

**FACT SHEET STATEMENT OF BASIS  
UTAH POLLUTANT DISCHARGE ELIMINATION SYSTEM  
GENERAL PERMIT FOR TREATED GROUND WATER  
PERMIT NUMBER UTG790000**

**APPROPRIATENESS OF THE GENERAL PERMIT AND BACKGROUND**

*Utah Administrative Code (UAC) Section R317-8-2* authorizes the issuance of general Utah Pollutant Discharge Elimination System (UPDES) permits to categories of point sources within the same geographical area which involve similar type of operations, discharge the same types of wastes, and require similar effluent limitations and pollution control measures. Gas station type facilities with Standard Industrial Classification (SIC) code 5541 and National American Industry Classification System (NAICS) code 447110 are the most common permit applicants for the Treated Ground Water Permit.

In Utah, approximately 10,000 underground storage tanks (USTs) are used for storing petroleum products and other hazardous substances. It is estimated that approximately one-third of these USTs are leaking or have leaked hazardous substances. In an effort to help protect ground water and public health, the Utah Division of Environmental Response and Remediation (DERR) has developed and implemented UST regulations. These regulations govern cleanup operations for areas which have been contaminated by petroleum products from leaking USTs. Cleanup often consists of pumping contaminated ground water, treating it, and then discharging the treated effluent directly to surface waters, or to a municipal sewer system, or re-injecting it back into the ground. For discharges of treated ground water to surface waters or storm drains, an UPDES discharge permit from the Division of Water Quality (DWQ) is required.

Although leaking underground storage tanks (LUSTs) are the most common sources of pollutants getting into ground water, other spills or leaks may introduce contaminants that are remediated using the same equipment and techniques as a LUST site. This general UPDES permit has been adopted by the State of Utah in order to expedite the permitting process and may be used to cover the cleanup of contaminated ground water whenever, in the opinion of the Director of the DWQ, the general permitting criteria are met. These cleanup operations satisfy the criteria for general permit coverage and would be more effectively controlled under a general permit rather than by individual permits.

A petroleum cleanup typically begins with an effort to recover any free-phase petroleum product. Pumping contaminated ground water and/or floating product to above ground storage tanks or oil/water separators accomplish this. The wastewater then generally requires additional treatment to remove the dissolved organic compounds prior to discharge. Additional treatment may include, but is not limited to, air sparging/stripping and/or granular activated carbon adsorption.

## **COVERAGE UNDER THE GENERAL PERMIT**

This general UPDES permit shall apply to discharges of treated ground water that has been produced at petroleum cleanup operations located in the State of Utah. Anyone wishing to be considered eligible for coverage under the permit must submit a completed Notice of Intent (NOI) application form, which is available upon request from DWQ. After receipt of a completed NOI the Director may deny coverage, request additional information, or authorize the discharge by signing the NOI.

Any owner or operator who feels that coverage under this general permit is not appropriate may request to be excluded from coverage by applying for an individual permit. The Director may approve or deny this request. In addition, the Director may require any person authorized by this general permit to apply for and obtain an individual permit. Last, no discharges to Category 1 or 2 (as defined by *UAC R317-2-3*) waters will be authorized under this permit.

## **DESCRIPTION OF DISCHARGE AND LOCATION(S)**

Petroleum products are mixtures of hydrocarbon compounds with a broad range of physical, chemical, and toxicological properties and chemical composition. Consequently, the concentration of pollutants in wastewaters generated from petroleum leaks is highly variable. See the “*EPA 1986 Technical Report, Interim Report – Fate and Transport of Substances Leaking from Underground Storage Tanks*” for more information on the constituents of petroleum products. Of the types of hydrocarbons found in petroleum products, the aromatics are generally known to be most toxic and, therefore, pose the greatest potential for impact on human health and the environment. Of the aromatics known to be present in gasoline and diesel fuels, the ones that are listed as hazardous substances and/or priority toxics include benzene, toluene, ethylbenzene, xylene (BTEX), and naphthalene. Their concentrations in contaminated ground water will vary depending on the fuel composition and the volatility and solubility of the compound. They will be limited in the permit based on treatability and toxicity data. Lead (in the form of tetraethyl lead) and methyl-tertiary-butyl-ether (MTBE) which were common gasoline additives, must also be addressed and limited based on water quality criteria.

The authorization to discharge provided under this permit is limited to those outfalls specifically designated in the NOI as discharge locations. Discharges at any location not authorized under a UPDES permit are a violation of the Utah Water Quality Act (*Act*) and may be subject to penalties under the *Act*. Knowingly discharging from an unauthorized location or failing to report an unauthorized discharge may be subject to criminal penalties as provided under the *Act*.

## **WASTE LOAD ANALYSIS AND ANTIDegradation REVIEW**

Effluent limitations may also be derived using a Waste Load Analysis (WLA), which is appended to this statement of basis as an ADDENDUM. The WLA incorporates Secondary Treatment Standards, Water Quality Standards, Antidegradation Reviews (ADR), as appropriate, and designated uses into a water quality model that projects the effects of discharge concentrations on receiving water quality. Based on historic information the WLA was evaluated twice; once for waters with designate use Class 1C and again for waters without the Class 1C designated use.

The ADR Level II review evaluated typical conditions of a project based on cleanup of legacy petroleum contamination for project duration, effluent quality, and effluent quantity. The DWQ concluded that a site specific ADR Level II will be required if a project discharges to Class 1C water and will last greater than one year. The WLA indicates that the effluent limitations should be sufficiently protective of water quality in order to meet State water quality standards in the receiving waters.

### **BASIS FOR EFFLUENT LIMITATIONS**

Discharging facilities will be required to meet all effluent limitations based upon applicable federal and state regulations. Applicable state requirements are found in *Utah Administrative Code (UAC) R-317*. In cases where multiple limits have been developed, those that are more stringent apply. In cases where no limits have been developed, Best Professional Judgment (BPJ) may be used where applicable.

A flow limitation of 100 gpm has been included in the permit. The flow limitation is based on the flow used in the Waste Load Analysis (WLA) and is based on BPJ of typical ground water remediation projects and underground storage tank removal projects.

The pH is limited by Utah secondary treatment standards, *UAC R317-1-3.2D*, to the range of 6.5 to 9.0 standard units.

The total suspended solids (TSS) effluent limitations of 25 mg/L for an average monthly concentration and 35 mg/L for an average weekly concentration are based on the Utah secondary treatment standards contained in the *Utah Wastewater Disposal Regulations, UAC Section R317-1-3.2B*. The maximum daily TSS concentration allowed is 70 mg/L, which is based on BPJ and is the same as in the previous permit.

The total dissolved solids (TDS) maximum daily effluent limitation will be 2,000 mg/L based on the WLA. In addition, if the discharge is within the Colorado River Basin the TDS effluent wasteload limitation will be 1 ton TDS per day based on the requirements of the Colorado River Basin Salinity Control Forum. It is the responsibility of the permittee to maintain annual TDS loading information and submit it to the Director.

Lead will be limited at different concentrations in the permit based on state water quality criteria for the designated use based on the WLA.

The Oil & Grease effluent limitation of 10 mg/L and no visible sheen or floating solids are based on BPJ.

## **Volatile Compounds**

Several of the individual constituents of petroleum fuels will also be included in the permit effluent limitations. Benzene, toluene, ethylbenzene, and naphthalene are included because they are the components of gasoline that have been identified as toxic pollutants in the Clean Water Act. Xylene is included because it is one of the contaminants of concern to be regulated under the Safe Drinking Water Act of 1986.

EPA has developed a model National Pollutant Discharge Elimination System (NPDES) permit for discharges resulting from the cleanup of gasoline released from USTs. The model permit provides effluent limitations for surface water discharges from corrective actions at gasoline UST sites. The limits are based on the characterization of constituents commonly found in gasoline. The permit was developed to assist permitting authorities by recommending specific effluent limitations, standard conditions, and special conditions for inclusion in all NPDES permits for discharges from these sites.

Of the aromatics known to be present in gasoline and diesel fuels, the ones that are listed as hazardous substances and/or priority toxics include naphthalene. Naphthalene has been present in detectable concentration in the effluent of greater than 10% of historic projects. Naphthalene's effluent limitation is based on BPJ and is the same as in the previous permit.

Benzene, for which the EPA Office of Drinking Water has issued a health advisory, is a known human carcinogen. The EPA has set the Maximum Contaminant Level (MCL) for benzene in drinking water at 0.005 mg/L. In addition, EPA's model permit recommends an effluent limitation of 0.005 mg/L. The effluent limit for Benzene in this renewal permit is the same as in the previous permit.

The aggregate BTEX parameter's effluent limitation will be set equal to EPA's model permit at 0.1 mg/L and is the same as in the previous permit.

MTBE is included as a pollutant of concern with the effluent limitation based on BPJ and is the same as in the previous permit.

## **Total Toxic Organics**

The aromatic chemicals are the primary sources of concern at cleanup sites. However, many of the toxic organics may be found in contaminated ground water. They are often used as solvents or as oil additives to extend the useful life of oils. Although there are variations of toxicity among the toxic organic pollutants, a number are known carcinogens and many pose significant environmental hazards. Since there are potential adverse effects associated with these organics, they must also be addressed. The control of toxic organics will be achieved in this permit by setting an effluent limit for total toxic organics (TTO). Other detectable organic chemicals will be limited on a case-by-case basis. TTO is defined as the sum of the concentrations of the specific toxic organic compounds (listed in Table B of the NOI) found in the wastewater discharge. For Class 1C waters permittee will be required to sample all of the TTOs on a quarterly basis.

For receiving waters which do not have designated use Class 1C, the permittee may be required to do an initial screening for all of the priority toxics that may be present in concentrations greater than 0.01 mg/L for the NOI submittal (See Table B of the NOI for a full list of the total toxic organics). From then on, only those organics that showed up in a concentration greater than 0.01 mg/L in the screening of the influent to the treatment system will be required to be sampled for and included in the TTO analysis of the effluent.

The maximum daily effluent limitation for TTO is 2.0 mg/L and is the same as in the previous permit. This is similar to the EPA pretreatment standards for TTO in several industries in which toxic organics are a concern, such as the “Electroplating and Metal Finishing” and the “Electrical and Electronic Components” categories. Organics generally have a higher solubility in hydrocarbons than in water and are therefore present in highest concentrations in the oily waste stream of the wastewater. Since the treatment systems employed in these cleanup projects are designed to remove the waste oil, they should sufficiently reduce organic chemicals as well.

For receiving waters which do not have designated use Class 1C, Total Petroleum Hydrocarbon (TPH) analyses may be substituted for the TTO analyses upon approval from the Director. It is the permittee’s responsibility to petition the Director. The Director may then approve, partially approve, or deny the request based on all available information. If approval is given, the modification will take place without a public notice.

**EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS**

This general permit has effluent limitations and monitoring provisions for discharges to *Category 3 waters with designated use Class 1C Drinking Water* as well as for discharges to *all other Category 3 waters*. These designations were made to address the different water quality standards of the receiving waters and the requirements for Antidegradation Review. Designated uses of Waters of the State are listed in *Utah Administrative Code (UAC) R317-2-13*.

These effluent limitations cover discharges to receiving waters with designated use which **INCLUDES** Class 1C. (Protected for domestic purposes with prior treatment)

**Specific Limitations for Discharges to Category 3 Waters with Designated Class 1C Drinking Waters Use**

Effluent Characteristics <sup>b. c.</sup>	Effluent Limitations <sup>a.</sup>			
	Daily Minimum	Daily Maximum	Average Weekly <sup>d.</sup>	Average Monthly <sup>d.</sup>
Flow, gpm		100		
pH, SU	6.5	9.0		
Total Suspended Solids, mg/L		70	35	25
Total Dissolved Solids, mg/L		2,000 <sup>e.</sup>		
Total Lead, mg/L		0.038		
Oil & Grease, mg/L		10		
Benzene, mg/L		0.005		
BTEX, mg/L <sup>f.</sup>		0.1		
MTBE, mg/L		0.2		
Naphthalene, mg/L		0.7		
Total Toxic Organics		2.0		
Individual Toxic Organics		<sup>g.</sup>		

- a. See Definitions, *Part VI.A* for definition of terms.
- b. There shall be no visible sheen or floating solids or visible foam other than in trace amounts.
- c. There shall be no discharge of sanitary wastes or process water other than the treated ground water.
- d. Average Weekly and Average Monthly Effluent Limitations will not apply if discharge occurs only once during project coverage as a continuous discharge not lasting more than 48 hours.
- e. In addition to the TDS concentration limitation, facilities discharging into watersheds within the Colorado River Basin shall not discharge more than 1.0 ton per day of TDS as a sum from all discharge points. It is the responsibility of the permittee to maintain annual TDS loading information and submit it to the Director.
- f. BTEX shall be measured as the sum of benzene, ethylbenzene, toluene, and xylenes.

- g. Those toxic organics that were detected at concentrations greater than 0.01 mg/L or greater than the drinking water maximum contaminant level (MCL) in the initial influent screening are required to be analyzed for during discharge. Organic chemicals detected in concentrations greater than 0.01 mg/L or the MCL shall have discharge limitations established on a case-by-case basis. These additional effluent limitations will be specified in the DWQ section of the NOI.

**Self-Monitoring Requirements for Discharges to Category 3 Waters with Designated Class 1C Drinking Waters Use**

Influent Characteristics	Monitoring Requirements <sup>a.</sup>	
	Measurement Frequency	Sample Type
Total Toxic Organics (TTOs)	Prior to submission of the NOI <sup>h.</sup>	Grab
	Quarterly	

Effluent Characteristics <sup>b. c.</sup>	Monitoring Requirements	
	Measurement Frequency	Sample Type
Flow, gpm	2/month	Measured
pH, SU	2/month	Measured
Total Suspended Solids, mg/L	Monthly	Grab
Total Dissolved Solids, mg/L	Monthly	Grab
Total Lead, mg/L	Monthly	Grab
Oil & Grease, mg/L	Monthly	Grab
Benzene, mg/L	2/month	Grab
BTEX, mg/L <sup>f.</sup>	2/month	Grab
MTBE, mg/L	2/month	Grab
Naphthalene, mg/L	Monthly	Grab
Total Toxic Organics	Monthly	Grab
Individual Toxic Organics <sup>i.</sup>	Monthly	Grab

- h. A source sample analyzed for TTOs must be included with the notice of intent.
- i. If a new toxic organic is detected at concentrations greater than 0.01 mg/L or greater than the drinking water MCL not previously detected. The permittee shall notify the Division of Water Quality immediately within having knowledge of the detection. A new effluent limitation or monitoring requirements maybe added at that time by DWQ.

Additional monitoring shall be required for facilities that discharge into watersheds on the Utah state 303(d) list of impaired waters. These facilities shall be required to monitor for the pollutant(s) that contribute to the impairment for these waters. For projects temporary and limited in nature DWQ will incorporate for monitoring purposes only, any additional sampling data for parameters of concern. Longer term projects will be assigned monitoring and maybe assigned an effluent limitation on a case-by-case basis.

These effluent limitations cover discharges to Category 3 receiving waters with designated uses which **DO NOT** include Class 1C. (Protected for domestic purposes with prior treatment)

**Specific Limitations for Discharges to all other Category 3 Waters**

Effluent Characteristics <sup>b. c.</sup>	Effluent Limitations <sup>a.</sup>			
	Daily Minimum	Daily Maximum	Average Weekly <sup>d.</sup>	Average Monthly <sup>d.</sup>
Flow, gpm		100		
pH, SU	6.5	9.0		
Total Suspended Solids, mg/L		70	35	25
Total Dissolved Solids, mg/L		2,000 <sup>f.</sup>		
Total Lead, mg/L		0.36		
Oil & Grease, mg/L		10		
Benzene, mg/L <sup>f.</sup>		0.005		
BTEX, mg/L <sup>f.</sup>		0.1		
MTBE, mg/L		0.2		
Naphthalene, mg/L		0.7		
Total Toxic Organics		2.0 <sup>h.</sup>		
Individual Toxic Organics		<sup>g. h.</sup>		
TPH-GRO, mg/L <sup>h.</sup>		1.0		
TPH-DRO, mg/L <sup>h.</sup>		1.0		

- a. See Definitions, *Part IV.A* for definition of terms.
- b. There shall be no visible sheen or floating solids or visible foam other than in trace amounts.
- c. There shall be no discharge of sanitary wastes or process water other than the treated ground water.
- d. Average Weekly and Average Monthly Effluent Limitations will not apply if discharge occurs only once during project coverage as a continuous discharge not lasting more than 48 hours.
- e. BTEX shall be measured as the sum of benzene, ethylbenzene, toluene, and xylenes.
- f. In addition to the TDS concentration limitation, facilities discharging into watersheds within the Colorado River Basin shall not discharge more than 1.0 ton per day of TDS as a sum from all discharge points. It is the responsibility of the permittee to maintain annual TDS loading information and submit it to the Director.
- g. Only those toxic organics that were present in concentrations greater than 0.01 mg/L in the initial influent screening are required to be analyzed for in the TTOs sample of the effluent. Organic chemicals detected in concentrations greater than 0.01 mg/L shall have discharge limitations established on a case-by-case basis. These additional effluent limitations will be specified in the DWQ section of the NOI.
- h. Total Petroleum Hydrocarbon (TPH-GRO and TPH-DRO) analyses may be substituted for the TTO analyses upon approval from the Director. Maximum Daily Effluent limitations of 1.0 mg/L TPH-GRO and TPH-DRO will be substituted for the TTO effluent limitation. It is the permittee's responsibility to petition the Director. Ongoing treatment systems will be required to conduct at least one TTO analysis per permit cycle. The Director may then

approve, partially approve, or deny the request based on all available information. If approval is given, the modification will take place without a public notice.

**Self-Monitoring Requirements for Discharges to all other Category 3**

Effluent Characteristics <sup>c. d.</sup>	Monitoring Requirements	
	Measurement Frequency	Sample Type
Flow, gpm	2/month	Measured
pH, SU	2/month	Measured
Total Suspended Solids, mg/L	Monthly	Grab
Total Dissolved Solids, mg/L	Monthly	Grab
Total Lead, mg/L	Monthly	Grab
Oil & Grease, mg/L	Monthly	Grab
Benzene, mg/L	2/month	Grab
BTEX, mg/L <sup>f.</sup>	2/month	Grab
MTBE, mg/L	2/month	Grab
Naphthalene, mg/L	Monthly	Grab
Total Toxic Organics <sup>h.</sup>	Monthly	Grab
Individual Toxic Organics <sup>h.</sup>	Monthly	Grab
TPH-GRO, mg/L <sup>h.</sup>	Monthly	Grab
TPH-DRO, mg/L <sup>h.</sup>	Monthly	Grab

In addition to the monitoring requirements above, facilities that discharge into waters on the Utah state 303(d) list of impaired water bodies shall be required to monitor for the pollutant(s) that contribute to the impairment for these waters. For projects temporary and limited in nature DWQ will incorporate, for monitoring purposes only, any additional sampling data for parameters of concern. Longer term projects will be assigned monitoring and maybe assigned an effluent limitation on a case-by-case basis.

**BIOMONITORING REQUIREMENTS**

As part of a nationwide effort to control toxic discharges, biomonitoring requirements are being included in permits for facilities where effluent toxicity is an existing or potential concern. In Utah, this is done in accordance with the State of Utah’s “*UPDES Permitting and Enforcement Guidance Document for Whole Effluent Toxicity (WET) Control (Biomonitoring)*, Division of Water Quality, March 1999.” Authority to require effluent biomonitoring is provided in UAC R317-8, *Utah Pollutant Discharge Elimination System* and UAC R317-2, *Water Quality Standards*.

Permittees covered under this general permit are not classified as major or significant minor facilities. Based on the result of the WLA, treatment will be conducted to effluent limitations protective of the receiving water’s designated use(s). Based on these considerations, there is no reasonable potential for toxicity in the facility’s discharge (*per State of Utah’s UPDES Permitting and Enforcement Guidance Document for WET Control*) so long as the treatment facilities are operated properly. As such, there will be no numerical WET limitations or WET monitoring requirements in this permit. However, the permit will contain a toxicity limitation re-opener

provision that allows for modification of the permit at any time in the future should additional information indicate the presence of toxicity in any discharges.

### **STORM WATER REQUIREMENTS**

There are no storm water requirements as the permittees do not currently meet the criteria to obtain coverage or include separate permitting provisions, therefore a storm water permit is not required at this time based on *Utah Administrative Code R317-8-3.9*. However, a requirement for a best management practices plan for on-going treatment facilities at the request of the Director is included. In addition, a storm water re-opener provision is included in the permit should a storm water permit be needed in the future, following proper administrative procedures as per *UAC R317-8*, to include any applicable storm water provisions and requirements if appropriate.

### **PRETREATMENT**

There are no pretreatment requirements as the facility does not discharge to a public sanitary sewer. However, any process wastewater that any permittee may discharge to a sanitary sewer system, either as a direct discharge or as a hauled waste, is subject to Federal, State, and local pretreatment regulations. Pursuant to Section 307 of the Clean Water Act, the permittee shall comply with all applicable Federal general pretreatment regulations promulgated, found in *40 CFR 403*, the State's pretreatment requirements found in *UAC R317-8-8*, and any specific local discharge limitations developed by the Publicly Owned Treatment Works (POTW) accepting the waste. Any permittee seeking to discharge process wastewater to the local sanitary sewer system shall coordinate directly with the POTW for monitoring and authorization as required.

### **SIGNIFICANT CHANGES FROM PREVIOUS PERMIT**

The permit was altered to reflect changes in Utah rules for Antidegradation Review in Class 1C waters. A Level II Antidegradation Review was conducted for typical discharges lasting less than one year. Language was included to require a site specific Level II Antidegradation Review for projects discharging to Class 1C waters and lasting longer than one year.

Modeling of the discharge via the WLA process required the development of two sets of effluent limitations. One set of limitations and monitoring requirements for discharges to Waters of the State with Class 1C designated use and one set of limitations and monitoring requirements for Waters of the State without Class 1C designated use. The WLA process also required setting a flow rate for analysis. This flow rate was used to calculate assimilative capacity assigned to effluent limitations, thus a maximum daily effluent limitation for flow rate was added.

The WLA resulted in lowering of the total lead limitation and addition of a total dissolved solids limitation. In addition, clarification was added for the TDS limitation to waters within the Colorado River Basin. In addition, influent monitoring for TTOs was increased to quarterly to ensure that Class 1C waters are being protected. Also the ability to petition to substitute TPH monitoring for TTO monitoring was removed for discharges to Class 1C waters.

The batch discharge option was eliminated. However, language was added that if a one-time per project discharge not lasting longer than 48 hours was conducted that only the daily maximum effluent limitation would apply. This effectively is equivalent to the previous batch discharge option.

### **PERMIT DURATION**

As stated in *UAC R317-8-5.1(1)*, UPDES permits shall be effective for a fixed term not to exceed five (5) years.

Drafted by:

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### **PUBLIC COMMENT**

Began: August 3, 2016

Ended: September 5, 2016

Public Noticed in the Deseret News and Tribune.

During the public comment period provided under *UAC R317-8-6.5*, any interested person may submit written comments on the draft permit and may request a public hearing, if no hearing has already been scheduled. A request for a public hearing shall be in writing and shall state the nature of the issues proposed to be raised in the hearing. All comments will be considered in making the final decision and shall be answered as provided in *UAC R317-8-6.12*.

No comments were received during the public comment period.