Extractable Petroleum Hydrocarbon Compliance Evaluation

1. I	Enter	Site	In	foi	rmatio	on
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Date:	01/03/16
Site Name:	Boeing Auburn
Sample Name:	ASB0141-9

2. Enter Soil Concentrat	tion Measured	
Chemical of Concern	Measured Soil Conc	Composition
or Equivalent Carbon Group	dry basis	Ratio
	mg/kg	%
Petroleum EC Fraction	mg/ng	,,,
AL_EC >5-6		0.00%
AL_EC >6-8		0.00%
AL_EC >8-10		0.00%
AL_EC >10-12		0.00%
AL_EC >12-16		0.00%
AL_EC >16-21		0.00%
AL_EC >21-34	5.5	100.00%
AR_EC >8-10		0.00%
AR_EC >10-12		0.00%
AR_EC >12-16		0.00%
AR_EC >16-21		0.00%
AR_EC >21-34		0.00%
Benzene		0.00%
Toluene		0.00%
Ethylbenzene		0.00%
Total Xylenes		0.00%
Naphthalene		0.00%
1-Methyl Naphthalene		0.00%
2-Methyl Naphthalene		0.00%
n-Hexane		0.00%
MTBE		0.00%
Ethylene Dibromide (EDB)		0.00%
1,2 Dichloroethane (EDC)		0.00%
Benzo(a)anthracene		0.00%
Benzo(b)fluoranthene		0.00%
Benzo(k)fluoranthene		0.00%
Benzo(a)pyrene		0.00%
Chrysene		0.00%
Dibenz(a,h)anthracene		0.00%
Indeno(1,2,3-cd)pyrene		0.00%
Sum	5.5	100.00%
3 Entar Site Specific U.	droggological D	nta -
3. Enter Site-Specific Hy		1
Total soil porosity:	0.43	Unitless
Volumetric water content:	0.3	Unitless
Volumetric air content: Soil bulk density measured:	0.13	Unitless
1	1.5	kg/L Unitlass
Fraction Organic Carbon:	0.001	Unitless
Dilution Factor:	20	Unitless
4. Target TPH Ground Wa		<u>j adjustea)</u>
If you adjusted the target TPH gro	unu water] ne/r
concentration, enter adjusted value here:		ug/L
varue nere.		

Notes for Data Entry	Set Default Hydrogeology
Clear All Soil Concer	ntration Data Entry Cells
Restore All Soil Concentr	ation Data cleared previously

Clea	ar All Soil C	oncentratio	n Data Enti	ry Cells	
Restore	All Soil Con	centration l	Data cleare	d previously	7
REMARK		• • • • • • • • • • • • • • • • • • • •	• • • • • • • • • • • • • • • • • • • •	• • • • • • • • • • • • • • • • • • • •	•••••
Analyzed	for BTEX a	nd PAHs (ii	ncluding na	phthalene,	1-methyl naphthaler in SWMU-06 analyzed
	e detected.	enej, no det	ections. Oth	iei sairipies	iii 3 Wivio-00 ariaiyzed

Site Information

Date: 1/3/2016
Site Name: Boeing Auburn
Sample Name: ASB0141-9

Measured Soil TPH Concentration, mg/kg: 5.500

1. Summary of Calculation Results

E P-4l	M-di-diC-d	Protective Soil	With Measu	red Soil Conc	Does Measured Soil
Exposure Pathway	Method/Goal	TPH Conc, mg/kg	RISK @	HI @	Conc Pass or Fail?
Protection of Soil Direct	Method B	111,111	0.00E+00	4.95E-05	Pass
Contact: Human Health	Method C	1,333,333	0.00E+00	4.13E-06	Pass
Protection of Method B Ground	Potable GW: Human Health Protection	100% NAPL	0.00E+00	5.07E-15	Pass
Water Quality (Leaching)	NA	NA	NA	NA	NA

2. Results for Protection of Soil Direct Contact Pathway: Human Health

	Method B: Unrestricted Land Use	Method C: Industrial Land Use
Protective Soil Concentration, TPH mg/kg	111,111.11	1,333,333.33
Most Stringent Criterion	HI =1	HI =1

	Pro	Protective Soil Concentration @Method B				Protective Soil Concentration @Mo		
Soil Criteria	Most Stringent?	TPH Conc, mg/kg	RISK @	НІ @	Most Stringent?	TPH Conc, mg/kg	RISK @	НІ @
HI =1	YES	1.11E+05	0.00E+00	1.00E+00	YES	1.33E+06	0.00E+00	1.00E+00
Total Risk=1E-5	NA	NA	NA	NA	NA	NA	NA	NA
Risk of Benzene= 1E-6	NA	NA	NA	NA				
Risk of cPAHs mixture= 1E-6	NA	NA	NA	NA		NA		
EDB	NA	NA	NA	NA		NA		
EDC	NA	NA	NA	NA				

3. Results for Protection of Ground Water Quality (Leaching Pathway)

3.1. Protection of Potable Ground Water Quality (Method B): Human Health Protection

SITI Total Culture of Total Culture Culture Culture	nou B). Human Heurar Hotelan
Most Stringent Criterion	NA
Protective Ground Water Concentration, ug/L	NA
Protective Soil Concentration, mg/kg	Soil-to-Ground Water is not a critical pathway!

Ground Water Criteria	Protective	Protective Potable Ground Water Concentration @Method B				
Ground Water Criteria	Most Stringent?	TPH Conc, ug/L	RISK @	HI @	Conc, mg/kg	
HI=1	YES	7.50E-10	0.00E+00	2.34E-14	100% NAPL	
Total Risk = 1E-5	NA	NA	NA	NA	NA	
Total Risk = 1E-6	NA	NA	NA	NA	NA	
Risk of cPAHs mixture= 1E-5	NA	NA	NA	NA	NA	
Benzene MCL = 5 ug/L	NA	NA	NA	NA	NA	
MTBE = 20 ug/L	NA	NA	NA	NA	NA	

Note: 100% NAPL is 68000 mg/kg TPH.

Ground Water Criteria	Protectiv	Protective Soil		
Ground Water Criteria	TPH Conc, ug/L	Risk @	HI @	Conc, mg/kg
NA	NA	NA	NA	NA

1. Enter Site Information

Date: 09/18/07
Site Name: Boeing Auburn
Sample Name: ASB0147-15 (SWMU-18)

Chemical of Concern	Measured Soil Conc	Composition
or Equivalent Carbon Group	dry basis	Ratio
	mg/kg	%
Petroleum EC Fraction		
AL_EC >5-6	0	0.00%
AL_EC >6-8	0	0.00%
AL_EC>8-10	0	0.00%
AL_EC >10-12	0	0.00%
AL_EC >12-16	0	0.00%
AL_EC >16-21	0	0.00%
AL_EC >21-34	0	0.00%
AR EC>8-10	9.6	100.00%
AR_EC > 10-12	0	0.00%
AR EC > 12-16	0	0.00%
AR EC >16-21	0	0.00%
AR_EC >21-34	0	0.00%
Benzene	0	0.00%
Toluene	0	0.00%
Ethylbenzene	0	0.00%
Total Xylenes	0	0.00%
Naphthalene	0	0.00%
I-Methyl Naphthalene	0	0.00%
2-Methyl Naphthalene	0	0.00%
n-Hexane	0	0.00%
МТВЕ	0	0.00%
Ethylene Dibromide (EDB)	0	0.00%
1,2 Dichloroethane (EDC)	0	0.00%
Benzo(a)anthracene	0	0.00%
Benzo(b)fluoranthene	0	0.00%
Benzo(k)fluoranthene	0	0.00%
Benzo(a)pyrene	0	0.00%
Chrysene	0	0.00%
Dibenz(a,h)anthracene	0	0.00%
Indeno(1,2,3-cd)pyrene	0	0.00%
Sum	9.6	100.00%
3. Enter Site-Specific Hy	drogeological Da	<u>ta</u>
l'otal soil porosity:	0.43	Unitless
Volumetric water content:	0.3	Unitless
Volumetric air content:	0.13	Unitless
Soil bulk density measured:	1.5	kg/L
raction Organic Carbon:	0.001	Unitless
Dilution Factor:	20	Unitless
4. Target TPH Ground Wa		
f you adjusted the target TPH gro		, automored
concentration, enter adjusted		ug/L
value here:	, , , ,	E/ 1-2

Notes for Data Entry	Set Default Hydrogeology
Clear All Soil Concer	ntration Data Entry Cells
Restore All Soil Concentr	ation Data cleared previously

Sample analyzed for BTEX and PAHs (including naphthalene, 1-methyl naphthalene and 2-methyl naphthalene); no detections.

Site Information

Date: 9/18/2007 Site Name: Boeing Auburn

Sample Name: ASB0147-15 (SWMU-18)

Measured Soil TPH Concentration, mg/kg: 9,600

1. Summary of Calculation Results

Paragraph Batharas	Method/Goal	Protective Soil	With Measured Soil Conc		Does Measured Soil	
Exposure Pathway	Wethod/Goal	TPH Conc, mg/kg	RISK @	HI @	Conc Pass or Fail?	
Protection of Soil Direct	Method B	7,390	0.00E+00	1.30E-03	Pass	
Contact: Human Health	Method C	145,455	0.00E+00	6.60E-05	Pass	
Protection of Method B Ground	Potable GW: Human Health Protection	29	0.00E+00	3.29E-01	Pass	
Water Quality (Leaching)	NA	NA	NA	NA	NA	

2. Results for Protection of Soil Direct Contact Pathway: Human Health

	Method B: Unrestricted Land Use	Method C: Industrial Land Use
Protective Soil Concentration, TPH mg/kg	7,390.30	145,454.55
Most Stringent Criterion	HI =1	HI =1

	Pro	Protective Soil Concentration @Method B				Protective Soil Concentration @Method C			
Soil Criteria	Most Stringent?	TPH Cone, mg/kg	RISK @	ні @	Most Stringent?	TPH Conc, mg/kg	RISK @	ні @	
[·] =-]	YES	7.39E+03	0.00E+00	1.00E+00	YES	1.45E+05	0.00E+00	1.00E+00	
Total Risk=1E-5	NA	NA	NA	NA	NA	NA	NA	NA	
Risk of Benzene= 1E-6	NA	NA	NA	NA					
Risk of cPAHs mixture= 1E-6	NA	NA	NA	NA	NA				
EDB	NA	NA	NA	NA					
EDC	NA	NA	NA	NA					

3. Results for Protection of Ground Water Quality (Leaching Pathway)

3.1. Protection of Potable Ground Water Quality (Method B): Human Health Protection

Most Stringent Criterion	HI=I
Protective Ground Water Concentration, ug/L	800,00
Protective Soil Concentration, mg/kg	29.15

Ground Water Criteria	Protective	Protective Soil			
Ground Water Criteria	Most Stringent?	TPH Conc, ug/L	RISK @	HI@	Conc, mg/kg
I-11=1	YES	8.00E+02	0.00E+00	1.00E+00	2.91E±01
Total Risk = 1E-5	NA	NA	NA	NA	NA
Total Risk = 1E-6	NA	NA	ŇA	NA	NA.
Risk of cPAHs mixture= 1E-5	' NA	NA	NA	NA	NA
Benzene MCL = 5 ug/L	NA	NA	NA	NA	NA
MTBE = 20 ug/L	NA	NA	NA	NA	NA

Ground Water Criteria	Protective	Protective Soil			
			HI @	Conc, mg/kg	
NA	NA	NA	NA	NA	

1. Enter Site Informa	tion
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Date:	01/03/16
Site Name:	Boeing Auburn
Sample Name:	ASB0149-15 (AOC-02C)

2. Enter Soil Concentrat		
Chemical of Concern	Measured Soil Conc	Composition
or Equivalent Carbon Group	dry basis	Ratio
	mg/kg	%
Petroleum EC Fraction		Ī
AL_EC >5-6		0.00%
AL_EC >6-8		0.00%
AL_EC >8-10		0.00%
AL_EC >10-12		0.00%
AL_EC >12-16		0.00%
AL_EC >16-21		0.00%
AL_EC >21-34	5.5	100.00%
AR_EC >8-10		0.00%
AR_EC >10-12		0.00%
AR_EC >12-16		0.00%
AR_EC >16-21		0.00%
AR_EC >21-34		0.00%
Benzene		0.00%
Toluene		0.00%
Ethylbenzene		0.00%
Total Xylenes		0.00%
Naphthalene		0.00%
1-Methyl Naphthalene		0.00%
2-Methyl Naphthalene		0.00%
n-Hexane		0.00%
MTBE		0.00%
Ethylene Dibromide (EDB)		0.00%
1,2 Dichloroethane (EDC)		0.00%
Benzo(a)anthracene		0.00%
Benzo(b)fluoranthene		0.00%
Benzo(k)fluoranthene		0.00%
Benzo(a)pyrene		0.00%
Chrysene		0.00%
Dibenz(a,h)anthracene		0.00%
Indeno(1,2,3-cd)pyrene		0.00%
Sum	5.5	100.00%
3. Enter Site-Specific Hy	drogeological Da	ıta
Total soil porosity:	0.43	Unitless
Volumetric water content:	0.43	Unitless
Volumetric water content:	0.13	Unitless
Soil bulk density measured:	1.5	kg/L
Fraction Organic Carbon:		_
-	0.001	Unitless
Dilution Factor:	20	Unitless
4. Target TPH Ground Wa		<u>f adjusted)</u>
If you adjusted the target TPH gro	und water	l ~
concentration, enter adjusted		ug/L

Notes for Data Entry Set Default Hydrogeolog	
Clear All Soil Concer	ntration Data Entry Cells
Restore All Soil Concentr	ation Data cleared previously

REMARK:	
Analyzed for EPH only. Sample ASB0149-21 analyzed for BTEX and PAHs	
(including naphthalene, 1-methyl naphthalene, and 2-methyl naphthalene); no	:
detections. Other samples in SWMU-06 analyzed for PCBs; no detections.	:

Site Information

Date: 1/3/2016
Site Name: Boeing Auburn
Sample Name: ASB0149-15 (AOC-02C)

Measured Soil TPH Concentration, mg/kg: 5.500

1. Summary of Calculation Results

Exposure Pathway	Method/Goal	Protective Soil	With Measu	red Soil Conc	Does Measured Soil
	Method/Goal	TPH Conc, mg/kg	RISK @	HI @	Conc Pass or Fail?
Protection of Soil Direct	Method B	111,111	0.00E+00	4.95E-05	Pass
Contact: Human Health	Method C	1,333,333	0.00E+00	4.13E-06	Pass
Protection of Method B Ground	Potable GW: Human Health Protection	100% NAPL	0.00E+00	5.07E-15	Pass
Water Quality (Leaching)	NA	NA	NA	NA	NA

2. Results for Protection of Soil Direct Contact Pathway: Human Health

	Method B: Unrestricted Land Use	Method C: Industrial Land Use
Protective Soil Concentration, TPH mg/kg	111,111.11	1,333,333.33
Most Stringent Criterion	HI =1	HI =1

	Pro	Protective Soil Concentration @Method B				Protective Soil Concentration @Method C			
Soil Criteria	Most Stringent?	TPH Conc, mg/kg	RISK @	НІ @	Most Stringent?	TPH Conc, mg/kg	RISK @	НІ @	
HI =1	YES	1.11E+05	0.00E+00	1.00E+00	YES	1.33E+06	0.00E+00	1.00E+00	
Total Risk=1E-5	NA	NA	NA	NA	NA	NA	NA	NA	
Risk of Benzene= 1E-6	NA	NA	NA	NA					
Risk of cPAHs mixture= 1E-6	NA	NA	NA	NA		NIA			
EDB	NA	NA	NA	NA	NA				
EDC	NA	NA	NA	NA					

3. Results for Protection of Ground Water Quality (Leaching Pathway)

3.1. Protection of Potable Ground Water Quality (Method B): Human Health Protection

entrate entra entrate	11. Trotted on or Total of County (Interior 2).					
Most Stringent Criterion	NA					
Protective Ground Water Concentration, ug/L	NA					
Protective Soil Concentration, mg/kg	Soil-to-Ground Water is not a critical pathway!					

Ground Water Criteria	Protective	Protective Potable Ground Water Concentration @Method B					
Ground Water Criteria	Most Stringent?	TPH Conc, ug/L	RISK @	HI @	Conc, mg/kg		
HI=1	YES	7.50E-10	0.00E+00	2.34E-14	100% NAPL		
Total Risk = 1E-5	NA	NA	NA	NA	NA		
Total Risk = 1E-6	NA	NA	NA	NA	NA		
Risk of cPAHs mixture= 1E-5	NA	NA	NA	NA	NA		
Benzene MCL = 5 ug/L	NA	NA	NA	NA	NA		
MTBE = 20 ug/L	NA	NA	NA	NA	NA		

Note: 100% NAPL is 68000 mg/kg TPH.

Ground Water Criteria	Protectiv	Protective Soil		
Ground Water Criteria	TPH Conc, ug/L	Risk @	HI @	Conc, mg/kg
NA	NA	NA	NA	NA

1. Enter Site Information

Date: 09/18/07 Site Name: Boeing Auburn Sample Name: ASB0150-21 (AOC-02d)

Chemical of Concern	Measured Soil Conc	Composition
or Equivalent Carbon Group	dry basis	Ratio
	mg/kg	%
Petroleum EC Fraction		
AL EC >5-6	0	0.00%
AL_EC >6-8	0	0.00%
AL_EC >8-10	0	0.00%
AL_EC >10-12	0	0.00%
AL_EC >12-16	0	0.00%
AL_EC >16-21	0	0.00%
AL EC >21-34	0	0.00%
AR EC >8-10	4.5	100.00%
AR_EC >10-12	0	0.00%
AR EC>12-16	0	0.00%
AR EC >16-21	0	0.00%
AR_EC >21-34	0	0.00%
Benzene	0	0.00%
Toluene	0	0.00%
Ethylbenzene	0	0.00%
Total Xylenes	0	0.00%
Naphthalene	0	0.00%
1-Methyl Naphthalene	0	0.00%
2-Methyl Naphthalene	0	0.00%
n-Hexane	0	0.00%
MTBE	0	0.00%
Ethylene Dibromide (EDB)	0	0.00%
1,2 Dichloroethane (EDC)	0	0.00%
Benzo(a)anthracene	0	0.00%
Benzo(b)fluoranthene	0	0.00%
Benzo(k)fluoranthene	0	0.00%
Benzo(k)nuoranmene Benzo(a)pyrene	0	0.00%
Chrysene	0	0.00%
Dibenz(a,h)anthracene	0	0.00%
Indeno(1,2,3-cd)pyrene	0	0.00%
	4.5	100.00%
Sum	4,3	100.00%
3. Enter Site-Specific Hy	drogeological Da	ta
Total soil porosity:	0.43	— Unitless
Volumetric water content:	0.3	Unitless
Volumetric air content:	0.13	Unitless
Soil bulk density measured:	1.5	kg/L
Fraction Organic Carbon:	0.001	Unitless
Dilution Factor:	20	Unitless
4. Target TPH Ground Wa		<u>t adjusted)</u>
f you adjusted the target TPH gro	ound water	
concentration, enter adjusted	I	ug/L

value here:

Notes for Data Entry	Set Default Hydrogeology
Clear All Soil Conce	entration Data Entry Cells
Restore All Soil Concent	ration Data cleared previously

	Clear All Soil Concentration Data Entry Cells
_	Restore All Soil Concentration Data cleared previously
	REMARK: Sample analyzed for PAHs (including naphthalene, 1-methyl naphthalene, 2-
	methyl naphthalene); no detections.

Site Information

Date: 9/18/2007

Site Name: Boeing Auburn

Sample Name: ASB0150-21 (AOC-02d)

Measured Soil TPH Concentration, mg/kg: 4.500

1. Summary of Calculation Results

Parameter Datharan	Method/Goal	Protective Soil	With Measu	red Soil Conc	Does Measured Soil	
Exposure Pathway	(viethod/Goai	TPH Cone, mg/kg	RISK @	HI @	Conc Pass or Fail?	
Protection of Soil Direct	Method B	7,390	0.00E+00	6.09E-04	Pass	
Contact: Human Health	Method C	145,455	0.00E+00	3.09E-05	Pass	
Protection of Method B Ground	Potable GW: Human Health Protection	29	0.00E+00	1.54E-01	Pass	
Water Quality (Leaching)	NA	NA	NA	NA	NA	

2. Results for Protection of Soil Direct Contact Pathway: Human Health

	Method B: Unrestricted Land Use	Method C: Industrial Land Use
Protective Soil Concentration, TPH mg/kg	7,390.30	145,454.55
Most Stringent Criterion	HI =1	H1 =1

	Pro	Protective Soil Concentration @Method B				Protective Soil Concentration @Method C			
Soil Criteria	Most Stringent?	TPH Conc, mg/kg	RISK @	ні @	Most Stringent?	TPH Conc, mg/kg	RISK @	ні@	
H1=1	YES	7.39E+03	0.00E+00	1.00E+00	YES	1.45E+05	0.00E+00	1.00E+00	
Total Risk=1E-5	NA.	NA	NA	NA	NA	NA	NA	NA	
Risk of Benzene= 1E-6	NA	NA	NA	NA					
Risk of ePAHs mixture= 1E-6	NA	NA	NA	NA	NA				
EDB	NA	NA	NA	NA					
EDC	NA	NA	NA	NA	:				

3. Results for Protection of Ground Water Quality (Leaching Pathway)

3.1. Protection of Potable Ground Water Quality (Method B): Human Health Protection

5.1. I tolection of I builde Ground is user Quarty (intended D), I turnum I teater I tolection						
Most Stringent Criterion	H1=1					
Protective Ground Water Concentration, ug/L	800.00					
Protective Soil Concentration, mg/kg	29.15					

Ground Water Criteria	Protective	Protective Soil			
Ground Water Criteria	Most Stringent?	TPH Conc, ug/L	RISK @	HI @	Cone, mg/kg
H[=1	YES	8.00E+02	0.00E+00	1.00E+00	2.91E+01
Total Risk = 1E-5	NA	NA	NA	NA	NA
Total Risk = 1E-6	NA	NA	NA	NA	NA
Risk of cPAHs mixture= 1E-5	NA	NA	NA	NA	NA
Benzene MCL = 5 ug/L	NA	NA	NA	NA	NA
MTBE = 20 ug/L	NA	NA	NA	NA	NA

Ground Water Criteria	Protective Ground Water Concentration			Protective Soil
	TPH Conc, ug/L	Risk @	HI @	Conc, mg/kg
NA	NA	NA	NA	, NA

1. Enter Site Information

Date: 09/18/07 Site Name: Boeing Auburn Sample Name: ASB0152-15 (AOC-12)

2. Enter Soil Concentration Measured						
Chemical of Concern Measured Soil Conc Composition						
or Equivalent Carbon Group	·					
or Equivalent Carbon Group		%				
Parallel EC Employ	mg/kg	%a				
Petroleum EC Fraction AL EC >5-6	0	#DIV/0!				
AL_EC > 3-0 AL_EC > 6-8	0	#DIV/0! #DIV/0!				
AL_EC >8-10	0	#DIV/0! #DIV/0!				
AL_EC >10-12	0	#DIV/0! #DIV/0!				
AL_EC>10-12 AL_EC>12-16	0	#DIV/0! #DIV/0!				
AL_EC > 12-10 AL_EC > 16-21	0	#DIV/0! #DIV/0!				
AL_EC>10-21 AL_EC>21-34	0	#DIV/0!				
AR EC>8-10	0	#DIV/0!				
AR_EC > 10-12	0	#DIV/0! #DIV/0!				
AR_EC>10-12 AR_EC>12-16	0	#DIV/0! #DIV/0!				
AR_EC > 12-10 AR_EC > 16-21	0	#DIV/0!				
AR_EC >10-21 AR_EC >21-34	0	#DIV/0!				
Benzene	0	#DIV/0!				
Toluene	0	#DIV/0!				
Ethylbenzene	0	#DIV/0!				
Total Xylenes	0	#DIV/0!				
Naphthalene	0	#DIV/0!				
I-Methyl Naphthalene	0	#DIV/0!				
2-Methyl Naphthalene	0	#DIV/0!				
n-Hexane	0	#DIV/0! #DIV/0!				
MTBE	0	#DIV/0!				
Ethylene Dibromide (EDB)	0	#DIV/0!				
1,2 Dichloroethane (EDC)	0	#DIV/0!				
Benzo(a)anthracene	0	#DIV/0!				
Benzo(b)fluoranthene	0	#DIV/0!				
Benzo(k)fluoranthene	0	#DIV/0!				
Benzo(a)pyréne	0	#DIV/0!				
Chrysene	0	#DIV/0! #DIV/0!				
Dibenz(a,h)anthracene	0	#DIV/0!				
Indeno(1,2,3-cd)pyrene	0	#DIV/0!				
Sum	0	#DIV/0!				
30111	. V	#D1770:				
3. Enter Site-Specific Hy	drogeological Da	ta				
Total soil porosity:	0.43	Unitless				
Volumetric water content:	0.3	Unitless				
Volumetric air content:	0.13	Unitless				
Soil bulk density measured:	1.5	kg/L				
Fraction Organic Carbon:	0.001	Unitless				
Dilution Factor:	20	Unitless				
		<u> </u>				
4. Target TPH Ground Wa		j aajustea)				
If you adjusted the target TPH ground water						
concentration, enter adjusted value here:		ug/L				
value fiere.						

Notes for Data Entry	Set Default Hydrogeology
Clear All Soil Concen	tration Data Entry Cells
Restore All Soil Concentra	ation Data cleared previously

	Clear All Soil Concentration Data Entry Cells
J	Restore All Soil Concentration Data cleared previously
	REMARK: Sample analyzed for PAHs (including naphthalene, 1-methyl naphthalene, 2-methyl naphthalene); no detections.
I	

Washington State Department of Ecology, Toxics Cleanup Program: Soil Cleanup Level for TPH Sites - Main Data Entry Form and Calculation Summary

A2 Soil Cleanup Levels: Calculation and Summary of Results. Refer to WAC 173-340-720, 740, 745, 747, 750

Site Information

Date: 9/18/2007 Site Name: <u>Boeing Auburn</u> Sample Name: <u>ASB0152-15 (AOC-12)</u>

Measured Soil TPH Concentration, mg/kg: 0.000

1. Summary of Calculation Results

Exposure Pathway	Method/Goal	Protective Soil	With Measu	red Soil Conc	Does Measured Soil	
		TPH Conc, mg/kg	RISK @	HI @	Conc Pass or Fail?	
Protection of Soil Direct	Method B		0.00E+00	0.00E+00	Pass	
Contact: Human Health	Method C		0.00E+00	0.00E+00	Pass	
Protection of Method B Ground	Potable GW: Human Health Protection		0.00E+00	0.00E+00	Pass	
Water Quality (Leaching)	NA		NA	NA	NA	

2. Results for Protection of Soil Direct Contact Pathway: Human Health

	Method B: Unrestricted Land Use	Method C: Industrial Land Use
Protective Soil Concentration, TPH mg/kg		
Most Stringent Criterion		

	Pro	Protective Soil Concentration @Method B				Protective Soil Concentration @Method C			
Soil Criteria	Most Stringent?	TPH Conc, mg/kg	RISK @	ні @	Most Stringent?	TPH Conc, mg/kg	RISK @	ні @	
HI =1	NA	NA	NA	NA					
Total Risk=1E-5									
Risk of Benzene= 1E-6									
Risk of cPAHs mixture= 1E-6					NA				
EDB									
EDC									

3. Results for Protection of Ground Water Quality (Leaching Pathway)

3.1. Protection of Potable Ground Water Quality (Method B): Human Health Protection

Most Stringent Criterion	
Protective Ground Water Concentration, ug/L	
Protective Soil Concentration, mg/kg	

Ground Water Criteria	Protective	Protective Soil			
Ground Water Criteria	Most Stringent?	TPH Conc, ug/L	RISK @	HI @	Conc, mg/kg
HI=1					
Total Risk = 1E-5					
Total Risk = 1E-6					
Risk of cPAHs mixture= 1E-5					
Benzene MCL = 5 ug/L					
MTBE = 20 ug/L		.]			

Ground Water Criteria	Protective (Protective Soil		
Ground Water Criteria	TPH Conc, ug/L	Risk @	HI @	Conc, mg/kg
NA				

Washington State Department of Ecology, Toxics Cleanup Program: Soil Cleanup Level for TPH Sites - Main Data Entry Form and Calculation Summary

A1 Soil Cleanup Levels: Worksheet for Soil Data Entry: Refer to WAC 173-340-720, 740,745, 747, 750

1. Enter Site Informa	<u>tion</u>
Date:	09/18/07
Site Name:	Boeing Auburn
Sample Name:	ASB0159-16 (SWMU-16)

2. Enter Soil Concentrat	ion Measured			
Chemical of Concern	Measured Soil Conc	Composition		
or Equivalent Carbon Group	dry basis	Ratio		
•	mg/kg	%		
Petroleum EC Fraction	<u> </u>			
AL_EC >5-6	0	#DIV/0!		
AL_EC >6-8	0	#DIV/0!		
AL_EC >8-10	0	#DIV/0!		
AL_EC>10-12	0	#DIV/0!		
AL_EC >12-16	0	#DIV/0!		
AL_EC >16-21	0	#DIV/0!		
AL_EC >21-34	0	#DIV/0!		
AR_EC >8-10	0	#DIV/0!		
AR_EC >10-12	0	#DIV/0!		
AR_EC >12-16	0	#DIV/0!		
AR EC >16-21	0	#DIV/0!		
AR EC >21-34	0	#DIV/0!		
Benzene	0	#DIV/0!		
Toluene	0	#DIV/0!		
Ethylbenzene	0	#DIV/0!		
Total Xylenes	0	#DIV/0!		
Naphthalene	0	#DIV/0!		
1-Methyl Naphthalene	0	#DIV/0!		
2-Methyl Naphthalene	0	#DIV/0!		
n-Hexane	0	#DIV/0!		
MTBE	0	#DIV/0!		
Ethylene Dibromide (EDB)	0	#DIV/0!		
1,2 Dichloroethane (EDC)	0	#DIV/0!		
Benzo(a)anthracene	0	#DIV/0!		
Benzo(b)fluoranthene	0	#DIV/0!		
Benzo(k)fluoranthene	0	#DIV/0!		
Benzo(a)pyrene	0	#DIV/0!		
Chrysene	0	#DIV/0!		
Dibenz(a,h)anthracene	0	#DIV/0!		
Indeno(1,2,3-cd)pyrene	0	#DIV/0!		
Sum	0	#DIV/0!		
3. Enter Site-Specific Hy	drogeological Da	ta		
Total soil porosity:	0.43	Unitless		
Volumetric water content:	0.3	Unitless		
Volumetric air content:	0.13	Unitless		
Soil bulk density measured:	1.5	kg/L		
Fraction Organic Carbon:	0.001	Unitless		
Dilution Factor:	20	Unitless		
		<u> </u>		
4. Target TPH Ground Wa		f adjusted)		
If you adjusted the target TPH ground water				
concentration, enter adjusted	i	ug/L		

Notes for Data Entry	Set Default Hydrogeology	
Clear All Soil Concentration Data Entry Cells		
Restore All Soil Concentration Data cleared previously		

REMARK:
Sample analyzed for BTEX and PAHs (including naphthalene, 1-methyl
naphthalene, 2-methyl naphthalene); no detections. Other soil samples in
SWMU-16 were analyzed for PCBs. PCBs were detected in some samples;
however, the detected concentrations did not exceed soil screening levels.

Site Information

Date: 9/18/2007 Site Name: Boeing Auburn

Sample Name: ASB0159-16 (SWMU-16)
Measured Soil TPH Concentration, mg/kg: 0.000

1. Summary of Calculation Results

Paralle De Alexandre	Method/Goal	Protective Soil	With Measured Soil Conc		Does Measured Soil	
Exposure Pathway	Methou/Goan	TPH Conc, mg/kg	RISK @	НІ @	Conc Pass or Fail?	
Protection of Soil Direct	Method B		0.00E+00	0.00E+00	Pass	
Contact: Human Health	Method C		0.00E+00	0.00E+00	Pass	
Protection of Method B Ground	Potable GW: Human Health Protection		0.00E+00	0.00E+00	Pass	
Water Quality (Leaching)	NA		NA	NA	NA	

2. Results for Protection of Soil Direct Contact Pathway: Human Health

	Method B: Unrestricted Land Use	Method C: Industrial Land Use
Protective Soil Concentration, TPH mg/kg		
Most Stringent Criterion		

	Pro	Protective Soil Concentration @Method B				Protective Soil Concentration @Method C			
Soil Criteria	Most Stringent?	TPH Conc, mg/kg	RISK @	ні @	Most Stringent?	TPH Conc, mg/kg	RISK @	HI @	
HI =1	NA	NA	NA	NA					
Total Risk=1E-5									
Risk of Benzene= 1E-6									
Risk of cPAHs mixture= 1E-6					NA				
EDB						11/7/			
EDC			****						

3. Results for Protection of Ground Water Quality (Leaching Pathway)

3.1, Protection of Potable Ground Water Quality (Method B): Human Health Protection

Most Stringent Criterion	
Protective Ground Water Concentration, ug/L	
Protective Soil Concentration, mg/kg	

Ground Water Criteria	Protective	Protective Soil			
Ground Water Criteria	Most Stringent?	TPH Conc, ug/L	RISK @	HI @	Conc, mg/kg
MI=1					
Total Risk = 1E-5					
Total Risk = 1E-6					
Risk of cPAHs mixture= 1E-5					
Benzene MCL = 5 ug/L		:			
MTBE = 20 ug/L					

Ground Water Criteria	Protective Ground Water Concentration			Protective Soil
	TPH Conc, ug/L	Risk @	HI @	Conc, mg/kg
NA				

1. Enter Site Information

Date: 09/18/07
Site Name: Boeing Auburn
Sample Name: ASB0160R-17.5 (SWMU-15a)

2. Enter Soil Concentrat	ion Measured			
Chemical of Concern Measured Soil Cone Compositi				
or Equivalent Carbon Group	dry basis	Ratio		
	mg/kg	%		
Petroleum EC Fraction				
AL_EC >5-6	0	0.00%		
AL_EC >6-8	0	0.00%		
AL_EC >8-10	0	0.00%		
AL_EC >10-12	0	0.00%		
AL_EC >12-16	0	0.00%		
AL_EC >16-21	570	3.23%		
AL_EC >21-34	15000	85.03%		
AR_EC >8-10	0	0.00%		
AR_EC >10-12	0	0.00%		
AR_EC >12-16	0	0.00%		
AR_EC >16-21	170	0.96%		
AR_EC >21-34	1900	10.77%		
Benzene	0.0019	0.00%		
Toluene	0	0.00%		
Ethylbenzene	0	0.00%		
Total Xylenes	0.0026	0.00%		
Naphthalene	0	0.00%		
1-Methyl Naphthalene	0	0.00%		
2-Methyl Naphthalene	0	0.00%		
n-Hexane	0	0.00%		
MTBE	0.	0.00%		
Ethylene Dibromide (EDB)	0	0.00%		
1,2 Dichloroethane (EDC)	0	0.00%		
Benzo(a)anthracene	0	0.00%		
Benzo(b)fluoranthene	0	0.00%		
Benzo(k)fluoranthene	0	0.00%		
Benzo(a)pyrene	0	0.00%		
Chrysene	0	0.00%		
Dibenz(a,h)anthracene	0	0.00%		
Indeno(1,2,3-cd)pyrene	0	0.00%		
Sum	17640,0045	100.00%		
3. Enter Site-Specific Hy	drogeological Da	ta		
Total soil porosity:	0.43	Unitless		
	0.43	Unitless		
Volumetric water content: Volumetric air content:		Unitless		
Soil bulk density measured:	0.13			
•	1.5	kg/L Unitless		
Fraction Organic Carbon:	0.001			
Dilution Factor:	20	Unitless		
4. Target TPH Ground Wa		<u>f adjusted)</u>		
If you adjusted the target TPH gro	ound water	N		
concentration, enter adjusted value here:		ug/L		

Notes for Data Entry	Set Default Hydrogeology
Clear All Soil Conce	ntration Data Entry Cells
Restore All Soil Concenti	ration Data cleared previously

KEWAKK:
Sample analyzed for BTEX (detections shown to left). Sample analyzed for
PAHs (including naphthalene, 1-methyl naphthalene); no detections. Other
soil samples in SWMU-15 were analyzed for PAHs (including naphtalene, 1-

methyl naphthalene and 2-methyl naphthalene); no detections.

Site Information

Date: 9/18/2007 Site Name: Boeing Auburn

Sample Name: <u>ASB0160R-17.5 (SWMU-15a)</u>
Measured Soil TPH Concentration, mg/kg: 17,640.005

1. Summary of Calculation Results

Farrage Batharas	Method/Goal	Protective Soil	With Measu	red Soil Conc	Does Measured Soil
Exposure Pathway	Wiethou/Goal	TPH Conc, mg/kg	RISK @	HI @	Conc Pass or Fail?
Protection of Soil Direct	Method B	16,078	1.05E-10	1.10E+00	Fail
Contact: Human Health	Method C	192,939	1.40E-11	9.14E-02	Pass
Protection of Method B Ground	Potable GW: Human Health Protection	100% NAPL	4.90E-08	2.29E-03	Pass
Water Quality (Leaching)	NA	NA	NA	NA	NA

Warning! Check to determine if a simplified or site-specific Terrestrial Ecological Evaluation may be required (Refer to WAC 173-340-7490 through ~7494). Warning! Check Residual Saturation (WAC340-747(10)).

2. Results for Protection of Soil Direct Contact Pathway: Human Health

	Method B: Unrestricted Land Use	Method C: Industrial Land Use
Protective Soil Concentration, TPH mg/kg	16,078.23	192,939.29
Most Stringent Criterion	HI =1	HI =1

	Pro	tective Soil Concentr				tion @Met	n @Method C	
Soil Criteria	Most Stringent?	TPH Conc, mg/kg	RISK @	ні @	Most Stringent?	TPH Conc, mg/kg	RISK @	HI@
HI = I	YES	1.61E+04	9.54E-11	1.00E+00	YES	1.93E+05	1.53E-10	1.00E+00
Total Risk=1E-5	NO	1.69E+09	1.00E-05	1.05E+05	NO	1.26E+10	1,00E-05	6.53E+04
Risk of Benzene= 1E-6	NO	1.69E+08	1.00E-06	1.05E±04				
Risk of cPAHs mixture= 1E-6	NA	NA	NA	NA	NA			
EDB	NA	NA	NA	NA				
EDC	NA	NA	NA	NA				

3. Results for Protection of Ground Water Quality (Leaching Pathway)

3.1. Protection of Potable Ground Water Quality (Method B): Human Health Protection

2.17. I totocotton of 1 ombio Ordina 3, dies Quanti, (viented 2). Transmit frantit 1 totocotton		
Most Stringent Criterion	NA	
Protective Ground Water Concentration, ug/L	NA	
Protective Soil Concentration, mg/kg	Soil-to-Ground Water is not a critical pathway!	

Ground Water Criteria	Protective	Potable Ground Water	Concentration @M	lethod B	Protective Soil
Ground Water Criteria	Most Stringent?	TPH Conc, ug/L	RISK @	HI@	Conc, mg/kg
HI=1	YES	5.72E-01	5.36E-08	2.40E-03	100% NAPL
Total Risk = 1E-5	YES	5.72E-01	5.36E-08	2.40E-03	100% NAPL
Total Risk = 1E-6	YES	5.72E-01	5.36E-08	2.40E-03	100% NAPL
Risk of cPAHs mixture= 1E-5	NA	NA	NA	NA	NA
Benzene MCL = 5 ug/L	YES	5.72E-01	5.36E-08	2.40E-03	100% NAPL
MTBE = 20 ug/L	NA	NA	NA	NA.	NA

Note: 100% NAPL is 71000 mg/kg TPH.

Ground Water Criteria	Protectiv	Protective Soil		
Ground water Criteria	TPH Conc, ug/L	Risk @	HI @	Conc, mg/kg
NA	NA	NA	NA	NA

1. Enter Site Information

Date: 09/18/07
Site Name: Boeing Auburn
Sample Name: ASB0163-17 (SWMU-15b)

Measured Soil Conc	Composition
dry basis	Ratio
, , , , , , , , , , , , , , , , , , , 	%
0	0.00%
	0.00%
	0.00%
0	0.00%
0	0.00%
0	0.00%
0	0.00%
0	0.00%
0	0.00%
0	0.00%
3.2	100.00%
0	0.00%
0	0.00%
0	0.00%
0	0.00%
0	0.00%
0	0.00%
0	0.00%
0	0.00%
0	0.00%
0	0.00%
0	0.00%
0	0.00%
	0.00%
	0.00%
	0.00%
	0.00%
	0.00%
	0.00%
	0.00%
3.2	100.00%
drogeological Da	<u>ta</u>
0.43	Unitless
0.3	Unitless
0.13	Unitless
1.5	kg/L
0.001	Unitless
20	Unitless
20	
	dry basis mg/kg 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

value here:

Notes for Data Entry S	et Default Hydrogeology			
Clear All Soil Concentration Data Entry Cells				
Restore All Soil Concentration Data cleared previously				

REMARK:	
	AHs (including naphthalene, 1-methyl naphthalene, 2
tettiyi naphthaleney, tic	detections.

Washington State Department of Ecology, Toxics Cleanup Program: Soil Cleanup Level for TPH Sites - Main Data Entry Form and Calculation Summary

A2 Soil Cleanup Levels: Calculation and Summary of Results. Refer to WAC 173-340-720, 740, 745, 747, 750

Site Information

Date: 9/18/2007

Site Name: Boeing Auburn

Sample Name: ASB0163-17 (SWMU-15b)

Measured Soil TPH Concentration, mg/kg: 3.200

1. Summary of Calculation Results

Exposure Pathway	Method/Goal	Protective Soil	With Measured Soil Conc		Does Measured Soil	
Exposure rathway	Method/Gear	TPH Conc, mg/kg	RISK @	HI @	Conc Pass or Fail?	
Protection of Soil Direct	Method B	1,667	0.00E+00	1.92E-03	Pass	
Contact: Human Health	Method C	20,000	0.00E+00	1.60E-04	Pass	
Protection of Method B Ground	Potable GW: Human Health Protection	100% NAPL	0.00E+00	2.08E-02	Pass	
Water Quality (Leaching)	NA	NA	NA	NA	NA	

2. Results for Protection of Soil Direct Contact Pathway: Human Health

	Method B: Unrestricted Land Use	Method C: Industrial Land Use
Protective Soil Concentration, TPH mg/kg	1,666.67	20,000.00
Most Stringent Criterion	HI =1	HI =1

	Pro	Protective Soil Concentration @Method B			Protective Soil Concentration @Method C			
Soil Criteria	Most Stringent?	TPH Cone, mg/kg	RISK @	HI @	Most Stringent?	TPH Conc, mg/kg	RISK @	ні @
HI =1	YES	1.67E+03	0.00E+00	1.00E+00	YES	2.00E+04	0.00E+00	1.00E+00
Total Risk=1E-5	NA	NA	NA	NA	NA	NA	NA	NA
Risk of Benzene= 1E-6	NA	NA	NA	NA				
Risk of cPAHs mixture= 1E-6	NA	NA	NA	NA	NA			
EDB	NA	NA	NA	NA				
EDC	NA	NA	NA	NA				

3. Results for Protection of Ground Water Quality (Leaching Pathway)

3.1. Protection of Potable Ground Water Quality (Method B): Human Health Protection

Most Stringent Criterion	NA
Protective Ground Water Concentration, ug/L	NA
Protective Soil Concentration, mg/kg	Soil-to-Ground Water is not a critical pathway!

Ground Water Criteria	Protective Potable Ground Water Concentration @Method B				Protective Soil
Oround Water Criteria	Most Stringent?	TPH Conc, ug/L	RISK @	HI @	Conc, mg/kg
HI=1	YES	2.55E+01	0.00E+00	5.31E-02	100% NAPL
Total Risk = 1E-5	NA	NA	NA	NA	NA
Total Risk = 1E-6	NA	NA	NA	NA	NA
Risk of cPAHs mixture= 1E-5	NA	NA	NA	NA	NA
Benzene MCL = 5 ug/L	NA	NA	NA	NA.	NA
MTBE = 20 ug/L	NA	NA	NA	NA	NA

Note: 100% NAPL is 100000 mg/kg TPH.

Ground Water Criteria	1100000	Protective Ground Water Concentration				
Ground Water Criteria	TPH Conc, ug/L	Risk @	H1 @	Conc, mg/kg		
NA	NA	NA	NA	NA		

1.	Ente	er Site	Infa	rmation

Date: 09/18/07 Site Name: Boeing Auburn Sample Name: ASB0164R-20 (SWMU-17)

Chemical of Concern	Measured Soil Conc	Composition
or Equivalent Carbon Group	dry basis	Ratio
•	mg/kg	%
Petroleum EC Fraction		
AL EC >5-6	0	0.00%
AL_EC >6-8	0	0.00%
AL EC >8-10	0	0.00%
AL_EC >10-12	0	0.00%
AL_EC >12-16	0	0.00%
AL_EC >16-21	0	0.00%
AL EC >21-34	0	0.00%
AR EC >8-10	0	0.00%
AR_EC >10-12	0	0.00%
AR_EC >12-16	0	0.00%
AR_EC >16-21	2.4	100.00%
AR_EC >21-34	0	0.00%
Benzene	0	0.00%
l'oluene	0	0.00%
Ethylbenzene	0	0.00%
Total Xylenes	0	0.00%
Naphthalene	0	0.00%
l-Methyl Naphthalene	0	0.00%
2-Methyl Naphthalene	0	0.00%
n-Hexane	0	0.00%
MTBE	0	0.00%
Ethylene Dibromide (EDB)	0	0.00%
1,2 Dichloroethane (EDC)	0	0.00%
Benzo(a)anthracene	0	0.00%
Benzo(b)fluoranthene	0	0.00%
Benzo(k)fluoranthene	0	0.00%
Benzo(a)pyrene	0	0.00%
Chrysene	0	0.00%
Dibenz(a,h)anthracene	0	0.00%
Indeno(1,2,3-cd)pyrene	0	0.00%
Sum	2.4	100.00%
3. Enter Site-Specific Hy	drogenlogical Da	ta
		Unitless
Fotal soil porosity:	0.43	Unitless
Volumetric water content: Volumetric air content:	0.3 0.13	Unitless
	1.5	kg/L
Soil bulk density measured:		Unitless
Fraction Organic Carbon:	0.001	
Dilution Factor:	20	Unitless
4. Target TPH Ground Wa		f adjusted)
If you adjusted the target TPH gro	ound water	ln
concentration, enter adjusted value here:		ug/L

Notes for Data Entry	Set Default Hydrogeology			
Clear All Soil Conce	ntration Data Entry Cells			
Restore All Soil Concentration Data cleared previously				

Set Settled Hydrogeology	
Clear All Soil Concentration Data Entry Cells	
Restore All Soil Concentration Data cleared previously	
A STATE OF THE STA	

EMARK: ample analyzed for BTEX and PAHs (including naphthalene, 1-methyl	
ample analyzed for BTEX and FXTIs (including naphthalene, 1-thethyl	***************************************
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Site Information

Date: 9/18/2007

Site Name: Boeing Auburn

Sample Name: <u>ASB0164R-20 (SWMU-17)</u>
Measured Soil TPH Concentration, mg/kg: **2.400**

1. Summary of Calculation Results

Exposure Pathway	Method/Goal	Protective Soil	With Measur	ed Soil Conc	Does Measured Soil
Exposure Factivay	Wiethod/Goal	TPH Conc, mg/kg	RISK @	HI @	Conc Pass or Fail?
Protection of Soil Direct	Method B	1,667	0.00E+00	1.44E-03	Pass
Contact: Human Health	Method C	20,000	0.00E+00	1.20E-04	Pass
Protection of Method B Ground	Potable GW: Human Health Protection	100% NAPL	0.00E+00	1.56E-02	Pass
Water Quality (Leaching)	NA	NA	NA	NA	NA

2. Results for Protection of Soil Direct Contact Pathway: Human Health

	Method B: Unrestricted Land Use	Method C: Industrial Land Use
Protective Soil Concentration, TPH mg/kg	1,666.67	20,000.00
Most Stringent Criterion	IH =1	HI =1

	Pro	Protective Soil Concentration @Method B				Protective Soil Concentration @Method C			
Soil Criteria	Most Stringent?	TPH Conc, mg/kg	RISK @	ні @	Most Stringent?	TPH Conc, mg/kg	RISK @	HI @	
HI =1	YES	1.67E+03	0.00E+00	1.00E+00	YES	2.00E+04	0.00E+00	1,00E+00	
Total Risk=1E-5	NA	NA	NA	NA	NA	NA	NA	NA	
Risk of Benzene= 1E-6	NA	NA	NΑ	NA					
Risk of cPAHs mixture= 1E-6	NA	NA	NA	NA	NA				
EDB	NA	NA	NA	NA					
EDC	NA	NA	NA	NA					

3. Results for Protection of Ground Water Quality (Leaching Pathway)

3.1. Protection of Potable Ground Water Quality (Method B): Human Health Protection

Most Stringent Criterion	NA NA
Protective Ground Water Concentration, ug/L	NA
Protective Soil Concentration, mg/kg	Soil-to-Ground Water is not a critical pathway!

Ground Water Criteria	Protective	Protective Potable Ground Water Concentration @Method B				
	Most Stringent?	TPH Conc, ug/L	RISK @	HI @	Conc, mg/kg	
HI=1	YES	2.55E+01	0.00E+00	5.31E-02	100% NAPL	
Total Risk = 1E-5	NA	NA	NA	NA	NA	
Total Risk = 1E-6	NA	NA	NA	NA	NA	
Risk of cPAHs mixture= 1E-5	NA	NA	NA	NA	NA	
Benzene MCL = 5 ug/L	NA	NA	NA	NA	NA	
MTBE = 20 ug/L	NA	NA	NA	NA	NA	

Note: 100% NAPL is 100000 mg/kg TPH.

Ground Water Criteria	Protectiv	Protective Ground Water Concentration		
Giband Water Criteria	TPH Conc, ug/L	Risk @	HI @	Cone, mg/kg
NA	NA	NA	NA.	NA

1. Enter Site Information

Date: 09/18/07
Site Name: Boeing Auburn
Sample Name: ASB0171-17.5 (SWMU-16)

2. Enter Soil Concentrat	ion Measured				
Chemical of Concern	Measured Soil Cone	Composition			
or Equivalent Carbon Group	dry basis	Ratio			
•	mg/kg	%			
Petroleum EC Fraction					
AL_EC >5-6	0	0.00%			
AL_EC >6-8	0	0.00%			
AL_EC >8-10	0	0.00%			
AL_EC >10-12	0	0.00%			
AL_EC >12-16	O	0.00%			
AL_EC >16-21	250	3.01%			
AL_EC >21-34	6900	83.19%			
AR_EC >8-10	0	0.00%			
AR_EC >10-12	0	0.00%			
AR_EC >12-16	0	0.00%			
AR_EC >16-21	44	0.53%			
AR_EC >21-34	1100	13.26%			
Benzene	0.0045	0.00%			
Toluene	0.0065	0.00%			
Ethylbenzene	0	0.00%			
Total Xylenes	0.002	0.00%			
Naphthalene	0	0.00%			
I-Methyl Naphthalene	0	0.00%			
2-Methyl Naphthalene	0	0.00%			
n-l-lexane	0	0.00%			
MTBE	0	0.00%			
Ethylene Dibromide (EDB)	0	0.00%			
1,2 Dichloroethane (EDC)	0	0.00%			
Benzo(a)anthracene	0	0.00%			
Benzo(b)fluoranthene	0	0.00%			
Benzo(k)fluoranthene	0	0.00%			
Benzo(a)pyrene	0	0.00%			
Chrysene	0	0.00%			
Dibenz(a,h)anthracene	0	0.00%			
Indeno(1,2,3-cd)pyrene	0	0.00%			
Sum	8294.013	100.00%			
3. Enter Site-Specific Hy	drogeological Da	<u>ta</u>			
Fotal soil porosity:	0.43	Unitless			
Volumetric water content:	0.3	Unitless			
Volumetric air content:	0.13	Unitless			
Soil bulk density measured:	1.5	kg/L			
Fraction Organic Carbon:	0.001	Unitless			
Dilution Factor:	20	Unitless			
4. Target TPH Ground Wa					
If you adjusted the target TPH gro		,,			
concentration, enter adjusted ug/L					
value here:	L				

Notes for Data Entry	Set Default Hydrogeology
Clear All Soil Conce	ntration Data Entry Cells
Restore All Soil Concent	ration Data cleared previously

REMARK:

Sample analyzed for BTEX (detections shown to left). Sample analyzed for PAHs (including naphthalene, 1-methyl naphthalene, 2-methyl naphthalene); no detections. Other soil samples in SWMU-16 were analyzed for PCBs. PCBs were detected in some samples; however, the detected concentrations did not exceed soil screening levels.

Washington State Department of Ecology, Toxics Cleanup Program: Soil Cleanup Level for TPH Sites - Main Data Entry Form and Calculation Summary

A2 Soil Cleanup Levels: Calculation and Summary of Results. Refer to WAC 173-340-720, 740, 745, 747, 750

Site Information

Date: 9/18/2007

Site Name: Boeing Auburn

Sample Name: <u>ASB0171-17.5 (SWMU-16)</u>

Measured Soil TPH Concentration, mg/kg: 8,294.013

1. Summary of Calculation Results

Evragues Bathayay	Method/Goal	Protective Soil	With Measu	red Soil Conc	Does Measured Soil	
Exposure Pathway	Method/Goal	TPH Conc, mg/kg RISK @		НІ @	Conc Pass or Fail?	
Protection of Soil Direct	Method B	14,159	2.48E-10	5.86E-01	Pass	
Contact: Human Health	Method C	169,914	3.32E-11	4.88E-02	Pass	
Protection of Method B Ground	Potable GW: Human Health Protection	100% NAPL	2.17E-07	6.15E-03	Pass	
Water Quality (Leaching)	NA	NA	NA	NA	NA	

Warning! Check to determine if a simplified or site-specific Terrestrial Ecological Evaluation may be required (Refer to WAC 173-340-7490 through --7494).

Warning! Check Residual Saturation (WAC340-747(10)).

2. Results for Protection of Soil Direct Contact Pathway: Human Health

	Method B: Unrestricted Land Use	Method C: Industrial Land Use
Protective Soil Concentration, TPH mg/kg	14,159.28	169,913.58
Most Stringent Criterion	HI =1	HI =1

	Pro	tective Soil Concenti	ation @Method	В	Protective Soil Concentration @Meth			hod C
Soil Criteria	Most Stringent?	TPH Conc, mg/kg	RISK @	ні @	Most Stringent?	TPH Conc, mg/kg	RISK @	HI @
I-I I = 1	YES	1,42E+04	4.23E-10	1.00E+00	YES	1.70E+05	6.80E-10	1.00E+00
Total Risk≔IE-5	NO	3.35E+08	1.00E-05	2.36E+04	NO	2.50E+09	1.00E-05	1.47E+04
Risk of Benzene= 1E-6	NO	3.35E+07	1.00E-06	2.36E+03	NA			
Risk of cPAHs mixture= 1E-6	NA	NA	NA	NA				
EDB	NA	NA	NA	NA				
EDC	NA	NA	NA	NA				

3. Results for Protection of Ground Water Quality (Leaching Pathway)

3.1, Protection of Potable Ground Water Quality (Method B): Human Health Protection

2011 France of Colored Colored Visite Colored					
Most Stringent Criterion	NA NA				
Protective Ground Water Concentration, ug/L	NA				
Protective Soil Concentration, mg/kg	Soil-to-Ground Water is not a critical pathway!				

Ground Water Criteria	Protective	Protective Soil			
Ground Water Criteria	Most Stringent?	TPH Conc, ug/L	RISK @	HI@	Conc, mg/kg
HI=1	YES	6.23E-01	2.68E-07	7.42E-03	100% NAPL
Total Risk = 1E-5	YES	6.23E-01	2.68E-07	7,42E-03	100% NAPL
Total Risk = 1E-6	YES	6.23E-01	2.68E-07	7.42E-03	100% NAPL
Risk of cPAHs mixture= 1E-5	NA	NA	NA	NA	NA
Benzene MCL = 5 ug/L	YES	6.23E-01	2.68E-07	7.42E-03	100% NAPL
MTBE = 20 ug/L	NA	NA	NA	NA	NA

Note: 100% NAPL is 72000 mg/kg TPH.

Ground Water Criteria	Protectiv	Protective Soil		
Ground Water Criteria	TPH Conc, ug/L	Risk @	HI @	Conc, mg/kg
NA	NA	NA	NA NA	NA