

**FACT SHEET / STATEMENT OF BASIS
UTAH POLLUTANT DISCHARGE ELIMINATION SYSTEM
GENERAL PERMIT FOR TREATED GROUNDWATER FROM
PETROLEUM CONTAMINATED SITES
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.

In Utah, approximately 10,000 underground storage tanks (USTs) are used for storing petroleum products and other hazardous substances. It has been estimated in the past 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 to surface waters, 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, a 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 groundwater, 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 clean up of contaminated groundwater whenever, in the opinion of the Executive Secretary, 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 Executive Secretary may either deny coverage, request additional information, or authorize the discharge by sending a certified letter of approval and a signed copy of the general permit.

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 Executive Secretary may approve or deny this request. In addition, the Executive Secretary may require any person authorized by this general permit to apply for and obtain an individual 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*.

EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

This general permit has effluent limitations and monitoring provisions for a “one-time batch discharge” as well as for an “on going continuous discharge.” A “one-time batch discharge” is defined as a single discharging event from a temporary holding tank or system, which is not part of an on going treatment system designed for continuous operation and discharge. It is the permittee’s responsibility to petition the Executive Secretary for a one-time batch discharge event. The Executive Secretary may then approve, partially approve, or deny the request based on all available information.

One-time batch discharge: Effective immediately and lasting the duration of this permit, the permittee is authorized to discharge from Outfall 001, which is the outfall from the one-time batch

or temporary wastewater treatment system. Such batch discharges shall be limited and monitored by the permittee as specified below:

<u>Effluent Characteristics</u>	<u>Discharge Limitations a/</u>		<u>Monitoring Requirements b/</u>	
	Daily <u>Maximum</u>		<u>Measurement Frequency</u>	<u>Sample Type</u>
Flow, GPM, total gallons	Report		1/batch	Measured
Benzene, mg/L	0.005		1/batch	Grab
BTEX, mg/L <u>c/</u>	0.1		1/batch	Grab
MTBE, mg/L	0.2		1/batch	Grab
Naphthalene, mg/L	0.7		1/batch	Grab
Oil & Grease, mg/L	10		1/batch	Grab
Total Lead, mg/L <u>d/</u>	1.5		1/batch	Grab
Total Toxic Organics, mg/L <u>e/</u>	2.0		1/batch	Grab
Total Suspended Solids, mg/L	70		1/batch	Grab

On going treatment system: Effective immediately and lasting the duration of this permit, the permittee is authorized to discharge from Outfall 001, which is the outfall from the on going wastewater treatment system. Such on-going or continuous discharges shall be limited and monitored by the permittee as specified below:

<u>Effluent Characteristics</u>	<u>Discharge Limitations a/</u>			<u>Monitoring Requirements b/</u>	
	<u>Averages 30-Day</u>	<u>7-Day</u>	<u>Daily Maximum</u>	<u>Measurement Frequency</u>	<u>Sample Type</u>
Flow, GPM	Report	N/A	Report	2/month	Measured
Benzene, mg/L	0.005	N/A	0.005	2/month	Grab
BTEX, mg/L <u>c/</u>	0.1	N/A	0.1	2/month	Grab
MTBE, mg/L	0.2	N/A	0.2	2/month	Grab
Naphthalene, mg/L	0.7	N/A	0.7	Monthly	Grab
Oil & Grease, mg/L	N/A	N/A	10	Monthly	Grab
Total Lead, mg/L <u>d/</u>	0.06	N/A	1.5	Monthly	Grab
Total Toxic Organics, mg/L <u>e/</u>	N/A	N/A	2.0	2/year	Grab
Total Suspended Solids, mg/L	25	35	70	Monthly	Grab

The pH shall not be less than 6.5 standard units nor greater than 9.0 standard units in any sample and shall be monitored by a monthly grab sample.

There shall be no visible sheen or floating solids or visible foam in other than trace amounts.

There shall be no discharge of sanitary wastes or process water other than the treated groundwater.

N/A - Not Applicable

GPM – gallons per minute

- a/ See Definitions in General Permit, *Part I.A* for definition of terms.
- b/ If the permittee can demonstrate that the concentration of a pollutant in the influent to the treatment system is lower than the effluent limitation for that parameter, the permittee may submit a written request to the Executive Secretary to have the monitoring requirements for that parameter reduced or eliminated. It is the permittee's responsibility to petition the Executive Secretary. The Executive Secretary may then approve, partially approve, or deny the request based on effluent data and other available information. If approval is given, the modification will take place without a public notice.
- c/ BTEX shall be measured as the sum of benzene, ethylbenzene, toluene, and xylenes.
- d/ Monitoring for lead is required when sample analyses of the initial influent to and effluent from the treatment system indicate a total lead concentration greater than 0.01 mg/L, or if the contamination results from leaded fuel. It is the permittee's responsibility to petition the Executive Secretary for the omission of total lead from the monitoring requirements. The Executive Secretary may then approve, partially approve, or deny the request based on effluent data and other available information. If approval is given, the modification will take place without a public notice.
- e/ 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 total toxic organic (TTO) 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.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): at the outfall from the wastewater treatment system prior to mixing with the receiving water.

Samples shall be analyzed for the appropriate constituents by the methods listed in the Utah Department of Environmental Quality, Division of Environmental Remediation & Response, *Utah UST Rule R311-205-2(d)(1)*. Monitoring results are to be summarized on monthly Discharge Monitoring Reports and submitted as appropriate to the Utah Division of Water Quality.

Additional monitoring shall be required for facilities that discharge into watersheds on the Utah state 303(d) list of impaired waters and/or within the Colorado River Basin. These facilities shall be required to monitor for the pollutant(s) that cause the impairment for these waters. DWQ will incorporate for monitoring purposes only, any additional sampling data for parameters of concern.

BASIS FOR EFFLUENT LIMITATIONS

Discharging facilities will be required to meet all applicable federal and state regulations establishing effluent limits. 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.

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

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

Lead will be limited in the permit based on state water quality criteria. Since this is determined using the receiving stream's classification, hardness, and flow rate, which will vary widely depending on the clean-up site location, certain assumptions were made to ensure that water quality standards would be maintained even for a critical receiving water situation (i.e. high quality/low flow). Assuming a hardness of 100 mg/L, the in-stream water quality criteria for lead would be 3.2 ug/L (4 day avg.) and 82 ug/L (1 hour avg.). Using a low stream flow of 2 cfs and an effluent flow rate of 50 gpm (typical design flow for these types of systems) a 30-day average allowable lead effluent concentration of 0.06 mg/L was calculated. The allowable daily maximum limit for lead was calculated to be 1.5 mg/L.

Several of the individual constituents of petroleum fuels will also be included in the permit limitations. Benzene, toluene, ethylbenzene, and naphthalene are included because they are the components of gasoline that have been identified as priority toxics 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.

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. The aggregate BTEX parameter has been included with an EPA recommended limit of 0.1 mg/L. This limit replaces the previous individual limits for the BTEX constituents and is a more stringent limitation based on the permitting authority's BPJ.

TOTAL TOXIC ORGANICS

The aromatic chemicals are the primary sources of concern at clean up sites. However, many of the priority toxic organics may be found in contaminated groundwater. 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 found in the wastewater discharge at a concentration greater than 0.01 mg/L. The permittee will 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 Appendix A of the general permit for a full list of the priority 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 Daily maximum limit for TTO is 2.0 mg/L. 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. Total Petroleum Hydrocarbon (TPH) analyses may be substituted for the TTO analyses upon approval from the Executive Secretary. It is the permittee’s responsibility to petition the Executive Secretary. The Executive Secretary 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.

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 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. Effluent limitations are those that the model demonstrates are sufficient to meet State water quality standards in the receiving waters. During this UPDES renewal permit development, a WLA and ADR were performed. The WLA resulted in a Finding of No Significant Impact – Negative Declaration. An ADR Level I review was performed and concluded that an ADR Level II review was not required. 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. The discharges were evaluated and determined not to cause a violation of State Water Quality

Standards in downstream receiving waters. Refer to the attached WLA for more discharge information and the 2010 status of the existing permittees.

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 and all discharges, in which toxicity has not been an existing or likely concern, are treated to meet drinking water standards. In addition, the result of the WLA was a Finding of No Significant Impact – Negative Declaration, as previously described. 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 or include separate permitting provisions, therefore a storm water permit is not required at this time. However, 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

There are no significant changes proposed from the previous general permit. The only change worth noting is the inclusion of the more stringent aggregate BTEX parameter limitation, as described previously.

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. Therefore, this permit is drafted to expire March 31, 2015.

Drafted by Jeff Studenka, Environmental Scientist
Utah Division of Water Quality
January 12, 2010
Revised February 23, 2010
Finalized March 26, 2010

ATTACHMENTS

- Waste Load Analysis, DWQ Addendum

PUBLIC NOTICE INFORMATION

Began: January 18, 2010

Ended: March 25, 2010

Public Noticed in the Salt Lake Tribune and the Deseret News on January 18, 2010 and again on February 25, 2010, as well as on the following websites; www.utahlegals.com and www.waterquality.utah.gov/PublicNotices.

Comments: EPA provided written comments received on February 18, 2010 to request a change in the BTEX parameter limitations. The change has been made and is reflected herein. No other comments were received.