MEDEP staff to complete certain routine or repetitive operations, analyses, or actions. SOPs do not establish policy and are not appropriate to describe procedures or requirements that apply to members of the public, other than persons acting as agents of, or under contract with, the MEDEP/BRWM.

Sub Slab Depressurization System (SSDS)
A SSDS is withdrawing air from the soil immediately below a foundation slab in order to manipulate the pressure to prevent the soil gas from entering the building. It is widely used in radon mitigation. In order to be effective, the foundation slab needs to be of relatively low permeability in comparison to the sub slab soil in order to maximize influence below the slab. In addition to the low permeability slab, an SSDS consists of an extraction pipe, an in-line fan, and exhaust pipe. The intercepted soil gas is discharged to and dispersed to the atmosphere, away from receptors.

Sump
A sump is an opening in the floor surface and an excavated pit into the underlying soil below the basement, crawl space or slab on grade floor. The opening in the soil is maintained by installing a sump bucket or pipe which provides a collection point for groundwater and vapor. Sub-slab drains and vent lines emanating from the sump can increase the collection efficiency. The sumps can be designed to either passively discharge collected water and vapor or actively discharge with a pump or fan. Recommendations for constructing and installing a sump to allow access and preserve function are illustrated in the attached Figure 1 Basement Sump for Vapor and Contaminated Water Extraction.

Surface Water
The State of Maine classifies three types of surface water: Fresh Surface Water, Lakes and Ponds, and Estuarine and Marine Waters. Fresh Surface Water has four classifications: AA, A, B and C. Lakes and Ponds has one GPA. Estuarine and Marine Waters has three classifications SA, SB, and SC.

Additionally, the State of Maine designates Surface Water of Special Considerations including waters that are classified as sustenance fishing including sections of the Penobscot River Basin, St. Croix River Basin, and St. John River Basin and some lakes and ponds including, Conroy Lake in Monticello; Grand Lake Metagaming in Trout Brook Township and T6R8 W.E.L.S; Mattamiscontis Lake in T3R9N.W.P. and T2R9 N.W.P; Grand Falls Flowage, Berry Brook Flowage, George Brook Flowage, Huntley Brook Flowage, Lewey Lake, The Basin, The Narrows, Long Lake and Big Lake, adjacent to Indian Township; and Sysladobsis Lake in T5N.D.

Surplus Soil

Soil removed from its original location and cannot be re-used on site. Surplus soil known or presumed to be petroleum contaminated can be managed in accordance with this document.

Technical Assistance Project
A technical assistance project (TA) is a petroleum release site that requires assistance from Technical Services staff to provide technical support to determine if remediation of soil, water, or air is warranted.

Total Extractable Petroleum Hydrocarbons (TEPH)
The fractionation step described in the EPH method can be eliminated to allow for a determination of a Total Petroleum Hydrocarbon (TEPH), and/or to obtain qualitative "fingerprinting" information. While TEPH provides little information on the chemical constituents, toxicity, or environmental fate of petroleum mixtures, it may be a cost-effective screening tool in cases where relatively low concentrations of contamination are suspected.

Transfer of Responsibility Agreement
A document that outlines the responsibilities of the Department and the homeowner which is signed when an SSDS or POE water treatment system is no longer necessary to mitigate petroleum health risks and is left in the building for the owner to maintain

Transient Public Water Supply Well
A water supply that supplies a non-community public water system that serves at least 25 persons, but not necessarily the same persons, for at least 60 days per year. Examples include restaurants, camps and campgrounds, motels and hotels, and golf courses.

Underground Storage Tank (UST)
Any container, 10 percent 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, 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. Does not include underground propane storage tanks, wastewater treatment tank systems such as underground oil water separators that are regulated by the Clean Water Act §§ 402 or 307(b) (1972) (33 U.S.C., §1317(b) or §1342 (2016)), storm water and emergency catch basins, and equipment or machinery tanks such as hydraulic lift tanks and electrical equipment tanks. Overflow tanks associated with oil-water separators are still considered an underground oil storage tank.

Urban Fill
"Urban fill" means soil mixed with other materials used to modify site elevation to facilitate property development and that is unrelated to a specific property activity. Urban fill is a soil matrix that includes such material as brick, cement, wood, wood ash, coal, coal ash, boiler ash, clinkers, other ash, asphalt, glass, plastic, metal, demolition debris, and roadside ditch materials. Certain urban areas of Maine, such as the Bayside area of Portland, have large quantities of Urban Fill present. Many properties in Maine have smaller quantities of Urban Fill present, including developed properties in rural areas of the state. To distinguish urban fill from site related contaminants, soil descriptions should include the components of fill materials that are present and the Conceptual Site Model

should include the extent or approximate extent of the materials both vertically and horizontally.

Urban Groundwater Non-Attainment Area
These are aquifers or portions of an aquifer that because of current and historical land use and pollution have little potential for use as a public or private drinking supply source. For the purpose of these guidelines only, these are densely developed industrial, commercial or residential areas, supplied by public water, including portions of mapped sand and gravel aquifers or other ground water aquifers where any one of the following conditions are documented or found to exist:

a) The aquifer or ground water beyond the property on which the discharge occurred was polluted with one or more man-made contaminants in concentrations exceeding the Remedial Action Guidelines for Groundwater or the Maine CDC Drinking Water Guidelines., AND the aquifer's ground water has not been and is not now the subject of a Department supervised or approved remediation effort with the eventual goal of restoring or protecting ground water to ensure its potability; OR,

b) Dense commercial or residential development where most lots are ½ acre or less with subsurface waste water disposal, with public drinking water service, and no active, potable water supply wells within 1000 ft.; OR

c) Where institutional controls or a municipal ordinance prohibits the withdrawal of ground water for human use within 1000 ft. of the discharge location; OR

d) Other documentation demonstrating to the Department's satisfaction that the aquifer is unsuitable or unavailable as a future public or private drinking water resource.

U-Tube Manometer
A U-Tube manometer is a device that compares the pressure relative to atmosphere. It is installed on the vertical section of a vent pipe. The manometer shows the system vacuum applied by the fan in inches of water column. It provides a visual indication of the fan's operation. The amount of air flow can be determined by using the manufacturer's flow chart and the U-tube manometer measurement (inches of water column). If the manometer reading is zero, then the SSDS system isn't working properly.

Vadose Zone
The area between the ground surface and the groundwater table. The pore spaces in the vadose zone are partly filled with water and partly filled with air. The area is also referred to as the unsaturated zone.

Vapor Barrier
A vapor barrier is plastic sheeting used to prevent the migration of soil vapors and water vapor from the soil into the building. A recommended product is 15-mil yellow plastic sheeting ("Stego® Wrap") from Stego® Industries, LLC with 0.0086 perms. Stego® Wrap is a vapor barrier that is very durable and puncture resistant and has an extremely low perm rating. In comparison, readily available 6-mil polyethylene has a perm rating of 0.06. It is important to note that the installed, effective permeance is largely dependent on the installation technique.

Vapor Barrier Tape
Vapor barrier tape is a low permanence, flexible tape designed for protective sealing. Four-inch wide tape is recommended for sealing seams to vapor barrier liners.

Vapor Intrusion
Vapor Intrusion is the migration of hazardous vapors from a subsurface contaminant source, such as contaminated soil or groundwater or contaminated conduit(s), into an overlying building or unoccupied structure via any opening or conduit.

Vapor Pin
Vapor pins are metal devices inserted into test holes in the concrete floor to maintain access to a re-usable sub-slab soil gas sampling port.

Virgin Petroleum Contaminated Soil
Soil that is contaminated with unused refined petroleum oil.

Volatile Organic Compounds (VOCs)
Volatile organic compound are organic chemicals that have a high vapor pressure at room temperature. High vapor pressure correlates with a low boiling point, which relates to the number of the sample's molecules in the surrounding air, a trait known as volatility.

Volatile Petroleum Hydrocarbons (VPH)
Massachusetts Department of Environmental Protection's Method for the Determination of Volatile Petroleum Hydrocarbons (VPH) https://www.mass.gov/guides/compendium-of-analytical-methods-cam#-petroleum-hydrocarbon-methods-

Waste Oil
A petroleum or synthetic oil that, through use or handling, has become unsuitable for its original purpose due to the presence of hazardous substances or other impurities, or loss of its original properties (38 MRS, §1301-C).

Water Shake Test
A method for determining the presence of LNAPL in soils or sediments. The method is described in MEDEP SOP TS004, and it includes placing soil into a clear glass jar and pouring clean water into the jar to cover the soil in water. Securing the water tight lid and shaking the soil and water sufficiently to break-up the soil particles and liberate any LNAPL present in the soil pores. The presence of LNAPL is observed as a layer on the water surface after shaking is stopped and lid is removed.

Water Supply Well
A well that supplies potable water for human consumption. This may be a private well, or a Public Water Supply. It could be a drilled bedrock well, a driven point overburden well, a dug well, or a spring that supplies water.

Water Quality Meters
Instruments that measure common components found in groundwater, usually by connecting to a probe (i.e. specific conductance, temperature, pH, Eh, DO, etc.).

Water Quality Test Kits
Colorimetric kits that measure common components found in groundwater (i.e. DO, Fe, Mn).

Well Material
Includes all materials used to construct a well and may include the well casing (steel, stone, cement, or PVC used to hold back the surrounding unconsolidated earth or fill), well screen (metal, or PVC), filter sand, and any seal material placed within the borehole.

Zero Air
Ambient air conditions assumed to contain no appreciable volatile components.

Zero Gas
Containerized gas certified to have no volatile components.