



STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
DIVISION OF UNDERGROUND STORAGE TANKS
TECHNICAL GUIDANCE DOCUMENT - 019

EFFECTIVE DATE - May 1, 2008

RE: REQUIREMENTS FOR IMPACTED DRINKING WATER MANAGEMENT

I. General Guidance

In accordance with Rule 1200-1-15-.06(4)(a), the discovery of an impacted drinking water supply shall be reported to the Division of Underground Storage Tanks (Division) within seventy-two (72) hours using the Hazard Notification Report (HNR) Form. The form may be submitted by facsimile machine or electronic mail.

A. Purpose

The purpose of this Technical Guidance Document (TGD) is to assist the regulated community in understanding and complying with the requirements for management of an impacted drinking water supply specified in Rule 1200-1-15-.06(4)(b)1.

B. Fund Eligibility/Coverage

An eligible owner or operator conducting UST corrective actions is entitled to coverage of reasonable costs from the Tennessee Petroleum Underground Storage Tank Fund (Fund), subject to Rule 1200-1-15-.09(10)(a), which states:

“Upon confirmation of a release in accordance with rule 1200-1-15-.05(3) or after a release from the UST system is identified in any other manner, owners and/or operators or petroleum site owners shall comply with the requirements of rule 1200-1-15-.06 as necessary to investigate the release, characterize the site and control any hazards posed by the release in order to stabilize the site, prevent significant risk to human health and safety, and/or continuing damage to the environment.”

Therefore, failure to comply with the requirements of rule 1200-1-15-.06 addressed in this TGD may result in the loss of Fund coverage.

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Attachment

Impacted Drinking Water - Hazard Management Report

This report format and others are available for download on the Division’s website at <http://state.tn.us/environment/ust/>

II. Definitions

For the purposes of this TGD, the following definitions apply:

- A. **Drinking Water Supply** – Any aquifer or water source whose chemical characteristics meet the primary and secondary drinking water standards as defined under Rule 1200-5-1 and provides a yield of at least one-half gallon per minute. This shall also include any water supply used for drinking by the citizens of the state.
- B. **Hazard Notification Report (HNR)** – A notification form required to report to the Division within seventy-two (72) hours the discovery of impacted drinking water, petroleum vapors, free product, and/or other hazards.
- C. **Impacted Drinking Water (IDW)** – A water supply that contains chemicals of concern at levels that do or potentially may place human health at risk as determined by the Division and that is being used for human consumption, and/or other human domestic use including, but not limited to, bathing, cooking, and dishwashing.
- D. **Impacted Drinking Water-Hazard Management Report (IDW-HMR)** – A required report due within thirty (30) days of the initial discovery, detailing the actions that have been taken to address a drinking water impact discovered after the submittal of the IRHMR. This report shall only be submitted upon initial discovery of a drinking water impact or as directed by the Division in accordance with the attached IDW-HMR Guidelines.
- E. **Initial Response** – Preliminary response activities taken to immediately provide an alternate drinking water supply. Initial response activities may include, but not be limited to, the methods listed in Section IV, Petroleum Impacted Drinking Water Supply Response - Temporary.
- F. **Initial Response and Hazard Management Report (IRHMR)** – A required report detailing the actions that have been taken to address the initial hazards discovered at or in the vicinity of the petroleum site. The IRHMR is due within sixty (60) calendar days after the responsible party has been directed by the Division to begin an investigation. The IRHMR is a one time submittal per release.
- G. **Permanent Source of Potable Water (PSPW) Proposal** – A proposal as required by rule 1200-1-15-.06(4)(b)1.(ii) for providing a permanent source of potable drinking water. The proposal shall include, but not be limited to, a detailed description, including a cost proposal. Available proposal options are provided in Section V, Petroleum Impacted Drinking Water Supply Response - Permanent.

III. Petroleum Impacted Drinking Water Complaint Response

Upon notification of any suspected petroleum impacted drinking water supply, a sample shall be collected at each complaint location in accordance with the current Environmental Assessment Guidelines. The cost of twenty-four (24) hour turnaround for laboratory analysis of the drinking water sample is preapproved for each complaint location. **If the contaminant concentrations exceed the Maximum Contaminant Level (MCL) for any Chemical of Concern (COC) (see Reference 3 in the Environmental Assessment Guidelines), then the user(s) shall be personally notified and bottled water be provided within twenty-four (24) hours of the receipt of the sample results.**

IV. Petroleum Impacted Drinking Water Supply Response – Temporary

In accordance with rule 1200-1-15-.06(4)(b)1., upon discovery and/or confirmation of petroleum impacted drinking water, an alternate drinking water supply or filtration system as defined in the table below shall be supplied **immediately**. These initial response activities are approved for implementation prior to submittal of the HNR. All temporary response activities that are expected to exceed \$2,500.00 in total costs shall require the submittal of a cost proposal to the Division for approval prior to implementation.

Initial Response Activity	Initial Response Activity Description
Bottled Water	Temporary usage
Carbon Filtration	Temporary purification system (shall NOT be installed if free product has been observed in the water supply)

Unless directed to do otherwise by the Division, an IRHMR shall be submitted after initiation of the initial response activities related to impacted drinking water supply. If an impacted drinking water supply is discovered after the submittal of the IRHMR, then an IDW-HMR shall be submitted within thirty (30) days.

V. Petroleum Impacted Drinking Water Supply Response - Permanent

If the laboratory analytical results from a petroleum impacted drinking water supply remains above the MCL for any COC after the initial response activity, then the Division may require a permanent source of potable water in accordance with rule 1200-1-15-.06(4)(b)1.(ii). If required, the PSPW proposal shall be submitted detailing the actions and costs necessary to implement one of the options selected from the table below. **Any permanent response activity for an impacted drinking water supply without prior Division approval will not be Fund reimbursable.** A cost proposal shall be attached to the PSPW proposal and submitted to the Division for approval prior to implementation of any permanent response activity.

PSPW Options	Items to be included in the PSPW Proposal
Connection to a public water supply	The proposal shall detail the activities required to connect a municipal water supply and install a supply line to the impacted water supply user(s) and include a cost proposal. A scaled site map of the affected property(ies) shall be included depicting the location of the supply line(s) from the public water main to each user. All supply lines shall be constructed with a material that is impermeable to the applicable COCs.
Installation of a new drinking water well (contact the Division of Water Supply for guidance)	The proposal shall include a justification as to why the proposed well location and depth will not be impacted by the petroleum release. Design specifications of the well shall include, but not be limited to, well depth, casing diameter and material of construction, casing depth, grouting material, screen placement, pump type and size, well completion and housing, and cost proposal. A scaled, site map of the affected property shall be included depicting the location of the supply lines from the well to the residence. All supply lines shall be constructed with a material that is impermeable to the applicable COCs. A licensed well driller and licensed pump installer shall be utilized.

Permanent Filtration System	The proposal shall describe the type of filtration system including, but not limited to, design specifications and a cost proposal. Annual costs to maintain the filtration system (including filter replacement) shall be included in the cost proposal. A permanent filtration system shall NOT be installed if free product has been observed in the water supply. The user(s) must agree to assume responsibility for the filtration system at a designated time in the future.
Other provision	As approved by the Division

VI. Monitoring

Based on site conditions, the Division may establish sampling and/or monitoring requirements that exceed TGD - 007. The Division will establish the reporting format and frequency of any additional monitoring requirements.

VII. Reporting Schedule

Upon discovery of a petroleum impacted drinking water supply, the following reports shall be submitted:

- A. In accordance with Rule 1200-1-15-.06(4)(a), a HNR form shall be submitted to the Division within seventy-two (72) hours of discovery of impacted drinking water.
- B. In accordance with Rule 1200-1-15-.06(4)(c), an IRHMR is due within sixty (60) calendar days after the responsible party has been directed by the Division to begin an investigation. The IRHMR is a one time submittal per release. The report shall be prepared in accordance with the current IRHMR Guidelines.
- C. If the impacted drinking water supply is initially discovered after the submittal of the IRHMR, then an IDW-HMR shall be submitted within thirty (30) days after the discovery of an impacted drinking water supply. This report shall be completed in accordance with the attached IDW-HMR guidance.
- D. In accordance with Rule 1200-1-15-.06(4)(b)1.(ii), the Division **may** require a PSPW proposal and establish a submittal deadline.



STATE OF TENNESSEE

DEPARTMENT OF ENVIRONMENT AND CONSERVATION

DIVISION OF UNDERGROUND STORAGE TANKS

IMPACTED DRINKING WATER – HAZARD MANAGEMENT REPORT

Effective May 1, 2008

Instructions

If a petroleum impacted drinking water supply is discovered after the submittal of the Initial Response and Hazard Management Report, then an Impacted Drinking Water-Hazard Management Report (IDW-HMR) is due within thirty (30) calendar days after initial response activities have been implemented and shall be submitted in accordance with Technical Guidance Document - 019. The IDW-HMR shall contain **all** data gathered during impacted drinking water response activities. Environmental assessment activities and evaluation of the subsurface investigation shall be directed by a licensed professional geologist under the Tennessee Geologist Licensure Act of 2007 (*T.C.A. §62-36-101 et seq.*) or a registered professional engineer under the Tennessee Architects, Engineers, Landscape Architects, and Interior Designers Law and Rules (*T.C.A. §62-2-101 et seq.*).

If the IDW-HMR will not be submitted by the established deadline, then a written request, justifying an extension shall be submitted to the appropriate environmental field office before the established deadline. An extension is not automatic and enforcement actions may be taken to insure prompt compliance with established deadlines. Failure to meet established deadlines may result in the loss of Fund coverage.

Each section of the IDW-HMR shall be prepared and assembled in the order presented within these guidelines. Text shall be provided explaining the associated tables and maps. All variations from the procedures detailed in the Environmental Assessment Guidelines (EAG) shall be explained and justified. All maps shall be in appendices as required below. All maps shall be on 8.5 × 11 or 11 × 17 inch paper and include, at a minimum, a North arrow, legend, scale bar and figure number. The IDW-HMR guidelines are intended to provide a structured outline. Any information that is not specifically requested but is relevant to the project shall be included. The preparer shall assemble the required information in each section so as to provide a comprehensive document. All pages of the report, including the tables and figures, shall be consecutively numbered.

All correspondence, reports, laboratory analysis sheets, etc. shall contain the TN UST Facility ID Number. Photostatic copies of the laboratory analysis sheets are not acceptable unless the originals have previously been submitted in another report.

THIS REPORT IS NOT COMPLETE UNLESS THE FOLLOWING DOCUMENTS ARE ATTACHED TO THE REPORT IN AN APPENDIX:

	<u>Attached (Yes/No)</u>
A. Properly Completed Signature Page	_____
B. Scaled Site Map	_____
Update the site map from the previously submitted report including locations of impacted drinking water supplies. Areas of known petroleum contamination and proposed water line location (if applicable) shall be depicted.	
C. Vicinity Map	_____
Update the vicinity map from the previously submitted report including locations of impacted drinking water supplies.	
D. Petroleum Impacted Drinking Water Supply Analytical Results Tables	_____
E. Laboratory Analytical Sheets	_____
F. Well Driller Log of the Impacted Water Supply(ies) (if applicable)	_____
G. Petroleum Impacted Drinking Water Cost Sheet	_____
Costs shall not exceed those identified in the current Reimbursement Guidance Document – 001, which is available on the Division’s website.	
H. Cost Proposal for Permanent Drinking Water Supply (if applicable)	_____
This proposal may be submitted prior to submittal of the IDW-HMR.	

A. Facility and General Information	
1. Date of Report:	_____
2. Facility ID #:	_____
3. Facility Name:	_____

4. Facility Address: _____

5. Corrective Action Contractor (CAC) responsible for impacted drinking water management:

6. CAC Address: _____

7. Subcontractor(s) including, but not limited to, plumber, water treatment company, licensed well driller and/or licensed pump installer responsible for impacted drinking water management:

Subcontractor Name: _____

Subcontractor Address: _____

Subcontractor Name: _____

Subcontractor Address: _____

Subcontractor Name: _____

Subcontractor Address: _____

B. Petroleum Impacted Drinking Water Supply History

1. Date impacted drinking water discovered: _____

2. Date impacted drinking water confirmed: _____

3. Date impacted drinking water reported to the Division: _____

Method of contact: Electronic Mail Telephone Facsimile
 Other Explain _____

Division personnel contacted: _____

Reported by: _____

4. Type of impacted water supply (check all that apply):
 Private Public Well Spring Surface Water
 Other Explain _____

5. Location(s) of impacted drinking water supply(ies):
Name(s), address(es) and telephone number(s), if applicable, of locations where impacted drinking water supply(ies) was/were discovered:

- 1. _____
- 2. _____
- 3. _____
- 4. _____
- 5. _____

6. Type of petroleum impact(s) to drinking water supply(ies):
 Gasoline Diesel Kerosene Waste oil
 Aviation fuel Crude Oil Unknown
 Other Explain _____

7. Provide, any details about the construction of the water supply well if a driller's log is not available, including but not limited to depth of well, depth of casing, screen placement, placement of pump, recent pump repairs, etc., if applicable: _____

8. Provide any details about the impacted spring or surface water supply, if applicable: _____

C. Petroleum Impacted Drinking Water Supply Management

- 1. Date initial response activity was implemented: _____
- 2. Describe the type of initial response activity that was implemented:

3. Date initial response activity was terminated, if applicable: _____
4. Date permanent response activity was implemented, if applicable:

5. Describe the type of permanent impacted drinking water response activity that was initiated, if applicable: _____

Petroleum Impacted Drinking Water Supply Volatile Analytical Results Table

If the sample result for any COC is reported to be below the laboratory detection limit (i.e., “ND”, “BDL”, “<number”, etc.), then enter a less than (<) symbol followed by the actual reported detection limit that appears on the laboratory analytical sheet. For example, if the sample results are below the reported laboratory analytical detection limit and the referenced limit is “<0.005 mg/l”, then enter “<0.005” in the spreadsheet. Any COC concentration above the MCL shall be bolded and shaded.

Name of Impacted Drinking Water Supply*	Initial Analytical Results							Post Treatment System Analytical Results**						
	Sample Date	PPM						Sample Date	PPM					
		Benzene	Toluene	Ethylbenzene	Total Xylenes	MtBE	Naphthalene		Benzene	Toluene	Ethylbenzene	Total Xylenes	MtBE	Naphthalene
Applicable MCL		0.005	1.0	0.70	10.0	0.020	0.020		0.005	1.0	0.70	10.0	0.020	0.020

* The impacted drinking water location(s) that are included in the table shall be depicted on the site and/or vicinity map. If applicable, the referenced map shall be an updated map from the most recently submitted report.

** If a new well was installed, then provide the analytical results from post well installation

Petroleum Impacted Drinking Water Supply Initial PAH Analytical Results Table (report all results in PPM)

If the sample result for any COC is reported to be below the laboratory detection limit (i.e., “ND”, “BDL”, “<number”, etc.), then enter a less than (<) symbol followed by the actual reported detection limit that appears on the laboratory analytical sheet. For example, if the sample results are below the reported laboratory analytical detection limit and the referenced limit is “<0.005 mg/l”, then enter “<0.005” in the spreadsheet. Any COC concentration above the MCL shall be bolded and shaded.

Name of Impacted Drinking Water Supply*	Sample Date	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenzo(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene	Phenanthrene	Pyrene
Applicable MCL		0.939	0.939	0.0434	0.00117	0.0002	0.00117	0.0007	0.0008	0.0016	0.000117	0.206	0.626	0.00117	0.020	0.469	0.135

* The impacted drinking water location(s) that are included in the table shall be depicted on the site and/or vicinity map. If applicable, the referenced map shall be an updated map from the most recently submitted report.

Petroleum Impacted Drinking Water Supply Post Treatment*PAH Analytical Results Table (report all results in PPM)

If the sample result for any COC is reported to be below the laboratory detection limit (i.e., “ND”, “BDL”, “<number”, etc.), then enter a less than (<) symbol followed by the actual reported detection limit that appears on the laboratory analytical sheet. For example, if the sample results are below the reported laboratory analytical detection limit and the referenced limit is “<0.005 mg/l”, then enter “<0.005” in the spreadsheet. Any COC concentration above the MCL shall be bolded and shaded.

Name of Impacted Drinking Water Supply**	Sample Date	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenzo(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene	Phenanthrene	Pyrene
Applicable MCL		0.939	0.939	0.0434	0.00117	0.0002	0.00117	0.0007	0.0008	0.0016	0.000117	0.206	0.626	0.00117	0.020	0.469	0.135

* If a new well was installed, then provide the analytical results from post well installation

** The impacted drinking water location(s) that are included in the table shall be depicted on the site and/or vicinity map. If applicable, the referenced map shall be an updated map from the most recently submitted report.