Summer West Entrance Employee Personal Exposure Monitoring

Yellowstone National Park
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Abstract

Sampling to determine employee exposure to air contaminants and noise took place on July 10, 11, and 12, 2006 at Yellowstone National Park's West Entrance Station in kiosks A and B. Area and personal samples were taken for the following contaminants:

- Noise
- Carbon Monoxide
- Aromatic Hydrocarbons (BETX)
- Total Hydrocarbons
- Elemental, Organic, and Total Carbon
- Respirable Dust
- Nitrogen Dioxide
- Volatile Organic Compounds (VOC's)
- Aldehydes

All exposures to the above air contaminants and noise were below the Occupational Safety and Health Administrations (OSHA) permissible exposure limits (PELs). One peak reading of carbon monoxide was above the recommended exposure limits (RELs) ceiling set by the National Institute for Occupational Safety and Health (NIOSH). Further, no contaminant levels were above the American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLVs). Volatile organic compounds were below the Agency for Toxic Substances and Disease Registry (ATSDR) Minimal Risk Levels (MRLs).

The sampling was completed in the same kiosks and the analytes were collected using the same methods as used in the Summer Entrance Employee Air Monitoring Study of 2005. The same methods were used as in the Yellowstone Winter Use Personal Exposure Monitoring Studies of 2005 and 2006 except in the case of respirable particulate matter. The winter studies used a Thermo-Electron® (MIE) DataRAM™ and a TSI® DustTrak™ model 2080 particle analyzer for real time sampling as well as integrated samples, while the summer studies used only integrated samples.

It should be noted that the sampling trains were placed near the back windows of the kiosks on Tuesday, July 11th. In the previous studies and on the remaining two days of the 2006 summer study, the equipment was placed at the front windows of the kiosks. This was done to detect the amount of contaminants and noise entering the kiosks through the back windows, which are left open in the summer.

Summary

- Noise data gathered by the dosimeters showed employee exposure to be under the OSHA PEL 8-hour time-weighted average (TWA) of 90 dBA and action level of 85 dBA. Sound levels were also measured using a real-time sound level meter to determine the loudest employee exposures. No levels were detected above the OSHA exposure limit for continuous noise of 115 dBA.

- The carbon monoxide levels were all within exposure limits except for a peak of 546 ppm in kiosk B on July 10. This level was above the NIOSH ceiling of 200 ppm.

- Aromatic (BETX) levels were all below the limit of detection (LOD) for the analytical method NMAM 1501. The LOD for benzene is 0.001 mg per sample of benzene and 0.01 mg per sample for ethyl benzene, toluene, xylene and total petroleum hydrocarbons. Peak total petroleum hydrocarbon levels were 0.015 mg per sample; average levels were .005 mg/sample.

- Elemental carbon levels averaged 2.87 µg per sample. Organic carbon levels averaged 0.06 mg/m^3 and total carbon levels averaged 0.063 mg/m^3. Elemental, organic, and total carbon samples were below the previous proposed exposure limits as well as the current Mine Safety and Health Administration (MSHA) standard[1] of 160 $\mu g/m^3$ for total carbon.

- Respirable particulate matter levels were below the limit of detection (0.03 mg per sample) for the analytical method.

- Nitrogen dioxide levels were well below the exposure limits and one of the six samples was under the limit of detection of 1.0 µg for the analytical method.

- Twenty-three of the fifty-eight volatile organic compounds (VOC's) sampled for were detected. None of the levels were above the minimum risk levels (MRLs) established by the ATSDR.

- Aldehyde levels were below the various limits of detection for the analytical method.

[1] The MSHA standard was used because there are no other regulatory agencies with established limits for carbon.

Results and Discussion

The vehicles entering the park through kiosks A and B of the West Yellowstone Entrance were counted during the sampling period and categorized into one of three groups: gas engine, diesel engine, or motorcycle. During the three day sampling period, most of the vehicles were powered by gas engines. The number of vehicles counted each day was 507 on July 10, 461 on July 11, and 557 on July 12. Kiosks A and B had a similar number of vehicles pass through each day with an average for the three days of 79% gas engines, 13.6% diesel engines, and 7.4% motorcycles.

Figure 1: July 10th, 2006 Vehicle Entry

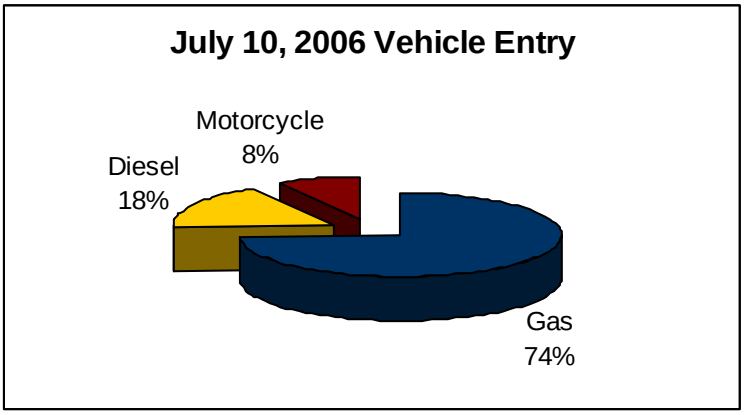


Figure 2: July 11th, 2006 Vehicle Entry

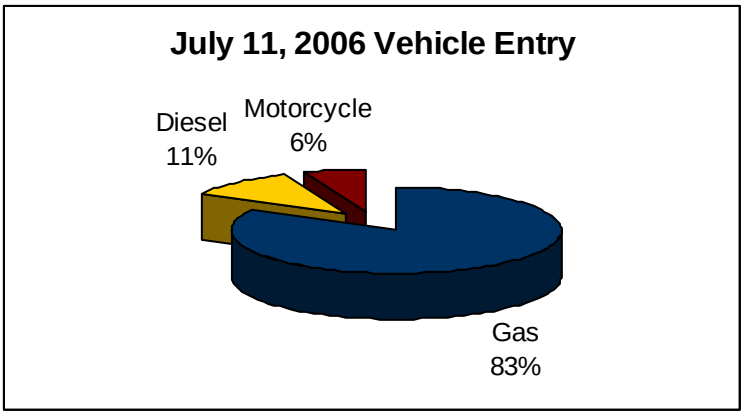
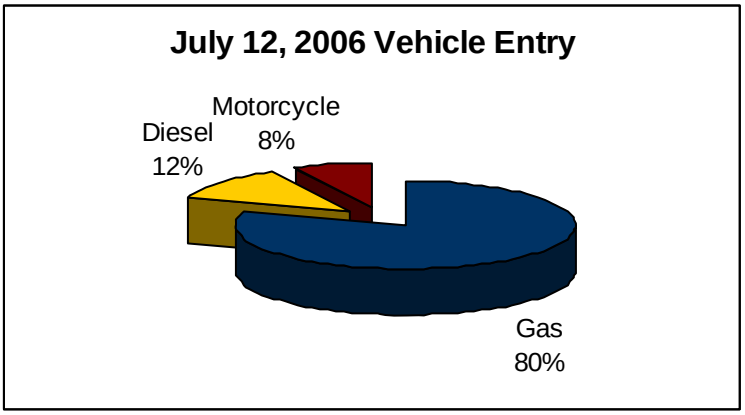


Figure 3: July 12th, 2006 Vehicle Entry



Air Monitoring Particulate Data

The Montana Department of Environmental Quality (DEQ) monitors the air quality at the West Yellowstone Entrance. The reason for the monitoring is to monitor, assess, and provide information on ambient air quality conditions and trends in accordance with the Montana and Federal Clean Air Acts. The blue line at the bottom of the graphs indicates the average particulate concentration levels hour-by-hour. The small bumps in the blue line correlate with the increase in traffic and sampling time frame. For all three sampling days, the health effect category was in the "Good" range. According to the thermometer on the outside of the entrance station building, the highest daily temperatures ranged from 78°F-82°F.

http://www.deq.mt.gov/Airmonitoring

Noise Results

Table 1 below shows the noise results. The dosimeters were set up to evaluate compliance with the OSHA Hearing Conservation Standard. The average noise level for the summer 2006 noise dosimetry was 62.8 dBA. Hearing protection is required when the noise level 8-hour time-weighted average is above 85 dBA.

Figure 4: Air Monitoring Data for West Yellowstone Entrance Station

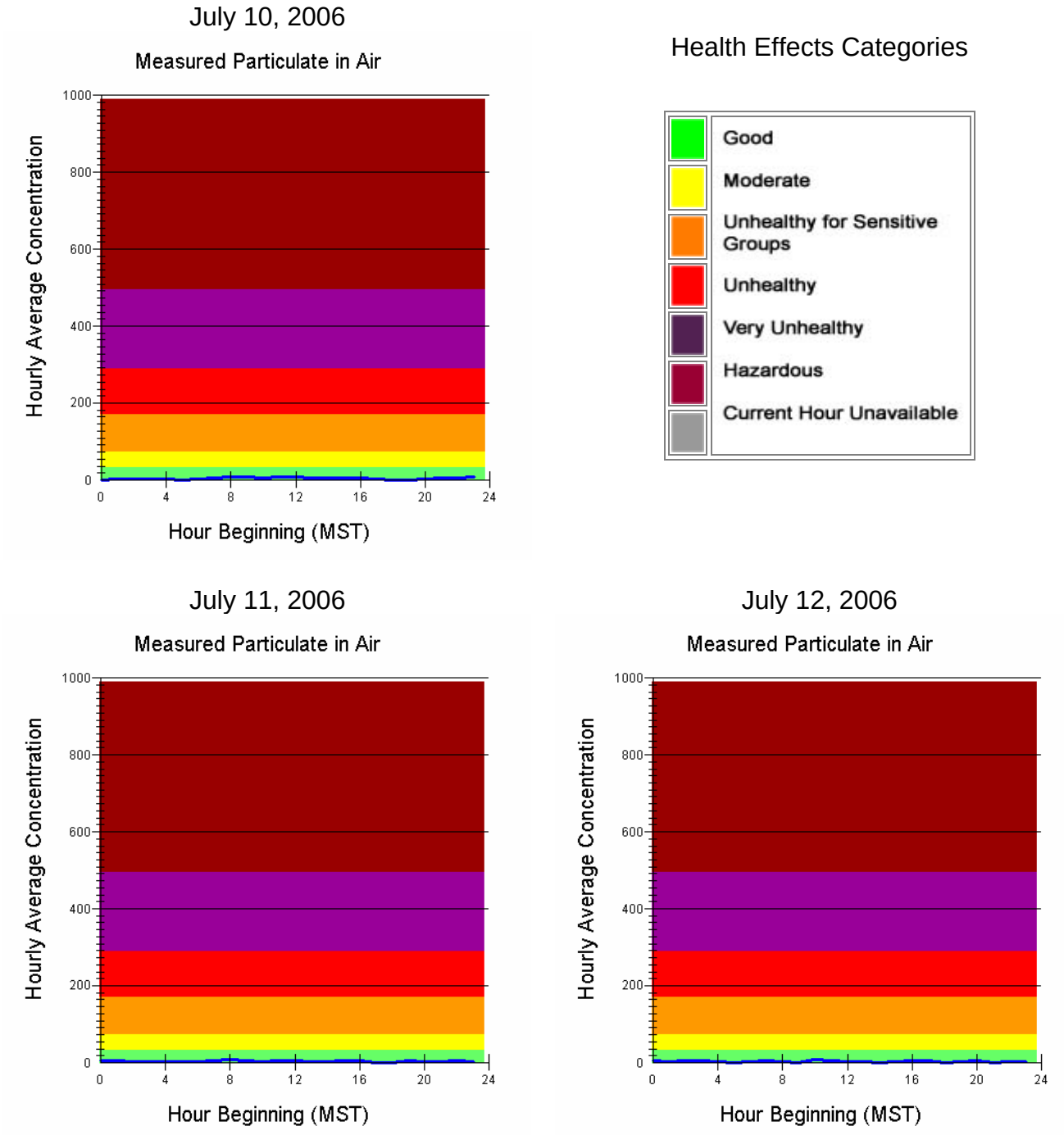


Table 1: Summer 2006 Noise Dosimetry Results

Date	Location	TWA	% Dose
7/10/2006	Kiosk A	71.6	7.875
7/10/2006	Kiosk B	63.5	2.570
7/11/2006	Kiosk A	48.2	0.304
7/11/2006	Kiosk B	65.5	3.371
7/12/2006	Kiosk A	56.1	0.912
7/12/2006	Kiosk B	71.6	7.823

Dosimeter parametric settings: threshold = 80 dBA; exchange rate = 5 dBA; criterion level = 90 dBA; time constant = slow

The noise levels were lowest on July 11th and likely the result of microphone placement near the back window, further from the kiosk attendants' voices. Table 2 shows a comparison of the summer 2006 results with the previous summer and winter studies.

Table 2: Winter vs. Summer Noise Dosimetry Results, 2005-2006

	Winter 2005	Summer 2005	Winter 2006	Summer 2006
Mean 8-hr TWA	60.6	68.2	65.2	62.8
Mean % Dose	3.5%	4.7%	5.5%	3.8%
Highest 8-hr TWA	75	73.6	80	71.6
Highest % Dose	12.5%	7.6%	26.0%	7.9%

Figure 5 shows winter and summer TWAs for 2005–2006. The summer 2006 study TWAs were lower than those from summer 2005. Figure 6 shows winter and summer percent dose for 2005–2006. The percent dose is a percent representation of allowable noise exposure, based on an 8 -hour criterion. The winter studies have higher dose percentages than the summer studies.

Figure 5: Winter vs. Summer Noise Levels 2005-2006, 8-hr. TWA

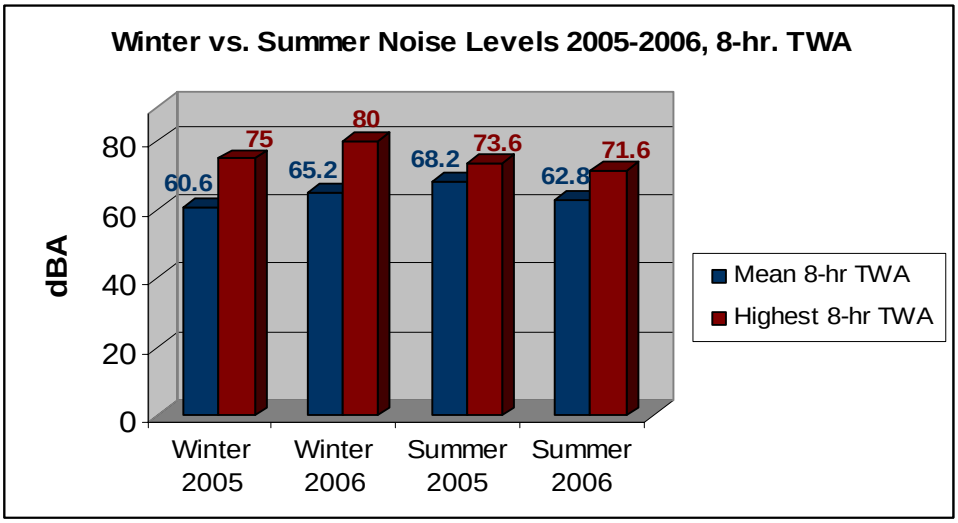
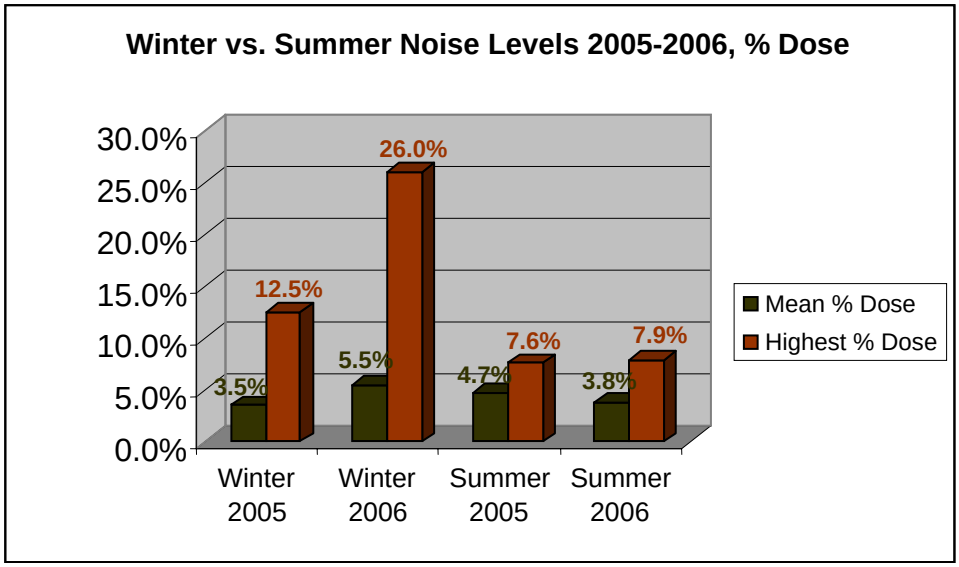


Figure 6: Winter vs. Summer Noise Levels 2005-2006, % Dose



A sound level meter was used to obtain peak area sound levels a few feet away from vehicles. A level of 93.3 dBA was recorded when a Harley Davidson motorcycle accelerated out of Lane A. An accelerating Dodge Ram 2500 turbo diesel truck prompted a sound level reading of 86.1 dBA.

Carbon Monoxide Results

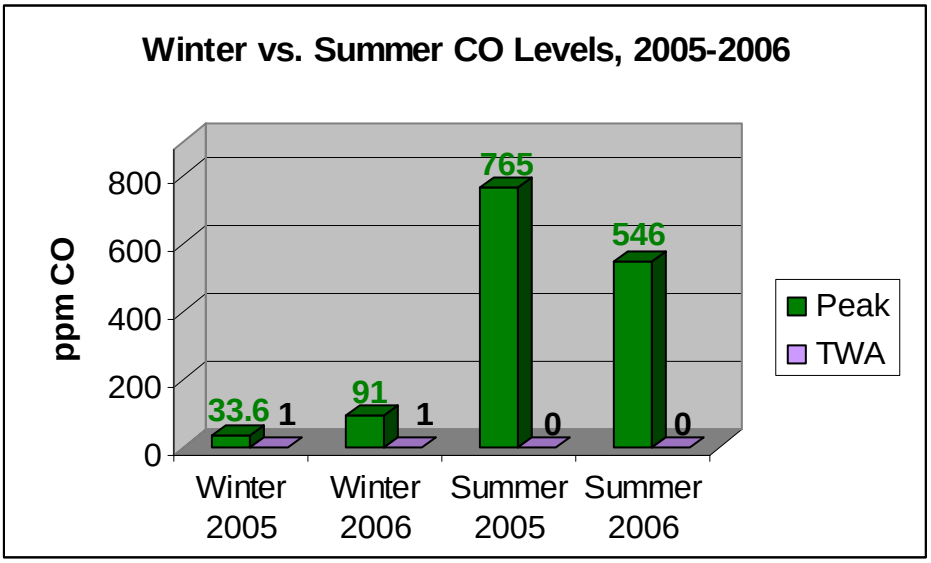
The carbon monoxide levels are shown in Table 3. The time weighted averages are rounded to zero. There is currently no STEL, or short term exposure limits regulating 15 minute exposures, for carbon monoxide gas. The highest carbon monoxide concentration averaged over 15 minutes was 5 ppm. The peak concentration sampled was 546 ppm, the only sample to exceed the NIOSH ceiling of 200 ppm.

Table 3: Summer 2006 Carbon Monoxide Results

Date	Location	TWA (ppm)	STEL (ppm)	Peak (ppm)	NIOSH Ceiling (ppm)	OSHA PEL (TWA in ppm)	NIOSH REL (TWA in ppm)	ACGIH TLV (TWA in ppm)
7/10/2006	Kiosk A	0	5	154	200	50	35	25
7/10/2006	Kiosk B	0	4	546	200	50	35	25
7/11/2006	Kiosk A	0	2	160	200	50	35	25
7/11/2006	Kiosk B	0	3	51	200	50	35	25
7/12/2006	Kiosk A	0	2	86	200	50	35	25
7/12/2006	Kiosk B	0	3	45	200	50	35	25

Figure 7 below shows a comparison of winter and summer carbon monoxide levels for 2005 and 2006. The summers had the highest peaks, but the winters had slightly higher (1 ppm) time-weighted averages.

Figure 7: Winter vs. Summer Carbon Monoxide Results, 2005-2006



Hydrocarbons Results

Aromatic (benzene, ethyl benzene, toluene, xylene) hydrocarbons were all below the limit of detection (LOD) for the analytical method NMAM 1501, as shown in Table 4. Total petroleum hydrocarbons were well below exposure limits.

Table 4: Summer 2006 Hydrocarbons Results

Analyte	Kiosk A 7/10/06 ppm	Kiosk B 7/11/06 ppm	Kiosk B 7/12/06 ppm	OSHA PEL ppm	ACGIH TLV TWA ppm	NIOSH REL ppm
Benzene	<0.0044	<0.0045	<0.0045	TWA 1 ST 5	TWA 0.5 ST 2.5	TWA 0.1 C 1
Ethyl Benzene	<0.033	<0.033	<0.033	TWA 100	TWA 100 ST 125	TWA 100 ST 125
Toluene	<0.038	<0.038	<0.038	TWA 200 C 300	50 (skin)	TWA 100 ST 150
Xylene	<0.033	<0.033	<0.033	TWA 100	TWA 100 ST 150	TWA 100 ST 150
Total Petroleum Hydrocarbons	0.060	<0.041	<0.041	500 ppm Petroleum Distillates	300 ppm Gasoline STEL 500 ppm	15 ppm Gasoline

All winter 2006 aromatic and total hydrocarbons were below the LOD as well. The summer 2005 study did not monitor BETX, but did monitor total hydrocarbon levels. None were above the LOD. All winter 2005 aromatic hydrocarbon (BETX) were below the LOD, but the majority of the total hydrocarbon levels

were above the LOD. However, the total hydrocarbons were still at very low concentrations (none higher than 0.260 ppm for the West Yellowstone entrance).

Table 5: Summer 2006 Elemental, Organic, Total Carbon Results

Date	Location	Elemental Carbon mg/m^3	Organic Carbon mg/m^3	Total Carbon mg/m^3
7/10/2006	Kiosk A	0.0048	0.045	0.050
7/10/2006	Kiosk B	0.0050	0.12	0.12
7/10/2006	Kiosk A	0.0019	0.035	0.037
7/10/2006	Kiosk B	0.0031	0.041	0.044
7/10/2006	Kiosk A	0.0069	0.074	0.081
7/10/2006	Kiosk B	0.0019	0.045	0.047

Respirable Particulate Matter Results

All of the sample results were below the limit of detection (LOD) for the analytical method, NMAM 0600. This was also the case in the three previous monitoring studies. The results are show in Table 6 below.

Table 6: Summer 2006 Respirable Particulate Matter Results

Date	Location	Respirable Particulates mg/m^3	OSHA PEL TWA mg/m^3	NIOSH REL TWA mg/m^3	ACGIH TLV TWA mg/m^3
7/10/2006	Kiosk A	<0.02	5	NA	3
7/10/2006	Kiosk B	<0.02	5	NA	3
7/11/2006	Kiosk A	<0.02	5	NA	3
7/11/2006	Kiosk B	<0.02	5	NA	3
7/12/2006	Kiosk A	No samples taken on this day			
7/12/2006	Kiosk B				

Nitrogen Dioxide Results

The average nitrogen dioxide level for the summer of 2005 study was 0.036 ppm compared with 0.011 ppm for summer of 2006. The nitrogen dioxide levels ranged from none detected to 0.020 ppm, detected in kiosk A on July 10th. This is a small difference between summer studies given that the time-weighted exposure limit is 25 ppm.

Table 7: Summer 2006 Nitrogen Dioxide Results

Date	Location	Nitrogen Dioxide ppm	OSHA PEL , NIOSH REL, ACGIH TLV TWA ppm
7/10/2006	Kiosk A	0.020	25
7/10/2006	Kiosk B	0.010	25
7/11/2006	Kiosk A	0.0090	25
7/11/2006	Kiosk B	0.013	25
7/12/2006	Kiosk A	0.0085	25
7/12/2006	Kiosk B	<0.0059	25

Table 8 below shows the average levels of oxides of Nitrogen in each of the four studies. Oxides of nitrogen were not sampled for in the winter 2006 study and nitric oxide was not sampled for in the summer 2006 study.

Table 8: Winter vs. Summer Oxides of Nitrogen Results, 2005-2006

Analyte	Winter 2005 ppm	Summer 2005 ppm	Winter 2006 ppm	Summer 2006 ppm
Nitogen Dioxide	<0.0978	0.03575	NS	0.011
Nitric Oxide	<0.0708	0.14375	NS	NS

NS: Not sampled

Aldehydes

Aldehyde screening according to NMAM 2539 showed no aldehyde levels above the limit of detection. The samples were analyzed for the following compounds: acetaldehyde, acrolein, isobutyraldehyde, formaldehyde, heptanal, hexanal, isovaleraldehyde, furfural, and valeraldehyde. The estimated LOD for this method is 2 µg per sample. The summer 2005 study had the same results with the exception of formaldehyde. Two samples of formaldehyde, 0.015 ppm and 0.024 ppm, were detected in that study. No aldehydes were detected in either of the winter studies. Aldehyde results are in Table 1A of Appendix A.

Volatile Organic Compounds (VOC)

VOCs are included in the 189 hazardous air pollutants (HAPs) listed in the Clean Air Act Amendments of 1990. VOC levels were compared with minimum risk levels (see Table 10, below) set by the Agency for Toxic Substances and Disease Registry (ATSDR). Thirty-two VOCs were detected in the summer 2005 study compared with twenty-three as shown below in Table 9 for the summer 2006 study. 56 VOCs were tested for in 2006.

The mean concentration levels for fifteen VOCs are shown in Table 11 below. It is an extension of a table from the 2006 winter report (Table VI, p. 20) with the same contaminants. The summer 2005-2006 results were added to the table for

this report. The season and year with the highest concentration for each contaminant are in bold. Summer concentrations were the highest for five of the fifteen contaminants compared.

Table 9: Volatile Organic Compounds Identified by Method TO-15

	7/10/2006	7/11/2006	7/12/2006		
ND – None Detected	**Kiosk A**	**Kiosk B**	**Kiosk B**	**Average**	**Average**
Analyte	**PPB**	**PPB**	**PPB**	**PPB**	**PPM**
Propene	2.8	1.5	3	2.43	0.00243
Dichlorodifluoromethane	0.6	ND	0.51	0.37	0.00037
Chloromethane	ND	ND	ND	ND	ND
Freon 114	ND	ND	ND	ND	ND
Vinyl Chloride	ND	ND	ND	ND	ND
1,3-Butadiene	ND	ND	ND	ND	ND
Bromomethane	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND
Freon 11	0.36	0.16	0.26	0.26	0.00026
cis-1,2-Dichloroethene	ND	ND	ND	ND	ND
Carbon Disulfide	ND	ND	ND	ND	ND
Freon 113	ND	ND	ND	ND	ND
Acetone	9.1	6.3	17	10.80	0.01080
Methylene Chloride	0.43	0.6	0.48	0.50	0.00050
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND
Methyl t-Butyl Ether	ND	ND	ND	ND	ND
Vinyl Acetate	ND	ND	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND	ND	ND
2-Butanone	10.0	ND	4.5	4.83	0.00483
Ethyl Acetate	1.0	ND	ND	0.33	0.00033
Hexane	1.4	ND	0.94	0.78	0.00078
Chloroform	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND
Carbon Tetrachloride	0.19	ND	ND	0.06	0.00006
Benzene	1.4	ND	1.6	1.00	0.00100
Tetrahydrofuran	ND	ND	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND	ND	ND
Cyclohexane	ND	ND	ND	ND	ND
Trichloroethene	0.4	2	ND	0.80	0.00080
1,2-Dichloropropane	ND	ND	ND	ND	ND
Bromodichlorormethane	ND	ND	ND	ND	ND
Heptane	0.26	ND	ND	0.09	0.00009
cis-1,3-Dichloropropene	ND	ND	ND	ND	ND

4-Methyl-2-Pentanone	2.9	ND	0.76	1.22	0.00122
Toluene	6.2	0.85	12	6.35	0.00635
trans-1,3-Dichloropropene	ND	ND	ND	ND	ND
1,1,2--Trichloroethane	ND	ND	ND	ND	ND
Tetrachloroethene	ND	1.4	ND	0.47	0.00047
2-Hexanone	ND	ND	ND	ND	ND
Dibromochloromethane	ND	ND	ND	ND	ND
1,2-Dibromoethane	ND	ND	ND	ND	ND
Chlorobenzene	ND	ND	ND	ND	ND
Ethylbenzene	0.7	0.16	1.1	0.65	0.00065
m,p-Xylene	2.2	0.46	4.4	2.35	0.00235
o-Xylene	0.79	0.21	1.4	0.80	0.00080
Styrene	2.5	0.2	1.2	1.30	0.00130
Bromoform	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND
Benzyl Chloride	ND	ND	ND	ND	ND
4-Ethyl toluene	0.3	ND	0.31	0.20	0.00020
1,3,5-Trimethylbenzene	0.27	0.15	0.27	0.23	0.00023
1,2,4-Trimethylbenzene	0.84	0.3	1.1	0.75	0.00075
1,3-Dichlorobenzene	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ND	ND	0.35	0.12	0.00012
1,2,4-Trichlorobenzene	ND	ND	ND	ND	ND
Hexachlorobutadiene	ND	ND	ND	ND	ND

Table 10: ATSDR Minimal Risk Levels (MRLs)[2]

Analyte	ATSDR Minimal Risk Levels (MRLs) December 2005
Propene	No MRL available. Listed by ACGIH as a simple asphyxiant.
Dichlorodifluoromethane	No MRL available
Chloromethane	**Inh.** Acute-0.5ppm, Int-0.2ppm, Chr-.05ppm
1,3-Butadiene	No MRL available. Environmental Protection Agency Screening Level 5.75 ppm
Freon 11	No MRL available
Acetone	**Inh.** Acute-26ppm, Int-13ppm, Chr-13ppm, **Oral** Int-2 mg/kg/day
Methylene Chloride	**Inh.** Acute-0.6ppm, Int-0.3ppm, Chr-0.3ppm, **Oral** Acute-0.2 mg/kg/day, Chr-0.06 mg/kg/day
2-Butanone	1.0 ppm ATSDR chronic inhalation RMEG/RFC
Ethyl Acetate	No MRL available. OSHA PEL and ACGIH TLV 400 ppm
Hexane	**Inh.** Chr.- 0.6 ppm,
Carbon Tetrachloride	**Inh.** Int-0.03ppm, Chr-0.03ppm, **Oral** Acute-0.02mg/kg/day, Int-0.007mg/kg/day,
Benzene	**Inh.** Acute-0.009 ppm, Int-0.006 ppm, Chr.-0.003 ppm
Trichloroethene	**Inh.** Acute-2ppm, Int-0.1ppm, **Oral** Acute-0.002mg/kg/day
Heptane	No MRL available. OSHA PEL 500 ppm. ACGIH TLV 400 ppm
4-Methyl-2-Pentanone	No MRL available. NIOSH REL 50 ppm ST 75 ppm OSHA PEL 100 ppm
Toluene	**Inh.** Acute-1ppm, Chr-0.08ppm, **Oral** Acute-0.8mg/kg/day, Int-0.02mg/kg/day
Tetrachloroethene	**Inh.** Acute-0.2ppm, Chr-0.04ppm, **Oral** Acute-0.05mg/kg/day
Ethylbenzene	**Inh.** Int-1.0ppm
m,p-Xylene	**Inh.** Acute-2.0ppm, Int-0.6ppm, Chr.-0.05ppm **Oral** Acute-1.0 mg/kg/day, Int-1.0 mg/kg/day, Chr.-0.6 mg/kg/day
o-Xylene	**Inh.** Acute-2.0ppm, Int-0.6ppm, Chr.-0.05ppm **Oral** Acute-1.0 mg/kg/day, Int-1.0 mg/kg/day, Chr.-0.6 mg/kg/day
Styrene	**Inh.** Chr-0.06ppm, **Oral** Int-0.2mg/kg/day
4-Ethyl toluene	No MRL available. Registry of Toxic Effects of Chemical Substances database;inhalation TCLo (similar to an inhalation LOAEL) of 5,000 mg/m^3 or 1,017 ppm in rats and rabbits treated to 4ethyltoluene 6 hours a day for 100 days.
1,3,5-Trimethylbenzene	**NIOSH, ACGIH** 25 ppm TWA; 5 ppm ceiling
1,2,4-Trimethylbenzene	**NIOSH, ACGIH** 25 ppm TWA; 5 ppm ceiling
1,2-Dichlorobenzene	**Oral** Acute-0.8mg/kg/day, Int-0.4mg/kg/day, Chr.-0.4mg/kg/day

[2] From the Agency for Toxic Substances & Disease Registry at http://www.atsdr.cdc.gov/mrls/index.html

Table 11: Winter/Summer Volatile Organic Compounds Results, 2005-2006

Contaminant	Season/ Year	Sample No.	Mean ppb	Mean ppm
Dichlorodifluoromethane	Winter 2006	13	1.5000	0.0015
	Winter 2005	11	0.7500	0.0008
	Summer 2006	3	3.7000	0.0037
	Summer 2005	4	0.3375	0.0003
Chloromethane	**Winter 2006**	13	1.3000	0.0013
	Winter 2005	11	0.9800	0.0010
	Summer 2006	3	ND	ND
	Summer 2005	4	1.1580	0.0012
1,3 - Butadiene	**Winter 2006**	13	1.5715	0.0016
	Winter 2005	NS	NS	NS
	Summer 2006	3	ND	ND
	Summer 2005	4	0.0133	0.0001
Freon 11	**Winter 2006**	13	0.3900	0.0004
	Winter 2005	11	0.3400	0.0003
	Summer 2006	3	0.2600	0.0003
	Summer 2005	4	0.2700	0.0003
Acetone	Winter 2006	13	27.0000	0.0270
	Winter 2005	11	35.0000	0.0350
	Summer 2006	3	10.8000	0.0108
	Summer 2005	4	44.7500	0.0448
Methylene Chloride	Winter 2006	13	0.6600	0.0007
	Winter 2005	11	0.9900	0.0010
	Summer 2006	3	5.0000	0.0050
	Summer 2005	4	0.5750	0.0006
Benzene	**Winter 2006**	13	3.2000	0.0032
	Winter 2005	11	1.1000	0.0011
	Summer 2006	3	1.0000	0.0010
	Summer 2005	4	2.7000	0.0027
Toluene	Winter 2006	13	7.2000	0.0072
	Winter 2005	11	12.3000	0.0123
	Summer 2006	3	6.3500	0.0064
	Summer 2005	4	12.7250	0.0127
Ethylbenzene	Winter 2006	13	0.9700	0.0010
	Winter 2005	11	7.4900	0.0075
	Summer 2006	3	0.6500	0.0007
	Summer 2005	4	0.7930	0.0008
m,p-Xylene	Winter 2006	13	3.9000	0.0039
	Winter 2005	11	33.5000	0.0335
	Summer 2006	3	2.3500	0.0024

	Summer 2005	4	3.2250	0.0032
o-Xylene	Winter 2006	13	1.3600	0.0014
	Winter 2005	11	15.9600	0.0160
	Summer 2006	3	0.8000	0.0008
	Summer 2005	4	1.0580	0.0011
1,2,4-Trimethylbenzene	Winter 2006	13	0.7700	0.0008
	Winter 2005	11	27.6000	0.0276
	Summer 2006	3	0.7500	0.0008
	Summer 2005	4	0.7480	0.0007
1,3,5-Trimethylbenzene	Winter 2006	13	0.3000	0.0003
	Winter 2005	11	6.5700	0.0066
	Summer 2006	3	0.2300	0.0002
	Summer 2005	4	0.1580	0.0002
Styrene	Winter 2006	13	0.5300	0.0005
	Winter 2005	11	0.9500	0.0010
	Summer 2006	3	1.3000	0.0013
	Summer 2005	4	0.3230	0.0003
4-Ethyl toluene	Winter 2006	13	0.2900	0.0003
	Winter 2005	11	3.6000	0.0036
	Summer 2006	3	0.2000	0.0002
	Summer 2005	4	0.2450	0.0002

NS: Not sampled for
ND: Not detected

Materials and Methods

The figures below show the sampling instruments, media and placement within the kiosks.

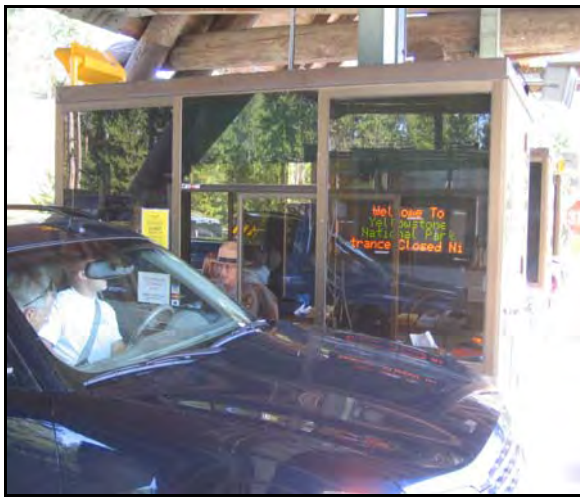


Figure 8: Kiosk A

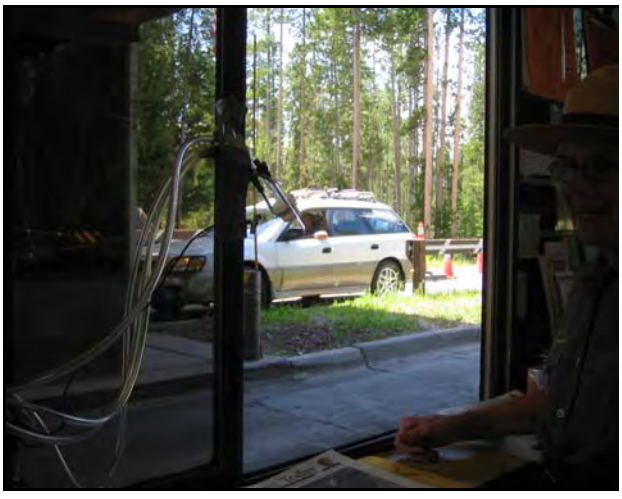


Figure 9: Kiosk B

Figure 10: Sampling equipment

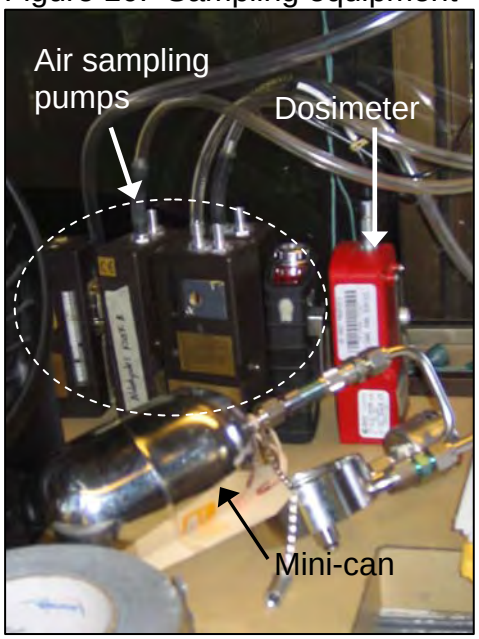


Figure 11: Sampling media

Noise

The noise dosimeters used were Quest® Noise Pros™. The dosimeters were set up to comply with the OSHA hearing conservation standard. Dosimeter parametric settings were the following: threshold = 80 dBA; exchange rate = 5 dBA; criterion level = 90 dBA; time constant = slow. The instruments were pre- and post-calibrated according to manufacturer's recommendations. The kiosk employees did not wear the dosimeters and microphones. Instead, the instruments were placed approximately one foot away. Therefore, the samples were area samples that characterize employee exposure.

A Quest® Model 1700 sound level meter was used to obtain peak area sound levels. The instrument was set on slow response, A-weighting and SPL mode.

Carbon Monoxide

Carbon monoxide levels were measured using two Lumidor® MiniMax Pro™ gas detectors. These instruments performed and passed a self-test once turned on.

Aromatic Hydrocarbons (BETX)

Three BETX samples were taken- two in kiosk B and one in A. The samples were taken according to NMAM 1501 using a solid sorbent tube (coconut shell charcoal, 100 mg/50 mg). An SKC pump pulled the air through the sampling train at an approximate flow rate of 0.2 L/min. The low flow pumps were calibrated before and after each sampling day with a DC-Lite Primary Flowmeter according to manufacturer's recommendations. The samples were analyzed by Data Chem Labs, Inc. using gas chromatography.

Elemental, Organic, Total Carbon

Samples for diesel particulate matter (DPM) as elemental, organic, and total carbon were collected according to NMAM 5040. The samples were taken at an average flow rate of 2.0 Liters/min using SKC high flow pumps. The sampling media consisted of SKC 37 mm quartz fiber filter and SKC DPM cassettes (without cones, with impactors). The high flow pumps were calibrated before and after each sampling day with a DC-Lite Primary Flowmeter according to manufacturer's recommendations. The samples were analyzed using thermal-optical analysis (flame ionization detector) by Data Chem Labs,Inc.

Respirable Particulate Matter

Four integrated samples for respirable particulate matter (4.0 µg aerodynamic diameter) were collected according to NMAM 0600 and analyzed gravimetrically by Data Chem Labs, Inc. A 37-mm polytetrafluoroethlyene (PTFE) filter with a cut-point of 4 µg in an aluminum cyclone was used to collect the dust. The SKC high-flow sampling pumps pulled the air through the sampling train at approximately 2.5 Liters/minute. The high flow pumps were calibrated before and after each sampling day with a DC-Lite Primary Flowmeter according to manufacturer's recommendations.

Nitrogen Dioxide

Six integrated samples for nitrogen dioxide were taken with a triethanolamine (TEA) molecular sieve according to NIOSH NMAM 6014. The air was pulled throught the sampling train at an approximate flow rate of 0.2 L/min. Nitric oxide was not sampled, so the second TEA tube and oxidizer tube were not used. The

low flow pumps were calibrated before and after each sampling day with a DC-Lite Primary Flowmeter according to manufacturer's recommendations. It should be noted that the summer 2006 monitoring study used all three tubes and a flow rate of 0.025 L/min. The samples were analyzed using visible absorption spectrophotometry.

Volatile Organic Compounds

Three VOC samples were gathered according to the Environmental Protection Agency (EPA) analytical method TO-15. Three 400 mL stainless steel canisters, or minicans, were rented from Data Chem Labs, Inc. The air was sampled passively with a sampling regulator that controlled flow rate and allowed for up to an 8-hour sample period. The samples were analyzed by Data Chem Labs, Inc. using gas chromatography.

Aldehydes

Six aldehyde samples were collected using solid sorbent tubes (10% 2-hydroxymethyl piperidine on XAD-2, 120 mg/60 mg) in accordance with NMAM 2539. Low flow pumps pulled air through the sampling train at approximately 0.05 L/min. The samples were analyzed by gas chromatography at Data Chem Labs, Inc. The pumps were calibrated before and after each sampling day with a DC-Lite Primary Flowmeter according to manufacturer's recommendations.

Conclusions and Recommendations

- The sample results from Tuesday, July 11—when the sampling instruments were placed by the back windows of the kiosks—were not markedly different from the other sampling days, with the exception of noise. Back windows should be kept closed.

- Kiosk ventilation systems should remain on at all times.

- Positive pressure inside the kiosks reduces contaminant entry. Fans should be placed behind kiosk attendants to increase the pressure inside the kiosks.

- Front windows should be kept closed when vehicle entry is low or at convenience of attendants.

- Visitors on motorcycles and other vehicles emitting excess noise or exhaust should be asked to shut off their engines when interacting with kiosk attendants.

References

1. Rocky Mountain Cooperative Ecosystem Studies Unit/ Hart, Julie, Spear, Terry M. and Stephenson, Dale J. *Yellowstone Winter Use Personal Exposure Monitoring*. June 2006.

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4. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health (NIOSH). *NIOSH Pocket Guide to Chemical Hazards*. DHHS (NIOSH) Publication No. 2005-149. September 2005.

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7. U.S. Department of Health and Human Services (DHHS), Agency for Toxic Substances and Disease Registry (ATSDR). *ATSDR Minimal Risk Levels (MRLs) for Hazardous Substances*. ATSDR: Washington, D.C., 2005.

Appendix A

Aldehydes
Table 1 A

Sample ID: KA71006A Date: 7/10/06
Sample Location: Area Sample, Kiosk A
Sample Length: 363 minutes Sample Volume: 17.90 Liters

Aldehyde	Lab Result ppm	PEL-TWA ppm	TLV ppm	REL-TWA ppm
Acetaldehyde	<0.0093	200	25 STEL	None
Acrolein	<0.0073	0.1	0.1 STEL	0.1
Butyraldehyde	<0.006	None	None	None
Formaldehyde	<0.045	0.75	0.3 STEL	0.016
Heptanal	<0.0036	None	None	None
Hexanal	<0.0041	None	None	None
Iso-Valeraldehyde	<0.0048	None	None	None
Furfural	<0.007	None	None	None
Valeraldehyde	<0.0048	None	None	None

Sample ID: KB71006A Date: 7/10/06
Sample Location: Area Sample, Kiosk B
Sample Length: 360 minutes Sample Volume: 17.80 Liters

Aldehyde	Lab Result ppm	PEL-TWA ppm	TLV ppm	REL-TWA ppm
Acetaldehyde	<0.0094	200	25 STEL	None
Acrolein	<0.0074	0.1	0.1 STEL	0.1
Butyraldehyde	<0.006	None	None	None
Formaldehyde	<0.046	0.75	0.3 STEL	0.016
Heptanal	<0.0036	None	None	None
Hexanal	<0.0041	None	None	None
Iso-Valeraldehyde	<0.0048	None	None	None
Furfural	<0.007	None	None	None
Valeraldehyde	<0.0048	None	None	None

Sample ID: KA71106A Date: 7/11/06
Sample Location: Area Sample, Kiosk A
Sample Length: 358 minutes Sample Volume: 17.40 Liters

Aldehyde	Lab Result ppm	PEL-TWA ppm	TLV ppm	REL-TWA ppm
Acetaldehyde	<0.0096	200	25 STEL	None
Acrolein	<0.0075	0.1	0.1 STEL	0.1
Butyraldehyde	<0.006	None	None	None
Formaldehyde	<0.047	0.75	0.3 STEL	0.016
Heptanal	<0.0037	None	None	None
Hexanal	<0.0042	None	None	None
Iso-Valeraldehyde	<0.0049	None	None	None
Furfural	<0.007	None	None	None
Valeraldehyde	<0.0049	None	None	None

Sample ID: KB71106A Date: 7/11/06
Sample Location: Area Sample, Kiosk B
Sample Length: 358 minutes Sample Volume: 17.92 Liters

Aldehyde	Lab Result ppm	PEL-TWA ppm	TLV ppm	REL-TWA ppm
Acetaldehyde	<0.0093	200	25 STEL	None
Acrolein	<0.0073	0.1	0.1 STEL	0.1
Butyraldehyde	<0.006	None	None	None
Formaldehyde	<0.045	0.75	0.3 STEL	0.016
Heptanal	<0.0036	None	None	None
Hexanal	<0.0041	None	None	None
Iso-Valeraldehyde	<0.0048	None	None	None
Furfural	<0.007	None	None	None
Valeraldehyde	<0.0048	None	None	None

Sample ID: KA71206A Date: 7/12/06
Sample Location: Area Sample, Kiosk A
Sample Length: 357 minutes Sample Volume: 17.37 Liters

Aldehyde	Lab Result ppm	PEL-TWA ppm	TLV ppm	REL-TWA ppm
Acetaldehyde	<0.0096	200	25 STEL	None
Acrolein	<0.0075	0.1	0.1 STEL	0.1
Butyraldehyde	<0.006	None	None	None
Formaldehyde	<0.047	0.75	0.3 STEL	0.016
Heptanal	<0.0037	None	None	None
Hexanal	<0.0042	None	None	None
Iso-Valeraldehyde	<0.0049	None	None	None
Furfural	<0.007	None	None	None
Valeraldehyde	<0.0049	None	None	None

Sample ID: KB71206A Date: 7/12/06
Sample Location: Area Sample, Kiosk B
Sample Length: 361 minutes Sample Volume: 18.18 Liters

Aldehyde	Lab Result ppm	PEL-TWA ppm	TLV ppm	REL-TWA ppm
Acetaldehyde	<0.0092	200	25 STEL	None
Acrolein	<0.0072	0.1	0.1 STEL	0.1
Butyraldehyde	<0.006	None	None	None
Formaldehyde	<0.045	0.75	0.3 STEL	0.016
Heptanal	<0.0035	None	None	None
Hexanal	<0.0040	None	None	None
Iso-Valeraldehyde	<0.0047	None	None	None
Furfural	<0.007	None	None	None
Valeraldehyde	<0.0047	None	None	None

Organic, Elemental, and Total Carbon
Table 2A

Sample ID: KA71006D Date: 7/10/06
Sample Location: Area Sample, Kiosk A
Sample Length: 363 minutes Sample Volume: 721.10 Liters

Analyte	Lab Result µg/m^3	PEL/REL TWA µg/m^3	TLV TWA 1996 proposed µg/m^3	TLV TWA 2001 proposed µg/m^3	TLV TWA MSHA µg/m^3
Organic carbon	0.45	None	None	None	None
Elemental carbon	0.0048	None	None	20	None
Total carbon	0.5	None	150	None	160

Sample ID: KB71006D Date: 7/10/06
Sample Location: Area Sample, Kiosk B
Sample Length: 360minutes Sample Volume: 721.98 Liters

Analyte	Lab Result µg/m^3	PEL/REL TWA µg/m^3	TLV TWA 1996 proposed µg/m^3	TLV TWA 2001 proposed µg/m^3	TLV TWA MSHA µg/m^3
Organic carbon	0.12	None	None	None	None
Elemental carbon	0.005	None	None	20	None
Total carbon	0.0019	None	150	None	160

Sample ID: KA71106D Date: 7/11/06
Sample Location: Area Sample, Kiosk A
Sample Length: 358 minutes Sample Volume: 717.07 Liters

Analyte	Lab Result µg/m^3	PEL/REL TWA µg/m^3	TLV TWA 1996 proposed µg/m^3	TLV TWA 2001 proposed µg/m^3	TLV TWA MSHA µg/m^3
Organic carbon	0.035	None	None	None	None
Elemental carbon	0.0019	None	None	20	None
Total carbon	0.0031	None	150	None	160

Sample ID: KB71106D Date: 7/11/06
Sample Location: Area Sample, Kiosk B
Sample Length: 358 minutes Sample Volume: 724.23 Liters

Analyte	Lab Result µg/m^3	PEL/REL TWA µg/m^3	TLV TWA 1996 proposed µg/m^3	TLV TWA 2001 proposed µg/m^3	TLV TWA MSHA µg/m^3
Organic carbon	0.041	None	None	None	None
Elemental carbon	0.074	None	None	20	None
Total carbon	0.045	None	150	None	160

Sample ID: KA71206D Date: 7/12/06
Sample Location: Area Sample, Kiosk A
Sample Length: 357 minutes Sample Volume: 724.00 Liters

Analyte	Lab Result µg/m^3	PEL/REL TWA µg/m^3	TLV TWA 1996 proposed µg/m^3	TLV TWA 2001 proposed µg/m^3	TLV TWA MSHA µg/m^3
Organic carbon	0.074	None	None	None	None
Elemental carbon	0.0069	None	None	20	None
Total carbon	0.081	None	150	None	160

Sample ID: KB71206D Date: 7/12/06
Sample Location: Area Sample, Kiosk B
Sample Length: 361 minutes Sample Volume: 731.21 Liters

Analyte	Lab Result µg/m^3	PEL/REL TWA µg/m^3	TLV TWA 1996 proposed µg/m^3	TLV TWA 2001 proposed µg/m^3	TLV TWA MSHA µg/m^3
Organic carbon	0.045	None	None	None	None
Elemental carbon	0.0019	None	None	20	None
Total carbon	0.047	None	150	None	160

Oxides of Nitrogen
Table 3A

Sample ID: KA71006N Date: 7/10/06
Sample Location: Area Sample, Kiosk A
Sample Length: 363 minutes Sample Volume: 72.78 Liters

NO_x Analyte	Lab Result ppm	OSHA PEL ppm	ACGIH TLV TWA ppm	NIOSH REL ppm
Nitrogen Dioxide	0.020	25 TWA	25	25 TWA

Sample ID: KB71006N Date: 7/10/06
Sample Location: Area Sample, Kiosk B
Sample Length: 360 minutes Sample Volume: 71.73 Liters

NO_x Analyte	Lab Result ppm	OSHA PEL ppm	ACGIH TLV TWA ppm	NIOSH REL ppm
Nitrogen Dioxide	0.010	25 TWA	25	25 TWA

Sample ID: KA71106N Date: 7/11/06
Sample Location: Area Sample, Kiosk A
Sample Length: 358 minutes Sample Volume: 70.54 Liters

NO_x Analyte	Lab Result ppm	OSHA PEL ppm	ACGIH TLV TWA ppm	NIOSH REL ppm
Nitrogen Dioxide	0.0090	25 TWA	25	25 TWA

Sample ID: KB71106N Date: 7/11/06
Sample Location: Area Sample, Kiosk B
Sample Length: 358 minutes Sample Volume: 71.26 Liters

NO_x Analyte	Lab Result ppm	OSHA PEL ppm	ACGIH TLV TWA ppm	NIOSH REL ppm
Nitrogen Dioxide	0.013	25 TWA	25	25 TWA

Sample ID: KA71206N Date: 7/12/06
Sample Location: Area Sample, Kiosk A
Sample Length: 357 minutes Sample Volume: 69.08 Liters

NO_x Analyte	Lab Result ppm	OSHA PEL ppm	ACGIH TLV TWA ppm	NIOSH REL ppm
Nitrogen Dioxide	0.0085	25 TWA	25	25 TWA

Sample ID: KB71206N Date: 7/12/06
Sample Location: Area Sample, Kiosk B
Sample Length: 361 minutes Sample Volume: 71.84 Liters

NO_x Analyte	Lab Result ppm	OSHA PEL ppm	ACGIH TLV TWA ppm	NIOSH REL ppm
Nitrogen Dioxide	<0.0059	25 TWA	25	25 TWA

Respirable Particulates
Table 4A

Sample ID: KA71006R
Date: 7/10/06
Sample Location: Area Sample, Kiosk A
Sample Length: 363 minutes
Sample Volume: 889.53 Liters

Analyte	Lab Result mg/m^3	OSHA PEL TWA mg/m^3	NIOSH REL TWA mg/m^3	ACGIH TLV TWA mg/m^3
Respirable Particulate	<0.02	5	NA	3

Sample ID: KB71006R
Date: 7/10/06
Sample Location: Area Sample, Kiosk B
Sample Length: 360 minutes
Sample Volume: 898.74 Liters

Analyte	Lab Result mg/m^3	OSHA PEL TWA mg/m^3	NIOSH REL TWA mg/m^3	ACGIH TLV TWA mg/m^3
Respirable Particulate	<0.02	5	NA	3

Sample ID: KA71106R
Date: 7/11/06
Sample Location: Area Sample, Kiosk A
Sample Length: 358 minutes
Sample Volume: 886.41 Liters

Analyte	Lab Result mg/m^3	OSHA PEL TWA mg/m^3	NIOSH REL TWA mg/m^3	ACGIH TLV TWA mg/m^3
Respirable Particulate	<0.02	5	NA	3

Sample ID: KB71106R
Date: 7/11/06
Sample Location: Area Sample, Kiosk B
Sample Length: 358 minutes
Sample Volume: 896.97 Liters

Analyte	Lab Result mg/m^3	OSHA PEL TWA mg/m^3	NIOSH REL TWA mg/m^3	ACGIH TLV TWA mg/m^3
Respirable Particulate	<0.02	5	NA	3

No respirable particulate samples taken on 7/12/06

Table 5 A
Aromatic & Total Petroleum Hydrocarbons

Sample ID: KA71006B Date: 7/10/06
Sample Location: Area Sample, Kiosk A
Sample Length: 363 minutes Sample Volume: 70.73 Liters

	Lab Result ppm	OSHA PEL ppm	ACGIH TLV TWA ppm	NIOSH REL ppm
Benzene	<0.0044	TWA 1 ST 5	TWA 0.5 ST 2.5	TWA 0.1 C 1
Ethyl Benzene	<0.033	TWA 100	TWA 100 ST 125	TWA 100 ST 125
Toluene	<0.038	TWA 200 C 300	50 (skin)	TWA 100 ST 150
Xylene	<0.033	TWA 100	TWA 100 ST 150	TWA 100 ST 150
Total Petroleum Hydrocarbons	0.06	None	None	None

Sample ID: KB71106B Date: 7/11/06
Sample Location: Area Sample, Kiosk B
Sample Length: 358 minutes Sample Volume: 69.08 Liters

	Lab Result ppm	OSHA PEL ppm	ACGIH TLV TWA ppm	NIOSH REL ppm
Benzene	<0.0045	TWA 1 ST 5	TWA 0.5 ST 2.5	TWA 0.1 C 1
Ethyl Benzene	<0.033	TWA 100	TWA 100 ST 125	TWA 100 ST 125
Toluene	<0.038	TWA 200 C 300	50 (skin)	TWA 100 ST 150
Xylene	<0.033	TWA 100	TWA 100 ST 150	TWA 100 ST 150
Total Petroleum Hydrocarbons	<0.041	None	None	None

Sample ID: KB71206B Date: 7/12/06
Sample Location: Area Sample, Kiosk B
Sample Length: 361 minutes Sample Volume: 69.87 Liters

	Lab Result ppm	OSHA PEL ppm	ACGIH TLV TWA ppm	NIOSH REL ppm
Benzene	<0.0045	TWA 1 ST 5	TWA 0.5 ST 2.5	TWA 0.1 C 1

Ethyl Benzene	<0.033	TWA 100	TWA 100 ST 125	TWA 100 ST 125
Toluene	<0.038	TWA 200 C 300	50 (skin)	TWA 100 ST 150
Xylene	<0.033	TWA 100	TWA 100 ST 150	TWA 100 ST 150
Total Petroleum Hydrocarbons	<0.041	None	None	None

Combined

Analyte	Kiosk A 7/10/06 ppm	Kiosk B 7/11/06 ppm	Kiosk B 7/12/06 ppm	OSHA PEL ppm	ACGIH TLV TWA ppm	NIOSH REL ppm
Benzene	<0.0044	<0.0045	<0.0044	TWA 1 ST 5	TWA 0.5 ST 2.5	TWA 0.1 C 1
Ethyl Benzene	<0.033	<0.033	<0.033	TWA 100	TWA 100 ST 125	TWA 100 ST 125
Toluene	<0.038	<0.038	<0.038	TWA 200 C 300	50 (skin)	TWA 100 ST 150
Xylene	<0.033	<0.033	<0.033	TWA 100	TWA 100 ST 150	TWA 100 ST 150
Total Petroleum Hydrocarbons	0.06	<0.041	<0.041	None	None	None

Table 6 A
Volatile Organic Compounds

ND – None Detected	7/10/2006	7/11/2006	7/12/2006	Average	Average
	Kiosk A	Kiosk B	Kiosk B		
Analyte	PPB	PPB	PPB	PPB	PPM
Propene	2.8	1.5	3	2.43	0.00243
Dichlorodifluoromethane	0.6	ND	0.51	0.37	0.00037
Chloromethane	ND	ND	ND	ND	ND
Freon 114	ND	ND	ND	ND	ND
Vinyl Chloride	ND	ND	ND	ND	ND
1,3-Butadiene	ND	ND	ND	ND	ND
Bromomethane	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND
Freon 11	0.36	0.16	0.26	0.26	0.00026
cis-1,2-Dichloroethene	ND	ND	ND	ND	ND
Carbon Disulfide	ND	ND	ND	ND	ND
Freon 113	ND	ND	ND	ND	ND
Acetone	9.1	6.3	17	10.80	0.01080
Methylene Chloride	0.43	0.6	0.48	0.50	0.00050
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND
Methyl t-Butyl Ether	ND	ND	ND	ND	ND
Vinyl Acetate	ND	ND	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND	ND	ND
2-Butanone	10.0	ND	4.5	4.83	0.00483
Ethyl Acetate	1.0	ND	ND	0.33	0.00033
Hexane	1.4	ND	0.94	0.78	0.00078
Chloroform	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND
Carbon Tetrachloride	0.19	ND	ND	0.06	0.00006
Benzene	1.4	ND	1.6	1.00	0.00100
Tetrahydrofuran	ND	ND	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND	ND	ND
Cyclohexane	ND	ND	ND	ND	ND
Trichloroethene	0.4	2	ND	0.80	0.00080
1,2-Dichloropropane	ND	ND	ND	ND	ND
Bromodichlorormethane	ND	ND	ND	ND	ND
Heptane	0.26	ND	ND	0.09	0.00009
cis-1,3-Dichloropropene	ND	ND	ND	ND	ND
4-Methyl-2-Pentanone	2.9	ND	0.76	1.22	0.00122
Toluene	6.2	0.85	12	6.35	0.00635
trans-1,3-Dichloropropene	ND	ND	ND	ND	ND
1,1,2--Trichloroethane	ND	ND	ND	ND	ND
Tetrachloroethene	ND	1.4	ND	0.47	0.00047
2-Hexanone	ND	ND	ND	ND	ND
Dibromochloromethane	ND	ND	ND	ND	ND
1,2-Dibromoethane	ND	ND	ND	ND	ND
Chlorobenzene	ND	ND	ND	ND	ND
Ethylbenzene	0.7	0.16	1.1	0.65	0.00065
m,p-Xylene	2.2	0.46	4.4	2.35	0.00235
o-Xylene	0.79	0.21	1.4	0.80	0.00080
Styrene	2.5	0.2	1.2	1.30	0.00130
Bromoform	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND
Benzyl Chloride	ND	ND	ND	ND	ND
4-Ethyl toluene	0.3	ND	0.31	0.20	0.00020
1,3,5-Trimethylbenzene	0.27	0.15	0.27	0.23	0.00023
1,2,4-Trimethylbenzene	0.84	0.3	1.1	0.75	0.00075
1,3-Dichlorobenzene	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ND	ND	0.35	0.12	0.00012
1,2,4-Trichlorobenzene	ND	ND	ND	ND	ND
Hexachlorobutadiene	ND	ND	ND	ND	ND

Appendix B

DATA CHEM LABORATORIES
A Sorenson Company

ANALYTICAL REPORT

AMENDED

04050715545663RX

Date APR 0 5 2007

Laboratory Group Name 06I-3769-06

Account No. 07003

Yellowstone National Park
Attention: Brandon Gauthier
Safety Services
P.O. Box 168
Mammoth, WY 82190

FAX (307) 344-2027
Telephone (307) 344-2030
E-mail brandon-gauthier@nps.gov

Sampling Collection and Shipment

Sampling Site West Yellowstone Date of Collection July 10, 2006

Date Samples Received at Laboratory July 20, 2006

Analysis

Method of Analysis NMAM 2539

Date(s) of Analysis August 04, 2006

Analytical Results

Field Sample Number	Laboratory Number	Sample Type	Acetaldehyde µg/sample GC/FID	Acrolein µg/sample GC/FID	Isobutyral dehyde µg/sample GC/FID	Formaldehyde µg/sample GC/FID	Heptanal µg/sample GC/FID	Hexanal µg/sample GC/FID	Iso-Valerald ehyde µg/sample GC/FID	Furfural µg/sample GC/FID	
KA71006A	06I28771	TUBE	ND	ND	ND	ND	ND	ND	ND	ND	
KB71006A	06I28772	TUBE	ND	ND	ND	ND	ND	ND	ND	ND	
KA71106A	06I28773	TUBE	ND	ND	ND	ND	ND	ND	ND	ND	
KB71106A	06I28774	TUBE	ND	ND	ND	ND	ND	ND	ND	ND	
KA71206A	06I28775	TUBE	ND	ND	ND	ND	ND	ND	ND	ND	
KB71206A	06I28776	TUBE	ND	ND	ND	ND	ND	ND	ND	ND	
Reporting Limit			0.3	0.3	0.3	1	0.3	0.3	0.3	0.5	

† See comment on last page.
ND Parameter not detected above LOD.
NR Parameter not requested.
NA Parameter not applicable.

** See comment on last page.
( ) Parameter between LOD and LOQ.

Analyst: Fred M. Rejali

Reviewer:

DATA CHEM LABORATORIES
A Sorenson Company

ANALYTICAL REPORT

04050715545663RX

APR 0 5 2007

Date

Laboratory Group Name 06I-3769-06
Account No. 07003

Yellowstone National Park
Attention: Brandon Gauthier
Safety Services
P.O. Box 168
Mammoth, WY 82190

FAX (307) 344-2027
Telephone (307) 344-2030
E-mail brandon-gauthier@nps.gov

Sampling Collection and Shipment

Sampling Site West Yellowstone Date of Collection July 10, 2006

Date Samples Received at Laboratory July 20, 2006

Analysis

Method of Analysis NMAM 2539

Date(s) of Analysis August 04, 2006

Analytical Results

Field Sample Number	Laboratory Number	Sample Type	Valeraldehyde µg/sample GC/FID	Acetaldehyde ppm GC/FID	Acrolein ppm GC/FID	Isobutyral dehyde ppm GC/FID	Formaldehyde ppm GC/FID	Heptanal ppm GC/FID	Hexanal ppm GC/FID	Iso-Valerald ehyde ppm GC/FID	
KA71006A	06I28771	TUBE	ND	<0.0093	<0.0073	<0.006	<0.045	<0.0036	<0.0041	<0.0048	
KB71006A	06I28772	TUBE	ND	<0.0094	<0.0074	<0.006	<0.046	<0.0036	<0.0041	<0.0048	
KA71106A	06I28773	TUBE	ND	<0.0096	<0.0075	<0.006	<0.047	<0.0037	<0.0042	<0.0049	
KB71106A	06I28774	TUBE	ND	<0.0093	<0.0073	<0.006	<0.045	<0.0036	<0.0041	<0.0048	
KA71206A	06I28775	TUBE	ND	<0.0096	<0.0075	<0.006	<0.047	<0.0037	<0.0042	<0.0049	
KB71206A	06I28776	TUBE	ND	<0.0092	<0.0072	<0.006	<0.045	<0.0035	<0.0040	<0.0047	
Reporting Limit			0.3								

† See comment on last page. ** See comment on last page.
ND Parameter not detected above LOD. ( ) Parameter between LOD and LOQ.
NR Parameter not requested.
NA Parameter not applicable.

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DATA CHEM LABORATORIES
A Sorenson Company

ANALYTICAL REPORT

04050715545663RX

APR 0 5 2007

Date

Laboratory Group Name 06I-3769-06
Account No. 07003

Yellowstone National Park
Attention: Brandon Gauthier
Safety Services
P.O. Box 168
Mammoth, WY 82190

FAX (307) 344-2027
Telephone (307) 344-2030
E-mail brandon-gauthier@nps.gov

Sampling Collection and Shipment

Sampling Site West Yellowstone Date of Collection July 10, 2006

Date Samples Received at Laboratory July 20, 2006

Analysis

Method of Analysis NMAM 2539

Date(s) of Analysis August 04, 2006

Analytical Results

Field Sample Number	Laboratory Number	Sample Type	Furfural ppm GC/FID	Valeraldehyde ppm GC/FID	Air Volume liters					
KA71006A	06I28771	TUBE	<0.007	<0.0048	17.90					
KB71006A	06I28772	TUBE	<0.007	<0.0048	17.80					
KA71106A	06I28773	TUBE	<0.007	<0.0049	17.40					
KB71106A	06I28774	TUBE	<0.007	<0.0048	17.92					
KA71206A	06I28775	TUBE	<0.007	<0.0049	17.37					
KB71206A	06I28776	TUBE	<0.007	<0.0047	18.18					
Reporting Limit										

† See comment on last page.
ND Parameter not detected above LOD.
NR Parameter not requested.
NA Parameter not applicable.

** See comment on last page.
( ) Parameter between LOD and LOQ.

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A Sorenson Company

ANALYTICAL REPORT

04050715545663RX

Date APR 0 5 2007

Laboratory Group Name 06I-3769-06

General Set Comments

mg/m³ formula: Result / Volume

ppm formula: (24.45 * Result) / (Volume * MW)

General Lab Comments

The results provided in this report relate only to the items tested.
Samples were received in acceptable condition unless otherwise noted in the General Set Comments above.
Samples have not been field blank corrected unless otherwise noted in the General Set Comments above.

This page is the concluding page of the report.

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DATA CHEM LABORATORIES
A Sorenson Company

ANALYTICAL REPORT

08230609453533RX

AUG 2 3 2006

Date

Laboratory Group Name 06I-3769-03
Account No. 07003

Yellowstone National Park
Attention: Brandon Gauthier
Safety Services
P.O. Box 168
Mammoth, WY 82190

AMENDED

FAX (307) 344-2027
Telephone (307) 344-2030
E-mail brandon-gauthier@nps.gov

Sampling Collection and Shipment

Sampling Site West Yellowstone Date of Collection July 10, 2006

Date Samples Received at Laboratory July 20, 2006

Analysis

Method of Analysis NMAM 5040

Date(s) of Analysis August 10, 2006

Analytical Results

Field Sample Number	Laboratory Number	Sample Type	Organic Carbon µg/sample	Elemental Carbon µg/sample	Total Carbon µg/sample	Organic Carbon mg/m³	Elemental Carbon mg/m³	Total Carbon mg/m³	Air Volume L		
KA71006D	06I28758	IMPACT	32.	3.5	36.	0.045	0.0048	0.050	721.10		†
KB71006D	06I28759	IMPACT	84.	3.6	88.	0.12	0.0050	0.12	721.98		†
KA71106D	06I28760	IMPACT	25.	1.4	27.	0.035	0.0019	0.037	717.07		†
KB71106D	06I28761	IMPACT	30.	2.3	32.	0.041	0.0031	0.044	724.23		†
KA71206D	06I28762	IMPACT	54.	5.0	59.	0.074	0.0069	0.081	724.00		†
KB71206D	06I28763	IMPACT	33.	1.4	34.	0.045	0.0019	0.047	731.21		†
Reporting Limit			4.9	1.3							

† See comment on last page.
ND Parameter not detected above LOD.
NR Parameter not requested.
NA Parameter not applicable.

** See comment on last page.
( ) Parameter between LOD and LOQ.

Analyst: Mei Qi Huang

Reviewer: Penny A. Foote

AMENDED

Date _____

Laboratory Group Name 06I-3769-03

General Set Comments

Method Reference: NIOSH Manual of Analytical Methods (NMAM), fourth ed., 3/15/03
Sample analysis was performed on a representative 1x1.5 cm^2 area of the sample filter. The reported µg/sample values correspond to the entire exposed area of the sample. The µg/sample values assume an even distribution of organic and elemental carbon on the exposed area of the sample filter. The value for the exposed area was calculated by the analyst after measuring the diameter of the sample area.
The reported results have not been blank corrected.
No field blank was submitted with this set.
The samples of this set were analyzed by Sunset Laboratory.

mg/m^3 formula: Result / Volume

Sample Comments

Laboratory Number	Comment
06I28758	Measured diameter =32mm; see set comments.
06I28759	Measured diameter =32mm; see set comments.
06I28760	Measured diameter =32mm; see set comments.
06I28761	Measured diameter =32mm; see set comments.
06I28762	Measured diameter =32mm; see set comments.
06I28763	Measured diameter =32mm; see set comments.

General Lab Comments

The results provided in this report relate only to the items tested.
Samples were received in acceptable condition unless otherwise noted in the General Set Comments above.
Samples have not been field blank corrected unless otherwise noted in the General Set Comments above.

This page is the concluding page of the report.

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FAX (801) 268-9992 E-mail: lab@datachem.com

DATA CHEM LABORATORIES
A Sorenson Company

ANALYTICAL REPORT

08160612074426RX

AUG 17 2006

Date

Laboratory Group Name 06I-3769-03

Account No. 07003

Yellowstone National Park
Attention: Brandon Gauthier
Safety Services
P.O. Box 168
Mammoth, WY 82190

FAX (307) 344-2027
Telephone (307) 344-2030
E-mail brandon-gauthier@nps.gov

Sampling Collection and Shipment

Sampling Site West Yellowstone Date of Collection July 10, 2006

Date Samples Received at Laboratory July 20, 2006

Analysis

Method of Analysis NMAM 5040

Date(s) of Analysis

Analytical Results

Field Sample Number	Laboratory Number	Sample Type	Organic Carbon µg/sample	Elemental Carbon µg/sample	Total Carbon µg/sample	Organic Carbon mg/m³	Elemental Carbon mg/m³	Total Carbon mg/m³	Air Volume L		
KA71006D	06I28758	IMPACT	32.	3.5	36.	0.045	0.0048	0.050	721.10		†
KB71006D	06I28759	IMPACT	84.	3.6	88.	0.12	0.0050	0.12	721.98		†
KA71106D	06I28760	IMPACT	25.	1.4	27.	0.035	0.0019	0.037	717.07		†
KB71106D	06I28761	IMPACT	30.	2.3	32.	0.041	0.0031	0.044	724.23		†
KA71206D	06I28762	IMPACT	54.	5.0	59.	0.074	0.0069	0.081	724.00		†
KB71206D	06I28763	IMPACT	33.	1.4	34.	0.045	0.0019	0.047	731.21		†
Reporting Limit			4.9	1.3							

† See comment on last page.
ND Parameter not detected above LOD.
NR Parameter not requested.
NA Parameter not applicable.

** See comment on last page.
( ) Parameter between LOD and LOQ.

Analyst: Mei Qi Huang

Reviewer: Penny A. Foote

DATA CHEM LABORATORIES
A Sorenson Company

ANALYTICAL REPORT

08160612074426RX

Date AUG 1 / 2006
Laboratory Group Name 06I-3769-03

General Set Comments

Method Reference: NIOSH Manual of Analytical Methods (NMAM), fourth ed., 3/15/03
Sample analysis was performed on a representative 1x1.5 cm^2 area of the sample filter. The reported µg/sample values correspond to the entire exposed area of the sample. The µg/sample values assume an even distribution of organic and elemental carbon on the exposed area of the sample filter. The value for the exposed area was calculated by the analyst after measuring the diameter of the sample area.
The reported results have not been blank corrected.
No field blank was submitted with this set.
The samples of this set were analyzed by Sunset Laboratory.

mg/m^3 formula: Result / Volume

Sample Comments

Laboratory Number	Comment
06I28758	Measured diameter =32mm; see set comments.
06I28759	Measured diameter =32mm; see set comments.
06I28760	Measured diameter =32mm; see set comments.
06I28761	Measured diameter =32mm; see set comments.
06I28762	Measured diameter =32mm; see set comments.
06I28763	Measured diameter =32mm; see set comments.

General Lab Comments

The results provided in this report relate only to the items tested.
Samples were received in acceptable condition unless otherwise noted in the General Set Comments above.
Samples have not been field blank corrected unless otherwise noted in the General Set Comments above.

This page is the concluding page of the report.

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ANALYTICAL REQUEST FORM

DATA CHEM LABORATORIES, INC.

06I-3769-03

1. ☐ **REGULAR Status**

☐ **RUSH Status Requested - ADDITIONAL CHARGE**
RESULTS REQUIRED BY _____
DATE
CONTACT DATACHEM LABS PRIOR TO SENDING SAMPLES

2. Date 7/13/06 Purchase Order No. _____

3. Company Name Yellowstone National Parks
Address c/o Mammoth Supply Center
Yellowstone Nat'l Park, WY 82190
Person to Contact Brandon Gauthier
Telephone (307) 344-2030
Fax Telephone (307) 344-2027
E-mail Address Brandon_Gauthier@nps.gov
Billing Address (if different from above)

4. Quote No. _____
DCL Project Manager _____

5. **Sample Collection**
Sampling Site West Yellowstone Entrance
Industrial Process Visitor Entry
Date of Collection 7/10/06 - 7/12/06
Time Collected 8:30-2:30
Date of Shipment 7/13/06
Chain of Custody No. _____

6. **REQUEST FOR ANALYSES**

IMPACTORS

Laboratory Use Only	Client Sample Number	Matrix*	Sample Volume	ANALYSES REQUESTED - Use method number if known	Units**
06I28758	KA71006D	QUARTZ	721.10 L	NMAM 5040	
59	KB71006D	FILTER	721.98 L	DPM	
60	KA71106D	↓	717.07 L	↓	
61	KB71106D		724.23 L		
62	KA71206D		724.00 L		
06I28763	KB71206D	↓	731.21 L	↓	

* Specify: Solid sorbent tube, e.g. Charcoal; Filter type; Impinger solution; Bulk sample; Blood; Urine; Tissue; Soil; Water; Other

** 1. ug/sample 2. mg/m^3 3. ppm 4. % 5. _____ (other) Please indicate one or more units in the column entitled Units**

Comments _____

Possible Contamination and/or Chemical Hazards _____

7. **Chain of Custody (Optional)**

Relinquished by		Date/Time	
Received by	Lucia UCarson	Date/Time	7/12/06 1100
Relinquished by	RL PXF	Date/Time	25-Jul-2006
Received by		Date/Time	
Relinquished by		Date/Time	
Received by		Date/Time	

ANALYTICAL REQUEST FORM

DATA CHEM LABORATORIES, INC.

06I-3769-03

1. ☐ **REGULAR Status**

☐ **RUSH Status Requested - ADDITIONAL CHARGE**
RESULTS REQUIRED BY _____ DATE
CONTACT DATACHEM LABS PRIOR TO SENDING SAMPLES

P.O. No.: 06I-3769-03
Company Name: DataChem Laboratories, Inc.
Address: 960 W. Levoy Dr., Salt Lake City, Utah, 84123
Contact Person: Rand Potter
Telephone No.: (801) 266-7700
E-Mail Address: reportinggroup@datachem.com
Billing Address: Same

Billing Address (if different from above)

4. Quote No. _____
DCL Project Manager _____
5. **Sample Collection**
Sampling Site West Yellowstone Entrance
Industrial Process Visitor Entry
Date of Collection 7/10/06 - 7/12/06
Time Collected 8:30-2:30
Date of Shipment 7/13/06
Chain of Custody No. _____

IMPACTORS

6. **REQUEST FOR ANALYSES**

Laboratory Use Only	Client Sample Number	Matrix*	Sample Volume	ANALYSES REQUESTED - Use method number if known	Units**
06I28758	KA71006D-	QUARTZ	721.10 L	NMAM 5040	
59	KB71006D-	FILTER	721.98 L	DPM	
60	KA71106D-	↓	717.07 L	↓	
61	KB71106D-	↓	724.23 L	↓	
62	KA71206D-	↓	724.00 L	↓	
06I28763	KB71206D-	↓	731.21 L	↓	

* Specify: Solid sorbent tube, e.g. Charcoal; Filter type; Impinger solution; Bulk sample; Blood; Urine; Tissue; Soil; Water; Other

** 1. ug/sample 2. mg/m^3 3. ppm 4. % 5. _____ (other) Please indicate one or more units in the column entitled Units**

Comments _____

Possible Contamination and/or Chemical Hazards _____

7. **Chain of Custody (Optional)**

Relinquished by		Date/Time	
Received by	Lucia McCraw	Date/Time	7/20/06 1100
Relinquished by	RL PAT	Date/Time	25-Jul-2006
Received by		Date/Time	
Relinquished by		Date/Time	
Received by		Date/Time	

DATA CHEM LABORATORIES
A Sorenson Company

ANALYTICAL REPORT

Form ARF-AL
Page 1 of 2
Part 1 of 1
08010609414513RX

Date JUL 31 2006

Laboratory Group Name 06I-3769-02

Account No. 07003

AMENDED

Yellowstone National Park
Attention: Brandon Gauthier
Safety Services
P.O. Box 168
Mammoth, WY 82190

FAX (307) 344-2027
Telephone (307) 344-2030
E-mail brandon-gauthier@nps.gov

Sampling Collection and Shipment

Sampling Site West Yellowstone Date of Collection July 10, 2006

Date Samples Received at Laboratory July 20, 2006

Analysis

Method of Analysis NMAM 6014

Date(s) of Analysis July 31, 2006

Analytical Results

Field Sample Number	Laboratory Number	Sample Type	Nitrogen Dioxide µg/Sample	Nitrogen Dioxide ppm	Air Volume Liters
KA71006N	06I28752	TUBE	2.8	0.020	72.78
KB71006N	06I28753	TUBE	1.4	0.010	71.73
KA71106N	06I28754	TUBE	1.2	0.0090	70.54
KB71106N	06I28755	TUBE	1.7	0.013	71.26
KA71206N	06I28756	TUBE	1.1	0.0085	69.08
KB71206N	06I28757	TUBE	ND	<0.0059	71.84
Reporting Limit			0.8		

† See comment on last page.
ND Parameter not detected above LOD.
NR Parameter not requested.
NA Parameter not applicable.

** See comment on last page.
( ) Parameter between LOD and LOQ.

for Tanya Cheklin
Analyst: Tanya Cheklin

Rosemary H. Hanks
Reviewer: Rosemary H. Hanks

960 West LeVoy Drive / Salt Lake City, Utah 84123-2547
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DATA CHEM LABORATORIES
A Sorenson Company

ANALYTICAL REPORT

Form ARF-C
Page 2 of 2
08010609414513RX

JUL 31 2006

Date _____

Laboratory Group Name 06I-3769-02

General Set Comments

Method Reference: NIOSH Manual of Analytical Methods(NMAM), 4th ed., 08/15/94.
Results are not blank-corrected.

mg/m^3 formula: Result / Volume

ppm formula: (24.45 * Result) / (Volume * MW)

General Lab Comments

The results provided in this report relate only to the items tested.
Samples were received in acceptable condition unless otherwise noted in the General Set Comments above.
Samples have not been field blank corrected unless otherwise noted in the General Set Comments above.

This page is the concluding page of the report.

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DATA CHEM LABORATORIES
A Sorenson Company

ANALYTICAL REPORT

Form ARF-AL
Page 1 of 2
Part 1 of 1
08010601100728X

AUG 0 1 2006

Date _____
Laboratory Group Name 06I-3769-04
Account No. 07003

Yellowstone National Park
Attention: Brandon Gauthier
Safety Services
P.O. Box 168
Mammoth, WY 82190

FAX (307) 344-2027
Telephone (307) 344-2030
E-mail brandon-gauthier@nps.gov

Sampling Collection and Shipment

Sampling Site West Yellowstone Date of Collection July 10, 2006

Date Samples Received at Laboratory July 20, 2006

Analysis

Method of Analysis NMAM 0600

Date(s) of Analysis July 28, 2006

Analytical Results

Field Sample Number	Laboratory Number	Sample Type	Respirable Dust mg/sample	Respirable Dust mg/m³	Air Volume liters						
KA71006R	06I28764	PVC	ND	<0.02	889.53						†
KB71006R	06I28765	PVC	ND	<0.02	898.74						†
KA71106R	06I28766	PVC	ND	<0.02	886.41						†
KB71106R	06I28767	PVC	ND	<0.02	896.97						†
Limit of Detection			0.02								

† See comment on last page.
ND Parameter not detected above LOD.
NR Parameter not requested.
NA Parameter not applicable.

** See comment on last page.
( ) Parameter between LOD and LOQ.

Analyst: Paul M. Megerdichian

Reviewer: Peter P. Steen

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DATA CHEM LABORATORIES
A Sorenson Company

ANALYTICAL REPORT

Form ARF-C
Page 2 of 2
08010601100728X

AUG 0 1 2006

Date _____

Laboratory Group Name 06I-3769-04

General Set Comments

Results are not blank corrected.

Filters and tare weights provided by the client. Filters were not tared at DCL.

Sample Comments

Laboratory Number	Comment
06I28764	See set comments.
06I28765	See set comments.
06I28766	See set comments.
06I28767	See set comments.

General Lab Comments

The results provided in this report relate only to the items tested.
Samples were received in acceptable condition unless otherwise noted in the General Set Comments above.
Samples have not been field blank corrected unless otherwise noted in the General Set Comments above.
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DATA CHEM LABORATORIES, INC.

ANALYTICAL REQUEST FORM

1. ☐ REGULAR Status 06I-3769-04

☐ RUSH Status Requested - ADDITIONAL CHARGE
RESULTS REQUIRED BY ____________ DATE
CONTACT DATACHEM LABS PRIOR TO SENDING SAMPLES

2. Date 7/13/06 Purchase Order No. ____________
3. Company Name Yellowstone National Park
Address c/o Mammoth Supply Center
YELLOWSTONE NAT'L PARK, WY 82190
Person to Contact Brandon Gauthier
Telephone (307) 344-2030
Fax Telephone (307) 344-2027
E-mail Address Brandon_Gauthier@nps.gov
Billing Address (if different from above)

4. Quote No. ____________
DCL Project Manager ____________
5. **Sample Collection**
Sampling Site West Yellowstone Entrance
Industrial Process Visitor Entry
Date of Collection 7/10/06 - 7/12/06
Time Collected 8:30-2:30
Date of Shipment 7/13/06
Chain of Custody No. ____________

6. **REQUEST FOR ANALYSES**

Laboratory Use Only	Client Sample Number	Matrix*	Sample Volume	ANALYSES REQUESTED - Use method number if known	Units**
06I28764	KA71006R	PVC filter	889.53 L	NMAM 0600 Resp. P.M.	
65	KB71006R	+alum.	898.74 L	↓	
66	KA71106R	cyclone	886.41 L	↓	
06I28767	KB71106R	↓	896.97 L	↓	
	KA71006B	SOLID	70.73 L	NMAM 1501 BETX	
	KB71106B	SORBENT	69.08 L	Aromatic Hydrocarbons	
	KB71206B	TUBE	69.87 L	↓ ↓	
		(charcoal)			

* Specify: Solid sorbent tube, e.g. Charcoal; Filter type; Impinger solution; Bulk sample; Blood; Urine; Tissue; Soil; Water; Other
** 1. ug/sample 2. mg/m^3 3. ppm 4. % 5. _____ (other) Please indicate one or more units in the column entitled Units**

Comments ____________

Possible Contamination and/or Chemical Hazards ____________

7. **Chain of Custody (Optional)**

Relinquished by ____________ Date/Time ____________
Received by Lucie W[illegible] Date/Time 7/26/06 1100
Relinquished by TWS11 3PA3 Date/Time 25-JUL-2006
Received by ____________ Date/Time ____________
Relinquished by ____________ Date/Time ____________
Received by ____________ Date/Time ____________

960 West LeVoy Drive / Salt Lake City, UT 84123 800-356-9135 or 801-266-7700 / FAX: 801-268-9992
DATACHEM LABORATORIES, INC.

dw

DATA CHEM LABORATORIES
A Sorenson Company

ANALYTICAL REPORT

Form ARF-AL
Page 1 of 3
Part 1 of 2
08230610042415RX

AMENDED

Date SEP 05 2006
Laboratory Group Name 06I-3769-05
Account No. 07003

Yellowstone National Park
Attention: Brandon Gauthier
Safety Services
P.O. Box 168
Mammoth, WY 82190

FAX (307) 344-2027
Telephone (307) 344-2030
E-mail brandon-gauthier@nps.gov

Sampling Collection and Shipment

Sampling Site West Yellowstone Date of Collection July 10, 2006

Date Samples Received at Laboratory July 20, 2006

Analysis

Method of Analysis NMAM 1501, NMAM 1550

Date(s) of Analysis July 27, 2006

Analytical Results

Field Sample Number	Laboratory Number	Sample Type	Benzene mg/sample	Toluene mg/sample	Ethyl benzene mg/sample	Xylene mg/sample	Total Hydrocarbons mg/sample	Benzene ppm	Toluene ppm	Ethyl benzene ppm
KA71006B	06I28768	TUBE	ND	ND	ND	ND	0.015	<0.0044	<0.038	<0.033
KB71106B	06I28769	TUBE	ND	ND	ND	ND	ND	<0.0045	<0.038	<0.033
KH71206B	06I28770	TUBE	ND	ND	ND	ND	ND	<0.0045	<0.038	<0.033
Reporting Limit			0.001	0.01	0.01	0.01	0.01			

† See comment on last page.
ND Parameter not detected above LOD.
NR Parameter not requested.
NA Parameter not applicable.

** See comment on last page.
( ) Parameter between LOD and LOQ.

Analyst: Young Hee Yoon

Reviewer: Mila V. Potekhin

960 West LeVoy Drive / Salt Lake City, Utah 84123-2547
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FAX (801) 268-9992 E-mail: lab@datachem.com

DATA CHEM LABORATORIES
A Sorenson Company

ANALYTICAL REPORT

Form ARF-AL
Page 2 of 3
Part 2 of 2
08230610042415RX

Date
Laboratory Group Name 06I-3769-05
Account No. 07003

Yellowstone National Park
Attention: Brandon Gauthier
Safety Services
P.O. Box 168
Mammoth, WY 82190

FAX (307) 344-2027
Telephone (307) 344-2030
E-mail brandon-gauthier@nps.gov

Sampling Collection and Shipment

Sampling Site West Yellowstone Date of Collection July 10, 2006

Date Samples Received at Laboratory July 20, 2006

Analysis

Method of Analysis NMAM 1501, NMAM 1550

Date(s) of Analysis July 27, 2006

Analytical Results

Field Sample Number	Laboratory Number	Sample Type	Xylene ppm	Total Hydrocarbons ppm	Air Volume Liters					
KA71006B	06I28768	TUBE	<0.033	0.060	70.73					
KB71106B	06I28769	TUBE	<0.033	<0.041	69.08					
KB71206B	06I28770	TUBE	<0.033	<0.041	69.87					
Reporting Limit										

† See comment on last page.
ND Parameter not detected above LOD.
NR Parameter not requested.
NA Parameter not applicable.
** See comment on last page.
( ) Parameter between LOD and LOQ.

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DATA CHEM LABORATORIES
A Sorenson Company

ANALYTICAL REPORT

Form ARF-C
Page 3 of 3
08230610042415RX

Date _____
Laboratory Group Name 061-3769-05

General Set Comments

ppm formula: (24.45 * (Result * 1000)) / (Volume * MW)
"Total Hydrocarbons" is the sum of all peaks in the chromatogram minus the solvent and requested analyte peaks and was quantitated against n-hexane.

General Lab Comments

The results provided in this report relate only to the items tested.
Samples were received in acceptable condition unless otherwise noted in the General Set Comments above.
Samples have not been field blank corrected unless otherwise noted in the General Set Comments above.

This page is the concluding page of the report.

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Appendix C

DATA CHEM LABORATORIES
A Sorenson Company

COVER PAGE

ANALYTICAL REPORT FOR Yellowstone National Park

JUL 28 2006

Form COVER-V1.4
07280613130198
Page 1

Phone(307) 344-2030 Fax(307) 344-2027
E-mail: brandon-gauthier@nps.gov

G066T04H

DCL Report Group..: 06I-3769-01

Date Printed.....: 28-JUL-06 13:13

Project Protocol #: P021C002
Client Ref Number.: West Yellowstone E
Release Number....: West Yellowstone E

Analysis Method(s): TO-15

Yellowstone National Park
Attention: Brandon Gauthier
Safety Services
P.O. Box 168
Mammoth, WY 82190

Client Sample Name	Laboratory Sample Name	Date Sampled	Date Received
Method Blank	BL-248617-1	NA	NA
LCS	QC-248617-1	NA	NA
LCS Dup	QD-248617-1	NA	NA
KA71006V|108965	06I28749	10-JUL-06	20-JUL-06
KB71106V|107039	06I28750	11-JUL-06	20-JUL-06
KB71206V|108963	06I28751	12-JUL-06	20-JUL-06

Analyst: Thomas J. Masoian 7.28.06
Date

Reviewer: Christopher Q. Coleman 7.28.06
Date

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DCL Report Group..: 061-3769-01
Date Printed.....: 28-JUL-06 13:13

Client Name...: Yellowstone National Park

Release Number....: West Yellowstone E

Sample Group Comments

Analyzed by GC/MS according to method TO15.

PQL - Practical Quantitation Limit - Lowest standard that is detectable.
MDL - Method Detection Limit - Statisticaly derived value using 40 CFR methods.

$\mu g/m^3$ formula: (Result * MW) / 24.45

General Information

The DCL QC Database maintains all numerical figures which are input from the pertinent data source. These data have not been rounded to significant figures nor have they been moisture corrected. Reports generated from the system, however, list data which have been rounded to the number of significant figures requested by the client or deemed appropriate for the method. This may create minor discrepancies between data which appear on the QC Summary Forms (Forms B-G) and those that would be calculated from rounded analytical results. Additionally, if a moisture correction is performed, differences will be observed between the QC data and the surrogate data reported on Form A (or other report forms) and corresponding data reported on QC Summary Forms. In these cases, the Form A will indicate the "Report Basis" as well as the moisture value used for making the correction.

Report generation options: IBX

Result Symbol Definitions

ND - Not Detected above the MDL (LLD or MDC for radiochemistry).
** - No result could be reported, see sample comments for details.

Qualifier Symbol Definitions

U - Not Detected above the MDL (LLD or MDC for radiochemistry).
B - For organic analyses the qualifier indicates that this analyte was found in the method blank. For inorganic analyses the qualifier signifies the value is between the MDL and PQL.
J - For organic analyses the qualifier indicates that the value is between the MDL and the PQL. It is also used for indicating an estimated value for tentatively identified compounds in mass spectrometry where a 1:1 response is assumed.

QC Flag Symbol Definitions

* - Parameter outside of specified QC limits.

DATA CHEM LABORATORIES
A Sorenson Company

FORM A (TYPE I)
SINGLE METHOD ANALYSES

SAMPLE ANALYSIS DATA SHEET

S066T0HS

Date Printed.....: 28-JUL-06 13:13

Client Name.....: Yellowstone National Park
Client Ref Number....: West Yellowstone Entrance
Sampling Site.....: West Yellowstone
Release Number.....: West Yellowstone Entr

Date Received.....: 20-JUL-06 00:00

Client Sample Name: KA71006V|108965
DCL Sample Name...: 06I28749
DCL Report Group..: 06I-3769-01

Matrix.....: MINI
Date Sampled.....: 10-JUL-06 00:00
Reporting Units...: ppb v/v
Report Basis.....: [X] As Received [ ] Dried

DCL Preparation Group: Not Applicable
Date Prepared.....: Not Applicable
Preparation Method...: Not Applicable
Aliquot Weight/Volume: 200 mL
Net Weight/Volume....: Not Required

DCL Analysis Group: G066W00K
Analysis Method...: TO-15
Instrument Type...: GC/MS VO
Instrument ID.....: 5972-0
Column Type.....: DB-1
[X] Primary
[ ] Confirmation

Analytical Results

Analyte	Date Analyzed	MDL	Result	Units	Qual.	Dilution	PQL
Propene	26-JUL-06 15:02	0.180	2.8	ppb v/v		1	0.5
Propene	26-JUL-06 15:02	0.31	4.9	µg/m³		1	0.86
Dichlorodifluoromethane	26-JUL-06 15:02	0.0669	0.60	ppb v/v		1	0.5
Dichlorodifluoromethane	26-JUL-06 15:02	0.33	3.0	µg/m³		1	2.5
Chloromethane	26-JUL-06 15:02	0.249	ND	ppb v/v		1	0.5
Chloromethane	26-JUL-06 15:02	0.51	ND	µg/m³		1	1.0
Freon 114	26-JUL-06 15:02	0.156	ND	ppb v/v		1	0.5
Freon 114	26-JUL-06 15:02	1.1	ND	µg/m³		1	3.5
Vinyl Chloride	26-JUL-06 15:02	0.301	ND	ppb v/v		1	0.5
Vinyl Chloride	26-JUL-06 15:02	0.77	ND	µg/m³		1	1.3
1,3-Butadiene	26-JUL-06 15:02	0.346	ND	ppb v/v		1	0.5
1,3-Butadiene	26-JUL-06 15:02	0.77	ND	µg/m³		1	1.1
Bromomethane	26-JUL-06 15:02	0.215	ND	ppb v/v		1	0.5
Bromomethane	26-JUL-06 15:02	0.83	ND	µg/m³		1	1.9
Chloroethane	26-JUL-06 15:02	0.388	ND	ppb v/v		1	0.5
Chloroethane	26-JUL-06 15:02	1.0	ND	µg/m³		1	1.3
Freon 11	26-JUL-06 15:02	0.0921	0.36	ppb v/v	J	1	0.5
Freon 11	26-JUL-06 15:02	0.52	2.0	µg/m³	J	1	2.8
cis-1,2-Dichloroethene	26-JUL-06 15:02	0.102	ND	ppb v/v		1	0.5
cis-1,2-Dichloroethene	26-JUL-06 15:02	0.40	ND	µg/m³		1	2.0
Carbon Disulfide	26-JUL-06 15:02	0.111	ND	ppb v/v		1	0.5
Carbon Disulfide	26-JUL-06 15:02	0.35	ND	µg/m³		1	1.6
Freon 113	26-JUL-06 15:02	0.0950	ND	ppb v/v		1	0.5
Freon 113	26-JUL-06 15:02	0.73	ND	µg/m³		1	3.8
Acetone	26-JUL-06 15:02	0.113	9.1	ppb v/v		1	0.5
Acetone	26-JUL-06 15:02	0.27	22.	µg/m³		1	1.2
Methylene Chloride	26-JUL-06 15:02	0.168	0.43	ppb v/v	J	1	0.5
Methylene Chloride	26-JUL-06 15:02	0.58	1.5	µg/m³	J	1	1.7
trans-1,2-Dichloroethene	26-JUL-06 15:02	0.118	ND	ppb v/v		1	0.5
trans-1,2-Dichloroethene	26-JUL-06 15:02	0.47	ND	µg/m³		1	2.0
1,1-Dichloroethane	26-JUL-06 15:02	0.116	ND	ppb v/v		1	0.5
1,1-Dichloroethane	26-JUL-06 15:02	0.47	ND	µg/m³		1	2.0
Methyl t-Butyl Ether	26-JUL-06 15:02	0.147	ND	ppb v/v		1	0.5
Methyl t-Butyl Ether	26-JUL-06 15:02	0.53	ND	µg/m³		1	1.8
Vinyl Acetate	26-JUL-06 15:02	0.133	ND	ppb v/v		1	0.5
Vinyl Acetate	26-JUL-06 15:02	0.47	ND	µg/m³		1	1.8
1,1-Dichloroethene	26-JUL-06 15:02	0.109	ND	ppb v/v		1	0.5
1,1-Dichloroethene	26-JUL-06 15:02	0.43	ND	µg/m³		1	2.0
2-Butanone	26-JUL-06 15:02	0.182	10.	ppb v/v		1	0.5
2-Butanone	26-JUL-06 15:02	0.54	31.	µg/m³		1	1.5
Ethyl Acetate	26-JUL-06 15:02	0.273	1.0	ppb v/v		1	0.5

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Date Printed.....: 28-JUL-06 13:13
Client Name.....: Yellowstone National Park

DCL Sample Name...: 06I28749
DCL Report Group..: 06I-3769-01

Analytical Results

Analyte	Date Analyzed	MDL	Result	Units	Qual.	Dilution	PQL
Ethyl Acetate	26-JUL-06 15:02	0.98	3.6	µg/m³		1	1.8
Hexane	26-JUL-06 15:02	0.121	1.4	ppb v/v		1	0.5
Hexane	26-JUL-06 15:02	0.43	4.8	µg/m³		1	1.8
Chloroform	26-JUL-06 15:02	0.115	ND	ppb v/v		1	0.5
Chloroform	26-JUL-06 15:02	0.56	ND	µg/m³		1	2.4
1,1,1-Trichloroethane	26-JUL-06 15:02	0.0725	ND	ppb v/v		1	0.5
1,1,1-Trichloroethane	26-JUL-06 15:02	0.40	ND	µg/m³		1	2.7
Carbon Tetrachloride	26-JUL-06 15:02	0.0657	0.19	ppb v/v	J	1	0.5
Carbon Tetrachloride	26-JUL-06 15:02	0.41	1.2	µg/m³	J	1	3.1
Benzene	26-JUL-06 15:02	0.102	1.4	ppb v/v		1	0.5
Benzene	26-JUL-06 15:02	0.33	4.5	µg/m³		1	1.6
Tetrahydrofuran	26-JUL-06 15:02	0.227	ND	ppb v/v		1	0.5
Tetrahydrofuran	26-JUL-06 15:02	0.67	ND	µg/m³		1	1.5
1,2-Dichloroethane	26-JUL-06 15:02	0.153	ND	ppb v/v		1	0.5
1,2-Dichloroethane	26-JUL-06 15:02	0.62	ND	µg/m³		1	2.0
Cyclohexane	26-JUL-06 15:02	0.120	ND	ppb v/v		1	0.5
Cyclohexane	26-JUL-06 15:02	0.41	ND	µg/m³		1	1.7
Trichloroethene	26-JUL-06 15:02	0.120	0.40	ppb v/v	J	1	0.5
Trichloroethene	26-JUL-06 15:02	0.64	2.1	µg/m³	J	1	2.7
1,2-Dichloropropane	26-JUL-06 15:02	0.123	ND	ppb v/v		1	0.5
1,2-Dichloropropane	26-JUL-06 15:02	0.57	ND	µg/m³		1	2.3
Bromodichloromethane	26-JUL-06 15:02	0.0779	ND	ppb v/v		1	0.5
Bromodichloromethane	26-JUL-06 15:02	0.52	ND	µg/m³		1	3.3
Heptane	26-JUL-06 15:02	0.101	0.26	ppb v/v	J	1	0.5
Heptane	26-JUL-06 15:02	0.41	1.0	µg/m³	J	1	2.0
cis-1,3-Dichloropropene	26-JUL-06 15:02	0.106	ND	ppb v/v		1	0.5
cis-1,3-Dichloropropene	26-JUL-06 15:02	0.48	ND	µg/m³		1	2.3
4-Methyl-2-Pentanone	26-JUL-06 15:02	0.116	2.9	ppb v/v		1	0.5
4-Methyl-2-Pentanone	26-JUL-06 15:02	0.48	12.	µg/m³		1	2.0
Toluene	26-JUL-06 15:02	0.115	6.2	ppb v/v		1	0.5
Toluene	26-JUL-06 15:02	0.43	23.	µg/m³		1	1.9
trans-1,3-Dichloropropene	26-JUL-06 15:02	0.130	ND	ppb v/v		1	0.5
trans-1,3-Dichloropropene	26-JUL-06 15:02	0.59	ND	µg/m³		1	2.3
1,1,2-Trichloroethane	26-JUL-06 15:02	0.0972	ND	ppb v/v		1	0.5
1,1,2-Trichloroethane	26-JUL-06 15:02	0.53	ND	µg/m³		1	2.7
Tetrachloroethene	26-JUL-06 15:02	0.0847	ND	ppb v/v		1	0.5
Tetrachloroethene	26-JUL-06 15:02	0.57	ND	µg/m³		1	3.4
2-Hexanone	26-JUL-06 15:02	0.136	ND	ppb v/v		1	0.5
2-Hexanone	26-JUL-06 15:02	0.56	ND	µg/m³		1	2.0
Dibromochloromethane	26-JUL-06 15:02	0.0792	ND	ppb v/v		1	0.5
Dibromochloromethane	26-JUL-06 15:02	0.67	ND	µg/m³		1	4.2
1,2-Dibromoethane	26-JUL-06 15:02	0.119	ND	ppb v/v		1	0.5
1,2-Dibromoethane	26-JUL-06 15:02	0.91	ND	µg/m³		1	3.8
Chlorobenzene	26-JUL-06 15:02	0.0882	ND	ppb v/v		1	0.5
Chlorobenzene	26-JUL-06 15:02	0.41	ND	µg/m³		1	2.3
Ethylbenzene	26-JUL-06 15:02	0.150	0.70	ppb v/v		1	0.5
Ethylbenzene	26-JUL-06 15:02	0.65	3.0	µg/m³		1	2.2
m,p-Xylene	26-JUL-06 15:02	0.213	2.2	ppb v/v		1	1.0
m,p-Xylene	26-JUL-06 15:02	0.92	9.6	µg/m³		1	4.3
o-Xylene	26-JUL-06 15:02	0.113	0.79	ppb v/v		1	0.5
o-Xylene	26-JUL-06 15:02	0.49	3.4	µg/m³		1	2.2
Styrene	26-JUL-06 15:02	0.0748	2.5	ppb v/v		1	0.5
Styrene	26-JUL-06 15:02	0.32	10.	µg/m³		1	2.1
Bromoform	26-JUL-06 15:02	0.0884	ND	ppb v/v		1	0.5
Bromoform	26-JUL-06 15:02	0.90	ND	µg/m³		1	5.1
1,1,2,2-Tetrachloroethane	26-JUL-06 15:02	0.108	ND	ppb v/v		1	0.5
1,1,2,2-Tetrachloroethane	26-JUL-06 15:02	0.74	ND	µg/m³		1	3.4
Benzyl Chloride	26-JUL-06 15:02	0.136	ND	ppb v/v		1	0.5

Date Printed.....: 28-JUL-06 13:13
Client Name.....: Yellowstone National Park

DCL Sample Name...: 06I28749
DCL Report Group..: 06I-3769-01

Analytical Results

Analyte	Date Analyzed	MDL	Result	Units	Qual.	Dilution	PQL
Benzyl Chloride	26-JUL-06 15:02	0.70	ND	µg/m³		1	2.6
4-Ethyl toluene	26-JUL-06 15:02	0.0983	0.30	ppb v/v	J	1	0.5
4-Ethyl toluene	26-JUL-06 15:02	0.48	1.5	µg/m³	J	1	2.5
1,3,5-Trimethylbenzene	26-JUL-06 15:02	0.112	0.27	ppb v/v	J	1	0.5
1,3,5-Trimethylbenzene	26-JUL-06 15:02	0.55	1.3	µg/m³	J	1	2.5
1,2,4-Trimethylbenzene	26-JUL-06 15:02	0.117	0.84	ppb v/v		1	0.5
1,2,4-Trimethylbenzene	26-JUL-06 15:02	0.58	4.1	µg/m³		1	2.5
1,3-Dichlorobenzene	26-JUL-06 15:02	0.120	ND	ppb v/v		1	0.5
1,3-Dichlorobenzene	26-JUL-06 15:02	0.72	ND	µg/m³		1	3.0
1,4-Dichlorobenzene	26-JUL-06 15:02	0.0987	ND	ppb v/v		1	0.5
1,4-Dichlorobenzene	26-JUL-06 15:02	0.59	ND	µg/m³		1	3.0
1,2-Dichlorobenzene	26-JUL-06 15:02	0.0851	ND	ppb v/v		1	0.5
1,2-Dichlorobenzene	26-JUL-06 15:02	0.51	ND	µg/m³		1	3.0
1,2,4-Trichlorobenzene	26-JUL-06 15:02	0.115	ND	ppb v/v		1	0.5
1,2,4-Trichlorobenzene	26-JUL-06 15:02	0.85	ND	µg/m³		1	3.7
Hexachlorobutadiene	26-JUL-06 15:02	0.119	ND	ppb v/v		1	0.5
Hexachlorobutadiene	26-JUL-06 15:02	1.3	ND	µg/m³		1	5.3

Tentatively Identified Compound Results

Analyte(Retention Time)	Date Analyzed	Result	Units	Qual.	Dilution
Isobutane(4.63)	26-JUL-06 15:02	2.3	ppb v/v	J	1
Butane(4.90)	26-JUL-06 15:02	4.9	ppb v/v	J	1
Ethanol(5.42)	26-JUL-06 15:02	7.2	ppb v/v	J	1
Isopropyl Alcohol(6.02)	26-JUL-06 15:02	8.7	ppb v/v	J	1
Pentane(6.23)	26-JUL-06 15:02	3.1	ppb v/v	J	1
Silanol, trimethyl-(7.46)	26-JUL-06 15:02	3.5	ppb v/v	J	1

SAMPLE ANALYSIS DATA SHEET

S066T0HT

Date Printed.....: 28-JUL-06 13:13

Client Name.....: Yellowstone National Park
Client Ref Number....: West Yellowstone Entrance
Sampling Site.....: West Yellowstone
Release Number.....: West Yellowstone Entr

Date Received.....: 20-JUL-06 00:00

Client Sample Name: **KB71106V|107039**
DCL Sample Name...: **06I28750**
DCL Report Group..: **06I-3769-01**

Matrix.....: MINI
Date Sampled.....: 11-JUL-06 00:00
Reporting Units...: ppb v/v
Report Basis.....: ☒ As Received ☐ Dried

DCL Preparation Group: Not Applicable
Date Prepared.....: Not Applicable
Preparation Method...: Not Applicable
Aliquot Weight/Volume: 200 mL
Net Weight/Volume....: Not Required

DCL Analysis Group: G066W00K
Analysis Method...: TO-15
Instrument Type...: GC/MS VO
Instrument ID.....: 5972-O
Column Type.....: DB-1
☒ Primary
☐ Confirmation

Analytical Results

Analyte	Date Analyzed	MDL	Result	Units	Qual.	Dilution	PQL
Propene	26-JUL-06 15:43	0.180	1.5	ppb v/v		1	0.5
Propene	26-JUL-06 15:43	0.31	2.5	µg/m³		1	0.86
Dichlorodifluoromethane	26-JUL-06 15:43	0.0669	ND	ppb v/v		1	0.5
Dichlorodifluoromethane	26-JUL-06 15:43	0.33	ND	µg/m³		1	2.5
Chloromethane	26-JUL-06 15:43	0.249	ND	ppb v/v		1	0.5
Chloromethane	26-JUL-06 15:43	0.51	ND	µg/m³		1	1.0
Freon 114	26-JUL-06 15:43	0.156	ND	ppb v/v		1	0.5
Freon 114	26-JUL-06 15:43	1.1	ND	µg/m³		1	3.5
Vinyl Chloride	26-JUL-06 15:43	0.301	ND	ppb v/v		1	0.5
Vinyl Chloride	26-JUL-06 15:43	0.77	ND	µg/m³		1	1.3
1,3-Butadiene	26-JUL-06 15:43	0.346	ND	ppb v/v		1	0.5
1,3-Butadiene	26-JUL-06 15:43	0.77	ND	µg/m³		1	1.1
Bromomethane	26-JUL-06 15:43	0.215	ND	ppb v/v		1	0.5
Bromomethane	26-JUL-06 15:43	0.83	ND	µg/m³		1	1.9
Chloroethane	26-JUL-06 15:43	0.388	ND	ppb v/v		1	0.5
Chloroethane	26-JUL-06 15:43	1.0	ND	µg/m³		1	1.3
Freon 11	26-JUL-06 15:43	0.0921	0.16	ppb v/v	J	1	0.5
Freon 11	26-JUL-06 15:43	0.52	0.90	µg/m³	J	1	2.8
cis-1,2-Dichloroethene	26-JUL-06 15:43	0.102	ND	ppb v/v		1	0.5
cis-1,2-Dichloroethene	26-JUL-06 15:43	0.40	ND	µg/m³		1	2.0
Carbon Disulfide	26-JUL-06 15:43	0.111	ND	ppb v/v		1	0.5
Carbon Disulfide	26-JUL-06 15:43	0.35	ND	µg/m³		1	1.6
Freon 113	26-JUL-06 15:43	0.0950	ND	ppb v/v		1	0.5
Freon 113	26-JUL-06 15:43	0.73	ND	µg/m³		1	3.8
Acetone	26-JUL-06 15:43	0.113	6.3	ppb v/v		1	0.5
Acetone	26-JUL-06 15:43	0.27	15.	µg/m³		1	1.2
Methylene Chloride	26-JUL-06 15:43	0.168	0.60	ppb v/v		1	0.5
Methylene Chloride	26-JUL-06 15:43	0.58	2.1	µg/m³		1	1.7
trans-1,2-Dichloroethene	26-JUL-06 15:43	0.118	ND	ppb v/v		1	0.5
trans-1,2-Dichloroethene	26-JUL-06 15:43	0.47	ND	µg/m³		1	2.0
1,1-Dichloroethane	26-JUL-06 15:43	0.116	ND	ppb v/v		1	0.5
1,1-Dichloroethane	26-JUL-06 15:43	0.47	ND	µg/m³		1	2.0
Methyl t-Butyl Ether	26-JUL-06 15:43	0.147	ND	ppb v/v		1	0.5
Methyl t-Butyl Ether	26-JUL-06 15:43	0.53	ND	µg/m³		1	1.8
Vinyl Acetate	26-JUL-06 15:43	0.133	ND	ppb v/v		1	0.5
Vinyl Acetate	26-JUL-06 15:43	0.47	ND	µg/m³		1	1.8
1,1-Dichloroethene	26-JUL-06 15:43	0.109	ND	ppb v/v		1	0.5
1,1-Dichloroethene	26-JUL-06 15:43	0.43	ND	µg/m³		1	2.0
2-Butanone	26-JUL-06 15:43	0.182	ND	ppb v/v		1	0.5
2-Butanone	26-JUL-06 15:43	0.54	ND	µg/m³		1	1.5
Ethyl Acetate	26-JUL-06 15:43	0.273	ND	ppb v/v		1	0.5

Date Printed.....: 28-JUL-06 13:13
Client Name.....: Yellowstone National Park

DCL Sample Name...: 06I28750
DCL Report Group..: 06I-3769-01

Analytical Results

Analyte	Date Analyzed	MDL	Result	Units	Qual.	Dilution	PQL
Ethyl Acetate	26-JUL-06 15:43	0.98	ND	µg/m³		1	1.8
Hexane	26-JUL-06 15:43	0.121	ND	ppb v/v		1	0.5
Hexane	26-JUL-06 15:43	0.43	ND	µg/m³		1	1.8
Chloroform	26-JUL-06 15:43	0.115	ND	ppb v/v		1	0.5
Chloroform	26-JUL-06 15:43	0.56	ND	µg/m³		1	2.4
1,1,1-Trichloroethane	26-JUL-06 15:43	0.0725	ND	ppb v/v		1	0.5
1,1,1-Trichloroethane	26-JUL-06 15:43	0.40	ND	µg/m³		1	2.7
Carbon Tetrachloride	26-JUL-06 15:43	0.0657	ND	ppb v/v		1	0.5
Carbon Tetrachloride	26-JUL-06 15:43	0.41	ND	µg/m³		1	3.1
Benzene	26-JUL-06 15:43	0.102	ND	ppb v/v		1	0.5
Benzene	26-JUL-06 15:43	0.33	ND	µg/m³		1	1.6
Tetrahydrofuran	26-JUL-06 15:43	0.227	ND	ppb v/v		1	0.5
Tetrahydrofuran	26-JUL-06 15:43	0.67	ND	µg/m³		1	1.5
1,2-Dichloroethane	26-JUL-06 15:43	0.153	ND	ppb v/v		1	0.5
1,2-Dichloroethane	26-JUL-06 15:43	0.62	ND	µg/m³		1	2.0
Cyclohexane	26-JUL-06 15:43	0.120	ND	ppb v/v		1	0.5
Cyclohexane	26-JUL-06 15:43	0.41	ND	µg/m³		1	1.7
Trichloroethene	26-JUL-06 15:43	0.120	2.0	ppb v/v		1	0.5
Trichloroethene	26-JUL-06 15:43	0.64	11.	µg/m³		1	2.7
1,2-Dichloropropane	26-JUL-06 15:43	0.123	ND	ppb v/v		1	0.5
1,2-Dichloropropane	26-JUL-06 15:43	0.57	ND	µg/m³		1	2.3
Bromodichloromethane	26-JUL-06 15:43	0.0779	ND	ppb v/v		1	0.5
Bromodichloromethane	26-JUL-06 15:43	0.52	ND	µg/m³		1	3.3
Heptane	26-JUL-06 15:43	0.101	ND	ppb v/v		1	0.5
Heptane	26-JUL-06 15:43	0.41	ND	µg/m³		1	2.0
cis-1,3-Dichloropropene	26-JUL-06 15:43	0.106	ND	ppb v/v		1	0.5
cis-1,3-Dichloropropene	26-JUL-06 15:43	0.48	ND	µg/m³		1	2.3
4-Methyl-2-Pentanone	26-JUL-06 15:43	0.116	ND	ppb v/v		1	0.5
4-Methyl-2-Pentanone	26-JUL-06 15:43	0.48	ND	µg/m³		1	2.0
Toluene	26-JUL-06 15:43	0.115	0.85	ppb v/v		1	0.5
Toluene	26-JUL-06 15:43	0.43	3.2	µg/m³		1	1.9
trans-1,3-Dichloropropene	26-JUL-06 15:43	0.130	ND	ppb v/v		1	0.5
trans-1,3-Dichloropropene	26-JUL-06 15:43	0.59	ND	µg/m³		1	2.3
1,1,2-Trichloroethane	26-JUL-06 15:43	0.0972	ND	ppb v/v		1	0.5
1,1,2-Trichloroethane	26-JUL-06 15:43	0.53	ND	µg/m³		1	2.7
Tetrachloroethene	26-JUL-06 15:43	0.0847	1.4	ppb v/v		1	0.5
Tetrachloroethene	26-JUL-06 15:43	0.57	9.5	µg/m³		1	3.4
2-Hexanone	26-JUL-06 15:43	0.136	ND	ppb v/v		1	0.5
2-Hexanone	26-JUL-06 15:43	0.56	ND	µg/m³		1	2.0
Dibromochloromethane	26-JUL-06 15:43	0.0792	ND	ppb v/v		1	0.5
Dibromochloromethane	26-JUL-06 15:43	0.67	ND	µg/m³		1	4.2
1,2-Dibromoethane	26-JUL-06 15:43	0.119	ND	ppb v/v		1	0.5
1,2-Dibromoethane	26-JUL-06 15:43	0.91	ND	µg/m³		1	3.8
Chlorobenzene	26-JUL-06 15:43	0.0882	ND	ppb v/v		1	0.5
Chlorobenzene	26-JUL-06 15:43	0.41	ND	µg/m³		1	2.3
Ethylbenzene	26-JUL-06 15:43	0.150	0.16	ppb v/v	J	1	0.5
Ethylbenzene	26-JUL-06 15:43	0.65	0.69	µg/m³	J	1	2.2
m,p-Xylene	26-JUL-06 15:43	0.213	0.46	ppb v/v	J	1	1.0
m,p-Xylene	26-JUL-06 15:43	0.92	2.0	µg/m³	J	1	4.3
o-Xylene	26-JUL-06 15:43	0.113	0.21	ppb v/v	J	1	0.5
o-Xylene	26-JUL-06 15:43	0.49	0.89	µg/m³	J	1	2.2
Styrene	26-JUL-06 15:43	0.0748	0.20	ppb v/v	J	1	0.5
Styrene	26-JUL-06 15:43	0.32	0.87	µg/m³	J	1	2.1
Bromoform	26-JUL-06 15:43	0.0884	ND	ppb v/v		1	0.5
Bromoform	26-JUL-06 15:43	0.90	ND	µg/m³		1	5.1
1,1,2,2-Tetrachloroethane	26-JUL-06 15:43	0.108	ND	ppb v/v		1	0.5
1,1,2,2-Tetrachloroethane	26-JUL-06 15:43	0.74	ND	µg/m³		1	3.4
Benzyl Chloride	26-JUL-06 15:43	0.136	ND	ppb v/v		1	0.5

Date Printed.....: 28-JUL-06 13:13
Client Name.....: Yellowstone National Park

DCL Sample Name...: 06I28750
DCL Report Group..: 06I-3769-01

Analytical Results

Analyte	Date Analyzed	MDL	Result	Units	Qual.	Dilution	PQL
Benzyl Chloride	26-JUL-06 15:43	0.70	ND	µg/m³		1	2.6
4-Ethyl toluene	26-JUL-06 15:43	0.0983	ND	ppb v/v		1	0.5
4-Ethyl toluene	26-JUL-06 15:43	0.48	ND	µg/m³		1	2.5
1,3,5-Trimethylbenzene	26-JUL-06 15:43	0.112	0.15	ppb v/v	J	1	0.5
1,3,5-Trimethylbenzene	26-JUL-06 15:43	0.55	0.75	µg/m³	J	1	2.5
1,2,4-Trimethylbenzene	26-JUL-06 15:43	0.117	0.30	ppb v/v	J	1	0.5
1,2,4-Trimethylbenzene	26-JUL-06 15:43	0.58	1.5	µg/m³	J	1	2.5
1,3-Dichlorobenzene	26-JUL-06 15:43	0.120	ND	ppb v/v		1	0.5
1,3-Dichlorobenzene	26-JUL-06 15:43	0.72	ND	µg/m³		1	3.0
1,4-Dichlorobenzene	26-JUL-06 15:43	0.0987	ND	ppb v/v		1	0.5
1,4-Dichlorobenzene	26-JUL-06 15:43	0.59	ND	µg/m³		1	3.0
1,2-Dichlorobenzene	26-JUL-06 15:43	0.0851	ND	ppb v/v		1	0.5
1,2-Dichlorobenzene	26-JUL-06 15:43	0.51	ND	µg/m³		1	3.0
1,2,4-Trichlorobenzene	26-JUL-06 15:43	0.115	ND	ppb v/v		1	0.5
1,2,4-Trichlorobenzene	26-JUL-06 15:43	0.85	ND	µg/m³		1	3.7
Hexachlorobutadiene	26-JUL-06 15:43	0.119	ND	ppb v/v		1	0.5
Hexachlorobutadiene	26-JUL-06 15:43	1.3	ND	µg/m³		1	5.3

Tentatively Identified Compound Results

Analyte(Retention Time)	Date Analyzed	Result	Units	Qual.	Dilution
Ethanol(5.45)	26-JUL-06 15:43	3.6	ppb v/v	J	1
C5 hydrocarbon(5.81)	26-JUL-06 15:43	3.1	ppb v/v	J	1
1-Propene, 2-methyl-(9.61)	26-JUL-06 15:43	2.1	ppb v/v	J	1

SAMPLE ANALYSIS DATA SHEET

Date Printed.....: 28-JUL-06 14:23

Client Name.....: Yellowstone National Park
Client Ref Number....: West Yellowstone Entrance
Sampling Site.....: West Yellowstone
Release Number.....: West Yellowstone Entr

Date Received.....: 20-JUL-06 00:00

Client Sample Name: KB71206V|108963
DCL Sample Name...: 06I28751
DCL Report Group..: 06I-3769-01

Matrix.....: MINI
Date Sampled.....: 12-JUL-06 00:00
Reporting Units...: ppb v/v
Report Basis.....: ☒ As Received ☐ Dried

DCL Preparation Group: Not Applicable
Date Prepared.....: Not Applicable
Preparation Method...: Not Applicable
Aliquot Weight/Volume: 200 mL
Net Weight/Volume....: Not Required

DCL Analysis Group: G066W00K
Analysis Method...: TO-15
Instrument Type...: GC/MS VO
Instrument ID.....: 5972-0
Column Type.....: DB-1
☒ Primary
☐ Confirmation

Analytical Results

Analyte	Date Analyzed	MDL	Result	Units	Qual.	Dilution	PQL
Propene	26-JUL-06 16:25	0.180	3.0	ppb v/v		1	0.5
Propene	26-JUL-06 16:25	0.31	5.1	µg/m³		1	0.86
Dichlorodifluoromethane	26-JUL-06 16:25	0.0669	0.51	ppb v/v		1	0.5
Dichlorodifluoromethane	26-JUL-06 16:25	0.33	2.5	µg/m³		1	2.5
Chloromethane	26-JUL-06 16:25	0.249	ND	ppb v/v		1	0.5
Chloromethane	26-JUL-06 16:25	0.51	ND	µg/m³		1	1.0
Freon 114	26-JUL-06 16:25	0.156	ND	ppb v/v		1	0.5
Freon 114	26-JUL-06 16:25	1.1	ND	µg/m³		1	3.5
Vinyl Chloride	26-JUL-06 16:25	0.301	ND	ppb v/v		1	0.5
Vinyl Chloride	26-JUL-06 16:25	0.77	ND	µg/m³		1	1.3
1,3-Butadiene	26-JUL-06 16:25	0.346	ND	ppb v/v		1	0.5
1,3-Butadiene	26-JUL-06 16:25	0.77	ND	µg/m³		1	1.1
Bromomethane	26-JUL-06 16:25	0.215	ND	ppb v/v		1	0.5
Bromomethane	26-JUL-06 16:25	0.83	ND	µg/m³		1	1.9
Chloroethane	26-JUL-06 16:25	0.388	ND	ppb v/v		1	0.5
Chloroethane	26-JUL-06 16:25	1.0	ND	µg/m³		1	1.3
Freon 11	26-JUL-06 16:25	0.0921	0.26	ppb v/v	J	1	0.5
Freon 11	26-JUL-06 16:25	0.52	1.5	µg/m³	J	1	2.8
cis-1,2-Dichloroethene	26-JUL-06 16:25	0.102	ND	ppb v/v		1	0.5
cis-1,2-Dichloroethene	26-JUL-06 16:25	0.40	ND	µg/m³		1	2.0
Carbon Disulfide	26-JUL-06 16:25	0.111	ND	ppb v/v		1	0.5
Carbon Disulfide	26-JUL-06 16:25	0.35	ND	µg/m³		1	1.6
Freon 113	26-JUL-06 16:25	0.0950	ND	ppb v/v		1	0.5
Freon 113	26-JUL-06 16:25	0.73	ND	µg/m³		1	3.8
Acetone	26-JUL-06 16:25	0.113	17.	ppb v/v		1	0.5
Acetone	26-JUL-06 16:25	0.27	39.	µg/m³		1	1.2
Methylene Chloride	26-JUL-06 16:25	0.168	0.48	ppb v/v	J	1	0.5
Methylene Chloride	26-JUL-06 16:25	0.58	1.7	µg/m³	J	1	1.7
trans-1,2-Dichloroethene	26-JUL-06 16:25	0.118	ND	ppb v/v		1	0.5
trans-1,2-Dichloroethene	26-JUL-06 16:25	0.47	ND	µg/m³		1	2.0
1,1-Dichloroethane	26-JUL-06 16:25	0.116	ND	ppb v/v		1	0.5
1,1-Dichloroethane	26-JUL-06 16:25	0.47	ND	µg/m³		1	2.0
Methyl t-Butyl Ether	26-JUL-06 16:25	0.147	ND	ppb v/v		1	0.5
Methyl t-Butyl Ether	26-JUL-06 16:25	0.53	ND	µg/m³		1	1.8
Vinyl Acetate	26-JUL-06 16:25	0.133	ND	ppb v/v		1	0.5
Vinyl Acetate	26-JUL-06 16:25	0.47	ND	µg/m³		1	1.8
1,1-Dichloroethene	26-JUL-06 16:25	0.109	ND	ppb v/v		1	0.5
1,1-Dichloroethene	26-JUL-06 16:25	0.43	ND	µg/m³		1	2.0
2-Butanone	26-JUL-06 16:25	0.182	4.5	ppb v/v		1	0.5
2-Butanone	26-JUL-06 16:25	0.54	13.	µg/m³		1	1.5
Ethyl Acetate	26-JUL-06 16:25	0.273	ND	ppb v/v		1	0.5

Date Printed.....: 28-JUL-06 13:13
Client Name.....: Yellowstone National Park

DCL Sample Name...: 06I28751
DCL Report Group..: 06I-3769-01

Analytical Results

Analyte	Date Analyzed	MDL	Result	Units	Qual.	Dilution	PQL
Ethyl Acetate	26-JUL-06 16:25	0.98	ND	µg/m³		1	1.8
Hexane	26-JUL-06 16:25	0.121	0.94	ppb v/v		1	0.5
Hexane	26-JUL-06 16:25	0.43	3.3	µg/m³		1	1.8
Chloroform	26-JUL-06 16:25	0.115	ND	ppb v/v		1	0.5
Chloroform	26-JUL-06 16:25	0.56	ND	µg/m³		1	2.4
1,1,1-Trichloroethane	26-JUL-06 16:25	0.0725	ND	ppb v/v		1	0.5
1,1,1-Trichloroethane	26-JUL-06 16:25	0.40	ND	µg/m³		1	2.7
Carbon Tetrachloride	26-JUL-06 16:25	0.0657	ND	ppb v/v		1	0.5
Carbon Tetrachloride	26-JUL-06 16:25	0.41	ND	µg/m³		1	3.1
Benzene	26-JUL-06 16:25	0.102	1.6	ppb v/v		1	0.5
Benzene	26-JUL-06 16:25	0.33	5.0	µg/m³		1	1.6
Tetrahydrofuran	26-JUL-06 16:25	0.227	ND	ppb v/v		1	0.5
Tetrahydrofuran	26-JUL-06 16:25	0.67	ND	µg/m³		1	1.5
1,2-Dichloroethane	26-JUL-06 16:25	0.153	ND	ppb v/v		1	0.5
1,2-Dichloroethane	26-JUL-06 16:25	0.62	ND	µg/m³		1	2.0
Cyclohexane	26-JUL-06 16:25	0.120	ND	ppb v/v		1	0.5
Cyclohexane	26-JUL-06 16:25	0.41	ND	µg/m³		1	1.7
Trichloroethene	26-JUL-06 16:25	0.120	ND	ppb v/v		1	0.5
Trichloroethene	26-JUL-06 16:25	0.64	ND	µg/m³		1	2.7
1,2-Dichloropropane	26-JUL-06 16:25	0.123	ND	ppb v/v		1	0.5
1,2-Dichloropropane	26-JUL-06 16:25	0.57	ND	µg/m³		1	2.3
Bromodichloromethane	26-JUL-06 16:25	0.0779	ND	ppb v/v		1	0.5
Bromodichloromethane	26-JUL-06 16:25	0.52	ND	µg/m³		1	3.3
Heptane	26-JUL-06 16:25	0.101	ND	ppb v/v		1	0.5
Heptane	26-JUL-06 16:25	0.41	ND	µg/m³		1	2.0
cis-1,3-Dichloropropene	26-JUL-06 16:25	0.106	ND	ppb v/v		1	0.5
cis-1,3-Dichloropropene	26-JUL-06 16:25	0.48	ND	µg/m³		1	2.3
4-Methyl-2-Pentanone	26-JUL-06 16:25	0.116	0.76	ppb v/v		1	0.5
4-Methyl-2-Pentanone	26-JUL-06 16:25	0.48	3.1	µg/m³		1	2.0
Toluene	26-JUL-06 16:25	0.115	12.	ppb v/v		1	0.5
Toluene	26-JUL-06 16:25	0.43	43.	µg/m³		1	1.9
trans-1,3-Dichloropropene	26-JUL-06 16:25	0.130	ND	ppb v/v		1	0.5
trans-1,3-Dichloropropene	26-JUL-06 16:25	0.59	ND	µg/m³		1	2.3
1,1,2-Trichloroethane	26-JUL-06 16:25	0.0972	ND	ppb v/v		1	0.5
1,1,2-Trichloroethane	26-JUL-06 16:25	0.53	ND	µg/m³		1	2.7
Tetrachloroethene	26-JUL-06 16:25	0.0847	ND	ppb v/v		1	0.5
Tetrachloroethene	26-JUL-06 16:25	0.57	ND	µg/m³		1	3.4
2-Hexanone	26-JUL-06 16:25	0.136	ND	ppb v/v		1	0.5
2-Hexanone	26-JUL-06 16:25	0.56	ND	µg/m³		1	2.0
Dibromochloromethane	26-JUL-06 16:25	0.0792	ND	ppb v/v		1	0.5
Dibromochloromethane	26-JUL-06 16:25	0.67	ND	µg/m³		1	4.2
1,2-Dibromoethane	26-JUL-06 16:25	0.119	ND	ppb v/v		1	0.5
1,2-Dibromoethane	26-JUL-06 16:25	0.91	ND	µg/m³		1	3.8
Chlorobenzene	26-JUL-06 16:25	0.0882	ND	ppb v/v		1	0.5
Chlorobenzene	26-JUL-06 16:25	0.41	ND	µg/m³		1	2.3
Ethylbenzene	26-JUL-06 16:25	0.150	1.1	ppb v/v		1	0.5
Ethylbenzene	26-JUL-06 16:25	0.65	5.0	µg/m³		1	2.2
m,p-Xylene	26-JUL-06 16:25	0.213	4.4	ppb v/v		1	1.0
m,p-Xylene	26-JUL-06 16:25	0.92	19.	µg/m³		1	4.3
o-Xylene	26-JUL-06 16:25	0.113	1.4	ppb v/v		1	0.5
o-Xylene	26-JUL-06 16:25	0.49	6.2	µg/m³		1	2.2
Styrene	26-JUL-06 16:25	0.0748	1.2	ppb v/v		1	0.5
Styrene	26-JUL-06 16:25	0.32	5.2	µg/m³		1	2.1
Bromoform	26-JUL-06 16:25	0.0884	ND	ppb v/v		1	0.5
Bromoform	26-JUL-06 16:25	0.90	ND	µg/m³		1	5.1
1,1,2,2-Tetrachloroethane	26-JUL-06 16:25	0.108	ND	ppb v/v		1	0.5
1,1,2,2-Tetrachloroethane	26-JUL-06 16:25	0.74	ND	µg/m³		1	3.4
Benzyl Chloride	26-JUL-06 16:25	0.136	ND	ppb v/v		1	0.5

DATA CHEM LABORATORIES
A Sorenson Company

FORM A (TYPE I)
SINGLE METHOD ANALYSES

SAMPLE ANALYSIS DATA SHEET

S066T0HV

Date Printed.....: 28-JUL-06 13:13
Client Name.....: Yellowstone National Park

DCL Sample Name...: 06I28751
DCL Report Group..: 06I-3769-01

Analytical Results

Analyte	Date Analyzed	MDL	Result	Units	Qual.	Dilution	PQL
Benzyl Chloride	26-JUL-06 16:25	0.70	ND	µg/m³		1	2.6
4-Ethyl toluene	26-JUL-06 16:25	0.0983	0.31	ppb v/v	J	1	0.5
4-Ethyl toluene	26-JUL-06 16:25	0.48	1.5	µg/m³	J	1	2.5
1,3,5-Trimethylbenzene	26-JUL-06 16:25	0.112	0.27	ppb v/v	J	1	0.5
1,3,5-Trimethylbenzene	26-JUL-06 16:25	0.55	1.3	µg/m³	J	1	2.5
1,2,4-Trimethylbenzene	26-JUL-06 16:25	0.117	1.1	ppb v/v		1	0.5
1,2,4-Trimethylbenzene	26-JUL-06 16:25	0.58	5.4	µg/m³		1	2.5
1,3-Dichlorobenzene	26-JUL-06 16:25	0.120	ND	ppb v/v		1	0.5
1,3-Dichlorobenzene	26-JUL-06 16:25	0.72	ND	µg/m³		1	3.0
1,4-Dichlorobenzene	26-JUL-06 16:25	0.0987	ND	ppb v/v		1	0.5
1,4-Dichlorobenzene	26-JUL-06 16:25	0.59	ND	µg/m³		1	3.0
1,2-Dichlorobenzene	26-JUL-06 16:25	0.0851	0.35	ppb v/v	J	1	0.5
1,2-Dichlorobenzene	26-JUL-06 16:25	0.51	2.1	µg/m³	J	1	3.0
1,2,4-Trichlorobenzene	26-JUL-06 16:25	0.115	ND	ppb v/v		1	0.5
1,2,4-Trichlorobenzene	26-JUL-06 16:25	0.85	ND	µg/m³		1	3.7
Hexachlorobutadiene	26-JUL-06 16:25	0.119	ND	ppb v/v		1	0.5
Hexachlorobutadiene	26-JUL-06 16:25	1.3	ND	µg/m³		1	5.3

Tentatively Identified Compound Results

Analyte(Retention Time)	Date Analyzed	Result	Units	Qual.	Dilution
Ethanol(5.41)	26-JUL-06 16:25	17.	ppb v/v	J	1
Isopropyl Alcohol(5.99)	26-JUL-06 16:25	42.	ppb v/v	J	1
Silanol, trimethyl-(7.48)	26-JUL-06 16:25	2.4	ppb v/v	J	1
Nonanal(18.47)	26-JUL-06 16:25	2.1	ppb v/v	J	1

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DATA CHEM LABORATORIES
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FORM J (TYPE I)
SINGLE METHOD ANALYSES

QUALITY CONTROL DATA SHEET
LABORATORY CONTROL SAMPLE (LCS)
LABORATORY CONTROL DUPL (LCD)

Client Name.....: Yellowstone National Park
Release Number.....: West Yellowstone Entr

Matrix.....: AIR
Reporting Units.....: ppb v/v

DCL Preparation Group: Not Applicable
Date Prepared.....: Not Applicable
Preparation Method...: Not Applicable

DCL Sample Name...: QC-248617-1
Date Printed.....: 28-JUL-06 13:13

DCL Analysis Group: G066W00K
Analysis Method...: TO15
Instrument Type...: GC/MS VO
Instrument ID.....: 5972-O
Column Type.....: DB-1
☒ Primary
☐ Confirmation

QC Limit Type.....: Method

Analytical Results

Analyte	Date Analyzed	Target	Result	Percent Recovery	QC Limits	QC Flag
Propene	26-JUL-06 12:58	10.0	8.80	88.0	70.0/130.	
Dichlorodifluoromethane	26-JUL-06 12:58	10.0	10.2	102.	70.0/130.	
Chloromethane	26-JUL-06 12:58	10.0	9.73	97.3	70.0/130.	
Freon 114	26-JUL-06 12:58	10.0	9.59	95.9	70.0/130.	
Vinyl Chloride	26-JUL-06 12:58	10.0	9.55	95.5	70.0/130.	
1,3-Butadiene	26-JUL-06 12:58	10.0	10.3	103.	70.0/130.	
Bromomethane	26-JUL-06 12:58	10.0	9.56	95.6	70.0/130.	
Chloroethane	26-JUL-06 12:58	10.0	9.43	94.3	70.0/130.	
Freon 11	26-JUL-06 12:58	10.0	10.1	101.	70.0/130.	
cis-1,2-Dichloroethene	26-JUL-06 12:58	10.0	9.44	94.4	70.0/130.	
Carbon Disulfide	26-JUL-06 12:58	10.0	9.71	97.1	70.0/130.	
Freon 113	26-JUL-06 12:58	10.0	9.14	91.4	70.0/130.	
Acetone	26-JUL-06 12:58	10.0	9.49	94.9	70.0/130.	
Methylene Chloride	26-JUL-06 12:58	10.0	9.71	97.1	70.0/130.	
trans-1,2-Dichloroethene	26-JUL-06 12:58	10.0	9.54	95.4	70.0/130.	
1,1-Dichloroethane	26-JUL-06 12:58	10.0	9.51	95.1	70.0/130.	
Methyl t-Butyl Ether	26-JUL-06 12:58	10.0	9.99	99.9	70.0/130.	
Vinyl Acetate	26-JUL-06 12:58	10.0	10.3	103.	70.0/130.	
1,1-Dichloroethene	26-JUL-06 12:58	10.0	9.64	96.4	70.0/130.	
2-Butanone	26-JUL-06 12:58	10.0	10.9	109.	70.0/130.	
Ethyl Acetate	26-JUL-06 12:58	10.0	9.57	95.7	70.0/130.	
Hexane	26-JUL-06 12:58	10.0	10.3	103.	70.0/130.	
Chloroform	26-JUL-06 12:58	10.0	9.58	95.8	70.0/130.	
1,1,1-Trichloroethane	26-JUL-06 12:58	10.0	9.48	94.8	70.0/130.	
Carbon Tetrachloride	26-JUL-06 12:58	10.0	9.56	95.6	70.0/130.	
Benzene	26-JUL-06 12:58	10.0	9.23	92.3	70.0/130.	
Tetrahydrofuran	26-JUL-06 12:58	10.0	11.6	116.	70.0/130.	
1,2-Dichloroethane	26-JUL-06 12:58	10.0	10.2	102.	70.0/130.	
Cyclohexane	26-JUL-06 12:58	10.0	9.11	91.2	70.0/130.	
Trichloroethene	26-JUL-06 12:58	10.0	8.98	89.8	70.0/130.	
1,2-Dichloropropane	26-JUL-06 12:58	10.0	9.57	95.7	70.0/130.	
Bromodichloromethane	26-JUL-06 12:58	10.0	9.79	97.9	70.0/130.	
Heptane	26-JUL-06 12:58	10.0	9.83	98.3	70.0/130.	
cis-1,3-Dichloropropene	26-JUL-06 12:58	10.0	10.5	105.	70.0/130.	
4-Methyl-2-Pentanone	26-JUL-06 12:58	10.0	11.0	110.	70.0/130.	
Toluene	26-JUL-06 12:58	10.0	9.80	98.0	70.0/130.	
trans-1,3-Dichloropropene	26-JUL-06 12:58	10.0	10.6	106.	70.0/130.	
1,1,2-Trichloroethane	26-JUL-06 12:58	10.0	9.50	95.0	70.0/130.	
Tetrachloroethene	26-JUL-06 12:58	10.0	9.20	92.0	70.0/135.	
2-Hexanone	26-JUL-06 12:58	10.0	11.8	118.	70.0/130.	
1,2-Dibromoethane	26-JUL-06 12:58	10.0	9.61	96.1	70.0/130.	
Chlorobenzene	26-JUL-06 12:58	10.0	9.41	94.1	70.0/130.	
Ethylbenzene	26-JUL-06 12:58	10.0	9.82	98.2	70.0/130.	
m,p-Xylene	26-JUL-06 12:58	20.0	18.9	94.5	70.0/130.	
o-Xylene	26-JUL-06 12:58	10.0	9.15	91.5	70.0/130.	
Styrene	26-JUL-06 12:58	10.0	9.85	98.5	70.0/130.	
Bromoform	26-JUL-06 12:58	10.0	9.81	98.1	70.0/130.	


S066V050

Client Name.....: Yellowstone National Park

DCL Sample Name...: QC-248617-1
Date Printed.....: 28-JUL-06 13:13

Analytical Results

Analyte	Date Analyzed	Target	Result	Percent Recovery	QC Limits	QC Flag
1,1,2,2-Tetrachloroethane	26-JUL-06 12:58	10.0	9.30	93.0	70.0/130.	
Benzyl Chloride	26-JUL-06 12:58	10.0	10.7	107.	70.0/130.	
4-Ethyl toluene	26-JUL-06 12:58	10.0	9.60	96.0	70.0/130.	
1,3,5-Trimethylbenzene	26-JUL-06 12:58	10.0	9.28	92.8	70.0/130.	
1,2,4-Trimethylbenzene	26-JUL-06 12:58	10.0	9.69	96.9	70.0/130.	
1,3-Dichlorobenzene	26-JUL-06 12:58	10.0	9.45	94.5	70.0/130.	
1,4-Dichlorobenzene	26-JUL-06 12:58	10.0	9.70	97.0	70.0/130.	
1,2-Dichlorobenzene	26-JUL-06 12:58	10.0	9.59	95.9	70.0/130.	
1,2,4-Trichlorobenzene	26-JUL-06 12:58	10.0	11.3	113.	70.0/130.	
Hexachlorobutadiene	26-JUL-06 12:58	10.0	9.77	97.7	70.0/130.	
Ethanol	26-JUL-06 12:58	10.0	11.5	115.	70.0/130.	
Isopropyl Alcohol	26-JUL-06 12:58	10.0	11.1	111.	70.0/130.	


S066V051

DCL Sample Name...: QD-248617-1

Analytical Results

Analyte	Date Analyzed	Duplicate Result	Percent Recovery	Mean	Range	RPD	QC Limits	QC Flag
Propene	26-JUL-06 13:42	8.28	82.8	8.54	0.520	6.1	0.00/25.0	
Dichlorodifluoromethane	26-JUL-06 13:42	9.95	99.5	10.1	0.209	2.1	0.00/25.0	
Chloromethane	26-JUL-06 13:42	9.41	94.1	9.57	0.320	3.3	0.00/25.0	
Freon 114	26-JUL-06 13:42	9.23	92.3	9.41	0.356	3.8	0.00/25.0	
Vinyl Chloride	26-JUL-06 13:42	9.41	94.1	9.48	0.143	1.5	0.00/25.0	
1,3-Butadiene	26-JUL-06 13:42	9.81	98.1	10.0	0.455	4.5	0.00/25.0	
Bromomethane	26-JUL-06 13:42	9.22	92.2	9.39	0.343	3.7	0.00/25.0	
Chloroethane	26-JUL-06 13:42	9.26	92.6	9.34	0.166	1.8	0.00/25.0	
Freon 11	26-JUL-06 13:42	9.93	99.3	10.0	0.203	2.0	0.00/25.0	
cis-1,2-Dichloroethene	26-JUL-06 13:42	8.77	87.7	9.10	0.676	7.4	0.00/25.0	
Carbon Disulfide	26-JUL-06 13:42	9.37	93.7	9.54	0.344	3.6	0.00/25.0	
Freon 113	26-JUL-06 13:42	9.35	93.5	9.24	0.210	2.3	0.00/25.0	
Acetone	26-JUL-06 13:42	9.02	90.2	9.26	0.470	5.1	0.00/25.0	
Methylene Chloride	26-JUL-06 13:42	9.85	98.5	9.78	0.141	1.4	0.00/25.0	
trans-1,2-Dichloroethene	26-JUL-06 13:42	9.35	93.5	9.44	0.191	2.0	0.00/25.0	
1,1-Dichloroethane	26-JUL-06 13:42	8.94	89.4	9.23	0.568	6.2	0.00/25.0	
Methyl t-Butyl Ether	26-JUL-06 13:42	9.49	94.9	9.74	0.497	5.1	0.00/25.0	
Vinyl Acetate	26-JUL-06 13:42	9.32	93.2	9.81	0.971	9.9	0.00/25.0	
1,1-Dichloroethene	26-JUL-06 13:42	9.34	93.4	9.49	0.304	3.2	0.00/25.0	
2-Butanone	26-JUL-06 13:42	10.1	101.	10.5	0.806	7.7	0.00/25.0	
Ethyl Acetate	26-JUL-06 13:42	9.52	95.2	9.55	0.0540	0.57	0.00/25.0	
Hexane	26-JUL-06 13:42	9.46	94.6	9.87	0.809	8.2	0.00/25.0	
Chloroform	26-JUL-06 13:42	8.92	89.2	9.25	0.658	7.1	0.00/25.0	
1,1,1-Trichloroethane	26-JUL-06 13:42	8.94	89.4	9.21	0.547	5.9	0.00/25.0	
Carbon Tetrachloride	26-JUL-06 13:42	9.14	91.4	9.35	0.413	4.4	0.00/25.0	
Benzene	26-JUL-06 13:42	8.48	84.8	8.86	0.751	8.5	0.00/25.0	
Tetrahydrofuran	26-JUL-06 13:42	10.5	105.	11.1	1.08	9.7	0.00/25.0	
1,2-Dichloroethane	26-JUL-06 13:42	9.46	94.6	9.82	0.718	7.3	0.00/25.0	
Cyclohexane	26-JUL-06 13:42	8.86	88.6	8.99	0.257	2.9	0.00/25.0	
Trichloroethene	26-JUL-06 13:42	8.52	85.2	8.75	0.468	5.3	0.00/25.0	
1,2-Dichloropropane	26-JUL-06 13:42	8.42	84.2	9.00	1.14	13.	0.00/25.0	
Bromodichloromethane	26-JUL-06 13:42	9.03	90.3	9.41	0.761	8.1	0.00/25.0	
Heptane	26-JUL-06 13:42	8.76	87.6	9.29	1.07	12.	0.00/25.0	
cis-1,3-Dichloropropene	26-JUL-06 13:42	9.48	94.8	9.98	0.998	10.	0.00/25.0	

Client Name.....: Yellowstone National Park

DCL Sample Name...: QD-248617-1
Date Printed.....: 28-JUL-06 13:13

Analytical Results

Analyte	Date Analyzed	Duplicate Result	Percent Recovery	Mean	Range	RPD	QC Limits	QC Flag
4-Methyl-2-Pentanone	26-JUL-06 13:42	10.5	105.	10.7	0.446	4.2	0.00/25.0	
Toluene	26-JUL-06 13:42	8.51	85.1	9.15	1.29	14.	0.00/25.0	
trans-1,3-Dichloropropene	26-JUL-06 13:42	9.62	96.2	10.1	1.01	10.	0.00/25.0	
1,1,2-Trichloroethane	26-JUL-06 13:42	8.52	85.2	9.01	0.982	11.	0.00/25.0	
Tetrachloroethene	26-JUL-06 13:42	8.51	85.1	8.86	0.696	7.9	0.00/25.0	
2-Hexanone	26-JUL-06 13:42	11.1	111.	11.5	0.740	6.5	0.00/25.0	
1,2-Dibromoethane	26-JUL-06 13:42	8.59	85.9	9.10	1.01	11.	0.00/25.0	
Chlorobenzene	26-JUL-06 13:42	8.40	84.0	8.90	1.00	11.	0.00/25.0	
Ethylbenzene	26-JUL-06 13:42	8.32	83.2	9.07	1.51	17.	0.00/25.0	
m,p-Xylene	26-JUL-06 13:42	16.2	81.2	17.6	2.66	15.	0.00/25.0	
o-Xylene	26-JUL-06 13:42	8.34	83.4	8.75	0.805	9.2	0.00/25.0	
Styrene	26-JUL-06 13:42	8.76	87.6	9.31	1.09	12.	0.00/25.0	
Bromoform	26-JUL-06 13:42	8.97	89.7	9.39	0.841	9.0	0.00/25.0	
1,1,2,2-Tetrachloroethane	26-JUL-06 13:42	8.45	84.5	8.88	0.848	9.6	0.00/25.0	
Benzyl Chloride	26-JUL-06 13:42	10.3	103.	10.5	0.458	4.4	0.00/25.0	
4-Ethyl toluene	26-JUL-06 13:42	8.83	88.3	9.22	0.770	8.4	0.00/25.0	
1,3,5-Trimethylbenzene	26-JUL-06 13:42	8.76	87.6	9.02	0.518	5.7	0.00/25.0	
1,2,4-Trimethylbenzene	26-JUL-06 13:42	9.00	90.0	9.35	0.686	7.3	0.00/25.0	
1,3-Dichlorobenzene	26-JUL-06 13:42	8.44	84.4	8.95	1.01	11.	0.00/25.0	
1,4-Dichlorobenzene	26-JUL-06 13:42	8.72	87.2	9.21	0.986	11.	0.00/25.0	
1,2-Dichlorobenzene	26-JUL-06 13:42	8.58	85.8	9.09	1.01	11.	0.00/25.0	
1,2,4-Trichlorobenzene	26-JUL-06 13:42	10.7	107.	11.0	0.663	6.0	0.00/25.0	
Hexachlorobutadiene	26-JUL-06 13:42	9.05	90.5	9.41	0.726	7.7	0.00/25.0	
Ethanol	26-JUL-06 13:42	11.2	112.	11.4	0.328	2.9	0.00/25.0	
Isopropyl Alcohol	26-JUL-06 13:42	10.9	109.	11.0	0.140	1.3	0.00/25.0	

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FORM C (TYPE I)
SINGLE METHOD ANALYSES

QUALITY CONTROL DATA SHEET
BLANK SAMPLE

S066V04Z

Client Name.....: Yellowstone National Park
Release Number.....: West Yellowstone Entr

Matrix.....: MINI
Reporting Units.....: ppb v/v

DCL Preparation Group: Not Applicable
Date Prepared.....: Not Applicable
Preparation Method...: Not Applicable

DCL Sample Name...: BL-248617-1
Date Printed.....: 28-JUL-06 13:13

DCL Analysis Group: G066W00K
Analysis Method...: TO-15
Instrument Type...: GC/MS VO
Instrument ID.....: 5972-O
Column Type.....: DB-1
☒ Primary
☐ Confirmation

QC Limit Type.....: Method

Analytical Results

Analyte	Date Analyzed	Result	MDL	CRDL
Propene	26-JUL-06 14:24	ND	0.180	0.5
Dichlorodifluoromethane	26-JUL-06 14:24	ND	0.0669	0.5
Chloromethane	26-JUL-06 14:24	ND	0.249	0.5
Freon 114	26-JUL-06 14:24	ND	0.156	0.5
Vinyl Chloride	26-JUL-06 14:24	ND	0.301	0.5
1,3-Butadiene	26-JUL-06 14:24	ND	0.346	0.5
Bromomethane	26-JUL-06 14:24	ND	0.215	0.5
Chloroethane	26-JUL-06 14:24	ND	0.388	0.5
Freon 11	26-JUL-06 14:24	ND	0.0921	0.5
cis-1,2-Dichloroethene	26-JUL-06 14:24	ND	0.102	0.5
Carbon Disulfide	26-JUL-06 14:24	ND	0.111	0.5
Freon 113	26-JUL-06 14:24	ND	0.0950	0.5
Acetone	26-JUL-06 14:24	ND	0.113	0.5
Methylene Chloride	26-JUL-06 14:24	ND	0.168	0.5
trans-1,2-Dichloroethene	26-JUL-06 14:24	ND	0.118	0.5
1,1-Dichloroethane	26-JUL-06 14:24	ND	0.116	0.5
Methyl t-Butyl Ether	26-JUL-06 14:24	ND	0.147	0.5
Vinyl Acetate	26-JUL-06 14:24	ND	0.133	0.5
1,1-Dichloroethene	26-JUL-06 14:24	ND	0.109	0.5
2-Butanone	26-JUL-06 14:24	ND	0.182	0.5
Ethyl Acetate	26-JUL-06 14:24	ND	0.273	0.5
Hexane	26-JUL-06 14:24	ND	0.121	0.5
Chloroform	26-JUL-06 14:24	ND	0.115	0.5
1,1,1-Trichloroethane	26-JUL-06 14:24	ND	0.0725	0.5
Carbon Tetrachloride	26-JUL-06 14:24	ND	0.0657	0.5
Benzene	26-JUL-06 14:24	ND	0.102	0.5
Tetrahydrofuran	26-JUL-06 14:24	ND	0.227	0.5
1,2-Dichloroethane	26-JUL-06 14:24	ND	0.153	0.5
Cyclohexane	26-JUL-06 14:24	ND	0.120	0.5
Trichloroethene	26-JUL-06 14:24	ND	0.120	0.5
1,2-Dichloropropane	26-JUL-06 14:24	ND	0.123	0.5
Bromodichloromethane	26-JUL-06 14:24	ND	0.0779	0.5
Heptane	26-JUL-06 14:24	ND	0.101	0.5
cis-1,3-Dichloropropene	26-JUL-06 14:24	ND	0.106	0.5
4-Methyl-2-Pentanone	26-JUL-06 14:24	ND	0.116	0.5
Toluene	26-JUL-06 14:24	ND	0.115	0.5
trans-1,3-Dichloropropene	26-JUL-06 14:24	ND	0.130	0.5
1,1,2-Trichloroethane	26-JUL-06 14:24	ND	0.0972	0.5
Tetrachloroethene	26-JUL-06 14:24	ND	0.0847	0.5
2-Hexanone	26-JUL-06 14:24	ND	0.136	0.5
Dibromochloromethane	26-JUL-06 14:24	ND	0.0792	0.5
1,2-Dibromoethane	26-JUL-06 14:24	ND	0.119	0.5
Chlorobenzene	26-JUL-06 14:24	ND	0.0882	0.5
Ethylbenzene	26-JUL-06 14:24	ND	0.150	0.5
m,p-Xylene	26-JUL-06 14:24	ND	0.213	1.0
o-Xylene	26-JUL-06 14:24	ND	0.113	0.5
Styrene	26-JUL-06 14:24	ND	0.0748	0.5

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DATA CHEM LABORATORIES
A Sorenson Company

FORM C (TYPE I)
SINGLE METHOD ANALYSES

QUALITY CONTROL DATA SHEET
BLANK SAMPLE

S066V04Z

Client Name.....: Yellowstone National Park

DCL Sample Name...: BL-248617-1
Date Printed.....: 28-JUL-06 13:13

Analytical Results

Analyte	Date Analyzed	Result	MDL	CRDL
Bromoform	26-JUL-06 14:24	ND	0.0884	0.5
1,1,2,2-Tetrachloroethane	26-JUL-06 14:24	ND	0.108	0.5
Benzyl Chloride	26-JUL-06 14:24	ND	0.136	0.5
4-Ethyl toluene	26-JUL-06 14:24	ND	0.0983	0.5
1,3,5-Trimethylbenzene	26-JUL-06 14:24	ND	0.112	0.5
1,2,4-Trimethylbenzene	26-JUL-06 14:24	ND	0.117	0.5
1,3-Dichlorobenzene	26-JUL-06 14:24	ND	0.120	0.5
1,4-Dichlorobenzene	26-JUL-06 14:24	ND	0.0987	0.5
1,2-Dichlorobenzene	26-JUL-06 14:24	ND	0.0851	0.5
1,2,4-Trichlorobenzene	26-JUL-06 14:24	ND	0.115	0.5
Hexachlorobutadiene	26-JUL-06 14:24	ND	0.119	0.5

960 West LeVoy Drive / Salt Lake City, Utah 84123-2547
Phone (801) 266-7700 Web Page: www.datachem.com
FAX (801) 268-9992 E-mail: lab@datachem.com

Client Name.....: Yellowstone National Park
Release Number.....: West Yellowstone Entr

Matrix.....: AIR
Reporting Units.....: ppb v/v

Date Printed.....: 28-JUL-06 13:13

DCL Analysis Group: G066W00K
Analysis Method...: TO15

DCL Prep Group....: Not Applicable
Preparation Method: Not Applicable

QC Limit Type.....: Method

Surrogate Recoveries

Surr. ID	4-Bromofluorobenzene											
QC Limits	65.0/135.											
DCL Sample Number	Analyte Result	Spiked Amount	% Rec.	Q	Analyte Result	Spiked Amount	% Rec.	Q	Analyte Result	Spiked Amount	% Rec.	Q
06I28749	21.0	20.0	105.									
06I28750	20.0	20.0	100.									
06I28751	21.0	20.0	105.									
BL-248617-1	20.1	20.0	100.									
QC-248617-1	20.5	20.0	102.									
QD-248617-1	21.0	20.0	105.									

DATA CHEM LABORATORIES, INC.

ANALYTICAL REQUEST FORM

1. ☐ REGULAR Status 06I-3769-01

☐ RUSH Status Requested - ADDITIONAL CHARGE
RESULTS REQUIRED BY ______________ DATE
CONTACT DATACHEM LABS PRIOR TO SENDING SAMPLES

2. Date 7/13/06 Purchase Order No. ______________

3. Company Name Yellowstone National Park
Address c/o Mammoth Supply Center
YELLOWSTONE NAT'L PARK, WY 82190
Person to Contact Brandon Gauthier
Telephone (307) 344-2030
Fax Telephone (307) 344-2027
E-mail Address Brandon_Gauthier@nps.gov
Billing Address (if different from above)

4. Quote No. ______________
DCL Project Manager ______________

5. Sample Collection
Sampling Site West Yellowstone Entrance
Industrial Process Visitor Entry
Date of Collection 7/10/06 - 7/12/06
Time Collected 8:30 - 2:30
Date of Shipment 7/13/06
Chain of Custody No. ______________

6. REQUEST FOR ANALYSES

Laboratory Use Only	Client Sample Number	Matrix*	Sample Volume	ANALYSES REQUESTED - Use method number if known	Units**
06I28749	KA71006V	mini-		EPA TO-15 for VOC's 108965	
↓ 50	KB71106V	cans		↓ 107039	
06I28751	KB71206V	↓		↓ 108963	

* Specify: Solid sorbent tube, e.g. Charcoal; Filter type; Impinger solution; Bulk sample; Blood; Urine; Tissue; Soil; Water; Other

** 1. ug/sample 2. mg/m^3 3. ppm 4. % 5. _____ (other) Please indicate one or more units in the column entitled Units**

Comments ______________

Possible Contamination and/or Chemical Hazards ______________

7. Chain of Custody (Optional)

Relinquished by		Date/Time	
Received by	[signature]	Date/Time	7/14/06 1100
Relinquished by	DRG 2 RA7	Date/Time	25-Jul-2006
Received by		Date/Time	
Relinquished by		Date/Time	
Received by		Date/Time	

960 West LeVoy Drive / Salt Lake City, UT 84123 800-356-9135 or 801-266-7700 / FAX: 801-268-9992

DataChem Laboratories, Inc.

CANISTER CHAIN-OF-CUSTODY AND FIELD DATA RECORD

Client: YELLOWSTONE NAT'L PARK

Account No: 7003

Project/Job/Task: West Entrance/Visitor Entry

Please do not apply adhesive labels directly on Canisters

Manilla tags are provided, attached to Canisters for your convenience, to apply adhesive labels

Canister Serial No.:	Date Cleaned	Initial Vacuum (inches of Hg vacuum)	VFR flow rate (ml/min)	Initials:	Field Vacuum before sampling (inches of Hg vacuum)	Final Vacuum after sampling (Inches of Hg vacuum)	Client Sample Identification	Other Client Information	DataChem Labs use only
108965	7/3/06	>25		TG	24"	0"	KA71006V		
107039	"	"		"	23"	22"	KB71106V		
108963	"	"		"	23"	1"	KB71206V		

VFR Serial No.:									
108841	7/3/06		~0.75	TG					
107017	"		"	"					
108955	"		"	"					

Original Field Sample Chain-of-Custody

Relinquished By: (Signature)	Date/Time	Received By: (Signature)	Reason for Transfer/Storage Location
Thomas J. Mason	7/3/06 1630		

Return to:
DataChem Laboratories, Inc.
960 W. LeVoy Drive
Salt Lake City, UT 84123
800-356-9135

If canisters are kept for longer than the original project scheduled sampling, a $40 per can - per week rental fee will be assessed. If a project is cancelled after DCL has shipped cans, in addition to the cost of the initial shipping, a $40 weekly rental fee will be charged for each unused can until they are returned to DCL.