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REPORTS

DATE:

1998

5309 Wurzbach, Suite 100
San Antonio, Texas 78238
(210) 680-3767
(210) 680-3763 FAX

September 2, 1998

Mr. Tony Savoie
TEXAS - NEW MEXICO PIPE LINE COMPANY
P.O. Box 1030
Jal, New Mexico 88252

Re: Closure Report
TNM-97-13
Section 34, Township 19S, Range 36E
Lea County, New Mexico
Job No. 710033-1

Dear Mr. Savoie:

Transmitted with this letter is the final Closure Report for TNM-97-13 located in Lea County, New Mexico. One copy has been forwarded to OCD Sante Fe and one to OCD Hobbs. Disk copies of the programs used to perform the closure calculations have been included with the copies to OCD Sante Fe and OCD Hobbs.

Please contact me at (210) 680-3767 or Jim Mosley at (512) 272-5305 with any questions or comments regarding the report or the programs.

Respectfully,

Daryl Stacey
Project Manager

Enclosure

cc: Marc Oler; TTTI
Wayne Price, OCD Hobbs
William Olson, OCD Sante Fe

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SITE CLOSURE REPORT

TEXAS - NEW MEXICO PIPE LINE COMPANY
TNM-97-13
SECTION 34, TOWNSHIP 19S, RANGE 36E
LEA COUNTY, NEW MEXICO

5309 Wurzbach, Suite 100
San Antonio, Texas 78238
(210) 680-3767
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SITE CLOSURE REPORT

TEXAS - NEW MEXICO PIPE LINE COMPANY
TNM-97-13
SECTION 34, TOWNSHIP 19S, RANGE 36E
LEA COUNTY, NEW MEXICO

PREPARED FOR:

TEXAS - NEW MEXICO PIPE LINE COMPANY
P.O. Box 1030
Jal, New Mexico 88252

Mr. Tony Savoie

PREPARED BY:

KEI

Daryl Stacey
Project Manager

Pat Bullinger, P.E.

Job No. 710033-1

September 2, 1998

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INTRODUCTION

The Texas - New Mexico Pipe Line Company (TNMPL) release site TNM-97-13 is located approximately 3.5 miles southwest of Monument in Lea County, New Mexico. The site is specifically located in SE/4, SE/4, Section 34, Township 19 South, Range 36 East. A site location map is presented as FIG. 1. Details of the site are shown on FIG. 2.

A crude oil release from a 4 inch gathering line was discovered on June 20, 1997. The New Mexico Oil Conservation Division (OCD) was notified and emergency abatement activities began immediately. Approximately 395 barrels of crude oil were recovered. The contaminated soil was excavated and stockpiled on-site on plastic. Approximately 28,255 cubic yards of contaminated soil were landfarmed on site in an 11 acre landfarm.

This report presents the closure activities performed at the site and outlines the methodology and results of risk assessment calculations conducted for the landfarmed soils. The calculations are used to determine site-specific closure concentrations protective of human health and the environment.

CHRONOLOGY OF EVENTS

6/20/97	Release was discovered and reported to OCD. Approximately 395 gallons of crude oil were recovered.
6, 7, & 8/97	Approximately 28,255 cubic yards of contaminated soils were excavated and stockpiled on-site. The contaminated soils were later landfarmed on-site in an 11 acre landfill.
8/11, 13, 19, 20, 21/97	Soil samples from bottom and sidewalls of excavation were sampled and analyzed for BTEX and TPH concentrations.
9/16/97	Monitoring well was drilled at landfarm site and native soil samples were collected during drilling.
1/29/98:	Soil samples were obtained from 24 areas of the landfarm and analyzed for BTEX and TPH concentrations.
6/2/98:	Soil samples were obtained from 1 area of the landfarm and analyzed for TPH concentrations and fingerprint.

CLOSURE ACTIVITIES

EXCAVATION, BACKFILL, AND LANDFARM

Approximately 28,255 cubic yards of contaminated soil were excavated from the source area and placed on-site from August 11 through August 20, 1997. Excavation activities continued until OCD closure levels for TPH and BTEX were obtained (100 mg/kg and 50 mg/kg, respectively). Approximately 11 acres of clean soils were excavated to an approximate depth of 1 to 1.5 feet below ground surface. The clean excavated soils were used to backfill the existing excavation. The impacted soils removed from the existing excavation were then landfarmed in the area of the 11 acres. The release area was graded and reseeded following backfilling. The landfarm area was bermed to prevent run off.

CONFIRMATION SAMPLING

Following excavation of contaminated soil, 28 confirmation soil samples were obtained from the bottom hole and side walls of the excavation. Composite soil samples were analyzed for benzene, toluene, ethylbenzene, and xylene (BTEX) and total petroleum hydrocarbon (TPH) concentrations. Based on the laboratory results of the sidewall and excavation bottom soil samples in Section A, additional soils were excavated and the sidewall and excavation bottom resampled.

ANALYTICAL RESULTS - EXCAVATION BOTTOM AND SIDEWALL

CONSTITUENT	MINIMUM VALUE (mg/kg)	MAXIMUM VALUE (mg/kg)
BENZENE	ND	ND
TOLUENE	ND	0.144
ETHYLBENZENE	ND	0.110
XYLENES	ND	0.477
TPH	ND	65

Confirmation soil laboratory results are summarized on TABLE I and graphically presented on FIG. 2.

LANDFARM SAMPLING

Soil samples were obtained from 24 areas of the landfarm and analyzed for BTEX and TPH. The results of the landfarm sampling are tabulated on TABLE II and are graphically shown on FIG. 3.

ANALYTICAL RESULTS - LANDFARMED SOIL

CONSTITUENT	MINIMUM VALUE (mg/kg)	MAXIMUM VALUE (mg/kg)
BENZENE	ND	0.136
BTEX	ND	4.435
TPH	70	6003

Soil samples collected during the installation of monitoring well MW-1 at the landfarm site were submitted for determination of BTEX and TPH concentrations. All soil samples indicated BTEX and TPH concentrations below laboratory detection limits. The location of the monitoring well MW-1 is shown on FIG. 3. Soil laboratory reports and chain-of-custody documentation are presented in APPENDIX A. The QA/QC procedures utilized during sampling and analysis are presented in APPENDIX B.

RISK-BASED ASSESSMENT CALCULATIONS

Conservative assumptions were utilized in the calculations. The scenario chosen for a ground water pathway was residential ingestion of ground water from a domestic well. Three

scenarios were chosen for the soil pathways, including worker, resident, and construction worker. Inhalation of volatiles from soil, ingestion of soil, and dermal contact were considered for all 3 scenarios.

The constituents of concern were determined to be BTEX and TPH. The TPH was evaluated using the methodology developed by the national TPH Working Group. The mass fractions of the total TPH which fell into each of several standard categories of hydrocarbon were calculated from a "fingerprinting" analysis which was performed on a sample of the affected soil (sampled June 2, 1998). The mass fraction multiplied by the maximum TPH concentration detected in the landfarmed soils resulted in the relative concentration used in the risk calculations for each of the categories of hydrocarbon. The TPH mass fractions and relative concentrations are presented on WORKSHEET 1.

GROUND WATER PATHWAY

The site-specific input parameters and exposure parameters for the ground water pathway are presented on WORKSHEET 2. The following conservative assumptions were made for the ground water pathway:

- A new domestic drinking water well was assumed to be installed in the middle of the landfarm.
- It was assumed that the upper 2 feet of the entire landfarm had the same TPH concentration as the sample which was taken for fingerprint analysis purposes on June 2, 1998 (6003 ppm).
- It was assumed that the resident will ingest 2 liters of ground water per day, 350 days per year for 30 years. These exposure parameters represent the maximum potential (worst-case) exposure assumptions listed in EPA guidelines.

A dilution/attenuation factor (DAF) to predict the potential migration from soil into ground water for each constituent of concern was calculated from Jury and AT123D Models. A summary of the DAF calculations is provided in APPENDIX C. Ground water concentrations were then calculated based on the soil concentrations times the respective DAF.

The ground water concentrations for the BTEX constituents were compared to New Mexico Water Quality Control Commission Ground Water Standards. All calculated BTEX ground water concentrations were less than the standard values.

The ground water concentrations for each TPH mass fraction was divided by the reference dose for that category of hydrocarbon (as determined by the national TPH Working Group) to calculate a hazard quotient (HQ). All HQ values for the individual categories of hydrocarbon were less than the acceptable value of 1.0. Furthermore, the sum of the individual HQ values (the hazard index for total TPH) was less than 1.0.

The calculated BTEX ground water concentrations and the hazard index for TPH are presented on WORKSHEET 3.

SOIL PATHWAYS

The site-specific input parameters for soil are presented on WORKSHEET 4. The exposure input parameters for soil are presented on WORKSHEET 5. The following conservative assumptions were made for the soil pathways:

- A future residence was assumed to be constructed 100 feet from the source area.
- It was assumed that the upper 2 feet of the entire landfarm had the same TPH concentration as the sample which was taken for fingerprint analysis purposes on June 2, 1998 (6003 ppm).
- It was assumed that for non-carcinogens a child resident ingested 200 mg of soil per day, 350 days per year for 6 years, for carcinogens an adult resident ingested 124 mg of soil per day, 350 days per year for 30 years, and for both carcinogens and non-carcinogens that an adult resident inhaled 15 m^3 of air per day and had 5800 cm^2 of skin surface area in contact with the soil, 350 days per year for 30 years. These exposure parameters represent the maximum potential (worst-case) exposure assumptions listed in EPA guidelines.
- It was assumed that a worker inhaled 20 m^3/day, ingested 50 mg/day, and had 5800 cm^2 of skin surface area in contact with the soil, 250 days per year for 25 years. These exposure parameters represent the maximum potential (worst-case) exposure assumptions listed in EPA guidelines.
- It was assumed that a construction worker inhaled 20 m^3/day, ingested 480 mg/day, and had 3300 cm^2 of skin surface area in contact with the soil 5 days/week for 12 weeks.

Exposure factor assumptions are chosen to reflect EPA guidance and site-specific conditions, and represent conservative estimates of potential exposure.

The overall impact to human health from exposure to chemicals due to soil pathways is estimated by combining the estimated dose and the critical toxicity values (slope factor for carcinogens, reference dose for non-carcinogens). A carcinogenic risk value was calculated for benzene and a hazard quotient value was calculated for each non-carcinogen considered a constituent of concern. The hazard quotients were then summed to calculate the total hazard index for each soil pathway. The calculated carcinogenic risk and the hazard index values for each soil pathway are summarized in WORKSHEET 6. All carcinogenic risk values were less than the acceptable value of 1.0×10^{-6} and hazard index values were less than the acceptable value of 1.0. The risk-based assessment calculations, exposure factors, and chemical-specific inputs such as toxicity values are presented in APPENDIX D.

WATER WELL SURVEY

A water well survey was conducted for the area within 0.5 mile of the site. Two water wells were located within 0.5 mile of the site. According to the well records, one is a domestic water well and one is a stock water well. The well records are presented in APPENDIX E.

SUMMARY

The following can be summarized from field/laboratory data and calculations:

- Approximately 28,255 cubic yards of contaminated soil were removed from the spill area and landfarmed on-site.
- Confirmation samples in the excavated areas indicate BTEX and TPH values below OCD closure levels.

- According to calculations presented herein, the landfarmed soils will not impact ground water with unacceptable levels of hydrocarbons.
- According to calculations presented herein, hydrocarbon impact from the landfarmed soils will not exceed acceptable levels through ingestion, inhalation, or dermal contact with an on-site worker, off-site resident, or a construction worker.

Therefore, we request the site be closed.

Texas New Mexico Pipe Line Co.
Land Farm
Foster, New Mexico

WORKSHEET 1
TPH MASS FRACTIONS
AND RELATIVE CONCENTRATIONS

TPH Mass Fractions and Relative Concentrations

Constituent of Concern	fingerprint (mg/kg)	Mass Fraction (%)	Maximum Concentration (mg/kg)
TPH - Total	6,003	100%	6,003
TPH-Arom-EC>8-10	0	0.00%	0
TPH-Arom-EC>10-12	70	1.17%	70
TPH-Arom-EC>12-16	688	11.46%	688
TPH-Arom-EC>16-21	526	8.77%	526
TPH-Arom-EC>21-35	752	12.53%	752
TPH-Aliph-EC 5-6	0	0.00%	0
TPH-Aliph-EC>6-8	0	0.00%	0
TPH-Aliph-EC>8-10	0	0.00%	0
TPH-Aliph-EC>10-12	29	0.48%	29
TPH-Aliph-EC>12-16	1,328	22.12%	1,328
TPH-Aliph-EC>16-35	2,610	43.47%	2,610

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Land Farm
Foster, New Mexico

WORKSHEET 2
SITE-SPECIFIC INPUT AND EXPOSURE PARAMETERS
GROUND WATER PATHWAY

Ground Water Parameters			
Parameter	**Value**	**Units**	**Comments**
Depth to Ground Water:	48	feet	Average value.
Fraction of Organic Carbon in Saturated Zone:	0.020	---	Default Value.
Distance to Residential Receptor	0	ft	See FIGURE 2.
Distance to Commercial Receptor	0	ft	See FIGURE 2.

Soil Parameters			
Parameter	**Value**	**Units**	**Comments**
Soil Bulk Density:	1.8	g/cc	Default Value.
Total Porosity in the Vadose Zone:	0.25	---	Default Value.
Moisture Content in the Vadose Zone:	0.1	---	Default Value.
Fraction of Organic Carbon in Vadose Zone:	0.020	---	Default Value.
Width of Source Area	1200.0	ft	
Total Soil Source Area	456,000	ft^2	See FIGURE 2.

Exposure Parameters			
Parameter	**Units**	**Resident**	**Worker**
Body weight	kg	70	70
Averaging Time (carcinogens)	years	70	70
Averaging Time (non-carcinogens)	years	30	25
Exposure Frequency	days/yr	350	250
Exposure Duration,	years	30	25
Water Ingestion Rate	liters/day	2	1

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Land Farm
Foster, New Mexico

WORKSHEET 3
CALCULATION OF RISK
RESIDENTIAL INGESTION OF GROUND WATER

	BW (kg)	IRgw (L/day)	EF (days/yr)	ED (years)	foc ---	Dist (m)
	70	2.0	350	30	0.020	0
For BTEX:	$Conc_{gw} = Conc_{soil} * DAF$					
For TPH:	$HQ = Conc_{soil} * DAF * IR_{gw} * EF / (BW * 365 * RfD)$					
	DAF = Dilution/Attenuation Factor from Jury and AT123D Models					

Constituent of Concern	$Conc_{soil}$ (mg/kg)	DAF ---	$Conc_{gw}$ (mg/L)	Standard (mg/L)
Benzene	1.31e-1	2.56e-9	3.35e-10	1.00e-2
Ethylbenzene	3.65e-1	0.00e+0	0.00e+0	7.50e-1
Naphthalene	N/A	0.00e+0	0.00e+0	3.00e-2
Toluene	4.19e-1	0.00e+0	0.00e+0	7.50e-1
Xylene (mixed isomers)	3.95e+0	0.00e+0	0.00e+0	6.20e-1

TPH Fractions	$Conc_{soil}$ (mg/kg)	DAF ---	$Conc_{gw}$ (mg/L)	RfD (mg/kg-d)	HQ
TPH - Total	6.00e+3		9.75e-3		5.35e-3
TPH-Arom-EC>8-10	0.00e+0	2.04e-4	0.00e+0	4.00e-2	0.00e+0
TPH-Arom-EC>10-12	7.02e+1	8.24e-5	5.79e-3	4.00e-2	3.96e-3
TPH-Arom-EC>12-16	6.88e+2	1.05e-6	7.22e-4	4.00e-2	4.95e-4
TPH-Arom-EC>16-21	5.26e+2	0.00e+0	0.00e+0	3.00e-2	0.00e+0
TPH-Arom-EC>21-35	7.52e+2	0.00e+0	0.00e+0	3.00e-2	0.00e+0
TPH-Aliph-EC 5-6	0.00e+0	6.09e-5	0.00e+0	5.00e+0	0.00e+0
TPH-Aliph-EC>6-8	0.00e+0	5.57e-5	0.00e+0	5.00e+0	0.00e+0
TPH-Aliph-EC>8-10	0.00e+0	6.05e-5	0.00e+0	1.00e-1	0.00e+0
TPH-Aliph-EC>10-12	2.88e+1	1.90e-5	5.47e-4	1.00e-1	1.50e-4
TPH-Aliph-EC>12-16	1.33e+3	2.03e-6	2.70e-3	1.00e-1	7.39e-4
TPH-Aliph-EC>16-35	2.61e+3	0.00e+0	0.00e+0	2.00e+0	0.00e+0

RISK ASSESSMENT

Texas New Mexico Pipe Line Co.
Land Farm
Foster, New Mexico

WORKSHEET 4
SITE-SPECIFIC INPUT PARAMETERS - SOIL

Soil Parameters			
Parameter	**Value**	**Units**	**Comments**
Soil Bulk Density:	1.8	g/cc	Default Value.
Total Porosity in the Vadose Zone:	0.32	—	Default Value.
Moisture Content in the Vadose Zone:	0.1	—	Default Value.
Fraction of Organic Carbon in Vadose Zone:	0.020	—	Default Value.
Width of Source Area	1200.0	ft	
Total Soil Source Area	456,000	ft^2	See FIGURE 3.
Width of Source Area, Costruction Worker	15.5	ft	Default Value.
Total Soil Source Area, Construction Worker	1,170	ft^2	Default Value.

Air Parameters			
Parameter	**Value**	**Units**	**Comments**
Average Wind Speed	4.92	m/sec	
Average Wind Speed, Construction Worker	0.492	m/sec	Assumed to be 10% of average wind speed.
Diffusion Height	6.5	ft	Based on height of person
Distance to Residential Receptor	100	ft	Assumed future residence constructed 100 feet from source area.
Distance to Commercial Receptor	0	ft	

RISK ASSESSMENT

Texas New Mexico Pipe Line Co.
Land Farm
Foster, New Mexico

WORKSHEET 5
EXPOSURE INPUT PARAMETERS - SOIL

Input Parameters	Units	Resident		Worker	Construction Worker	Con. Wkr. Units
		Adult	Child			
Body weight	kg	70	15	70	70	kg
Averaging Time (carcinogens)	years	70		70	70	years
Averaging Time (non-carcinogens) - soil	years	30	6	25	0.24	years
Averaging Time (non-carcinogens) - ground water	years	30		25	0.06	years
Exposure Frequency	days/yr	350	350	250	5	days/wk
Exposure Frequency, dermal contact w/ soil	days/yr	350		250	5	days/wk
Exposure Duration, soil	years	30	6	25	12	weeks
Exposure Duration, ground water	years	30		25	3	weeks
Inhalation Rate	m^3/day	15		20	20	m^3/day
Soil Ingestion Rate	mg/day		200	50	480	mg/day
Age-adjusted Soil Ingestion Rate	mg-yr/kg-day	124				
Water Ingestion Rate	liters/day	2		1		
Skin Surface Area in contact w/ soil	cm^2	5800		5800	3300	cm^2
Soil to Skin Adherence Factor	mg/cm^2	1		1	0.12	mg/cm^2
Skin Surface Area in contact w/ ground water					6170	cm^2
Dermal Contact Event Frequency					2	events/day
Duration of Dermal Contact Event					2	hr

RISK ASSESSMENT

Texas New Mexico Pipe Line Co.
Land Farm
Foster, New Mexico

WORKSHEET 6
RISK and HAZARD INDEX CALCULATED
FOR EXPOSURE TO SOIL

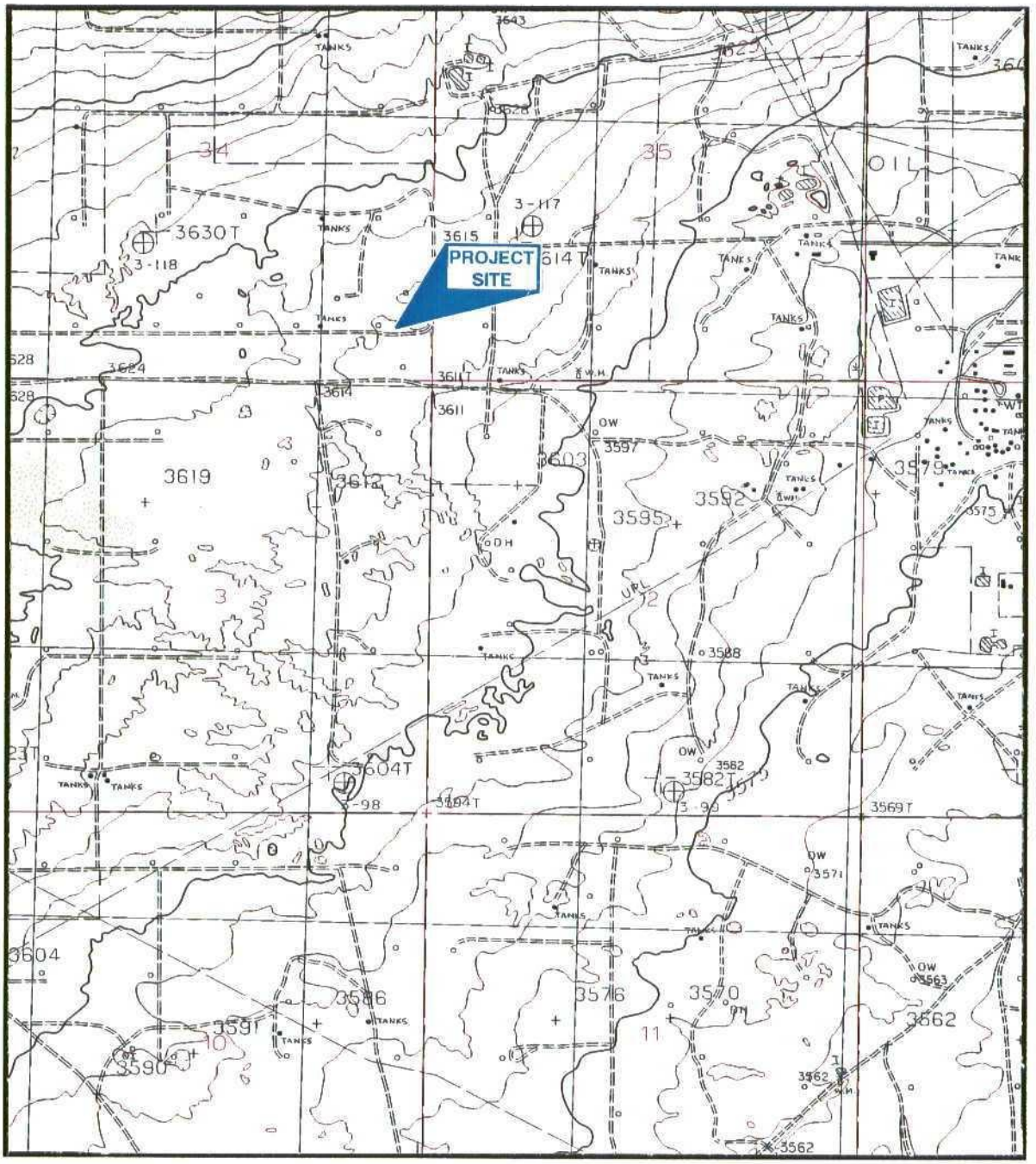
Risk and Hazard Index for SOILS -- 0 to 2 feet

'X' indicates pathway is complete:		X	X	X
Constituent of Concern	Soil Concentrations Maximum (mg/kg)	On-Site Worker Inhalation + Ingestion+Dermal	Off-Site Resident Inhalation + Ingestion+Dermal	Construction Worker Inhalation + Ingestion+Dermal
Carcinogens				
Benzene	0.136	5.50e-8	6.25e-8	1.56e-9
	Total Risk:	5.50e-8	6.25e-8	1.56e-9
Non-Carcinogens				
Ethylbenzene	0.365	1.46e-5	1.23e-5	5.39e-5
Toluene	0.419	7.54e-5	7.13e-5	2.23e-4
Xylene (mixed isomers)	3.95	4.44e-4	4.25e-4	1.28e-3
TPH - New Method	6,003	5.91e-1	1.15e-1	7.33e-1
	Hazard Index:	5.92e-1	1.16e-1	7.35e-1

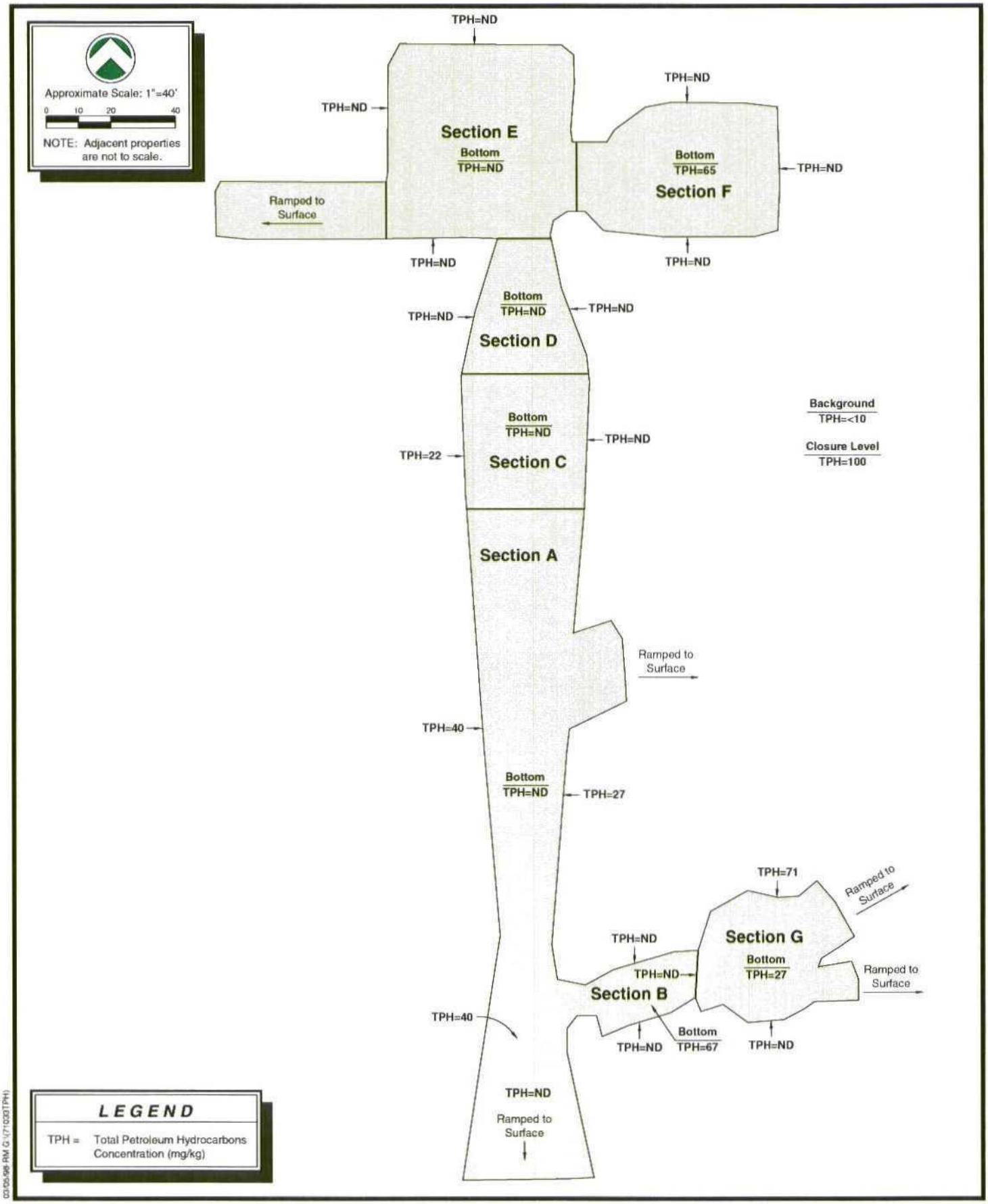
MONUMENT SOUTH QUADRANGLE

NEW MEXICO - LEA CO.

PRINTED 1985



k·e·i	*SITE LOCATION MAP*	710033
	TNMPL TNM-97-13 LEA COUNTY, NEW MEXICO	FIG 1



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k·e·i	SAMPLING POINT LOCATIONS AND CONCENTRATIONS - EXCAVATION	710033
	TNMPL TNM-97-13 LEA COUNTY, NEW MEXICO	FIG 2

Approximate Scale: 1"=100'

0 50 100

NOTE: Adjacent properties are not to scale.

X	B	D	F	H	J	L	N	P	R	T	V
B=ND BTEX=ND TPH=70	B=ND BTEX=2.099 TPH=1408	B=0.125 BTEX=1.959 TPH=1325	B=ND BTEX=2.693 TPH=2850	B=ND BTEX=2.171 TPH=2170	B=ND BTEX=0.710 TPH=1657	B=ND BTEX=2.906 TPH=1902	B=ND BTEX=1.449 TPH=1270	B=0.136 BTEX=2.150 TPH=609	B=ND BTEX=0.128 TPH=897	B=ND BTEX=0.447 TPH=1124	B=ND BTEX=0.369 TPH=1305
W	**A**	**C**	**E**	**G**	**I**	**K**	**M**	**O**	**Q**	**S**	**U**
B=ND BTEX=0.342 TPH=716	B=0.102 BTEX=0.392 TPH=448	B=ND BTEX=3.468 TPH=1757	B=ND BTEX=3.624 TPH=2252	B=ND BTEX=2.523 TPH=2190	B=ND BTEX=1.889 TPH=1573	B=0.131 BTEX=3.782 TPH=2796	B=0.121 BTEX=4.435 TPH=2632	B=0.126 BTEX=1.792 TPH=2460	B=ND BTEX=0.420 TPH=1128	B=ND BTEX=2.569 TPH=3944	B=ND BTEX=0.775 TPH=2622

WW

Road

Road

NOTE:

Soil samples were collected on January 29, 1998. Section S was resampled on June 2, 1998 for determination of TPH concentration and fingerprint. (TPH=6003)

LEGEND

- Water Well Location
- B = Benzene Concentration (mg/kg)
- BTEX = Total Benzene, Toluene, Ethylbenzene, and Xylenes Concentration (mg/kg)
- TPH = Total Petroleum Hydrocarbon Concentration (mg/kg)
- ND = Not Detected
- 0-100 (mg/kg)
- 100-1000 (mg/kg)
- 1000-3944 (mg/kg)

07/17/98-RM G:\(710033LF)

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SAMPLING POINT LOCATIONS AND CONCENTRATIONS - LAND FARM

TNMPL TNM-97-13 LEA COUNTY, NEW MEXICO

710033

FIG 3

GENERAL NOTES

ND - Indicates constituent was not detected above the method detection limit.

Method detection limits: TPH - 10 mg/kg
BTEX - 0.100 mg/kg

Laboratory test methods: BTEX - EPA Method SW846-8020, 8030
TPH - EPA Method 8015 DRO

TABLE I

SUMMARY OF SOIL LABORATORY RESULTS EXCAVATION
TNM-97-13
LEA COUNTY, NEW MEXICO

SAMPLE LOCATION	SAMPLE DATE	BENZENE (mg/kg)	TOLUENE (mg/kg)	ETHYL-BENZENE (mg/kg)	XYLENES (mg/kg)	BTEX (mg/kg)	TPH (mg/kg)
Excavation Sampling							
Section "A" Excavation Bottom	8/11/97	ND	1.376	0.917	5.291	7.584	351
Section "A" West Sidewall	8/11/97	ND	ND	ND	0.384	0.384	40
Section "A" East Sidewall	8/11/97	ND	ND	ND	ND	ND	27
Section "A" South Sidewall	8/11/97	ND	0.244	0.110	0.845	1.199	279
Section "B" Excavation Bottom	8/11/97	ND	ND	ND	ND	ND	67
Section "B" South Sidewall	8/11/97	ND	ND	ND	ND	ND	ND
Section "B" North Sidewall	8/11/97	ND	ND	ND	ND	ND	ND
Section "B" East Sidewall	8/11/97	ND	ND	ND	ND	ND	ND
Section "C" Excavation Bottom	8/19/97	ND	0.110	ND	0.278	0.388	ND
Section "C" West Sidewall	8/19/97	ND	ND	ND	0.102	0.102	22
Section "C" East Sidewall	8/19/97	ND	ND	ND	ND	ND	ND
Section "D" Excavation Bottom	8/19/97	ND	ND	ND	0.141	0.141	ND
Section "D" West Sidewall	8/19/97	ND	0.114	ND	0.197	0.311	ND
Section "D" East Sidewall	8/19/97	ND	ND	ND	ND	ND	ND
Section "B" Ramp	8/19/97	ND	0.115	0.110	0.211	0.436	ND
Section "E" Excavation Bottom	8/20/97	ND	ND	ND	ND	ND	ND
Section "E" West Sidewall	8/20/97	ND	ND	ND	ND	ND	ND
Section "E" E South Sidewall	8/20/97	ND	ND	ND	ND	ND	ND
Section "E" North Sidewall	8/20/97	ND	ND	ND	ND	ND	ND
Section "F" Excavation Bottom	8/20/97	ND	ND	0.101	0.477	0.578	65
Section "F" East Sidewall	8/20/97	ND	ND	ND	0.161	0.161	ND
Section "F" South Sidewall	8/20/97	ND	0.144	0.142	0.442	0.728	ND
Section "F" North Sidewall	8/20/97	ND	0.109	ND	0.18	0.289	ND
Section "G" Excavation Botto	8/20/97	ND	ND	ND	ND	ND	27
Section "G" South Sidewall	8/20/97	ND	ND	0.109	0.212	0.321	ND
Section "G" North Sidewall	8/20/97	ND	ND	ND	0.151	0.151	71
Background Sampling							
Background	7/31/97	ND	0.120	ND	0.325	0.445	ND
Confirmation Sampling							
Section "A" Excavation Bottom	8/13/97	ND	ND	ND	0.130	0.130	ND(1)
Section "A" South Sidewall	8/13/97	ND	ND	ND	0.183	0.183	40(1)

NOTES

1. Indicates the retest of excavation sidewall samples collected August 11, 1997, following overexcavation additional soils.

TABLE II

SUMMARY OF SOIL LABORATORY RESULTS - LANDFARM
TNM-97-13
LEA COUNTY, NEW MEXICO

SAMPLE LOCATION	SAMPLE DATE	BENZENE (mg/kg)	TOLUENE (mg/kg)	ETHYL-BENZENE (mg/kg)	XYLENES (mg/kg)	BTEX (mg/kg)	TPH (mg/kg)
Landfarm Sampling							
AREA A	1/28/98	0.102	ND	ND	0.290	0.392	448
AREA B	1/28/98	ND	0.18	0.182	1.737	2.099	1408
AREA C	1/28/98	ND	0.419	0.286	2.763	3.468	1757
AREA D	1/28/98	0.125	0.301	0.127	1.406	1.959	1325
AREA E	1/28/98	ND	0.387	0.280	2.957	3.624	2252
AREA F	1/28/98	ND	0.307	0.198	2.188	2.693	2850
AREA G	1/28/98	ND	0.353	0.210	1.960	2.523	2190
AREA H	1/28/98	ND	0.223	0.193	1.755	2.171	2170
AREA I	1/28/98	ND	ND	0.180	1.709	1.889	1573
AREA J	1/28/98	ND	ND	0.106	0.604	0.710	1657
AREA K	1/28/98	0.131	ND	0.301	3.350	3.782	2796
AREA L	1/28/98	ND	ND	0.239	2.667	2.906	1902
AREA M	1/28/98	0.121	ND	0.365	3.949	4.435	2632
AREA N	1/28/98	ND	ND	0.147	1.302	1.449	1270
AREA O	1/28/98	0.126	0.118	0.203	1.345	1.792	2460
AREA P	1/28/98	0.136	ND	0.172	1.842	2.150	609
AREA Q	1/28/98	ND	ND	ND	0.42	0.420	1128
AREA R	1/28/98	ND	ND	ND	0.128	0.128	897
AREA S	1/28/98	ND	ND	0.191	2.378	2.569	3944
AREA S	6/2/98	---	---	---	---	---	6003
AREA T	1/28/98	ND	ND	ND	0.447	0.447	1124
AREA U	1/28/98	ND	ND	ND	0.775	0.775	2622
AREA V	1/28/98	ND	ND	ND	0.369	0.369	1305
AREA W	1/28/98	ND	ND	ND	0.342	0.342	716
AREA X	1/28/98	ND	ND	ND	ND	ND	70
Water Well Sampling							
MW-1, 5 to 7 feet	9/29/97	ND	ND	ND	ND	ND	ND
MW-2, 25 to 27 feet	9/29/97	ND	ND	ND	ND	ND	ND

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

KEI
ATTN: MIKE HAWTHORNE
5309 WURZBACH SUITE 100
SAN ANTONIO, TEXAS 78238
FAX: 210-680-3763
Fax 505-396-2754

Receiving Date: 08/21/97
Sample Type: SOIL
Project #: 710033
Project Location: TNM 97-13

Analysis Date: BTEX 08/21/97
Analysis Date: DRO 08/22/97
Sampling Date: 08/20/97
Sample Condition: Intact/Iced

ELT#	FIELD CODE	BENZENE mg/kg	TOLUENE mg/kg	ETHYLBENZENE mg/kg	m,p-XYLENE mg/kg	o-XYLENE mg/kg	TPH (DRO) C10-C28 mg/kg
12263	Section G; Bottom Hole	<0.100	<0.100	<0.100	<0.100	<0.100	27
12264	Section G; South Wall	<0.100	<0.100	0.109	0.212	<0.100	<10
12265	Section G; North Wall	<0.100	<0.100	<0.100	0.151	<0.100	71
	% IA	93	88	89	86	88	108
	% EA	111	104	100	96	100	100
	BLANK	<0.001	<0.001	<0.001	<0.001	<0.001	<10

METHODS: SW 846-8020,5030 , 8015m DRO

Michael R. Fowler

8-22-97
Date

Environmental Lab of Texas, Inc.

12600 West I-20 East Odessa, Texas 79763
(915) 563-1800 FAX (915) 563-1713

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

PO # 7893

Project Manager: Mike Hawthorne

Phone #: 210 680 3767

FAX #: 210 680 3763

Company Name & Address: KET Wurzbach Suite 100 SA TX 78238

Project #: 710033

Project Name :

Project Location: TNM 97-13

Sampler Signature:

ANALYSIS REQUEST

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	OTHER	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	OTHER	SAMPLING: DATE	TIME	BTEX 8021B/5030	TPH 418.1	TCLP Metals Ag As Ba Cd Cr Pb Hg Se	Total Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Volatiles	TCLP Semi Volatiles	TDS	RCI	1170 (8015)
122603	Section G, bottom hole	1	4oz		/						/			8-21-97		/								/
122604	Section G, South wall	1	4oz		/						/			8-21-97		/								/
122605	Section G, North wall	1	4oz		/						/			8-21-97		/								/

Relinquished by:	Date:	Times:	Received by:
	8-21-97	1600	Rebecca Smith
Relinquished by:	Date:	Times:	Received by:
Relinquished by:	Date:	Times:	Received by Laboratory:

REMARKS

Please fax copy of results to Bobby Blackwood + Randy

ENVIRONMENTAL LAB OF , INC.

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AUG 25

KEI
ATTN: MIKE HAWTHORNE
5309 WURZBACH SUITE 100
SAN ANTONIO, TEXAS 78238
FAX: 210-680-3763
Fax 505-396-2754

Receiving Date: 08/20/97
Sample Type: SOIL
Project #: 710033
Project Location: TNM 97-13

Analysis Date: 08/21/97
Sampling Date: 08/20/97
Sample Condition: Intact/Iced

ELT#	FIELD CODE	BENZENE mg/kg	TOLUENE mg/kg	ETHYLBENZENE mg/kg	m,p-XYLENE mg/kg	o-XYLENE mg/kg	TPH (DRO) C10-C28 mg/kg
12169	Section E; West Wall	<0.100	<0.100	<0.100	<0.100	<0.100	<10
12170	Section E; North Wall	<0.100	<0.100	<0.100	<0.100	<0.100	<10
12171	Section E; South Wall	<0.100	<0.100	<0.100	<0.100	<0.100	<10
12172	Section E; Bottom Hole	<0.100	<0.100	<0.100	<0.100	<0.100	<10
12173	Section F; East Wasll	<0.100	<0.100	<0.100	0.161	<0.100	<10
12174	Section F; South Wall	<0.100	0.144	0.142	0.305	0.137	<10
12175	Section F; North Wall	<0.100	0.109	<0.100	0.180	<0.100	<10
12176	Section F; Bottom Hole	<0.100	<0.100	0.101	0.308	0.169	65
	% IA	106	97	95	93	97	94
	% EA	109	102	99	97	100	98
	BLANK	<0.001	<0.001	<0.001	<0.001	<0.001	<10

METHODS: SW 846-8020,5030 , 8015m DRO

Michael R. Fowler

8-21-97
Date

Environmental Lab of Texas, Inc.

12600 West I-20 East Odessa, Texas 79763
(915) 563-1800 FAX (915) 563-1713

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

PO # 7893

Project Manager: Mike Hawthorne

Phone #: 210 680 3767

FAX #: 210 680 3763

Company Name & Address: KFT 5309 Wurzbach Suite 100 SA TX 78238

Project #: 710033

Project Name :

Project Location: TNM 97-13

Sampler Signature:

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	OTHER	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	OTHER	SAMPLING: DATE	TIME	BTEX 8020/5030	TPH 418.1	TCLP Metals Ag As Ba Cd Cr Pb Hg Se	Total Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Volatiles	TCLP Semi Volatiles	TDS	RCI	D&O (9015)
12169	Section E; west wall	1	4oz		/						/			8-20-97		/								/
12170	Section E; North wall	1	4oz		/						/			8-20-97		/								/
12171	Section E; South wall	1	4oz		/						/			8-20-97		/								/
12172	Section E; bottom hole	1	4oz		/						/			8-20-97		/								/
12173	Section F; east wall	1	4oz		/						/			8-20-97		/								/
12174	Section F; South wall	1	4oz		/						/			8-20-97		/								/
12175	Section F; North wall	1	4oz		/						/			8-20-97		/								/
12176	Section F; bottom hole	1	4oz		/						/			8-20-97		/								/

Relinquished by:	Date:	Times:	Received by:
	8-20-97	1614	D McMurrey
Relinquished by:	Date:	Times:	Received by:
Relinquished by:	Date:	Times:	Received by Laboratory:

REMARKS

Please fax copy of results to Randy + Bobby Blackwood.

ENVIRONMENTAL LAB OF , INC.

AUG 2 5 1997

"Don't Treat Your Soil Like Dirt!"

KEI
ATTN: MIKE HAWTHORNE
5309 WURZBACH SUITE 100
SAN ANTONIO, TEXAS 78238
FAX: 210-680-3763
Fax 505-396-2754

Receiving Date: 08/19/97
Sample Type: SOIL
Project #: 710033
Project Location: TNM 97-13

Analysis Date: 08/20/97
Sampling Date: 08/19/97
Sample Condition: Intact/Iced

ELT#	FIELD CODE	BENZENE mg/kg	TOLUENE mg/kg	ETHYLBENZENE mg/kg	m,p-XYLENE mg/kg	o-XYLENE mg/kg	TPH (DRO) C10-C28 mg/kg
12143	Section C; West Wall	<0.100	<0.100	<0.100	0.102	<0.100	22
12144	Section C; East Wall	<0.100	<0.100	<0.100	<0.100	<0.100	<10
12145	Section C; Bottom Hole	<0.100	0.110	<0.100	0.172	0.106	<10
12146	Section D; West Wall	<0.100	0.114	<0.100	0.197	<0.100	<10
12147	Section D; East Wall	<0.100	<0.100	<0.100	<0.100	<0.100	<10
12148	Section D; Bottom Hole	<0.100	<0.100	<0.100	0.141	<0.100	<10
12149	Section B; Ramp	<0.100	0.115	0.110	0.211	<0.100	<10
	% IA	97	90	89	87	90	89
	% EA	118	111	109	106	108	107
	BLANK	<0.001	<0.001	<0.001	<0.001	<0.001	<10

METHODS: SW 846-8020,5030 , 8015m DRO

Michael R. Fowler

8-20-97
Date

Environmental Lab of Texas, Inc.

12600 West I-20 East Odessa, Texas 79763
(915) 563-1800 FAX (915) 563-1713

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager: Mike HawThorne
Phone #: 210 680-3767
FAX #: 210 680 3763

Company Name & Address: KET 5309 Wurzbach. Suite 100 SA, TX 78238

Project #: 710033
Project Name :

Project Location: TNM-97-13
Sampler Signature:

ANALYSIS REQUEST
PO# 7894

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	OTHER	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	OTHER	SAMPLING: DATE	TIME	BTEX 8020/5030	TPH 418.1	TCLP Metals Ag As Ba Cd Cr Pb Hg Se	Total Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Volatiles	TCLP Semi Volatiles	TDS	RCI	DRO (8015)
12143	Section C; west wall	1	4oz		X						X			8-19-97		X								X
12144	Section C; east wall	1	4oz		X						X			8-19-97		X								X
12145	Section C bottom hole	1	4oz		X						X			8-19-97		X								X
12146	Section D; west wall	1	4oz		X						X			8-19-97		X								X
12147	Section D; east wall	1	4oz		X						X			8-19-97		X								X
12148	Section D; bottom hole	1	4oz		X						X			8-19-97		X								X
12149	Section B; ramp ~~west wall~~	1	4oz		X						X			8-19-97		X								X

Relinquished by:	Date:	Times:	Received by:
	8-19-97	1640	Rick Jones
Relinquished by:	Date:	Times:	Received by:
Relinquished by:	Date:	Times:	Received by Laboratory:

REMARKS
Please fax copy of results to Randy @ trailer & Bobby Blackwood @ (325) 396-2754

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

KEI
ATTN: THERESA NIX
5309 WURZBACH SUITE 100
SAN ANTONIO, TEXAS 78238
FAX: 210-680-3763
Fax: 505-396-2754

AUG 18 1997

Receiving Date: 08/13/97
Sample Type: SOIL
Project #: 710033
Project Location: TNM 97-13

Analysis Date: 08/14/97
Sampling Date: 08/13/97
Sample Condition: Intact/Iced

ELT#	FIELD CODE	BENZENE mg/kg	TOLUENE mg/kg	ETHYLBENZENE mg/kg	m,p-XYLENE mg/kg	o-XYLENE mg/kg	TPH (DRO) C10-C28 mg/kg
12091	Section A; Bottom Hole	<0.100	<0.100	<0.100	0.130	<0.100	<10
12092	Section A; South Wall	<0.100	<0.100	<0.100	0.183	<0.100	40
	% IA	91	87	89	84	91	95
	% EA	89	86	88	83	91	101
	BLANK	<0.001	<0.001	<0.001	<0.001	<0.001	<10

METHODS: SW 846-8020,5030 , 8015m DRO

Michael R. Fowler

Michael R. Fowler

8-15-97
Date

Environmental Lab of Texas, Inc.

12600 West I-20 East Odessa, Texas 79763
(915) 563-1800 FAX (915) 563-1713

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager: Tharesa Nix

Phone #: 210 680-3769

FAX #: 210-680-3763

PO #7893

ANALYSIS REQUEST

Company Name & Address: KEI 5309 Wurzbach Suite 100 SA, Tx 78238

Project #: 710033

Project Name :

Project Location: TNM 97-13

Sampler Signature:

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	OTHER	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	OTHER	SAMPLING: DATE	TIME	BTEX 8120/5030	TPH 418.1	TCLP Metals Ag As Ba Cd Cr Pb Hg Se	Total Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Volatiles	TCLP Semi Volatiles	TDS	RCI	D20 (8015)
12091	Section A; bottom hole	1	4oz		✓						✓			8-13-97		✓								✓
12092	Section A; south wall	1	4oz		✓						✓			8-13-97		✓								✓

Relinquished by:	Date:	Times:	Received by:
	8-13-97	1540	
Relinquished by:	Date:	Times:	Received by:
Relinquished by:	Date:	Times:	Received by Laboratory:

REMARKS

Please fax copy of results to Tony & Randy @ trailer

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

KEI
ATTN: THERESA NIX
5309 WURZBACH SUITE 100
SAN ANTONIO, TEXAS 78238
FAX: 210-680-3763
Fax: 505-396-2754

Receiving Date: 08/11/97
Sample Type: SOIL
Project #: 710033
Project Location: TNM 97-13

Analysis Date: 08/12/97
Sampling Date: 08/11/97
Sample Condition: Intact/Iced

ELT#	FIELD CODE	BENZENE mg/kg	TOLUENE mg/kg	ETHYLBENZENE mg/kg	m,p-XYLENE mg/kg	o-XYLENE mg/kg	TPH (DRO) C10-C28 mg/kg
12067	Area #A; Bottom Hole	<.100	1.376	0.917	3.338	1.953	351
12068	Area #A; West Wall	<.100	<.100	<.100	0.234	0.150	40
12069	Area #A; East Wall	<.100	<.100	<.100	<.100	<.100	27
12070	Area #A; South Wall	<.100	0.244	0.110	0.377	0.468	279
12071	Area #B; South Wall	<.100	<.100	<.100	<.100	<.100	<10
12072	Area #B; Bottom Hole	<.100	<.100	<.100	<.100	<.100	67
12073	Area #B; North Wall	<.100	<.100	<.100	<.100	<.100	<10
12074	Area #B; East Wall	<.100	<.100	<.100	<.100	<.100	<10
	% IA	87	85	87	83	88	96
	% EA	90	88	90	86	91	97
	BLANK	<0.001	<0.001	<0.001	<0.001	<0.001	<10

METHODS: SW 846-8020,5030 , 8015m DRO

Michael R. Fowler

8-13-97
Date

Environmental Lab of Texas, Inc.

12600 West I-20 East Odessa, Texas 79763
(915) 563-1800 FAX (915) 563-1713

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager: Theresa Nix
Phone #: 210 680-3767
FAX #: 210 680 3763

Company Name & Address: KEI 5309 Wurzbach Suite 100 SA, Tx 78230

Project #: 710033
Project Name :

Project Location: TNM 97-13
Sampler Signature:

ANALYSIS REQUEST PO# 7893

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	OTHER	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	OTHER	SAMPLING: DATE	TIME	BTEX 8020/5030	TPH 418.1	TCLP Metals Ag As Ba Cd Cr Pb Hg Se	Total Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Volatiles	TCLP Semi Volatiles	TDS	RCI	DRO (8015)
12067	Area #A; bottom hole	1			/						/			8-11-97		/								/
12068	Area #A; West wall	1			/						/			8-11-97		/								/
12069	Area A; East wall	1			/						/			8-11-97		/								/
12070	Area A; South wall	1			/						/			8-11-97		/								/
12071	Area B; South wall	1			/						/			8-11-97		/								/
12072	Area B; bottom hole	1			/						/			8-11-97		/								/
12073	Area B; North wall	1			/						/			8-11-97		/								/
12074	Area B; East wall	1			/						/			8-11-97		/								/

Relinquished by:	Date:	Times:	Received by:
	8-11-97	1745	Ralu dkjueell
Relinquished by:	Date:	Times:	Received by:
Relinquished by:	Date:	Times:	Received by Laboratory:

REMARKS
Fax copy of results to Tony & Randy @ trailer in NM

Need ASAP

Environmental Lab of Texas, Inc.

12600 West I-20 East Odessa, Texas 79763
(915) 563-1800 FAX (915) 563-1713

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager: Theresa Nix
Phone #: 210 680-3767
FAX #: 210 680-3763

Company Name & Address: KEI 5309 Wurzbach Suite 100 SA, TX 78238

Project #: 710034
Project Name:

Project Location: TNM 97-16
Sampler Signature: [signature]

PO # 7892

ANALYSIS REQUEST

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	MATRIX: SOIL	MATRIX: AIR	MATRIX: SLUDGE	MATRIX: OTHER	PRESERVATIVE METHOD: HCL	PRESERVATIVE METHOD: HNO3	PRESERVATIVE METHOD: ICE	PRESERVATIVE METHOD: NONE	PRESERVATIVE METHOD: OTHER	SAMPLING: DATE	SAMPLING: TIME	BTEX 8020/5030	TPH 418.1	TCLP Metals Ag As Ba Cd Cr Pb Hg Se	Total Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Volatiles	TCLP Semi Volatiles	TDS	RCI	DRO (8015)	[illegible]	[illegible]	[illegible]
12075	Bell Hole Area GW sample	2		/					/		/			8-11-97		/											
12076	Area #1 GW sample	2		/					/		/			8-11-97		/											
12077	Bell Hole Area; bottom hole	1			/						/			8-11-97		/								/			
12078	Area #1; bottom hole	1			/						/			8-11-97		/								/			

Relinquished by:	Date:	Times:	Received by:
[signature]	8-11-97	1745	[signature]

Relinquished by:	Date:	Times:	Received by:
[signature]			

Relinquished by:	Date:	Times:	Received by Laboratory:

REMARKS

Fax copy of results to Tony.
Need ASAP

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

KEI
ATTN: THERESA NIX
5309 WURZBACH SUITE 100
SAN ANTONIO, TEXAS 78238
FAX: 210-680-3763
Fax: 505-396-2754

Receiving Date: 08/07/97
Sample Type: SOIL
Project #: 710033
Project Location: TNM 97-13

Analysis Date: 08/07/97
Sampling Date: 07/31/97
Sample Condition: Intact/Iced

ELT#	FIELD CODE	BENZENE mg/kg	TOLUENE mg/kg	ETHYLBENZENE mg/kg	m,p-XYLENE mg/kg	o-XYLENE mg/kg	TPH (DRO) C10-C28 mg/kg
12043	BACKGROUND	<0.100	0.120	<0.100	0.223	0.102	<10
	% IA	93	95	96	92	96	94
	% EA	97	97	100	95	98	104
	BLANK	<0.001	<0.001	<0.001	<0.001	<0.001	<10
	RPD	1	1	1	1	1	0

METHODS: SW 846-8020,5030 , 8015m DRO

Michael R. Fowler

Date

Environmental Lab of Texas, Inc.

12600 West I-20 East Odessa, Texas 79763
(915) 563-1800 FAX (915) 563-1713

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

PO # 7893

Project Manager: Theresa Nix	**Phone #:** / **FAX #:**
Company Name & Address: KEI 5309 Wurzbach Suite 100 SA, TX 78238	
Project #: 710053 ~~810095~~	**Project Name :**
Project Location: TNM-97-13	**Sampler Signature:**

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	OTHER	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	OTHER	SAMPLING: DATE	TIME	ANALYSIS REQUEST: BTEX 8020/5030	TPH 418.1	TCLP Metals Ag As Ba Cd Cr Pb Hg Se	Total Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Volatiles	TCLP Semi Volatiles	TDS	RCI	DRO (C35)
12043	Background	1	4oz		/						/			7-3-97		/								/

Relinquished by:	**Date:** 8-7-97	**Times:** 1120	**Received by:**
Relinquished by:	**Date:**	**Times:**	**Received by:**
Relinquished by:	**Date:**	**Times:**	**Received by Laboratory:**

REMARKS

Please fax results to Tony Savoie

Need ASAP

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

KEI
ATTN: THERESA NIX
5309 WURZBACH SUITE 100
SAN ANTONIO, TEXAS 78238
FAX: 210-680-3763
FAX: 505-392-2065

Receiving Date: 01/29/98
Sample Type: SOIL
Project #: 710033/TNM-97-13
Project Location: MONUMENT, NM (FOSTER'S SITE)

Analysis Date: 01/29/98
Sampling Date: 01/28/98
Sample Condition: Intact/Iced

ELT#	FIELD CODE	TPH (DRO) C10-C28 mg/kg
13535	AREA: A	448
13536	AREA: B	1,408
13537	AREA: C	1,757
13538	AREA: D	1,325
13539	AREA: E	2,252
13540	AREA: F	2,850
13541	AREA: G	2,190
13542	AREA: H	2,170
13543	AREA: I	1,573
13544	AREA: J	1,657
13545	AREA: K	2,796
13546	AREA: L	1,902
13547	AREA: M	2,632
13548	AREA: N	1,270
13549	AREA: O	2,460
13550	AREA: P	609
13551	AREA: Q	1,128
13552	AREA: R	897
13553	AREA: S	3,944
13554	AREA: T	1,124
	% IA	100
	% EA	109
	BLANK	<10

METHODS: SW 846- 8015m DRO

Michael R. Fowler

1-30-98
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

KEI
ATTN: THERESA NIX
5309 WURZBACH SUITE 100
SAN ANTONIO, TEXAS 78238
FAX: 210-680-3763
FAX: 505-392-2065

Receiving Date: 01/29/98
Sample Type: SOIL
Project #: 710033/TNM-97-13
Project Location: MONUMENT, NM (FOSTER'S SITE)

Analysis Date: 01/30/98
Sampling Date: 01/28/98
Sample Condition: Intact/Iced

ELT#	FIELD CODE	TPH (DRO) C10-C28 mg/kg
13555	AREA: U	2,622
13556	AREA: V	1,305
13557	AREA: W	716
13558	AREA: X	70

% IA	105
% EA	98
BLANK	<10

METHODS: SW 846- 8015m DRO

Michael R. Fowler

2-3-98
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

KEI
ATTN: TERESA NIX
5309 WURZBACH SUITE 100
SAN ANTONIO, TEXAS 78238
FAX: 210-680-3763
FAX: 505-392-2065

Receiving Date: 01/29/98
Sample Type: SOIL
Project #: 710033/TNM-97-13
Project Location: MONUMENT,NM (FOSTER'S SITE)

Analysis Date: 01/29/98
Sampling Date: 01/28/98
Sample Condition: Intact/Iced

ELT#	FIELD CODE	BENZENE mg/kg	TOLUENE mg/kg	ETHYLBENZENE mg/kg	m,p-XYLENE mg/kg	o-XYLENE mg/kg
13535	AREA: A	0.102	<0.100	<0.100	0.165	0.125
13536	AREA: B	<0.100	0.180	0.182	0.803	0.934
13537	AREA: C	<0.100	0.419	0.286	1.410	1.353
13538	AREA: D	0.125	0.301	0.127	0.716	0.690
13539	AREA: E	<0.100	0.387	0.280	1.497	1.460
13540	AREA: F	<0.100	0.307	0.198	1.113	1.075
13541	AREA: G	<0.100	0.353	0.210	1.132	0.828
13542	AREA: H	<0.100	0.223	0.193	0.995	0.760
13543	AREA: I	<0.100	<0.100	0.180	0.975	0.734
13544	AREA: J	<0.100	<0.100	0.106	0.604	<0.100
13545	AREA: K	0.131	<0.100	0.301	1.767	1.583
13546	AREA: L	<0.100	<0.100	0.239	1.307	1.360
13547	AREA: M	0.121	<0.100	0.365	2.135	1.814
13548	AREA: N	<0.100	<0.100	0.147	0.947	0.355
	% IA	90	92	94	92	95
	% EA	88	90	90	88	91
	BLANK	<0.001	<0.001	<0.001	<0.001	<0.001

METHODS: SW 846-8020,5030

Michael R. Fowler

1-30-98
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

KEI
ATTN: TERESA NIX
5309 WURZBACH SUITE 100
SAN ANTONIO, TEXAS 78238
FAX: 210-680-3763
FAX: 505-392-2065

Receiving Date: 01/29/98
Sample Type: SOIL
Project #: 710033/TNM-97-13
Project Location: MONUMENT,NM (FOSTER'S SITE)

Analysis Date: 01/29/98
Sampling Date: 01/28/98
Sample Condition: Intact/Iced

ELT#	FIELD CODE	BENZENE mg/kg	TOLUENE mg/kg	ETHYLBENZENE mg/kg	m,p-XYLENE mg/kg	o-XYLENE mg/kg
13549	AREA: O	0.126	0.118	0.203	0.951	0.394
13550	AREA: P	0.136	<.100	0.172	0.936	0.906
13551	AREA: Q	<.100	<.100	<.100	0.280	0.140
13552	AREA: R	<.100	<.100	<.100	0.128	<.100
13553	AREA: S	<.100	<.100	0.191	1.263	1.115
13554	AREA: T	<.100	<.100	<.100	0.320	0.127
13555	AREA: U	<.100	<.100	<.100	0.572	0.203
13556	AREA: V	<.100	<.100	<.100	0.258	0.111
13557	AREA: W	<.100	<.100	<.100	0.222	0.120
13558	AREA: X	<.100	<.100	<.100	<.100	<.100
% IA		90	92	94	92	95
% EA		106	113	110	111	115
BLANK		<0.001	<0.001	<0.001	<0.001	<0.001

METHODS: SW 846-8020,5030

Michael R. Fowler

1-30-98
Date

12600 West I-20 East • Odessa, Texas 79765 • (915) 563-1800 • Fax (915) 563-1713

Environmental Lab of Texas, Inc.

12600 West I-20 East Odessa, Texas 79763
(915) 563-1800 FAX (915) 563-1713

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager: Mike Hawthorne	**Phone #:** 210-680-3767 **FAX #:** 210-680-3763
Company Name & Address: K-E-I Consultants, Suite 108 San Antonio, TX 78238	
Project #: Job # 716033 / TNM-97-13	**Project Name:** Foster's Site
Project Location: Monument, NM (Foster's Site)	**Sampler Signature:** Stanley Grover

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	OTHER	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	OTHER	SAMPLING: DATE	TIME	ANALYSIS REQUEST: BTEX 8021B/5030	TPH ~~418.1~~ 8015 DRO	TCLP Metals Ag As Ba Cd Cr Pb Hg Se	Total Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Volatiles	TCLP Semi Volatiles	TDS	RCI
135 35	Area: A	1	40z		/						/			1-28-98	10:25	/	/						
135 36	Area: B	1			/						/				10:35	/	/						
135 37	Area: C	1			/						/				10:40	/	/						
135 38	AREA D	1			/						/				10:47	/	/						
135 39	AREA E	1			/						/				11:03	/	/						
135 40	AREA F	1			/						/				10:53	/	/						
135 41	AREA G	1			/						/				11:45	/	/						
135 42	AREA H	1			/						/				11:55	/	/						
135 43	AREA I	1			/						/				12:02	/	/						
135 44	AREA J	1			/						/				12:06	/	/						
135 45	AREA K	1			/						/				12:13	/	/						

Relinquished by:	Date:	Times:	Received by:
Stanley Grover	1-29-98	1100	Rabekka Jacobs
Relinquished by:	Date:	Times:	Received by:
Relinquished by:	Date:	Times:	Received by Laboratory:

REMARKS

Please Fax Analytical Results to Theresa Nix Fax # 210-680-3763
and to Stan Grover
Fax # 505-392-2065

Pg. 2 of 3

Environmental Lab of Texas, Inc.

12600 West I-20 East Odessa, Texas 79763
(915) 563-1800 FAX (915) 563-1713

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager: Mike Hawthorne
Phone #: 210-680-3767
FAX #: 210-680-3763
Company Name & Address: K E I Consultants, Suite 100 San Antonio, TX 78238
Project #: Job # 210033 / TNM-97-13
Project Name: Foster's Site
Project Location: Monument, NM
Sampler Signature: Stanley Grover

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	OTHER	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	OTHER	SAMPLING: DATE	TIME	ANALYSIS REQUEST: BTEX 8120/5030	TPH ~~418.1~~ 8015 MDRO	TCLP Metals Ag As Ba Cd Cr Pb Hg Se	Total Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Volatiles	TCLP Semi Volatiles	TDS	RCI
13546	AREA: L	1	9oz		/						/			1-28-98	12:20	/	/						
13547	AREA: M	1			/						/				12:30	/	/						
13548	AREA: N	1			/						/				12:36	/	/						
13549	AREA: O	1			/						/				12:40	/	/						
13550	AREA: P	1			/						/				12:50	/	/						
13551	AREA: Q	1			/						/				12:56	/	/						
13552	AREA: R	1			/						/				13:10	/	/						
13553	AREA: S	1			/						/				13:15	/	/						
13554	AREA: T	1			/						/				13:20	/	/						
13555	AREA: U	1			/						/				13:25	/	/						
13556	AREA: V	1	→		/						/			→	13:35	/	/						

Relinquished by:	Date:	Times:	Received by:
Stanley Grover	1-29-98	1100	Rachel Jaffe
Relinquished by:	Date:	Times:	Received by:
Relinquished by:	Date:	Times:	Received by Laboratory:

REMARKS
Please Fax Analytical Results to Theresa Nix Fax # 210-680-3763 and to Stan Grover Fax # ~~505~~ 505-392-2065

Environmental Lab of Texas, Inc.

12600 West I-20 East Odessa, Texas 79763
(915) 563-1800 FAX (915) 563-1713

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager: Mike Hawthorne

Phone #: 210-680-3767

FAX #: 210-680-3763

Company Name & Address: Key Consultants, Suite 100 San Antonio, Tx 78238

Project #: 710033 / TNM-97-13

Project Name: Foster's Site

Project Location: Monument, NM

Sampler Signature: Stanley Grover

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	OTHER	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	OTHER	SAMPLING: DATE	TIME	ANALYSIS REQUEST: BTEX 8020/5030	TPH ~~418.1~~ 8015M DRO	TCLP Metals Ag As Ba Cd Cr Pb Hg Se	Total Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Volatiles	TCLP Semi Volatiles	TDS	RCI
13557	AREA W	1	9oz		/						/			1-28-98	13:40	✓	✓						
13558	AREA X	1	9oz		/						/			1-28-98	13:50	✓	✓						

Relinquished by:	Date:	Times:	Received by:
Stanley Grover	1-29-98	1100	Rachel K Jones
Relinquished by:	Date:	Times:	Received by:
Relinquished by:	Date:	Times:	Received by Laboratory:

REMARKS

Please Fax Analytical Results to Theresa Niv Fax # 210 680 3763 and to Stan Grover Fax # 505-392-2065

XENCO Laboratories

FACSIMILE COVER PAGE

Date of FAX: Jun 5, 1998

Total # of pages including this page: 2 Originals will be Mailed: (Yes) No

Deliver To: **T. Nix/D. Stacey**

Requested by: **K.E.I. Consultants, Inc.**

Project Name: **Steven's**

Analytical Report: **1-82062**

Project Id: 710033-1-1-0

Please remit your questions to :

- ☐ *Dr. Eduardo Builes, President* — *EduardoB@xenco.com*
- ☐ *Brent Barron, Client Services Manager* — *BrentB@xenco.com*
- ☐ *Sunil Ajai, Technical Director* — *SunilA@xenco.com*
- ☐ *Debbie Simmons, Customer Service* — *DebbieS@xenco.com*
- ☐ _____ — *Xenco@xenco.com*
- ☒ *Dr. Carlos Castro, Laboratory Supervisor* — *XencoSA@xenco.com*

CONFIDENTIALITY NOTICE

This facsimile transmission (and/or the documents accompanying it) may contain confidential information belonging to the sender which is protected by the laboratory-client privilege. This information is intended only for the use of the individual client or business entity named above. **If you have received this transmission in error, please immediately notify us by telephone to arrange for the return of the documents.** If you are not the intended recipient, you are hereby notified that any disclosure, copying, distribution or the taking of any action in reliance on the contents of this information is strictly prohibited by XENCO Laboratories.

Remarks: In order to expedite your inquiries please have this page on hand when calling.

Sending TPH-418.1 results
Please let us know if you need any adds.
Thanks, Carlos

Your complete satisfaction is our ultimate goal . Please call Dr. Builes to let us know how we can serve you better.

Small Business Administration Award of Excellence for 1994. Thank you for your support.

XENCO Laboratories

CERTIFICATE OF ANALYSIS SUMMARY 1-82062

K.E.I. Consultants, Inc.

Project Name: Steven's

Project ID: 710033-1-1-0
Project Manager: T. Nix/D. Stacey
Project Location: Monument, NM

Date Received in Lab : Jun 3, 1998 10:10
Date Report Faxed: Jun 5, 1998
XENCO contact : Carlos Castro/Edward Yonemoto

Analysis Requested	*Lab ID:* / *Field ID:* / *Depth:* / *Matrix:* / *Sampled:*	182062 001 Section S Solid 06/02/98 08:30			
Total Petroleum Hydrocarbons **EPA 418.1**	*Analyzed:* *Units:*	06/04/98 mg/kg	R.L.		
Total Petroleum Hydrocarbons		750	(500)		

Sunil Ajai, M.S.
Technical Director

XENCO Laboratories

FACSIMILE COVER PAGE

Date of FAX: Jun 6, 1998

Total # of pages including this page: 2 Originals will be Mailed: (Yes) No

Deliver To: **T. Nix/D. Stacey**

Requested by: **K.E.I. Consultants, Inc.**

Project Name: **Steven's**

Analytical Report: **1-82062**

Project Id: 710033-1-1-0

Please remit your questions to :

- ☐ *Dr. Eduardo Builes, President* — *EduardoB@xenco.com*
- ☒ *Sunil Ajai, Technical Director* — *SunilA@xenco.com*
- ☐ _____ — *Xenco@xenco.com*
- ☐ *Brent Barron, Client Services Manager* — *BrentB@xenco.com*
- ☐ *Debbie Simmons, Customer Service* — *DebbieS@xenco.com*
- ☐ *Dr. Carlos Castro, Laboratory Supervisor* — *XencoSA@xenco.com*

Remarks: In order to expedite your inquiries please have this page on hand when calling.

Following are requested TPHS 8015 MA results.

Thank You.

Your complete satisfaction is our ultimate goal. Please call Dr. Builes to let us know how we can serve you better.

Small Business Administration Award of Excellence for 1994. Thank you for your support.

TPHDIST.XLS

CARBON DISTRIBUTION IN SAMPLES

Client: KEI
COC: 182062

Sample: 182062-001

% Aromatic Component		% Aliphatic Component	
C6-C8	0.00	C5-C6	0.00
C9-C10	0.00	C7-C8	0.00
* C11-C12	1.17	C9-C10	0.00
* C13-C16	11.46	C11-C12	0.48
* C17-C21	8.77	C13-C16	22.12
* C22-C35	12.53	C17-C35	43.47
% Aromatic	33.92	% Aliphatic	66.08

TOTAL PETROLEUM HYDROCARBON CONCENTRATION = 6003 mg/Kg

* Results may be elevated due to interference from high mass aliphatic compounds

Sunil Ajain, M.S.
Technical Director

XENCO Laboratories
11301 Meadowglen Suite L Houston, Texas 77082
(713) 589-0692 Fax (713) 589-0695

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST FORM

Lab. Batch # 182062-SA

Contractor: K.E.I Consultants — Phone: (210) 680-3767

Address: 5309 Hurzbach, Ste. 100 San Antonio, Tx 78238

Project Name: Stevens — Project Director: Mike Hawthorne

Project Location: Monument NM — Project Manager: Theresa Nix/Daryl Stacey

Sampler Signature: Harley Hoover — Project No.: 710033-1-1-0

No. coolers this shipment: — Contractor COC # 144

Carrier: UPS — Quote #:

Airbill No. — P.O. No: Call Daryl Stacey for P.O. NO: Thanks

	Field ID	Date	Time	Depth	Soil	Water	Comp	Grab	Container Size	Container Type P, G	Preservative Ice	Preservative Other	Sample Description	No of Containers Total	BTEX (8020 or 8021B)	TPH (418.1)	Please Hold	Remarks	LAB ONLY ID #
1	Section: S	2 June 98	08:30		/		/		902		/		Land Farm	2		/		*Call Daryl Stacey for Analyses.	1
2																			2
3																			3
4																			4
5																			5
6																			6
7																			7
8																			8
9																			9
10																			10

Turn-around: ASAP / 24 hrs / 48 hrs (Standard)

SAMPLE CHARACTERIZATION: Soil, Water, Comp, Grab; Unl, Dies, Ker, Unknown; Waste Oil; PIT No:; Tank No:

Relinquished by: (Signature)	DATE	TIME	Received by: (Signature)	DATE	TIME
Harley Hoover	6-2-98	1630			
			Received For Laboratory by: UPS L Yarbrough	6/3/98	10:10

Remarks: Please Fax Analytical Results to Daryl Stacey: Fax # = 210-680-3763

- Soil Sample w/the Highest TPH value will also Be Analyzed for the Following: —TPH Speciation Massachusetts method
- Please call Daryl Stacey Regarding additional TPH speciation massachusetts method Analyses for the sample with the Highest TPH Concentration.

Pink (Contractor), Yellow & White (Lab)

* Pre-scheduling is recommended

Precision Analytical Services

QA/QC PROCEDURES

The soil samples collected were placed in a sterile glass container equipped with a Teflon-lined lid furnished by the analytical laboratory. The container was filled to capacity with soil to limit the amount of head-space present. Each container was labeled and placed on ice in an insulated cooler. The cooler was sealed for shipment to Environmental Lab of Texas, Inc. in Odessa, Texas for determination of the following constituents:

- TPH concentrations using EPA Method 8015 DRO
- BTEX concentrations using EPA Method SW846-8020, 5030

Proper chain-of-custody documentation was maintained throughout the sampling process.

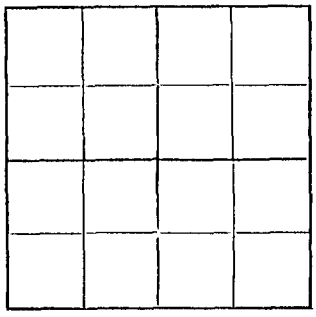
Form WR-23 Drlg - in S.E. STATE ENGINEER OFFICE

Dom - domestic use
Stk - stock tanks

WELL RECORD

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the nearest district office of the State Engineer. All sections, except Section 5, shall be answered as completely and accurately as possible when any well is drilled, repaired or deepened. When this form is used as a plugging record, only Section 1A and Section 5 need be completed.

Section 1



(Plat of 640 acres)

(A) Owner of well T. E. Rustick

Street and Number

City Monument, State N. Mex.

Well was drilled under Permit No. L-3921 and is located in the 36

SW ¼ SE ¼ SE ¼ of Section 35 Twp. 19 Rge. 37 E.

(B) Drilling Contractor W. L. Van Loy License No. WD-208

Street and Number P. O. Box 74

City Oil Center, State N. Mex.

Drilling was commenced July 17, 19 58

Drilling was completed July 18, 19 58

Elevation at top of casing in feet above sea level Total depth of well 75

State whether well is shallow or artesian Shallow Depth to water upon completion 50

Section 2 PRINCIPAL WATER-BEARING STRATA

No.	Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation
1	69	75	6	Water-sand rock
2				
3				
4				
5				

Section 3 RECORD OF CASING

Dia in.	Pounds ft.	Threads in	Depth Top	Depth Bottom	Feet	Type Shoe	Perforations From	Perforations To
6		Welded	0	75	75		60	75

Section 4 RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Diameter Hole in in.	Tons Clay	No. Sacks of Cement	Methods Used

Section 5 PLUGGING RECORD

Name of Plugging Contractor License No.

Street and Number City State

Tons of Clay used Tons of Roughage used Type of roughage

Plugging method used Date Plugged 19

Plugging approved by:

Basin Supervisor

Cement Plugs were placed as follows:

No.	Depth of Plug From	Depth of Plug To	No. of Sacks Used

FOR USE OF STATE ENGINEER ONLY

Date Received

File No. L-3921 Use Dom Location No. 19.37.35.343

Stk - stock use

Section 6

LOG OF WELL

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color	Type of Material Encountered
0	5	5		Top Soil
5	69	64	Greyish	Caliche
69	75	6	Red	Water-sand Rock
				L S Elev _____
				Depth to K _____ Trc _____
				Elev of K _____ Trc _____
				Loc. No. _____
				Hydro. Survey _____ Field Check _____
				SOURCE OF ALTITUDE GIVEN
				Interpolated from Topo. Sheet _____
				Determined by Inst. Leveling _____
				Other _____

The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the above described well.

W. L. Hagy
Well Driller

Form WR-23 STATE ENGINEER OFFICE

FIELD ENGR. LOG

WELL RECORD

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the nearest district office of the State Engineer. All sections, except Section 5, shall be answered as completely and accurately as possible when any well is drilled, repaired or deepened. When this form is used as a plugging record, only Section 1A and Section 5 need be completed.

Section 1

(Plat of 640 acres)

(A) Owner of well CLIMAX CHEMICAL COMPANY

Street and Number BOX 278

City HOBBS State NEW MEXICO

Well was drilled under Permit No. L-4736 and is located in the

NW ¼ NW ¼ ¼ of Section 2 Twp. 20S Rge. 36E

(B) Drilling Contractor Murrell Abbott License No. WD 46

Street and Number Post Office Box 637

City Hobbs State New Mexico

Drilling was commenced October 19 19 61

Drilling was completed October 21 61

Elevation at top of casing in feet above sea level ..... Total depth of well 92 feet

State whether well is shallow or artesian shallow Depth to water upon completion 92 feet

Section 2 PRINCIPAL WATER-BEARING STRATA

No.	Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation
1				
2	65	70	5 feet	water sand
3				
4				
5				

Section 3 RECORD OF CASING

Dia in.	Pounds ft.	Threads in	Depth Top	Depth Bottom	Feet	Type Shoe	Perforations From	Perforations To

Section 4 RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Diameter Hole in in.	Tons Clay	No. Sacks of Cement	Methods Used

Section 5 PLUGGING RECORD

Name of Plugging Contractor ..... License No. .....

Street and Number ..... City ..... State .....

Tons of Clay used ..... Tons of Roughage used ..... Type of roughage .....

Plugging method used ..... Date Plugged ..... 19 .....

Plugging approved by:

..... Basin Supervisor

Cement Plugs were placed as follows:

No.	Depth of Plug From	Depth of Plug To	No. of Sacks Used

FOR USE OF STATE ENGINEER ONLY

Date Received NOV - 1 1961 AM 8:29

STATE ENGINEER OFFICE
ROSWELL, N. MEX.
DISTRICT II

File No. L-4736 Use Dom. Location No. 20.36.2.440

Section 6 4 LOG OF WELL

Depth in Feet From	To	Thickness in Feet	Color	Type of Material Encountered
4	15			caliche
15	65			sand
65	70			water sand
70	80			sandy clay
80	92			red bed

~~L S Elev~~ ______ 3627

Depth to K ______ Trc [illegible]

Elev of K ______ Trc [illegible]

Loc. No. 22.36.3.11132

Hydro. Survey Field Check ✓

~~SOURCE OF ALTITUDE GIVEN~~

~~Interpolated from Topo. Sheet~~ X

~~Determined by Inst. Leveling~~ ______

~~Other~~ ______

The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the above described well.

Murrell Abbott

Well Driller

Calculation of Risk
Worker -- Inhalation of Volatiles from Soil
Texas New Mexico Pipe Line Co.

BW (kg)	IRair (m^3/day)	EF (days/yr)	ED (years)	LS (m)	V (m/s)	DH (m)	A (m^2)	B (g/cc)	E ---	foc ---	PEF (kg/m^3)
70	20	250	25	366	4.92	2.0	42419	1.80	0.32	0.02	2.305E-10

For carcinogens: $Risk = (Conc_{soil} * (VF + PEF) / DAF) * IR_{air} * EF * ED * SF / BW * 70 * 365$

For non-carcinogens: $HQ = (Conc_{soil} * (VF + PEF) / DAF) * IR_{air} * EF * (1/RfD) / BW * 365$

$VF = (2 * Dei * E * Kas * 10\text{-}3) / (LS * V * DH / A) * (3.14 * alpha * ED * 3.15E+7)^{0.5}$

Dist (m)	DAF
0	1.00

Constituent of Concern	$Conc_{soil}$ (mg/kg)	SF (1/mg/kg-d)	RfD (mg/kg-d)	Dei (cm^2/sec)	Kd (cm^3/g)	H' ---	Kas (g /cm^3)	alpha (cm^2/sec)	VF (m^3/kg)	Risk or HQ
Carcinogens										
Benzene	1.36e-1	2.91e-2		2.05e-2	1.66e+0	2.32e-1	1.40e-1	4.97e-4	1.96e-4	5.43e-8
									Total Risk:	5.43e-8
Non-Carcinogens										
Ethylbenzene	3.65e-1		2.86e-1	1.64e-2	2.19e+1	2.67e-1	1.22e-2	3.56e-5	5.14e-5	1.28e-5
Toluene	4.19e-1		1.14e-1	1.84e-2	6.04e+0	2.65e-1	4.39e-2	1.42e-4	1.03e-4	7.44e-5
Xylene (mixed isomers)	3.95e+0		2.00e-1	1.63e-2	4.80e+0	2.93e-1	6.10e-2	1.75e-4	1.15e-4	4.43e-4
TPH - New Method	6,003									0.120
TPH-Arom-EC>8-10	0		5.71e-2	2.20e-2	3.17e+1	4.84e-1	1.53e-2	5.94e-5	6.65e-5	0.000
TPH-Arom-EC>10-12	70		5.71e-2	2.20e-2	5.02e+1	1.36e-1	2.71e-3	1.06e-5	2.80e-5	0.007
TPH-Arom-EC>12-16	688		5.71e-2	2.20e-2	1.00e+2	5.16e-2	5.15e-4	2.01e-6	1.22e-5	0.029
TPH-Arom-EC>16-21	526		3.00e-2	2.20e-2	3.17e+2	1.18e-1	3.72e-4	1.45e-6	1.04e-5	0.036
TPH-Arom-EC>21-35	752		3.00e-2	2.20e-2	2.52e+3	6.65e-3	2.64e-6	1.03e-8	8.73e-7	4.29e-3
TPH-Aliph-EC 5-6	0		5.71e-2	2.20e-2	1.59e+1	3.28e+1	2.06e+0	5.89e-3	9.02e-4	0.000
TPH-Aliph-EC>6-8	0		5.71e-2	2.20e-2	7.96e+1	4.85e+1	6.09e-1	2.15e-3	4.41e-4	0.000
TPH-Aliph-EC>8-10	0		2.86e-1	2.20e-2	6.32e+2	7.92e+1	1.25e-1	4.79e-4	1.92e-4	0.000
TPH-Aliph-EC>10-12	29		2.86e-1	2.20e-2	5.02e+3	1.23e+2	2.45e-2	9.55e-5	8.43e-5	0.002
TPH-Aliph-EC>12-16	1,328		2.86e-1	2.20e-2	1.00e+5	5.25e+2	5.24e-3	2.05e-5	3.89e-5	0.035
TPH-Aliph-EC>16-35	2,610		2.00e+0	2.20e-2	2.00e+7	6.57e+4	3.28e-3	1.28e-5	3.08e-5	0.008

Calculation of Risk
Worker -- Ingestion of Soil & Dermal Contact with Soil
Texas New Mexico Pipe Line Co.

BW (kg)	CF (mg/kg)	IRsoil (mg/day)	EF (days/yr)	ED (years)	EF_{dermal} (days/yr)	SA (cm^2)	AF (mg/cm^2)
70	1.00E+06	50	250	25	250	5,800	1.00

For carcinogens: $Risk_{ING} = Conc_{soil} * IR_{soil} * EF * ED * SF / BW * 70 * 365 * CF$

$Risk_{DER} = Conc_{soil} * SA * AF * ABS * EF * ED * SF / BW * 70 * 365 * CF$

For non-carcinogens: $HQ_{ING} = Conc_{soil} * IR_{soil} * EF * (1/RfD) / BW * 365 * CF$

$HQ_{DER} = Conc_{soil} * SA * AF * ABS * EF * (1/RfD) / BW * 365 * CF$

Constituent of Concern	$Conc_{soil}$ (mg/kg)	SFo (1/mg/kg-d)	RfDo (mg/kg-d)	$Risk_{ING}$ or HQ_{ING}	SFd (1/mg/kg-d)	RfDd (mg/kg-d)	ABS ---	$Risk_{DER}$ or HQ_{DER}
Carcinogens								
Benzene	1.36e-1	0.029		6.89E-10	0.029		0.000	0.00E+00
			Total Risk:	6.89e-10			Total Risk:	0.00e+0
Non-Carcinogens								
Ethylbenzene	3.65e-1		0.10	1.79E-06		0.10	0.000	0.00E+00
Toluene	4.19e-1		0.20	1.02E-06		0.20	0.000	0.00E+00
Xylene (mixed isomers)	3.95e+0		2.00	9.66E-07		2.00	0.000	0.00E+00
TPH - New Method	6.00e+3			3.74E-02				4.34E-01
TPH-Arom-EC>8-10	0.00e+0		0.04	0.00E+00		0.04	0.100	0.00E+00
TPH-Arom-EC>10-12	7.02e+1		0.04	8.59E-04		0.04	0.100	9.96E-03
TPH-Arom-EC>12-16	6.88e+2		0.04	8.41E-03		0.04	0.100	9.76E-02
TPH-Arom-EC>16-21	5.26e+2		0.03	8.59E-03		0.03	0.100	9.96E-02
TPH-Arom-EC>21-35	7.52e+2		0.03	1.23E-02		0.03	0.100	1.42E-01
TPH-Aliph-EC 5-6	0.00e+0		0.06	0.00E+00		0.06	0.100	0.00E+00
TPH-Aliph-EC>6-8	0.00e+0		0.06	0.00E+00		0.06	0.100	0.00E+00
TPH-Aliph-EC>8-10	0.00e+0		0.10	0.00E+00		0.10	0.100	0.00E+00
TPH-Aliph-EC>10-12	2.88e+1		0.10	1.41E-04		0.10	0.100	1.64E-03
TPH-Aliph-EC>12-16	1.33e+3		0.10	6.50E-03		0.10	0.100	7.54E-02
TPH-Aliph-EC>16-35	2.61e+3		2.00	6.38E-04		2.00	0.100	7.40E-03

Calculation of Risk
Worker -- Combined Risk for Soil
Texas New Mexico Pipe Line Co.

If On-Site: $Risk_{wkr\text{-}SOIL} = Risk_{ING} + Risk_{DER} + Risk_{INHAL}$

If Off-Site: $Risk_{wkr\text{-}SOIL} = Risk_{INHAL}$

Constituent of Concern	$Risk_{ING}$ or HQ_{ING}	$Risk_{DER}$ or HQ_{DER}	$Risk_{INHAL}$ or HQ_{INHAL}	$Risk_{wkr\text{-}SOIL}$ or $HQ_{wkr\text{-}SOIL}$
Carcinogens				
Benzene	6.89E-10	0.00E+00	5.43E-08	5.50E-08
Non-Carcinogens				
Ethylbenzene	1.79E-06	0.00E+00	1.28E-05	1.46E-05
Toluene	1.02E-06	0.00E+00	7.44E-05	7.54E-05
Xylene (mixed isomers)	9.66E-07	0.00E+00	4.43E-04	4.44E-04
TPH - New Method	3.74E-02	4.34E-01	1.20E-01	5.91E-01
TPH-Arom-EC>8-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TPH-Arom-EC>10-12	8.59E-04	9.96E-03	6.73E-03	1.76E-02
TPH-Arom-EC>12-16	8.41E-03	9.76E-02	2.87E-02	1.35E-01
TPH-Arom-EC>16-21	8.59E-03	9.96E-02	3.56E-02	1.44E-01
TPH-Arom-EC>21-35	1.23E-02	1.42E-01	4.29E-03	1.59E-01
TPH-Aliph-EC 5-6	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TPH-Aliph-EC>6-8	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TPH-Aliph-EC>8-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TPH-Aliph-EC>10-12	1.41E-04	1.64E-03	1.66E-03	3.44E-03
TPH-Aliph-EC>12-16	6.50E-03	7.54E-02	3.54E-02	1.17E-01
TPH-Aliph-EC>16-35	6.38E-04	7.40E-03	7.86E-03	1.59E-02

Calculation of Risk
Resident -- Inhalation of Volatiles from Soil
Texas New Mexico Pipe Line Co.

BW (kg)	IRair (m^3/day)	EF (days/yr)	ED (years)	LS (m)	V (m/s)	DH (m)	A (m^2)	B (g/cc)	E ---	foc ---	PEF (kg/m^3)
70	15	350	30	366	4.92	2.0	42419	1.80	0.32	0.02	2.305E-10

For carcinogens: $Risk = (Conc_{soil} * (VF + PEF) / DAF) * IR_{air} * EF * ED * SF / BW * 70 * 365$

For non-carcinogens: $HQ = (Conc_{soil} * (VF + PEF) / DAF) * IR_{air} * EF * (1/RfD) / BW * 365$

$VF = (2 * Dei * E * Kas * 10\text{-}3) / (LS * V * DH / A) * (3.14 * alpha * ED * 3.15E+7)^{0.5}$

Dist (m)	DAF
30.5	1.00

Constituent of Concern	$Conc_{soil}$ (mg/kg)	SF (1/mg/kg-d)	RfD (mg/kg-d)	Dei (cm^2/sec)	Kd (cm^3/g)	H' ---	Kas (g /cm^3)	alpha (cm^2/sec)	VF (m^3/kg)	Risk or HQ
Carcinogens										
Benzene	1.36e-1	2.91e-2		2.05e-2	1.66e+0	2.32e-1	1.40e-1	4.97e-4	1.96e-4	6.25e-8
									Total Risk:	6.25e-8
Non-Carcinogens										
Ethylbenzene	3.65e-1		2.86e-1	1.64e-2	2.19e+1	2.67e-1	1.22e-2	3.56e-5	5.14e-5	1.23e-5
Toluene	4.19e-1		1.14e-1	1.84e-2	6.04e+0	2.65e-1	4.39e-2	1.42e-4	1.03e-4	7.13e-5
Xylene (mixed isomers)	3.95e+0		2.00e-1	1.63e-2	4.80e+0	2.93e-1	6.10e-2	1.75e-4	1.15e-4	4.25e-4
TPH - New Method	6,003									0.115
TPH-Arom-EC>8-10	0		5.71e-2	2.20e-2	3.17e+1	4.84e-1	1.53e-2	5.94e-5	6.65e-5	0.000
TPH-Arom-EC>10-12	70		5.71e-2	2.20e-2	5.02e+1	1.36e-1	2.71e-3	1.06e-5	2.80e-5	0.006
TPH-Arom-EC>12-16	688		5.71e-2	2.20e-2	1.00e+2	5.16e-2	5.15e-4	2.01e-6	1.22e-5	0.028
TPH-Arom-EC>16-21	526		3.00e-2	2.20e-2	3.17e+2	1.18e-1	3.72e-4	1.45e-6	1.04e-5	0.034
TPH-Arom-EC>21-35	752		3.00e-2	2.20e-2	2.52e+3	6.65e-3	2.64e-6	1.03e-8	8.73e-7	4.11e-3
TPH-Aliph-EC 5-6	0		5.71e-2	2.20e-2	1.59e+1	3.28e+1	2.06e+0	5.89e-3	9.02e-4	0.000
TPH-Aliph-EC>6-8	0		5.71e-2	2.20e-2	7.96e+1	4.85e+1	6.09e-1	2.15e-3	4.41e-4	0.000
TPH-Aliph-EC>8-10	0		2.86e-1	2.20e-2	6.32e+2	7.92e+1	1.25e-1	4.79e-4	1.92e-4	0.000
TPH-Aliph-EC>10-12	29		2.86e-1	2.20e-2	5.02e+3	1.23e+2	2.45e-2	9.55e-5	8.43e-5	0.002
TPH-Aliph-EC>12-16	1,328		2.86e-1	2.20e-2	1.00e+5	5.25e+2	5.24e-3	2.05e-5	3.89e-5	0.034
TPH-Aliph-EC>16-35	2,610		2.00e+0	2.20e-2	2.00e+7	6.57e+4	3.28e-3	1.28e-5	3.08e-5	0.008

Calculation of Risk
Resident -- Ingestion of Soil & Dermal Contact with Soil
Texas New Mexico Pipe Line Co.

BW (kg)	CF (mg/kg)	IRsoil (mg/day)	EF (days/yr)	ED (years)	EF_{dermal} (days/yr)	SA (cm^2)	AF (mg/cm^2)
70	1.00E+06	124	350	30	350	5,800	1.00

For carcinogens:

$$Risk_{ING} = Conc_{soil} * IR_{soil} * EF * ED * SF / BW * 70 * 365 * CF$$

$$Risk_{DER} = Conc_{soil} * SA * AF * ABS * EF * ED * SF / BW * 70 * 365 * CF$$

For non-carcinogens:

$$HQ_{ING} = Conc_{soil} * IR_{soil} * EF * (1/RfD) / BW * 365 * CF$$

$$HQ_{DER} = Conc_{soil} * SA * AF * ABS * EF * (1/RfD) / BW * 365 * CF$$

Constituent of Concern	$Conc_{soil}$ (mg/kg)	SFo (1/mg/kg-d)	RfDo (mg/kg-d)	$Risk_{ING}$ or HQ_{ING}	SFd (1/mg/kg-d)	RfDd (mg/kg-d)	ABS —	$Risk_{DER}$ or HQ_{DER}
Carcinogens								
Benzene	1.36e-1	0.029		6.70E-09	0.029		0.000	0.00E+00
			Total Risk:	6.70e-9			Total Risk:	0.00e+0
Non-Carcinogens								
Ethylbenzene	3.65e-1		0.10	4.67E-05		0.10	0.000	0.00E+00
Toluene	4.19e-1		0.20	2.68E-05		0.20	0.000	0.00E+00
Xylene (mixed isomers)	3.95e+0		2.00	2.52E-05		2.00	0.000	0.00E+00
TPH - New Method	6.00e+3			9.77E-01				6.07E-01
TPH-Arom-EC>8-10	0.00e+0		0.04	0.00E+00		0.04	0.100	0.00E+00
TPH-Arom-EC>10-12	7.02e+1		0.04	2.24E-02		0.04	0.100	1.40E-02
TPH-Arom-EC>12-16	6.88e+2		0.04	2.20E-01		0.04	0.100	1.37E-01
TPH-Arom-EC>16-21	5.26e+2		0.03	2.24E-01		0.03	0.100	1.39E-01
TPH-Arom-EC>21-35	7.52e+2		0.03	3.21E-01		0.03	0.100	1.99E-01
TPH-Aliph-EC 5-6	0.00e+0		0.06	0.00E+00		0.06	0.100	0.00E+00
TPH-Aliph-EC>6-8	0.00e+0		0.06	0.00E+00		0.06	0.100	0.00E+00
TPH-Aliph-EC>8-10	0.00e+0		0.10	0.00E+00		0.10	0.100	0.00E+00
TPH-Aliph-EC>10-12	2.88e+1		0.10	3.68E-03		0.10	0.100	2.29E-03
TPH-Aliph-EC>12-16	1.33e+3		0.10	1.70E-01		0.10	0.100	1.06E-01
TPH-Aliph-EC>16-35	2.61e+3		2.00	1.67E-02		2.00	0.100	1.04E-02

Calculation of Risk
Resident -- Combined Risk for Soil
Texas New Mexico Pipe Line Co.

If On-Site: $Risk_{res\text{-}SOIL} = Risk_{ING} + Risk_{DER} + Risk_{INHAL}$

If Off-Site: $Risk_{res\text{-}SOIL} = Risk_{INHAL}$

Constituent of Concern	$Risk_{ING}$ or HQ_{ING}	$Risk_{DER}$ or HQ_{DER}	$Risk_{INHAL}$ or HQ_{INHAL}	$Risk_{res\text{-}SOIL}$ or $HQ_{res\text{-}SOIL}$
Carcinogens				
Benzene	6.70E-09	0.00E+00	6.25E-08	6.25E-08
Non-Carcinogens				
Ethylbenzene	4.67E-05	0.00E+00	1.23E-05	1.23E-05
Toluene	2.68E-05	0.00E+00	7.13E-05	7.13E-05
Xylene (mixed isomers)	2.52E-05	0.00E+00	4.25E-04	4.25E-04
TPH - New Method	9.77E-01	6.07E-01	1.15E-01	1.15E-01
TPH-Arom-EC>8-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TPH-Arom-EC>10-12	2.24E-02	1.40E-02	6.45E-03	6.45E-03
TPH-Arom-EC>12-16	2.20E-01	1.37E-01	2.75E-02	2.75E-02
TPH-Arom-EC>16-21	2.24E-01	1.39E-01	3.41E-02	3.41E-02
TPH-Arom-EC>21-35	3.21E-01	1.99E-01	4.11E-03	4.11E-03
TPH-Aliph-EC 5-6	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TPH-Aliph-EC>6-8	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TPH-Aliph-EC>8-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TPH-Aliph-EC>10-12	3.68E-03	2.29E-03	1.60E-03	1.60E-03
TPH-Aliph-EC>12-16	1.70E-01	1.06E-01	3.39E-02	3.39E-02
TPH-Aliph-EC>16-35	1.67E-02	1.04E-02	7.53E-03	7.53E-03

Calculation of Risk
Construction Worker -- Inhalation of Volatiles from Soil
Texas New Mexico Pipe Line Co.

BW (kg)	IRair (m^3/day)	EF (days/yr)	ED (years)	LS (m)	V (m/s)	DH (m)	A (m^2)	B (g/cc)	E ---	foc ---	PEF (kg/m^3)
70	20	5	12	5	0.49	2.0	109	1.80	0.32	0.02	4.58e-11

For carcinogens: $Risk = Conc_{soil} * (VF + PEF) * IR_{air} * EF * ED * SF / BW * 70 * 365$

For non-carcinogens: $HQ = Conc_{soil} * (VF + PEF) * IR_{air} * EF * (1/RfD) / BW * 365$

$VF = (2 * Dei * E * Kas * 10\text{-}3) / (LS * V * DH / A) * (3.14 * alpha * ED * 3.15E+7)^{0.5}$

Constituent of Concern	$Conc_{soil}$ (mg/kg)	SF (1/mg/kg-d)	RfD (mg/kg-d)	Dei (cm^2/sec)	Kd (cm^3/g)	H' ---	Kas (g /cm^3)	alpha (cm^2/sec)	VF (m^3/kg)	Risk or HQ
Carcinogens										
Benzene	1.36e-1	2.91e-2		2.05e-2	1.66e+0	2.32e-1	1.40e-1	4.97e-4	5.63e-4	1.50e-9
									Total Risk:	1.50e-9
Non-Carcinogens										
Ethylbenzene	3.65e-1		2.86e-1	1.64e-2	2.19e+1	2.67e-1	1.22e-2	3.56e-5	1.47e-4	3.68e-5
Toluene	4.19e-1		1.14e-1	1.84e-2	6.04e+0	2.65e-1	4.39e-2	1.42e-4	2.97e-4	2.13e-4
Xylene (mixed isomers)	3.95e+0		2.00e-1	1.63e-2	4.80e+0	2.93e-1	6.10e-2	1.75e-4	3.29e-4	1.27e-3
TPH - New Method	6.00e+3									3.45e-1
TPH-Arom-EC>8-10	0.00e+0		5.71e-2	2.20e-2	3.17e+1	4.84e-1	1.53e-2	5.94e-5	1.91e-4	0.00e+0
TPH-Arom-EC>10-12	7.02e+1		5.71e-2	2.20e-2	5.02e+1	1.36e-1	2.71e-3	1.06e-5	8.02e-5	1.93e-2
TPH-Arom-EC>12-16	6.88e+2		5.71e-2	2.20e-2	1.00e+2	5.16e-2	5.15e-4	2.01e-6	3.50e-5	8.24e-2
TPH-Arom-EC>16-21	5.26e+2		3.00e-2	2.20e-2	3.17e+2	1.18e-1	3.72e-4	1.45e-6	2.97e-5	1.02e-1
TPH-Arom-EC>21-35	7.52e+2		3.00e-2	2.20e-2	2.52e+3	6.65e-3	2.64e-6	1.03e-8	2.50e-6	1.23e-2
TPH-Aliph-EC 5-6	0.00e+0		5.71e-2	2.20e-2	1.59e+1	3.28e+1	2.06e+0	5.89e-3	2.59e-3	0.00e+0
TPH-Aliph-EC>6-8	0.00e+0		5.71e-2	2.20e-2	7.96e+1	4.85e+1	6.09e-1	2.15e-3	1.27e-3	0.00e+0
TPH-Aliph-EC>8-10	0.00e+0		2.86e-1	2.20e-2	6.32e+2	7.92e+1	1.25e-1	4.79e-4	5.51e-4	0.00e+0
TPH-Aliph-EC>10-12	2.88e+1		2.86e-1	2.20e-2	5.02e+3	1.23e+2	2.45e-2	9.55e-5	2.42e-4	4.77e-3
TPH-Aliph-EC>12-16	1.33e+3		2.86e-1	2.20e-2	1.00e+5	5.25e+2	5.24e-3	2.05e-5	1.12e-4	1.01e-1
TPH-Aliph-EC>16-35	2.61e+3		2.00e+0	2.20e-2	2.00e+7	6.57e+4	3.28e-3	1.28e-5	8.83e-5	2.25e-2

Calculation of Risk
Construction Worker -- Ingestion of Soil & Dermal Contact with Soil
Texas New Mexico Pipe Line Co.

BW (kg)	CF (mg/kg)	IRsoil (mg/day)	EF (days/yr)	ED (years)	EF_{dermal} (days/yr)	SA (cm^2)	AF (mg/cm^2)
70	1.00E+06	480	5	12	5	3,300	0.12

For carcinogens:

$$Risk_{ING} = Conc_{soil} * IR_{soil} * EF * ED * SF / BW * 70 * 365 * CF$$

$$Risk_{DER} = Conc_{soil} * SA * AF * ABS * EF * ED * SF / BW * 70 * 365 * CF$$

For non-carcinogens:

$$HQ_{ING} = Conc_{soil} * IR_{soil} * EF * (1/RfD) / BW * 365 * CF$$

$$HQ_{DER} = Conc_{soil} * SA * AF * ABS * EF * (1/RfD) / BW * 365 * CF$$

Constituent of Concern	$Conc_{soil}$ (mg/kg)	SFo (1/mg/kg-d)	RfDo (mg/kg-d)	$Risk_{ING}$ or HQ_{ING}	SFd (1/mg/kg-d)	RfDd (mg/kg-d)	ABS ---	$Risk_{DER}$ or HQ_{DER}
Carcinogens								
Benzene	1.36e-1	0.029		6.35e-11	0.029		0.000	0.00e+0
			Total Risk:	6.35e-11			**Total Risk:**	0.00e+0
Non-Carcinogens								
Ethylbenzene	3.65e-1		0.10	1.71e-5		0.10	0.000	0.00e+0
Toluene	4.19e-1		0.20	9.84e-6		0.20	0.000	0.00e+0
Xylene (mixed isomers)	3.95e+0		2.00	9.27e-6		2.00	0.000	0.00e+0
TPH - New Method	6.00e+3			3.59e-1				2.96e-2
TPH-Arom-EC>8-10	0.00e+0		0.04	0.00e+0		0.04	0.100	0.00e+0
TPH-Arom-EC>10-12	7.02e+1		0.04	8.25e-3		0.04	0.100	6.80e-4
TPH-Arom-EC>12-16	6.88e+2		0.04	8.08e-2		0.04	0.100	6.66e-3
TPH-Arom-EC>16-21	5.26e+2		0.03	8.24e-2		0.03	0.100	6.80e-3
TPH-Arom-EC>21-35	7.52e+2		0.03	1.18e-1		0.03	0.100	9.71e-3
TPH-Aliph-EC 5-6	0.00e+0		0.06	0.00e+0		0.06	0.100	0.00e+0
TPH-Aliph-EC>6-8	0.00e+0		0.06	0.00e+0		0.06	0.100	0.00e+0
TPH-Aliph-EC>8-10	0.00e+0		0.10	0.00e+0		0.10	0.100	0.00e+0
TPH-Aliph-EC>10-12	2.88e+1		0.10	1.35e-3		0.10	0.100	1.12e-4
TPH-Aliph-EC>12-16	1.33e+3		0.10	6.24e-2		0.10	0.100	5.15e-3
TPH-Aliph-EC>16-35	2.61e+3		2.00	6.13e-3		2.00	0.100	5.06e-4

Calculation of Risk
Construction Worker -- Combined Risk for Soil
Texas New Mexico Pipe Line Co.

$$Risk_{CW\text{-}SOIL} = Risk_{ING} + Risk_{DER} + Risk_{INHAL}$$

Constituent of Concern	$Risk_{ING}$ or HQ_{ING}	$Risk_{DER}$ or HQ_{DER}	$Risk_{INHAL}$ or HQ_{INHAL}	$Risk_{CW\text{-}SOIL}$ or $HQ_{CW\text{-}SOIL}$
Carcinogens				
Benzene	6.35e-11	0.00e+0	1.50e-9	1.56e-9
Non-Carcinogens				
Ethylbenzene	1.71e-5	0.00e+0	3.68e-5	5.39e-5
Toluene	9.84e-6	0.00e+0	2.13e-4	2.23e-4
Xylene (mixed isomers)	9.27e-6	0.00e+0	1.27e-3	1.28e-3
TPH - New Method	3.59e-1	2.96e-2	3.45e-1	7.33e-1
TPH-Arom-EC>8-10	0.00e+0	0.00e+0	0.00e+0	0.00e+0
TPH-Arom-EC>10-12	8.25e-3	6.80e-4	1.93e-2	2.82e-2
TPH-Arom-EC>12-16	8.08e-2	6.66e-3	8.24e-2	1.70e-1
TPH-Arom-EC>16-21	8.24e-2	6.80e-3	1.02e-1	1.91e-1
TPH-Arom-EC>21-35	1.18e-1	9.71e-3	1.23e-2	1.40e-1
TPH-Aliph-EC 5-6	0.00e+0	0.00e+0	0.00e+0	0.00e+0
TPH-Aliph-EC>6-8	0.00e+0	0.00e+0	0.00e+0	0.00e+0
TPH-Aliph-EC>8-10	0.00e+0	0.00e+0	0.00e+0	0.00e+0
TPH-Aliph-EC>10-12	1.35e-3	1.12e-4	4.77e-3	6.24e-3
TPH-Aliph-EC>12-16	6.24e-2	5.15e-3	1.01e-1	1.69e-1
TPH-Aliph-EC>16-35	6.13e-3	5.06e-4	2.25e-2	2.92e-2

Jury Output File
Analysis for Example Problem

*** COMMON INPUT PARAMETERS ***

PARAMETER NAME	UNITS	VALUE
Porosity	(cc/cc)	0.25
Bulk Density	(g/cc)	1.8
Water Content	(cc/cc)	0.1
Fractional Organic Carbon	(mg/mg)	2.00E-02
Incorporation Depth	(cm)	66.7
Clean Soil Thickness	(cm)	0
Simulation Time	(yrs)	70
Length of Soil Column	(cm)	1470
Infiltration Rate	(cm/day)	5.19E-02
Source Length	(m)	366
Source Width	(m)	116
Boundary Layer Thickness	(cm)	5

Chemical Specific Input Parameters for Benzene

Parameter Name	Units	Value
Total Soil Concentration	(mg/kg)	1
Diffusion Coeff. in Air	(cm^2/day	7517
Diffusion Coeff. in Water	(cm^2/day	0.8467
Henrys Constant [	(mg/L)	/(mg/L)] .2490
Organic Carbon Part. Coeff.	(cc/g)	83
Lumped Chemical Decay Rate	(1/day)	2.00E-03

Outputs for Benzene

Time = 1 yrs

Cumulative Emissions to Air	(g)	36120
Advective Mass Loading Rate to Groundwater	(g/day)	3.3E-35
Diffusive Mass Loading Rate to Groundwater	(g/day)	1E-32
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	1E-32

Time = 2 yrs

Cumulative Emissions to Air	(g)	37370
Advective Mass Loading Rate to Groundwater	(g/day)	2.38E-18
Diffusive Mass Loading Rate to Groundwater	(g/day)	2.16E-16
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	2.18E-16

Time = 3 yrs

Cumulative Emissions to Air	(g)	37630
Advective Mass Loading Rate to Groundwater	(g/day)	5.97E-13
Diffusive Mass Loading Rate to Groundwater	(g/day)	3.07E-11
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	3.13E-11

Time = 4 yrs

Cumulative Emissions to Air	(g)	37710
Advective Mass Loading Rate to Groundwater	(g/day)	1.97E-10
Diffusive Mass Loading Rate to Groundwater	(g/day)	6.98E-09
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	7.17E-09

Time = 5 yrs

Cumulative Emissions to Air	(g)	37730
Advective Mass Loading Rate to Groundwater	(g/day)	4.53E-09
Diffusive Mass Loading Rate to Groundwater	(g/day)	1.22E-07
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	1.26E-07

Time = 10 yrs

Cumulative Emissions to Air	(g)	37750
Advective Mass Loading Rate to Groundwater	(g/day)	1.98E-07
Diffusive Mass Loading Rate to Groundwater	(g/day)	2.32E-06
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	2.52E-06

Time = 15 yrs

Cumulative Emissions to Air	(g)	37750
Advective Mass Loading Rate to Groundwater	(g/day)	4.8E-08
Diffusive Mass Loading Rate to Groundwater	(g/day)	3.43E-07
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	3.91E-07

Time = 20 yrs

Cumulative Emissions to Air	(g)	37750

Advective Mass Loading Rate to Groundwater	(g/day)	3.35E-09
Diffusive Mass Loading Rate to Groundwater	(g/day)	1.67E-08
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	2E-08

Time = 25 yrs

Cumulative Emissions to Air	(g)	37750
Advective Mass Loading Rate to Groundwater	(g/day)	1.46E-10
Diffusive Mass Loading Rate to Groundwater	(g/day)	5.4E-10
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	6.86E-10

Time = 30 yrs

Cumulative Emissions to Air	(g)	37750
Advective Mass Loading Rate to Groundwater	(g/day)	5.07E-12
Diffusive Mass Loading Rate to Groundwater	(g/day)	1.45E-11
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	1.96E-11

Time = 35 yrs

Cumulative Emissions to Air	(g)	37750
Advective Mass Loading Rate to Groundwater	(g/day)	1.56E-13
Diffusive Mass Loading Rate to Groundwater	(g/day)	3.55E-13
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	5.11E-13

Time = 40 yrs

Cumulative Emissions to Air	(g)	37750
Advective Mass Loading Rate to Groundwater	(g/day)	4.49E-15
Diffusive Mass Loading Rate to Groundwater	(g/day)	8.21E-15
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	1.27E-14

Time = 45 yrs

Cumulative Emissions to Air	(g)	37750
Advective Mass Loading Rate to Groundwater	(g/day)	1.23E-16
Diffusive Mass Loading Rate to Groundwater	(g/day)	1.83E-16
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	3.06E-16

Time = 50 yrs

Cumulative Emissions to Air	(g)	37750
Advective Mass Loading Rate to Groundwater	(g/day)	3.29E-18

Diffusive Mass Loading Rate to Groundwater	(g/day)	3.99E-18
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	7.27E-18

Time = 55 yrs

Cumulative Emissions to Air	(g)	37750
Advective Mass Loading Rate to Groundwater	(g/day)	8.6E-20
Diffusive Mass Loading Rate to Groundwater	(g/day)	8.51E-20
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	1.71E-19

Time = 60 yrs

Cumulative Emissions to Air	(g)	37750
Advective Mass Loading Rate to Groundwater	(g/day)	2.22E-21
Diffusive Mass Loading Rate to Groundwater	(g/day)	1.79E-21
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	4E-21

Time = 65 yrs

Cumulative Emissions to Air	(g)	37750
Advective Mass Loading Rate to Groundwater	(g/day)	5.67E-23
Diffusive Mass Loading Rate to Groundwater	(g/day)	3.68E-23
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	9.35E-23

Time = 70 yrs

Cumulative Emissions to Air	(g)	37750
Advective Mass Loading Rate to Groundwater	(g/day)	1.44E-24
Diffusive Mass Loading Rate to Groundwater	(g/day)	7.42E-25
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	2.18E-24

Chemical Specific Input Parameters for Ethylbenzene

Parameter Name	Units	Value
Total Soil Concentration	(mg/kg)	1
Diffusion Coeff. in Air	(cm^2/day	5702
Diffusion Coeff. in Water	(cm^2/day	0.5875
Henrys Constant [	(mg/L)	/(mg/L)] .2870
Organic Carbon Part. Coeff.	(cc/g)	1100
Lumped Chemical Decay Rate	(1/day)	3.00E-03

Outputs for Ethylbenzene

Time = 1 yrs

Cumulative Emissions to Air	(g)	13480
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 2 yrs

Cumulative Emissions to Air	(g)	14840
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 3 yrs

Cumulative Emissions to Air	(g)	15110
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 4 yrs

Cumulative Emissions to Air	(g)	15170
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 5 yrs

Cumulative Emissions to Air	(g)	15190
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 10 yrs

Cumulative Emissions to Air	(g)	15190
Advective Mass Loading Rate to Groundwater	(g/day)	2.82E-56
Diffusive Mass Loading Rate to Groundwater	(g/day)	1.81E-53

Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 15 yrs

Cumulative Emissions to Air	(g)	15190
Advective Mass Loading Rate to Groundwater	(g/day)	4.84E-42
Diffusive Mass Loading Rate to Groundwater	(g/day)	1.2E-39
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	1.21E-39

Time = 20 yrs

Cumulative Emissions to Air	(g)	15190
Advective Mass Loading Rate to Groundwater	(g/day)	4.25E-36
Diffusive Mass Loading Rate to Groundwater	(g/day)	6.15E-34
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	6.19E-34

Time = 25 yrs

Cumulative Emissions to Air	(g)	15190
Advective Mass Loading Rate to Groundwater	(g/day)	1.78E-33
Diffusive Mass Loading Rate to Groundwater	(g/day)	1.78E-31
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	1.79E-31

Time = 30 yrs

Cumulative Emissions to Air	(g)	15190
Advective Mass Loading Rate to Groundwater	(g/day)	1.6E-32
Diffusive Mass Loading Rate to Groundwater	(g/day)	1.21E-30
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	1.23E-30

Time = 35 yrs

Cumulative Emissions to Air	(g)	15190
Advective Mass Loading Rate to Groundwater	(g/day)	1.6E-32
Diffusive Mass Loading Rate to Groundwater	(g/day)	9.73E-31
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	9.89E-31

Time = 40 yrs

Cumulative Emissions to Air	(g)	15190
Advective Mass Loading Rate to Groundwater	(g/day)	4.06E-33
Diffusive Mass Loading Rate to Groundwater	(g/day)	2.05E-31
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	2.09E-31

Time = 45 yrs

Cumulative Emissions to Air	(g)	15190
Advective Mass Loading Rate to Groundwater	(g/day)	4.09E-34
Diffusive Mass Loading Rate to Groundwater	(g/day)	1.76E-32
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	1.8E-32

Time = 50 yrs

Cumulative Emissions to Air	(g)	15190
Advective Mass Loading Rate to Groundwater	(g/day)	2.17E-35
Diffusive Mass Loading Rate to Groundwater	(g/day)	8.13E-34
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	8.35E-34

Time = 55 yrs

Cumulative Emissions to Air	(g)	15190
Advective Mass Loading Rate to Groundwater	(g/day)	7.18E-37
Diffusive Mass Loading Rate to Groundwater	(g/day)	2.38E-35
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	2.46E-35

Time = 60 yrs

Cumulative Emissions to Air	(g)	15190
Advective Mass Loading Rate to Groundwater	(g/day)	1.67E-38
Diffusive Mass Loading Rate to Groundwater	(g/day)	4.98E-37
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	5.14E-37

Time = 65 yrs

Cumulative Emissions to Air	(g)	15190
Advective Mass Loading Rate to Groundwater	(g/day)	2.98E-40
Diffusive Mass Loading Rate to Groundwater	(g/day)	8E-39
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	8.3E-39

Time = 70 yrs

Cumulative Emissions to Air	(g)	15190
Advective Mass Loading Rate to Groundwater	(g/day)	4.28E-42
Diffusive Mass Loading Rate to Groundwater	(g/day)	1.05E-40
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	1.09E-40

Chemical Specific Input Parameters for Naphthalene

Parameter Name	Units	Value
Total Soil Concentration	(mg/kg)	1
Diffusion Coeff. in Air	(cm^2/day	5098
Diffusion Coeff. in Water	(cm^2/day	0.648
Henrys Constant [	(mg/L)	/(mg/L)] .5780E-01
Organic Carbon Part. Coeff.	(cc/g)	1300
Lumped Chemical Decay Rate	(1/day)	0

Outputs for Naphthalene

Time = 1 yrs

Cumulative Emissions to Air	(g)	7108
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 2 yrs

Cumulative Emissions to Air	(g)	10010
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 3 yrs

Cumulative Emissions to Air	(g)	12190
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 4 yrs

Cumulative Emissions to Air	(g)	14000
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 5 yrs

Cumulative Emissions to Air	(g)	15550
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 10 yrs

Cumulative Emissions to Air	(g)	21070
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 15 yrs

Cumulative Emissions to Air	(g)	24530
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 20 yrs

Cumulative Emissions to Air	(g)	26950
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 25 yrs

Cumulative Emissions to Air	(g)	28750
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 30 yrs

Cumulative Emissions to Air	(g)	30160
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 35 yrs

Cumulative Emissions to Air	(g)	31300
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 40 yrs

Cumulative Emissions to Air	(g)	32240
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 45 yrs

Cumulative Emissions to Air	(g)	33040
Advective Mass Loading Rate to Groundwater	(g/day)	9.19E-73
Diffusive Mass Loading Rate to Groundwater	(g/day)	3.34E-70
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 50 yrs

Cumulative Emissions to Air	(g)	33730
Advective Mass Loading Rate to Groundwater	(g/day)	1.6E-65
Diffusive Mass Loading Rate to Groundwater	(g/day)	4.01E-63
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 55 yrs

Cumulative Emissions to Air	(g)	34320
Advective Mass Loading Rate to Groundwater	(g/day)	1.35E-59
Diffusive Mass Loading Rate to Groundwater	(g/day)	2.49E-57
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 60 yrs

Cumulative Emissions to Air	(g)	34850
Advective Mass Loading Rate to Groundwater	(g/day)	1.18E-54
Diffusive Mass Loading Rate to Groundwater	(g/day)	1.67E-52
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 65 yrs

Cumulative Emissions to Air	(g)	35320
Advective Mass Loading Rate to Groundwater	(g/day)	1.79E-50
Diffusive Mass Loading Rate to Groundwater	(g/day)	2.02E-48
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 70 yrs

Cumulative Emissions to Air	(g)	35740
Advective Mass Loading Rate to Groundwater	(g/day)	6.87E-47
Diffusive Mass Loading Rate to Groundwater	(g/day)	6.4E-45
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	7.01E-45

Chemical Specific Input Parameters for Toluene

Parameter Name	Units	Value
Total Soil Concentration	(mg/kg)	1
Diffusion Coeff. in Air	(cm^2/day	6739
Diffusion Coeff. in Water	(cm^2/day	0.743
Henrys Constant [	(mg/L)	/(mg/L)] .2840
Organic Carbon Part. Coeff.	(cc/g)	300
Lumped Chemical Decay Rate	(1/day)	3.30E-03

Outputs for Toluene

Time = 1 yrs

Cumulative Emissions to Air	(g)	24150
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 2 yrs

Cumulative Emissions to Air	(g)	25200
Advective Mass Loading Rate to Groundwater	(g/day)	7.12E-61
Diffusive Mass Loading Rate to Groundwater	(g/day)	8.55E-58
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 3 yrs

Cumulative Emissions to Air	(g)	25350
Advective Mass Loading Rate to Groundwater	(g/day)	7.41E-42
Diffusive Mass Loading Rate to Groundwater	(g/day)	3.06E-39
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	3.07E-39

Time = 4 yrs

Cumulative Emissions to Air	(g)	25370
Advective Mass Loading Rate to Groundwater	(g/day)	1.36E-32
Diffusive Mass Loading Rate to Groundwater	(g/day)	3.1E-30
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	3.11E-30

Time = 5 yrs

Cumulative Emissions to Air	(g)	25380
Advective Mass Loading Rate to Groundwater	(g/day)	3.1E-27
Diffusive Mass Loading Rate to Groundwater	(g/day)	4.74E-25
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	4.77E-25

Time = 10 yrs

Cumulative Emissions to Air	(g)	25380
Advective Mass Loading Rate to Groundwater	(g/day)	4.32E-18
Diffusive Mass Loading Rate to Groundwater	(g/day)	2.36E-16
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	2.4E-16

Time = 15 yrs

Cumulative Emissions to Air	(g)	25380
Advective Mass Loading Rate to Groundwater	(g/day)	7.9E-17
Diffusive Mass Loading Rate to Groundwater	(g/day)	2.56E-15
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	2.64E-15

Time = 20 yrs

Cumulative Emissions to Air	(g)	25380
Advective Mass Loading Rate to Groundwater	(g/day)	1.52E-17
Diffusive Mass Loading Rate to Groundwater	(g/day)	3.47E-16
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	3.62E-16

Time = 25 yrs

Cumulative Emissions to Air	(g)	25380
Advective Mass Loading Rate to Groundwater	(g/day)	4.79E-19
Diffusive Mass Loading Rate to Groundwater	(g/day)	8.35E-18
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	8.83E-18

Time = 30 yrs

Cumulative Emissions to Air	(g)	25380
Advective Mass Loading Rate to Groundwater	(g/day)	6.15E-21
Diffusive Mass Loading Rate to Groundwater	(g/day)	8.56E-20
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	9.18E-20

Time = 35 yrs

Cumulative Emissions to Air	(g)	25380
Advective Mass Loading Rate to Groundwater	(g/day)	4.72E-23
Diffusive Mass Loading Rate to Groundwater	(g/day)	5.47E-22
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	5.94E-22

Time = 40 yrs

Cumulative Emissions to Air	(g)	25380
Advective Mass Loading Rate to Groundwater	(g/day)	2.65E-25
Diffusive Mass Loading Rate to Groundwater	(g/day)	2.63E-24
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	2.9E-24

Time = 45 yrs

Cumulative Emissions to Air	(g)	25380
Advective Mass Loading Rate to Groundwater	(g/day)	1.21E-27
Diffusive Mass Loading Rate to Groundwater	(g/day)	1.04E-26
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	1.17E-26

Time = 50 yrs

Cumulative Emissions to Air	(g)	25380
Advective Mass Loading Rate to Groundwater	(g/day)	4.8E-30
Diffusive Mass Loading Rate to Groundwater	(g/day)	3.63E-29
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	4.11E-29

Time = 55 yrs

Cumulative Emissions to Air	(g)	25380

Advective Mass Loading Rate to Groundwater	(g/day)	1.71E-32
Diffusive Mass Loading Rate to Groundwater	(g/day)	1.15E-31
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	1.33E-31

Time = 60 yrs

Cumulative Emissions to Air	(g)	25380
Advective Mass Loading Rate to Groundwater	(g/day)	5.67E-35
Diffusive Mass Loading Rate to Groundwater	(g/day)	3.43E-34
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	3.99E-34

Time = 65 yrs

Cumulative Emissions to Air	(g)	25380
Advective Mass Loading Rate to Groundwater	(g/day)	1.77E-37
Diffusive Mass Loading Rate to Groundwater	(g/day)	9.67E-37
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	1.14E-36

Time = 70 yrs

Cumulative Emissions to Air	(g)	25380
Advective Mass Loading Rate to Groundwater	(g/day)	5.29E-40
Diffusive Mass Loading Rate to Groundwater	(g/day)	2.63E-39
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	3.16E-39

Chemical Specific Input Parameters for Xylene

Parameter Name	Units	Value
Total Soil Concentration	(mg/kg)	1
Diffusion Coeff. in Air	(cm^2/day	6221
Diffusion Coeff. in Water	(cm^2/day	0.6739
Henrys Constant [	(mg/L)	/(mg/L)] .3150
Organic Carbon Part. Coeff.	(cc/g)	240
Lumped Chemical Decay Rate	(1/day)	2.00E-03

Outputs for Xylene

Time = 1 yrs

Cumulative Emissions to Air	(g)	28680

Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 2 yrs

Cumulative Emissions to Air	(g)	30520
Advective Mass Loading Rate to Groundwater	(g/day)	9.79E-48
Diffusive Mass Loading Rate to Groundwater	(g/day)	6.11E-45
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	5.61E-45

Time = 3 yrs

Cumulative Emissions to Air	(g)	30940
Advective Mass Loading Rate to Groundwater	(g/day)	1.04E-32
Diffusive Mass Loading Rate to Groundwater	(g/day)	2.65E-30
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	2.66E-30

Time = 4 yrs

Cumulative Emissions to Air	(g)	31060
Advective Mass Loading Rate to Groundwater	(g/day)	2.44E-25
Diffusive Mass Loading Rate to Groundwater	(g/day)	3.7E-23
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	3.72E-23

Time = 5 yrs

Cumulative Emissions to Air	(g)	31100
Advective Mass Loading Rate to Groundwater	(g/day)	4.86E-21
Diffusive Mass Loading Rate to Groundwater	(g/day)	5.15E-19
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	5.2E-19

Time = 10 yrs

Cumulative Emissions to Air	(g)	31120
Advective Mass Loading Rate to Groundwater	(g/day)	2E-13
Diffusive Mass Loading Rate to Groundwater	(g/day)	8.14E-12
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	8.34E-12

Time = 15 yrs

Cumulative Emissions to Air	(g)	31120
Advective Mass Loading Rate to Groundwater	(g/day)	5.24E-12

Diffusive Mass Loading Rate to Groundwater	(g/day)	1.29E-10
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	1.34E-10

Time = 20 yrs

Cumulative Emissions to Air	(g)	31120
Advective Mass Loading Rate to Groundwater	(g/day)	3.91E-12
Diffusive Mass Loading Rate to Groundwater	(g/day)	6.81E-11
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	7.2E-11

Time = 25 yrs

Cumulative Emissions to Air	(g)	31120
Advective Mass Loading Rate to Groundwater	(g/day)	7.12E-13
Diffusive Mass Loading Rate to Groundwater	(g/day)	9.51E-12
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	1.02E-11

Time = 30 yrs

Cumulative Emissions to Air	(g)	31120
Advective Mass Loading Rate to Groundwater	(g/day)	6.45E-14
Diffusive Mass Loading Rate to Groundwater	(g/day)	6.96E-13
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	7.61E-13

Time = 35 yrs

Cumulative Emissions to Air	(g)	31120
Advective Mass Loading Rate to Groundwater	(g/day)	3.96E-15
Diffusive Mass Loading Rate to Groundwater	(g/day)	3.53E-14
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	3.93E-14

Time = 40 yrs

Cumulative Emissions to Air	(g)	31120
Advective Mass Loading Rate to Groundwater	(g/day)	1.91E-16
Diffusive Mass Loading Rate to Groundwater	(g/day)	1.45E-15
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	1.64E-15

Time = 45 yrs

Cumulative Emissions to Air	(g)	31120
Advective Mass Loading Rate to Groundwater	(g/day)	7.85E-18
Diffusive Mass Loading Rate to Groundwater	(g/day)	5.15E-17

Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	5.93E-17

Time = 50 yrs

Cumulative Emissions to Air	(g)	31120
Advective Mass Loading Rate to Groundwater	(g/day)	2.9E-19
Diffusive Mass Loading Rate to Groundwater	(g/day)	1.66E-18
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	1.95E-18

Time = 55 yrs

Cumulative Emissions to Air	(g)	31120
Advective Mass Loading Rate to Groundwater	(g/day)	9.89E-21
Diffusive Mass Loading Rate to Groundwater	(g/day)	5.03E-20
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	6.02E-20

Time = 60 yrs

Cumulative Emissions to Air	(g)	31120
Advective Mass Loading Rate to Groundwater	(g/day)	3.19E-22
Diffusive Mass Loading Rate to Groundwater	(g/day)	1.45E-21
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	1.77E-21

Time = 65 yrs

Cumulative Emissions to Air	(g)	31120
Advective Mass Loading Rate to Groundwater	(g/day)	9.86E-24
Diffusive Mass Loading Rate to Groundwater	(g/day)	4.02E-23
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	5.01E-23

Time = 70 yrs

Cumulative Emissions to Air	(g)	31120
Advective Mass Loading Rate to Groundwater	(g/day)	2.95E-25
Diffusive Mass Loading Rate to Groundwater	(g/day)	1.09E-24
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	1.38E-24

AT123D Output File
Analysis for Example Problem

Chemicals in the analysis
Benzene
Ethylbenzene
Naphthalene
Toluene
Xylene

Number of years simulated: 70

GENERAL INPUT DATA
****

NO. OF POINTS IN X-DIRECTION	1
NO. OF POINTS IN Y-DIRECTION	1
NO. OF POINTS IN Z-DIRECTION	10
NO. OF ROOTS: NO. OF SERIES TERMS	1000
NO. OF BEGINNING TIME STEPS	1
NO. OF ENDING TIME STEP	70
NO. OF TIME INTERVALS FOR PRINTED OUT SOLUTION	1
INSTANTANEOUS SOURCE CONTROL = 0 FOR INSTANT SOURCE 1	
SOURCE CONDITION CONTROL = 0 FOR STEADY SOURCE	70
INTERMITTENT OUTPUT CONTROL = 0 NO SUCH OUTPUT	1
CASE CONTROL =1 THERMAL, = 2 FOR CHEMICAL, = 3 RAD 2	

X-COORDINATE OF RECEPTOR WELL (METERS)	1.83E+02
Y-COORDINATE OF RECEPTOR WELL (METERS)	5.80E+01
AQUIFER DEPTH, = 0.0 FOR INFINITE DEEP (METERS) ...	3.05E+00
AQUIFER WIDTH, = 0.0 FOR INFINITE WIDE (METERS) ...	0.00E+00
BEGIN POINT OF X-SOURCE LOCATION (METERS)	0.00E+00
END POINT OF X-SOURCE LOCATION (METERS)	3.66E+02
BEGIN POINT OF Y-SOURCE LOCATION (METERS)	0.00E+00
END POINT OF Y-SOURCE LOCATION (METERS)	1.16E+02
BEGIN POINT OF Z-SOURCE LOCATION (METERS)	0.00E+00
END POINT OF Z-SOURCE LOCATION (METERS)	0.00E+00

POROSITY	2.50E-01
HYDRAULIC CONDUCTIVITY (METER/YEAR)	3.15E+01
HYDRAULIC GRADIENT	2.00E-02
LONGITUDINAL DISPERSIVITY (METER)	0.00E+00
LATERAL DISPERSIVITY (METER)	0.00E+00
VERTICAL DISPERSIVITY (METER)	0.00E+00

BULK DENSITY OF THE SOIL (KG/M**3)	1.80E+03
TIME INTERVAL SIZE FOR THE DESIRED SOLUTION (YR) ..	1.00E+00
DISCHARGE TIME (YR)	7.00E+01

INPUT DATA/RESULTS FOR CHEMICAL: Benzene

INST. WASTE RELEASE (KG) VALID FOR INST CASE ONLY..	1.00E+00
DISTRIBUTION COEFFICIENT, KD (M**3/KG)	1.66E-03
MOLECULAR DIFFUSION COEFFICIENT (M**2/YR)	3.09E-02
DECAY CONSTANT (1/YR).....	7.30E-01

LIST OF TRANSIENT SOURCE RELEASE RATE

.367E-32	.796E-16	.114E-10	.262E-08	.461E-07
.228E-06	.548E-06	.853E-06	.975E-06	.918E-06
.748E-06	.549E-06	.371E-06	.236E-06	.143E-06
.831E-07	.468E-07	.257E-07	.138E-07	.731E-08
.381E-08	.196E-08	.994E-09	.501E-09	.250E-09
.124E-09	.613E-10	.301E-10	.147E-10	.716E-11
.347E-11	.168E-11	.809E-12	.389E-12	.187E-12
.894E-13	.428E-13	.204E-13	.973E-14	.463E-14
.220E-14	.105E-14	.497E-15	.236E-15	.112E-15
.530E-16	.251E-16	.119E-16	.561E-17	.265E-17
.125E-17	.593E-18	.280E-18	.132E-18	.624E-19
.295E-19	.139E-19	.657E-20	.310E-20	.146E-20
.689E-21	.325E-21	.153E-21	.723E-22	.341E-22
.161E-22	.759E-23	.358E-23	.169E-23	

RETARDATION FACTOR	1.30E+01
RETARDED SEEPAGE VELOCITY (M/YR)	1.95E-01
RETARDED LONGITUDINAL DISPERSION COEF. (M**2/YR) ..	9.55E-03
RETARDED LATERAL DISPERSION COEFFICIENT (M**2/YR) .	9.55E-03
RETARDED VERTICAL DISPERSION COEFFICIENT (M**2/YR).	9.55E-03

time [yr] = 1.00	avg. conc. [mg/l] = .000E+00
time [yr] = 5.00	avg. conc. [mg/l] = .000E+00
time [yr] = 10.0	avg. conc. [mg/l] = .256E-08
time [yr] = 15.0	avg. conc. [mg/l] = .115E-08
time [yr] = 20.0	avg. conc. [mg/l] = .000E+00
time [yr] = 25.0	avg. conc. [mg/l] = .000E+00
time [yr] = 30.0	avg. conc. [mg/l] = .000E+00
time [yr] = 35.0	avg. conc. [mg/l] = .000E+00
time [yr] = 40.0	avg. conc. [mg/l] = .000E+00
time [yr] = 45.0	avg. conc. [mg/l] = .000E+00
time [yr] = 50.0	avg. conc. [mg/l] = .000E+00

time [yr] = 55.0 avg. conc. [mg/l] = .000E+00

time [yr] = 60.0 avg. conc. [mg/l] = .000E+00

time [yr] = 65.0 avg. conc. [mg/l] = .000E+00

time [yr] = 70.0 avg. conc. [mg/l] = .000E+00

INPUT DATA/RESULTS FOR CHEMICAL: Ethylbenzene

INST. WASTE RELEASE (KG) VALID FOR INST CASE ONLY..	1.00E+00
DISTRIBUTION COEFFICIENT, KD (M**3/KG)	2.20E-02
MOLECULAR DIFFUSION COEFFICIENT (M**2/YR)	2.14E-02
DECAY CONSTANT (1/YR).....	1.10E+00

LIST OF TRANSIENT SOURCE RELEASE RATE

.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.939E-46	.409E-43	.640E-41	.440E-39
.156E-37	.317E-36	.409E-35	.358E-34	.226E-33
.108E-32	.402E-32	.122E-31	.306E-31	.654E-31
.121E-30	.197E-30	.286E-30	.375E-30	.448E-30
.493E-30	.503E-30	.478E-30	.428E-30	.361E-30
.289E-30	.221E-30	.161E-30	.113E-30	.761E-31
.496E-31	.313E-31	.191E-31	.114E-31	.658E-32
.372E-32	.205E-32	.111E-32	.587E-33	.305E-33
.155E-33	.779E-34	.385E-34	.187E-34	.896E-35
.424E-35	.198E-35	.912E-36	.416E-36	.188E-36
.838E-37	.370E-37	.162E-37	.704E-38	.303E-38
.129E-38	.548E-39	.230E-39	.962E-40	

RETARDATION FACTOR	1.59E+02
RETARDED SEEPAGE VELOCITY (M/YR)	1.58E-02
RETARDED LONGITUDINAL DISPERSION COEF. (M**2/YR) ..	5.38E-04
RETARDED LATERAL DISPERSION COEFFICIENT (M**2/YR) .	5.38E-04
RETARDED VERTICAL DISPERSION COEFFICIENT (M**2/YR).	5.38E-04

time [yr] = 1.00 avg. conc. [mg/l] = .000E+00

time [yr] = 5.00 avg. conc. [mg/l] = .000E+00

time [yr] = 10.0 avg. conc. [mg/l] = .000E+00

time [yr] = 15.0 avg. conc. [mg/l] = .000E+00

time [yr] = 20.0 avg. conc. [mg/l] = .000E+00

time [yr] = 25.0 avg. conc. [mg/l] = .000E+00

time [yr] = 30.0 avg. conc. [mg/l] = .000E+00

time [yr] = 35.0 avg. conc. [mg/l] = .000E+00

time [yr] = 40.0 avg. conc. [mg/l] = .000E+00

time [yr] = 45.0 avg. conc. [mg/l] = .000E+00

time [yr] = 50.0 avg. conc. [mg/l] = .000E+00

time [yr] = 55.0 avg. conc. [mg/l] = .000E+00

time [yr] = 60.0 avg. conc. [mg/l] = .000E+00

time [yr] = 65.0 avg. conc. [mg/l] = .000E+00

time [yr] = 70.0 avg. conc. [mg/l] = .000E+00

INPUT DATA/RESULTS FOR CHEMICAL: Naphthalene

INST. WASTE RELEASE (KG) VALID FOR INST CASE ONLY.. 1.00E+00
DISTRIBUTION COEFFICIENT, KD (M**3/KG) 2.60E-02
MOLECULAR DIFFUSION COEFFICIENT (M**2/YR) 2.37E-02
DECAY CONSTANT (1/YR)........................... 0.00E+00
LIST OF TRANSIENT SOURCE RELEASE RATE

.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.140E-47
.420E-47	.210E-46	.108E-45	.517E-45	

RETARDATION FACTOR .... 1.88E+02
RETARDED SEEPAGE VELOCITY (M/YR) 1.34E-02
RETARDED LONGITUDINAL DISPERSION COEF. (M**2/YR) .. 5.03E-04
RETARDED LATERAL DISPERSION COEFFICIENT (M**2/YR) . 5.03E-04
RETARDED VERTICAL DISPERSION COEFFICIENT (M**2/YR). 5.03E-04

time [yr] = 1.00 avg. conc. [mg/l] = .000E+00

time [yr] = 5.00 avg. conc. [mg/l] = .000E+00

time [yr] =	10.0	avg. conc. [mg/l] =	.000E+00
time [yr] =	15.0	avg. conc. [mg/l] =	.000E+00
time [yr] =	20.0	avg. conc. [mg/l] =	.000E+00
time [yr] =	25.0	avg. conc. [mg/l] =	.000E+00
time [yr] =	30.0	avg. conc. [mg/l] =	.000E+00
time [yr] =	35.0	avg. conc. [mg/l] =	.000E+00
time [yr] =	40.0	avg. conc. [mg/l] =	.000E+00
time [yr] =	45.0	avg. conc. [mg/l] =	.000E+00
time [yr] =	50.0	avg. conc. [mg/l] =	.000E+00
time [yr] =	55.0	avg. conc. [mg/l] =	.000E+00
time [yr] =	60.0	avg. conc. [mg/l] =	.000E+00
time [yr] =	65.0	avg. conc. [mg/l] =	.000E+00
time [yr] =	70.0	avg. conc. [mg/l] =	.000E+00

INPUT DATA/RESULTS FOR CHEMICAL: Toluene

INST. WASTE RELEASE (KG) VALID FOR INST CASE ONLY..	1.00E+00
DISTRIBUTION COEFFICIENT, KD (M**3/KG)	6.00E-03
MOLECULAR DIFFUSION COEFFICIENT (M**2/YR)	2.71E-02
DECAY CONSTANT (1/YR).....	1.20E+00

LIST OF TRANSIENT SOURCE RELEASE RATE

.000E+00	.000E+00	.112E-38	.114E-29	.174E-24
.326E-21	.491E-19	.153E-17	.167E-16	.876E-16
.268E-15	.551E-15	.831E-15	.984E-15	.962E-15
.804E-15	.591E-15	.391E-15	.236E-15	.132E-15
.693E-16	.344E-16	.163E-16	.737E-17	.322E-17
.136E-17	.560E-18	.224E-18	.878E-19	.335E-19
.127E-19	.468E-20	.171E-20	.614E-21	.217E-21
.766E-22	.266E-22	.916E-23	.314E-23	.106E-23
.356E-24	.119E-24	.393E-25	.130E-25	.425E-26
.139E-26	.450E-27	.145E-27	.468E-28	.150E-28
.479E-29	.153E-29	.484E-30	.153E-30	.484E-31
.152E-31	.478E-32	.150E-32	.467E-33	.146E-33
.453E-34	.141E-34	.437E-35	.135E-35	.418E-36
.129E-36	.397E-37	.122E-37	.375E-38	

RETARDATION FACTOR	4.42E+01
RETARDED SEEPAGE VELOCITY (M/YR)	5.70E-02
RETARDED LONGITUDINAL DISPERSION COEF. (M**2/YR) ..	2.45E-03
RETARDED LATERAL DISPERSION COEFFICIENT (M**2/YR) .	2.45E-03
RETARDED VERTICAL DISPERSION COEFFICIENT (M**2/YR).	2.45E-03

time [yr] = 1.00	avg. conc. [mg/l] = .000E+00
time [yr] = 5.00	avg. conc. [mg/l] = .000E+00
time [yr] = 10.0	avg. conc. [mg/l] = .000E+00
time [yr] = 15.0	avg. conc. [mg/l] = .000E+00
time [yr] = 20.0	avg. conc. [mg/l] = .000E+00
time [yr] = 25.0	avg. conc. [mg/l] = .000E+00
time [yr] = 30.0	avg. conc. [mg/l] = .000E+00
time [yr] = 35.0	avg. conc. [mg/l] = .000E+00
time [yr] = 40.0	avg. conc. [mg/l] = .000E+00
time [yr] = 45.0	avg. conc. [mg/l] = .000E+00
time [yr] = 50.0	avg. conc. [mg/l] = .000E+00
time [yr] = 55.0	avg. conc. [mg/l] = .000E+00
time [yr] = 60.0	avg. conc. [mg/l] = .000E+00
time [yr] = 65.0	avg. conc. [mg/l] = .000E+00
time [yr] = 70.0	avg. conc. [mg/l] = .000E+00

INPUT DATA/RESULTS FOR CHEMICAL: Xylene

INST. WASTE RELEASE (KG) VALID FOR INST CASE ONLY..	1.00E+00
DISTRIBUTION COEFFICIENT, KD (M**3/KG)	4.80E-03
MOLECULAR DIFFUSION COEFFICIENT (M**2/YR)	2.46E-02
DECAY CONSTANT (1/YR).....	7.30E-01

LIST OF TRANSIENT SOURCE RELEASE RATE

.000E+00	.224E-44	.971E-30	.136E-22	.190E-18
.835E-16	.508E-14	.899E-13	.698E-12	.304E-11
.874E-11	.184E-10	.303E-10	.416E-10	.490E-10
.512E-10	.484E-10	.422E-10	.343E-10	.263E-10
.192E-10	.134E-10	.903E-11	.589E-11	.373E-11

.231E-11	.139E-11	.827E-12	.482E-12	.278E-12
.157E-12	.875E-13	.484E-13	.265E-13	.143E-13
.770E-14	.411E-14	.217E-14	.114E-14	.598E-15
.311E-15	.161E-15	.827E-16	.424E-16	.216E-16
.110E-16	.558E-17	.282E-17	.142E-17	.713E-18
.357E-18	.178E-18	.889E-19	.442E-19	.220E-19
.109E-19	.538E-20	.266E-20	.131E-20	.645E-21
.317E-21	.156E-21	.763E-22	.374E-22	.183E-22
.893E-23	.436E-23	.213E-23	.104E-23	

RETARDATION FACTOR	3.56E+01
RETARDED SEEPAGE VELOCITY (M/YR)	7.09E-02
RETARDED LONGITUDINAL DISPERSION COEF. (M**2/YR) ..	2.77E-03
RETARDED LATERAL DISPERSION COEFFICIENT (M**2/YR) .	2.77E-03
RETARDED VERTICAL DISPERSION COEFFICIENT (M**2/YR).	2.77E-03

time [yr] = 1.00	avg. conc. [mg/l] = .000E+00
time [yr] = 5.00	avg. conc. [mg/l] = .000E+00
time [yr] = 10.0	avg. conc. [mg/l] = .000E+00
time [yr] = 15.0	avg. conc. [mg/l] = .000E+00
time [yr] = 20.0	avg. conc. [mg/l] = .000E+00
time [yr] = 25.0	avg. conc. [mg/l] = .000E+00
time [yr] = 30.0	avg. conc. [mg/l] = .000E+00
time [yr] = 35.0	avg. conc. [mg/l] = .000E+00
time [yr] = 40.0	avg. conc. [mg/l] = .000E+00
time [yr] = 45.0	avg. conc. [mg/l] = .000E+00
time [yr] = 50.0	avg. conc. [mg/l] = .000E+00
time [yr] = 55.0	avg. conc. [mg/l] = .000E+00
time [yr] = 60.0	avg. conc. [mg/l] = .000E+00
time [yr] = 65.0	avg. conc. [mg/l] = .000E+00
time [yr] = 70.0	avg. conc. [mg/l] = .000E+00

Jury Output File
Analysis for Example Problem

*** COMMON INPUT PARAMETERS ***

PARAMETER NAME	UNITS	VALUE
Porosity	(cc/cc)	0.25
Bulk Density	(g/cc)	1.8
Water Content	(cc/cc)	0.1
Fractional Organic Carbon	(mg/mg)	2.00E-02
Incorporation Depth	(cm)	66.7
Clean Soil Thickness	(cm)	0
Simulation Time	(yrs)	70
Length of Soil Column	(cm)	1470
Infiltration Rate	(cm/day)	5.19E-02
Source Length	(m)	366
Source Width	(m)	116
Boundary Layer Thickness	(cm)	5

Chemical Specific Input Parameters for TPH-AR08-10

Parameter Name	Units	Value
Total Soil Concentration	(mg/kg)	1
Diffusion Coeff. in Air	(cm^2/day	8640
Diffusion Coeff. in Water	(cm^2/day	0.864
Henrys Constant [	(mg/L)	/(mg/L)] 20.40
Organic Carbon Part. Coeff.	(cc/g)	1590
Lumped Chemical Decay Rate	(1/day)	0

Outputs for TPH-AR08-10

Time = 1 yrs

Cumulative Emissions to Air	(g)	48020
Advective Mass Loading Rate to Groundwater	(g/day)	3.07E-09
Diffusive Mass Loading Rate to Groundwater	(g/day)	8.23E-06
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	8.24E-06

Time = 2 yrs

Cumulative Emissions to Air	(g)	49700
Advective Mass Loading Rate to Groundwater	(g/day)	6.48E-06
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.007709
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.007716

Time = 3 yrs

Cumulative Emissions to Air	(g)	50450
Advective Mass Loading Rate to Groundwater	(g/day)	6.54E-05
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.04888
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.04895

Time = 4 yrs

Cumulative Emissions to Air	(g)	50900
Advective Mass Loading Rate to Groundwater	(g/day)	0.000184
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.09834
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.09852

Time = 5 yrs

Cumulative Emissions to Air	(g)	51210
Advective Mass Loading Rate to Groundwater	(g/day)	0.000317
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.1302
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.1305

Time = 10 yrs

Cumulative Emissions to Air	(g)	51970
Advective Mass Loading Rate to Groundwater	(g/day)	0.000654
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.1098
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.1104

Time = 15 yrs

Cumulative Emissions to Air	(g)	52310
Advective Mass Loading Rate to Groundwater	(g/day)	0.000641
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.05693
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.05757

Time = 20 yrs

Cumulative Emissions to Air	(g)	52510

Advective Mass Loading Rate to Groundwater	(g/day)	0.000559
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.02771
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.02827

Time = 25 yrs

Cumulative Emissions to Air	(g)	52640
Advective Mass Loading Rate to Groundwater	(g/day)	0.000478
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.01248
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.01296

Time = 30 yrs

Cumulative Emissions to Air	(g)	52740
Advective Mass Loading Rate to Groundwater	(g/day)	0.000409
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.004321
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.004729

Time = 35 yrs

Cumulative Emissions to Air	(g)	52820
Advective Mass Loading Rate to Groundwater	(g/day)	0.000353
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00019
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.000167

Time = 40 yrs

Cumulative Emissions to Air	(g)	52890
Advective Mass Loading Rate to Groundwater	(g/day)	0.000308
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00272
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00241

Time = 45 yrs

Cumulative Emissions to Air	(g)	52940
Advective Mass Loading Rate to Groundwater	(g/day)	0.000271
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00414
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00387

Time = 50 yrs

Cumulative Emissions to Air	(g)	52980
Advective Mass Loading Rate to Groundwater	(g/day)	0.000241

Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00492
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00468

Time = 55 yrs

Cumulative Emissions to Air	(g)	53020
Advective Mass Loading Rate to Groundwater	(g/day)	0.000215
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00531
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.0051

Time = 60 yrs

Cumulative Emissions to Air	(g)	53060
Advective Mass Loading Rate to Groundwater	(g/day)	0.000194
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00547
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00528

Time = 65 yrs

Cumulative Emissions to Air	(g)	53090
Advective Mass Loading Rate to Groundwater	(g/day)	0.000176
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00549
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00531

Time = 70 yrs

Cumulative Emissions to Air	(g)	53110
Advective Mass Loading Rate to Groundwater	(g/day)	0.000161
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00542
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00526

Chemical Specific Input Parameters for TPH-AR10-12

Parameter Name	Units	Value
Total Soil Concentration	(mg/kg)	1
Diffusion Coeff. in Air	(cm^2/day	8640
Diffusion Coeff. in Water	(cm^2/day	0.864
Henrys Constant [	(mg/L)	/(mg/L)] 5.820
Organic Carbon Part. Coeff.	(cc/g)	2510
Lumped Chemical Decay Rate	(1/day)	0

Outputs for TPH-AR10-12

Time = 1 yrs

Cumulative Emissions to Air	(g)	40810
Advective Mass Loading Rate to Groundwater	(g/day)	1.18E-39
Diffusive Mass Loading Rate to Groundwater	(g/day)	1.16E-35
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	1.16E-35

Time = 2 yrs

Cumulative Emissions to Air	(g)	44460
Advective Mass Loading Rate to Groundwater	(g/day)	5.61E-21
Diffusive Mass Loading Rate to Groundwater	(g/day)	1.57E-17
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	1.57E-17

Time = 3 yrs

Cumulative Emissions to Air	(g)	46130
Advective Mass Loading Rate to Groundwater	(g/day)	9.42E-15
Diffusive Mass Loading Rate to Groundwater	(g/day)	1.48E-11
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	1.48E-11

Time = 4 yrs

Cumulative Emissions to Air	(g)	47140
Advective Mass Loading Rate to Groundwater	(g/day)	1.17E-11
Diffusive Mass Loading Rate to Groundwater	(g/day)	1.26E-08
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	1.26E-08

Time = 5 yrs

Cumulative Emissions to Air	(g)	47830
Advective Mass Loading Rate to Groundwater	(g/day)	8.01E-10
Diffusive Mass Loading Rate to Groundwater	(g/day)	6.56E-07
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	6.57E-07

Time = 10 yrs

Cumulative Emissions to Air	(g)	49560
Advective Mass Loading Rate to Groundwater	(g/day)	2.82E-06
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.001023

Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.001026

Time = 15 yrs

Cumulative Emissions to Air	(g)	50330
Advective Mass Loading Rate to Groundwater	(g/day)	3.38E-05
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.007702
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.007736

Time = 20 yrs

Cumulative Emissions to Air	(g)	50790
Advective Mass Loading Rate to Groundwater	(g/day)	0.000104
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.01692
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.01702

Time = 25 yrs

Cumulative Emissions to Air	(g)	51100
Advective Mass Loading Rate to Groundwater	(g/day)	0.000189
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.02363
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.02381

Time = 30 yrs

Cumulative Emissions to Air	(g)	51340
Advective Mass Loading Rate to Groundwater	(g/day)	0.000267
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.02685
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.02712

Time = 35 yrs

Cumulative Emissions to Air	(g)	51520
Advective Mass Loading Rate to Groundwater	(g/day)	0.000331
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.02743
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.02777

Time = 40 yrs

Cumulative Emissions to Air	(g)	51660
Advective Mass Loading Rate to Groundwater	(g/day)	0.000379
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.02641
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.02679

Time = 45 yrs

Cumulative Emissions to Air	(g)	51780
Advective Mass Loading Rate to Groundwater	(g/day)	0.000411
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.02454
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.02495

Time = 50 yrs

Cumulative Emissions to Air	(g)	51890
Advective Mass Loading Rate to Groundwater	(g/day)	0.000432
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.02231
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.02275

Time = 55 yrs

Cumulative Emissions to Air	(g)	51970
Advective Mass Loading Rate to Groundwater	(g/day)	0.000444
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.02001
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.02046

Time = 60 yrs

Cumulative Emissions to Air	(g)	52050
Advective Mass Loading Rate to Groundwater	(g/day)	0.000449
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.01779
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.01824

Time = 65 yrs

Cumulative Emissions to Air	(g)	52120
Advective Mass Loading Rate to Groundwater	(g/day)	0.000449
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.01572
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.01617

Time = 70 yrs

Cumulative Emissions to Air	(g)	52180
Advective Mass Loading Rate to Groundwater	(g/day)	0.000446
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.01384
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.01428

Chemical Specific Input Parameters for TPH-AR12-16

Parameter Name	Units	Value
Total Soil Concentration	(mg/kg)	1
Diffusion Coeff. in Air	(cm^2/day	8640
Diffusion Coeff. in Water	(cm^2/day	0.864
Henrys Constant [	(mg/L)	/(mg/L)] 2.250
Organic Carbon Part. Coeff.	(cc/g)	5010
Lumped Chemical Decay Rate	(1/day)	0

Outputs for TPH-AR12-16

Time = 1 yrs

Cumulative Emissions to Air	(g)	27640
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 2 yrs

Cumulative Emissions to Air	(g)	33950
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 3 yrs

Cumulative Emissions to Air	(g)	37170
Advective Mass Loading Rate to Groundwater	(g/day)	2.94E-66
Diffusive Mass Loading Rate to Groundwater	(g/day)	4.68E-62
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 4 yrs

Cumulative Emissions to Air	(g)	39200
Advective Mass Loading Rate to Groundwater	(g/day)	2.26E-50
Diffusive Mass Loading Rate to Groundwater	(g/day)	1.55E-46
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 5 yrs

Cumulative Emissions to Air	(g)	40630
Advective Mass Loading Rate to Groundwater	(g/day)	7.86E-41
Diffusive Mass Loading Rate to Groundwater	(g/day)	3.15E-37
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	3.15E-37

Time = 10 yrs

Cumulative Emissions to Air	(g)	44320
Advective Mass Loading Rate to Groundwater	(g/day)	1.05E-21
Diffusive Mass Loading Rate to Groundwater	(g/day)	1.18E-18
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	1.18E-18

Time = 15 yrs

Cumulative Emissions to Air	(g)	46000
Advective Mass Loading Rate to Groundwater	(g/day)	2.49E-15
Diffusive Mass Loading Rate to Groundwater	(g/day)	1.56E-12
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	1.56E-12

Time = 20 yrs

Cumulative Emissions to Air	(g)	47020
Advective Mass Loading Rate to Groundwater	(g/day)	3.68E-12
Diffusive Mass Loading Rate to Groundwater	(g/day)	1.58E-09
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	1.59E-09

Time = 25 yrs

Cumulative Emissions to Air	(g)	47710
Advective Mass Loading Rate to Groundwater	(g/day)	2.81E-10
Diffusive Mass Loading Rate to Groundwater	(g/day)	9.15E-08
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	9.18E-08

Time = 30 yrs

Cumulative Emissions to Air	(g)	48230
Advective Mass Loading Rate to Groundwater	(g/day)	4.88E-09
Diffusive Mass Loading Rate to Groundwater	(g/day)	1.28E-06
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	1.28E-06

Time = 35 yrs

==========

Cumulative Emissions to Air	(g)	48640
Advective Mass Loading Rate to Groundwater	(g/day)	3.65E-08
Diffusive Mass Loading Rate to Groundwater	(g/day)	7.94E-06
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	7.98E-06

Time = 40 yrs

==========

Cumulative Emissions to Air	(g)	48960
Advective Mass Loading Rate to Groundwater	(g/day)	1.61E-07
Diffusive Mass Loading Rate to Groundwater	(g/day)	3E-05
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	3.02E-05

Time = 45 yrs

==========

Cumulative Emissions to Air	(g)	49230
Advective Mass Loading Rate to Groundwater	(g/day)	5.03E-07
Diffusive Mass Loading Rate to Groundwater	(g/day)	8.16E-05
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	8.21E-05

Time = 50 yrs

==========

Cumulative Emissions to Air	(g)	49460
Advective Mass Loading Rate to Groundwater	(g/day)	1.23E-06
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.000177
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.000178

Time = 55 yrs

==========

Cumulative Emissions to Air	(g)	49660
Advective Mass Loading Rate to Groundwater	(g/day)	2.52E-06
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.000325
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.000328

Time = 60 yrs

==========

Cumulative Emissions to Air	(g)	49830
Advective Mass Loading Rate to Groundwater	(g/day)	4.55E-06
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.00053
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.000535

Time = 65 yrs

==========

Cumulative Emissions to Air	(g)	49980
Advective Mass Loading Rate to Groundwater	(g/day)	7.42E-06
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.000788
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.000796

Time = 70 yrs

Cumulative Emissions to Air	(g)	50120
Advective Mass Loading Rate to Groundwater	(g/day)	1.12E-05
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.001093
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.001104

Chemical Specific Input Parameters for TPH-AR16-21

Parameter Name	Units	Value
Total Soil Concentration	(mg/kg)	1
Diffusion Coeff. in Air	(cm^2/day	8640
Diffusion Coeff. in Water	(cm^2/day	0.864
Henrys Constant [	(mg/L)	/(mg/L)] .5400
Organic Carbon Part. Coeff.	(cc/g)	1.58E+04
Lumped Chemical Decay Rate	(1/day)	0

Outputs for TPH-AR16-21

Time = 1 yrs

Cumulative Emissions to Air	(g)	8307
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 2 yrs

Cumulative Emissions to Air	(g)	11790
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 3 yrs

Cumulative Emissions to Air	(g)	14440
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 4 yrs

==========

Cumulative Emissions to Air	(g)	16630
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 5 yrs

==========

Cumulative Emissions to Air	(g)	18500
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 10 yrs

==========

Cumulative Emissions to Air	(g)	24940
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 15 yrs

==========

Cumulative Emissions to Air	(g)	28820
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 20 yrs

==========

Cumulative Emissions to Air	(g)	31460
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 25 yrs

==========

Cumulative Emissions to Air	(g)	33410
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 30 yrs

Cumulative Emissions to Air	(g)	34910
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 35 yrs

Cumulative Emissions to Air	(g)	36130
Advective Mass Loading Rate to Groundwater	(g/day)	1.56E-74
Diffusive Mass Loading Rate to Groundwater	(g/day)	8.9E-71
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 40 yrs

Cumulative Emissions to Air	(g)	37130
Advective Mass Loading Rate to Groundwater	(g/day)	1.3E-65
Diffusive Mass Loading Rate to Groundwater	(g/day)	4.68E-62
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 45 yrs

Cumulative Emissions to Air	(g)	37980
Advective Mass Loading Rate to Groundwater	(g/day)	1.14E-58
Diffusive Mass Loading Rate to Groundwater	(g/day)	2.84E-55
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 50 yrs

Cumulative Emissions to Air	(g)	38710
Advective Mass Loading Rate to Groundwater	(g/day)	4.08E-53
Diffusive Mass Loading Rate to Groundwater	(g/day)	7.59E-50
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 55 yrs

Cumulative Emissions to Air	(g)	39340

Advective Mass Loading Rate to Groundwater	(g/day)	1.44E-48
Diffusive Mass Loading Rate to Groundwater	(g/day)	2.09E-45
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	1.4E-45

Time = 60 yrs

Cumulative Emissions to Air	(g)	39900
Advective Mass Loading Rate to Groundwater	(g/day)	8.89E-45
Diffusive Mass Loading Rate to Groundwater	(g/day)	1.04E-41
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	1.05E-41

Time = 65 yrs

Cumulative Emissions to Air	(g)	40400
Advective Mass Loading Rate to Groundwater	(g/day)	1.44E-41
Diffusive Mass Loading Rate to Groundwater	(g/day)	1.41E-38
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	1.41E-38

Time = 70 yrs

Cumulative Emissions to Air	(g)	40840
Advective Mass Loading Rate to Groundwater	(g/day)	8.12E-39
Diffusive Mass Loading Rate to Groundwater	(g/day)	6.75E-36
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	6.76E-36

Chemical Specific Input Parameters for TPH-AR21-35

Parameter Name	Units	Value
Total Soil Concentration	(mg/kg)	1
Diffusion Coeff. in Air	(cm^2/day	8640
Diffusion Coeff. in Water	(cm^2/day	0.864
Henrys Constant [	(mg/L)	/(mg/L)] .2830E-01
Organic Carbon Part. Coeff.	(cc/g)	1.26E+05
Lumped Chemical Decay Rate	(1/day)	0

Outputs for TPH-AR21-35

Time = 1 yrs

Cumulative Emissions to Air	(g)	579

Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 2 yrs

==========

Cumulative Emissions to Air	(g)	857.2
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 3 yrs

==========

Cumulative Emissions to Air	(g)	1071
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 4 yrs

==========

Cumulative Emissions to Air	(g)	1252
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 5 yrs

==========

Cumulative Emissions to Air	(g)	1411
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 10 yrs

==========

Cumulative Emissions to Air	(g)	2035
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 15 yrs

==========

Cumulative Emissions to Air	(g)	2512
Advective Mass Loading Rate to Groundwater	(g/day)	0

Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 20 yrs

Cumulative Emissions to Air	(g)	2913
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 25 yrs

Cumulative Emissions to Air	(g)	3266
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 30 yrs

Cumulative Emissions to Air	(g)	3584
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 35 yrs

Cumulative Emissions to Air	(g)	3876
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 40 yrs

Cumulative Emissions to Air	(g)	4147
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 45 yrs

Cumulative Emissions to Air	(g)	4401
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 50 yrs

Cumulative Emissions to Air	(g)	4640
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 55 yrs

Cumulative Emissions to Air	(g)	4868
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 60 yrs

Cumulative Emissions to Air	(g)	5085
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 65 yrs

Cumulative Emissions to Air	(g)	5293
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 70 yrs

Cumulative Emissions to Air	(g)	5493
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

AT123D Output File
Analysis for Example Problem

Chemicals in the analysis
TPH-AR08-10
TPH-AR10-12
TPH-AR12-16
TPH-AR16-21
TPH-AR21-35

Number of years simulated: 70

GENERAL INPUT DATA
****

NO. OF POINTS IN X-DIRECTION	1
NO. OF POINTS IN Y-DIRECTION	1
NO. OF POINTS IN Z-DIRECTION	10
NO. OF ROOTS: NO. OF SERIES TERMS	1000
NO. OF BEGINNING TIME STEPS	1
NO. OF ENDING TIME STEP	70
NO. OF TIME INTERVALS FOR PRINTED OUT SOLUTION	1
INSTANTANEOUS SOURCE CONTROL = 0 FOR INSTANT SOURCE 1	
SOURCE CONDITION CONTROL = 0 FOR STEADY SOURCE	70
INTERMITTENT OUTPUT CONTROL = 0 NO SUCH OUTPUT	1
CASE CONTROL =1 THERMAL, = 2 FOR CHEMICAL, = 3 RAD 2	

X-COORDINATE OF RECEPTOR WELL (METERS)	1.83E+02
Y-COORDINATE OF RECEPTOR WELL (METERS)	5.80E+01
AQUIFER DEPTH, = 0.0 FOR INFINITE DEEP (METERS) ...	3.05E+00
AQUIFER WIDTH, = 0.0 FOR INFINITE WIDE (METERS) ...	0.00E+00
BEGIN POINT OF X-SOURCE LOCATION (METERS)	0.00E+00
END POINT OF X-SOURCE LOCATION (METERS)	3.66E+02
BEGIN POINT OF Y-SOURCE LOCATION (METERS)	0.00E+00
END POINT OF Y-SOURCE LOCATION (METERS)	1.16E+02
BEGIN POINT OF Z-SOURCE LOCATION (METERS)	0.00E+00
END POINT OF Z-SOURCE LOCATION (METERS)	0.00E+00

POROSITY	3.50E-01
HYDRAULIC CONDUCTIVITY (METER/YEAR)	3.15E+01
HYDRAULIC GRADIENT	2.00E-02
LONGITUDINAL DISPERSIVITY (METER)	0.00E+00
LATERAL DISPERSIVITY (METER)	0.00E+00
VERTICAL DISPERSIVITY (METER)	0.00E+00

BULK DENSITY OF THE SOIL (KG/M**3)	1.80E+03
TIME INTERVAL SIZE FOR THE DESIRED SOLUTION (YR) ..	1.00E+00
DISCHARGE TIME (YR)	7.00E+01

INPUT DATA/RESULTS FOR CHEMICAL: TPH-AR08-10

INST. WASTE RELEASE (KG) VALID FOR INST CASE ONLY..	1.00E+00
DISTRIBUTION COEFFICIENT, KD (M**3/KG)	3.18E-02
MOLECULAR DIFFUSION COEFFICIENT (M**2/YR)	3.15E-02
DECAY CONSTANT (1/YR).....	0.00E+00

LIST OF TRANSIENT SOURCE RELEASE RATE

.301E-05	.282E-02	.179E-01	.360E-01	.476E-01
.522E-01	.520E-01	.491E-01	.449E-01	.403E-01
.358E-01	.315E-01	.276E-01	.241E-01	.210E-01
.183E-01	.159E-01	.138E-01	.119E-01	.103E-01
.890E-02	.765E-02	.655E-02	.558E-02	.473E-02
.398E-02	.331E-02	.272E-02	.219E-02	.173E-02
.131E-02	.943E-03	.615E-03	.322E-03	.609E-04
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	

RETARDATION FACTOR	1.65E+02
RETARDED SEEPAGE VELOCITY (M/YR)	1.09E-02
RETARDED LONGITUDINAL DISPERSION COEF. (M**2/YR) ..	5.48E-04
RETARDED LATERAL DISPERSION COEFFICIENT (M**2/YR) .	5.48E-04
RETARDED VERTICAL DISPERSION COEFFICIENT (M**2/YR).	5.48E-04

time [yr] = 1.00	avg. conc. [mg/l] = .000E+00
time [yr] = 5.00	avg. conc. [mg/l] = .577E-04
time [yr] = 10.0	avg. conc. [mg/l] = .176E-03
time [yr] = 15.0	avg. conc. [mg/l] = .204E-03
time [yr] = 20.0	avg. conc. [mg/l] = .187E-03
time [yr] = 25.0	avg. conc. [mg/l] = .170E-03
time [yr] = 30.0	avg. conc. [mg/l] = .153E-03
time [yr] = 35.0	avg. conc. [mg/l] = .140E-03
time [yr] = 40.0	avg. conc. [mg/l] = .131E-03
time [yr] = 45.0	avg. conc. [mg/l] = .125E-03
time [yr] = 50.0	avg. conc. [mg/l] = .121E-03

time [yr] = 55.0 avg. conc. [mg/l] = .118E-03

time [yr] = 60.0 avg. conc. [mg/l] = .116E-03

time [yr] = 65.0 avg. conc. [mg/l] = .113E-03

time [yr] = 70.0 avg. conc. [mg/l] = .112E-03

INPUT DATA/RESULTS FOR CHEMICAL: TPH-AR10-12

INST. WASTE RELEASE (KG) VALID FOR INST CASE ONLY..	1.00E+00
DISTRIBUTION COEFFICIENT, KD (M**3/KG)	5.02E-02
MOLECULAR DIFFUSION COEFFICIENT (M**2/YR)	3.15E-02
DECAY CONSTANT (1/YR).....	0.00E+00

LIST OF TRANSIENT SOURCE RELEASE RATE

.424E-35	.574E-17	.541E-11	.461E-08	.240E-06
.311E-05	.184E-04	.670E-04	.177E-03	.374E-03
.675E-03	.108E-02	.159E-02	.218E-02	.282E-02
.351E-02	.421E-02	.490E-02	.557E-02	.621E-02
.681E-02	.736E-02	.786E-02	.830E-02	.869E-02
.903E-02	.932E-02	.955E-02	.975E-02	.990E-02
.100E-01	.101E-01	.101E-01	.101E-01	.101E-01
.101E-01	.100E-01	.997E-02	.988E-02	.978E-02
.966E-02	.953E-02	.940E-02	.926E-02	.911E-02
.895E-02	.879E-02	.863E-02	.847E-02	.830E-02
.814E-02	.797E-02	.780E-02	.763E-02	.747E-02
.730E-02	.714E-02	.698E-02	.682E-02	.666E-02
.650E-02	.635E-02	.620E-02	.605E-02	.590E-02
.576E-02	.562E-02	.548E-02	.535E-02	

RETARDATION FACTOR	2.59E+02
RETARDED SEEPAGE VELOCITY (M/YR)	6.95E-03
RETARDED LONGITUDINAL DISPERSION COEF. (M**2/YR) ..	3.48E-04
RETARDED LATERAL DISPERSION COEFFICIENT (M**2/YR) .	3.48E-04
RETARDED VERTICAL DISPERSION COEFFICIENT (M**2/YR).	3.48E-04

time [yr] = 1.00 avg. conc. [mg/l] = .000E+00

time [yr] = 5.00 avg. conc. [mg/l] = .000E+00

time [yr] = 10.0 avg. conc. [mg/l] = .173E-06

time [yr] = 15.0 avg. conc. [mg/l] = .394E-05

time [yr] = 20.0 avg. conc. [mg/l] = .130E-04

time [yr] = 25.0 avg. conc. [mg/l] = .278E-04

time [yr] = 30.0 avg. conc. [mg/l] = .397E-04

time [yr] = 35.0 avg. conc. [mg/l] = .533E-04

time [yr] = 40.0 avg. conc. [mg/l] = .609E-04

time [yr] = 45.0 avg. conc. [mg/l] = .697E-04

time [yr] = 50.0 avg. conc. [mg/l] = .733E-04

time [yr] = 55.0 avg. conc. [mg/l] = .784E-04

time [yr] = 60.0 avg. conc. [mg/l] = .796E-04

time [yr] = 65.0 avg. conc. [mg/l] = .824E-04

time [yr] = 70.0 avg. conc. [mg/l] = .824E-04

INPUT DATA/RESULTS FOR CHEMICAL: TPH-AR12-16

INST. WASTE RELEASE (KG) VALID FOR INST CASE ONLY..	1.00E+00
DISTRIBUTION COEFFICIENT, KD (M**3/KG)	1.00E-01
MOLECULAR DIFFUSION COEFFICIENT (M**2/YR)	3.15E-02
DECAY CONSTANT (1/YR).....	0.00E+00

LIST OF TRANSIENT SOURCE RELEASE RATE

.000E+00	.000E+00	.000E+00	.561E-46	.115E-36
.183E-30	.487E-26	.101E-22	.378E-20	.429E-18
.205E-16	.508E-15	.763E-14	.772E-13	.570E-12
.326E-11	.151E-10	.586E-10	.196E-09	.579E-09
.153E-08	.371E-08	.826E-08	.172E-07	.335E-07
.619E-07	.109E-06	.184E-06	.298E-06	.467E-06
.710E-06	.105E-05	.151E-05	.212E-05	.291E-05
.393E-05	.520E-05	.678E-05	.870E-05	.110E-04
.138E-04	.170E-04	.207E-04	.250E-04	.300E-04
.355E-04	.418E-04	.492E-04	.565E-04	.650E-04
.743E-04	.840E-04	.947E-04	.107E-03	.120E-03
.133E-03	.147E-03	.163E-03	.178E-03	.195E-03
.213E-03	.231E-03	.250E-03	.270E-03	.290E-03
.312E-03	.334E-03	.356E-03	.379E-03	

RETARDATION FACTOR	5.16E+02
RETARDED SEEPAGE VELOCITY (M/YR)	3.49E-03
RETARDED LONGITUDINAL DISPERSION COEF. (M**2/YR) ..	1.75E-04
RETARDED LATERAL DISPERSION COEFFICIENT (M**2/YR) .	1.75E-04
RETARDED VERTICAL DISPERSION COEFFICIENT (M**2/YR).	1.75E-04

time [yr] = 1.00 avg. conc. [mg/l] = .000E+00

time [yr] = 5.00 avg. conc. [mg/l] = .000E+00

time [yr] =	10.0	avg. conc. [mg/l] =	.000E+00
time [yr] =	15.0	avg. conc. [mg/l] =	.000E+00
time [yr] =	20.0	avg. conc. [mg/l] =	.000E+00
time [yr] =	25.0	avg. conc. [mg/l] =	.000E+00
time [yr] =	30.0	avg. conc. [mg/l] =	.000E+00
time [yr] =	35.0	avg. conc. [mg/l] =	.284E-08
time [yr] =	40.0	avg. conc. [mg/l] =	.121E-07
time [yr] =	45.0	avg. conc. [mg/l] =	.438E-07
time [yr] =	50.0	avg. conc. [mg/l] =	.103E-06
time [yr] =	55.0	avg. conc. [mg/l] =	.235E-06
time [yr] =	60.0	avg. conc. [mg/l] =	.408E-06
time [yr] =	65.0	avg. conc. [mg/l] =	.720E-06
time [yr] =	70.0	avg. conc. [mg/l] =	.105E-05

INPUT DATA/RESULTS FOR CHEMICAL: TPH-AR16-21

INST. WASTE RELEASE (KG) VALID FOR INST CASE ONLY..	1.00E+00
DISTRIBUTION COEFFICIENT, KD (M**3/KG)	3.16E-01
MOLECULAR DIFFUSION COEFFICIENT (M**2/YR)	3.15E-02
DECAY CONSTANT (1/YR)...........................	0.00E+00

LIST OF TRANSIENT SOURCE RELEASE RATE

.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.140E-47	.154E-46	.115E-45	.762E-45
.473E-44	.275E-43	.151E-42	.779E-42	.381E-41
.177E-40	.783E-40	.330E-39	.133E-38	.513E-38
.190E-37	.678E-37	.233E-36	.771E-36	

RETARDATION FACTOR	1.63E+03
RETARDED SEEPAGE VELOCITY (M/YR)	1.11E-03
RETARDED LONGITUDINAL DISPERSION COEF. (M**2/YR) ..	5.54E-05
RETARDED LATERAL DISPERSION COEFFICIENT (M**2/YR) .	5.54E-05
RETARDED VERTICAL DISPERSION COEFFICIENT (M**2/YR).	5.54E-05

time [yr] = 1.00	avg. conc. [mg/l] = .000E+00
time [yr] = 5.00	avg. conc. [mg/l] = .000E+00
time [yr] = 10.0	avg. conc. [mg/l] = .000E+00
time [yr] = 15.0	avg. conc. [mg/l] = .000E+00
time [yr] = 20.0	avg. conc. [mg/l] = .000E+00
time [yr] = 25.0	avg. conc. [mg/l] = .000E+00
time [yr] = 30.0	avg. conc. [mg/l] = .000E+00
time [yr] = 35.0	avg. conc. [mg/l] = .000E+00
time [yr] = 40.0	avg. conc. [mg/l] = .000E+00
time [yr] = 45.0	avg. conc. [mg/l] = .000E+00
time [yr] = 50.0	avg. conc. [mg/l] = .000E+00
time [yr] = 55.0	avg. conc. [mg/l] = .000E+00
time [yr] = 60.0	avg. conc. [mg/l] = .000E+00
time [yr] = 65.0	avg. conc. [mg/l] = .000E+00
time [yr] = 70.0	avg. conc. [mg/l] = .000E+00

INPUT DATA/RESULTS FOR CHEMICAL: TPH-AR21-35

INST. WASTE RELEASE (KG) VALID FOR INST CASE ONLY..	1.00E+00
DISTRIBUTION COEFFICIENT, KD (M**3/KG)	2.52E+00
MOLECULAR DIFFUSION COEFFICIENT (M**2/YR)	3.15E-02
DECAY CONSTANT (1/YR)	0.00E+00

LIST OF TRANSIENT SOURCE RELEASE RATE

.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00

.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	

RETARDATION FACTOR	1.30E+04
RETARDED SEEPAGE VELOCITY (M/YR)	1.39E-04
RETARDED LONGITUDINAL DISPERSION COEF. (M**2/YR) ..	6.95E-06
RETARDED LATERAL DISPERSION COEFFICIENT (M**2/YR) .	6.95E-06
RETARDED VERTICAL DISPERSION COEFFICIENT (M**2/YR).	6.95E-06

time [yr] = 1.00	avg. conc. [mg/l] = .000E+00
time [yr] = 5.00	avg. conc. [mg/l] = .000E+00
time [yr] = 10.0	avg. conc. [mg/l] = .000E+00
time [yr] = 15.0	avg. conc. [mg/l] = .000E+00
time [yr] = 20.0	avg. conc. [mg/l] = .000E+00
time [yr] = 25.0	avg. conc. [mg/l] = .000E+00
time [yr] = 30.0	avg. conc. [mg/l] = .000E+00
time [yr] = 35.0	avg. conc. [mg/l] = .000E+00
time [yr] = 40.0	avg. conc. [mg/l] = .000E+00
time [yr] = 45.0	avg. conc. [mg/l] = .000E+00
time [yr] = 50.0	avg. conc. [mg/l] = .000E+00
time [yr] = 55.0	avg. conc. [mg/l] = .000E+00
time [yr] = 60.0	avg. conc. [mg/l] = .000E+00
time [yr] = 65.0	avg. conc. [mg/l] = .000E+00
time [yr] = 70.0	avg. conc. [mg/l] = .000E+00

Jury Output File
Analysis for Example Problem

*** COMMON INPUT PARAMETERS ***

PARAMETER NAME	UNITS	VALUE
Porosity	(cc/cc)	0.25
Bulk Density	(g/cc)	1.8
Water Content	(cc/cc)	0.1
Fractional Organic Carbon	(mg/mg)	2.00E-02
Incorporation Depth	(cm)	66.7
Clean Soil Thickness	(cm)	0
Simulation Time	(yrs)	70
Length of Soil Column	(cm)	1470
Infiltration Rate	(cm/day)	5.19E-02
Source Length	(m)	366
Source Width	(m)	116
Boundary Layer Thickness	(cm)	5

Chemical Specific Input Parameters for TPH-AL05-06

Parameter Name	Units	Value
Total Soil Concentration	(mg/kg)	1
Diffusion Coeff. in Air	(cm^2/day	8640
Diffusion Coeff. in Water	(cm^2/day	0.864
Henrys Constant [	(mg/L)	/(mg/L)] 1410.
Organic Carbon Part. Coeff.	(cc/g)	794
Lumped Chemical Decay Rate	(1/day)	0

Outputs for TPH-AL05-06

Time = 1 yrs

Cumulative Emissions to Air	(g)	52620
Advective Mass Loading Rate to Groundwater	(g/day)	0.000151
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.7064
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.7065

Time = 2 yrs

Cumulative Emissions to Air	(g)	53030
Advective Mass Loading Rate to Groundwater	(g/day)	8.87E-05
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.002569
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.002658

Time = 3 yrs

Cumulative Emissions to Air	(g)	53210
Advective Mass Loading Rate to Groundwater	(g/day)	5.72E-05
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.08651
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.08645

Time = 4 yrs

Cumulative Emissions to Air	(g)	53320
Advective Mass Loading Rate to Groundwater	(g/day)	4.04E-05
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.09226
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.09222

Time = 5 yrs

Cumulative Emissions to Air	(g)	53390
Advective Mass Loading Rate to Groundwater	(g/day)	3.05E-05
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.0835
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.08347

Time = 10 yrs

Cumulative Emissions to Air	(g)	53580
Advective Mass Loading Rate to Groundwater	(g/day)	1.19E-05
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.04365
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.04364

Time = 15 yrs

Cumulative Emissions to Air	(g)	53660
Advective Mass Loading Rate to Groundwater	(g/day)	6.71E-06
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.02664
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.02663

Time = 20 yrs

Cumulative Emissions to Air	(g)	53710

Advective Mass Loading Rate to Groundwater	(g/day)	4.43E-06
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.01828
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.01827

Time = 25 yrs

==========

Cumulative Emissions to Air	(g)	53740
Advective Mass Loading Rate to Groundwater	(g/day)	3.21E-06
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.0135
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.0135

Time = 30 yrs

==========

Cumulative Emissions to Air	(g)	53760
Advective Mass Loading Rate to Groundwater	(g/day)	2.46E-06
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.01049
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.01049

Time = 35 yrs

==========

Cumulative Emissions to Air	(g)	53780
Advective Mass Loading Rate to Groundwater	(g/day)	1.96E-06
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00845
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00845

Time = 40 yrs

==========

Cumulative Emissions to Air	(g)	53800
Advective Mass Loading Rate to Groundwater	(g/day)	1.61E-06
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.007
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.007

Time = 45 yrs

==========

Cumulative Emissions to Air	(g)	53810
Advective Mass Loading Rate to Groundwater	(g/day)	1.35E-06
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00591
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00591

Time = 50 yrs

==========

Cumulative Emissions to Air	(g)	53820
Advective Mass Loading Rate to Groundwater	(g/day)	1.16E-06

Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00508
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00508

Time = 55 yrs

Cumulative Emissions to Air	(g)	53830
Advective Mass Loading Rate to Groundwater	(g/day)	1E-06
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00443
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00443

Time = 60 yrs

Cumulative Emissions to Air	(g)	53840
Advective Mass Loading Rate to Groundwater	(g/day)	8.83E-07
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00391
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00391

Time = 65 yrs

Cumulative Emissions to Air	(g)	53840
Advective Mass Loading Rate to Groundwater	(g/day)	7.84E-07
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00348
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00348

Time = 70 yrs

Cumulative Emissions to Air	(g)	53850
Advective Mass Loading Rate to Groundwater	(g/day)	7.02E-07
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00312
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00312

Chemical Specific Input Parameters for TPH-AL06-08

Parameter Name	Units	Value
Total Soil Concentration	(mg/kg)	1
Diffusion Coeff. in Air	(cm^2/day	8640
Diffusion Coeff. in Water	(cm^2/day	0.864
Henrys Constant [	(mg/L)	/(mg/L)] 2120.
Organic Carbon Part. Coeff.	(cc/g)	3980
Lumped Chemical Decay Rate	(1/day)	0

Outputs for TPH-AL06-08

Time = 1 yrs

Cumulative Emissions to Air	(g)	52440
Advective Mass Loading Rate to Groundwater	(g/day)	8.55E-05
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.9369
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.937

Time = 2 yrs

Cumulative Emissions to Air	(g)	52900
Advective Mass Loading Rate to Groundwater	(g/day)	5.79E-05
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.1146
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.1147

Time = 3 yrs

Cumulative Emissions to Air	(g)	53110
Advective Mass Loading Rate to Groundwater	(g/day)	3.91E-05
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.03866
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.03862

Time = 4 yrs

Cumulative Emissions to Air	(g)	53230
Advective Mass Loading Rate to Groundwater	(g/day)	2.83E-05
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.06989
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.06986

Time = 5 yrs

Cumulative Emissions to Air	(g)	53310
Advective Mass Loading Rate to Groundwater	(g/day)	2.16E-05
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.07254
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.07252

Time = 10 yrs

Cumulative Emissions to Air	(g)	53520
Advective Mass Loading Rate to Groundwater	(g/day)	8.71E-06
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.04462

Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.04461

Time = 15 yrs

==========

Cumulative Emissions to Air	(g)	53610
Advective Mass Loading Rate to Groundwater	(g/day)	4.95E-06
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.02828
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.02827

Time = 20 yrs

==========

Cumulative Emissions to Air	(g)	53660
Advective Mass Loading Rate to Groundwater	(g/day)	3.29E-06
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.01974
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.01973

Time = 25 yrs

==========

Cumulative Emissions to Air	(g)	53700
Advective Mass Loading Rate to Groundwater	(g/day)	2.38E-06
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.01473
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.01473

Time = 30 yrs

==========

Cumulative Emissions to Air	(g)	53730
Advective Mass Loading Rate to Groundwater	(g/day)	1.83E-06
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.01152
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.01151

Time = 35 yrs

==========

Cumulative Emissions to Air	(g)	53750
Advective Mass Loading Rate to Groundwater	(g/day)	1.46E-06
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00932
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00932

Time = 40 yrs

==========

Cumulative Emissions to Air	(g)	53770
Advective Mass Loading Rate to Groundwater	(g/day)	1.2E-06
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00774
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00774

Time = 45 yrs

Cumulative Emissions to Air	(g)	53780
Advective Mass Loading Rate to Groundwater	(g/day)	1.01E-06
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00656
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00656

Time = 50 yrs

Cumulative Emissions to Air	(g)	53790
Advective Mass Loading Rate to Groundwater	(g/day)	8.64E-07
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00565
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00565

Time = 55 yrs

Cumulative Emissions to Air	(g)	53800
Advective Mass Loading Rate to Groundwater	(g/day)	7.51E-07
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00493
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00493

Time = 60 yrs

Cumulative Emissions to Air	(g)	53810
Advective Mass Loading Rate to Groundwater	(g/day)	6.6E-07
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00435
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00435

Time = 65 yrs

Cumulative Emissions to Air	(g)	53820
Advective Mass Loading Rate to Groundwater	(g/day)	5.87E-07
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00388
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00388

Time = 70 yrs

Cumulative Emissions to Air	(g)	53830
Advective Mass Loading Rate to Groundwater	(g/day)	5.26E-07
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00349
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00349

Chemical Specific Input Parameters for TPH-AL08-10

Parameter Name	Units	Value
Total Soil Concentration	(mg/kg)	1
Diffusion Coeff. in Air	(cm^2/day	8640
Diffusion Coeff. in Water	(cm^2/day	0.864
Henrys Constant [	(mg/L)	/(mg/L)] 3410.
Organic Carbon Part. Coeff.	(cc/g)	3.16E+04
Lumped Chemical Decay Rate	(1/day)	0

Outputs for TPH-AL08-10

Time = 1 yrs

Cumulative Emissions to Air	(g)	51610
Advective Mass Loading Rate to Groundwater	(g/day)	1.62E-05
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.8716
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.8716

Time = 2 yrs

Cumulative Emissions to Air	(g)	52300
Advective Mass Loading Rate to Groundwater	(g/day)	2.43E-05
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.5059
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.5059

Time = 3 yrs

Cumulative Emissions to Air	(g)	52600
Advective Mass Loading Rate to Groundwater	(g/day)	2.14E-05
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.216
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.216

Time = 4 yrs

Cumulative Emissions to Air	(g)	52790
Advective Mass Loading Rate to Groundwater	(g/day)	1.77E-05
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.08435
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.08437

Time = 5 yrs

Cumulative Emissions to Air	(g)	52910
Advective Mass Loading Rate to Groundwater	(g/day)	1.46E-05
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.02322
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.02323

Time = 10 yrs

Cumulative Emissions to Air	(g)	53220
Advective Mass Loading Rate to Groundwater	(g/day)	6.89E-06
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.03278
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.03277

Time = 15 yrs

Cumulative Emissions to Air	(g)	53360
Advective Mass Loading Rate to Groundwater	(g/day)	4.13E-06
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.02835
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.02835

Time = 20 yrs

Cumulative Emissions to Air	(g)	53440
Advective Mass Loading Rate to Groundwater	(g/day)	2.81E-06
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.02229
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.02229

Time = 25 yrs

Cumulative Emissions to Air	(g)	53490
Advective Mass Loading Rate to Groundwater	(g/day)	2.07E-06
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.01773
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.01772

Time = 30 yrs

Cumulative Emissions to Air	(g)	53530
Advective Mass Loading Rate to Groundwater	(g/day)	1.61E-06
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.01442
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.01442

Time = 35 yrs

==========

Cumulative Emissions to Air	(g)	53560
Advective Mass Loading Rate to Groundwater	(g/day)	1.29E-06
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.01199
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.01199

Time = 40 yrs

==========

Cumulative Emissions to Air	(g)	53590
Advective Mass Loading Rate to Groundwater	(g/day)	1.07E-06
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.01016
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.01016

Time = 45 yrs

==========

Cumulative Emissions to Air	(g)	53610
Advective Mass Loading Rate to Groundwater	(g/day)	9.03E-07
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00874
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00874

Time = 50 yrs

==========

Cumulative Emissions to Air	(g)	53630
Advective Mass Loading Rate to Groundwater	(g/day)	7.76E-07
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00762
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00762

Time = 55 yrs

==========

Cumulative Emissions to Air	(g)	53650
Advective Mass Loading Rate to Groundwater	(g/day)	6.76E-07
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00672
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00672

Time = 60 yrs

==========

Cumulative Emissions to Air	(g)	53660
Advective Mass Loading Rate to Groundwater	(g/day)	5.96E-07
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00598
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00598

Time = 65 yrs

==========

Cumulative Emissions to Air	(g)	53670
Advective Mass Loading Rate to Groundwater	(g/day)	5.31E-07
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00536
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00536

Time = 70 yrs

Cumulative Emissions to Air	(g)	53680
Advective Mass Loading Rate to Groundwater	(g/day)	4.76E-07
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00485
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00485

Chemical Specific Input Parameters for TPH-AL10-12

Parameter Name	Units	Value
Total Soil Concentration	(mg/kg)	1
Diffusion Coeff. in Air	(cm^2/day	8640
Diffusion Coeff. in Water	(cm^2/day	0.864
Henrys Constant [	(mg/L)	/(mg/L)] 5410.
Organic Carbon Part. Coeff.	(cc/g)	2.51E+05
Lumped Chemical Decay Rate	(1/day)	0

Outputs for TPH-AL10-12

Time = 1 yrs

Cumulative Emissions to Air	(g)	49350
Advective Mass Loading Rate to Groundwater	(g/day)	7.25E-09
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.002903
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.002903

Time = 2 yrs

Cumulative Emissions to Air	(g)	50670
Advective Mass Loading Rate to Groundwater	(g/day)	5.56E-07
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.1005
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.1005

Time = 3 yrs

Cumulative Emissions to Air	(g)	51260
Advective Mass Loading Rate to Groundwater	(g/day)	1.84E-06
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.2061
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.2061

Time = 4 yrs

==========

Cumulative Emissions to Air	(g)	51610
Advective Mass Loading Rate to Groundwater	(g/day)	2.94E-06
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.2322
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.2322

Time = 5 yrs

==========

Cumulative Emissions to Air	(g)	51850
Advective Mass Loading Rate to Groundwater	(g/day)	3.62E-06
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.2144
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.2144

Time = 10 yrs

==========

Cumulative Emissions to Air	(g)	52450
Advective Mass Loading Rate to Groundwater	(g/day)	3.79E-06
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.07744
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.07744

Time = 15 yrs

==========

Cumulative Emissions to Air	(g)	52710
Advective Mass Loading Rate to Groundwater	(g/day)	2.96E-06
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.02275
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.02275

Time = 20 yrs

==========

Cumulative Emissions to Air	(g)	52870
Advective Mass Loading Rate to Groundwater	(g/day)	2.31E-06
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.003073
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.003075

Time = 25 yrs

==========

Cumulative Emissions to Air	(g)	52980
Advective Mass Loading Rate to Groundwater	(g/day)	1.84E-06
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00454
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00454

Time = 30 yrs

Cumulative Emissions to Air	(g)	53060
Advective Mass Loading Rate to Groundwater	(g/day)	1.51E-06
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00752
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00751

Time = 35 yrs

Cumulative Emissions to Air	(g)	53120
Advective Mass Loading Rate to Groundwater	(g/day)	1.26E-06
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00855
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00855

Time = 40 yrs

Cumulative Emissions to Air	(g)	53170
Advective Mass Loading Rate to Groundwater	(g/day)	1.07E-06
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00872
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00872

Time = 45 yrs

Cumulative Emissions to Air	(g)	53210
Advective Mass Loading Rate to Groundwater	(g/day)	9.25E-07
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.0085
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.0085

Time = 50 yrs

Cumulative Emissions to Air	(g)	53250
Advective Mass Loading Rate to Groundwater	(g/day)	8.09E-07
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00812
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00812

Time = 55 yrs

Cumulative Emissions to Air	(g)	53280

Advective Mass Loading Rate to Groundwater	(g/day)	7.15E-07
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00767
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00767

Time = 60 yrs

Cumulative Emissions to Air	(g)	53300
Advective Mass Loading Rate to Groundwater	(g/day)	6.38E-07
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00721
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00721

Time = 65 yrs

Cumulative Emissions to Air	(g)	53330
Advective Mass Loading Rate to Groundwater	(g/day)	5.74E-07
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00676
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00676

Time = 70 yrs

Cumulative Emissions to Air	(g)	53350
Advective Mass Loading Rate to Groundwater	(g/day)	5.2E-07
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00634
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00634

Chemical Specific Input Parameters for TPH-AL12-16

Parameter Name	Units	Value
Total Soil Concentration	(mg/kg)	1
Diffusion Coeff. in Air	(cm^2/day	8640
Diffusion Coeff. in Water	(cm^2/day	0.864
Henrys Constant [	(mg/L)	/(mg/L)] .2250E+05
Organic Carbon Part. Coeff.	(cc/g)	5.01E+06
Lumped Chemical Decay Rate	(1/day)	0

Outputs for TPH-AL12-16

Time = 1 yrs

Cumulative Emissions to Air	(g)	44340

Advective Mass Loading Rate to Groundwater	(g/day)	4.7E-25
Diffusive Mass Loading Rate to Groundwater	(g/day)	5.43E-18
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	5.43E-18

Time = 2 yrs

Cumulative Emissions to Air	(g)	47070
Advective Mass Loading Rate to Groundwater	(g/day)	2.38E-15
Diffusive Mass Loading Rate to Groundwater	(g/day)	1.05E-08
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	1.05E-08

Time = 3 yrs

Cumulative Emissions to Air	(g)	48300
Advective Mass Loading Rate to Groundwater	(g/day)	3.57E-12
Diffusive Mass Loading Rate to Groundwater	(g/day)	9.54E-06
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	9.54E-06

Time = 4 yrs

Cumulative Emissions to Air	(g)	49040
Advective Mass Loading Rate to Groundwater	(g/day)	1.26E-10
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.000239
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.000239

Time = 5 yrs

Cumulative Emissions to Air	(g)	49540
Advective Mass Loading Rate to Groundwater	(g/day)	9.96E-10
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.001464
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.001464

Time = 10 yrs

Cumulative Emissions to Air	(g)	50800
Advective Mass Loading Rate to Groundwater	(g/day)	4.41E-08
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.02925
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.02925

Time = 15 yrs

Cumulative Emissions to Air	(g)	51360
Advective Mass Loading Rate to Groundwater	(g/day)	1.21E-07

Diffusive Mass Loading Rate to Groundwater	(g/day)	0.04965
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.04965

Time = 20 yrs

Cumulative Emissions to Air	(g)	51690
Advective Mass Loading Rate to Groundwater	(g/day)	1.77E-07
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.05065
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.05065

Time = 25 yrs

Cumulative Emissions to Air	(g)	51920
Advective Mass Loading Rate to Groundwater	(g/day)	2.06E-07
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.04388
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.04388

Time = 30 yrs

Cumulative Emissions to Air	(g)	52090
Advective Mass Loading Rate to Groundwater	(g/day)	2.17E-07
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.03568
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.03568

Time = 35 yrs

Cumulative Emissions to Air	(g)	52220
Advective Mass Loading Rate to Groundwater	(g/day)	2.17E-07
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.02824
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.02824

Time = 40 yrs

Cumulative Emissions to Air	(g)	52320
Advective Mass Loading Rate to Groundwater	(g/day)	2.11E-07
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.02208
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.02208

Time = 45 yrs

Cumulative Emissions to Air	(g)	52410
Advective Mass Loading Rate to Groundwater	(g/day)	2.03E-07
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.01714

Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.01714

Time = 50 yrs

Cumulative Emissions to Air	(g)	52480
Advective Mass Loading Rate to Groundwater	(g/day)	1.93E-07
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.01324
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.01324

Time = 55 yrs

Cumulative Emissions to Air	(g)	52550
Advective Mass Loading Rate to Groundwater	(g/day)	1.83E-07
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.01016
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.01016

Time = 60 yrs

Cumulative Emissions to Air	(g)	52600
Advective Mass Loading Rate to Groundwater	(g/day)	1.73E-07
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.007737
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.007738

Time = 65 yrs

Cumulative Emissions to Air	(g)	52650
Advective Mass Loading Rate to Groundwater	(g/day)	1.63E-07
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.005815
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.005816

Time = 70 yrs

Cumulative Emissions to Air	(g)	52690
Advective Mass Loading Rate to Groundwater	(g/day)	1.54E-07
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.004286
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.004286

AT123D Output File
Analysis for Example Problem

Chemicals in the analysis
TPH-AL05-06
TPH-AL06-08
TPH-AL08-10
TPH-AL10-12
TPH-AL12-16

Number of years simulated: 70

GENERAL INPUT DATA
****

NO. OF POINTS IN X-DIRECTION	1
NO. OF POINTS IN Y-DIRECTION	1
NO. OF POINTS IN Z-DIRECTION	10
NO. OF ROOTS: NO. OF SERIES TERMS	1000
NO. OF BEGINNING TIME STEPS	1
NO. OF ENDING TIME STEP	70
NO. OF TIME INTERVALS FOR PRINTED OUT SOLUTION	1
INSTANTANEOUS SOURCE CONTROL = 0 FOR INSTANT SOURCE 1	
SOURCE CONDITION CONTROL = 0 FOR STEADY SOURCE	70
INTERMITTENT OUTPUT CONTROL = 0 NO SUCH OUTPUT	1
CASE CONTROL =1 THERMAL, = 2 FOR CHEMICAL, = 3 RAD 2	

X-COORDINATE OF RECEPTOR WELL (METERS)	1.83E+02
Y-COORDINATE OF RECEPTOR WELL (METERS)	5.80E+01
AQUIFER DEPTH, = 0.0 FOR INFINITE DEEP (METERS) ...	3.05E+00
AQUIFER WIDTH, = 0.0 FOR INFINITE WIDE (METERS) ...	0.00E+00
BEGIN POINT OF X-SOURCE LOCATION (METERS)	0.00E+00
END POINT OF X-SOURCE LOCATION (METERS)	3.66E+02
BEGIN POINT OF Y-SOURCE LOCATION (METERS)	0.00E+00
END POINT OF Y-SOURCE LOCATION (METERS)	1.16E+02
BEGIN POINT OF Z-SOURCE LOCATION (METERS)	0.00E+00
END POINT OF Z-SOURCE LOCATION (METERS)	0.00E+00

POROSITY	3.50E-01
HYDRAULIC CONDUCTIVITY (METER/YEAR)	3.15E+01
HYDRAULIC GRADIENT	2.00E-02
LONGITUDINAL DISPERSIVITY (METER)	0.00E+00
LATERAL DISPERSIVITY (METER)	0.00E+00
VERTICAL DISPERSIVITY (METER)	0.00E+00

BULK DENSITY OF THE SOIL (KG/M**3)	1.80E+03
TIME INTERVAL SIZE FOR THE DESIRED SOLUTION (YR) ..	1.00E+00
DISCHARGE TIME (YR)	7.00E+01

INPUT DATA/RESULTS FOR CHEMICAL: TPH-AL05-06

INST. WASTE RELEASE (KG) VALID FOR INST CASE ONLY..	1.00E+00
DISTRIBUTION COEFFICIENT, KD (M**3/KG)	1.59E-02
MOLECULAR DIFFUSION COEFFICIENT (M**2/YR)	3.15E-02
DECAY CONSTANT (1/YR)............................	0.00E+00

LIST OF TRANSIENT SOURCE RELEASE RATE

.258E+00	.970E-03	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	

RETARDATION FACTOR	8.27E+01
RETARDED SEEPAGE VELOCITY (M/YR)	2.18E-02
RETARDED LONGITUDINAL DISPERSION COEF. (M**2/YR) ..	1.09E-03
RETARDED LATERAL DISPERSION COEFFICIENT (M**2/YR) .	1.09E-03
RETARDED VERTICAL DISPERSION COEFFICIENT (M**2/YR).	1.09E-03

time [yr] = 1.00	avg. conc. [mg/l] = .105E-04
time [yr] = 5.00	avg. conc. [mg/l] = .609E-04
time [yr] = 10.0	avg. conc. [mg/l] = .427E-04
time [yr] = 15.0	avg. conc. [mg/l] = .374E-04
time [yr] = 20.0	avg. conc. [mg/l] = .349E-04
time [yr] = 25.0	avg. conc. [mg/l] = .334E-04
time [yr] = 30.0	avg. conc. [mg/l] = .322E-04
time [yr] = 35.0	avg. conc. [mg/l] = .314E-04
time [yr] = 40.0	avg. conc. [mg/l] = .307E-04
time [yr] = 45.0	avg. conc. [mg/l] = .301E-04
time [yr] = 50.0	avg. conc. [mg/l] = .296E-04

time [yr] = 55.0 avg. conc. [mg/l] = .292E-04

time [yr] = 60.0 avg. conc. [mg/l] = .289E-04

time [yr] = 65.0 avg. conc. [mg/l] = .285E-04

time [yr] = 70.0 avg. conc. [mg/l] = .283E-04

INPUT DATA/RESULTS FOR CHEMICAL: TPH-AL06-08

INST. WASTE RELEASE (KG) VALID FOR INST CASE ONLY..	1.00E+00
DISTRIBUTION COEFFICIENT, KD (M**3/KG)	7.96E-02
MOLECULAR DIFFUSION COEFFICIENT (M**2/YR)	3.15E-02
DECAY CONSTANT (1/YR)...........................	0.00E+00

LIST OF TRANSIENT SOURCE RELEASE RATE

.342E+00	.418E-01	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	

RETARDATION FACTOR	4.10E+02
RETARDED SEEPAGE VELOCITY (M/YR)	4.39E-03
RETARDED LONGITUDINAL DISPERSION COEF. (M**2/YR) ..	2.20E-04
RETARDED LATERAL DISPERSION COEFFICIENT (M**2/YR) .	2.20E-04
RETARDED VERTICAL DISPERSION COEFFICIENT (M**2/YR).	2.20E-04

time [yr] = 1.00 avg. conc. [mg/l] = .280E-05

time [yr] = 5.00 avg. conc. [mg/l] = .557E-04

time [yr] = 10.0 avg. conc. [mg/l] = .360E-04

time [yr] = 15.0 avg. conc. [mg/l] = .287E-04

time [yr] = 20.0 avg. conc. [mg/l] = .246E-04

time [yr] = 25.0 avg. conc. [mg/l] = .219E-04

time [yr] = 30.0 avg. conc. [mg/l] = .200E-04

time [yr] = 35.0 avg. conc. [mg/l] = .186E-04

time [yr] = 40.0 avg. conc. [mg/l] = .176E-04

time [yr] = 45.0 avg. conc. [mg/l] = .168E-04

time [yr] = 50.0 avg. conc. [mg/l] = .162E-04

time [yr] = 55.0 avg. conc. [mg/l] = .157E-04

time [yr] = 60.0 avg. conc. [mg/l] = .153E-04

time [yr] = 65.0 avg. conc. [mg/l] = .150E-04

time [yr] = 70.0 avg. conc. [mg/l] = .147E-04

INPUT DATA/RESULTS FOR CHEMICAL: TPH-AL08-10

INST. WASTE RELEASE (KG) VALID FOR INST CASE ONLY..	1.00E+00
DISTRIBUTION COEFFICIENT, KD (M**3/KG)	6.32E-01
MOLECULAR DIFFUSION COEFFICIENT (M**2/YR)	3.15E-02
DECAY CONSTANT (1/YR)...........................	0.00E+00

LIST OF TRANSIENT SOURCE RELEASE RATE

.318E+00	.185E+00	.789E-01	.308E-01	.848E-02
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	

RETARDATION FACTOR	3.25E+03
RETARDED SEEPAGE VELOCITY (M/YR)	5.54E-04
RETARDED LONGITUDINAL DISPERSION COEF. (M**2/YR) ..	2.77E-05
RETARDED LATERAL DISPERSION COEFFICIENT (M**2/YR) .	2.77E-05
RETARDED VERTICAL DISPERSION COEFFICIENT (M**2/YR).	2.77E-05

time [yr] = 1.00 avg. conc. [mg/l] = .329E-06

time [yr] = 5.00 avg. conc. [mg/l] = .605E-04

time [yr] = 10.0	avg. conc. [mg/l] = .358E-04
time [yr] = 15.0	avg. conc. [mg/l] = .279E-04
time [yr] = 20.0	avg. conc. [mg/l] = .237E-04
time [yr] = 25.0	avg. conc. [mg/l] = .209E-04
time [yr] = 30.0	avg. conc. [mg/l] = .190E-04
time [yr] = 35.0	avg. conc. [mg/l] = .175E-04
time [yr] = 40.0	avg. conc. [mg/l] = .163E-04
time [yr] = 45.0	avg. conc. [mg/l] = .153E-04
time [yr] = 50.0	avg. conc. [mg/l] = .145E-04
time [yr] = 55.0	avg. conc. [mg/l] = .138E-04
time [yr] = 60.0	avg. conc. [mg/l] = .132E-04
time [yr] = 65.0	avg. conc. [mg/l] = .126E-04
time [yr] = 70.0	avg. conc. [mg/l] = .122E-04

INPUT DATA/RESULTS FOR CHEMICAL: TPH-AL10-12

INST. WASTE RELEASE (KG) VALID FOR INST CASE ONLY..	1.00E+00
DISTRIBUTION COEFFICIENT, KD (M**3/KG)	5.02E+00
MOLECULAR DIFFUSION COEFFICIENT (M**2/YR)	3.15E-02
DECAY CONSTANT (1/YR).....	0.00E+00

LIST OF TRANSIENT SOURCE RELEASE RATE

.106E-02	.367E-01	.752E-01	.848E-01	.783E-01
.667E-01	.548E-01	.443E-01	.355E-01	.283E-01
.224E-01	.177E-01	.139E-01	.108E-01	.830E-02
.626E-02	.458E-02	.320E-02	.206E-02	.112E-02
.344E-03	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	

RETARDATION FACTOR	2.58E+04
RETARDED SEEPAGE VELOCITY (M/YR)	6.97E-05
RETARDED LONGITUDINAL DISPERSION COEF. (M**2/YR) ..	3.49E-06
RETARDED LATERAL DISPERSION COEFFICIENT (M**2/YR) .	3.49E-06
RETARDED VERTICAL DISPERSION COEFFICIENT (M**2/YR).	3.49E-06

time [yr] = 1.00	avg. conc. [mg/l] = .000E+00
time [yr] = 5.00	avg. conc. [mg/l] = .138E-04
time [yr] = 10.0	avg. conc. [mg/l] = .190E-04
time [yr] = 15.0	avg. conc. [mg/l] = .166E-04
time [yr] = 20.0	avg. conc. [mg/l] = .134E-04
time [yr] = 25.0	avg. conc. [mg/l] = .112E-04
time [yr] = 30.0	avg. conc. [mg/l] = .983E-05
time [yr] = 35.0	avg. conc. [mg/l] = .888E-05
time [yr] = 40.0	avg. conc. [mg/l] = .817E-05
time [yr] = 45.0	avg. conc. [mg/l] = .761E-05
time [yr] = 50.0	avg. conc. [mg/l] = .715E-05
time [yr] = 55.0	avg. conc. [mg/l] = .677E-05
time [yr] = 60.0	avg. conc. [mg/l] = .644E-05
time [yr] = 65.0	avg. conc. [mg/l] = .616E-05
time [yr] = 70.0	avg. conc. [mg/l] = .591E-05

INPUT DATA/RESULTS FOR CHEMICAL: TPH-AL12-16

INST. WASTE RELEASE (KG) VALID FOR INST CASE ONLY..	1.00E+00
DISTRIBUTION COEFFICIENT, KD (M**3/KG)	1.00E+02
MOLECULAR DIFFUSION COEFFICIENT (M**2/YR)	3.15E-02
DECAY CONSTANT (1/YR).....	0.00E+00

LIST OF TRANSIENT SOURCE RELEASE RATE

.198E-17	.382E-08	.348E-05	.872E-04	.534E-03
.164E-02	.345E-02	.575E-02	.824E-02	.107E-01
.129E-01	.147E-01	.162E-01	.173E-01	.181E-01
.186E-01	.189E-01	.189E-01	.188E-01	.185E-01
.181E-01	.177E-01	.171E-01	.166E-01	.160E-01

.154E-01	.148E-01	.142E-01	.136E-01	.130E-01
.124E-01	.119E-01	.113E-01	.108E-01	.103E-01
.982E-02	.935E-02	.890E-02	.847E-02	.806E-02
.766E-02	.729E-02	.693E-02	.658E-02	.626E-02
.594E-02	.565E-02	.536E-02	.509E-02	.483E-02
.459E-02	.435E-02	.413E-02	.391E-02	.371E-02
.352E-02	.333E-02	.315E-02	.299E-02	.282E-02
.267E-02	.252E-02	.238E-02	.225E-02	.212E-02
.200E-02	.188E-02	.177E-02	.167E-02	

RETARDATION FACTOR	5.15E+05
RETARDED SEEPAGE VELOCITY (M/YR)	3.49E-06
RETARDED LONGITUDINAL DISPERSION COEF. (M**2/YR) ..	1.75E-07
RETARDED LATERAL DISPERSION COEFFICIENT (M**2/YR) .	1.75E-07
RETARDED VERTICAL DISPERSION COEFFICIENT (M**2/YR).	1.75E-07

time [yr] = 1.00	avg. conc. [mg/l] = .000E+00
time [yr] = 5.00	avg. conc. [mg/l] = .000E+00
time [yr] = 10.0	avg. conc. [mg/l] = .148E-06
time [yr] = 15.0	avg. conc. [mg/l] = .669E-06
time [yr] = 20.0	avg. conc. [mg/l] = .119E-05
time [yr] = 25.0	avg. conc. [mg/l] = .162E-05
time [yr] = 30.0	avg. conc. [mg/l] = .185E-05
time [yr] = 35.0	avg. conc. [mg/l] = .200E-05
time [yr] = 40.0	avg. conc. [mg/l] = .203E-05
time [yr] = 45.0	avg. conc. [mg/l] = .203E-05
time [yr] = 50.0	avg. conc. [mg/l] = .198E-05
time [yr] = 55.0	avg. conc. [mg/l] = .192E-05
time [yr] = 60.0	avg. conc. [mg/l] = .185E-05
time [yr] = 65.0	avg. conc. [mg/l] = .177E-05
time [yr] = 70.0	avg. conc. [mg/l] = .170E-05

Jury Output File
Analysis for Example Problem

*** COMMON INPUT PARAMETERS ***

PARAMETER NAME	UNITS	VALUE
Porosity	(cc/cc)	0.25
Bulk Density	(g/cc)	1.8
Water Content	(cc/cc)	0.1
Fractional Organic Carbon	(mg/mg)	2.00E-02
Incorporation Depth	(cm)	66.7
Clean Soil Thickness	(cm)	0
Simulation Time	(yrs)	70
Length of Soil Column	(cm)	1470
Infiltration Rate	(cm/day)	5.19E-02
Source Length	(m)	366
Source Width	(m)	116
Boundary Layer Thickness	(cm)	5

Chemical Specific Input Parameters for TPH-AL16-35

Parameter Name	Units	Value
Total Soil Concentration	(mg/kg)	1
Diffusion Coeff. in Air	(cm^2/day	8640
Diffusion Coeff. in Water	(cm^2/day	0.864
Henrys Constant [	(mg/L)	/(mg/L)] .2660E+06
Organic Carbon Part. Coeff.	(cc/g)	1.00E+09
Lumped Chemical Decay Rate	(1/day)	0

Outputs for TPH-AL16-35

Time = 1 yrs

Cumulative Emissions to Air	(g)	22630
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 2 yrs

Cumulative Emissions to Air	(g)	29310
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 3 yrs

Cumulative Emissions to Air	(g)	33000
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 4 yrs

Cumulative Emissions to Air	(g)	35410
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 5 yrs

Cumulative Emissions to Air	(g)	37140
Advective Mass Loading Rate to Groundwater	(g/day)	2.5E-72
Diffusive Mass Loading Rate to Groundwater	(g/day)	4.89E-63
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 10 yrs

Cumulative Emissions to Air	(g)	41710
Advective Mass Loading Rate to Groundwater	(g/day)	3.65E-40
Diffusive Mass Loading Rate to Groundwater	(g/day)	1.21E-31
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	1.21E-31

Time = 15 yrs

Cumulative Emissions to Air	(g)	43840
Advective Mass Loading Rate to Groundwater	(g/day)	2.06E-29
Diffusive Mass Loading Rate to Groundwater	(g/day)	3.3E-21
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	3.3E-21

Time = 20 yrs

Cumulative Emissions to Air	(g)	45140

Advective Mass Loading Rate to Groundwater	(g/day)	4.96E-24
Diffusive Mass Loading Rate to Groundwater	(g/day)	5.11E-16
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	5.11E-16

Time = 25 yrs

Cumulative Emissions to Air	(g)	46030
Advective Mass Loading Rate to Groundwater	(g/day)	8.3E-21
Diffusive Mass Loading Rate to Groundwater	(g/day)	6.26E-13
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	6.26E-13

Time = 30 yrs

Cumulative Emissions to Air	(g)	46700
Advective Mass Loading Rate to Groundwater	(g/day)	1.15E-18
Diffusive Mass Loading Rate to Groundwater	(g/day)	6.8E-11
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	6.8E-11

Time = 35 yrs

Cumulative Emissions to Air	(g)	47220
Advective Mass Loading Rate to Groundwater	(g/day)	3.82E-17
Diffusive Mass Loading Rate to Groundwater	(g/day)	1.86E-09
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	1.86E-09

Time = 40 yrs

Cumulative Emissions to Air	(g)	47640
Advective Mass Loading Rate to Groundwater	(g/day)	5.21E-16
Diffusive Mass Loading Rate to Groundwater	(g/day)	2.14E-08
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	2.14E-08

Time = 45 yrs

Cumulative Emissions to Air	(g)	47990
Advective Mass Loading Rate to Groundwater	(g/day)	3.92E-15
Diffusive Mass Loading Rate to Groundwater	(g/day)	1.4E-07
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	1.4E-07

Time = 50 yrs

Cumulative Emissions to Air	(g)	48280
Advective Mass Loading Rate to Groundwater	(g/day)	1.94E-14

Diffusive Mass Loading Rate to Groundwater	(g/day)	6.1E-07
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	6.1E-07

Time = 55 yrs

Cumulative Emissions to Air	(g)	48540
Advective Mass Loading Rate to Groundwater	(g/day)	7.12E-14
Diffusive Mass Loading Rate to Groundwater	(g/day)	2E-06
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	2E-06

Time = 60 yrs

Cumulative Emissions to Air	(g)	48760
Advective Mass Loading Rate to Groundwater	(g/day)	2.08E-13
Diffusive Mass Loading Rate to Groundwater	(g/day)	5.28E-06
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	5.28E-06

Time = 65 yrs

Cumulative Emissions to Air	(g)	48960
Advective Mass Loading Rate to Groundwater	(g/day)	5.13E-13
Diffusive Mass Loading Rate to Groundwater	(g/day)	1.18E-05
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	1.18E-05

Time = 70 yrs

Cumulative Emissions to Air	(g)	49130
Advective Mass Loading Rate to Groundwater	(g/day)	1.1E-12
Diffusive Mass Loading Rate to Groundwater	(g/day)	2.33E-05
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	2.33E-05

AT123D Output File
Analysis for Example Problem

Chemicals in the analysis
TPH-AL16-35

Number of years simulated: 70

GENERAL INPUT DATA
****

NO. OF POINTS IN X-DIRECTION	1
NO. OF POINTS IN Y-DIRECTION	1
NO. OF POINTS IN Z-DIRECTION	10
NO. OF ROOTS: NO. OF SERIES TERMS	1000
NO. OF BEGINNING TIME STEPS	1
NO. OF ENDING TIME STEP	70
NO. OF TIME INTERVALS FOR PRINTED OUT SOLUTION	1
INSTANTANEOUS SOURCE CONTROL = 0 FOR INSTANT SOURCE 1	
SOURCE CONDITION CONTROL = 0 FOR STEADY SOURCE	70
INTERMITTENT OUTPUT CONTROL = 0 NO SUCH OUTPUT	1
CASE CONTROL =1 THERMAL, = 2 FOR CHEMICAL, = 3 RAD 2	

X-COORDINATE OF RECEPTOR WELL (METERS)	1.83E+02
Y-COORDINATE OF RECEPTOR WELL (METERS)	5.80E+01
AQUIFER DEPTH, = 0.0 FOR INFINITE DEEP (METERS) ...	3.05E+00
AQUIFER WIDTH, = 0.0 FOR INFINITE WIDE (METERS) ...	0.00E+00
BEGIN POINT OF X-SOURCE LOCATION (METERS)	0.00E+00
END POINT OF X-SOURCE LOCATION (METERS)	3.66E+02
BEGIN POINT OF Y-SOURCE LOCATION (METERS)	0.00E+00
END POINT OF Y-SOURCE LOCATION (METERS)	1.16E+02
BEGIN POINT OF Z-SOURCE LOCATION (METERS)	0.00E+00
END POINT OF Z-SOURCE LOCATION (METERS)	0.00E+00

POROSITY	3.50E-01
HYDRAULIC CONDUCTIVITY (METER/YEAR)	3.15E+01
HYDRAULIC GRADIENT	2.00E-02
LONGITUDINAL DISPERSIVITY (METER)	0.00E+00
LATERAL DISPERSIVITY (METER)	0.00E+00
VERTICAL DISPERSIVITY (METER)	0.00E+00

BULK DENSITY OF THE SOIL (KG/M**3)	1.80E+03
TIME INTERVAL SIZE FOR THE DESIRED SOLUTION (YR) ..	1.00E+00
DISCHARGE TIME (YR)	7.00E+01

INPUT DATA/RESULTS FOR CHEMICAL: TPH-AL16-35

INST. WASTE RELEASE (KG) VALID FOR INST CASE ONLY..	1.00E+00

DISTRIBUTION COEFFICIENT, KD (M**3/KG)	2.00E+04
MOLECULAR DIFFUSION COEFFICIENT (M**2/YR)	3.15E-02
DECAY CONSTANT (1/YR)	0.00E+00

LIST OF TRANSIENT SOURCE RELEASE RATE

.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.157E-44	.632E-39	.144E-34	.441E-31
.312E-28	.738E-26	.749E-24	.392E-22	.121E-20
.241E-19	.337E-18	.351E-17	.285E-16	.187E-15
.102E-14	.476E-14	.194E-13	.702E-13	.228E-12
.677E-12	.185E-11	.468E-11	.111E-10	.248E-10
.526E-10	.106E-09	.205E-09	.380E-09	.678E-09
.117E-08	.196E-08	.319E-08	.506E-08	.782E-08
.118E-07	.175E-07	.255E-07	.363E-07	.509E-07
.703E-07	.957E-07	.128E-06	.170E-06	.223E-06
.288E-06	.369E-06	.467E-06	.586E-06	.729E-06
.899E-06	.110E-05	.133E-05	.161E-05	.193E-05
.229E-05	.271E-05	.318E-05	.371E-05	.431E-05
.499E-05	.574E-05	.657E-05	.749E-05	

RETARDATION FACTOR	1.03E+08
RETARDED SEEPAGE VELOCITY (M/YR)	1.75E-08
RETARDED LONGITUDINAL DISPERSION COEF. (M**2/YR) ..	8.76E-10
RETARDED LATERAL DISPERSION COEFFICIENT (M**2/YR) .	8.76E-10
RETARDED VERTICAL DISPERSION COEFFICIENT (M**2/YR).	8.76E-10

time [yr] = 1.00	avg. conc. [mg/l] = .000E+00
time [yr] = 5.00	avg. conc. [mg/l] = .000E+00
time [yr] = 10.0	avg. conc. [mg/l] = .000E+00
time [yr] = 15.0	avg. conc. [mg/l] = .000E+00
time [yr] = 20.0	avg. conc. [mg/l] = .000E+00
time [yr] = 25.0	avg. conc. [mg/l] = .000E+00
time [yr] = 30.0	avg. conc. [mg/l] = .000E+00
time [yr] = 35.0	avg. conc. [mg/l] = .000E+00
time [yr] = 40.0	avg. conc. [mg/l] = .000E+00
time [yr] = 45.0	avg. conc. [mg/l] = .000E+00
time [yr] = 50.0	avg. conc. [mg/l] = .000E+00
time [yr] = 55.0	avg. conc. [mg/l] = .000E+00
time [yr] = 60.0	avg. conc. [mg/l] = .000E+00

time [yr] = 65.0 avg. conc. [mg/l] = .000E+00

time [yr] = 70.0 avg. conc. [mg/l] = .000E+00

Jury Output File
Analysis for Example Problem

don't Scan Duplicated Copies in file

*** COMMON INPUT PARAMETERS ***

PARAMETER NAME	UNITS	VALUE
Porosity	(cc/cc)	0.25
Bulk Density	(g/cc)	1.8
Water Content	(cc/cc)	0.1
Fractional Organic Carbon	(mg/mg)	2.00E-02
Incorporation Depth	(cm)	66.7
Clean Soil Thickness	(cm)	0
Simulation Time	(yrs)	70
Length of Soil Column	(cm)	1470
Infiltration Rate	(cm/day)	5.19E-02
Source Length	(m)	366
Source Width	(m)	116
Boundary Layer Thickness	(cm)	5

Chemical Specific Input Parameters for Benzene

Parameter Name	Units	Value
Total Soil Concentration	(mg/kg)	1
Diffusion Coeff. in Air	(cm^2/day	7517
Diffusion Coeff. in Water	(cm^2/day	0.8467
Henrys Constant [	(mg/L)	/(mg/L)] .2490
Organic Carbon Part. Coeff.	(cc/g)	83
Lumped Chemical Decay Rate	(1/day)	2.00E-03

Outputs for Benzene

Time = 1 yrs

Cumulative Emissions to Air	(g)	36120
Advective Mass Loading Rate to Groundwater	(g/day)	3.3E-35
Diffusive Mass Loading Rate to Groundwater	(g/day)	1E-32
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	1E-32

Time = 2 yrs

Cumulative Emissions to Air	(g)	37370
Advective Mass Loading Rate to Groundwater	(g/day)	2.38E-18
Diffusive Mass Loading Rate to Groundwater	(g/day)	2.16E-16
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	2.18E-16

Time = 3 yrs

Cumulative Emissions to Air	(g)	37630
Advective Mass Loading Rate to Groundwater	(g/day)	5.97E-13
Diffusive Mass Loading Rate to Groundwater	(g/day)	3.07E-11
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	3.13E-11

Time = 4 yrs

Cumulative Emissions to Air	(g)	37710
Advective Mass Loading Rate to Groundwater	(g/day)	1.97E-10
Diffusive Mass Loading Rate to Groundwater	(g/day)	6.98E-09
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	7.17E-09

Time = 5 yrs

Cumulative Emissions to Air	(g)	37730
Advective Mass Loading Rate to Groundwater	(g/day)	4.53E-09
Diffusive Mass Loading Rate to Groundwater	(g/day)	1.22E-07
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	1.26E-07

Time = 10 yrs

Cumulative Emissions to Air	(g)	37750
Advective Mass Loading Rate to Groundwater	(g/day)	1.98E-07
Diffusive Mass Loading Rate to Groundwater	(g/day)	2.32E-06
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	2.52E-06

Time = 15 yrs

Cumulative Emissions to Air	(g)	37750
Advective Mass Loading Rate to Groundwater	(g/day)	4.8E-08
Diffusive Mass Loading Rate to Groundwater	(g/day)	3.43E-07
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	3.91E-07

Time = 20 yrs

Cumulative Emissions to Air	(g)	37750

Advective Mass Loading Rate to Groundwater	(g/day)	3.35E-09
Diffusive Mass Loading Rate to Groundwater	(g/day)	1.67E-08
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	2E-08

Time = 25 yrs

Cumulative Emissions to Air	(g)	37750
Advective Mass Loading Rate to Groundwater	(g/day)	1.46E-10
Diffusive Mass Loading Rate to Groundwater	(g/day)	5.4E-10
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	6.86E-10

Time = 30 yrs

Cumulative Emissions to Air	(g)	37750
Advective Mass Loading Rate to Groundwater	(g/day)	5.07E-12
Diffusive Mass Loading Rate to Groundwater	(g/day)	1.45E-11
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	1.96E-11

Time = 35 yrs

Cumulative Emissions to Air	(g)	37750
Advective Mass Loading Rate to Groundwater	(g/day)	1.56E-13
Diffusive Mass Loading Rate to Groundwater	(g/day)	3.55E-13
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	5.11E-13

Time = 40 yrs

Cumulative Emissions to Air	(g)	37750
Advective Mass Loading Rate to Groundwater	(g/day)	4.49E-15
Diffusive Mass Loading Rate to Groundwater	(g/day)	8.21E-15
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	1.27E-14

Time = 45 yrs

Cumulative Emissions to Air	(g)	37750
Advective Mass Loading Rate to Groundwater	(g/day)	1.23E-16
Diffusive Mass Loading Rate to Groundwater	(g/day)	1.83E-16
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	3.06E-16

Time = 50 yrs

Cumulative Emissions to Air	(g)	37750
Advective Mass Loading Rate to Groundwater	(g/day)	3.29E-18

Diffusive Mass Loading Rate to Groundwater	(g/day)	3.99E-18
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	7.27E-18

Time = 55 yrs

Cumulative Emissions to Air	(g)	37750
Advective Mass Loading Rate to Groundwater	(g/day)	8.6E-20
Diffusive Mass Loading Rate to Groundwater	(g/day)	8.51E-20
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	1.71E-19

Time = 60 yrs

Cumulative Emissions to Air	(g)	37750
Advective Mass Loading Rate to Groundwater	(g/day)	2.22E-21
Diffusive Mass Loading Rate to Groundwater	(g/day)	1.79E-21
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	4E-21

Time = 65 yrs

Cumulative Emissions to Air	(g)	37750
Advective Mass Loading Rate to Groundwater	(g/day)	5.67E-23
Diffusive Mass Loading Rate to Groundwater	(g/day)	3.68E-23
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	9.35E-23

Time = 70 yrs

Cumulative Emissions to Air	(g)	37750
Advective Mass Loading Rate to Groundwater	(g/day)	1.44E-24
Diffusive Mass Loading Rate to Groundwater	(g/day)	7.42E-25
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	2.18E-24

Chemical Specific Input Parameters for Ethylbenzene

Parameter Name	Units	Value
Total Soil Concentration	(mg/kg)	1
Diffusion Coeff. in Air	(cm^2/day	5702
Diffusion Coeff. in Water	(cm^2/day	0.5875
Henrys Constant [	(mg/L)	/(mg/L)] .2870
Organic Carbon Part. Coeff.	(cc/g)	1100
Lumped Chemical Decay Rate	(1/day)	3.00E-03

Outputs for Ethylbenzene

Time = 1 yrs

Cumulative Emissions to Air	(g)	13480
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 2 yrs

Cumulative Emissions to Air	(g)	14840
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 3 yrs

Cumulative Emissions to Air	(g)	15110
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 4 yrs

Cumulative Emissions to Air	(g)	15170
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 5 yrs

Cumulative Emissions to Air	(g)	15190
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 10 yrs

Cumulative Emissions to Air	(g)	15190
Advective Mass Loading Rate to Groundwater	(g/day)	2.82E-56
Diffusive Mass Loading Rate to Groundwater	(g/day)	1.81E-53

Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 15 yrs

Cumulative Emissions to Air	(g)	15190
Advective Mass Loading Rate to Groundwater	(g/day)	4.84E-42
Diffusive Mass Loading Rate to Groundwater	(g/day)	1.2E-39
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	1.21E-39

Time = 20 yrs

Cumulative Emissions to Air	(g)	15190
Advective Mass Loading Rate to Groundwater	(g/day)	4.25E-36
Diffusive Mass Loading Rate to Groundwater	(g/day)	6.15E-34
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	6.19E-34

Time = 25 yrs

Cumulative Emissions to Air	(g)	15190
Advective Mass Loading Rate to Groundwater	(g/day)	1.78E-33
Diffusive Mass Loading Rate to Groundwater	(g/day)	1.78E-31
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	1.79E-31

Time = 30 yrs

Cumulative Emissions to Air	(g)	15190
Advective Mass Loading Rate to Groundwater	(g/day)	1.6E-32
Diffusive Mass Loading Rate to Groundwater	(g/day)	1.21E-30
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	1.23E-30

Time = 35 yrs

Cumulative Emissions to Air	(g)	15190
Advective Mass Loading Rate to Groundwater	(g/day)	1.6E-32
Diffusive Mass Loading Rate to Groundwater	(g/day)	9.73E-31
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	9.89E-31

Time = 40 yrs

Cumulative Emissions to Air	(g)	15190
Advective Mass Loading Rate to Groundwater	(g/day)	4.06E-33
Diffusive Mass Loading Rate to Groundwater	(g/day)	2.05E-31
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	2.09E-31

Time = 45 yrs

Cumulative Emissions to Air	(g)	15190
Advective Mass Loading Rate to Groundwater	(g/day)	4.09E-34
Diffusive Mass Loading Rate to Groundwater	(g/day)	1.76E-32
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	1.8E-32

Time = 50 yrs

Cumulative Emissions to Air	(g)	15190
Advective Mass Loading Rate to Groundwater	(g/day)	2.17E-35
Diffusive Mass Loading Rate to Groundwater	(g/day)	8.13E-34
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	8.35E-34

Time = 55 yrs

Cumulative Emissions to Air	(g)	15190
Advective Mass Loading Rate to Groundwater	(g/day)	7.18E-37
Diffusive Mass Loading Rate to Groundwater	(g/day)	2.38E-35
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	2.46E-35

Time = 60 yrs

Cumulative Emissions to Air	(g)	15190
Advective Mass Loading Rate to Groundwater	(g/day)	1.67E-38
Diffusive Mass Loading Rate to Groundwater	(g/day)	4.98E-37
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	5.14E-37

Time = 65 yrs

Cumulative Emissions to Air	(g)	15190
Advective Mass Loading Rate to Groundwater	(g/day)	2.98E-40
Diffusive Mass Loading Rate to Groundwater	(g/day)	8E-39
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	8.3E-39

Time = 70 yrs

Cumulative Emissions to Air	(g)	15190
Advective Mass Loading Rate to Groundwater	(g/day)	4.28E-42
Diffusive Mass Loading Rate to Groundwater	(g/day)	1.05E-40
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	1.09E-40

Chemical Specific Input Parameters for Naphthalene

Parameter Name	Units	Value
Total Soil Concentration	(mg/kg)	1
Diffusion Coeff. in Air	(cm^2/day	5098
Diffusion Coeff. in Water	(cm^2/day	0.648
Henrys Constant [	(mg/L)	/(mg/L)] .5780E-01
Organic Carbon Part. Coeff.	(cc/g)	1300
Lumped Chemical Decay Rate	(1/day)	0

Outputs for Naphthalene

Time = 1 yrs

Cumulative Emissions to Air	(g)	7108
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 2 yrs

Cumulative Emissions to Air	(g)	10010
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 3 yrs

Cumulative Emissions to Air	(g)	12190
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 4 yrs

Cumulative Emissions to Air	(g)	14000
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 5 yrs

Cumulative Emissions to Air	(g)	15550
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 10 yrs

Cumulative Emissions to Air	(g)	21070
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 15 yrs

Cumulative Emissions to Air	(g)	24530
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 20 yrs

Cumulative Emissions to Air	(g)	26950
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 25 yrs

Cumulative Emissions to Air	(g)	28750
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 30 yrs

Cumulative Emissions to Air	(g)	30160
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 35 yrs

Cumulative Emissions to Air	(g)	31300
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 40 yrs

Cumulative Emissions to Air	(g)	32240
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 45 yrs

Cumulative Emissions to Air	(g)	33040
Advective Mass Loading Rate to Groundwater	(g/day)	9.19E-73
Diffusive Mass Loading Rate to Groundwater	(g/day)	3.34E-70
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 50 yrs

Cumulative Emissions to Air	(g)	33730
Advective Mass Loading Rate to Groundwater	(g/day)	1.6E-65
Diffusive Mass Loading Rate to Groundwater	(g/day)	4.01E-63
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 55 yrs

Cumulative Emissions to Air	(g)	34320
Advective Mass Loading Rate to Groundwater	(g/day)	1.35E-59
Diffusive Mass Loading Rate to Groundwater	(g/day)	2.49E-57
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 60 yrs

Cumulative Emissions to Air	(g)	34850
Advective Mass Loading Rate to Groundwater	(g/day)	1.18E-54
Diffusive Mass Loading Rate to Groundwater	(g/day)	1.67E-52
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 65 yrs

Cumulative Emissions to Air	(g)	35320
Advective Mass Loading Rate to Groundwater	(g/day)	1.79E-50
Diffusive Mass Loading Rate to Groundwater	(g/day)	2.02E-48
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 70 yrs

Cumulative Emissions to Air	(g)	35740
Advective Mass Loading Rate to Groundwater	(g/day)	6.87E-47
Diffusive Mass Loading Rate to Groundwater	(g/day)	6.4E-45
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	7.01E-45

Chemical Specific Input Parameters for Toluene

Parameter Name	Units	Value
Total Soil Concentration	(mg/kg)	1
Diffusion Coeff. in Air	(cm^2/day	6739
Diffusion Coeff. in Water	(cm^2/day	0.743
Henrys Constant [	(mg/L)	/(mg/L)] .2840
Organic Carbon Part. Coeff.	(cc/g)	300
Lumped Chemical Decay Rate	(1/day)	3.30E-03

Outputs for Toluene

Time = 1 yrs

Cumulative Emissions to Air	(g)	24150
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 2 yrs

Cumulative Emissions to Air	(g)	25200
Advective Mass Loading Rate to Groundwater	(g/day)	7.12E-61
Diffusive Mass Loading Rate to Groundwater	(g/day)	8.55E-58
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 3 yrs

Cumulative Emissions to Air	(g)	25350
Advective Mass Loading Rate to Groundwater	(g/day)	7.41E-42
Diffusive Mass Loading Rate to Groundwater	(g/day)	3.06E-39
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	3.07E-39

Time = 4 yrs

Cumulative Emissions to Air	(g)	25370
Advective Mass Loading Rate to Groundwater	(g/day)	1.36E-32
Diffusive Mass Loading Rate to Groundwater	(g/day)	3.1E-30
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	3.11E-30

Time = 5 yrs

Cumulative Emissions to Air	(g)	25380
Advective Mass Loading Rate to Groundwater	(g/day)	3.1E-27
Diffusive Mass Loading Rate to Groundwater	(g/day)	4.74E-25
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	4.77E-25

Time = 10 yrs

Cumulative Emissions to Air	(g)	25380
Advective Mass Loading Rate to Groundwater	(g/day)	4.32E-18
Diffusive Mass Loading Rate to Groundwater	(g/day)	2.36E-16
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	2.4E-16

Time = 15 yrs

Cumulative Emissions to Air	(g)	25380
Advective Mass Loading Rate to Groundwater	(g/day)	7.9E-17
Diffusive Mass Loading Rate to Groundwater	(g/day)	2.56E-15
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	2.64E-15

Time = 20 yrs

Cumulative Emissions to Air	(g)	25380
Advective Mass Loading Rate to Groundwater	(g/day)	1.52E-17
Diffusive Mass Loading Rate to Groundwater	(g/day)	3.47E-16
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	3.62E-16

Time = 25 yrs

Cumulative Emissions to Air	(g)	25380
Advective Mass Loading Rate to Groundwater	(g/day)	4.79E-19
Diffusive Mass Loading Rate to Groundwater	(g/day)	8.35E-18
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	8.83E-18

Time = 30 yrs

Cumulative Emissions to Air	(g)	25380
Advective Mass Loading Rate to Groundwater	(g/day)	6.15E-21
Diffusive Mass Loading Rate to Groundwater	(g/day)	8.56E-20
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	9.18E-20

Time = 35 yrs

Cumulative Emissions to Air	(g)	25380
Advective Mass Loading Rate to Groundwater	(g/day)	4.72E-23
Diffusive Mass Loading Rate to Groundwater	(g/day)	5.47E-22
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	5.94E-22

Time = 40 yrs

Cumulative Emissions to Air	(g)	25380
Advective Mass Loading Rate to Groundwater	(g/day)	2.65E-25
Diffusive Mass Loading Rate to Groundwater	(g/day)	2.63E-24
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	2.9E-24

Time = 45 yrs

Cumulative Emissions to Air	(g)	25380
Advective Mass Loading Rate to Groundwater	(g/day)	1.21E-27
Diffusive Mass Loading Rate to Groundwater	(g/day)	1.04E-26
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	1.17E-26

Time = 50 yrs

Cumulative Emissions to Air	(g)	25380
Advective Mass Loading Rate to Groundwater	(g/day)	4.8E-30
Diffusive Mass Loading Rate to Groundwater	(g/day)	3.63E-29
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	4.11E-29

Time = 55 yrs

Cumulative Emissions to Air	(g)	25380

Advective Mass Loading Rate to Groundwater	(g/day)	1.71E-32
Diffusive Mass Loading Rate to Groundwater	(g/day)	1.15E-31
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	1.33E-31

Time = 60 yrs

Cumulative Emissions to Air	(g)	25380
Advective Mass Loading Rate to Groundwater	(g/day)	5.67E-35
Diffusive Mass Loading Rate to Groundwater	(g/day)	3.43E-34
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	3.99E-34

Time = 65 yrs

Cumulative Emissions to Air	(g)	25380
Advective Mass Loading Rate to Groundwater	(g/day)	1.77E-37
Diffusive Mass Loading Rate to Groundwater	(g/day)	9.67E-37
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	1.14E-36

Time = 70 yrs

Cumulative Emissions to Air	(g)	25380
Advective Mass Loading Rate to Groundwater	(g/day)	5.29E-40
Diffusive Mass Loading Rate to Groundwater	(g/day)	2.63E-39
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	3.16E-39

Chemical Specific Input Parameters for Xylene

Parameter Name	Units	Value
Total Soil Concentration	(mg/kg)	1
Diffusion Coeff. in Air	(cm^2/day	6221
Diffusion Coeff. in Water	(cm^2/day	0.6739
Henrys Constant [	(mg/L)	/(mg/L)] .3150
Organic Carbon Part. Coeff.	(cc/g)	240
Lumped Chemical Decay Rate	(1/day)	2.00E-03

Outputs for Xylene

Time = 1 yrs

Cumulative Emissions to Air	(g)	28680

Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 2 yrs

Cumulative Emissions to Air	(g)	30520
Advective Mass Loading Rate to Groundwater	(g/day)	9.79E-48
Diffusive Mass Loading Rate to Groundwater	(g/day)	6.11E-45
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	5.61E-45

Time = 3 yrs

Cumulative Emissions to Air	(g)	30940
Advective Mass Loading Rate to Groundwater	(g/day)	1.04E-32
Diffusive Mass Loading Rate to Groundwater	(g/day)	2.65E-30
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	2.66E-30

Time = 4 yrs

Cumulative Emissions to Air	(g)	31060
Advective Mass Loading Rate to Groundwater	(g/day)	2.44E-25
Diffusive Mass Loading Rate to Groundwater	(g/day)	3.7E-23
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	3.72E-23

Time = 5 yrs

Cumulative Emissions to Air	(g)	31100
Advective Mass Loading Rate to Groundwater	(g/day)	4.86E-21
Diffusive Mass Loading Rate to Groundwater	(g/day)	5.15E-19
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	5.2E-19

Time = 10 yrs

Cumulative Emissions to Air	(g)	31120
Advective Mass Loading Rate to Groundwater	(g/day)	2E-13
Diffusive Mass Loading Rate to Groundwater	(g/day)	8.14E-12
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	8.34E-12

Time = 15 yrs

Cumulative Emissions to Air	(g)	31120
Advective Mass Loading Rate to Groundwater	(g/day)	5.24E-12

Diffusive Mass Loading Rate to Groundwater	(g/day)	1.29E-10
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	1.34E-10

Time = 20 yrs

Cumulative Emissions to Air	(g)	31120
Advective Mass Loading Rate to Groundwater	(g/day)	3.91E-12
Diffusive Mass Loading Rate to Groundwater	(g/day)	6.81E-11
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	7.2E-11

Time = 25 yrs

Cumulative Emissions to Air	(g)	31120
Advective Mass Loading Rate to Groundwater	(g/day)	7.12E-13
Diffusive Mass Loading Rate to Groundwater	(g/day)	9.51E-12
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	1.02E-11

Time = 30 yrs

Cumulative Emissions to Air	(g)	31120
Advective Mass Loading Rate to Groundwater	(g/day)	6.45E-14
Diffusive Mass Loading Rate to Groundwater	(g/day)	6.96E-13
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	7.61E-13

Time = 35 yrs

Cumulative Emissions to Air	(g)	31120
Advective Mass Loading Rate to Groundwater	(g/day)	3.96E-15
Diffusive Mass Loading Rate to Groundwater	(g/day)	3.53E-14
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	3.93E-14

Time = 40 yrs

Cumulative Emissions to Air	(g)	31120
Advective Mass Loading Rate to Groundwater	(g/day)	1.91E-16
Diffusive Mass Loading Rate to Groundwater	(g/day)	1.45E-15
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	1.64E-15

Time = 45 yrs

Cumulative Emissions to Air	(g)	31120
Advective Mass Loading Rate to Groundwater	(g/day)	7.85E-18
Diffusive Mass Loading Rate to Groundwater	(g/day)	5.15E-17

Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	5.93E-17

Time = 50 yrs

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Cumulative Emissions to Air	(g)	31120
Advective Mass Loading Rate to Groundwater	(g/day)	2.9E-19
Diffusive Mass Loading Rate to Groundwater	(g/day)	1.66E-18
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	1.95E-18

Time = 55 yrs

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Cumulative Emissions to Air	(g)	31120
Advective Mass Loading Rate to Groundwater	(g/day)	9.89E-21
Diffusive Mass Loading Rate to Groundwater	(g/day)	5.03E-20
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	6.02E-20

Time = 60 yrs

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Cumulative Emissions to Air	(g)	31120
Advective Mass Loading Rate to Groundwater	(g/day)	3.19E-22
Diffusive Mass Loading Rate to Groundwater	(g/day)	1.45E-21
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	1.77E-21

Time = 65 yrs

==========

Cumulative Emissions to Air	(g)	31120
Advective Mass Loading Rate to Groundwater	(g/day)	9.86E-24
Diffusive Mass Loading Rate to Groundwater	(g/day)	4.02E-23
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	5.01E-23

Time = 70 yrs

==========

Cumulative Emissions to Air	(g)	31120
Advective Mass Loading Rate to Groundwater	(g/day)	2.95E-25
Diffusive Mass Loading Rate to Groundwater	(g/day)	1.09E-24
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	1.38E-24

AT123D Output File
Analysis for Example Problem

Chemicals in the analysis
Benzene
Ethylbenzene
Naphthalene
Toluene
Xylene

Number of years simulated: 70

GENERAL INPUT DATA
****

NO. OF POINTS IN X-DIRECTION	1
NO. OF POINTS IN Y-DIRECTION	1
NO. OF POINTS IN Z-DIRECTION	10
NO. OF ROOTS: NO. OF SERIES TERMS	1000
NO. OF BEGINNING TIME STEPS	1
NO. OF ENDING TIME STEP	70
NO. OF TIME INTERVALS FOR PRINTED OUT SOLUTION	1
INSTANTANEOUS SOURCE CONTROL = 0 FOR INSTANT SOURCE 1	
SOURCE CONDITION CONTROL = 0 FOR STEADY SOURCE	70
INTERMITTENT OUTPUT CONTROL = 0 NO SUCH OUTPUT	1
CASE CONTROL =1 THERMAL, = 2 FOR CHEMICAL, = 3 RAD 2	

X-COORDINATE OF RECEPTOR WELL (METERS)	1.83E+02
Y-COORDINATE OF RECEPTOR WELL (METERS)	5.80E+01
AQUIFER DEPTH, = 0.0 FOR INFINITE DEEP (METERS) ...	3.05E+00
AQUIFER WIDTH, = 0.0 FOR INFINITE WIDE (METERS) ...	0.00E+00
BEGIN POINT OF X-SOURCE LOCATION (METERS)	0.00E+00
END POINT OF X-SOURCE LOCATION (METERS)	3.66E+02
BEGIN POINT OF Y-SOURCE LOCATION (METERS)	0.00E+00
END POINT OF Y-SOURCE LOCATION (METERS)	1.16E+02
BEGIN POINT OF Z-SOURCE LOCATION (METERS)	0.00E+00
END POINT OF Z-SOURCE LOCATION (METERS)	0.00E+00

POROSITY	2.50E-01
HYDRAULIC CONDUCTIVITY (METER/YEAR)	3.15E+01
HYDRAULIC GRADIENT	2.00E-02
LONGITUDINAL DISPERSIVITY (METER)	0.00E+00
LATERAL DISPERSIVITY (METER)	0.00E+00
VERTICAL DISPERSIVITY (METER)	0.00E+00

BULK DENSITY OF THE SOIL (KG/M**3)	1.80E+03
TIME INTERVAL SIZE FOR THE DESIRED SOLUTION (YR) ..	1.00E+00
DISCHARGE TIME (YR)	7.00E+01

INPUT DATA/RESULTS FOR CHEMICAL: Benzene

INST. WASTE RELEASE (KG) VALID FOR INST CASE ONLY..	1.00E+00
DISTRIBUTION COEFFICIENT, KD (M**3/KG)	1.66E-03
MOLECULAR DIFFUSION COEFFICIENT (M**2/YR)	3.09E-02
DECAY CONSTANT (1/YR).....	7.30E-01

LIST OF TRANSIENT SOURCE RELEASE RATE

.367E-32	.796E-16	.114E-10	.262E-08	.461E-07
.228E-06	.548E-06	.853E-06	.975E-06	.918E-06
.748E-06	.549E-06	.371E-06	.236E-06	.143E-06
.831E-07	.468E-07	.257E-07	.138E-07	.731E-08
.381E-08	.196E-08	.994E-09	.501E-09	.250E-09
.124E-09	.613E-10	.301E-10	.147E-10	.716E-11
.347E-11	.168E-11	.809E-12	.389E-12	.187E-12
.894E-13	.428E-13	.204E-13	.973E-14	.463E-14
.220E-14	.105E-14	.497E-15	.236E-15	.112E-15
.530E-16	.251E-16	.119E-16	.561E-17	.265E-17
.125E-17	.593E-18	.280E-18	.132E-18	.624E-19
.295E-19	.139E-19	.657E-20	.310E-20	.146E-20
.689E-21	.325E-21	.153E-21	.723E-22	.341E-22
.161E-22	.759E-23	.358E-23	.169E-23	

RETARDATION FACTOR	1.30E+01
RETARDED SEEPAGE VELOCITY (M/YR)	1.95E-01
RETARDED LONGITUDINAL DISPERSION COEF. (M**2/YR) ..	9.55E-03
RETARDED LATERAL DISPERSION COEFFICIENT (M**2/YR) .	9.55E-03
RETARDED VERTICAL DISPERSION COEFFICIENT (M**2/YR).	9.55E-03

time [yr] = 1.00	avg. conc. [mg/l] = .000E+00
time [yr] = 5.00	avg. conc. [mg/l] = .000E+00
time [yr] = 10.0	avg. conc. [mg/l] = .256E-08
time [yr] = 15.0	avg. conc. [mg/l] = .115E-08
time [yr] = 20.0	avg. conc. [mg/l] = .000E+00
time [yr] = 25.0	avg. conc. [mg/l] = .000E+00
time [yr] = 30.0	avg. conc. [mg/l] = .000E+00
time [yr] = 35.0	avg. conc. [mg/l] = .000E+00
time [yr] = 40.0	avg. conc. [mg/l] = .000E+00
time [yr] = 45.0	avg. conc. [mg/l] = .000E+00
time [yr] = 50.0	avg. conc. [mg/l] = .000E+00

time [yr] = 55.0 avg. conc. [mg/l] = .000E+00

time [yr] = 60.0 avg. conc. [mg/l] = .000E+00

time [yr] = 65.0 avg. conc. [mg/l] = .000E+00

time [yr] = 70.0 avg. conc. [mg/l] = .000E+00

INPUT DATA/RESULTS FOR CHEMICAL: Ethylbenzene

INST. WASTE RELEASE (KG) VALID FOR INST CASE ONLY..	1.00E+00
DISTRIBUTION COEFFICIENT, KD (M**3/KG)	2.20E-02
MOLECULAR DIFFUSION COEFFICIENT (M**2/YR)	2.14E-02
DECAY CONSTANT (1/YR).....	1.10E+00

LIST OF TRANSIENT SOURCE RELEASE RATE

.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.939E-46	.409E-43	.640E-41	.440E-39
.156E-37	.317E-36	.409E-35	.358E-34	.226E-33
.108E-32	.402E-32	.122E-31	.306E-31	.654E-31
.121E-30	.197E-30	.286E-30	.375E-30	.448E-30
.493E-30	.503E-30	.478E-30	.428E-30	.361E-30
.289E-30	.221E-30	.161E-30	.113E-30	.761E-31
.496E-31	.313E-31	.191E-31	.114E-31	.658E-32
.372E-32	.205E-32	.111E-32	.587E-33	.305E-33
.155E-33	.779E-34	.385E-34	.187E-34	.896E-35
.424E-35	.198E-35	.912E-36	.416E-36	.188E-36
.838E-37	.370E-37	.162E-37	.704E-38	.303E-38
.129E-38	.548E-39	.230E-39	.962E-40	

RETARDATION FACTOR	1.59E+02
RETARDED SEEPAGE VELOCITY (M/YR)	1.58E-02
RETARDED LONGITUDINAL DISPERSION COEF. (M**2/YR) ..	5.38E-04
RETARDED LATERAL DISPERSION COEFFICIENT (M**2/YR) .	5.38E-04
RETARDED VERTICAL DISPERSION COEFFICIENT (M**2/YR).	5.38E-04

time [yr] = 1.00 avg. conc. [mg/l] = .000E+00

time [yr] = 5.00 avg. conc. [mg/l] = .000E+00

time [yr] = 10.0 avg. conc. [mg/l] = .000E+00

time [yr] = 15.0 avg. conc. [mg/l] = .000E+00

time [yr] = 20.0 avg. conc. [mg/l] = .000E+00

time [yr] = 25.0 avg. conc. [mg/l] = .000E+00

time [yr] = 30.0 avg. conc. [mg/l] = .000E+00

time [yr] = 35.0 avg. conc. [mg/l] = .000E+00

time [yr] = 40.0 avg. conc. [mg/l] = .000E+00

time [yr] = 45.0 avg. conc. [mg/l] = .000E+00

time [yr] = 50.0 avg. conc. [mg/l] = .000E+00

time [yr] = 55.0 avg. conc. [mg/l] = .000E+00

time [yr] = 60.0 avg. conc. [mg/l] = .000E+00

time [yr] = 65.0 avg. conc. [mg/l] = .000E+00

time [yr] = 70.0 avg. conc. [mg/l] = .000E+00

INPUT DATA/RESULTS FOR CHEMICAL: Naphthalene

INST. WASTE RELEASE (KG) VALID FOR INST CASE ONLY.. 1.00E+00
DISTRIBUTION COEFFICIENT, KD (M**3/KG) 2.60E-02
MOLECULAR DIFFUSION COEFFICIENT (M**2/YR) 2.37E-02
DECAY CONSTANT (1/YR)............................ 0.00E+00
LIST OF TRANSIENT SOURCE RELEASE RATE

.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.140E-47
.420E-47	.210E-46	.108E-45	.517E-45	

RETARDATION FACTOR .... 1.88E+02
RETARDED SEEPAGE VELOCITY (M/YR) 1.34E-02
RETARDED LONGITUDINAL DISPERSION COEF. (M**2/YR) .. 5.03E-04
RETARDED LATERAL DISPERSION COEFFICIENT (M**2/YR) . 5.03E-04
RETARDED VERTICAL DISPERSION COEFFICIENT (M**2/YR). 5.03E-04

time [yr] = 1.00 avg. conc. [mg/l] = .000E+00

time [yr] = 5.00 avg. conc. [mg/l] = .000E+00

time [yr] =	10.0	avg. conc. [mg/l] =	.000E+00
time [yr] =	15.0	avg. conc. [mg/l] =	.000E+00
time [yr] =	20.0	avg. conc. [mg/l] =	.000E+00
time [yr] =	25.0	avg. conc. [mg/l] =	.000E+00
time [yr] =	30.0	avg. conc. [mg/l] =	.000E+00
time [yr] =	35.0	avg. conc. [mg/l] =	.000E+00
time [yr] =	40.0	avg. conc. [mg/l] =	.000E+00
time [yr] =	45.0	avg. conc. [mg/l] =	.000E+00
time [yr] =	50.0	avg. conc. [mg/l] =	.000E+00
time [yr] =	55.0	avg. conc. [mg/l] =	.000E+00
time [yr] =	60.0	avg. conc. [mg/l] =	.000E+00
time [yr] =	65.0	avg. conc. [mg/l] =	.000E+00
time [yr] =	70.0	avg. conc. [mg/l] =	.000E+00

INPUT DATA/RESULTS FOR CHEMICAL: Toluene

INST. WASTE RELEASE (KG) VALID FOR INST CASE ONLY..	1.00E+00
DISTRIBUTION COEFFICIENT, KD (M**3/KG)	6.00E-03
MOLECULAR DIFFUSION COEFFICIENT (M**2/YR)	2.71E-02
DECAY CONSTANT (1/YR).....	1.20E+00

LIST OF TRANSIENT SOURCE RELEASE RATE

.000E+00	.000E+00	.112E-38	.114E-29	.174E-24
.326E-21	.491E-19	.153E-17	.167E-16	.876E-16
.268E-15	.551E-15	.831E-15	.984E-15	.962E-15
.804E-15	.591E-15	.391E-15	.236E-15	.132E-15
.693E-16	.344E-16	.163E-16	.737E-17	.322E-17
.136E-17	.560E-18	.224E-18	.878E-19	.335E-19
.127E-19	.468E-20	.171E-20	.614E-21	.217E-21
.766E-22	.266E-22	.916E-23	.314E-23	.106E-23
.356E-24	.119E-24	.393E-25	.130E-25	.425E-26
.139E-26	.450E-27	.145E-27	.468E-28	.150E-28
.479E-29	.153E-29	.484E-30	.153E-30	.484E-31
.152E-31	.478E-32	.150E-32	.467E-33	.146E-33
.453E-34	.141E-34	.437E-35	.135E-35	.418E-36
.129E-36	.397E-37	.122E-37	.375E-38	

RETARDATION FACTOR	4.42E+01
RETARDED SEEPAGE VELOCITY (M/YR)	5.70E-02
RETARDED LONGITUDINAL DISPERSION COEF. (M**2/YR) ..	2.45E-03
RETARDED LATERAL DISPERSION COEFFICIENT (M**2/YR) .	2.45E-03
RETARDED VERTICAL DISPERSION COEFFICIENT (M**2/YR).	2.45E-03

time [yr] = 1.00	avg. conc. [mg/l] = .000E+00
time [yr] = 5.00	avg. conc. [mg/l] = .000E+00
time [yr] = 10.0	avg. conc. [mg/l] = .000E+00
time [yr] = 15.0	avg. conc. [mg/l] = .000E+00
time [yr] = 20.0	avg. conc. [mg/l] = .000E+00
time [yr] = 25.0	avg. conc. [mg/l] = .000E+00
time [yr] = 30.0	avg. conc. [mg/l] = .000E+00
time [yr] = 35.0	avg. conc. [mg/l] = .000E+00
time [yr] = 40.0	avg. conc. [mg/l] = .000E+00
time [yr] = 45.0	avg. conc. [mg/l] = .000E+00
time [yr] = 50.0	avg. conc. [mg/l] = .000E+00
time [yr] = 55.0	avg. conc. [mg/l] = .000E+00
time [yr] = 60.0	avg. conc. [mg/l] = .000E+00
time [yr] = 65.0	avg. conc. [mg/l] = .000E+00
time [yr] = 70.0	avg. conc. [mg/l] = .000E+00

INPUT DATA/RESULTS FOR CHEMICAL: Xylene

INST. WASTE RELEASE (KG) VALID FOR INST CASE ONLY..	1.00E+00
DISTRIBUTION COEFFICIENT, KD (M**3/KG)	4.80E-03
MOLECULAR DIFFUSION COEFFICIENT (M**2/YR)	2.46E-02
DECAY CONSTANT (1/YR).....	7.30E-01

LIST OF TRANSIENT SOURCE RELEASE RATE

.000E+00	.224E-44	.971E-30	.136E-22	.190E-18
.835E-16	.508E-14	.899E-13	.698E-12	.304E-11
.874E-11	.184E-10	.303E-10	.416E-10	.490E-10
.512E-10	.484E-10	.422E-10	.343E-10	.263E-10
.192E-10	.134E-10	.903E-11	.589E-11	.373E-11

.231E-11	.139E-11	.827E-12	.482E-12	.278E-12
.157E-12	.875E-13	.484E-13	.265E-13	.143E-13
.770E-14	.411E-14	.217E-14	.114E-14	.598E-15
.311E-15	.161E-15	.827E-16	.424E-16	.216E-16
.110E-16	.558E-17	.282E-17	.142E-17	.713E-18
.357E-18	.178E-18	.889E-19	.442E-19	.220E-19
.109E-19	.538E-20	.266E-20	.131E-20	.645E-21
.317E-21	.156E-21	.763E-22	.374E-22	.183E-22
.893E-23	.436E-23	.213E-23	.104E-23	

RETARDATION FACTOR	3.56E+01
RETARDED SEEPAGE VELOCITY (M/YR)	7.09E-02
RETARDED LONGITUDINAL DISPERSION COEF. (M**2/YR) ..	2.77E-03
RETARDED LATERAL DISPERSION COEFFICIENT (M**2/YR) .	2.77E-03
RETARDED VERTICAL DISPERSION COEFFICIENT (M**2/YR).	2.77E-03

time [yr] = 1.00	avg. conc. [mg/l] = .000E+00
time [yr] = 5.00	avg. conc. [mg/l] = .000E+00
time [yr] = 10.0	avg. conc. [mg/l] = .000E+00
time [yr] = 15.0	avg. conc. [mg/l] = .000E+00
time [yr] = 20.0	avg. conc. [mg/l] = .000E+00
time [yr] = 25.0	avg. conc. [mg/l] = .000E+00
time [yr] = 30.0	avg. conc. [mg/l] = .000E+00
time [yr] = 35.0	avg. conc. [mg/l] = .000E+00
time [yr] = 40.0	avg. conc. [mg/l] = .000E+00
time [yr] = 45.0	avg. conc. [mg/l] = .000E+00
time [yr] = 50.0	avg. conc. [mg/l] = .000E+00
time [yr] = 55.0	avg. conc. [mg/l] = .000E+00
time [yr] = 60.0	avg. conc. [mg/l] = .000E+00
time [yr] = 65.0	avg. conc. [mg/l] = .000E+00
time [yr] = 70.0	avg. conc. [mg/l] = .000E+00

Jury Output File
Analysis for Example Problem

*** COMMON INPUT PARAMETERS ***

PARAMETER NAME	UNITS	VALUE
Porosity	(cc/cc)	0.25
Bulk Density	(g/cc)	1.8
Water Content	(cc/cc)	0.1
Fractional Organic Carbon	(mg/mg)	2.00E-02
Incorporation Depth	(cm)	66.7
Clean Soil Thickness	(cm)	0
Simulation Time	(yrs)	70
Length of Soil Column	(cm)	1470
Infiltration Rate	(cm/day)	5.19E-02
Source Length	(m)	366
Source Width	(m)	116
Boundary Layer Thickness	(cm)	5

Chemical Specific Input Parameters for TPH-AR08-10

Parameter Name	Units	Value
Total Soil Concentration	(mg/kg)	1
Diffusion Coeff. in Air	(cm^2/day	8640
Diffusion Coeff. in Water	(cm^2/day	0.864
Henrys Constant [	(mg/L)	/(mg/L)] 20.40
Organic Carbon Part. Coeff.	(cc/g)	1590
Lumped Chemical Decay Rate	(1/day)	0

Outputs for TPH-AR08-10

Time = 1 yrs

Cumulative Emissions to Air	(g)	48020
Advective Mass Loading Rate to Groundwater	(g/day)	3.07E-09
Diffusive Mass Loading Rate to Groundwater	(g/day)	8.23E-06
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	8.24E-06

Time = 2 yrs

Cumulative Emissions to Air	(g)	49700
Advective Mass Loading Rate to Groundwater	(g/day)	6.48E-06
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.007709
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.007716

Time = 3 yrs

Cumulative Emissions to Air	(g)	50450
Advective Mass Loading Rate to Groundwater	(g/day)	6.54E-05
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.04888
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.04895

Time = 4 yrs

Cumulative Emissions to Air	(g)	50900
Advective Mass Loading Rate to Groundwater	(g/day)	0.000184
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.09834
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.09852

Time = 5 yrs

Cumulative Emissions to Air	(g)	51210
Advective Mass Loading Rate to Groundwater	(g/day)	0.000317
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.1302
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.1305

Time = 10 yrs

Cumulative Emissions to Air	(g)	51970
Advective Mass Loading Rate to Groundwater	(g/day)	0.000654
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.1098
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.1104

Time = 15 yrs

Cumulative Emissions to Air	(g)	52310
Advective Mass Loading Rate to Groundwater	(g/day)	0.000641
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.05693
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.05757

Time = 20 yrs

Cumulative Emissions to Air	(g)	52510

Advective Mass Loading Rate to Groundwater	(g/day)	0.000559
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.02771
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.02827

Time = 25 yrs

Cumulative Emissions to Air	(g)	52640
Advective Mass Loading Rate to Groundwater	(g/day)	0.000478
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.01248
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.01296

Time = 30 yrs

Cumulative Emissions to Air	(g)	52740
Advective Mass Loading Rate to Groundwater	(g/day)	0.000409
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.004321
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.004729

Time = 35 yrs

Cumulative Emissions to Air	(g)	52820
Advective Mass Loading Rate to Groundwater	(g/day)	0.000353
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00019
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.000167

Time = 40 yrs

Cumulative Emissions to Air	(g)	52890
Advective Mass Loading Rate to Groundwater	(g/day)	0.000308
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00272
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00241

Time = 45 yrs

Cumulative Emissions to Air	(g)	52940
Advective Mass Loading Rate to Groundwater	(g/day)	0.000271
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00414
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00387

Time = 50 yrs

Cumulative Emissions to Air	(g)	52980
Advective Mass Loading Rate to Groundwater	(g/day)	0.000241

Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00492
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00468

Time = 55 yrs

Cumulative Emissions to Air	(g)	53020
Advective Mass Loading Rate to Groundwater	(g/day)	0.000215
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00531
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.0051

Time = 60 yrs

Cumulative Emissions to Air	(g)	53060
Advective Mass Loading Rate to Groundwater	(g/day)	0.000194
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00547
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00528

Time = 65 yrs

Cumulative Emissions to Air	(g)	53090
Advective Mass Loading Rate to Groundwater	(g/day)	0.000176
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00549
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00531

Time = 70 yrs

Cumulative Emissions to Air	(g)	53110
Advective Mass Loading Rate to Groundwater	(g/day)	0.000161
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00542
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00526

Chemical Specific Input Parameters for TPH-AR10-12

Parameter Name	Units	Value
Total Soil Concentration	(mg/kg)	1
Diffusion Coeff. in Air	(cm^2/day	8640
Diffusion Coeff. in Water	(cm^2/day	0.864
Henrys Constant [	(mg/L)	/(mg/L)] 5.820
Organic Carbon Part. Coeff.	(cc/g)	2510
Lumped Chemical Decay Rate	(1/day)	0

Outputs for TPH-AR10-12

Time = 1 yrs

Cumulative Emissions to Air	(g)	40810
Advective Mass Loading Rate to Groundwater	(g/day)	1.18E-39
Diffusive Mass Loading Rate to Groundwater	(g/day)	1.16E-35
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	1.16E-35

Time = 2 yrs

Cumulative Emissions to Air	(g)	44460
Advective Mass Loading Rate to Groundwater	(g/day)	5.61E-21
Diffusive Mass Loading Rate to Groundwater	(g/day)	1.57E-17
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	1.57E-17

Time = 3 yrs

Cumulative Emissions to Air	(g)	46130
Advective Mass Loading Rate to Groundwater	(g/day)	9.42E-15
Diffusive Mass Loading Rate to Groundwater	(g/day)	1.48E-11
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	1.48E-11

Time = 4 yrs

Cumulative Emissions to Air	(g)	47140
Advective Mass Loading Rate to Groundwater	(g/day)	1.17E-11
Diffusive Mass Loading Rate to Groundwater	(g/day)	1.26E-08
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	1.26E-08

Time = 5 yrs

Cumulative Emissions to Air	(g)	47830
Advective Mass Loading Rate to Groundwater	(g/day)	8.01E-10
Diffusive Mass Loading Rate to Groundwater	(g/day)	6.56E-07
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	6.57E-07

Time = 10 yrs

Cumulative Emissions to Air	(g)	49560
Advective Mass Loading Rate to Groundwater	(g/day)	2.82E-06
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.001023

Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.001026

Time = 15 yrs

Cumulative Emissions to Air	(g)	50330
Advective Mass Loading Rate to Groundwater	(g/day)	3.38E-05
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.007702
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.007736

Time = 20 yrs

Cumulative Emissions to Air	(g)	50790
Advective Mass Loading Rate to Groundwater	(g/day)	0.000104
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.01692
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.01702

Time = 25 yrs

Cumulative Emissions to Air	(g)	51100
Advective Mass Loading Rate to Groundwater	(g/day)	0.000189
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.02363
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.02381

Time = 30 yrs

Cumulative Emissions to Air	(g)	51340
Advective Mass Loading Rate to Groundwater	(g/day)	0.000267
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.02685
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.02712

Time = 35 yrs

Cumulative Emissions to Air	(g)	51520
Advective Mass Loading Rate to Groundwater	(g/day)	0.000331
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.02743
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.02777

Time = 40 yrs

Cumulative Emissions to Air	(g)	51660
Advective Mass Loading Rate to Groundwater	(g/day)	0.000379
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.02641
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.02679

Time = 45 yrs

Cumulative Emissions to Air	(g)	51780
Advective Mass Loading Rate to Groundwater	(g/day)	0.000411
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.02454
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.02495

Time = 50 yrs

Cumulative Emissions to Air	(g)	51890
Advective Mass Loading Rate to Groundwater	(g/day)	0.000432
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.02231
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.02275

Time = 55 yrs

Cumulative Emissions to Air	(g)	51970
Advective Mass Loading Rate to Groundwater	(g/day)	0.000444
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.02001
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.02046

Time = 60 yrs

Cumulative Emissions to Air	(g)	52050
Advective Mass Loading Rate to Groundwater	(g/day)	0.000449
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.01779
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.01824

Time = 65 yrs

Cumulative Emissions to Air	(g)	52120
Advective Mass Loading Rate to Groundwater	(g/day)	0.000449
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.01572
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.01617

Time = 70 yrs

Cumulative Emissions to Air	(g)	52180
Advective Mass Loading Rate to Groundwater	(g/day)	0.000446
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.01384
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.01428

Chemical Specific Input Parameters for TPH-AR12-16

Parameter Name	Units	Value
Total Soil Concentration	(mg/kg)	1
Diffusion Coeff. in Air	(cm^2/day	8640
Diffusion Coeff. in Water	(cm^2/day	0.864
Henrys Constant [	(mg/L)	/(mg/L)] 2.250
Organic Carbon Part. Coeff.	(cc/g)	5010
Lumped Chemical Decay Rate	(1/day)	0

Outputs for TPH-AR12-16

Time = 1 yrs

Cumulative Emissions to Air	(g)	27640
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 2 yrs

Cumulative Emissions to Air	(g)	33950
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 3 yrs

Cumulative Emissions to Air	(g)	37170
Advective Mass Loading Rate to Groundwater	(g/day)	2.94E-66
Diffusive Mass Loading Rate to Groundwater	(g/day)	4.68E-62
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 4 yrs

Cumulative Emissions to Air	(g)	39200
Advective Mass Loading Rate to Groundwater	(g/day)	2.26E-50
Diffusive Mass Loading Rate to Groundwater	(g/day)	1.55E-46
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 5 yrs

Cumulative Emissions to Air	(g)	40630
Advective Mass Loading Rate to Groundwater	(g/day)	7.86E-41
Diffusive Mass Loading Rate to Groundwater	(g/day)	3.15E-37
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	3.15E-37

Time = 10 yrs

Cumulative Emissions to Air	(g)	44320
Advective Mass Loading Rate to Groundwater	(g/day)	1.05E-21
Diffusive Mass Loading Rate to Groundwater	(g/day)	1.18E-18
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	1.18E-18

Time = 15 yrs

Cumulative Emissions to Air	(g)	46000
Advective Mass Loading Rate to Groundwater	(g/day)	2.49E-15
Diffusive Mass Loading Rate to Groundwater	(g/day)	1.56E-12
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	1.56E-12

Time = 20 yrs

Cumulative Emissions to Air	(g)	47020
Advective Mass Loading Rate to Groundwater	(g/day)	3.68E-12
Diffusive Mass Loading Rate to Groundwater	(g/day)	1.58E-09
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	1.59E-09

Time = 25 yrs

Cumulative Emissions to Air	(g)	47710
Advective Mass Loading Rate to Groundwater	(g/day)	2.81E-10
Diffusive Mass Loading Rate to Groundwater	(g/day)	9.15E-08
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	9.18E-08

Time = 30 yrs

Cumulative Emissions to Air	(g)	48230
Advective Mass Loading Rate to Groundwater	(g/day)	4.88E-09
Diffusive Mass Loading Rate to Groundwater	(g/day)	1.28E-06
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	1.28E-06

Time = 35 yrs

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Cumulative Emissions to Air	(g)	48640
Advective Mass Loading Rate to Groundwater	(g/day)	3.65E-08
Diffusive Mass Loading Rate to Groundwater	(g/day)	7.94E-06
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	7.98E-06

Time = 40 yrs

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Cumulative Emissions to Air	(g)	48960
Advective Mass Loading Rate to Groundwater	(g/day)	1.61E-07
Diffusive Mass Loading Rate to Groundwater	(g/day)	3E-05
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	3.02E-05

Time = 45 yrs

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Cumulative Emissions to Air	(g)	49230
Advective Mass Loading Rate to Groundwater	(g/day)	5.03E-07
Diffusive Mass Loading Rate to Groundwater	(g/day)	8.16E-05
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	8.21E-05

Time = 50 yrs

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Cumulative Emissions to Air	(g)	49460
Advective Mass Loading Rate to Groundwater	(g/day)	1.23E-06
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.000177
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.000178

Time = 55 yrs

==========

Cumulative Emissions to Air	(g)	49660
Advective Mass Loading Rate to Groundwater	(g/day)	2.52E-06
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.000325
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.000328

Time = 60 yrs

==========

Cumulative Emissions to Air	(g)	49830
Advective Mass Loading Rate to Groundwater	(g/day)	4.55E-06
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.00053
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.000535

Time = 65 yrs

==========

Cumulative Emissions to Air	(g)	49980
Advective Mass Loading Rate to Groundwater	(g/day)	7.42E-06
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.000788
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.000796

Time = 70 yrs

Cumulative Emissions to Air	(g)	50120
Advective Mass Loading Rate to Groundwater	(g/day)	1.12E-05
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.001093
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.001104

Chemical Specific Input Parameters for TPH-AR16-21

Parameter Name	Units	Value
Total Soil Concentration	(mg/kg)	1
Diffusion Coeff. in Air	(cm^2/day	8640
Diffusion Coeff. in Water	(cm^2/day	0.864
Henrys Constant [	(mg/L)	/(mg/L)] .5400
Organic Carbon Part. Coeff.	(cc/g)	1.58E+04
Lumped Chemical Decay Rate	(1/day)	0

Outputs for TPH-AR16-21

Time = 1 yrs

Cumulative Emissions to Air	(g)	8307
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 2 yrs

Cumulative Emissions to Air	(g)	11790
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 3 yrs

Cumulative Emissions to Air	(g)	14440
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 4 yrs

Cumulative Emissions to Air	(g)	16630
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 5 yrs

Cumulative Emissions to Air	(g)	18500
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 10 yrs

Cumulative Emissions to Air	(g)	24940
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 15 yrs

Cumulative Emissions to Air	(g)	28820
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 20 yrs

Cumulative Emissions to Air	(g)	31460
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 25 yrs

Cumulative Emissions to Air	(g)	33410
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 30 yrs
==========

Cumulative Emissions to Air	(g)	34910
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 35 yrs
==========

Cumulative Emissions to Air	(g)	36130
Advective Mass Loading Rate to Groundwater	(g/day)	1.56E-74
Diffusive Mass Loading Rate to Groundwater	(g/day)	8.9E-71
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 40 yrs
==========

Cumulative Emissions to Air	(g)	37130
Advective Mass Loading Rate to Groundwater	(g/day)	1.3E-65
Diffusive Mass Loading Rate to Groundwater	(g/day)	4.68E-62
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 45 yrs
==========

Cumulative Emissions to Air	(g)	37980
Advective Mass Loading Rate to Groundwater	(g/day)	1.14E-58
Diffusive Mass Loading Rate to Groundwater	(g/day)	2.84E-55
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 50 yrs
==========

Cumulative Emissions to Air	(g)	38710
Advective Mass Loading Rate to Groundwater	(g/day)	4.08E-53
Diffusive Mass Loading Rate to Groundwater	(g/day)	7.59E-50
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 55 yrs
==========

Cumulative Emissions to Air	(g)	39340

Advective Mass Loading Rate to Groundwater	(g/day)	1.44E-48
Diffusive Mass Loading Rate to Groundwater	(g/day)	2.09E-45
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	1.4E-45

Time = 60 yrs
==========

Cumulative Emissions to Air	(g)	39900
Advective Mass Loading Rate to Groundwater	(g/day)	8.89E-45
Diffusive Mass Loading Rate to Groundwater	(g/day)	1.04E-41
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	1.05E-41

Time = 65 yrs
==========

Cumulative Emissions to Air	(g)	40400
Advective Mass Loading Rate to Groundwater	(g/day)	1.44E-41
Diffusive Mass Loading Rate to Groundwater	(g/day)	1.41E-38
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	1.41E-38

Time = 70 yrs
==========

Cumulative Emissions to Air	(g)	40840
Advective Mass Loading Rate to Groundwater	(g/day)	8.12E-39
Diffusive Mass Loading Rate to Groundwater	(g/day)	6.75E-36
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	6.76E-36

Chemical Specific Input Parameters for TPH-AR21-35

Parameter Name	Units	Value
Total Soil Concentration	(mg/kg)	1
Diffusion Coeff. in Air	(cm^2/day	8640
Diffusion Coeff. in Water	(cm^2/day	0.864
Henrys Constant [	(mg/L)	/(mg/L)] .2830E-01
Organic Carbon Part. Coeff.	(cc/g)	1.26E+05
Lumped Chemical Decay Rate	(1/day)	0

Outputs for TPH-AR21-35

Time = 1 yrs
==========

Cumulative Emissions to Air	(g)	579

Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 2 yrs

Cumulative Emissions to Air	(g)	857.2
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 3 yrs

Cumulative Emissions to Air	(g)	1071
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 4 yrs

Cumulative Emissions to Air	(g)	1252
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 5 yrs

Cumulative Emissions to Air	(g)	1411
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 10 yrs

Cumulative Emissions to Air	(g)	2035
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 15 yrs

Cumulative Emissions to Air	(g)	2512
Advective Mass Loading Rate to Groundwater	(g/day)	0

Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 20 yrs

Cumulative Emissions to Air	(g)	2913
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 25 yrs

Cumulative Emissions to Air	(g)	3266
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 30 yrs

Cumulative Emissions to Air	(g)	3584
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 35 yrs

Cumulative Emissions to Air	(g)	3876
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 40 yrs

Cumulative Emissions to Air	(g)	4147
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 45 yrs

Cumulative Emissions to Air	(g)	4401
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 50 yrs

Cumulative Emissions to Air	(g)	4640
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 55 yrs

Cumulative Emissions to Air	(g)	4868
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 60 yrs

Cumulative Emissions to Air	(g)	5085
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 65 yrs

Cumulative Emissions to Air	(g)	5293
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 70 yrs

Cumulative Emissions to Air	(g)	5493
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

AT123D Output File
Analysis for Example Problem

Chemicals in the analysis
TPH-AR08-10
TPH-AR10-12
TPH-AR12-16
TPH-AR16-21
TPH-AR21-35

Number of years simulated: 70

GENERAL INPUT DATA
****

NO. OF POINTS IN X-DIRECTION	1
NO. OF POINTS IN Y-DIRECTION	1
NO. OF POINTS IN Z-DIRECTION	10
NO. OF ROOTS: NO. OF SERIES TERMS	1000
NO. OF BEGINNING TIME STEPS	1
NO. OF ENDING TIME STEP	70
NO. OF TIME INTERVALS FOR PRINTED OUT SOLUTION	1
INSTANTANEOUS SOURCE CONTROL = 0 FOR INSTANT SOURCE 1	
SOURCE CONDITION CONTROL = 0 FOR STEADY SOURCE	70
INTERMITTENT OUTPUT CONTROL = 0 NO SUCH OUTPUT	1
CASE CONTROL =1 THERMAL, = 2 FOR CHEMICAL, = 3 RAD 2	

X-COORDINATE OF RECEPTOR WELL (METERS)	1.83E+02
Y-COORDINATE OF RECEPTOR WELL (METERS)	5.80E+01
AQUIFER DEPTH, = 0.0 FOR INFINITE DEEP (METERS) ...	3.05E+00
AQUIFER WIDTH, = 0.0 FOR INFINITE WIDE (METERS) ...	0.00E+00
BEGIN POINT OF X-SOURCE LOCATION (METERS)	0.00E+00
END POINT OF X-SOURCE LOCATION (METERS)	3.66E+02
BEGIN POINT OF Y-SOURCE LOCATION (METERS)	0.00E+00
END POINT OF Y-SOURCE LOCATION (METERS)	1.16E+02
BEGIN POINT OF Z-SOURCE LOCATION (METERS)	0.00E+00
END POINT OF Z-SOURCE LOCATION (METERS)	0.00E+00

POROSITY	3.50E-01
HYDRAULIC CONDUCTIVITY (METER/YEAR)	3.15E+01
HYDRAULIC GRADIENT	2.00E-02
LONGITUDINAL DISPERSIVITY (METER)	0.00E+00
LATERAL DISPERSIVITY (METER)	0.00E+00
VERTICAL DISPERSIVITY (METER)	0.00E+00

BULK DENSITY OF THE SOIL (KG/M**3)	1.80E+03
TIME INTERVAL SIZE FOR THE DESIRED SOLUTION (YR) ..	1.00E+00
DISCHARGE TIME (YR)	7.00E+01

INPUT DATA/RESULTS FOR CHEMICAL: TPH-AR08-10

INST. WASTE RELEASE (KG) VALID FOR INST CASE ONLY..	1.00E+00
DISTRIBUTION COEFFICIENT, KD (M**3/KG)	3.18E-02
MOLECULAR DIFFUSION COEFFICIENT (M**2/YR)	3.15E-02
DECAY CONSTANT (1/YR).....	0.00E+00

LIST OF TRANSIENT SOURCE RELEASE RATE

.301E-05	.282E-02	.179E-01	.360E-01	.476E-01
.522E-01	.520E-01	.491E-01	.449E-01	.403E-01
.358E-01	.315E-01	.276E-01	.241E-01	.210E-01
.183E-01	.159E-01	.138E-01	.119E-01	.103E-01
.890E-02	.765E-02	.655E-02	.558E-02	.473E-02
.398E-02	.331E-02	.272E-02	.219E-02	.173E-02
.131E-02	.943E-03	.615E-03	.322E-03	.609E-04
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	

RETARDATION FACTOR	1.65E+02
RETARDED SEEPAGE VELOCITY (M/YR)	1.09E-02
RETARDED LONGITUDINAL DISPERSION COEF. (M**2/YR) ..	5.48E-04
RETARDED LATERAL DISPERSION COEFFICIENT (M**2/YR) .	5.48E-04
RETARDED VERTICAL DISPERSION COEFFICIENT (M**2/YR).	5.48E-04

time [yr] = 1.00	avg. conc. [mg/l] = .000E+00
time [yr] = 5.00	avg. conc. [mg/l] = .577E-04
time [yr] = 10.0	avg. conc. [mg/l] = .176E-03
time [yr] = 15.0	avg. conc. [mg/l] = .204E-03
time [yr] = 20.0	avg. conc. [mg/l] = .187E-03
time [yr] = 25.0	avg. conc. [mg/l] = .170E-03
time [yr] = 30.0	avg. conc. [mg/l] = .153E-03
time [yr] = 35.0	avg. conc. [mg/l] = .140E-03
time [yr] = 40.0	avg. conc. [mg/l] = .131E-03
time [yr] = 45.0	avg. conc. [mg/l] = .125E-03
time [yr] = 50.0	avg. conc. [mg/l] = .121E-03

time [yr] = 55.0 avg. conc. [mg/l] = .118E-03

time [yr] = 60.0 avg. conc. [mg/l] = .116E-03

time [yr] = 65.0 avg. conc. [mg/l] = .113E-03

time [yr] = 70.0 avg. conc. [mg/l] = .112E-03

INPUT DATA/RESULTS FOR CHEMICAL: TPH-AR10-12

INST. WASTE RELEASE (KG) VALID FOR INST CASE ONLY..	1.00E+00
DISTRIBUTION COEFFICIENT, KD (M**3/KG)	5.02E-02
MOLECULAR DIFFUSION COEFFICIENT (M**2/YR)	3.15E-02
DECAY CONSTANT (1/YR).....	0.00E+00

LIST OF TRANSIENT SOURCE RELEASE RATE

.424E-35	.574E-17	.541E-11	.461E-08	.240E-06
.311E-05	.184E-04	.670E-04	.177E-03	.374E-03
.675E-03	.108E-02	.159E-02	.218E-02	.282E-02
.351E-02	.421E-02	.490E-02	.557E-02	.621E-02
.681E-02	.736E-02	.786E-02	.830E-02	.869E-02
.903E-02	.932E-02	.955E-02	.975E-02	.990E-02
.100E-01	.101E-01	.101E-01	.101E-01	.101E-01
.101E-01	.100E-01	.997E-02	.988E-02	.978E-02
.966E-02	.953E-02	.940E-02	.926E-02	.911E-02
.895E-02	.879E-02	.863E-02	.847E-02	.830E-02
.814E-02	.797E-02	.780E-02	.763E-02	.747E-02
.730E-02	.714E-02	.698E-02	.682E-02	.666E-02
.650E-02	.635E-02	.620E-02	.605E-02	.590E-02
.576E-02	.562E-02	.548E-02	.535E-02	

RETARDATION FACTOR	2.59E+02
RETARDED SEEPAGE VELOCITY (M/YR)	6.95E-03
RETARDED LONGITUDINAL DISPERSION COEF. (M**2/YR) ..	3.48E-04
RETARDED LATERAL DISPERSION COEFFICIENT (M**2/YR) .	3.48E-04
RETARDED VERTICAL DISPERSION COEFFICIENT (M**2/YR).	3.48E-04

time [yr] = 1.00 avg. conc. [mg/l] = .000E+00

time [yr] = 5.00 avg. conc. [mg/l] = .000E+00

time [yr] = 10.0 avg. conc. [mg/l] = .173E-06

time [yr] = 15.0 avg. conc. [mg/l] = .394E-05

time [yr] = 20.0 avg. conc. [mg/l] = .130E-04

time [yr] = 25.0 avg. conc. [mg/l] = .278E-04

time [yr] = 30.0 avg. conc. [mg/l] = .397E-04

time [yr] = 35.0 avg. conc. [mg/l] = .533E-04

time [yr] = 40.0 avg. conc. [mg/l] = .609E-04

time [yr] = 45.0 avg. conc. [mg/l] = .697E-04

time [yr] = 50.0 avg. conc. [mg/l] = .733E-04

time [yr] = 55.0 avg. conc. [mg/l] = .784E-04

time [yr] = 60.0 avg. conc. [mg/l] = .796E-04

time [yr] = 65.0 avg. conc. [mg/l] = .824E-04

time [yr] = 70.0 avg. conc. [mg/l] = .824E-04

INPUT DATA/RESULTS FOR CHEMICAL: TPH-AR12-16

INST. WASTE RELEASE (KG) VALID FOR INST CASE ONLY..	1.00E+00
DISTRIBUTION COEFFICIENT, KD (M**3/KG)	1.00E-01
MOLECULAR DIFFUSION COEFFICIENT (M**2/YR)	3.15E-02
DECAY CONSTANT (1/YR).....	0.00E+00

LIST OF TRANSIENT SOURCE RELEASE RATE

.000E+00	.000E+00	.000E+00	.561E-46	.115E-36
.183E-30	.487E-26	.101E-22	.378E-20	.429E-18
.205E-16	.508E-15	.763E-14	.772E-13	.570E-12
.326E-11	.151E-10	.586E-10	.196E-09	.579E-09
.153E-08	.371E-08	.826E-08	.172E-07	.335E-07
.619E-07	.109E-06	.184E-06	.298E-06	.467E-06
.710E-06	.105E-05	.151E-05	.212E-05	.291E-05
.393E-05	.520E-05	.678E-05	.870E-05	.110E-04
.138E-04	.170E-04	.207E-04	.250E-04	.300E-04
.355E-04	.418E-04	.492E-04	.565E-04	.650E-04
.743E-04	.840E-04	.947E-04	.107E-03	.120E-03
.133E-03	.147E-03	.163E-03	.178E-03	.195E-03
.213E-03	.231E-03	.250E-03	.270E-03	.290E-03
.312E-03	.334E-03	.356E-03	.379E-03	

RETARDATION FACTOR	5.16E+02
RETARDED SEEPAGE VELOCITY (M/YR)	3.49E-03
RETARDED LONGITUDINAL DISPERSION COEF. (M**2/YR) ..	1.75E-04
RETARDED LATERAL DISPERSION COEFFICIENT (M**2/YR) .	1.75E-04
RETARDED VERTICAL DISPERSION COEFFICIENT (M**2/YR).	1.75E-04

time [yr] = 1.00 avg. conc. [mg/l] = .000E+00

time [yr] = 5.00 avg. conc. [mg/l] = .000E+00

time [yr] = 10.0	avg. conc. [mg/l] = .000E+00
time [yr] = 15.0	avg. conc. [mg/l] = .000E+00
time [yr] = 20.0	avg. conc. [mg/l] = .000E+00
time [yr] = 25.0	avg. conc. [mg/l] = .000E+00
time [yr] = 30.0	avg. conc. [mg/l] = .000E+00
time [yr] = 35.0	avg. conc. [mg/l] = .284E-08
time [yr] = 40.0	avg. conc. [mg/l] = .121E-07
time [yr] = 45.0	avg. conc. [mg/l] = .438E-07
time [yr] = 50.0	avg. conc. [mg/l] = .103E-06
time [yr] = 55.0	avg. conc. [mg/l] = .235E-06
time [yr] = 60.0	avg. conc. [mg/l] = .408E-06
time [yr] = 65.0	avg. conc. [mg/l] = .720E-06
time [yr] = 70.0	avg. conc. [mg/l] = .105E-05

INPUT DATA/RESULTS FOR CHEMICAL: TPH-AR16-21

INST. WASTE RELEASE (KG) VALID FOR INST CASE ONLY..	1.00E+00
DISTRIBUTION COEFFICIENT, KD (M**3/KG)	3.16E-01
MOLECULAR DIFFUSION COEFFICIENT (M**2/YR)	3.15E-02
DECAY CONSTANT (1/YR)............................	0.00E+00

LIST OF TRANSIENT SOURCE RELEASE RATE

.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.140E-47	.154E-46	.115E-45	.762E-45
.473E-44	.275E-43	.151E-42	.779E-42	.381E-41
.177E-40	.783E-40	.330E-39	.133E-38	.513E-38
.190E-37	.678E-37	.233E-36	.771E-36	

RETARDATION FACTOR	1.63E+03
RETARDED SEEPAGE VELOCITY (M/YR)	1.11E-03
RETARDED LONGITUDINAL DISPERSION COEF. (M**2/YR) ..	5.54E-05
RETARDED LATERAL DISPERSION COEFFICIENT (M**2/YR) .	5.54E-05
RETARDED VERTICAL DISPERSION COEFFICIENT (M**2/YR).	5.54E-05

time [yr] = 1.00	avg. conc. [mg/l] = .000E+00
time [yr] = 5.00	avg. conc. [mg/l] = .000E+00
time [yr] = 10.0	avg. conc. [mg/l] = .000E+00
time [yr] = 15.0	avg. conc. [mg/l] = .000E+00
time [yr] = 20.0	avg. conc. [mg/l] = .000E+00
time [yr] = 25.0	avg. conc. [mg/l] = .000E+00
time [yr] = 30.0	avg. conc. [mg/l] = .000E+00
time [yr] = 35.0	avg. conc. [mg/l] = .000E+00
time [yr] = 40.0	avg. conc. [mg/l] = .000E+00
time [yr] = 45.0	avg. conc. [mg/l] = .000E+00
time [yr] = 50.0	avg. conc. [mg/l] = .000E+00
time [yr] = 55.0	avg. conc. [mg/l] = .000E+00
time [yr] = 60.0	avg. conc. [mg/l] = .000E+00
time [yr] = 65.0	avg. conc. [mg/l] = .000E+00
time [yr] = 70.0	avg. conc. [mg/l] = .000E+00

INPUT DATA/RESULTS FOR CHEMICAL: TPH-AR21-35

INST. WASTE RELEASE (KG) VALID FOR INST CASE ONLY..	1.00E+00
DISTRIBUTION COEFFICIENT, KD (M**3/KG)	2.52E+00
MOLECULAR DIFFUSION COEFFICIENT (M**2/YR)	3.15E-02
DECAY CONSTANT (1/YR).....	0.00E+00

LIST OF TRANSIENT SOURCE RELEASE RATE

.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00

.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	

RETARDATION FACTOR ..... 1.30E+04
RETARDED SEEPAGE VELOCITY (M/YR) 1.39E-04
RETARDED LONGITUDINAL DISPERSION COEF. (M**2/YR) .. 6.95E-06
RETARDED LATERAL DISPERSION COEFFICIENT (M**2/YR) . 6.95E-06
RETARDED VERTICAL DISPERSION COEFFICIENT (M**2/YR). 6.95E-06

time [yr] = 1.00	avg. conc. [mg/l] = .000E+00
time [yr] = 5.00	avg. conc. [mg/l] = .000E+00
time [yr] = 10.0	avg. conc. [mg/l] = .000E+00
time [yr] = 15.0	avg. conc. [mg/l] = .000E+00
time [yr] = 20.0	avg. conc. [mg/l] = .000E+00
time [yr] = 25.0	avg. conc. [mg/l] = .000E+00
time [yr] = 30.0	avg. conc. [mg/l] = .000E+00
time [yr] = 35.0	avg. conc. [mg/l] = .000E+00
time [yr] = 40.0	avg. conc. [mg/l] = .000E+00
time [yr] = 45.0	avg. conc. [mg/l] = .000E+00
time [yr] = 50.0	avg. conc. [mg/l] = .000E+00
time [yr] = 55.0	avg. conc. [mg/l] = .000E+00
time [yr] = 60.0	avg. conc. [mg/l] = .000E+00
time [yr] = 65.0	avg. conc. [mg/l] = .000E+00
time [yr] = 70.0	avg. conc. [mg/l] = .000E+00

Jury Output File
Analysis for Example Problem

*** COMMON INPUT PARAMETERS ***

PARAMETER NAME	UNITS	VALUE
Porosity	(cc/cc)	0.25
Bulk Density	(g/cc)	1.8
Water Content	(cc/cc)	0.1
Fractional Organic Carbon	(mg/mg)	2.00E-02
Incorporation Depth	(cm)	66.7
Clean Soil Thickness	(cm)	0
Simulation Time	(yrs)	70
Length of Soil Column	(cm)	1470
Infiltration Rate	(cm/day)	5.19E-02
Source Length	(m)	366
Source Width	(m)	116
Boundary Layer Thickness	(cm)	5

Chemical Specific Input Parameters for TPH-AL05-06

Parameter Name	Units	Value
Total Soil Concentration	(mg/kg)	1
Diffusion Coeff. in Air	(cm^2/day	8640
Diffusion Coeff. in Water	(cm^2/day	0.864
Henrys Constant [	(mg/L)	/(mg/L)] 1410.
Organic Carbon Part. Coeff.	(cc/g)	794
Lumped Chemical Decay Rate	(1/day)	0

Outputs for TPH-AL05-06

Time = 1 yrs

Cumulative Emissions to Air	(g)	52620
Advective Mass Loading Rate to Groundwater	(g/day)	0.000151
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.7064
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.7065

Time = 2 yrs

Cumulative Emissions to Air	(g)	53030
Advective Mass Loading Rate to Groundwater	(g/day)	8.87E-05
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.002569
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.002658

Time = 3 yrs

Cumulative Emissions to Air	(g)	53210
Advective Mass Loading Rate to Groundwater	(g/day)	5.72E-05
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.08651
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.08645

Time = 4 yrs

Cumulative Emissions to Air	(g)	53320
Advective Mass Loading Rate to Groundwater	(g/day)	4.04E-05
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.09226
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.09222

Time = 5 yrs

Cumulative Emissions to Air	(g)	53390
Advective Mass Loading Rate to Groundwater	(g/day)	3.05E-05
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.0835
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.08347

Time = 10 yrs

Cumulative Emissions to Air	(g)	53580
Advective Mass Loading Rate to Groundwater	(g/day)	1.19E-05
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.04365
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.04364

Time = 15 yrs

Cumulative Emissions to Air	(g)	53660
Advective Mass Loading Rate to Groundwater	(g/day)	6.71E-06
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.02664
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.02663

Time = 20 yrs

Cumulative Emissions to Air	(g)	53710

Advective Mass Loading Rate to Groundwater	(g/day)	4.43E-06
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.01828
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.01827

Time = 25 yrs

Cumulative Emissions to Air	(g)	53740
Advective Mass Loading Rate to Groundwater	(g/day)	3.21E-06
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.0135
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.0135

Time = 30 yrs

Cumulative Emissions to Air	(g)	53760
Advective Mass Loading Rate to Groundwater	(g/day)	2.46E-06
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.01049
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.01049

Time = 35 yrs

Cumulative Emissions to Air	(g)	53780
Advective Mass Loading Rate to Groundwater	(g/day)	1.96E-06
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00845
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00845

Time = 40 yrs

Cumulative Emissions to Air	(g)	53800
Advective Mass Loading Rate to Groundwater	(g/day)	1.61E-06
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.007
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.007

Time = 45 yrs

Cumulative Emissions to Air	(g)	53810
Advective Mass Loading Rate to Groundwater	(g/day)	1.35E-06
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00591
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00591

Time = 50 yrs

Cumulative Emissions to Air	(g)	53820
Advective Mass Loading Rate to Groundwater	(g/day)	1.16E-06

Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00508
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00508

Time = 55 yrs

Cumulative Emissions to Air	(g)	53830
Advective Mass Loading Rate to Groundwater	(g/day)	1E-06
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00443
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00443

Time = 60 yrs

Cumulative Emissions to Air	(g)	53840
Advective Mass Loading Rate to Groundwater	(g/day)	8.83E-07
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00391
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00391

Time = 65 yrs

Cumulative Emissions to Air	(g)	53840
Advective Mass Loading Rate to Groundwater	(g/day)	7.84E-07
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00348
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00348

Time = 70 yrs

Cumulative Emissions to Air	(g)	53850
Advective Mass Loading Rate to Groundwater	(g/day)	7.02E-07
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00312
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00312

Chemical Specific Input Parameters for TPH-AL06-08

Parameter Name	Units	Value
Total Soil Concentration	(mg/kg)	1
Diffusion Coeff. in Air	(cm^2/day	8640
Diffusion Coeff. in Water	(cm^2/day	0.864
Henrys Constant [	(mg/L)	/(mg/L)] 2120.
Organic Carbon Part. Coeff.	(cc/g)	3980
Lumped Chemical Decay Rate	(1/day)	0

Outputs for TPH-AL06-08

Time = 1 yrs

Cumulative Emissions to Air	(g)	52440
Advective Mass Loading Rate to Groundwater	(g/day)	8.55E-05
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.9369
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.937

Time = 2 yrs

Cumulative Emissions to Air	(g)	52900
Advective Mass Loading Rate to Groundwater	(g/day)	5.79E-05
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.1146
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.1147

Time = 3 yrs

Cumulative Emissions to Air	(g)	53110
Advective Mass Loading Rate to Groundwater	(g/day)	3.91E-05
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.03866
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.03862

Time = 4 yrs

Cumulative Emissions to Air	(g)	53230
Advective Mass Loading Rate to Groundwater	(g/day)	2.83E-05
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.06989
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.06986

Time = 5 yrs

Cumulative Emissions to Air	(g)	53310
Advective Mass Loading Rate to Groundwater	(g/day)	2.16E-05
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.07254
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.07252

Time = 10 yrs

Cumulative Emissions to Air	(g)	53520
Advective Mass Loading Rate to Groundwater	(g/day)	8.71E-06
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.04462

Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.04461

Time = 15 yrs

Cumulative Emissions to Air	(g)	53610
Advective Mass Loading Rate to Groundwater	(g/day)	4.95E-06
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.02828
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.02827

Time = 20 yrs

Cumulative Emissions to Air	(g)	53660
Advective Mass Loading Rate to Groundwater	(g/day)	3.29E-06
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.01974
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.01973

Time = 25 yrs

Cumulative Emissions to Air	(g)	53700
Advective Mass Loading Rate to Groundwater	(g/day)	2.38E-06
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.01473
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.01473

Time = 30 yrs

Cumulative Emissions to Air	(g)	53730
Advective Mass Loading Rate to Groundwater	(g/day)	1.83E-06
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.01152
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.01151

Time = 35 yrs

Cumulative Emissions to Air	(g)	53750
Advective Mass Loading Rate to Groundwater	(g/day)	1.46E-06
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00932
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00932

Time = 40 yrs

Cumulative Emissions to Air	(g)	53770
Advective Mass Loading Rate to Groundwater	(g/day)	1.2E-06
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00774
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00774

Time = 45 yrs

Cumulative Emissions to Air	(g)	53780
Advective Mass Loading Rate to Groundwater	(g/day)	1.01E-06
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00656
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00656

Time = 50 yrs

Cumulative Emissions to Air	(g)	53790
Advective Mass Loading Rate to Groundwater	(g/day)	8.64E-07
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00565
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00565

Time = 55 yrs

Cumulative Emissions to Air	(g)	53800
Advective Mass Loading Rate to Groundwater	(g/day)	7.51E-07
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00493
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00493

Time = 60 yrs

Cumulative Emissions to Air	(g)	53810
Advective Mass Loading Rate to Groundwater	(g/day)	6.6E-07
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00435
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00435

Time = 65 yrs

Cumulative Emissions to Air	(g)	53820
Advective Mass Loading Rate to Groundwater	(g/day)	5.87E-07
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00388
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00388

Time = 70 yrs

Cumulative Emissions to Air	(g)	53830
Advective Mass Loading Rate to Groundwater	(g/day)	5.26E-07
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00349
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00349

Chemical Specific Input Parameters for TPH-AL08-10

Parameter Name	Units	Value
Total Soil Concentration	(mg/kg)	1
Diffusion Coeff. in Air	(cm^2/day	8640
Diffusion Coeff. in Water	(cm^2/day	0.864
Henrys Constant [	(mg/L)	/(mg/L)] 3410.
Organic Carbon Part. Coeff.	(cc/g)	3.16E+04
Lumped Chemical Decay Rate	(1/day)	0

Outputs for TPH-AL08-10

Time = 1 yrs

Cumulative Emissions to Air	(g)	51610
Advective Mass Loading Rate to Groundwater	(g/day)	1.62E-05
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.8716
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.8716

Time = 2 yrs

Cumulative Emissions to Air	(g)	52300
Advective Mass Loading Rate to Groundwater	(g/day)	2.43E-05
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.5059
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.5059

Time = 3 yrs

Cumulative Emissions to Air	(g)	52600
Advective Mass Loading Rate to Groundwater	(g/day)	2.14E-05
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.216
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.216

Time = 4 yrs

Cumulative Emissions to Air	(g)	52790
Advective Mass Loading Rate to Groundwater	(g/day)	1.77E-05
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.08435
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.08437

Time = 5 yrs

Cumulative Emissions to Air	(g)	52910
Advective Mass Loading Rate to Groundwater	(g/day)	1.46E-05
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.02322
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.02323

Time = 10 yrs

Cumulative Emissions to Air	(g)	53220
Advective Mass Loading Rate to Groundwater	(g/day)	6.89E-06
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.03278
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.03277

Time = 15 yrs

Cumulative Emissions to Air	(g)	53360
Advective Mass Loading Rate to Groundwater	(g/day)	4.13E-06
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.02835
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.02835

Time = 20 yrs

Cumulative Emissions to Air	(g)	53440
Advective Mass Loading Rate to Groundwater	(g/day)	2.81E-06
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.02229
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.02229

Time = 25 yrs

Cumulative Emissions to Air	(g)	53490
Advective Mass Loading Rate to Groundwater	(g/day)	2.07E-06
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.01773
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.01772

Time = 30 yrs

Cumulative Emissions to Air	(g)	53530
Advective Mass Loading Rate to Groundwater	(g/day)	1.61E-06
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.01442
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.01442

Time = 35 yrs

==========

Cumulative Emissions to Air	(g)	53560
Advective Mass Loading Rate to Groundwater	(g/day)	1.29E-06
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.01199
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.01199

Time = 40 yrs

==========

Cumulative Emissions to Air	(g)	53590
Advective Mass Loading Rate to Groundwater	(g/day)	1.07E-06
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.01016
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.01016

Time = 45 yrs

==========

Cumulative Emissions to Air	(g)	53610
Advective Mass Loading Rate to Groundwater	(g/day)	9.03E-07
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00874
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00874

Time = 50 yrs

==========

Cumulative Emissions to Air	(g)	53630
Advective Mass Loading Rate to Groundwater	(g/day)	7.76E-07
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00762
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00762

Time = 55 yrs

==========

Cumulative Emissions to Air	(g)	53650
Advective Mass Loading Rate to Groundwater	(g/day)	6.76E-07
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00672
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00672

Time = 60 yrs

==========

Cumulative Emissions to Air	(g)	53660
Advective Mass Loading Rate to Groundwater	(g/day)	5.96E-07
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00598
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00598

Time = 65 yrs

==========

Cumulative Emissions to Air	(g)	53670
Advective Mass Loading Rate to Groundwater	(g/day)	5.31E-07
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00536
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00536

Time = 70 yrs

Cumulative Emissions to Air	(g)	53680
Advective Mass Loading Rate to Groundwater	(g/day)	4.76E-07
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00485
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00485

Chemical Specific Input Parameters for TPH-AL10-12

Parameter Name	Units	Value
Total Soil Concentration	(mg/kg)	1
Diffusion Coeff. in Air	(cm^2/day	8640
Diffusion Coeff. in Water	(cm^2/day	0.864
Henrys Constant [	(mg/L)	/(mg/L)] 5410.
Organic Carbon Part. Coeff.	(cc/g)	2.51E+05
Lumped Chemical Decay Rate	(1/day)	0

Outputs for TPH-AL10-12

Time = 1 yrs

Cumulative Emissions to Air	(g)	49350
Advective Mass Loading Rate to Groundwater	(g/day)	7.25E-09
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.002903
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.002903

Time = 2 yrs

Cumulative Emissions to Air	(g)	50670
Advective Mass Loading Rate to Groundwater	(g/day)	5.56E-07
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.1005
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.1005

Time = 3 yrs

Cumulative Emissions to Air	(g)	51260
Advective Mass Loading Rate to Groundwater	(g/day)	1.84E-06
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.2061
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.2061

Time = 4 yrs

Cumulative Emissions to Air	(g)	51610
Advective Mass Loading Rate to Groundwater	(g/day)	2.94E-06
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.2322
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.2322

Time = 5 yrs

Cumulative Emissions to Air	(g)	51850
Advective Mass Loading Rate to Groundwater	(g/day)	3.62E-06
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.2144
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.2144

Time = 10 yrs

Cumulative Emissions to Air	(g)	52450
Advective Mass Loading Rate to Groundwater	(g/day)	3.79E-06
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.07744
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.07744

Time = 15 yrs

Cumulative Emissions to Air	(g)	52710
Advective Mass Loading Rate to Groundwater	(g/day)	2.96E-06
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.02275
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.02275

Time = 20 yrs

Cumulative Emissions to Air	(g)	52870
Advective Mass Loading Rate to Groundwater	(g/day)	2.31E-06
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.003073
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.003075

Time = 25 yrs

Cumulative Emissions to Air	(g)	52980
Advective Mass Loading Rate to Groundwater	(g/day)	1.84E-06
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00454
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00454

Time = 30 yrs

Cumulative Emissions to Air	(g)	53060
Advective Mass Loading Rate to Groundwater	(g/day)	1.51E-06
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00752
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00751

Time = 35 yrs

Cumulative Emissions to Air	(g)	53120
Advective Mass Loading Rate to Groundwater	(g/day)	1.26E-06
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00855
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00855

Time = 40 yrs

Cumulative Emissions to Air	(g)	53170
Advective Mass Loading Rate to Groundwater	(g/day)	1.07E-06
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00872
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00872

Time = 45 yrs

Cumulative Emissions to Air	(g)	53210
Advective Mass Loading Rate to Groundwater	(g/day)	9.25E-07
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.0085
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.0085

Time = 50 yrs

Cumulative Emissions to Air	(g)	53250
Advective Mass Loading Rate to Groundwater	(g/day)	8.09E-07
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00812
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00812

Time = 55 yrs

Cumulative Emissions to Air	(g)	53280

Advective Mass Loading Rate to Groundwater	(g/day)	7.15E-07
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00767
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00767

Time = 60 yrs

Cumulative Emissions to Air	(g)	53300
Advective Mass Loading Rate to Groundwater	(g/day)	6.38E-07
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00721
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00721

Time = 65 yrs

Cumulative Emissions to Air	(g)	53330
Advective Mass Loading Rate to Groundwater	(g/day)	5.74E-07
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00676
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00676

Time = 70 yrs

Cumulative Emissions to Air	(g)	53350
Advective Mass Loading Rate to Groundwater	(g/day)	5.2E-07
Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00634
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	-0.00634

Chemical Specific Input Parameters for TPH-AL12-16

Parameter Name	Units	Value
Total Soil Concentration	(mg/kg)	1
Diffusion Coeff. in Air	(cm^2/day	8640
Diffusion Coeff. in Water	(cm^2/day	0.864
Henrys Constant [	(mg/L)	/(mg/L)] .2250E+05
Organic Carbon Part. Coeff.	(cc/g)	5.01E+06
Lumped Chemical Decay Rate	(1/day)	0

Outputs for TPH-AL12-16

Time = 1 yrs

Cumulative Emissions to Air	(g)	44340

Advective Mass Loading Rate to Groundwater	(g/day)	4.7E-25
Diffusive Mass Loading Rate to Groundwater	(g/day)	5.43E-18
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	5.43E-18

Time = 2 yrs

Cumulative Emissions to Air	(g)	47070
Advective Mass Loading Rate to Groundwater	(g/day)	2.38E-15
Diffusive Mass Loading Rate to Groundwater	(g/day)	1.05E-08
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	1.05E-08

Time = 3 yrs

Cumulative Emissions to Air	(g)	48300
Advective Mass Loading Rate to Groundwater	(g/day)	3.57E-12
Diffusive Mass Loading Rate to Groundwater	(g/day)	9.54E-06
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	9.54E-06

Time = 4 yrs

Cumulative Emissions to Air	(g)	49040
Advective Mass Loading Rate to Groundwater	(g/day)	1.26E-10
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.000239
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.000239

Time = 5 yrs

Cumulative Emissions to Air	(g)	49540
Advective Mass Loading Rate to Groundwater	(g/day)	9.96E-10
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.001464
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.001464

Time = 10 yrs

Cumulative Emissions to Air	(g)	50800
Advective Mass Loading Rate to Groundwater	(g/day)	4.41E-08
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.02925
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.02925

Time = 15 yrs

Cumulative Emissions to Air	(g)	51360
Advective Mass Loading Rate to Groundwater	(g/day)	1.21E-07

Diffusive Mass Loading Rate to Groundwater	(g/day)	0.04965
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.04965

Time = 20 yrs

Cumulative Emissions to Air	(g)	51690
Advective Mass Loading Rate to Groundwater	(g/day)	1.77E-07
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.05065
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.05065

Time = 25 yrs

Cumulative Emissions to Air	(g)	51920
Advective Mass Loading Rate to Groundwater	(g/day)	2.06E-07
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.04388
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.04388

Time = 30 yrs

Cumulative Emissions to Air	(g)	52090
Advective Mass Loading Rate to Groundwater	(g/day)	2.17E-07
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.03568
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.03568

Time = 35 yrs

Cumulative Emissions to Air	(g)	52220
Advective Mass Loading Rate to Groundwater	(g/day)	2.17E-07
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.02824
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.02824

Time = 40 yrs

Cumulative Emissions to Air	(g)	52320
Advective Mass Loading Rate to Groundwater	(g/day)	2.11E-07
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.02208
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.02208

Time = 45 yrs

Cumulative Emissions to Air	(g)	52410
Advective Mass Loading Rate to Groundwater	(g/day)	2.03E-07
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.01714

Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.01714

Time = 50 yrs

Cumulative Emissions to Air	(g)	52480
Advective Mass Loading Rate to Groundwater	(g/day)	1.93E-07
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.01324
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.01324

Time = 55 yrs

Cumulative Emissions to Air	(g)	52550
Advective Mass Loading Rate to Groundwater	(g/day)	1.83E-07
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.01016
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.01016

Time = 60 yrs

Cumulative Emissions to Air	(g)	52600
Advective Mass Loading Rate to Groundwater	(g/day)	1.73E-07
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.007737
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.007738

Time = 65 yrs

Cumulative Emissions to Air	(g)	52650
Advective Mass Loading Rate to Groundwater	(g/day)	1.63E-07
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.005815
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.005816

Time = 70 yrs

Cumulative Emissions to Air	(g)	52690
Advective Mass Loading Rate to Groundwater	(g/day)	1.54E-07
Diffusive Mass Loading Rate to Groundwater	(g/day)	0.004286
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0.004286

AT123D Output File
Analysis for Example Problem

Chemicals in the analysis
TPH-AL05-06
TPH-AL06-08
TPH-AL08-10
TPH-AL10-12
TPH-AL12-16

Number of years simulated: 70

GENERAL INPUT DATA
****

NO. OF POINTS IN X-DIRECTION	1
NO. OF POINTS IN Y-DIRECTION	1
NO. OF POINTS IN Z-DIRECTION	10
NO. OF ROOTS: NO. OF SERIES TERMS	1000
NO. OF BEGINNING TIME STEPS	1
NO. OF ENDING TIME STEP	70
NO. OF TIME INTERVALS FOR PRINTED OUT SOLUTION	1
INSTANTANEOUS SOURCE CONTROL = 0 FOR INSTANT SOURCE 1	
SOURCE CONDITION CONTROL = 0 FOR STEADY SOURCE	70
INTERMITTENT OUTPUT CONTROL = 0 NO SUCH OUTPUT	1
CASE CONTROL =1 THERMAL, = 2 FOR CHEMICAL, = 3 RAD 2	

X-COORDINATE OF RECEPTOR WELL (METERS)	1.83E+02
Y-COORDINATE OF RECEPTOR WELL (METERS)	5.80E+01
AQUIFER DEPTH, = 0.0 FOR INFINITE DEEP (METERS) ...	3.05E+00
AQUIFER WIDTH, = 0.0 FOR INFINITE WIDE (METERS) ...	0.00E+00
BEGIN POINT OF X-SOURCE LOCATION (METERS)	0.00E+00
END POINT OF X-SOURCE LOCATION (METERS)	3.66E+02
BEGIN POINT OF Y-SOURCE LOCATION (METERS)	0.00E+00
END POINT OF Y-SOURCE LOCATION (METERS)	1.16E+02
BEGIN POINT OF Z-SOURCE LOCATION (METERS)	0.00E+00
END POINT OF Z-SOURCE LOCATION (METERS)	0.00E+00

POROSITY	3.50E-01
HYDRAULIC CONDUCTIVITY (METER/YEAR)	3.15E+01
HYDRAULIC GRADIENT	2.00E-02
LONGITUDINAL DISPERSIVITY (METER)	0.00E+00
LATERAL DISPERSIVITY (METER)	0.00E+00
VERTICAL DISPERSIVITY (METER)	0.00E+00

BULK DENSITY OF THE SOIL (KG/M**3)	1.80E+03
TIME INTERVAL SIZE FOR THE DESIRED SOLUTION (YR) ..	1.00E+00
DISCHARGE TIME (YR)	7.00E+01

INPUT DATA/RESULTS FOR CHEMICAL: TPH-AL05-06

INST. WASTE RELEASE (KG) VALID FOR INST CASE ONLY..	1.00E+00
DISTRIBUTION COEFFICIENT, KD (M**3/KG)	1.59E-02
MOLECULAR DIFFUSION COEFFICIENT (M**2/YR)	3.15E-02
DECAY CONSTANT (1/YR)............................	0.00E+00

LIST OF TRANSIENT SOURCE RELEASE RATE

.258E+00	.970E-03	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	

RETARDATION FACTOR	8.27E+01
RETARDED SEEPAGE VELOCITY (M/YR)	2.18E-02
RETARDED LONGITUDINAL DISPERSION COEF. (M**2/YR) ..	1.09E-03
RETARDED LATERAL DISPERSION COEFFICIENT (M**2/YR) .	1.09E-03
RETARDED VERTICAL DISPERSION COEFFICIENT (M**2/YR).	1.09E-03

time [yr] = 1.00 avg. conc. [mg/l] = .105E-04

time [yr] = 5.00 avg. conc. [mg/l] = .609E-04

time [yr] = 10.0 avg. conc. [mg/l] = .427E-04

time [yr] = 15.0 avg. conc. [mg/l] = .374E-04

time [yr] = 20.0 avg. conc. [mg/l] = .349E-04

time [yr] = 25.0 avg. conc. [mg/l] = .334E-04

time [yr] = 30.0 avg. conc. [mg/l] = .322E-04

time [yr] = 35.0 avg. conc. [mg/l] = .314E-04

time [yr] = 40.0 avg. conc. [mg/l] = .307E-04

time [yr] = 45.0 avg. conc. [mg/l] = .301E-04

time [yr] = 50.0 avg. conc. [mg/l] = .296E-04

time [yr] = 55.0 avg. conc. [mg/l] = .292E-04

time [yr] = 60.0 avg. conc. [mg/l] = .289E-04

time [yr] = 65.0 avg. conc. [mg/l] = .285E-04

time [yr] = 70.0 avg. conc. [mg/l] = .283E-04

INPUT DATA/RESULTS FOR CHEMICAL: TPH-AL06-08

INST. WASTE RELEASE (KG) VALID FOR INST CASE ONLY.. 1.00E+00
DISTRIBUTION COEFFICIENT, KD (M**3/KG) 7.96E-02
MOLECULAR DIFFUSION COEFFICIENT (M**2/YR) 3.15E-02
DECAY CONSTANT (1/YR)........................... 0.00E+00
LIST OF TRANSIENT SOURCE RELEASE RATE

.342E+00	.418E-01	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	

RETARDATION FACTOR .... 4.10E+02
RETARDED SEEPAGE VELOCITY (M/YR) 4.39E-03
RETARDED LONGITUDINAL DISPERSION COEF. (M**2/YR) .. 2.20E-04
RETARDED LATERAL DISPERSION COEFFICIENT (M**2/YR) . 2.20E-04
RETARDED VERTICAL DISPERSION COEFFICIENT (M**2/YR). 2.20E-04

time [yr] = 1.00 avg. conc. [mg/l] = .280E-05

time [yr] = 5.00 avg. conc. [mg/l] = .557E-04

time [yr] = 10.0 avg. conc. [mg/l] = .360E-04

time [yr] = 15.0 avg. conc. [mg/l] = .287E-04

time [yr] = 20.0 avg. conc. [mg/l] = .246E-04

time [yr] = 25.0 avg. conc. [mg/l] = .219E-04

time [yr] = 30.0 avg. conc. [mg/l] = .200E-04

time [yr] = 35.0 avg. conc. [mg/l] = .186E-04

time [yr] = 40.0 avg. conc. [mg/l] = .176E-04

time [yr] = 45.0 avg. conc. [mg/l] = .168E-04

time [yr] = 50.0 avg. conc. [mg/l] = .162E-04

time [yr] = 55.0 avg. conc. [mg/l] = .157E-04

time [yr] = 60.0 avg. conc. [mg/l] = .153E-04

time [yr] = 65.0 avg. conc. [mg/l] = .150E-04

time [yr] = 70.0 avg. conc. [mg/l] = .147E-04

INPUT DATA/RESULTS FOR CHEMICAL: TPH-AL08-10

INST. WASTE RELEASE (KG) VALID FOR INST CASE ONLY..	1.00E+00
DISTRIBUTION COEFFICIENT, KD (M**3/KG)	6.32E-01
MOLECULAR DIFFUSION COEFFICIENT (M**2/YR)	3.15E-02
DECAY CONSTANT (1/YR)...........................	0.00E+00

LIST OF TRANSIENT SOURCE RELEASE RATE

.318E+00	.185E+00	.789E-01	.308E-01	.848E-02
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	

RETARDATION FACTOR	3.25E+03
RETARDED SEEPAGE VELOCITY (M/YR)	5.54E-04
RETARDED LONGITUDINAL DISPERSION COEF. (M**2/YR) ..	2.77E-05
RETARDED LATERAL DISPERSION COEFFICIENT (M**2/YR) .	2.77E-05
RETARDED VERTICAL DISPERSION COEFFICIENT (M**2/YR).	2.77E-05

time [yr] = 1.00 avg. conc. [mg/l] = .329E-06

time [yr] = 5.00 avg. conc. [mg/l] = .605E-04

time [yr] = 10.0	avg. conc. [mg/l] = .358E-04
time [yr] = 15.0	avg. conc. [mg/l] = .279E-04
time [yr] = 20.0	avg. conc. [mg/l] = .237E-04
time [yr] = 25.0	avg. conc. [mg/l] = .209E-04
time [yr] = 30.0	avg. conc. [mg/l] = .190E-04
time [yr] = 35.0	avg. conc. [mg/l] = .175E-04
time [yr] = 40.0	avg. conc. [mg/l] = .163E-04
time [yr] = 45.0	avg. conc. [mg/l] = .153E-04
time [yr] = 50.0	avg. conc. [mg/l] = .145E-04
time [yr] = 55.0	avg. conc. [mg/l] = .138E-04
time [yr] = 60.0	avg. conc. [mg/l] = .132E-04
time [yr] = 65.0	avg. conc. [mg/l] = .126E-04
time [yr] = 70.0	avg. conc. [mg/l] = .122E-04

INPUT DATA/RESULTS FOR CHEMICAL: TPH-AL10-12

INST. WASTE RELEASE (KG) VALID FOR INST CASE ONLY..	1.00E+00
DISTRIBUTION COEFFICIENT, KD (M**3/KG)	5.02E+00
MOLECULAR DIFFUSION COEFFICIENT (M**2/YR)	3.15E-02
DECAY CONSTANT (1/YR).....	0.00E+00

LIST OF TRANSIENT SOURCE RELEASE RATE

.106E-02	.367E-01	.752E-01	.848E-01	.783E-01
.667E-01	.548E-01	.443E-01	.355E-01	.283E-01
.224E-01	.177E-01	.139E-01	.108E-01	.830E-02
.626E-02	.458E-02	.320E-02	.206E-02	.112E-02
.344E-03	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.000E+00	.000E+00	.000E+00	

RETARDATION FACTOR	2.58E+04
RETARDED SEEPAGE VELOCITY (M/YR)	6.97E-05
RETARDED LONGITUDINAL DISPERSION COEF. (M**2/YR) ..	3.49E-06
RETARDED LATERAL DISPERSION COEFFICIENT (M**2/YR) .	3.49E-06
RETARDED VERTICAL DISPERSION COEFFICIENT (M**2/YR).	3.49E-06

time [yr] = 1.00	avg. conc. [mg/l] = .000E+00
time [yr] = 5.00	avg. conc. [mg/l] = .138E-04
time [yr] = 10.0	avg. conc. [mg/l] = .190E-04
time [yr] = 15.0	avg. conc. [mg/l] = .166E-04
time [yr] = 20.0	avg. conc. [mg/l] = .134E-04
time [yr] = 25.0	avg. conc. [mg/l] = .112E-04
time [yr] = 30.0	avg. conc. [mg/l] = .983E-05
time [yr] = 35.0	avg. conc. [mg/l] = .888E-05
time [yr] = 40.0	avg. conc. [mg/l] = .817E-05
time [yr] = 45.0	avg. conc. [mg/l] = .761E-05
time [yr] = 50.0	avg. conc. [mg/l] = .715E-05
time [yr] = 55.0	avg. conc. [mg/l] = .677E-05
time [yr] = 60.0	avg. conc. [mg/l] = .644E-05
time [yr] = 65.0	avg. conc. [mg/l] = .616E-05
time [yr] = 70.0	avg. conc. [mg/l] = .591E-05

INPUT DATA/RESULTS FOR CHEMICAL: TPH-AL12-16

INST. WASTE RELEASE (KG) VALID FOR INST CASE ONLY..	1.00E+00
DISTRIBUTION COEFFICIENT, KD (M**3/KG)	1.00E+02
MOLECULAR DIFFUSION COEFFICIENT (M**2/YR)	3.15E-02
DECAY CONSTANT (1/YR).....	0.00E+00

LIST OF TRANSIENT SOURCE RELEASE RATE

.198E-17	.382E-08	.348E-05	.872E-04	.534E-03
.164E-02	.345E-02	.575E-02	.824E-02	.107E-01
.129E-01	.147E-01	.162E-01	.173E-01	.181E-01
.186E-01	.189E-01	.189E-01	.188E-01	.185E-01
.181E-01	.177E-01	.171E-01	.166E-01	.160E-01

.154E-01	.148E-01	.142E-01	.136E-01	.130E-01
.124E-01	.119E-01	.113E-01	.108E-01	.103E-01
.982E-02	.935E-02	.890E-02	.847E-02	.806E-02
.766E-02	.729E-02	.693E-02	.658E-02	.626E-02
.594E-02	.565E-02	.536E-02	.509E-02	.483E-02
.459E-02	.435E-02	.413E-02	.391E-02	.371E-02
.352E-02	.333E-02	.315E-02	.299E-02	.282E-02
.267E-02	.252E-02	.238E-02	.225E-02	.212E-02
.200E-02	.188E-02	.177E-02	.167E-02	

RETARDATION FACTOR ..... 5.15E+05
RETARDED SEEPAGE VELOCITY (M/YR) 3.49E-06
RETARDED LONGITUDINAL DISPERSION COEF. (M**2/YR) .. 1.75E-07
RETARDED LATERAL DISPERSION COEFFICIENT (M**2/YR) . 1.75E-07
RETARDED VERTICAL DISPERSION COEFFICIENT (M**2/YR). 1.75E-07

time [yr] = 1.00 avg. conc. [mg/l] = .000E+00

time [yr] = 5.00 avg. conc. [mg/l] = .000E+00

time [yr] = 10.0 avg. conc. [mg/l] = .148E-06

time [yr] = 15.0 avg. conc. [mg/l] = .669E-06

time [yr] = 20.0 avg. conc. [mg/l] = .119E-05

time [yr] = 25.0 avg. conc. [mg/l] = .162E-05

time [yr] = 30.0 avg. conc. [mg/l] = .185E-05

time [yr] = 35.0 avg. conc. [mg/l] = .200E-05

time [yr] = 40.0 avg. conc. [mg/l] = .203E-05

time [yr] = 45.0 avg. conc. [mg/l] = .203E-05

time [yr] = 50.0 avg. conc. [mg/l] = .198E-05

time [yr] = 55.0 avg. conc. [mg/l] = .192E-05

time [yr] = 60.0 avg. conc. [mg/l] = .185E-05

time [yr] = 65.0 avg. conc. [mg/l] = .177E-05

time [yr] = 70.0 avg. conc. [mg/l] = .170E-05

Jury Output File
Analysis for Example Problem

*** COMMON INPUT PARAMETERS ***

PARAMETER NAME	UNITS	VALUE
Porosity	(cc/cc)	0.25
Bulk Density	(g/cc)	1.8
Water Content	(cc/cc)	0.1
Fractional Organic Carbon	(mg/mg)	2.00E-02
Incorporation Depth	(cm)	66.7
Clean Soil Thickness	(cm)	0
Simulation Time	(yrs)	70
Length of Soil Column	(cm)	1470
Infiltration Rate	(cm/day)	5.19E-02
Source Length	(m)	366
Source Width	(m)	116
Boundary Layer Thickness	(cm)	5

Chemical Specific Input Parameters for TPH-AL16-35

Parameter Name	Units	Value
Total Soil Concentration	(mg/kg)	1
Diffusion Coeff. in Air	(cm^2/day	8640
Diffusion Coeff. in Water	(cm^2/day	0.864
Henrys Constant [	(mg/L)	/(mg/L)] .2660E+06
Organic Carbon Part. Coeff.	(cc/g)	1.00E+09
Lumped Chemical Decay Rate	(1/day)	0

Outputs for TPH-AL16-35

Time = 1 yrs

Cumulative Emissions to Air	(g)	22630
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 2 yrs

Cumulative Emissions to Air	(g)	29310
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 3 yrs

Cumulative Emissions to Air	(g)	33000
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 4 yrs

Cumulative Emissions to Air	(g)	35410
Advective Mass Loading Rate to Groundwater	(g/day)	0
Diffusive Mass Loading Rate to Groundwater	(g/day)	0
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 5 yrs

Cumulative Emissions to Air	(g)	37140
Advective Mass Loading Rate to Groundwater	(g/day)	2.5E-72
Diffusive Mass Loading Rate to Groundwater	(g/day)	4.89E-63
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	0

Time = 10 yrs

Cumulative Emissions to Air	(g)	41710
Advective Mass Loading Rate to Groundwater	(g/day)	3.65E-40
Diffusive Mass Loading Rate to Groundwater	(g/day)	1.21E-31
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	1.21E-31

Time = 15 yrs

Cumulative Emissions to Air	(g)	43840
Advective Mass Loading Rate to Groundwater	(g/day)	2.06E-29
Diffusive Mass Loading Rate to Groundwater	(g/day)	3.3E-21
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	3.3E-21

Time = 20 yrs

Cumulative Emissions to Air	(g)	45140

Advective Mass Loading Rate to Groundwater	(g/day)	4.96E-24
Diffusive Mass Loading Rate to Groundwater	(g/day)	5.11E-16
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	5.11E-16

Time = 25 yrs

Cumulative Emissions to Air	(g)	46030
Advective Mass Loading Rate to Groundwater	(g/day)	8.3E-21
Diffusive Mass Loading Rate to Groundwater	(g/day)	6.26E-13
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	6.26E-13

Time = 30 yrs

Cumulative Emissions to Air	(g)	46700
Advective Mass Loading Rate to Groundwater	(g/day)	1.15E-18
Diffusive Mass Loading Rate to Groundwater	(g/day)	6.8E-11
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	6.8E-11

Time = 35 yrs

Cumulative Emissions to Air	(g)	47220
Advective Mass Loading Rate to Groundwater	(g/day)	3.82E-17
Diffusive Mass Loading Rate to Groundwater	(g/day)	1.86E-09
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	1.86E-09

Time = 40 yrs

Cumulative Emissions to Air	(g)	47640
Advective Mass Loading Rate to Groundwater	(g/day)	5.21E-16
Diffusive Mass Loading Rate to Groundwater	(g/day)	2.14E-08
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	2.14E-08

Time = 45 yrs

Cumulative Emissions to Air	(g)	47990
Advective Mass Loading Rate to Groundwater	(g/day)	3.92E-15
Diffusive Mass Loading Rate to Groundwater	(g/day)	1.4E-07
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	1.4E-07

Time = 50 yrs

Cumulative Emissions to Air	(g)	48280
Advective Mass Loading Rate to Groundwater	(g/day)	1.94E-14

Diffusive Mass Loading Rate to Groundwater	(g/day)	6.1E-07
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	6.1E-07

Time = 55 yrs

Cumulative Emissions to Air	(g)	48540
Advective Mass Loading Rate to Groundwater	(g/day)	7.12E-14
Diffusive Mass Loading Rate to Groundwater	(g/day)	2E-06
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	2E-06

Time = 60 yrs

Cumulative Emissions to Air	(g)	48760
Advective Mass Loading Rate to Groundwater	(g/day)	2.08E-13
Diffusive Mass Loading Rate to Groundwater	(g/day)	5.28E-06
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	5.28E-06

Time = 65 yrs

Cumulative Emissions to Air	(g)	48960
Advective Mass Loading Rate to Groundwater	(g/day)	5.13E-13
Diffusive Mass Loading Rate to Groundwater	(g/day)	1.18E-05
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	1.18E-05

Time = 70 yrs

Cumulative Emissions to Air	(g)	49130
Advective Mass Loading Rate to Groundwater	(g/day)	1.1E-12
Diffusive Mass Loading Rate to Groundwater	(g/day)	2.33E-05
Advective & Diffusive Mass Loading Rate to Groundwater	(g/day)	2.33E-05

AT123D Output File
Analysis for Example Problem

Chemicals in the analysis
TPH-AL16-35

Number of years simulated: 70

GENERAL INPUT DATA
****

NO. OF POINTS IN X-DIRECTION	1
NO. OF POINTS IN Y-DIRECTION	1
NO. OF POINTS IN Z-DIRECTION	10
NO. OF ROOTS: NO. OF SERIES TERMS	1000
NO. OF BEGINNING TIME STEPS	1
NO. OF ENDING TIME STEP	70
NO. OF TIME INTERVALS FOR PRINTED OUT SOLUTION	1
INSTANTANEOUS SOURCE CONTROL = 0 FOR INSTANT SOURCE 1	
SOURCE CONDITION CONTROL = 0 FOR STEADY SOURCE	70
INTERMITTENT OUTPUT CONTROL = 0 NO SUCH OUTPUT	1
CASE CONTROL =1 THERMAL, = 2 FOR CHEMICAL, = 3 RAD 2	

X-COORDINATE OF RECEPTOR WELL (METERS)	1.83E+02
Y-COORDINATE OF RECEPTOR WELL (METERS)	5.80E+01
AQUIFER DEPTH, = 0.0 FOR INFINITE DEEP (METERS) ...	3.05E+00
AQUIFER WIDTH, = 0.0 FOR INFINITE WIDE (METERS) ...	0.00E+00
BEGIN POINT OF X-SOURCE LOCATION (METERS)	0.00E+00
END POINT OF X-SOURCE LOCATION (METERS)	3.66E+02
BEGIN POINT OF Y-SOURCE LOCATION (METERS)	0.00E+00
END POINT OF Y-SOURCE LOCATION (METERS)	1.16E+02
BEGIN POINT OF Z-SOURCE LOCATION (METERS)	0.00E+00
END POINT OF Z-SOURCE LOCATION (METERS)	0.00E+00

POROSITY	3.50E-01
HYDRAULIC CONDUCTIVITY (METER/YEAR)	3.15E+01
HYDRAULIC GRADIENT	2.00E-02
LONGITUDINAL DISPERSIVITY (METER)	0.00E+00
LATERAL DISPERSIVITY (METER)	0.00E+00
VERTICAL DISPERSIVITY (METER)	0.00E+00

BULK DENSITY OF THE SOIL (KG/M**3)	1.80E+03
TIME INTERVAL SIZE FOR THE DESIRED SOLUTION (YR) ..	1.00E+00
DISCHARGE TIME (YR)	7.00E+01

INPUT DATA/RESULTS FOR CHEMICAL: TPH-AL16-35

INST. WASTE RELEASE (KG) VALID FOR INST CASE ONLY..	1.00E+00

DISTRIBUTION COEFFICIENT, KD (M**3/KG) ..... 2.00E+04
MOLECULAR DIFFUSION COEFFICIENT (M**2/YR) 3.15E-02
DECAY CONSTANT (1/YR)..... 0.00E+00
LIST OF TRANSIENT SOURCE RELEASE RATE

.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
.000E+00	.157E-44	.632E-39	.144E-34	.441E-31
.312E-28	.738E-26	.749E-24	.392E-22	.121E-20
.241E-19	.337E-18	.351E-17	.285E-16	.187E-15
.102E-14	.476E-14	.194E-13	.702E-13	.228E-12
.677E-12	.185E-11	.468E-11	.111E-10	.248E-10
.526E-10	.106E-09	.205E-09	.380E-09	.678E-09
.117E-08	.196E-08	.319E-08	.506E-08	.782E-08
.118E-07	.175E-07	.255E-07	.363E-07	.509E-07
.703E-07	.957E-07	.128E-06	.170E-06	.223E-06
.288E-06	.369E-06	.467E-06	.586E-06	.729E-06
.899E-06	.110E-05	.133E-05	.161E-05	.193E-05
.229E-05	.271E-05	.318E-05	.371E-05	.431E-05
.499E-05	.574E-05	.657E-05	.749E-05	

RETARDATION FACTOR ..... 1.03E+08
RETARDED SEEPAGE VELOCITY (M/YR) 1.75E-08
RETARDED LONGITUDINAL DISPERSION COEF. (M**2/YR) .. 8.76E-10
RETARDED LATERAL DISPERSION COEFFICIENT (M**2/YR) . 8.76E-10
RETARDED VERTICAL DISPERSION COEFFICIENT (M**2/YR). 8.76E-10

time [yr] = 1.00	avg. conc. [mg/l] = .000E+00
time [yr] = 5.00	avg. conc. [mg/l] = .000E+00
time [yr] = 10.0	avg. conc. [mg/l] = .000E+00
time [yr] = 15.0	avg. conc. [mg/l] = .000E+00
time [yr] = 20.0	avg. conc. [mg/l] = .000E+00
time [yr] = 25.0	avg. conc. [mg/l] = .000E+00
time [yr] = 30.0	avg. conc. [mg/l] = .000E+00
time [yr] = 35.0	avg. conc. [mg/l] = .000E+00
time [yr] = 40.0	avg. conc. [mg/l] = .000E+00
time [yr] = 45.0	avg. conc. [mg/l] = .000E+00
time [yr] = 50.0	avg. conc. [mg/l] = .000E+00
time [yr] = 55.0	avg. conc. [mg/l] = .000E+00
time [yr] = 60.0	avg. conc. [mg/l] = .000E+00