



**Connecticut Department of
Energy & Environmental Protection**
Bureau of Water Protection & Land Reuse
Remediation Division

Instructions for Completing the General Permit Registration Form for In Situ Remediation: Chemical Oxidation

Use these instructions to complete the registration form for the General Permit for In Situ Remediation: Chemical Oxidation (DEEP-REM-REG-002). These instructions are not a substitute for the requirements of any relevant statutes or regulations. You should review all applicable laws prior to completing the registration form. Remember, it is your responsibility to comply with all applicable laws.

A completed registration form must be submitted for all activities taking place at a single site for which the registrant seeks authorization under this general permit. The registration form is designed to provide a stand-alone high-level summary of the proposed discharge activity. Activities taking place on more than a single parcel may not be consolidated on one registration form unless they are associated with a single remediation project addressing one or more co-located pollution releases.

Introduction

Many remediation activities, especially in situ remediation, can involve the discharge of a substance either directly into the groundwater of the state, or indirectly but in a manner intended to affect groundwater quality. Under Connecticut law, such discharges must be authorized through issuance of a permit, and a variety of specific permitting mechanisms are available for this purpose, administered by the Bureau of Water Protection and Land Reuse of the Department of Energy and Environmental Protection (the "Department"). Discharges that are otherwise not permissible under Connecticut's Water Quality Criteria may be authorized, provided that they are necessary to remediate pollution, will not permanently adversely affect the waters of the state, and are demonstrated to be made in a manner that is protective of human health and the environment.

The General Permit for In Situ Remediation: Chemical Oxidation, issued by the Department under the authority of Connecticut's General

Statutes ("CGS") section 22a-430b, authorizes the use of chemical oxidants for in situ remediation, throughout a prescribed geographic area. It authorizes a specific group of similar activities that are described within the general permit, along with terms and conditions for conducting the activity in a safe and protective manner. Authorization to discharge is obtained by submitting a registration under the provisions of the general permit for a particular authorized activity at a particular site. Following Departmental review of the registration, a written proof of discharge authorization is generally provided, which may be either a certificate of coverage or an approval of registration depending on the specifics of the general permit.

The Department also uses other general permits, individual permits issued pursuant to CGS section 22a-430, and temporary or emergency authorizations issued pursuant to the authority of CGS section 22a-6k to authorize and regulate discharges associated with remedial activities.

If an activity can be covered by registration pursuant to an issued general permit, the Department recommends that the general permit authorizing mechanism be used, rather than applying for a temporary or emergency authorization or individual permit, and may deny a request for a temporary authorization for an activity eligible to be covered by registration pursuant to a general permit.

Any questions that you may have regarding authorization of a discharge to groundwater to remediate pollution should be directed to the Remediation Division at 860-424-3705.

Definitions

The definitions of many of the terms used in the registration form and these instructions may be found in CGS section 22a-423, and in the Regulations of Connecticut State Agencies (RCSA) section 22a-430-3(a) and section 22a-133k-1(a). Definitions of additional terms may be found in RCSA section 22a-430-8(a), section 22a-449(d)-101, and section 19-13-B102, and also in specific General Permits. Definitions of key terms are discussed below for clarity, and in addition terms defined specifically for use in the registration form and in these instructions are included:

“Area of Concern” or *“AOC”* is a location or area where hazardous waste and/or hazardous substances (including petroleum products) have been or may have been used, stored, treated, handled, disposed, spilled, and/or released to the environment (see Site Characterization Guidance Document), and in this case the only AOCs with relevance are those whose presence may affect design or operation of the remedial system even if they are not the remedial target;

“Chemical oxidant” means any substance that oxidizes another substance, being itself reduced in the process, including permanganates, persulfides, peroxides, percarbonates and ozone, and combinations thereof;

“Conceptual Site Model” or *“CSM”* means a representation of an environmental system, incorporating information about a chemical’s release, fate, transport mechanisms and pathways, and any potential receptors (see Site Characterization Guidance Document), that is used in this case as a tool for understanding and for explaining to others the basis and rationale for the site remedial design;

“Constituent of Concern” or *“COC”* means a component, breakdown product, or derivative of a substance that may be found in the environment as a result of a release or discharge, or a reaction caused by such a release or discharge (see Site Characterization Guidance Document), and may include in this case substances contained in chemicals permitted for discharge or substances that result from the chemical interaction of that discharged chemical with the pollutant being treated, other pollutants present, or the aquifer water or matrix;

“Heating Oil” means petroleum fuel that is typically used in the operation of heating equipment, boilers, or furnaces, including but not limited to fuel oil of various grades;

“Heating Oil Tank” means a tank, and its associated fill and distribution lines, that is or was used to store heating oil for consumptive use, usually containing # 2 grade fuel oil at a residential, institutional or commercial property;

“Petroleum Fuel” means a petroleum product produced for use as fuel for heating or transportation, including but not limited to gasoline, jet fuel, diesel fuel, and heating oil, excluding fuels blended with solvents or wastes or over 20% non-petroleum in origin;

“Primary Parcel” means the parcel of land upon which the largest single part of the proposed discharge will take place, and is usually the parcel upon which the source of the pollution being targeted for remediation by the proposed discharge is located;

“*Public Water Supply Well*” means a water supply well that is a source of drinking water supply for a public water system, as defined in section 19-13-B102 of the Regulations of Connecticut State Agencies;

“*Source Water Area*” means an area of land, delineated by the state, that contributes water to a source of public drinking water supply, whether the source is groundwater, surface water, or both (refer to the Department of Public Health (DPH) source water protection program for more detail);

“*Tank*” means tank as defined in section 22a-449(d)-101 of the Regulations of Connecticut State Agencies, and also including, but not limited to, any associated fill and distribution lines;

“*Unprotected Subsurface Structure*” means a metal structure, such as a tank, pipe or conduit, that is below the ground surface, in contact with the soil, and not protected from corrosion by either an applied dielectric coating or a cathodic protection system, or any other structure that may come into contact with groundwater containing substances that could affect the structure’s integrity; and

“*Zone of Influence*” means the spatial area or volume of receiving water flow within which some degradation of water quality or use impairment is anticipated to occur as a result of a discharge (RSCA 22a-430-3(a)), and in this specific usage it is the volume of groundwater with a change in water quality resulting from the permitted discharge or its effects on the aquifer system.

Who May Apply for a General Permit Discharge Authorization?

Any person or municipality seeking authorization under the authority of Connecticut General Statutes (CGS) Section 22a-430b to discharge chemical oxidants into soil or groundwater to remediate pollution must file a registration with the Department.

A registrant may be a property owner, an “other responsible party”, an environmental consultant, or a remediation contractor.

How To Apply

Your general permit registration must include the following:

- An original *Registration Form General Permit for In Situ Remediation: Chemical Oxidation* (DEEP-REM-REG-002) and all supporting documents (the “Registration Package”);
- The applicable fee, paid by check or money order, made payable to the “Department of Energy and Environmental Protection”.

You must submit the above materials together as a package to:

CENTRAL PERMIT PROCESSING UNIT
DEPARTMENT OF ENERGY AND
ENVIRONMENTAL PROTECTION
79 ELM STREET
HARTFORD, CT 06106-5127

If the proposed activity is within any part of an aquifer protection area or a public drinking water supply source water area for surface water or water supply wells, or if the activity is on land owned by an owner or operator of a public water supply, a copy of the registration package, including the registration form and all supporting documents, must be filed with the Department of Public Health, who may wish to review the proposed actions.

An electronic copy of the registration package may be filed at the following address:

DPH.SOURCEPROTECTION@CT.GOV

If an electronic copy cannot be filed, a duplicate original or certified copy of your registration package must be sent to the Department of Public Health at the following address:

DRINKING WATER SECTION
DEPARTMENT OF PUBLIC HEALTH
410 CAPITOL AVENUE - MS #51 WAT
P.O. BOX 340308
HARTFORD, CT 06134-0308

If the proposed activity is within 200 feet of any water supply well pumping over ten (10) gallons per minute, or within seventy-five (75) feet of any other water supply well, a duplicate original or certified copy of the registration form and only the location map (Attachment A) shall be filed with the local Director of Health.

Refer to the “Available Resources” section at the end of these instructions for sources of information needed to complete this registration, for how to obtain all required documents related to a subject registration, and sources of additional technical guidance.

When submitting your registration, label your supporting documents as directed on your registration form and always include, on each document, the registrant’s name as indicated on the registration. When additional space is necessary to answer a question stated in the registration, please insert additional sheets by the appropriate question. Label each sheet with the registrant’s name as indicated on the registration, along with the corresponding part number and question number indicated on the registration form. (The fillable electronic registration form allows multiple lines to be generated where short answers are requested.) You should retain a copy of all documents for your files.

After the Registration is Submitted

Following submittal of all required materials for this registration, the Department will, typically within 60 days, issue an authorization for the discharge, or notify the registrant in writing if the registration has been rejected or denied. In the course of its technical review of the registration, the Department may request additional technical information.

After determining the discharge can be authorized, the Department may issue either an Approval of Registration or a Certificate of Coverage, directly to a registrant. It provides documentation of the Department’s

authorization of a discharge, and may contain site specific requirements.

When a discharge is authorized pursuant to a General Permit it is the registrant’s responsibility to ensure that they understand all the requirements of the General Permit, including any conditions that may be specified in an appendix to the General Permit, and to ensure that the discharge complies with these requirements.

Additionally, it is the registrant’s responsibility to ensure that they understand any requirements and conditions applicable to the specific discharge being authorized, especially including any differences imposed by the authorizing document relative to the registration package documents, and to ensure that the discharge complies with all the Department’s requirements and conditions.

Part I: Registration Type

Check the appropriate box to specify if the registration is for a *new* discharge authorization or a *modification* or *renewal* of an existing discharge authorization. If you are applying for a modification of an existing discharge authorization, please identify the existing permit number, facility ID and expiration date in the spaces provided.

Include proposed start and end dates for your active discharge activity, including all anticipated phases of the project but excluding post-discharge monitoring activity. For an existing activity enter the actual start date. Ensure that project planning includes a time provision for DEEP to process your registration.

Indicate the city or town within which the proposed subject activity will take place.

Provide a brief description of the general nature and objective of the proposed discharge. An example would be “Potassium permanganate will be injected into the site soil and groundwater to oxidize heating oil pollution.”

Part II: Fee

Each proposed subject activity requires a separate registration and fee. The registration will not be processed without the fee. The payment should be in the form of a check or money order made payable to “Department of Energy and Environmental Protection”.

The fee for registration under the General Permit For In Situ Remediation: Chemical Oxidation is \$500.

The fee may be waived for any activity addressing pollution originating from a single family residence. Check the appropriate box and sign where indicated to request a fee waiver.

Additionally, fees for sites owned by municipalities are reduced by fifty percent (50%), as provided by CGS 22a-6(b).

Check the boxes provided to indicate any applicable reductions taken.

Part III: Registrant and Additional Party Information

When completing this part, please use the following standards:

- *Name* - Provide the full, legal *company/firm* name. (If identifying an entity registered with the Secretary of the State, fill in the name exactly as it is shown on such registration.) If identifying an *individual*, provide the full legal name (include title and suffix) in the following format: Title (Ms, Dr, etc.); First Name; Middle Initial; Last Name; Suffix (Jr, PE, PhD, etc.)
- *Phone* - Unless otherwise indicated, the phone number provided should be the number where the individual can be contacted during daytime business hours.
- *E-mail* - Providing an e-mail address signifies agreement to receive official correspondence from the department at the provided electronic address, when not precluded by statute.

Part III-A: Registrant

Part III-A collects information regarding a registrant and their duly delegated specific business and administrative representatives.

1. *Registrant* - Fill in the registrant’s name and phone number using the requested format. *If an registrant is a business entity, such as a corporation, limited liability company, limited partnership, limited liability partnership, or statutory trust, it must be registered with the Secretary of State. If applicable, registrant’s name shall be stated exactly as it is registered with the Secretary of State.* If the registrant is a business entity, provide additional details regarding the registrant. *Information regarding business entities can be accessed at the Secretary of State’s database (CONCORD):*

<http://www.concord-sots.ct.gov/CONCORD/index.jsp> .

The registrant may be the property owner, or with the permission of the property owner may be an “other responsible party”, an environmental consultant, or the remediation contractor.

Describe the registrant’s interest in the activity proposed.

Check the appropriate box if there are co-registrants, and provide details in the space indicated.

2. *Billing Contact* - If applicable, provide information regarding any duly delegated business contact who should receive any invoices associated with this activity.

Part III-B: Additional Parties

Part III-B collects information regarding additional parties that may also need to receive correspondence from the Department regarding this registration. These may include a site owner who is not a registrant or a technical consulting firm that is providing services and should receive technical correspondence, but is

not serving as an officially duly delegated representative of the registrant.

1. *Primary Parcel Owner*- List the owner of the primary parcel where the proposed activity is to take place, if different from the *Registrant*. If the primary parcel owner is not a co-registrant you must provide an explanation of how you have access permission for your activity.
2. *Technical Contact* - List, if different than the Registrant, the primary technical contact for the proposed activity. This will typically be the environmental consultant or engineer who provides design, and often also construction, operation and oversight services, for the proposed activity; and should be the person to whom the Department directs technical questions. Describe this contact's specific role in the project.
3. *Additional Parties* - List any additional parties involved with the registration or the proposed activity who should receive copies of correspondence directly from the Department. Identify how the party is involved with the proposed activity and include the relevant information, described above, for each. Parties that may need to be identified are trustees, attorneys, additional consultants or contractors, or site operators or tenants, not all of whom would need to be listed, depending on their specific role relative to the proposed activity.

Do not list in this box additional parcel owners whose land is affected by your activity, but instead enter them in Table 1 of the registration form (see Part IV).

Part IV: Site Location and Additional Parcels

1. *Primary Parcel* - Fill in the name of the parcel where the proposed discharge will occur, which is typically the parcel where the pollution being treated originates. Indicate if this name is the same as the registrant name, and confirm it is the site of

origin for the pollution being treated. If the proposed activity or expected zone of influence will affect any nearby properties, those properties would be considered *additional parcels* and shall be identified later in the registration.

Please note that if the proposed activity will be treating only the distal edge of a plume that is already attenuated at the source, the *primary parcel* would be considered the parcel where the largest amount of the proposed discharge will occur; and other parcels would be considered *additional parcels* as above. For this situation, please also identify the site of origin in the additional parcels table.

Include the street address. If the property does not have a street number, describe the location in terms of the distance and direction from an obvious landmark such as an intersection with another roadway, a bridge, or a river. For example, "... on River Street, approximately 1000 feet north of its intersection with Bear Swamp Road."

The city or town name should be one of the 169 official cities or towns that are the primary local governance bodies. Any local place name that clarifies the location within the official city/town may be included before the official city/town within brackets.

Provide the latitude and longitude, in decimal degrees or in degrees, minutes and seconds, of the exact location of the center of the proposed activity. In addition, please indicate the method used to determine the latitude and longitude coordinates. There are a variety of methods for deriving latitude and longitude coordinates, with the Global Positioning System (GPS) being the most accurate.

2. *Parcel Character* - Check the appropriate box to indicate the use of the property. A residential property is defined as real property with a house, apartment, trailer, mobile home, condominium or other structure, composed of up to four residential

units solely occupied by individuals as dwelling. Include for non-residential properties a single phrase description of their general nature.

3. *Additional Parcels* - Specifically state whether or not additional parcels will be affected by the proposed activities or contain any part of the expected zone of influence of the discharge. Fill in Table 1 (page 9 of the registration form, which is an unlocked part of the electronic fillable form) with the appropriate information for any additional parcels that may be affected by the proposed activity or expected zone of influence. Describe the general character of the parcel land use in the column in Table 1. Written permission is recommended from the owners of parcels where any part of the proposed activity or expected zone of influence will be present. Note the nature of the access permission in Table 1 of the registration form.

Part V-A: Site Information – Site Setting

Part V-A of the registration collects site setting information intended to ensure that appropriate divisions of the Department, outside of the Remediation Division, will partake in review of the registration as necessary.

1. Review the following sections to determine if the specific site setting aspects apply to the primary parcel, any associated parcels or any part of the expected zone of influence.

You must affirmatively indicate if none of the specific site setting circumstances apply, using the box provided.

A. Coastal Management Act Consistency

Activities within the state's coastal area must be consistent with the Connecticut Coastal Management Act, i.e., sections 22a-90 through 22a-112 of the Connecticut General Statutes (CGS). You may be required to complete a

Coastal Consistency Review Form (DEEP-APP-004) to demonstrate that the activity is consistent with the standards and policies of the Connecticut Coastal Management Act. To determine whether this requirement pertains to you, you must first decide if your activity is, or is proposed to be, located in either the coastal area or the coastal boundary.

The *coastal area*, as defined in CGS section 22a-94 (a), includes the land and water within the following towns:

Branford	Guilford	Old Saybrook
Bridgeport	Hamden	Orange
Chester	Ledyard	Preston
Clinton	Lyme	Shelton
Darien	Madison	Stamford
Deep River	Milford	Stonington
East Haven	Montville	(Borough
East Lyme	New London	& Town of)
Essex	New Haven	Stratford
Fairfield	North Haven	Waterford
Greenwich	Norwalk	West Haven
Groton (City	Norwich	Westbrook
& Town of)	Old Lyme	Westport

The *coastal boundary*, as defined in CGS section 22a-94(b), is a designated region within the coastal area. It is delineated on Department-approved coastal boundary maps which are available for review at the Office of Long Island Sound Programs (OLISP), the Department’s File Room, and municipal offices of towns located in the coastal area; and the information can also be found at the CTECO internet site [www.cteco.uconn.edu], maintained by the University of Connecticut, or the Long Island Sound Resource Center internet site [www.lisrc.uconn.edu/] Copies of these maps may also be purchased from the Department’s Maps and Publications Store.

Activities within the coastal area:

Check the appropriate box to indicate if the proposed activity is within the coastal area. For registrations for activities located outside of the coastal boundary, but within a town in the

coastal area, you are not required to submit a *Coastal Consistency Review Form* with your initial registration materials. However, the Department may notify you that submission of this form is required to process your registration, depending upon the specific activities to be conducted and their potential impact on coastal resources.

Activities within the coastal boundary:

Check the appropriate box to indicate if the proposed activity is also within the coastal boundary. If your activity is, or is proposed to be, located in the coastal boundary, and you are submitting either a new registration or a modification to an existing registration that increases the areal extent of activity, you must complete a *Coastal Consistency Review Form* (DEEP-APP-004) and submit it with your registration as Attachment G.

For modifications of existing authorizations that do not increase the areal extent of activities located within the coastal boundary, you are not required to submit a *Coastal Consistency Review Form* with your modification request. However, the Department may notify you that submission of this form is required to process your registration depending upon the specific activities to be conducted and their potential impact on coastal resources.

If you need copies of the *Coastal Consistency Review Form*, refer to the “Available Resources” section at the end of these instructions. For assistance in completing the form, or if you have questions on this process, call OLISP at 860-424-3034.

B. *Federally Recognized Indian Lands*

Check the appropriate box to specify if the proposed activity will take place on federally recognized Indian lands.

C. *Conservation/Preservation Restriction*

Check the appropriate box to indicate if the proposed activity will take place on a parcel that is subject to a conservation or preservation restriction other than regulation by local wetlands authorities. If applicable, submit as Attachment H a letter from the holder of the restriction verifying that the proposed activity is in compliance with the terms of the restriction. Include also in Attachment H any site-specific restrictions on activity identified in any local inland wetlands authorization.

D. *Natural Diversity Data Base - Endangered or Threatened Species*

Section 26-310 (a) of the Connecticut General Statutes states that each state agency, in consultation with the commissioner, shall conserve endangered and threatened species and their essential habitats, and shall ensure that any activity authorized, funded or performed by such agency does not threaten the continued existence of any endangered or threatened species or result in the destruction or adverse modification of habitat designated as essential to such species.

Please refer to the “*Connecticut Natural Diversity Data Base- (NDDDB) Review of Endangered or Threatened Species*” located on the Department’s website at: www.ct.gov/deep/endangeredspecies (Review/Data Requests) to determine if your activity is located within an area identified as a habitat for endangered, threatened or special concern species. The information can also be found at the CTECO internet site maintained by the University of Connecticut [www.cteco.uconn.edu]. If applicable, include copies of any correspondence to and from the NDDDB staff, including a copy of the completed *CT NDDDB Review*

Request Form with your registration as Attachment I.

Check the appropriate box to indicate if the proposed activity or expected zone of influence will take place on or within an area identified as a habitat for endangered, threatened or special concern species as identified on the “State and Federal Listed Species and Natural Communities Map. Specify the date of the map in the appropriate space. If yes is checked, the Department may request additional information.

2. Check all the appropriate boxes to indicate if the proposed activity, including access and support activities, or any part of the expected zone of influence will occur within 100 feet of any watercourse, coastal water, inland wetland, or tidal wetland (defined in CGS Sections 22a- 38, 93, 38, and 29 respectively). Further indicate if the activity is to be located within any identified floodplain (Federal Emergency Management Agency (FEMA) National Flood Hazard Layer (NFHL) database or earlier mapping such as Q3 FEMA Flood Mapping). Consult “Available Resources” below for guidance in determination of this information. Check the appropriate box to indicate if the above do not apply to the proposed activity. If any of the above apply, local permits or state reviews or permits may be required.
3. Provide the name, distance from the zone of influence, and the surface water quality goal, as identified in the *Connecticut Water Quality Standards*, for the nearest down gradient stream or surface water body. (See “Available Resources”.)
4. Indicate if the proposed activity or the predicted zone of influence is located within one mile of any public water supply well. Consult “Available Resources” below for guidance in determination of this information.

Part V-B: Site Information – Regulatory Framework

Information provided in Part V-B of the registration helps the Department quickly identify any administrative programs that may already be involved with the site.

1. Check the appropriate boxes to indicate if the primary parcel for the proposed activity is subject to remedial obligations within the framework of the remediation and regulatory programs listed on the registration form. Affirmatively check the appropriate box to indicate if none apply for the primary parcel. Include in the registration form Table 1 “character” column appropriate information regarding remedial obligations that apply separately or uniquely to additional affected parcels. Affirmatively check the appropriate box to indicate if none apply to any other parcels. This information will be used to ensure cross program coordination within the Department. If boxes in this section are checked, Departmental staff may contact you for additional details.
2. If the site is subject to any of the above remedial programs, or if staff from the Leaking Underground Storage Tank program are actively involved with the site, indicate if supervision of the site has been retained by the Department or delegated to an LEP, or if a delegation of supervision has not yet been made. Fill in the name and license number of the supervising LEP or the Departmental project lead as appropriate.
3. Check the appropriate boxes to indicate if the primary parcel is subject to any of the regulatory programs listed on the registration form. Affirmatively check the appropriate box to indicate if none apply to the primary parcel. Fill in all associated identification numbers. Include in the registration form Table 1 “character” column appropriate information regarding regulatory programs that apply separately or uniquely to additional affected parcels, including associated ID numbers. Affirmatively check

the appropriate box to indicate if none apply to any other parcels. This information will be used to ensure cross program coordination within the Department and with other Agencies. In addition, sites in some of these programs, or on state or federal superfund inventories, may have added considerations needed in developing a contaminant of concern (COC) list.

4. Please identify any other regulatory programs that you believe should be contacted by Departmental staff reviewing this registration.

Part V-C: Site Information – Relation to Water Supplies

Part V-C of the registration collects site specific information detailing site proximity to public water supplies, proximity to public and private wells, and groundwater quality goals in the area of the proposed activity. This further helps the Department determine the administrative activity required to process the registration.

1. Check the appropriate boxes to define the proximity of the proposed activity or expected zone of influence to a public water supply. Affirmatively check the appropriate box to indicate if none apply. If activity is proposed on land owned by a water company, which is defined (see CGS 25-32a) as an entity that supplies water to two or more consumers or to twenty-five or more persons on a regular basis, a use permit may be required from the Department of Public Health. Consult “Available Resources” below for guidance in determination of this information.

Any proximity to public water supplies as identified on the registration requires that a copy of the registration form, including all supporting documents (the “registration package”), be filed with the Department of Public Health, who may wish to review the proposed actions.

An electronic copy of the registration package may be filed at the following address:

DPH.SOURCEPROTECTION@CT.GOV

If an electronic copy cannot be filed, a duplicate original or certified copy of your registration package must be sent to the Department of Public Health at the following address:

DRINKING WATER SECTION
DEPARTMENT OF PUBLIC HEALTH
410 CAPITOL AVENUE - MS #51 WAT
P.O. BOX 340308
HARTFORD, CT 06134-0308

Affirm that this copy has been sent in the space provided.

2. Check the appropriate box to indicate the groundwater classification, pursuant to CGS section 22a-426, for the area of the proposed activity and anticipated zone of influence. If multiple classifications are present, check all that apply.
3. Check the appropriate boxes to indicate the proximity to water supply wells for the area of the proposed activity and anticipated area of influence. Consult “Available Resources” below for guidance in determination of this information. Explicitly specify if the only water supply well identified is owned by the registrant or primary parcel owner.

Proximity to private supply wells requires that a duplicate original or certified copy of your registration form, without attachments except the location and site maps, be sent to the local Director of Health, who may wish to review the proposed actions. Affirm that this copy has been sent in the space provided.

4. Fill in the appropriate information on Table 2 (page 9 of the registration form, which is an unlocked part of the electronic fillable form) to document the details of public water supply wells within 1,000 feet and also all other water supply wells within 500 feet of the proposed activity or anticipated

zone of influence; specifically indicate in the box provided if no wells are present. For public water supply wells, include the PWS ID number in the “remarks” column.

Identify how the list of wells was developed, or how it was determined that no wells are present. .

If the data for questions 3 and 4 is not based on a water supply well receptor survey consistent with prevailing standards and guidance discuss in the space provided.

Part V-D: Site Information – Environmental Effect Mitigation

The previous sections of Part V of the registration collect information specific to the site setting, environmental and regulatory framework, and drinking water receptors. The purpose of Part V-D is to allow the registrant to *summarize* identified potential adverse environmental effects of the proposed activity on these identified elements and how these effects will be prevented. The registrant should also describe how these effects, should they occur, will be identified and mitigated. The text included here should be an executive summary of relevant parts of the supporting documentation for the registration. Attach continuation sheets as necessary.

Include specifically a brief discussion of how any potential adverse impacts to drinking wells are mitigated by design of the proposed actions, and how monitoring will ensure protection of the wells.

Note that this section of the registration is focused on potential off-site effects affecting significant receptors, and on the proposed activity’s relationship to other regulatory programs, whereas Part VI-D of the registration focuses on mitigation of on-site technical effects of the proposed activity.

Part VI: Detailed Information

Part VI of the registration form focuses on identifying the character of the site and its

pollution and on the specifics of the proposed activity and its monitoring. You are asked to describe the site conditions, including the pollution that the proposed activity is intended to treat, the proposed discharge activity, including its objectives and the substances and methods that you are proposing to use, and the nature of your monitoring program that will ensure protection of the environment. Check the appropriate boxes and fill in the appropriate information to provide Departmental staff with a *summary* of the information in the supporting documents. Space is provided in some instances for *brief* clarifying comments.

When your responses to any questions in Part VI include “don’t know” answers, a *summary* explanation of how these are not relevant to the decision process for authorizing your proposed activity should be provided in Part VI-D. Note that in the event Departmental staff cannot make an initial evaluation based on your answer, they may review the added information that is contained in the supporting documents or contact you for more information, with a possible delay in authorization.

Part VI-A: Detailed Information – Site and Pollution

Provide information that summarizes the Site Conditions Report, including the site hydrogeologic and hydrogeologic character, the nature of the pollution to be remediated, and any specific site factors that are or should be considered in design or review of the proposed activity.

1. Check the appropriate boxes to indicate if the subject activity or expected zone of influence will occur at a location where sensitive site conditions exist as listed on the registration form. Affirmatively check the appropriate box to indicate if none apply. This information is generally derived from a site characterization study. Discuss in Part VI-D how the proposed activity design, implementation, and monitoring serve to

mitigate any potential adverse effects on the identified site conditions.

2. Check the appropriate boxes to indicate the known character and extent of pollution. Understanding of the nature of the pollution problem through site characterization is important for design of remedial and monitoring activity. Discuss in Part VI-D how “don’t know” answers are adequately addressed by the activity design.

Briefly indicate the nature of your evidence of a release and the mechanism thereof.

Identify the general type of pollutant to be treated. (If the release is of an alternative fuel, such as biodiesel or E-85, report this as an “other pollutant”.)

Provide information regarding any evaluation of the presence of Non-Aqueous Phase Liquids (NAPLs). (CT RSR Cnap is defined in RCSA section 22a-133k(2)(c)(3)). Identify in the discussion that regulatory removal requirements for NAPL have been met or, if recoverable product remains present at the time of registration, describe in Part VI-D how it will be removed to meet regulatory requirements.

Identify if any additional non-natural contamination, other than the target pollution, is present in the expected zone of influence and its general nature. (Discuss naturally occurring constituents that may pose a concern in question four, below, rather than here.) If other contamination is present discuss in Part VI-D how it was considered in the remedial design.

3. Provide a summary of the site hydrogeology. The evaluation of aquifer hydrogeologic characteristics for this section is somewhat subjective, but is essential as a consideration for design for most in-situ remedial systems. Space is provided for short explanation of any details that would significantly affect the Department’s review of the registration. Include information regarding how the bedrock depth determination was made:

borings, test pits, extrapolation of local geologic conditions, or other means. Evaluate temporal variation in both groundwater gradients and flow directions. Include evaluation of how preferential pathways, aquifer permeability, or aquifer heterogeneity may affect both contaminant migration and effectiveness of reactant delivery/contact. Discuss in part VI-D why “don’t know” answers are not significant data gaps affecting the remedial design. Consult any published Departmental technical guidance or the technical references in “Additional Resources” below for assistance in determining, for the specifics of your site and proposed activity, what technical considerations are typically important.

4. Provide a summary of the hydrochemical properties of the site groundwater and aquifer framework materials, as these may relate to implementation of the proposed remedy. The complex chemical interactions between the pollutant, aquifer material, groundwater, and discharged chemicals should be considered in answering these questions. Space is provided for short explanation of any details that would significantly affect the Department’s review of the registration. Discuss in part VI-D why “don’t know” answers are not significant data gaps affecting the remedial design. Consult any published Departmental technical guidance or the technical references in “Additional Resources” below for assistance in determining, for the specifics of your site and proposed activity, what technical considerations are typically important.
5. Provide the overall dimensions of the expected zone of influence, and a description of the basis for the delineation of the expected zone of influence as shown on the site map. Include a summary of the determination basis for the vertical extent of the zone of influence as depicted on site cross sections.

Part VI-B: Detailed Information – Activity Proposed

Provide information that summarizes the Work Plan, including specifics of the substances to be discharged, the nature of the delivery system, and identification of any site/activity specific factors that are or should be considered in design or review of the proposed activity.

1. Provide information regarding the general nature of the activity proposed, including the reason for the discharge and the target environmental media, checking all that apply. The general class of remedial activity in question 1B is limited to chemical oxidation for this general permit and is pre-selected,
2. Identify in the space provided the primary specific product(s) proposed for use. Brand names may be used but the manufacturers name must also be provided, and additional details regarding the individual constituents must be provided in Attachment F (see also question 4, below.)

Indicate also the nature of the principal active substance that is proposed to be introduced into groundwater or the subsurface. If more than one substance will be introduced, check all that apply. If discharge zero valent iron (ZVI) is proposed this should be identified as “other” for question 2B.

3. Describe any additional substance(s) that are proposed to be introduced into groundwater, the reason for their use and their general character.

Also provide information on the method used to determine the amount of chemicals to be used.

Indicate what permanent residues, if any, will remain in the aquifer matrix or groundwater as a result of the proposed activity.

4. Specifically list *all* chemicals to be discharged, their role, the total amount of

chemical proposed for discharge in a single discharge phase or event by the proposed activity, either by weight or, for solutions, volume, and, for solutions, the concentration(s) to be actually injected. This is the amount that will be explicitly identified as authorized for discharge. Listing trademarked proprietary chemicals by name is acceptable provided either they are on a published Departmental list, indicating the Department already has information on file, or all individual constituents are identified in a listing in Attachment F.

5. Indicate how the proposed discharge will introduce the substances to the groundwater. If more than one technique is proposed, indicate all that apply. Include information as requested summarizing the specifics of the injection design.
6. Provide additional information regarding possible complexities of the proposed activity that is relevant to the Department’s review of the registration, and discuss as appropriate in part VI-D.

Indicate if the proposed activity entails the introduction of substances into bedrock, or within 2 feet of bedrock. (Note that information regarding the presence of bedrock is also requested in Part VI-A; this question is more explicit relative to the discharge location.) Summarize in Part VI-D how migration of substances within bedrock fractures will be controlled or monitored, and indicate where full evaluation of the potential bedrock Zone of Influence may be found in the supporting documents.

Indicate if the injection pressures are elevated sufficiently above ambient pressure to have the potential to alter aquifer hydraulic properties, either intentionally or incidentally, and, in part VI-D, summarize potential impacts on flow dynamics and summarize design objectives for any intentional hydraulic or pneumatic

fracturing, and indicate where in the supporting documents extended evaluation or design details may be found.

Indicate if the expected Zone of Influence relies on any type of passive engineered drain system that controls groundwater flow directions, either existing or proposed.

Also indicate if an existing or proposed active withdrawal/re-circulation groundwater flow system, or vapor control/extraction system will be relied upon to protect receptors or establish the Zone of Influence. Indicate explicitly if withdrawn water will be reinjected in the Zone of Influence, with or without treatment.

For any such controls, in part VI-D summarize design objectives and system specifics, and indicate where in the supporting documents the design details may be found. Note how the discharge from such a system will be managed, and identify any relevant permitting requirements and their status. The Department may notify you if other permits are required.

Indicate if increased chemical effectiveness will be accomplished through the use of surfactants or temperature modification, provide in part VI-D a summary of the approach to be used, and indicate where in the supporting documents a more detailed evaluation may be found.

Indicate if an existing interim control measure is present to control groundwater migration or soil vapor migration to receptors, and provide in part VI-D a summary of the control system, a summary of how the continued effectiveness of any existing control system will be ensured, and indicate where in the supporting documents a more detailed evaluation may be found. Indicate if more than 50,000 gallons per day of water/solution will be managed, either for a cumulative injection rate or in a withdrawal for hydraulic control. The Department will evaluate if groundwater

withdrawal or diversion program input is needed.

Indicate if the project will be multi-phased, including scaling up of a project scope from an authorized pilot study, and provide a summary of the proposed schedule. Indicate where in the supporting documents the methodology for determining dosage modifications for subsequent phases is described.

Part VI-C: Detailed Information – Monitoring Proposed

Provide information that summarizes the Monitoring Plan and identifies how the activity will be monitored to ensure that receptors are protected and the discharge effects are limited to the Zone of Influence. Also, as appropriate, summarize monitoring that confirms the discharge activity is safely implemented and, optionally, that confirms activity effectiveness.

1. Identify the general framework of monitoring you are proposing to implement to ensure compliance with the General Permit requirements. These minimally include a requirement to monitor for expectable impact on identified receptors, and to document that the extent of the Zone of Influence is as expected.

Indicate if any proposed monitoring does not conform to the minimum requirements of Section 5(b) of the General Permit, and provide further information in questions 4 and 6.

2. Summarize in tabular form the monitoring program, including proposed monitoring parameters and the rationale for their inclusion, and, for each location, the monitoring objective, parameters and frequency. Locations with common objectives, parameter suites, and frequencies may be grouped in the summary. Space is provided to identify parameter groups, addressing a common objective, and identify

common but variable sampling schedules. (See example provided.)

3. Explicitly discuss how the monitoring program will take into account any identified potential for rebound of pollutant levels after treatment ends.
4. Summarize additional considerations taken into account in monitoring program design. Specifically note any frequency/duration variations and any “non target pollutant” parameters that are proposed to be used, in supplement to or as surrogates for some or all Constituents of Concern, to achieve a cost effective monitoring program that still meets monitoring objectives.
5. Provide information regarding the general nature of any project or site monitoring, other than permit compliance monitoring, that may be active at the site and affected by or have an effect on the discharge proposed or its monitoring.
6. Provide a summary of any proposed monitoring that does not meet the minimum requirements of Section 5(b) of the General Permit and supporting justification for how monitoring objectives are still met. Indicate where in the supporting documents additional details may be found.

Part VI-D: Detailed Information – Adverse Outcome Mitigation

The previous sections of part VI of the registration collect information specific to the site character and the proposed activity and monitoring. The purpose of Part VI-D is to allow the registrant to *summarize* the identification of potential undesirable outcomes of the proposed activity and how they will be mitigated by the design of the proposed activity. The registrant may also, in this section, explain how any data gaps in the characterization are appropriately considered in the design of the proposed activity. The registrant should also describe how the monitoring program will identify any adverse outcomes that occur, and

what measures will be implemented to stop their continued occurrence and correct their effects. The text included here should be an executive summary of relevant parts of the supporting documentation for the registration. Attach continuation sheets as necessary.

Note that this section of the registration is focused on mitigation of on-site technical effects of the proposed activity, whereas Part V-D of the registration focuses on potential off-site effects affecting significant receptors.

Part VII-A: Supporting Documents

Check the appropriate box by each attachment being submitted as verification that all applicable attachments have been submitted. Please label all attachments as referenced in the registration form and these instructions and be sure to include the name of the registrant. The attachments may be submitted under one cover (e.g. presented as a single report) as long as each section is properly labeled with the proper attachment letter. The registration form itself serves as a high-level summary for the supporting document set, which shall include full details of the proposed activity.

Attachment A: Topographic Quadrangle Map

Submit as Attachment A an 8 ½” x 11” copy of the relevant portion or a full-sized original of a USGS Quadrangle Map, at a scale of 1:24,000, indicating the exact location of the project site and proposed activities. The quadrangle name should be noted on the copy of the map submitted.

The Department will use this map in its review of the site setting and to enter your project location into its Geographic Information System (GIS) in conjunction with the latitude and longitude you provide. It is important that you accurately locate the project site and proposed activities because the GIS generates natural resource information relevant to your site. An inaccurate description of the project location may delay the processing of your registration.

Attachment B: Site Conditions Report

Submit as Attachment B a Site Conditions Report, and indicate on the registration the page numbers where key elements may be found.

The purpose of a Site Conditions Report is to describe the environmental conditions at the site and the character of the release that the proposed activity is intended to remediate. Additionally, the Site Conditions Report provides a basis for determining how the proposed activity (e.g. discharge) will potentially affect the environment and identifies receptor pathways that may be affected. It should include sufficient detail for Departmental reviewers to understand the site specific hydrogeologic and geochemical conditions that are the target of or may affect the selected remedial technology. The necessary content is in part determined by the type of site at which activity is proposed and the nature of the proposed activity. Consult any published Departmental technical guidance or the technical references in “Additional Resources” below for assistance in determining, for the specifics of your site and proposed activity, what technical considerations are important.

If the site is a residential or retail property with only a heating oil release originating on the site, the presumptive conceptual model is simple, and the Site Conditions Report may be limited to the following:

- a description of the origin and character of the petroleum release, and all details (construction, size, depth, age, etc.) of any associated tanks or release pathways;
- a description of any remediation conducted to date to prevent further releases or remove product, polluted soil, or polluted groundwater;
- an identification (“site review”) of any historical releases of pollution, non-residential or retail uses, or importation of fill at the site;
- a summary of available information regarding hydrogeology, groundwater flow, and groundwater quality, with a discussion of any data gaps relevant to design of the discharge; and

- an identification of the site features and nearby receptors potentially affected by the proposed activity.

If the site is not a residential or retail property, or has a release other than heating oil, the Site Conditions Report should instead include a description of a conceptual site model (CSM) that incorporates the specifics of the proposed discharge activity, and includes but is not limited to the following specific information:

- a description of the origin and character of the pollutant release and all details of any associated tanks or other associated materials management physical plant features, and a delineation of the extent of product, polluted soil, and groundwater pollution associated with the release;
- a description of any remediation conducted to date to prevent further releases or remove product, polluted soil, or polluted groundwater and the current extent of pollution remaining after these actions;
- a review, to the extent that design of the proposed discharge activity is potentially affected, of current and past activities at and uses of the site, identification of any potential pollutants other than the target release that may be present as a result of releases due to such activity or use or due to importation of polluted fill, and identification and description of specific areas of concern that may be affected by the proposed activity;
- a description of the hydrogeology, groundwater flow and soil and groundwater quality at the site, including depths to water table and bedrock, aquifer hydrogeologic properties and an evaluation of their variability, and, for soil and groundwater within the release area, basic chemical and field water quality data identified in the CSM as important for design or evaluation of the proposed activity;
- an identification, based on the site characterization and knowledge of the proposed remedial technology, of the site features, potential migration pathways and

receptors that may be affected by the proposed discharge; and

- a discussion of data gaps that may affect design or monitoring of the remedial activity and how they will be resolved during work plan implementation.

Attachment C: Site Plans

Submit as Attachment C legible drawings, as detailed below, of the property where the activity will occur or where the zone of influence is present and the immediate vicinity, and affirm on the registration form the inclusion of the specified elements. The plan(s) should show a north meridian arrow and be drawn to scale, with the scale shown as either a numerical ratio (e.g., 1:200) or as a bar scale (e.g., 1" = 40'). Optimally, two cross sections, one parallel to and one perpendicular to the groundwater flow direction, should accompany the plan(s).

Site plans present a graphical synthesis of the basics of the site and proposed activity, and are valuable to the Department in developing a comprehensive understanding of the proposed activity and its setting. The plan(s) and section(s) should include, at a minimum:

- the site and parcel boundaries;
- the location, on the site and off-site but within 100 feet of the proposed activity or zone of influence, of structures, paved areas, water supply wells, leaching systems, known wetlands boundaries, floodplains, watercourses, existing tanks or other materials management physical plant features (including pipelines, and fill and dispenser locations), drains, utilities and other structures, along with notes of any installed corrosion protection on any underground structures;
- the inferred direction of groundwater flow, including any vertical flow component;
- the location of the pollution to be remediated, its source location, the area of any prior remedial activity, and the current extent and concentration distribution of pollution in soil and groundwater, including the distribution of any residual product identified, and also the

location of any other areas of concern or pollution within the area of proposed activity or zone of influence;

- the locations of all existing and proposed wells and other data points;
- the location of the subject activity, including staging and support areas;
- the location and expected zone of influence of each specific point where substances will be emplaced on or below the ground surface;
- the resultant composite zone of influence;
- locations of all potentially affected receptors and migration pathways; and
- all proposed monitoring locations.

Attachment D: Work Plan

Submit as Attachment D a Work Plan describing all activities associated with the proposed discharge, and indicate on the registration the page numbers where key elements may be found.

The Work Plan identifies the specific activity proposed and the basis for its design. It should contain sufficient detail for the Department's reviewers to understand the appropriateness and implementation details of the proposed activity. The necessary content is in part determined by the type of site at which activity is proposed and the nature of the proposed activity. Consult any published Departmental technical guidance or the technical references in "Additional Resources" below for assistance in determining, for the specifics of your site and proposed activity, what technical considerations are important.

Work Plan sections should include, but not be limited to, the following:

- description of the technology selected for remediation of the site, the rationale for its selection, the primary treatment chemical the technology uses, and the remedial goal the proposed discharge is expected to achieve;
- identification of chemicals other than the primary treatment chemical to be discharged, with a discussion of the necessity and rationale

for their discharge including as necessary, depending on the treatment methodology:

- evaluation of the necessity for pH adjustment or buffering,
- evaluation of the need for an activator chemical,
- evaluation of any thermal or surfactant used and how the resulting enhanced mobilization of a pollutant will be limited in its effects by adequate reactive treatment capacity,
- evaluation of the interaction between all proposed substance(s) to be emplaced and the location's aquifer matrix and groundwater, and also any non-target pollutants identified as present, identification of end- intermediate- and by-products that may be produced, and any residual that may remain in the aquifer or groundwater, and discussion of how any adverse interaction or chemical generation will be mitigated and monitored;

NOTE: Attachment F shall, as applicable and necessary to support the evaluation of the substances to be discharged, contain detailed information regarding the exact substance(s) to be introduced, including identification of all chemical constituents, along with an identification of potential impurities, an evaluation of effects that may result in water analyses exceeding established criteria and standards, and a listing of specific constituents of concern;

- an explanation of why no specific design studies were necessary or the results of any studies that were conducted to design the proposed activity, including as necessary treatability, bench scale, proof of concept, or pilot studies conducted to gather information to design the proposed action;
- details of the concentration and amount of substance(s) to be used, including the total amount of each chemical to be used during a discharge phase, the data and calculations used to determine the amount(s), the proposed spatial distribution relative to the pollution to be remediated, and a description of the detailed emplacement locations and depths, and their expected zones of influence;

- description of specific emplacement mechanisms, including proposed injection concentrations, pressures and flow rates, and a discussion of how these activities will be monitored at the discharge point(s);
- chemical handling procedures, including measures for material storage and safety, procedures for reagent handling, mixing, and measurement, applicable controls and alarms, and methods for disposal of excess or off-specification material;
- site safety procedures, including identification of applicable OSHA and Homeland Security requirements (note that the Department does not explicitly review or approve OSHA mandated safety plans; or compliance with any requirements associated with Homeland Security rules), measures to prevent public access, and measures to ensure that no threats to public safety or health result from the proposed activity and mitigate any that do, and
- contingency procedures, including spill management procedures, actions to take in response to observations during active emplacement, and actions to take in response to monitoring results.

Additional sections that may be needed in a work plan, based on site or project specifics, could include:

- an evaluation of existing or proposed artificial hydraulic controls on the Zone of Influence;
- details of the design of any groundwater circulation system to be established for distribution of the discharge chemical;
- details of any groundwater or soil vapor extraction systems that are proposed as part of the remedy to control effects on receptors or increase remedy effectiveness;
- evaluation of the impact of the proposed remedy on any existing groundwater or soil vapor control system effectiveness;
- discussion of chemical effects and migration within fractured bedrock aquifers;
- discussion of specific requirements for a particular chemical discharge as required in Appendix I of the General Permit; or

- description of multi-phase activity (either scheduled recurring discharge periods or discrete discharge phases separated by monitoring) and discussion of the implementation framework for each phase, including, as appropriate, procedures for re-visitation of the CSM and dosage and delivery specifications for subsequent discharge phases.

The Department may accept a simplified work plan for certain remedial discharge activities at residential or retail property fuel oil release sites. Discussion and justification for why any typically expected sections of the Work Plan are omitted or only cursorily included should be provided using an appropriate conceptual model incorporating the site and process characteristics that support the simplification, and any simplified plan should include an explanation of how the activity proposed is protective of human and environmental receptors.

Attachment E: Monitoring Plan

Submit as Attachment E (except as noted below) a Monitoring Plan describing a proposed monitoring program, and indicate on the registration the page numbers where key elements may be found.

The Monitoring Plan describes the measures to be taken to ensure that the discharge activity is documented and confirmed as protective of human health and the environment. Section 5(b) of the General Permit contains minimum requirements that must be included, and for any specific chemical additional requirements may be specified in Attachment I of the General Permit. The Monitoring Plan should include but not limited to the following:

- an identification of monitoring objectives, which could include:
 - documentation of the performance of any discharge delivery system,
 - documentation of the effect of the proposed activity on the waters of the state,

- confirmation that the Zone of Influence is as expected, and
- verification that no identified potential receptors are adversely impacted;
- an identification of the specific monitoring locations to be used, including water supply wells within 75 feet of the proposed activity or otherwise proposed or required to be monitored, discharge monitoring wells outside the expected Zone of Influence, and their hydrogeologic relationship to such zone, activity monitoring wells or points at discharge points or monitoring wells within the expected Zone of Influence, and other receptor monitoring, and also an identification of the specific frequency and parameters to be monitored at each point and the rationale for inclusion in the monitoring program;
- a list of constituents of concern, including parameters specific to the substances proposed for discharge (as identified in any published Departmental listing or in Attachment F), the pollutants present, identified intermediate, end and by-products, process and environmental indicators, and those based on the results of any evaluations of non-target areas of concern present in the area of proposed activity, and a proposed project-specific monitoring parameter list, including the rationale for inclusion or exclusion from the monitoring program of each constituent of concern;
- a description of the sampling and analysis procedures to be used for all monitoring objectives and media, including specifics of the construction of the monitoring wells and any other dedicated sampling points to be used;
- a description for any proposed monitoring that does not meet the requirements of any applicable General Permit, along with technical justification demonstrating that the proposed monitoring is at least equally protective of human health and the environment; and
- a description of the data evaluation procedures, including consideration of documented groundwater quality variability, to be used in drawing conclusions from the

monitoring data consistent with the monitoring objectives; and also including a description of how the monitoring information will be reported to the Department.

Where active controls of groundwater or soil vapor are at the site, additional monitoring to evaluate their operation and effectiveness should be included in the monitoring plan. Additional monitoring may also be appropriate or required by Appendix I of the General Permit when certain substances are discharged or certain delivery methodologies are used. Such additional monitoring should conform to prevailing standards and guidelines.

The Department may accept a simplified monitoring program for certain remedial discharge activities at residential or retail property fuel oil release sites. Any simplifications of the monitoring program should be discussed and justified using an appropriate conceptual model incorporating the site and process characteristics that support the simplification, and any simplified program should include an explanation of how the monitoring proposed ensures protection of human and environmental receptors is verified.

Attachment F: Discharge Chemical Specifications

Information regarding the exact nature of the proposed discharge and its chemical interactions with the pollution being remediated, the groundwater, and the aquifer framework is essential for the Department's full evaluation of the registration. Provide for *each* substance to be discharged a description of the substance and, except for those substances for which the Department has published a list of evaluation considerations and monitoring requirements, an evaluation of its chemistry and environmental effects. The information should include, but not be limited to, the following:

- identification, especially required for trademarked proprietary substances, of all specific chemical constituents;

- copies of Safety Data Sheets (required for trademarked proprietary substances);
- identification of potential impurities (which may vary depending on the chemical grade used and proposed chemical supplier);
- identification of any established criteria (Remediation Standard Regulation groundwater protection, volatilization, or surface water; Maximum Contaminant Level Goal (MCLG) or Connecticut Water Quality Criteria chronic toxicity or human health) that may be exceeded in groundwater when and where the chemical is discharged as proposed; and
- identification of constituents of concern associated with the substance and its use at the site, and identification of and rational for parameters that are appropriate for inclusion in a monitoring program to evaluate both the presence of the discharged chemical and the effect of the chemical on the environment.

Attachment G: Coastal Consistency Review Form

Activities within the state's coastal area which includes the coastal boundary must be consistent with the Connecticut Coastal Management Act (CGS sections 22a-90 through 22a-112). You may be required to complete a *Coastal Consistency Review Form* (DEEP-APP-004) to demonstrate that the activity is consistent with the standards and policies of the Connecticut Coastal Management Act. Please refer to the instructions in Part V-A to determine if this requirement pertains to you.

Attachment H: Conservation/Preservation Restriction Information

If the proposed activities are on or may affect property subject to a conservation or preservation restriction, proof of written notice of the registration to the holder of such restriction or a letter from the holder of such restriction verifying that the registration is in compliance with the terms of the restriction must be provided as Attachment H. Please refer

to the instructions in Part V-A to determine if this requirement pertains to you.

Attachment I: CT NDDB Information

Submit copies of any correspondence provided to or received from the CT NDDB program, including a copy of a *completed CT NDDB Request Form* (DEEP-APP-007) as Attachment I, as explained in Part V-A of these instructions.

Part VII-B: Technical Certification

The General Permit requires a certification prepared by a P.E. or LEP to be submitted by a registrant. It documents the professional's opinion that the proposed activity is appropriate to remediate the pollution present at the site; that the activity design is based on an appropriate site characterization for the area of activity; that the activity design and implementation plan is substantially consistent with prevailing standards; that implementation is not expected to affect water quality beyond the zone of influence; and that monitoring will ensure any adverse effects are minimized and managed appropriately.

The Department may expedite administrative processing and may conduct only a limited review of the registration by relying on this certification, and use it as the basis for issuing a Certificate of Coverage in lieu of an Approval of Registration.

Part VIII: Registrant Certification

After the registration has been completed it must be reviewed and signed by both the registrant and the individual(s) who actually prepared the registration and any part thereof required by the registration. This includes consultants, environmental professionals, professional engineers, surveyors, soil scientists, etc. By their signature, they certify that, to the best of their knowledge and belief, the information contained in the registration, including all attachments, is true, accurate and complete.

The certification of the registration package shall be signed as follows:

1. For an individual(s) or sole proprietorship: by the individual(s) or proprietor, respectively;
2. for a corporation: by a principal executive officer of at least the level of vice president, or his agent;
3. For a limited liability company (LLC): by a manager, if management of the LLC is vested in a manager(s) in accordance with the company's "Articles of Organization", or by a member of the LLC if no authority is vested in a manager(s);
4. for a partnership: by a general partner;
5. for a municipal, state, or federal agency or department: by either a principal executive officer, a ranking elected official, or by other representatives of such registrant authorized by law.

A registration will be considered insufficient unless all required signatures are provided.

Available Resources:

Below is a list of possible resources for specific information required for this registration. Be sure to also check the Departmental website, www.ct.gov/DEEP and your local town hall or library for maps pertinent to the town and for other reference materials.

Both the Department's Maps and Publications Store (860-424-3555) and File Room (860-424-4180) are located on the store level at 79 Elm Street, Hartford, CT. Please call the appropriate office in advance for hours of operation.

For the registration form, instructions and other required documents visit the Departmental website at www.ct.gov/DEEP/remediationapps

Remediation Division Guidance Documents

Remediation Division Guidance Documents that may assist in preparation of this registration may

be found at www.ct.gov/DEEP/remediation (Guidance) and include:

- Site Characterization Guidance Document, September 2007, updated 2010
- Water Supply Well Receptor Survey Guidance, September 2009

Other Departmental Information Sources

Other sources of Department originated information include:

- Connecticut Water Quality Standards: www.ct.gov/DEEP/wqsc
- Coastal Boundary Areas: Town Hall; Maps and Publications Store, "Coastal Boundary Map"; additional information: Office of Long Island Sound Programs (OLISP): 860-424-3034 also accessible through CTECO (see "Geographic Information Sources") and through the Long Island Sound Resource Center [www.lisrc.uconn.edu/] (click on the upper tab or left hand column labeled "Maps", then "Coastal Connecticut").
- Coastal Resource Maps: Town Hall and/or Maps and Publications Store; additional information: OLISP
- Endangered or Threatened Species Areas: www.ct.gov/DEEP/endangeredspecies; or Departmental File Room, "State and Federal Listed Species and Natural Communities"
- Aquifer Protection Area Maps: www.ct.gov/DEEP/aquiferprotection, or Town Hall
- Tidal Wetland Boundary Maps: Maps and Publications Store
- Coastal Policies and Use Guidelines (Planning Report 30): OLISP
- Wetlands of Connecticut: Maps and Publications Store
- 2002 Connecticut Guidelines for Soil Erosion and Sediment Control: http://www.ct.gov/deep/cwp/view.asp?a=2720&q=325660&deepNav_GID=1654
- Drainage Basins: Maps and Publications Store, "Natural Drainage Basins in Connecticut", 1988

Other Information Sources

Other information sources that may pertain to completion of your registration include:

- Land Conservation Areas: Town Hall and/or Maps and Publications Store, "Open Space Map"
- USGS Topographic Quadrangle Map: Maps and Publications Store, 860-424-3555, or USGS Office, 303-202-4700, or US Geological Survey, Western Distribution Branch, Box 25286, Denver Federal Center, Denver, CO 80225 (sells USGS maps and publications) www.usgs.gov
- Soil Series Description and Delineation: United States Department of Agriculture Natural Resources Conservation Service Offices www.ct.nrcs.usda.gov/ (soils)
- Historic Aerial Photographs: State Library 860-566-4301
- National Wetland Inventory Maps: Maps and Publications Store, 860-424-3555
- Federal Emergency Management Agency flood mapping can be found at town halls and may also be accessed at hazards.fema.gov/wps/portal/mapviewer
- Connecticut Conservation District Offices www.conservect.org

Geographic Information Sources

Many of the maps and aerial photographs referenced above are now published electronically, including digital mapping data accessible both on-line and by download. Public access to the information for both on-line viewing and download is through the CTECO internet site maintained by the University of Connecticut [www.cteco.uconn.edu]

Geographic information is also available for download from the Department: www.ct.gov/DEEP/gis, and from the University of Connecticut Map and Geographic Information Center: magic.lib.uconn.edu/

Information Sources Regarding Water Supply Wells and Source Water Areas

Information about public water supply wells and source water areas may be obtained from the local health director or Town Hall.

Alternatively, the DPH Drinking Water Section may be contacted: (860) 509-7333;
[http://www.ct.gov/dph/cwp/view.asp?a=3139&q=387304&dphNav_GID=1824]

Information regarding the presence of private supply wells may sometimes be obtained from the local health director, the local sanitarian, or local building officials. In some towns the information may be available in the assessor's office. In areas without public water available, it should be assumed that all developed parcels have a supply well. In areas with public water available a crosscheck of developed properties with the local water company billing records is usually necessary to ensure that all properties are connected to public water, especially in areas developed prior to water installation. In some circumstances a physical inspection of a neighborhood through a door to door survey may be necessary to confirm the presence or absence of supply wells. See also the Water Supply Well Receptor Survey Guidance, September 2009, for an expanded discussion.

Information regarding Business Entities

Information regarding business entities registered in the state of Connecticut can be found at the Secretary of State's Commercial Recording Division. Online access to the information can be found at:

www.concord-sots.ct.gov/CONCORD

Laws and Regulations

State and federal statutes and regulations are available for review at various locations:

- On the web:
 - State Statutes:
www.cga.ct.gov/asp/menu/Statutes.asp

- Departmental website for links to statutes and regulations:
www.ct.gov/DEEP/laws-regs
- Code of Federal Regulations:
www.epa.gov/lawsregs/regulations/index.html
- Laws, Regulations, Policy, Guidance and Legislation (US EPA Web Site)
www.epa.gov/lawsregs/index.html

- Book Format:
 - State Library (Hartford)
 - University Law Schools (UCONN-Hartford, Yale)
 - Superior Courthouse Libraries (located throughout the state)
 - Town Halls and Libraries (statutes)

Technical Guidance

Technical guidance and information pertaining to many individual remedial technologies has been published. Much of this information can be accessed through the internet:

Departmental staff have found the following internet gateways useful:

- EPA Contaminated Site Clean Up Information
www.clu-in.org
 - Remediation Technologies
clu-in.org/remed1.cfm
- Federal Remediation Technology Roundtable
www.frtr.gov/
 - Remediation Technologies Screening Matrix
www.frtr.gov/matrix2/top_page.html
- Interstate Technology & Regulatory Council
www.itrcweb.org/
 - Guidance Document Home Page
www.itrcweb.org/gd.asp
[Introductory webinars for these documents are archived on clu-in.org]
www.clu-in.org/live/archive
(find using advanced search function)
- EPA:
www.epa.gov/superfund/remedytech/remed.htm

www.epa.gov/swerust1/pubs/index.htm
[fuel USTs]

- DoD Environmental Research Programs
www.serdp.org/
 - Remediation program area
www.serdp.org/Program-Areas/Environmental-Restoration
- NEWMOA [Northeast Waste Management Officials' Association]
www.newmoa.org/cleanup
 - See archived short courses
www.newmoa.org/cleanup/workshops.cfm
- Other States
floridadep.org/waste/categories/pcp/pages/innovative.htm

The following documents are specific to implementation of In Situ Chemical Oxidation:

- EPA Contaminated Site Clean Up Information
clu-in.org/techfocus/default.focus/sec/In_Situ_Oxidation/cat/Overview/
- EPA, 2006, In Situ Chemical Oxidation: Engineering Issue Paper, EPA 600-R-06-072
epa.gov/ada/gw/pdfs/insituchemicaloxidation_engineering_issue.pdf
- ITRC, 2005, Technical and Regulatory Guidance for In Situ Chemical Oxidation of Contaminated Soil and Groundwater, *Second Edition*
www.itrcweb.org/Guidance/GetDocument?documentID=45
- ESTCP. 2010. In Situ Chemical Oxidation for Groundwater Remediation: Technology Practices Manual. Environmental Security Technology Certification Program, Project ER-200623, CD-ROM, 2010

Affirmative Action, Equal Employment Opportunity and Americans with Disabilities

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