UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8, MONTANA OFFICE
FEDERAL BUILDING, 10 W. 15th STREET, SUITE 3200
HELENA, MONTANA 59626

STATEMENT OF BASIS

PERMITTEE:	Keller Transport, Inc.
FACILITY:	MT Hwy 35 Fuel Spill Site, Ground Water Remediation Facility
PERMIT NUMBER:	MT-0030805
RESPONSIBLE OFFICIAL:	Debra Will, Manager Keller Transport, Inc. P.O. Box 30197 Billings, MT 59101 (800) 544-4613
CONTACT:	West Central Environmental Consultants Jim Rolle, Regional Manager 1030 South Avenue West Missoula, MT 59801 (406) 549-8487
PERMIT TYPE:	Minor Industrial, Indian Country
RECEIVING WATER:	Flathead Lake
LOCATION:	47°42'56" North Latitude, 114°2'49" West Longitude T 23 N, R 19 W, Sec. 33, NW Quarter Montana Principal Meridian, Flathead Reservation, Lake County, MT

A. Background Information

On April 2, 2008, about 6,380 gallons of gasoline was spilled as a result of a vehicle accident at mile 5.2 on Montana Highway 35, northeast of Polson, Montana. All the spilled gasoline had seeped into the ground before initial responders arrived on the scene. Immediate spill cleanup consisted of excavating gasoline saturated soils adjacent to and underneath Highway 35 at the spill site. On April 6, 2008 the initial remediation contractor detected organic vapors at two spring pools near the shoreline of Flathead Lake down-gradient of the spill site. On April 7, 2008 the remediation contractor set up a temporary treatment system utilizing carbon adsorption and intermittent treatment of water from the springs and discharge of the treated water to Flathead Lake was started. Continuous treatment and discharge of water from the springs began the next day, April 8, 2008. The temporary treatment system, which has been upgraded several times by increasing the size of the carbon canisters and adding an air stripping unit, adding additional carbon canisters and increasing the capacity of the air stripping unit, remains in operation as the only treatment being done to the contaminated spring waters. This temporary treatment system has two, unpermitted, flexible pipes, which discharge to the same location in

Flathead Lake by the treatment location. The contractor is conducting regular monitoring of the discharge effluent, analytical results from this monitoring are summarized in the attached *Past Discharge Analytical Data* table, Attachment A.

B. Discharges Covered

The current remediation contractor, who took over the site in June 2008, is designing a permanent water treatment facility for long-term operation to treat all hydrocarbon contaminated waters at the site. The proposed treatment system design consists of two, parallel treatment systems, each with a 250 gallon per minute capacity. The treatment systems will consist of coalescing bed oil/water separator followed by an air stripping cell with horizontal diffusers. The air-stripped water flow path then passes through a 4,000-pound granular activated carbon cell followed by a 1,000-pound granular activated carbon container. The two treatment flows then merge into one flow path (pipe), which will discharge into Flathead Lake.

This permit authorizes the discharge of the treated (remediated) ground water from the temporary and then the permanent treatment plants to Flathead Lake.

C. Receiving Waters

Water from the treatment system will be discharged to East Bay of Flathead Lake, a water of the United States and a surface water of the Flathead Reservation.

Flathead Lake is a large, natural, water body located in northwestern Montana and is the largest natural freshwater lake in the western United States. The lake is fed by the Flathead River main stem, which enters at the north end of the lake between the towns of Somers and Bigfork, Montana, and the Swan River, which enters the lake at the town of Bigfork at the northeast corner of the lake. Numerous small streams also enter the lake, mostly on the east shore. The Flathead River leaves the lake at the southwest corner at the town of Polson, Montana. Though Flathead Lake is a natural water body, the lake level is controlled by Kerr Dam, a power-producing facility on the Flathead River approximately 4½ river miles downstream of U.S. Highway 93, which crosses the river where it exits Flathead Lake. Regulation of the outflow by the dam maintains the Lake's level between 2,883 and 2,893 feet above sea level.

Flathead Lake is bisected by the northern boundary of the Flathead Reservation at approximately 47.9 ° north latitude with all of Flathead Lake south of that latitude being within the reservation. Located about 12 miles south of the reservation boundary, East Bay of Flathead Lake lies entirely within the external boundary of the Flathead Reservation and is thus a surface water of the Reservation and comes under regulatory authority of the Confederated Salish and Kootenai Tribes of the Flathead Reservation.

As part of the site investigation, the remediation contractor collected water samples from Flathead Lake at six different sites located offshore and adjacent to the remediation location. Samples were analyzed using EPA Method 602, analyses with results for each lake sample site, at or greater than the method detection limit is summarized in the Lake Sampling table, Attachment B.

D. Water Quality

The Confederated Salish and Kootenai Tribes of the Flathead Reservation (Tribes) have adopted water quality standards (WQS), which have been approved by the U.S. EPA. The most recent revision to the Tribes WQS was approved by EPA on April 11, 2007. *Surface waters* are defined in the Tribes WQS, as "any waters on the surface of the Reservation, including but not limited to streams (permanent, intermittent, and ephemeral), lakes, ponds, wetlands, seeps and springs, reservoirs, and irrigation and drainage systems discharging into a stream, lake, pond, wetland reservoir, or other surface water. Treatment works used solely for treating, transporting, or impounding pollutants are not considered surface water." The Tribes' WQS goes on to state "[w]ater quality segments specified in Section 1.3.5 through 1.3.12 include all elements referred to in the definition of surface water."

Section 1.3.5 *A-1 Classification,* of the Tribes WQS lists the portion of Flathead Lake within the Flathead Reservation as class A-1 water. Waters classified as A-1 must be maintained suitable for drinking, culinary and food processing purposes after conventional treatment and are also to be suitable for bathing, swimming and recreation, wildlife, growth and propagation of salmonid fishes and associated aquatic life and for agricultural and industrial purposes. Part h of this section also states "[n]or may concentrations of toxic or deleterious substances exceed Tribal Numeric Chart levels."

Narrative water quality requirements are listed in Section 1.3.13 *General Requirements and Limitations,* of the Tribes WQS. The narrative standards require reservation surface waters to be free from substances that are or may become injurious to public health, safety, welfare, or any of the existing beneficial uses, which may or will:

a) Settle to form objectionable sludge deposits or emulsions beneath the surface of the water or upon adjoining shorelines;

b) Create floating debris, scum, a visible oil film (or be present in concentrations at or in excess of 10 milligrams per liter) or globules of grease or other floating materials;

c) Produce odors, colors or other conditions that create a nuisance or render undesirable tastes to fish flesh or make fish inedible;

d) Create concentrations or combinations of materials that are toxic or harmful to human, animal, plant or aquatic life except for pesticide application; and,

e) Create conditions that produce undesirable aquatic life.

In addition to narrative water quality standards, the Tribes WQS contains charts listing priority pollutants, non-priority pollutants, and numeric surface water maximum contaminant levels. Of the compounds commonly found in gasoline, Benzene, Ethylbenzene and Toluene are listed in the Priority Pollutants chart and Ethylbenzene, Toluene and Xylenes are listed in the Numeric Surface Water Maximum Contaminant Level (MCL) chart. These compounds and their limits as given in each chart are summarized in the following table:

	Priority Pollutants Chart		Surface Water MCL Chart	
	Water+Organism (µg/l)	Organism Only (µg/l)	SDWA MCL (µg/l)	Potential Health Effects
Benzene	2.2	51	not listed	not listed
Ethylbenzene	530	2,100	700	liver, kidneys
Toluene	1,300	15,000	1,000	nervous system, liver, kidneys
Xylenes	not listed	not listed	10,000	nervous system

The Tribes do not have Benzene listed in the Numeric Surface Water Maximum Contaminant Level chart. EPA lists Benzene as a regulated drinking water contaminant with a Maximum Contaminant Level of 0.005 mg/l (5 µg/l) with anemia, decrease in blood platelets, and increased risk of cancer as potential health effects from ingestion of water.

Part V of the Tribes' Water Quality Standards contains provisions for surface water mixing zones, which are addressed in the Mixing Zone Implementation Procedures document, which was approved as part of the Tribes' WQS update on April 11, 2007. Part 2.b. of the Mixing Zone Implementation Procedures states in part "[n]ew or increased sources of discharge into lakes or open water bodies which have a mean detention time of greater than 20 days shall not be allowed a mixing zone." Data obtained from the University of Montana's Flathead Lake Biological Station shows a 3.4 year flushing or detention time for the lake. Therefore, no mixing zone will be allowed and all discharge effluent limitations shall meet water quality standards at the point of discharge, i.e. end of pipe, and effluent limitations derived in part E. below will be required for all effluent discharges to Flathead Lake from the treatment plant.

E. Effluent Limitations

The effluent limitations and the basis for the effluent limitations are summarized in the table below. A discussion of the individual effluent limitations follows the table.

Effluent Characteristic	Effluent Limitation		
	30-Day Average a/	Daily Maximum a/	Basis b/
Benzene, µg/L	2.2	5	2.2 – WQS 5 – BPJ
BTEX, µg/L b/	N/A	100	BPJ
Total Petroleum Hydrocarbons – Gasoline Range Organics, mg/L c/	N/A	10	BPJ
The effluent shall not have a sheen nor cause a sheen or film on the surface of Flathead Lake.			WQS
The pH of the discharge shall not be less than 6.5 or greater than 8.5 at any time.			WQS

a/ See Definitions, Part 1.1., for definition of terms.
b/ WQS means water quality standards. BPJ means best professional judgement

Gasoline is a complex combination of hydrocarbon compounds, additives and blending agents. Finished gasoline can contain more than 150 different compounds. However the four volatile organic compounds Benzene, Toluene, Ethylbenzene and the mix of three Xylene isomers (BTEX) are commonly used as an effluent indicator parameter to represent the compounds found in gasoline. These compounds have similar physical and chemical characteristics, such as solubility in water and Henry's Law constant, which affect the treatability of the chemical. Generally, compounds with higher water solubility and lower Henry's Law constants are more difficult to remove from water with air stripping and carbon adsorption.

Of the four BTEX compounds, Benzene has the highest solubility in water. Two other gasoline components, naphthalene and propylene, have higher solubility in water but naphthalene and propylene are minor components in gasoline thus unlikely to be present in water in appreciable amounts and neither has an established water quality standard. The four BTEX compounds also have some of the lowest Henry's Law constants of common gasoline components with naphthalene being the only compound with a lower Henry's Law constant than the BTEX compounds.

EPA's *Model NPDES Permit for Discharges Resulting From The Cleanup of Gasoline Released From Underground Storage Tanks* and *Fact Sheet, NPDES Permit Number: ID-G91-0000* recommends a total BTEX limit of 100 µg/l based on an air stripping removal efficiency of 99.5%. Set as a secondary effluent limit, 100 µg/l total BTEX will ensure the removal of Toluene, Ethylbenzene and the Xylenes to levels below requirements in the Tribes' Priority Pollutants Chart and Surface Water MCL Chart. Based on EPA's model permit and the fact sheet referenced above and the observed performance of the interim treatment system, the technology-based effluent limit for BTEX is set at 100 µg/l.

Benzene has one of the highest solubility in water and one of the lowest Henry's Law constants of the compounds in gasoline and also has a low carbon partition coefficient. Compared to other gasoline components, those properties make Benzene more difficult to remove from water using air stripping and more likely to break through carbon adsorption treatment when the carbon is reaching its adsorption capacity. Thus, Benzene is used as an indicator compound. Satisfactory removal of Benzene from water is an acceptable indicator for removal of other gasoline constituents. Based on the Confederated Salish and Kootenai Tribes' water quality standards and the observed performance of the interim treatment system, the effluent limit for Benzene is set at 2.2 µg/l. This limitation will be as a 30-day average because the human health criteria for benzene are based on long term exposure. A daily maximum effluent limitation of 5 ug/L will also be included in the permit and is technology based.

The pH of the discharge shall be between 6.5 and 8.5 standard units at all times and is based on the Tribal water quality standards of the receiving water.

The permit will also require that the concentration of "total petroleum hydrocarbons – gasoline range organics" not exceed 10 mg/L and is based on best professional judgement for Region 8. The effluent limitation on total petroleum hydrocarbons – gasoline range organics is being used instead of the usual effluent limitation on oil and grease because organic pollutants from gasoline will not be detected by the test for oil and grease. In accordance with Tribal water quality standards, the discharge shall not cause a visible oil film in Flathead Lake.

F. Self-Monitoring Requirements

The self-monitoring requirements are included in Part 1.3.2 of the permit. The total volume of water discharged each reporting period, in gallons, shall be reported. The total volume discharged may be based on a recording water meter or estimated based on a measured rate of discharge and the total amount of time a discharge occurred during the reporting period.

The discharge is to be monitored at least weekly for benzene, pH, and visible oil sheen. If a visible sheen in the discharge or a sheen or floating film on Flathead Lake is observed, a grab sample of the discharge shall be collected promptly and analyzed for total petroleum hydrocarbons – gasoline range organics. The analysis for "total petroleum hydrocarbons – gasoline range organics" may be done using SW-846 Method 8015D or using an equivalent method. If no grab sample was taken during the reporting period because no visible sheen was observed, enter "No grab sample required this reporting period." or something similar on the appropriate line of the discharge monitoring report form. The grab sample for pH must be analyzed within 15 minute in order to comply with the holding time specified in 40 CFR Part 136.

The monitoring for BTEX is to be done at least monthly. More frequent monitoring is not considered necessary because of the weekly monitoring for benzene. For purposes of this permit, BTEX is the sum of the benzene, ethylbenzene, toluene, and total xylene (all three isomers) present in the effluent. The concentrations of benzene, ethylbenzene, toluene, and total xylene must be added together to obtain a value for the concentration of BTEX. Total xylene is represented by three isomers (commonly referred to as meta-, para-, and ortho-xylene.) The concentration for the three isomers are added together to obtain a value for total xylene. The analytical methods in 40 CFR Part 136 will not provide adequate resolution to separate meta- and para-xylene. Therefore, meta- and para-xylene will be represented by a single value. Total xylene is then computed by adding the concentration of ortho-xylene to the concentration representing both meta- and para-xylene.

G. Reporting Requirements

The facility is required to report effluent monitoring data for each individual discharge point each month on a Discharge Monitoring Report (DMR), EPA Form 3320-1. A copy of the analytical laboratory's analysis results shall be included with the DMR. If no discharge occurs during a month, the facility will report ***No Discharge*** for that month on a Discharge Monitoring Report (DMR), EPA Form 3320-1. Reports of effluent monitoring shall be postmarked not later than the 28th day of the month following the month which is being reported.

I. Total Maximum Daily Loads

On June 21, 2000 and September 21, 2000, U.S. District Judge Donald W. Molloy issued orders stating that until all necessary total maximum daily loads (TMDLs) under Section 303(d) of the Clean Water Act are established for a particular water quality limited segment, the EPA is prohibited from issuing new permits or from increasing already permitted discharges under the

NPDES program. (The orders were issued pursuant to the lawsuit Friends of the Wild Swan, et al., v. U.S. EPA, CV 97-35-M-DWM, District of Montana, Missoula Division.)

EPA finds that the issuance of this permit would not conflict with the order because there are no listed water quality limited water bodies within the Flathead Reservation. The Tribes have adopted and EPA has approved water quality standards for tribal waters but the Tribes have not developed a list of impaired water bodies requiring TMDLs. Also, when EPA approved the State of Montana's 1996 and 1998 lists of impaired streams and lakes, which included water bodies within tribal reservation boundaries, EPA specifically stated that the approval did not extend to waters within Indian Country.

H. Miscellaneous

The effective date of the permit and the permit expiration date will be determined at the time of issuance. The permit will be issued for a period of approximately five years, but not to exceed five years.

A public notice for this permit was published in the *Missoulian*, a newspaper of general circulation, on November 9th, 2008 for a 30-day public comment period. No comments were received during the comment period.

Prepared by David Rise
October 2008, Edited January 5, 2009 for public notice statement
Edited and Reviewed by
Bob Shankland, SEE
Bruce Kent, EPA Region 8 P-W-WW

REFERENCES:

SURFACE WATER QUALITY STANDARDS AND ANTIDEGRADATION POLICY, Confederated Salish and Kootenai Tribes of the Flathead Reservation, CSKT Natural Resources Department, Environmental Protection Division, Water Quality Program, Rev. April 11, 2006.

Technical Memorandum, Paul Rodgers, PE, Cedar Creek Engineering, May 29, 2008.

Revised Final Work Plan, Phase 1 of Interim Remedial Action, Keller Trucking Fuel Truck Spill, Polson, Montana, Environmental Partners, Inc., Issaquah, WA, October 2, 2008.

Model NPDES Permit for Discharges Resulting From The Cleanup of Gasoline Released From Underground Storage Tanks; U.S. EPA, Office of Water, Office of Underground Storage Tanks, June 1989.

CDPS General Permit for Groundwater Remediation, Colorado Discharge Permit Number COG-310000, Colorado Discharge Permit System, Rationale – Renewal No. 3, Colorado Department of Public Health and Environment, Water Quality Control Division, November 2000.

National Primary Drinking Water Regulations, 40 Code of Federal Regulations, Part 141.

About Flathead Lake, Flathead Lake Biological Station web page, http://www.umt.edu/flbs/AboutFLBS/FlatheadLake.htm

Fact Sheet, NPDES Permit Number: ID-G91-0000, U.S. Environmental Protection Agency, Region 10, June 2006.

ATSDR Toxicological Profile Information Sheet, Chemical and Physical Properties: *Automotive Gasoline,* June 1995; *Benzene,* August 2007; *Ethylbenzene,* September 2007 (draft for public comment); *Toluene,* September 2000; *Xylene,* August 2007.

The Merck Index, Eleventh Edition, Merck & Co., Inc., 1989.

ATTACHMENT A

Past Discharge Analytical Data:

µg/l[a]	Benzene	Toluene	Ethyl Benzene	Xylenes	C5 – C8 Aliphatics	TPH
4/7/08	<0.50	<0.50	<0.50	<0.50	333	296
4/11/08	<0.50	<0.50	<0.50	<0.50	290	257
4/13/08	<0.50	<0.50	<0.50	<0.50	277	246
4/16/08	<0.50	<0.50	<0.50	<0.50	174	155
4/17/08	0.39	<0.50	<0.50	<0.50	173	155
4/21/08	16	0.51	<0.50	<0.50	134	134
4/24/08	66	1.4	<0.50	<0.50	248	280
5/7/08	643	373	6.7	34	926	1,770
5/13/08	<0.50	<0.50	<0.50	<0.50	37	33
5/21/08	<0.50	<0.50	<0.50	<0.50	<20	<20
5/27/08	<0.50	<0.50	<0.50	<0.50	27	24
6/2/08	<0.5	<0.5	<0.5	<0.5	25	23
6/4/08	<0.5	<0.5	<0.5	<0.5	20	19
6/5/08	<0.5	<0.5	<0.5	<0.5	21	19
6/6/08	<0.5	<0.5	<0.5	<0.5	<20	18
6/7/08	0.36	1.2	<0.5	<0.5	<20	<20
6/8/08	<0.5	<0.5	<0.5	<0.5	<20	<20
6/9/08	<0.5	<0.5	<0.5	<0.5	<20	<20
6/10/08	<0.5	<0.5	<0.5	<0.5	<20	<20
6/11/08	<0.5	0.52	<0.5	<0.5	19	18
6/12/08	<0.5	<0.5	<0.5	<0.5	24	22
6/13/08	14	13	1.9	11	72	107
6/14/08	6.8	1.5	<0.5	<0.5	31	36
6/16/08	3	0.52	<0.5	<0.5	23	23
6/17/08	3	1	<0.5	<0.5	19	22
6/18/08	2.3	0.67	<0.5	<0.5	<20	<20
6/19/08	2.5	0.66	<0.5	<0.5	<20	<20
6/20/08	0.6	<0.5	<0.5	<0.5	21	21
6/21/08	0.5	<0.5	<0.5	<0.5	16	<20
6/23/08	3.5	0.73	<0.5	<0.5	<20	<20
6/24/08	0.4	<0.5	<0.5	<0.5	<20	<20
6/25/08	0.48	<0.5	<0.5	<0.5	<20	<20

µg/l[a]	Benzene	Toluene	Ethyl Benzene	Xylenes	C5 – C8 Aliphatics	TPH
6/26/08	<0.5	0.96	<0.5	<0.5	<20	<20
6/27/08	0.4	<0.5	<0.5	<0.5	<20	<20
6/28/08	<0.5	<0.5	<0.5	<0.5	<20	<20
6/30/08	<0.5	<0.5	<0.5	<0.5	<20	<20
7/1/08	<0.5	<0.5	<0.5	<0.5	<20	<20
7/2/08	<0.5	<0.5	<0.5	<0.5	<20	<20
7/3/08	<0.5	0.58	<0.5	<0.5	<20	<20
7/7/08	<0.5	<0.5	<0.5	<0.5	28	57
7/8/08	<0.5	<0.5	<0.5	<0.5	<20	<20
7/9/08	<0.5	<0.5	<0.5	<0.5	<20	<20
Analytical method changed to EPA Method 602[b]						
7/10/08	--	--	--	--	--	--
7/11/08	--	--	--	--	--	--
7/13/08	<0.5	<0.5	<0.5	<0.5	--	--
7/14/08	<0.5	<0.5	<0.5	<0.5	--	--
7/15/08	<0.5	<0.5	<0.5	<0.5	--	--
7/16/08	4.3	1.5	<0.5	<0.5	--	--
7/17/08	43	7.6	0.51	1.3	--	--
7/18/08	<0.5	<0.5	<0.5	<0.5	--	--
7/19/08	3.7	1.4	<0.5	1	--	--
7/21/08	2.3	0.78	<0.5	<0.5	--	--
7/23/08	16	0.74	3.4	5.8	--	--
7/25/08	27	0.96	5.5	9.2	--	--
7/28/08	1.6	<0.5	0.8	0.8	--	--
7/30/08	1.2	0.97	<0.5	1	--	--
8/1/08	9.3	6.7	0.4	5.3	--	--
8/4/08	7.8	3.8	<0.5	1.6	--	--
8/6/08	0.72	0.52	<0.5	<0.5	--	--
8/9/08	18	10	0.66	8.2	--	--
8/11/08	7	1.7	<0.5	1.3	--	--
8/13/08	15	3.6	<0.5	1.4	--	--
8/15/08	15	4.3	<0.5	3.5	--	--
8/18/08	14	3.3	<0.5	2.1	--	--
8/20/08	56	33	1.8	25	--	--
8/23/08	9.2	<0.5	0.7	1.2	--	--

µg/l[a]	Benzene	Toluene	Ethyl Benzene	Xylenes	C5 – C8 Aliphatics	TPH
8/25/08	1.4	0.99	<0.5	<0.5	--	--
8/27/08	0.9	<0.5	<0.5	<0.5	--	--
8/28/08	0.51	<0.5	<0.5	<0.5	--	--
9/2/08	<0.5	<0.5	<0.5	<0.5	--	--
9/3/08	<0.5	<0.5	<0.5	<0.5	--	--

a. Analytical method MA-VPH.
b. Values in µg/l.

ATTACHMENT B

Site Name	Sample Date	Aromatic Hydrocarbons - µg/l		
		Benzene	Toluene	Total Xylenes
Lake 1	7/14/2008	<0.5	0.78	<0.5
Lake 2	7/10/2008	0.5	0.57	0.5
	7/14/2008	0.52	1.0	1.1
	7/21/2008	<0.5	0.5	<0.5
Lake 3	7/10/2008	0.5	0.68	<0.5
	7/14/2008	0.82	1.6	1.4
	7/21/2008	0.66	1.6	0.8
Lake 4	7/10/2008	2.1	4.0	3.3
	7/11/2008	0.61	1.3	0.7
	7/13/2008		0.59	<0.5
	7/14/2008	1.4	2.7	2.5
	7/15/2008		0.54	<0.5
	7/19/2008		0.82	<0.5
	7/21/2008		0.56	<0.5
Lake 5	7/10/2008	1.3	2.4	2.1
	7/14/2008	0.86	1.7	1.5
	7/15/2008	<0.5	0.5	<0.5
	7/21/2008	<0.5	0.5	<0.5
Lake 6	7/10/2008	1.3	2.1	1.9
	7/14/2008	0.88	1.6	1.4