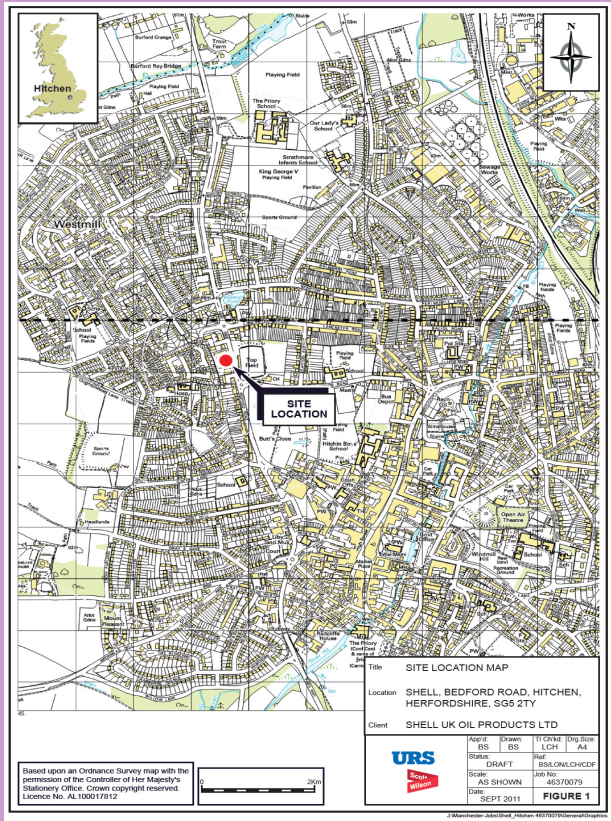


CONTROLLED WATERS RISK ASSESSMENT PROJECT RECORD

Site Location Plan



Historical Data

Schematic Section



**CONCEPTUAL SITE MODEL
PART 1 - SOURCE TERMS**

Conceptual Model Set-Up - PART 1, SOURCES

Navigation Page

SOURCE DIMENSIONS	SOIL			GW			COMMENTS
	1	2	3	1	2	3	
	HS1	HS2	HS3	SITE	HS1	HS2	
LENGTH (PARALLEL TO FLOW)	40	30	10	20			Metres
WIDTH (PERPENDICULAR TO FLOW)	40	25	10	10			Metres
SOURCE AREA	1600	750	100	200	0	0	m ²
BASIS FOR DIMENSIONS	a	a	a	a	a	a	See below
SOIL/LEACHATE DATA	Soil						
LEACHATE DATA TYPE	N/A						
LEACHATE DILUTION FACTOR	N/A						

NOTE: ADDITIONAL SOURCE DETAILS RELATING TO TPH COMPOSITION AND FREE PRODUCT ARE DESCRIBED ON THE PATHWAYS SHEET

STAGE 3 SOIL SOURCE VERTICAL DILUTION CALCULATION							
DILUTION THICKNESS	11.7	11.7	11.7	11.7	11.7	11.7	
DILUTION FACTOR	283.7	378.0	1132.0	566.5	1.0	1.0	

Note - always put largest source in Source column 1 - This is conservative for calculating mixing zone depths etc

HS* - Hot Spot Source

Saturated Vertical Pathway

YES

Dimensions

- (a) - Based on delineation using analytical data (e.g. distance to nearest clean data point)
- (b) - Based on known extent of site infrastructure (e.g. hotspot around tankfarm etc)
- (c) - Other, described below

DESCRIPTION OF SOURCE(S)

*Note: Information on Product and concentration data used in the assessment is covered on the pathways sheet.

Soil Sources: Multiple TPH fractions were detected in excess of the Stage 2 GAC from all sample locations across the site. A site wide source of 40m x 40m has been assumed for soil source 1. Metals and PAH compounds were found in excess of the Stage 2 GAC in BH101, BH103 and BH106. A 25m x 30m has been assumed for soil source 2. Benzene was detected in concentrations exceeding the GAC at BH105. A small 10m x 10m source zone has been assumed for Soil Source 3.

Groundwater Sources: Naphthalene, BTEX and multiple TPH bands were reported at concentrations exceeding the Stage 2 GAC from groundwater sampled from BH102. A source zone of 10m x 20m has been assumed for groundwater source 1.

Key to Data Worksheets

All cells on the user data worksheets ("name" Data) are colour coded as follows.

User Values		These worksheet cells can be edited directly and are specifically for adding comments.
User Values		These worksheet cells can be edited directly and are specifically for values
Calculated Values		These worksheet cells contain calculated values and are protected. User values should not be entered directly into these cells.
User Values		These worksheet cells have been edited from the default formula. Justification to be provided.



SCHEMATIC CONCEPTUAL SITE MODEL

SOURCE AREAS

Source Area	
Soil to Groundwater Attenuation:	NO
Soil or Leachate:	Soil
Free Product:	NO
Product Type:	-
Product Input:	-
Ground Type:	Hard-Standing

Source Dimensions				
	Width	Length	Area	Age
	m	m	m2	Yrs
	40	40	1600	
	25	30	750	
	10	10	100	
	10	20	200	
	0	0	0	
	0	0	0	

SOIL MAX

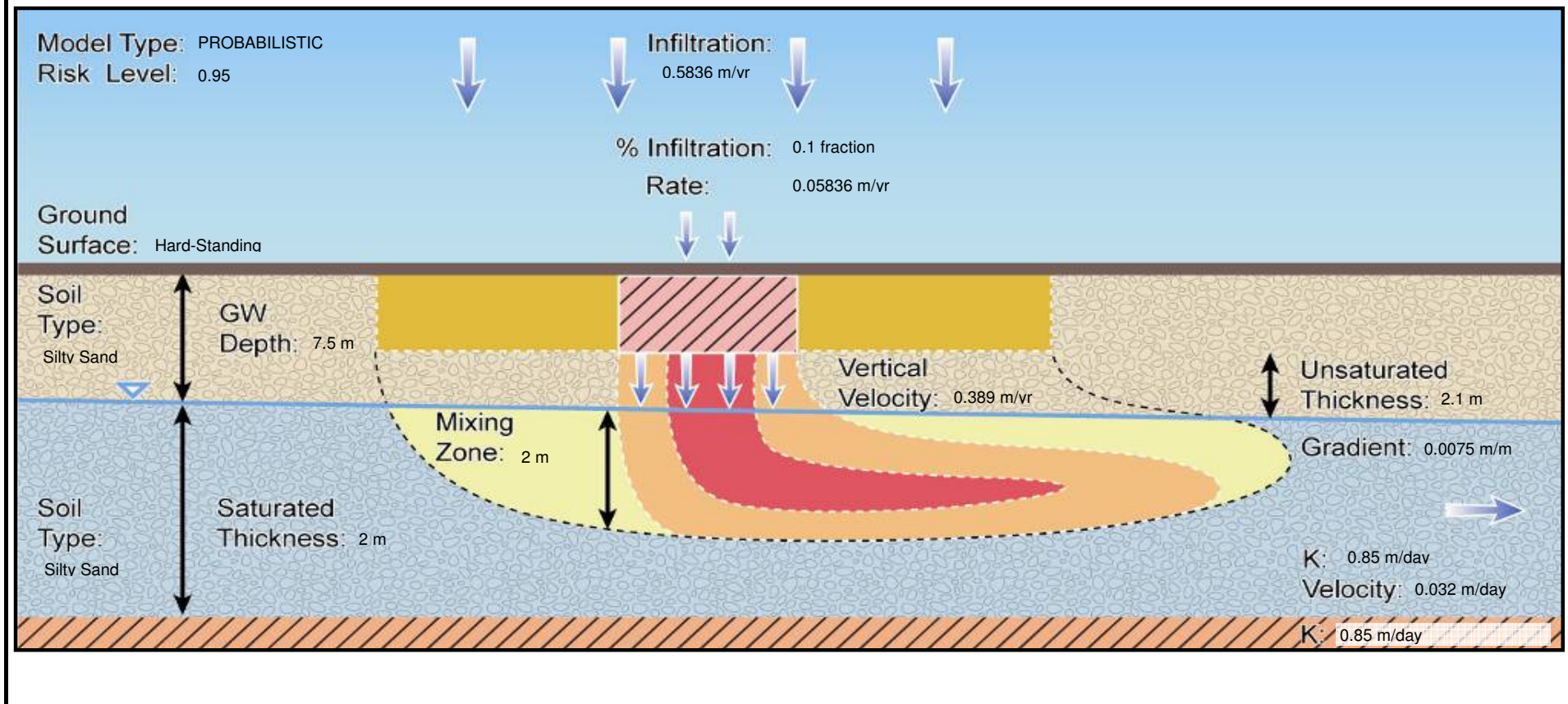
GROUNDWATER MAX

INSERT SITE PLAN AND OVERLAY SOURCE AREA POLYGONS

SCHEMATIC CONCEPTUAL SITE MODEL

PATHWAYS

Unsaturated Zone	Saturated Zone	Saturated Zone	Saturated Zone
Bulk Density: 1.62 g/cm ³	Dilution in GW: YES	Foc: 0.27 %	Phases: All Phases
Water Filled Porosity: 0.15 fraction	Attenuation Vertical: YES	GW Ph: 7.59 pH units	Longitudinal Dispersivity: 0.1 fraction
Air Filled Porosity: 0.24 fraction	Attenuation Horizontal: NO	GW Eh: 205 mV	Lateral Dispersivity: 0.01 fraction
Foc: 0.73 %	Bulk Density: 1.62 g/cm ³	Aquifer Condition: Aerobic	Vertical Dispersivity: 0.001 fraction
Ph n/a pH units	Effective Porosity: 0.2 fraction	Decay Type: Default Decav	Dispersion Type: Pickens & Grisak (Flow Path)
Decay Type: No Decav			



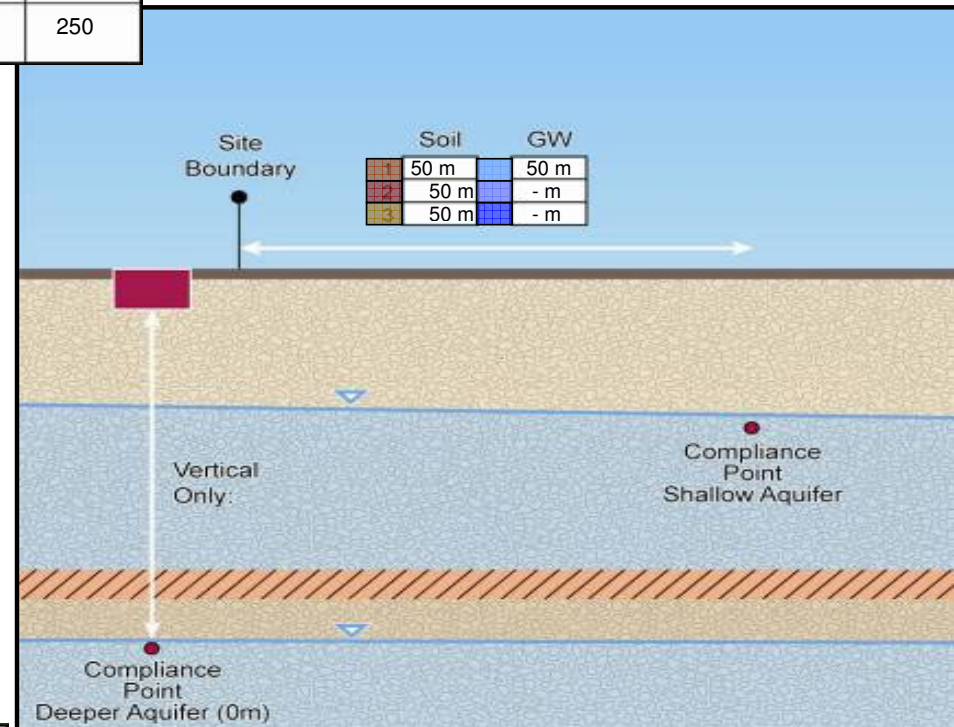
SCHEMATIC CONCEPTUAL SITE MODEL

RECEPTORS

Distance Summary (m)								
	1	2	3	4	5	6	7	8
Soil 1	5	10	25	37.5	50	75	100	250
2	5	10	25	37.5	50	75	100	250
3	5	10	25	37.5	50	75	100	250
GW 1	5	10	25	37.5	50	75	100	250
2	5	10	25	37.5	50	75	100	250
3	5	10	25	37.5	50	75	100	250

Distance to receptor from source area

Target Criteria	
Compliance Point Type:	Groundwater Secondary Aquifer
Target Criteria:	DWS



Time Period (Years)							
1	2	3	4	5	6	7	8
1	2	5	10	50	100	1000	10000

Steady State Time Period

**CONCEPTUAL SITE MODEL
PART 2 - PATHWAYS**

Conceptual Model Set-Up - PART 2, PATHWAYS

Navigation Page

PATHWAYS	ACTIVE	COMMENTS
MODEL TYPE	P	P - Probabilistic or D - Deterministic
RISK LEVEL	0.95	Risk Level for Probabilistic Output. Needs to be a decimal between 0 and 1. For Deterministic model set to 1.
FREE PRODUCT IDENTIFIED	NO	If free product has been identified the model can use Raoult's Law to assess input concentrations. Select Yes if product model required. Input concentrations are limited to BTEX/TPH.
PRODUCT TYPE (if present)	None	If the product has not been analysed for composition select the product type from the list to assess typical proportions of constituents
INPUT DATA FOR PRODUCT	None	Select either solubility limits or fraction specific data
SOIL SOLUBILITY LIMITATION	ON	Choose whether to limit soil leaching and mixing within groundwater (Stage 2 soil) to solubility limits. This reduction is not applied at Stage 1a/1b as it is assumed that free phase product can exist in pore spaces.
GROUNDWATER SOLUBILITY LIMITATION	ON	Choose whether to limit groundwater concentration inputs to the solubility limit (as referenced on the physchem database sheet and corrected for temperature).
LEACHATE SOLUBILITY LIMITATION	ON	Choose whether to limit reported leachate concentration inputs to the solubility limit (as referenced on the physchem database sheet and corrected for temperature). Note that due to dilution effects in the test procedure the Limit has been set at 10 x Solubility Limit.
ATTENUATION SOIL TO GROUNDWATER (UNSATURATED VERTICAL)	NO	Applies degradation of contaminants during leaching from soil to groundwater. Set to No if soil contamination reaches GW table or if free product identified. This should be set to No if the soil type has a grain size lower than a silty clay.
ATTENUATION ALONG VERTICAL (SATURATED)	YES	Only one of horizontal/vertical flow should be simulated. If horizontal flow set to YES then vertical should be set to NO.
ATTENUATION ALONG HORIZONTAL (SATURATED)	NO	Degradation of Contaminants along horizontal flow Path.
DILUTION WITHIN GROUNDWATER for List I & II Substances	YES	Dilution should not be applied to List I Substances if no groundwater contamination is present and the site is located in a GPZ (see note below).
EVIDENCE FOR SOURCE DEPLETION	N/A	<u>Justification required</u>
DECLINING SOURCE TERM	NO	Uses Bioscreen solutions (First Order and Instantaneous Reaction source depletion) and Consim based Leaching solution (interpreted as an equivalent first order decay rate)
PULSE SOURCE TERM	NO	Uses superposition to calculate results based on off-set steady state solutions (+ive and -ve contributions separated by pulse duration) to represent a pulse of contamination
DURATION OF PULSE SOURCE		Used to adjust the time element for the pulse solution. Time intervals may need to be changed on a contaminant by contaminant basis to review all of the graphical output
ASSESS ALL TPH SAMPLES	YES	Please review TPH data on the TPH Review sheets and select the most representative TPH composition for the site based on TPH properties and overall composition
CONCENTRATION DATA SOIL SOURCE 1	MAX	<u>Justification</u>
CONCENTRATION DATA SOIL SOURCE 2	MAX	<u>Justification</u>
CONCENTRATION DATA SOIL SOURCE 3	MAX	<u>Justification</u>
CONCENTRATION DATA GW SOURCE 1	MAX	<u>Justification</u>
CONCENTRATION DATA GW SOURCE 2	N/A	<u>Justification</u>
CONCENTRATION DATA GW SOURCE 3	N/A	<u>Justification</u>
DILUTION AT RECEPTOR	N/A	<u>Justification</u> - Only to be used with guidance / approval
DISPERSIVITY	Pickens & Grisak (Flow Path)	Pickens and Grisak, 1981 based on 10% of the flow path length (Default for short flow path). Other options should be considered to limit the effect of dispersion; - Neuman, 1990 based on $0.0175 \cdot L^{1.46}$ - Xu and Eckstein, 1995 based on $Mx \cdot [\text{Log } L] \cdot \text{Mexp}$

Note: Dilution in Aquifer

Allowing the dilution of List I contaminants, within a major or minor aquifer, could contravene the groundwater regulations, 1998. However, this is considered impractical in most cases and would only really be considered applicable if there was no groundwater contamination observed beneath the soil source (i.e. no groundwater contamination had yet occurred) and the site was located within designated groundwater protection zones. Therefore, when these conditions are not present the effect of dilution is included in the Stage 3 assessment. The pore water is mixed into the aquifer, based on a mass balance approach. This gives a dilution factor by which the leaching pore water is diluted.



**CONCEPTUAL SITE MODEL
PART 3 - RECEPTORS**

Conceptual Model Set-Up - PART 3, RECEPTORS

Navigation Page

SOURCE DIMENSIONS	SOIL			GW			Comments
	1	2	3	1	2	3	
	HS1	HS2	HS3	SITE	HS1	HS2	
SOURCE PRESENT	YES	YES	YES	YES	NO	NO	
DISTANCES FOR PLOTS - 1	5	5	5	5			Minimum distance should not be <5m or 10% distance to Compliance Point, whichever is larger.
DISTANCES FOR PLOTS - 2	10	10	10	10			Can be adjusted
DISTANCES FOR PLOTS - 3	25	25	25	25			Can be adjusted
DISTANCES FOR PLOTS - 4	37.5	37.5	37.5	37.5			Can be adjusted
COMPLIANCE POINT	50	50	50	50			Main assessment point
DISTANCES FOR PLOTS - 6	75	75	75	75			Can be adjusted
DISTANCES FOR PLOTS - 7	100	100	100	100			Can be adjusted
DISTANCES FOR PLOTS - 8	250	250	250	250			Can be adjusted
COMPLIANCE POINT TYPE	Groundwater Secondary Aquifer (A/B Undifferentiated)						Select from List
TARGET CRITERIA	DWS						Rationale
RECEIVING WATER HARDNESS*							mg/l as CaCO3.
RECEIVING WATER FISH TYPE							Criteria for EQS Metals
WATER TYPE							Select from List
DATA SOURCE FOR RECEIVING WATER HARDNESS AND TYPE							Add Comment

STAGE 3 SOIL HORIZONTAL AND GROUNDWATER DISPERSION FACTORS

LONGITUDINAL DISPERSION FACTOR	0.1	0.1	0.1	0.1			
LATERAL DISPERSION FACTOR	0.01	0.01	0.01	0.01			
VERTICAL DISPERSION FACTOR	0.001	0.001	0.001	0.001			
LONGITUDINAL DISPERSION	5	5	5	5			
LATERAL DISPERSION	0.5	0.5	0.5	0.5			
VERTICAL DISPERSION	0.05	0.05	0.05	0.05			
TRANSVERSE DISPERSION REDUCTION FACTOR 1	1.0000	1.0000	1.0000	1.0000			
TRANSVERSE DISPERSION REDUCTION FACTOR 2	1.0000	1.0000	0.9996	0.9996			
TRANSVERSE DISPERSION REDUCTION FACTOR 3	1.0000	0.9996	0.8427	0.8427			
TRANSVERSE DISPERSION REDUCTION FACTOR 4	0.9998	0.9816	0.6542	0.6542			
TRANSVERSE DISPERSION REDUCTION FACTOR 5	0.9953	0.9229	0.5205	0.5205			
TRANSVERSE DISPERSION REDUCTION FACTOR 6	0.9407	0.7614	0.3626	0.3626			
TRANSVERSE DISPERSION REDUCTION FACTOR 7	0.8427	0.6232	0.2763	0.2763			
TRANSVERSE DISPERSION REDUCTION FACTOR 8	0.4284	0.2763	0.1125	0.1125			

HS* - Hot Spot Source

* Default hardness should be set to 0 unless site/receptor data is available

Dimensions

- (a) - Based on delineation using analytical data (e.g. distance to nearest clean data point)
- (b) - Based on known extent of site infrastructure (e.g. hotspot around tankfarm etc)
- (c) - Other, described below

DESCRIPTION OF RECEPTORS

The principal controlled waters receptor for the site is the underlying Zig Zag Chalk Principle Aquifer and Superficial Deposits that border the site boundary. Other potential receptors include surface water features in the vicinity of the site which consist Bearton Pond approximately 200m north of the site. The closest surface water feature is the Bearton Pond Located approximately 200 m north of the site. The River Oughton is located 1km north of the site, the River Purwell is located approximately 1.2km north-east of the site and the River Hiz is located approximately 1.8km north/north-east of the site. The local groundwater flow is currently unknown at the site. Considering the presence of permeable geology (mainly silty sand) in the surrounding areas and beneath the site, it is considered that a plausible receptor for COPC may be present.

The Principle Aquifer beneath the site has been selected as the primary Compliance Point for this assessment. An arbitrary Compliance Point of 50m is also selected based on the draft guidance issued by the Environment Agency, 'Selecting Compliance Points for use in Land Contamination Risk Assessments', which states that 'the distance to a set of receptors should be the distance to the nearest receptor'. The surface water features are considered secondary potential receptors and have not been modelled separately. The lik

Use Alt+Enter to get a new line

Key to Data Worksheets

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**CONCEPTUAL SITE MODEL
PART 4 - DILUTION**

Conceptual Model Set-Up - PART 4, DILUTION

Navigation Page

DILUTION: N/A

NOTES FOR DILUTION FACTORS

Dilution should only be considered when the following have been met;

The impact of groundwater contamination on the aquifer between source and receptor has been assessed

The impact does not prevent current or future use of the aquifer

The predicted impact at the receptor does not result in any measurable deterioration in water quality

The predicted impact at the receptor does not result in any exceedence of environmental standards

Needs to be supported by cost-benefit assessment

Dilution may not be suitable when;

No impact has been identified between the source and receptor

the aquifer has a high resource value

the current level of groundwater or surface water contamination is unacceptable

For dilution in streams the calculations should use low flow conditions (Q95 flow) and in addition;

needs to consider the total contaminant loading to the stream

whether impact would be detectable

upstream surface water quality

Consideration of potential impacts from other sources with subsequent reduction in target concentration

Currently assumes no attenuation of contaminants in river sediments

Dilution is site specific and needs to be treated with caution

Dilution at an abstraction well MUST NOT be used to back calculate remedial targets as the degree of risk

may increase in the future if abstraction rates change. It is therefore only a qualitative indication of

whether the current observed conditions present a significant risk

General Notes on Dilution



MODEL MODE:	PROBABILISTIC	0.95
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GEOLOGY SUMMARY	The site consists of made ground underlain by Lowestoft Formation. This formation forms an extensive sheet of chalky till, together with outwash sands and gravels, silts and clays. The till is characterised by its chalk and flint content. The carbonate content of the till matrix is about 30%, and tills within the underlying Happisburgh Formation have less than 20%. The Bedrock Geology of the site is reported to be the Zig Zag Chalk Formation. This consists of mostly firm, pale grey to off-white blocky chalk with a lower part characterised by rhythmic alternations of marls and marly chalks with firm white chalk. Thin gritty, silty chalk beds act as markers in the sequence. The thickness is typically 35–50 m bgl.
HYDROGEOLOGY SUMMARY	The Environment Agency website classifies the superficial Lowestoft formation as Unproductive Strata. These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow. The Environment Agency Website classifies the Zig Zag Chalk Formation as a Principal Aquifer. These are layers of rock or drift deposits that have high inter-granular and/or fracture permeability - meaning they usually provide a high level of water storage. They may support water supply and/or river base flow on a strategic scale. In most cases, principal aquifers are aquifers previously designated as major aquifer.
SURROUNDING LAND-USE AND SITE DESCRIPTION/HISTORY	North: STS Tyre Pros (Tyre Dealers) is situated approximately 5m north of the site beyond an access road. A three story apartment block with surrounding garden lies approximately 30m north of the site. South: The Fir Hotel lies approximately 5m south of the site beyond a small car parking area. Residential properties are situated approximately 30m south of the site. East: The site is bounded to the east by the A550 Bedford Road. Hitchin Town FC football ground is approximately 20m east of the site. West: The site is bounded to the west by a Garage and car park. Residential properties with gardens lie approximately 20m west of the site.
DISTRIBUTIONS/JUSTIFICATION	Describe rationale for distribution choice if it differs from the defaults recommended in TGN04.     
ATTENUATION AND COMPLIANCE POINT JUSTIFICATION AND PRODUCT SUMMARY	

Model Parameter	Minimum Value 5%	Expected Value 50%	Maximum Value 95%	Truncate Min	Truncate Max	Distribution Type	Stochastic Input	Units	Source/Comments
UNSATURATED ZONE PARAMETERS									
Soil Type at Source	Silty Sand							4	Select from list. Use Soil Type Database sheet to define site specific parameters if required.
Soil Type Description									Brief summary of soil type
Unsaturated Zone Dry Bulk Density	1.54	1.6200	1.70	1.539	1.701	Triangular	1.62	g/cm ³	Default based on selected soil type. User specified values can be input and justified in the Soil Type Database. A summary of any adjustment should be entered here.
Water Filled Porosity	0.14	0.1500	0.16	0.143	0.158	Triangular	0.15	fraction	This input is correlated with the air filled porosity at a level of -0.8 (i.e. inverse correlation) and @Risk will tend towards selecting high values of air filled when low values of water filled are selected and vice-versa.
Air Filled Porosity	0.23	0.2400	0.25	0.228	0.252	Triangular	0.24	fraction	Default based on selected soil type. User specified values can be input and justified in the Soil Type Database. A summary of any adjustment should be entered here.
Vertical Velocity (Stage 1b)	0.37	0.3891	0.41	0.370	0.409	Triangular	0.39	m/yr	Calculated
Organic Carbon - Unsaturated Zone	0.37	0.73	1.10	0.365	1.095	Triangular	0.73	%	Geomean of 13 samples from BH101, BH102, BH103, BH105, BH106 & VP101 - 103.
Unsaturated Zone Thickness below Source	1.05	2.10	4.20	1.05	4.20	Triangular	2.45	m	Only relevant if significant thickness of clean soils identified in vadose zone
Unsaturated Zone Hydraulic Conductivity	0.68	0.90	1.13	0.675	1.125	Triangular	0.90	m/day	Used for reference purposes only, not included in calculations
Soil pH	-	n/a	-					pH units	Used for reference purposes only
Depth to Groundwater	3.75	7.50	15.00	3.75	15.00	Triangular	8.75	m	Used for reference purposes only
Soil Source Thickness	2.70	5.40	10.80	2.70	10.80	Triangular	6.30		Depth of deepest soil exceedance at BH101 5.4m
Land Use Type for Infiltration	Hard-Standing								Select from available options to determine %infiltration.
%Age of Rainfall Infiltrating	0.08	0.10	0.13	0.08	0.13	Triangular	0.10	fraction	%Age Rainfall values are selected by default based on surface covering. Only over-type if justification can be provided.
Annual Rainfall (Long-term Average)	0.44	0.584	0.73	0.44	0.73	Triangular	0.58	m/yr	Greenwich gauging station 1971-2000 - Met Office
Infiltration Rate	0.033	0.058	0.091	0.03	0.09		0.06	m/yr	Calculated from Rainfall and recharge rate
Aquifer Conditions (see Degradation Worksheets)	Aerobic							2	For site specific degradation rates follow the guidance provided. For default rates an assessment of the likely aquifer type is required using the provided worksheet and the end choice entered here.
Decay Type - Unsaturated Zone	No Decay							0	0 - No Decay, 1 - Decay. See Database_CO2 sheet for degradation Rates

MODEL INPUT PARAMETER SUMMARY

MODEL MODE:	PROBABILISTIC	0.95
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Model Parameter	Minimum Value	Expected Value	Maximum Value	Truncate Min	Truncate Max	Distribution Type	Stochastic Input	Units	Source/Comments
SATURATED ZONE PARAMETERS									
Soil Type in Saturated Zone	5%	50%	95%						
Soil Type Description	Silty Sand							4	Select from list. Use Soil Type Database sheet to define site specific parameters if required.
Organic Carbon - Saturated Zone	0.135	0.27	0.405	0.14	0.41	Triangular	0.27	%	Organic carbon should be adjusted for TPH content (10,000mg/kg = 1%) i.e. Actual TOC = measured TOC - contribution from organic contamination. Environment Agency Guidance, NC/99/38/3 recommends the use of a triangular distribution. The default values can be overwritten on the basis of the analysis of the filed results.
Saturated Zone Dry Bulk Density	1.54	1.6200	1.7	1.54	1.70	Triangular	1.62	g/cm³	Default based on selected soil type. User specified values can be input and justified in the Soil Type Database. A summary of any adjustment should be entered here.
Hydraulic Conductivity	0.17	0.9	4.3	0.17	4.25	Triangular	1.76	m/day	Calculated from the mean of slug test data from BH101, BH102 and BH103
Hydraulic Gradient	0.0038	0.008	0.0113	0.0038	0.0113	Triangular	0.0075	m/m	The gradient directly underlying the site could not be calculated. A gradient of 0.0075 has been calculated for the area surrounding the site leading to the River.
Effective Porosity	0.15	0.20	0.25	0.150	0.250	Triangular	0.20	fraction	Calculated based on porosity values from Fetter 1986
Aquifer Saturated Thickness	1.50	2.00	2.50	1.500	2.500	Triangular	2.00	m	See note below. Site specific data should be used wherever possible. Thin saturated zone above chalk.
Groundwater pH	-	7.59	-					pH units	Used for reference purposes only
Groundwater Eh	-	205.00	-					mV	Used for reference purposes only
Mixing Zone Thickness		2.00						m	Based on source term for TPH. This value may be overwritten with site specific data but must not exceed the saturated thickness. This value is generated for general information only
Groundwater Source Thickness		2.00						m	Groundwater source limited to thickness of 20m. Source thickness can be input directly if required to minimise vertical dispersion from a groundwater source in the aquifer.
Groundwater Horizontal Velocity	0.004	0.032	0.191	0.004	0.191	Triangular	0.08	m/day	Calculated values for general information
Dilution Factor in Aquifer		5.12						-	Used for sense check for assessing dilution of porewater concentrations within the aquifer underlying the site. Probabilistic output which can be reviewed once simulation has been run
Decay Type - Saturated Zone	Default Decay							1	
Aquifer Conditions (see Degradation Worksheets)	Aerobic							2	See anaerobic scoring sheet
Decay Phase - Saturated Zone	All Phases								Default degradation assumes all phases. For user specified this may be adjusted so degradation only occurs in the dissolved phase. Note this applies to all contaminants so using a mixture of rates will require user specified values to be adjusted back in line with the retardation factor. This is not automated.

VERTICAL PATHWAY IS ON

Model Parameter	Minimum Value	Expected Value	Maximum Value	Truncate Min	Truncate Max	Distribution Type	Stochastic Input	Units	Source/Comments
UNDERLYING AQUIFER - STAGE 3 VERTICAL DEGRADATION CALCULATIONS									
Underlying Geology	Lower Chalk beneath unknown thickness of glacio fluvial deposits								
Vertical Conductivity in Upper Aquifer	0.17	0.85	4.25	0.170	4.250	Triangular	1.76	m/day	Default calculated as 1/10th horizontal conductivity
Vertical Gradient across aquifers	0.67	1.00	1.50	0.667	1.500	Triangular	1.06	m/m	Assumed minimal
Groundwater Vertical Velocity (Stage 3 vert)	0.164	0.292	0.456	0.164	0.456	Triangular	0.30	m/year	Minimum velocity based on recharge or vertical permeability being 1/10th horizontal permeability of upper aquifer
Vertical Distance Through Saturated Aquifer	0.001	0.001	0.001	0.001	0.001	Triangular	0.00	m	Assumed minimal

Model Parameter	Minimum Value	Expected Value	Maximum Value	Truncate Min	Truncate Max	Distribution Type	Stochastic Input	Units	Source/Comments
UNDERLYING AQUIFER - STAGE 3 VERTICAL DILUTION CALCULATIONS									
Lower Aquifer Horizontal Hydraulic Conductivity	3.0	15.0	75.0	3.000	75.000	Triangular	31.00	m/day	Estimated based on known properties of the Lower Chalk
Lower Aquifer Horizontal Hydraulic Gradient	0.00250	0.0050	0.00750	0.003	0.008	Triangular	0.0050	m/m	Estimated from Hydrogeological map (Cambridge to Maidenhead)
Lower Aquifer Effective Thickness	5.0	10.0	20.0	5.000	20.000	Triangular	11.67	m	Estimated as 10m

MODEL MODE:	PROBABILISTIC	0.95
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SIMULATION PARAMETERS					
Please refer to GW Horizontal Time worksheet for code for calculating breakthrough times for contaminants and if necessary to reset the Time slices below to default Note: If user specified time intervals are entered the breakthrough time element will not function.					
Time Periods	TIME SINCE RELEASE	TIME SINCE REMOVAL	PULSE CHECK	Benzene	LINK _{cs}
Pulse Duration					
Period 1	1				
Period 2	2				
Period 3	5				
Period 4	10				
Period 5	50				
Period 6	100				
Period 7	1000				
Period 8	10000				
We have adopted the pragmatic approach that there is no feasible pathway for contaminants that theoretically take more than 10,000 years to migrate from source to point of compliance. For non-steady state assessments the risk assessor is required to select appropriate timescales for the contaminants of concern. For pulse source and declining source solutions these will need to be based on contaminant retarded velocity and compliance point distance. The timescales can be re-set for each contaminant and output graphs generated to present the data accordingly. The risk assessor should acknowledge that the summary tables may only be appropriate in detail for a number of contaminants at a time (since the peak concentration under these conditions will occur at different times and for different durations. This model is not programmed to adjust timescales for individual contaminants, however, a Time Interval Worksheet is provided as a guide to selecting appropriate time intervals based on the contaminant and solution being considered. Example: Assume spill in 2006 for benzene. The contaminated soils were removed in 2008. Providing a soil source duration for a pulse of contamination of 2 years. The 2 year pulse is described on the Pathways sheet. The key contaminant of concern is benzene. Based on the site parameters and phys-chem parameters for benzene it is calculated that normal breakthrough at the receptor would take 2 years (Time interval 4 on Time Intervals sheet). To create a breakthrough curve that covers the time before and after source removal the time intervals sheet suggests ranging the time intervals between 0.2 and 6 years. These time intervals are then copied over to column C as the model times and the results to the simulations reviewed.					

WATER BALANCE CHECK			Units
Site Length	40	m	The local high point has been set at 1km southwest of the site on the boundary of the bolder clay at Foxholes. The area is hardstanding so infiltration has been set at 0.1. Thickness of aquifer assumed to be greater (approx 10m) so adjustment factor of 0.2.
Site Width	40	m	
Site Area	1600	m ²	
Groundwater Flow	1.05	m ³ /day	
Length of Catchment	1000	m	
Area of Groundwater Catchment	40000	m ²	
Infiltration Rate	0.10	fraction	
Rainfall	0.584	m/year	
Adjustment Factor for flow not in main aquifer unit	0.20	-	
Total recharge	1.28	m ³ /day	
Recharge Factor	1.214	ratio	

Fraction of organic carbon

Site data is preferentially used.

If a literature value is required, the following sources will be considered:

P20, ConSim 2.02 manual, Barnes (2002).

Water/Air Filled Porosity Values

PSD and borehole log data used to classify soils to a USDA soil classification category

CLEA database values then selected by default.

These values may be over-written with user defined values if other reference is available

Infiltration

Total annual rainfall measured at the closest Met Office weather station, as listed on the Met Office Website (1971-2000 annual averages) will be used to estimate infiltration. 10 % or 25 % of the annual rainfall will be used in the QRA depending on the predicted end use. The 10% value can be associated with a run-off coefficient between 0.8 and 0.9, which is a range derived to represent a hard-standing area that is 70% or greater than the total site area. Therefore, this will be assigned to commercial and high-density residential end-uses. Low-density residential end-uses will be assigned a 25% infiltration rate.

Alternative rates will require further justification. Site specific recharge rates may be calculated using MORECS data (only appropriate where there is no hard standing).

Hydraulic Conductivity

Where the saturated pathway is a documented principal or secondary aquifer, the conductivity values listed in the major aquifer properties database (Allen et al, 1997) or the minor aquifer properties database (Jones et al, 2000) will be adopted where site specific data is unavailable. Where a classification of the saturated pathway is not available within these documents, a hydraulic conductivity value for the identified soil type or aquifer will be adopted from Fetter (1986).

Preference will be given to site derived data (eg slug tests) for shallow aquifers. Variability in permeability must be assessed for bedrock aquifers including preferential flow paths.

Hydraulic Gradient

The decision process for adopting the hydraulic gradient values on site are as follows: Plotting of URS obtained groundwater elevation monitoring data conducted at each site; Examining the relevant hydrogeological maps for each site where available to determine deeper aquifer gradients, and Examination of surface topography to determine the likely flow directions within the hydrological catchment of the site and, therefore, estimate the groundwater flow directions.

Effective Porosity

Where the main saturated pathway is a major or minor aquifer, the major aquifer properties database (Allen et al, 1997) or the minor aquifer properties database (Jones et al, 2000) will be used to derive the effective porosity.

Where no data is available, the effective porosity will be assumed to be equal to the specific yield and representative values will be adopted from those listed in Kruseman and de Ridder (1994, p 25, Table 3.1).

Aquifer Thickness

The aquifer thickness will be selected using the following data sources: Borehole log data, where the log data proves the aquifer thickness, the effective aquifer thickness' described in the major aquifer properties database (Allen et al, 1997) or the minor aquifer properties database (Jones et al, 2000).

Where none of the above data are available the greatest saturated depth of water column present in the onsite boreholes will be used as the aquifer thickness,

Where none of the above data are available a default aquifer thickness of 5 m will be adopted.

Additional Notes for Site

Include any additional details regarding source/pathway/receptor assumptions and any additional observations about the data/CSM and whether specific conservative assumptions have been made in relation to the assessment.

INPUT CONCENTRATIONS



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TPH:

Adjusted TPH Data Incorporated, Refer to TPH Review Sheets for detail

Order	Group	Determinand	Select	DWS / Freshwater	PhysChem	Reported Soil Conc	Model Soil Conc	Calculated Leachate Conc	Reported Leachate Conc	Model Leachate Conc	Product Conc	Reported GW Conc	Model GW Conc	SW Conc	Comments	List 1 or 2 substance	Solubility Limit	Soil Saturation Limit	Soil Source Zone (1, 2 or 3)	GW Source Zone (1, 2 or 3)
1.01	TPH 1	TPH (>EC5-7) aromatic (1)	Y	µg/l	Present	-	-	-	-	-	-	1.21E+03	1.21E+03	-		1	µg/l	mg/kg	1	1
1.02	TPH 1	TPH (>EC7-8) aromatic (1)	Y	7.00E+02	Present	-	-	-	-	-	-	3.92E+02	3.92E+02	-		1	1.30E+05	208.01	1	1
1.03	TPH 1	TPH (>EC8-10) aromatic (1)	Y	3.00E+02	Present	0.31	0.31	2.66E+01	-	-	-	1.33E+04	1.33E+04	-		1	6.50E+04	760.49	1	1
1.04	TPH 1	TPH (>EC10-12) aromatic (1)	Y	9.00E+01	Present	0.37	0.37	1.98E+01	-	-	-	1.01E+03	1.01E+03	-		1	2.50E+04	461.00	1	1
1.05	TPH 1	TPH (>EC12-16) aromatic (1)	Y	9.00E+01	Present	52.40	52.40	1.43E+03	-	-	-	1.43E+02	1.43E+02	-		1	5.80E+03	212.75	1	1
1.06	TPH 1	TPH (>EC16-21) aromatic (1)	Y	9.00E+01	Present	271.00	67.09	6.50E+02	-	-	-	-	-	-		1	6.50E+02	67.09	1	1
1.07	TPH 1	TPH (>EC21-35) aromatic (1)	Y	9.00E+01	Present	641.00	6.07	6.60E+00	-	-	-	-	-	-		1	6.60E+00	6.07	1	1
1.08	TPH 1	TPH (>EC5-6) aliphatic (1)	Y	1.50E+04	Present	0.02	0.02	2.22E+00	-	-	-	3.08E+02	3.08E+02	-		1	3.60E+04	328.95	1	1
1.09	TPH 1	TPH (>EC6-8) aliphatic (1)	Y	1.50E+04	Present	0.15	0.15	4.64E+00	-	-	-	6.97E+02	6.97E+02	-		1	5.40E+03	172.21	1	1
1.1	TPH 1	TPH (>EC8-10) aliphatic (1)	Y	3.00E+02	Present	0.38	0.38	1.67E+00	-	-	-	3.22E+03	4.30E+02	-		1	4.30E+02	97.48	1	1
1.11	TPH 1	TPH (>EC10-12) aliphatic (1)	Y	3.00E+02	Present	0.55	0.55	3.11E-01	-	-	-	1.51E+03	3.40E+01	-		1	3.40E+01	59.87	1	1
1.12	TPH 1	TPH (>EC12-16) aliphatic (1)	Y	3.00E+02	Present	77.70	29.81	7.60E-01	-	-	-	-	-	-		1	7.60E-01	29.81	1	1
1.13	TPH 1	TPH (>EC16-21) aliphatic (1)	Y	1.00E+01	Present	223.00	11.52	2.50E-03	-	-	-	-	-	-		1	2.50E-03	11.52	1	1
1.14	TPH 1	TPH (>EC21-35) aliphatic (1)	Y	1.00E+01	Present	411.00	411.00	7.42E-03	-	-	-	-	-	-		1	8.91E-02	4937.03	1	1
1.2	TPH 1	TOTAL TPH (1)	Y	No Criterion	Present	1.68E+03	5.80E+02	2.14E+03	-	-	-	2.18E+04	1.75E+04	-		1	-	-	1	1
2	BTEX	Benzene	Y	1.00E+00	Present	0.00	0.00	3.68E+00	-	-	-	1.46E+03	1.46E+03	-		1	1.78E+06	1073.80	3	1
2.01	BTEX	Toluene	Y	7.00E+02	Present	0.01	0.01	7.07E+00	-	-	-	4.65E+02	4.65E+02	-		1	5.90E+05	943.31	1	1
2.02	BTEX	Ethylbenzene	Y	3.00E+02	Present	0.01	0.01	2.35E+00	-	-	-	2.35E+03	2.35E+03	-		1	1.69E+05	570.59	1	1
2.03	BTEX	Xylenes	Y	5.00E+02	Present	0.02	0.02	4.77E+00	-	-	-	6.48E+03	6.48E+03	-		1	2.00E+05	683.84	1	1
3	PAH	Acenaphthene	Y	2.20E+03	Present	20.90	20.90	1.21E+03	-	-	-	-	-	-		1	3.80E+03	65.38	2	1
3	PAH	Acenaphthylene	Y	1.00E+01	Present	1.76	1.76	1.32E+02	-	-	-	-	-	-		1	1.61E+04	215.36	2	1
3	PAH	Anthracene	Y	1.10E+04	Present	17.80	1.85	4.50E+01	-	-	-	-	-	-		1	4.50E+01	1.85	2	1
3	PAH	Benzo(a)anthracene	Y	2.90E-02	Present	23.40	2.15	3.80E+00	-	-	-	-	-	-		1	3.80E+00	2.15	2	1
3	PAH	Benzo(a)pyrene	Y	1.00E-02	Present	23.90	3.58	3.80E+00	-	-	-	-	-	-		1	3.80E+00	3.58	2	1
3	PAH	Benzo(b)fluoranthene	Y	2.50E-02	Present	26.70	1.53	2.00E+00	-	-	-	-	-	-		1	2.00E+00	1.53	2	1
3	PAH	Benzo(g,h,i)perylene	Y	2.50E-02	Present	13.70	0.79	2.60E-01	-	-	-	-	-	-		1	2.60E-01	0.79	2	1
3	PAH	Benzo(k)fluoranthene	Y	2.50E-02	Present	9.62	0.86	8.00E-01	-	-	-	-	-	-		1	8.00E-01	0.86	2	1
3	PAH	Chrysene	Y	2.90E+00	Present	17.30	0.80	2.00E+00	-	-	-	-	-	-		1	2.00E+00	0.80	2	1
3	PAH	Dibenzo(a,h)anthracene	Y	2.90E-03	Present	3.44	0.82	6.00E-01	-	-	-	-	-	-		1	6.00E-01	0.82	2	1
3	PAH	Fluoranthene	Y	2.00E-01	Present	55.60	30.58	2.30E+02	-	-	-	-	-	-		1	2.30E+02	30.58	2	1
3	PAH	Fluorene	Y	1.50E+03	Present	17.70	17.70	8.56E+02	-	-	-	2.05E-01	2.05E-01	-		1	1.90E+03	39.27	2	1
3	PAH	Indeno[1,2,3-cd]pyrene	Y	2.50E-02	Present	11.70	0.13	2.00E-01	-	-	-	-	-	-		1	2.00E-01	0.13	2	1
3	PAH	Naphthalene	Y	1.00E+00	Present	4.20	4.20	8.74E+02	-	-	-	1.75E+02	1.75E+02	-		1	1.90E+04	91.33	2	1
3	PAH	Phenanthrene	Y	1.00E+01	Present	62.70	44.23	1.10E+03	-	-	-	-	-	-		1	1.10E+03	44.23	2	1
3	PAH	Pyrene	Y	1.10E+03	Present	46.50	15.39	1.30E+02	-	-	-	-	-	-		1	1.30E+02	15.39	2	1
4	METALS	Arsenic	Y	1.00E+01		21.90	21.90	4.38E+01	-	-	-	-	-	-		2	1.70E+07	8501574.07	2	1
4	METALS	Boron	Y	1.00E+03		13.60	13.60	1.35E+03	-	-	-	-	-	-		2	5.50E+08	5550925.93	2	1
4	METALS	Cadmium	Y	5.00E+00		8.75E-01	0.88	8.74E+00	-	-	-	-	-	-		1	5.70E+08	57052777.78	2	1
4	METALS	Chromium III	Y	5.00E+01		31.10	31.10	6.48E+00	-	-	-	-	-	-		2	6.29E+08	3019258240.74	2	1
4	METALS	Cobalt	Y	1.10E+01		1.05E+01	10.50	2.33E+02	-	-	-	-	-	-		2	1.40E+07	631296.30	2	1
4	METALS	Copper	Y	2.00E+03		106.00	106.00	1.06E+03	-	-	-	-	-	-		2	8.00E+04	8007.41	2	1
4	METALS	Lead	Y	2.50E+01		128.00	128.00	3.56E+00	-	-	-	-	-	-		2	5.00E+01	1800.00	2	1
4	METALS	Molybdenum	Y	2.00E+01		0.29	0.29	1.46E+01	-	-	-	-	-	-		2	4.90E+05	9845.37	2	1
4	METALS	Nickel	Y	2.00E+01		37.50	37.50	7.50E+01	-	-	-	-	-	-		2	1.90E+05	95017.59	2	1
4	METALS	Tin	Y	2.20E+04		12.20	3.18	1.27E+01	-	-	-	-	-	-		2	1.27E+01	3.18	2	1
4	METALS	Zinc	Y	5.00E+03		230.00	230.00	6.04E+03	-	-	-	-	-	-		1	1.62E+07	617100.00	2	1

INPUT CONCENTRATIONS



[Navigation Page](#)

TPH: Adjusted TPH Data Incorporated, Refer to TPH Review Sheets for detail

Order	Group	Determinand	Select	DWS / Freshwater	PhysChem	Reported Soil Conc	Model Soil Conc	Calculated Leachate Conc	Reported Leachate Conc	Model Leachate Conc	Product Conc	Reported GW Conc	Model GW Conc	SW Conc	Comments	List 1 or 2 substance	Solubility Limit	Soil Saturation Limit	Soil Source Zone (1, 2 or 3)	GW Source Zone (1, 2 or 3)
			Y	µg/l		mg/kg	mg/kg	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l			µg/l	mg/kg		

Values in red exceed theoretical solubility or soil saturation limits

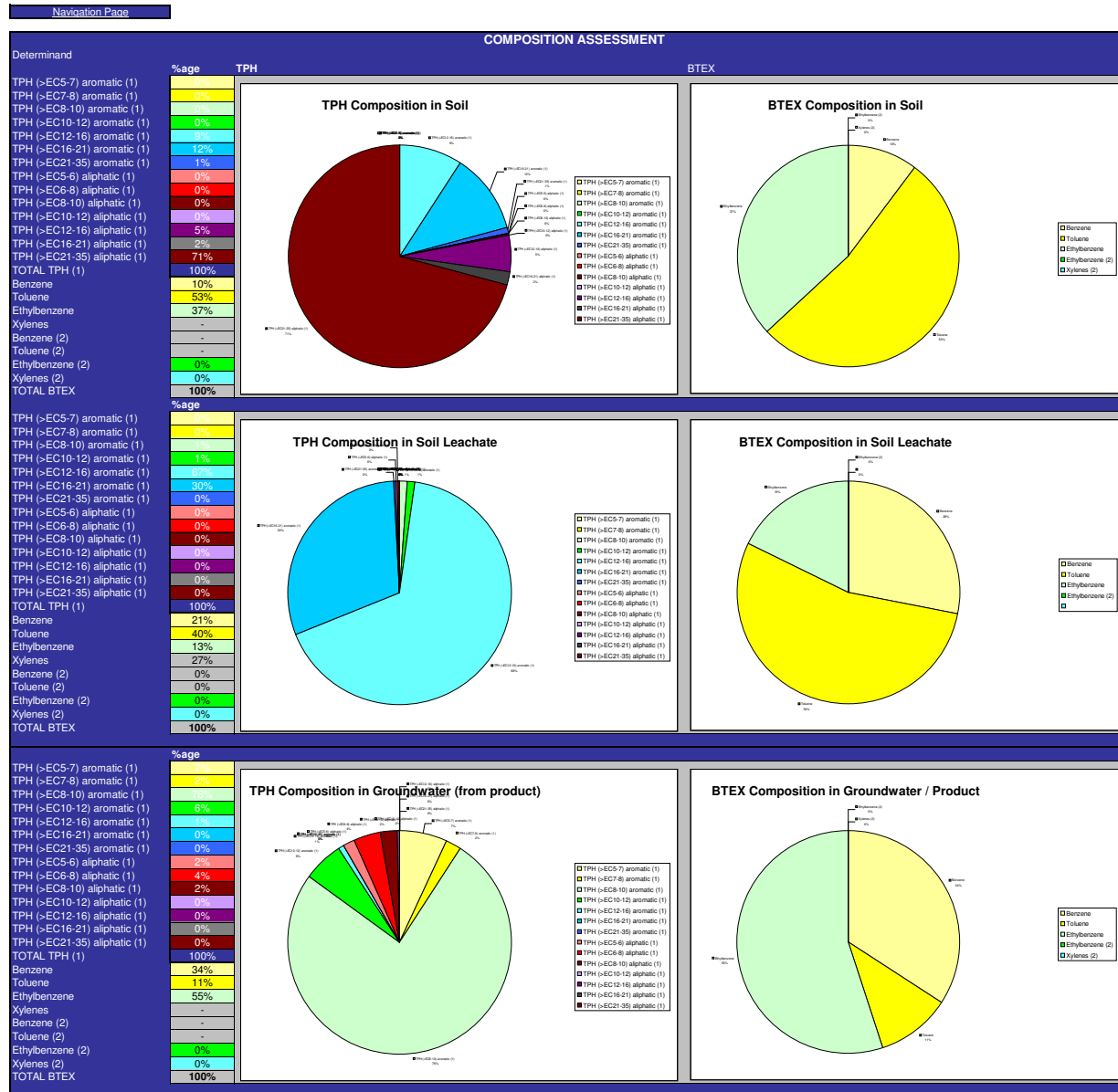
Soil leachate correction can be applied through the CSM Pathways setup and is corrected through the Stage 2 calculations to limit mixing in the aquifer to solubility limit. Exceedences of the theoretical soil saturation limit are highlighted in red above, however no correction is suggested at this stage as the concentration may represent free phase within the pore space and a correction may not be appropriate at this stage.

Groundwater concentrations can be corrected at this stage to limit them to solubility limits. This can be done manually or by selecting the groundwater solubility limit option on the CSM pathways sheet.

SOURCE NUMBER:	1	2	3
SOIL SOURCES AVAILABLE	YES	YES	YES
GW SOURCES AVAILABLE	YES	NO	NO

Values highlighted in blue should be cross-checked for appropriate screening criteria depending on country. Scottish sites should make reference to: Scotland River Basin District (Surface Water Typology, Environmental Standards, Condition Limits and Groundwater Threshold Values) Directions 2009 where the receptor is surface water

TPH AND BTEX COMPOSITION ANALYSIS





URS site-specific controlled waters risk assessment tool

designed on the principles and methodologies contained within EA Remedial Targets Methodology, 2006



PROBABILISTIC SOIL RESULTS

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Version: CWRA, version 7.292min

Date: 13/07/2011

SOIL RESULTS OUTPUT SUMMARY -
PROBABILISTIC OUTPUT BY TIME

Navigation Page																															
Vert:		RISK LEVEL															9.50E-01														
Dil:		NO																													
Order	Group	Determinand	Select	DWS / Freshwater	Solubility	Soil Saturation Limit	Model Soil Conc	Receptor S/S time	VERTICAL			SIMULATED CONCENTRATION										CALCULATED HAZARD INDEX									
									Simulated	HI	STC3																				
				µg/l	µg/l	mg/kg	mg/kg	Years	µg/l		mg/kg	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l										
1.03	TPH 1	TPH (<EC8-10) aromatic (1)	Y	3.00E+02	6.50E+04	7.60E+02	3.11E-01	1.93E+01	3.01E-02	<0.01	IR	1.16E-08	1.16E-08	1.51E-07	2.07E-05	4.10E-05	4.10E-05	4.10E-05	4.10E-05	4.10E-05	4.10E-05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
1.04	TPH 1	TPH (>EC10-12) aromatic (1)	Y	9.00E+01	2.50E+04	4.61E+02	3.65E-01	1.93E+01	2.91E-02	<0.01	IR	8.63E-09	8.63E-09	9.34E-09	8.08E-06	2.86E-04	2.86E-04	2.86E-04	2.86E-04	2.86E-04	2.86E-04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
1.05	TPH 1	TPH (>EC12-16) aromatic (1)	Y	9.00E+01	5.80E+03	2.13E+02	5.24E+01	5.13E+01	1.21E+00	1.34E-02	3.91E+03	6.21E-07	6.21E-07	6.21E-07	6.24E-07	9.80E-05	9.83E-05	9.83E-05	9.83E-05	9.83E-05	9.83E-05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
1.06	TPH 1	TPH (>EC16-21) aromatic (1)	Y	9.00E+01	6.50E-02	6.71E+00	6.71E+01	1.40E-02	4.56E-01	<0.01	IR	2.50E-07	2.50E-07	2.50E-07	2.50E-07	3.47E-06	5.61E-05	6.10E-05	6.10E-05	6.10E-05	6.10E-05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
1.07	TPH 1	TPH (<EC21-35) aromatic (1)	Y	9.00E+01	6.60E-02	6.07E+00	6.07E+00	7.37E-02	1.27E-03	<0.01	IR	2.54E-08	2.54E-09	2.54E-09	2.54E-09	2.54E-09	2.54E-09	2.54E-09	2.54E-09	2.54E-09	2.54E-09	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
1.08	TPH 1	TPH (>EC5-6) aliphatic (1)	Y	1.50E+04	3.60E+04	3.29E+02	2.03E-02	1.25E+01	3.11E-03	<0.01	IR	9.08E-10	1.66E-09	9.21E-06	3.56E-05	3.69E-05	3.69E-05	3.69E-05	3.69E-05	3.69E-05	3.69E-05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
1.09	TPH 1	TPH (>EC6-8) aliphatic (1)	Y	1.50E+04	5.40E+03	1.72E+02	1.48E-01	2.67E+01	1.51E-03	<0.01	IR	1.97E-09	1.97E-09	1.93E-09	2.02E-09	2.09E-09	2.09E-09	2.09E-09	2.09E-09	2.09E-09	2.09E-09	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
1.1	TPH 1	TPH (>EC8-10) aliphatic (1)	Y	3.00E+02	4.30E+02	9.75E+01	3.78E-01	9.18E+01	4.88E-06	<0.01	IR	7.20E-10	7.20E-10	7.20E-10	7.20E-10	7.20E-10	7.20E-10	7.20E-10	7.20E-10	7.20E-10	7.20E-10	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
1.11	TPH 1	TPH (>EC10-12) aliphatic (1)	Y	3.00E+02	3.40E+01	5.99E+01	5.47E-01	3.39E+02	2.57E-11	<0.01	IR	1.35E-10	1.35E-10	1.35E-10	1.35E-10	1.35E-10	1.35E-10	1.35E-10	1.35E-10	1.35E-10	1.35E-10	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
1.12	TPH 1	TPH (>EC12-16) aliphatic (1)	Y	3.00E+02	7.60E-01	2.98E+01	2.98E+01	1.68E+03	2.94E-12	<0.01	IR	2.92E-10	2.92E-10	2.92E-10	2.92E-10	2.92E-10	2.92E-10	2.92E-10	2.92E-10	2.92E-10	2.92E-10	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
1.13	TPH 1	TPH (>EC16-21) aliphatic (1)	Y	1.00E+01	2.50E-03	1.15E+01	1.15E+01	2.91E+04	9.66E-15	<0.01	IR	9.61E-13	9.61E-13	9.61E-13	9.61E-13	9.61E-13	9.61E-13	9.61E-13	9.61E-13	9.61E-13	9.61E-13	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
1.14	TPH 1	TPH (>EC21-35) aliphatic (1)	Y	1.00E+01	8.91E-02	4.94E+03	4.11E+02	1.76E+05	3.24E-14	<0.01	IR	3.23E-12	3.23E-12	3.23E-12	3.23E-12	3.23E-12	3.23E-12	3.23E-12	3.23E-12	3.23E-12	3.23E-12	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
1.2	TPH 1	TOTAL TPH (1)	Y	No Criterion			5.80E+02	-	1.71E+00	#VALUE!	#VALUE!	8.88E-07	9.10E-07	1.11E-05	9.32E-05	8.51E-04	9.99E-04	1.05E-03	1.05E-03	1.05E-03	1.05E-03										
2	BTEX	Benzene	Y	1.00E+00	1.78E+06	1.07E+03	2.22E-03	4.62E+00	1.85E-04	<0.01	IR	4.44E-03	1.76E-02	3.17E-02	3.20E-02	3.20E-02	3.20E-02	3.20E-02	3.20E-02	3.20E-02	3.20E-02	<0.01	1.76E-02	3.17E-02	3.20E-02	3.20E-02	3.20E-02	3.20E-02	3.20E-02	3.20E-02	3.20E-02
2.01	BTEX	Toluene	Y	7.00E+02	5.90E+05	9.43E+02	1.13E-02	6.28E+00	5.00E-03	<0.01	IR	4.20E-05	4.47E-03	2.72E-02	2.84E-02	2.84E-02	2.84E-02	2.84E-02	2.84E-02	2.84E-02	2.84E-02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
2.02	BTEX	Ethylbenzene	Y	3.00E+02	1.69E+05	5.71E+02	7.92E-03	1.04E+01	1.49E-03	<0.01	IR	1.20E-09	1.01E-05	1.40E-03	2.91E-03	2.98E-03	2.98E-03	2.98E-03	2.98E-03	2.98E-03	2.98E-03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
2.03	BTEX	Xylenes	Y	5.00E+02	2.00E+05	6.84E+02	1.63E-02	1.05E+01	3.14E-03	<0.01	IR	2.39E-09	1.63E-05	2.34E-03	5.25E-03	5.42E-03	5.42E-03	5.42E-03	5.42E-03	5.42E-03	5.42E-03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
3	PAH	Acenaphthene	Y	2.20E+03	3.80E-03	6.54E+01	2.09E+01	3.50E-01	2.75E-01	<0.01	IR	4.37E-07	4.27E-07	4.85E-07	5.97E-04	1.77E-02	1.77E-02	1.77E-02	1.77E-02	1.77E-02	1.77E-02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
3	PAH	Acenaphthylene	Y	1.00E+01	1.61E+04	2.15E+02	1.78E+00	3.08E+01	3.55E-02	<0.01	IR	4.73E-08	4.65E-08	1.60E-06	1.30E-03	1.39E-02	1.39E-02	1.39E-02	1.39E-02	1.39E-02	1.39E-02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
3	PAH	Anthracene	Y	1.10E+04	4.50E+01	1.85E+00	1.85E+00	9.23E+01	1.15E-02	<0.01	IR	1.44E-08	1.42E-08	1.42E-08	1.50E-08	2.53E-03	3.88E-03	3.89E-03	3.89E-03	3.89E-03	3.89E-03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
3	PAH	Benzo(a)anthracene	Y	2.90E-02	3.80E+00	2.15E+00	2.15E+00	5.78E+02	2.51E-04	<0.01	IR	1.21E-09	1.13E-09	1.13E-09	1.13E-09	1.13E-09	1.11E-09	1.37E-09	1.37E-09	1.37E-09	1.37E-09	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
3	PAH	Benzo(a)pyrene	Y	1.00E-02	3.80E+00	3.58E+00	3.58E+00	7.46E+02	8.48E-05	<0.01	IR	1.21E-09	1.12E-09	1.12E-09	1.12E-09	1.12E-09	1.12E-09	1.13E-09	1.13E-09	1.13E-09	1.13E-09	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
3	PAH	Benzo(b)fluoranthene	Y	2.50E-02	2.00E+00	1.53E+00	1.53E+00	6.85E+02	7.74E-05	<0.01	IR	6.39E-10	5.92E-10	5.92E-10	5.92E-10	5.92E-10	5.92E-10	6.53E-10	6.53E-10	6.53E-10	6.53E-10	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
3	PAH	Benzo(g,h,i)perylene	Y	2.50E-02	2.00E+01	1.59E-01	7.91E-01	1.37E+03	2.59E-07	<0.01	IR	8.30E-11	7.70E-11	7.70E-11	7.70E-11	7.70E-11	7.70E-11	7.70E-11	7.70E-11	7.70E-11	7.70E-11	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
3	PAH	Benzo(k)fluoranthene	Y	2.50E-02	8.00E-01	8.64E-01	8.64E-01	8.14E-02	1.65E-05	<0.01	IR	2.55E-10	2.37E-10	2.37E-10	2.37E-10	2.37E-10	2.37E-10	2.44E-10	2.44E-10	2.44E-10	2.44E-10	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
3	PAH	Chrysene	Y	2.90E+00	2.00E+00	8.03E-01	8.03E-01	4.77E+02	1.82E-04	<0.01	IR	6.39E-10	6.00E-10	6.00E-10	6.00E-10	6.00E-10	5.87E-10	2.10E-08	2.10E-08	2.10E-08	2.10E-08	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
3	PAH	Dibenzo(a,h)anthracene	Y	2.90E-03	6.00E-01	8.16E-01	8.16E-01	9.13E+02	6.69E-06	<0.01	IR	1.92E-10	1.78E-10	1.78E-10	1.78E-10	1.78E-10	1.78E-10	1.78E-10	1.78E-10	1.78E-10	1.78E-10	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
3	PAH	Fluoranthene	Y	2.00E-01	2.30E+02	3.06E+01	3.06E+01	2.04E+02	3.56E-02	1.78E-01	1.72E+02	7.38E-08	7.11E-08	7.11E-08	7.11E-08	4.32E-07	5.66E-05	1.66E-04	1.66E-04												
3	PAH	Fluorene	Y	1.50E-03	1.90E-03	3.93E+01	1.77E+01	9.34E+01	1.85E-01	<0.01	IR	3.08E-07	3.01E-07	3.06E-07	6.51E-05	1.78E-03	4.70E-03	4.70E-03	4.70E-03	4.70E-03	4.70E-03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
3	PAH	Indeno[1,2,3-cd]pyrene	Y	2.50E-02	2.00E-01	1.27E-01	1.27E-01	6.13E+02	9.44E-06	<0.01	IR	6.39E-11	5.92E-11	5.92E-11	5.92E-11	5.92E-11	5.92E-11	6.89E-11	6.89E-11	6.89E-11	6.89E-11	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
3	PAH	Naphthalene	Y	1.00E+00	1.90E+04	9.13E+01	4.20E+00	1.83E+01	3.27E-01	3.27E-01	1.29E+01	3.23E-07	9.43E-05	3.91E-01	2.45E+00	3.55E+00	3.55E+00	3.55E+00	3.55E+00	3.55E+00	3.55E+00	<0.01	<0.01	<0.01	3.91E-01	2.45E+00	3.55E+00	3.55E+00	3.55E+00	3.55E+00	3.55E+00
3	PAH	Phenanthrene	Y	1.00E+01	1.10E+03	4.42E+01	4.42E																								

SOIL RESULTS OUTPUT SUMMARY -
PROBABILISTIC OUTPUT BY TIME

Navigation Page			Vert: YES		Dil: NO		RISK LEVEL		9.50E-01																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
Order	Group	Determinand	Select	DWS / Freshwater	Solubility	Soil Saturation Limit	Model Soil Conc	STC3 horizontal								STC4 Dilution	Vertical	TIME																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
								Year: 1	Year: 2	Year: 5	Year: 10	Year: 50	Year: 100	Year: 1000	Year: 10000			Stage 1	Year: 1	Year: 2	Year: 5	Year: 10	Year: 50	Year: 100	Year: 1000	Year: 10000	Dilution																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
1.03	TPH 1	TPH (>EC8-10) aromatic (1)	Y	µg/l	µg/l	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg

Navigation Page				RISK LEVEL		9.50E-01																						
Verit:	YES																											
Dil:	NO																											
									Distance 1	Distance 2	Distance 3	Distance 4	Distance 5	Distance 6	Distance 7	Distance 8	VERTICAL				Distance 1	Distance 2	Distance 3	Distance 4	Distance 5	Distance 6	Distance 7	Distance 8
Order	Group	Determinand	Select	DWS / Freshwater	Solubility	Soil Saturation Limit	Model Soil Conc	STEADY STATE TIMES (Deterministic)								Simulated	HI	STC3	SIMULATED CONCENTRATION									
								Years	Years	Years	Years	Years	Years	Years	Years													
				µg/l	µg/l	mg/kg	mg/kg	Years	Years	Years	Years	Years	Years	Years	Years	µg/l		mg/kg	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	
1.03	TPH 1	TPH (<EC8-10) aromatic (1)	Y	3.00E+02	6.50E+04	7.60E+02	3.31E+01	5.71E+00	8.37E+00	1.35E+01	1.67E+01	1.93E+01	2.37E+01	2.74E+01	4.34E+01	3.01E+02	<0.01	IR	8.32E+01	1.51E+01	3.57E+03	3.29E+04	4.10E+05	1.22E+06	5.53E+08	4.79E+09		
1.04	TPH 1	TPH (<EC10-12) aromatic (1)	Y	9.00E+01	2.50E+04	4.60E+02	3.15E+01	1.04E+01	1.55E+01	2.54E+01	3.13E+01	3.63E+01	4.46E+01	5.16E+01	8.18E+01	2.91E+02	<0.01	IR	9.65E+01	2.46E+01	1.19E+03	6.24E+04	2.86E+04	1.44E+05	1.03E+06	3.98E+09		
1.05	TPH 1	TPH (<EC12-16) aromatic (1)	Y	9.00E+01	5.80E+03	2.13E+02	5.24E+01	1.54E+01	2.24E+01	3.61E+01	4.43E+01	5.13E+01	6.29E+01	7.27E+01	1.15E+02	1.21E+03	1.34E+02	3.91E+03	2.01E+01	2.35E+00	2.19E+02	1.17E+03	9.83E+05	1.41E+06	6.03E+07	2.67E+07		
1.06	TPH 1	TPH (<EC16-21) aromatic (1)	Y	9.00E+01	6.50E+02	6.07E+01	5.71E+01	4.21E+01	6.12E+01	9.93E+01	1.21E+02	1.40E+02	1.71E+02	1.98E+02	3.14E+02	4.56E+01	<0.01	IR	9.52E+00	1.12E+00	1.34E+02	7.51E+04	6.10E+05	9.52E+07	2.36E+07	1.08E+07		
1.07	TPH 1	TPH (<EC21-35) aromatic (1)	Y	9.00E+01	6.60E+00	2.03E+02	6.07E+00	2.29E+02	3.27E+02	5.20E+02	6.39E+02	7.37E+02	9.04E+02	1.04E+03	1.65E+03	1.27E+03	<0.01	IR	2.37E+03	4.30E+05	1.17E+08	2.79E+09	2.66E+09	2.40E+09	2.15E+09	1.09E+09		
1.08	TPH 1	TPH (<EC5-6) aliphatic (1)	Y	1.50E+04	3.60E+04	3.29E+02	2.03E+02	3.58E+00	5.33E+00	8.72E+00	1.08E+01	1.25E+01	1.53E+01	1.78E+01	2.82E+01	3.11E+03	<0.01	IR	1.12E+01	2.92E+02	1.40E+03	1.97E+04	3.69E+05	1.85E+06	1.40E+07	9.33E+10		
1.09	TPH 1	TPH (<EC6-8) aliphatic (1)	Y	1.50E+04	5.40E+03	1.72E+02	1.48E+01	8.23E+00	1.18E+01	1.88E+01	2.31E+01	2.67E+01	3.27E+01	3.78E+01	5.97E+01	1.51E+03	<0.01	IR	5.84E+03	2.03E+04	1.90E+07	3.06E+09	2.09E+09	1.86E+09	1.66E+09	8.46E+10		
1.1	TPH 1	TPH (<EC8-10) aliphatic (1)	Y	3.00E+02	4.30E+02	9.75E+01	3.78E+01	2.89E+01	4.09E+01	6.48E+01	7.94E+01	9.18E+01	1.12E+02	1.30E+02	2.05E+02	4.88E+06	<0.01	IR	4.25E+08	7.68E+10	7.24E+10	7.24E+10	7.20E+10	6.81E+10	6.10E+10	3.10E+10		
1.11	TPH 1	TPH (<EC9-12) aliphatic (1)	Y	3.00E+02	3.40E+01	5.99E+01	5.47E+01	1.07E+02	1.52E+02	2.40E+02	2.94E+02	3.39E+02	4.16E+02	4.80E+02	7.59E+02	2.57E+11	<0.01	IR	1.35E+10	1.35E+10	1.35E+10	1.35E+10	1.35E+10	1.27E+10	1.14E+10	5.80E+11		
1.12	TPH 1	TPH (<EC12-16) aliphatic (1)	Y	3.00E+02	7.60E+01	2.98E+01	2.98E+01	5.32E+02	7.52E+02	1.19E+03	1.46E+03	1.68E+03	2.06E+03	2.38E+03	3.76E+03	2.94E+12	<0.01	IR	2.94E+10	2.94E+10	2.94E+10	2.94E+10	2.92E+10	2.76E+10	2			

SOIL RESULTS OUTPUT SUMMARY - PROBABILISTIC OUTPUT BY DISTANCE

[illegible]

**SOIL RESULTS OUTPUT SUMMARY -
PROBABILISTIC SUMMARY (SS @ CP)**

Navigation Page																																			
Vert:	YES																																		
Dil:	NO																																		
Order	Group	Determinand	Select	DWS / Freshwater	Solubility	Soil Saturation Limit	Model Soil Conc	SIMULATED CONCENTRATION								CALCULATED HAZARD INDEX																			
								0.05	0.10	0.25	0.50	0.80	0.90	0.95	1.00	0.05	0.10	0.25	0.50	0.80	0.90	0.95	1.00												
			Y	µg/l	µg/l	mg/kg	mg/kg	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l																				
1.03	TPH 1	TPH (>EC8-10) aromatic (1)	Y	3.00E+02	6.50E+04	7.60E+02	3.11E-01	3.39E-09	3.88E-09	5.36E-09	8.10E-09	8.16E-07	1.31E-05	4.10E-05	7.29E-03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
1.04	TPH 1	TPH (>EC10-12) aromatic (1)	Y	9.00E+01	2.50E+04	4.61E+02	3.65E-01	2.75E-09	3.34E-09	4.94E-09	5.48E-08	1.42E-05	8.81E-05	2.86E-04	1.67E-02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
1.05	TPH 1	TPH (>EC12-16) aromatic (1)	Y	9.00E+01	5.80E+03	2.13E+02	5.24E+01	1.77E-07	2.00E-07	2.57E-07	3.69E-07	8.86E-07	1.53E-05	9.83E-05	1.03E-01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
1.06	TPH 1	TPH (>EC16-21) aromatic (1)	Y	9.00E+01	6.50E+02	6.71E+01	6.71E+01	8.71E-08	9.69E-08	1.17E-07	1.59E-07	3.20E-07	8.43E-06	6.10E-05	5.05E-03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
1.07	TPH 1	TPH (>EC21-35) aromatic (1)	Y	9.00E+01	6.60E+00	6.07E+00	6.07E+00	8.70E-10	9.47E-10	1.12E-09	1.41E-09	1.96E-09	2.28E-09	2.66E-09	1.39E-07	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
1.08	TPH 1	TPH (>EC5-6) aliphatic (1)	Y	1.50E+04	3.60E+04	3.29E+02	2.03E-02	3.17E-10	3.72E-10	5.34E-10	1.08E-08	2.00E-06	1.32E-05	3.69E-05	1.71E-03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
1.09	TPH 1	TPH (>EC6-8) aliphatic (1)	Y	1.50E+04	5.40E+03	1.72E+02	1.48E-01	5.73E-10	6.38E-10	7.90E-10	1.02E-09	1.43E-09	1.73E-09	2.09E-09	1.16E-07	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
1.1	TPH 1	TPH (>EC8-10) aliphatic (1)	Y	3.00E+02	4.30E+02	9.75E+01	3.78E-01	2.03E-10	2.27E-10	2.80E-10	3.65E-10	5.13E-10	6.16E-10	7.20E-10	1.35E-09	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
1.11	TPH 1	TPH (>EC10-12) aliphatic (1)	Y	3.00E+02	3.40E+01	5.99E+01	5.47E-01	3.76E-11	4.22E-11	5.21E-11	6.80E-11	9.59E-11	1.15E-10	1.35E-10	2.55E-10	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
1.12	TPH 1	TPH (>EC12-16) aliphatic (1)	Y	3.00E+02	7.60E-01	2.98E+01	2.98E+01	1.00E-10	1.09E-10	1.28E-10	1.61E-10	2.24E-10	2.57E-10	2.92E-10	4.42E-10	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
1.13	TPH 1	TPH (>EC16-21) aliphatic (1)	Y	1.00E+01	2.50E-03	1.15E+01	1.15E+01	3.29E-13	3.58E-13	4.23E-13	5.30E-13	7.36E-13	8.46E-13	9.61E-13	1.45E-12	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
1.14	TPH 1	TPH (>EC21-35) aliphatic (1)	Y	1.00E+01	8.91E-02	4.94E+03	4.11E+02	8.97E-13	1.01E-12	1.24E-12	1.62E-12	2.29E-12	2.76E-12	3.23E-12	6.10E-12	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
1.2	TPH 1	TOTAL TPH (1)	Y	No Criterion				5.80E+02	3.11E-07	3.55E-07	4.98E-07	1.00E-06	5.35E-05	3.09E-04	1.05E-03	1.06E-01																			
2	BTEX	Benzene	Y	1.00E+00	1.78E+06	1.07E+03	2.22E-03	3.35E-06	2.51E-05	3.70E-04	2.67E-03	1.38E-02	2.22E-02	3.20E-02	1.19E-01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
2.01	BTEX	Toluene	Y	7.00E-02	5.90E+05	9.43E+02	1.13E-02	3.15E-09	6.83E-08	6.55E-06	2.57E-04	5.49E-03	1.40E-02	2.84E-02	2.42E-01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
2.02	BTEX	Ethylbenzene	Y	3.00E+02	1.69E+05	5.71E+02	7.92E-03	4.72E-10	6.88E-10	6.27E-08	6.78E-06	3.63E-04	1.23E-03	2.98E-03	3.72E-02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
2.03	BTEX	Xylenes	Y	5.00E+02	2.00E+05	6.84E+02	1.63E-02	9.38E-10	1.40E-09	1.53E-07	1.76E-05	6.67E-04	2.53E-03	5.42E-03	8.55E-02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
3	PAH	Acenaphthene	Y	2.20E+03	3.80E+03	6.54E+01	2.09E+01	1.24E-07	1.53E-07	2.29E-07	3.73E-06	1.16E-03	5.82E-03	1.77E-02	8.40E-01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
3	PAH	Acenaphthylene	Y	1.00E+01	1.61E+04	2.15E+02	1.76E+00	1.40E-08	1.79E-08	3.45E-08	4.25E-06	7.19E-04	4.28E-03	1.39E-02	5.28E-01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
3	PAH	Anthracene	Y	1.10E+04	4.50E+01	1.85E+00	1.85E+00	4.94E-09	5.83E-09	9.88E-09	1.26E-06	1.78E-04	1.03E-03	3.89E-03	8.21E-02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
3	PAH	Benzo(a)anthracene	Y	2.90E-02	3.80E+00	2.15E+00	2.15E+00	3.61E-10	3.94E-10	4.71E-10	6.08E-10	8.89E-10	1.08E-09	1.37E-09	2.30E-06	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
3	PAH	Benzo(a)pyrene	Y	1.00E-02	3.80E+00	3.58E+00	3.58E+00	3.60E-10	3.93E-10	4.66E-10	5.92E-10	8.41E-10	9.77E-10	1.13E-09	2.57E-09	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
3	PAH	Benzo(b)fluoranthene	Y	2.50E-02	2.00E+00	1.53E+00	1.53E+00	1.90E-10	2.07E-10	2.46E-10	3.16E-10	4.54E-10	5.34E-10	6.53E-10	7.71E-08	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
3	PAH	Benzo(g,h,i)perylene	Y	2.50E-02	2.60E-01	7.91E-01	7.91E-01	2.46E-11	2.69E-11	3.19E-11	4.05E-11	5.75E-11	6.68E-11	7.70E-11	1.23E-10	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
3	PAH	Benzo(k)fluoranthene	Y	2.50E-02	8.00E-01	8.64E-01	8.64E-01	7.58E-11	8.26E-11	9.82E-11	1.25E-10	1.77E-10	2.07E-10	2.44E-10	5.81E-10	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
3	PAH	Chrysene	Y	2.90E+00	2.00E+00	8.03E-01	8.03E-01	1.90E-10	2.12E-10	2.54E-10	3.36E-10	5.17E-10	2.14E-09	2.10E-08	7.00E-05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
3	PAH	Dibenzo(a,h)anthracene	Y	2.90E-03	6.00E-01	8.16E-01	8.16E-01	5.68E-11	6.20E-11	7.36E-11	9.34E-11	1.33E-10	1.54E-10	1.78E-10	2.84E-10	<0.01	&																		

SOIL RESULTS OUTPUT SUMMARY -
PROBABILISTIC SUMMARY (SS @ CP)

Navigation Page																																					
Vert:	YES																																				
Dil:	NO																	0.05	0.10	0.25	0.50	0.80	0.90	0.95	1.00												
Order	Group	Determinand	Select	DWS / Freshwater	Solubility	Soil Saturation Limit	Model Soil Conc	STC3 horizontal								STC4 Dilution																					
				µg/l	µg/l	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg																				
1.03	TPH 1	TPH (>EC8-10) aromatic (1)	Y	3.00E+02	6.50E+04	7.60E+02	3.11E-01	IR	IR	IR	IR	IR	IR	IR	IR	IR	IR																				
1.04	TPH 1	TPH (>EC10-12) aromatic (1)	Y	9.00E+01	2.50E+04	4.61E+02	3.65E-01	IR	IR	IR	IR	IR	IR	IR	IR	IR	IR																				
1.05	TPH 1	TPH (>EC12-16) aromatic (1)	Y	9.00E+01	5.80E+03	2.13E+02	5.24E+01	IR	IR	IR	IR	IR	IR	IR	IR	IR	IR																				
1.06	TPH 1	TPH (>EC16-21) aromatic (1)	Y	9.00E+01	6.50E+02	6.71E+01	6.71E+01	IR	IR	IR	IR	IR	IR	IR	IR	IR	IR																				
1.07	TPH 1	TPH (>EC21-35) aromatic (1)	Y	9.00E+01	6.60E+00	6.07E+00	6.07E+00	IR	IR	IR	IR	IR	IR	IR	IR	IR	IR																				
1.08	TPH 1	TPH (>EC5-8) aliphatic (1)	Y	1.50E+04	3.60E+04	3.29E+02	2.03E-02	IR	IR	IR	IR	IR	IR	IR	IR	IR	IR																				
1.09	TPH 1	TPH (>EC6-8) aliphatic (1)	Y	1.50E+04	5.40E+03	1.72E+02	1.48E-01	IR	IR	IR	IR	IR	IR	IR	IR	IR	IR																				
1.1	TPH 1	TPH (>EC8-10) aliphatic (1)	Y	3.00E+02	4.30E+02	9.75E+01	3.78E-01	IR	IR	IR	IR	IR	IR	IR	IR	IR	IR																				
1.11	TPH 1	TPH (>EC10-12) aliphatic (1)	Y	3.00E+02	3.40E+01	5.99E+01	5.47E-01	IR	IR	IR	IR	IR	IR	IR	IR	IR	IR																				
1.12	TPH 1	TPH (>EC12-16) aliphatic (1)	Y	3.00E+02	7.60E-01	2.98E+01	2.98E+01	IR	IR	IR	IR	IR	IR	IR	IR	IR	IR																				
1.13	TPH 1	TPH (>EC16-21) aliphatic (1)	Y	1.00E+01	2.50E-03	1.15E+01	1.15E+01	IR	IR	IR	IR	IR	IR	IR	IR	IR	IR																				
1.14	TPH 1	TPH (>EC21-35) aliphatic (1)	Y	1.00E+01	8.91E-02	4.94E+03	4.11E+02	IR	IR	IR	IR	IR	IR	IR	IR	IR	IR																				
1.2	TPH 1	TOTAL TPH (1)	Y	No Criterion			5.80E+02																														
2	BTEX	Benzene	Y	1.00E+00	1.78E+06	1.07E+03	2.22E-03	IR	IR	IR	IR	IR	1.61E-01	1.00E-01	6.94E-02	1.86E-02																					
2.01	BTEX	Toluene	Y	7.00E+02	5.90E+05	9.43E+02	1.13E-02	IR	IR	IR	IR	IR	IR	IR	IR	IR	IR																				
2.02	BTEX	Ethylbenzene	Y	3.00E+02	1.69E+05	5.71E+02	7.92E-03	IR	IR	IR	IR	IR	IR	IR	IR	IR	IR																				
2.03	BTEX	Xylenes	Y	5.00E+02	2.00E+05	6.84E+02	1.63E-02	IR	IR	IR	IR	IR	IR	IR	IR	IR	IR																				
3	PAH	Acenaphthene	Y	2.20E+03	3.80E+03	6.54E+01	2.09E+01	IR	IR	IR	IR	IR	IR	IR	IR	IR	IR																				
3	PAH	Acenaphthylene	Y	1.00E+01	1.61E+04	2.15E+02	1.76E+00	IR	IR	IR	IR	IR	IR	IR	IR	IR	IR																				
3	PAH	Anthracene	Y	1.10E+04	4.50E+01	1.85E+00	1.85E+00	IR	IR	IR	IR	IR	IR	IR	IR	IR	IR																				
3	PAH	Benzo(a)anthracene	Y	2.90E-02	3.80E+00	2.15E+00	2.15E+00	IR	IR	IR	IR	IR	IR	IR	IR	IR	IR																				
3	PAH	Benzo(a)pyrene	Y	1.00E-02	3.80E+00	3.58E+00	3.58E+00	IR	IR	IR	IR	IR	IR	IR	IR	IR	IR																				
3	PAH	Benzo(b)fluoranthene	Y	2.50E-02	2.00E+00	1.53E+00	1.53E+00	IR	IR	IR	IR	IR	IR	IR	IR	IR	IR																				
3	PAH	Benzo(g,h,i)perylene	Y	2.50E-02	2.60E-01	7.91E-01	7.91E-01	IR	IR	IR	IR	IR	IR	IR	IR	IR	IR																				
3	PAH	Benzo(k)fluoranthene	Y	2.50E-02	8.00E-01	8.64E-01	8.64E-01	IR	IR	IR	IR	IR	IR	IR	IR	IR	IR																				
3	PAH	Chrysene	Y	2.90E+00	2.00E+00	8.03E-01	8.03E-01	IR	IR	IR	IR	IR	IR	IR	IR	IR	IR																				
3	PAH	Dibenzo(a,h)anthracene	Y	2.90E-03	6.00E-01	8.16E-01	8.16E-01	IR	IR	IR	IR	IR	IR	IR	IR	IR	IR																				
3	PAH	Fluoranthene	Y	2.00E-01	2.30E+02	3.06E+01	3.06E+01	IR	IR	IR	IR	IR	IR	IR	IR	IR	IR																				
3	PAH	Fluorene	Y	1.50E+03	1.90E+03	3.93E+01	1.77E+01	IR	IR	IR	IR	IR	IR	IR	IR	IR	IR																				
3	PAH	Indeno[1,2,3-cd]pyrene	Y	2.50E-02	2.00E-01	1.27E-01	1.27E-01	IR	IR	IR	IR	IR	IR	IR	IR	IR	IR																				
3	PAH	Naphthalene	Y	1.00E+00	1.90E+04	9.13E+01	4.20E+00	IR	IR	IR	IR	6.76E+01	4.52E+00	2.12E+00	1.18E+00	2.10E-01																					
3	PAH	Phenanthrene	Y	1.00E+01	1.10E+03	4.42E+01	4.42E+01	IR	IR	IR	IR	IR	IR	IR	IR	IR	IR																				
3	PAH	Pyrene	Y	1.10E+03	1.30E+02	1.54E+01	1.54E+01	IR	IR	IR	IR	IR	IR	IR	IR	IR	IR																				
4	METALS	Arsenic	Y	1.00E+01	1.70E+07	8.50E+06	2.19E+01	IR	6.15E+02	1.28E+02	5.17E+01	3.15E+01	2.46E+01	2.13E+01	1.20E+01																						
4	METALS	Boron	Y	1.00E+03	5.50E+08	5.55E+06	1.36E+01	1.07E+02	9.77E+01	8.22E+01	6.48E+01	4.56E+01	3.93E+01	3.41E+01	2.13E+01																						
4	METALS	Cadmium	Y	5.00E+00	5.70E+08	5.71E+07	8.75E-01	5.47E+00	5.05E+00	4.20E+00	3.27E+00	2.29E+00	1.95E+00	1.70E+00	1.07E+00																						
4	METALS	Chromium III	Y	5.00E+01	6.29E+08	3.02E+09	3.11E+01	IR	IR	IR	IR	IR	IR	IR	IR	IR	IR																				
4	METALS	Cobalt	Y	1.10E+01	1.40E+07	6.31E+05	1.05E+01	5.27E+00	4.80E+00	4.05E+00	3.19E+00	2.24E+00	1.93E+00	1.68E+00	1.05E+00																						
4	METALS	Copper	Y	2.00E+03	8.00E+04	8.01E+03	1.06E+02	2.19E+03	2.02E+03	1.68E+03	1.31E+03	9.17E+02	7.79E+02	6.79E+02	4.29E+02																						
4	METALS	Lead	Y	2.50E+01	5.00E+01	1.80E+03	1.28E+02	IR	IR	IR	IR	IR	IR	IR	IR	IR	IR																				
4	METALS	Molybdenum	Y	2.00E+01	4.90E+05	9.85E+03	2.94E-01	4.24E+00	3.89E+00	3.27E+00	2.58E+00	1.82E+00	1.56E+00	1.36E+00	8.49E-01																						
4	METALS	Nickel	Y	2.00E+01	1.90E+05	9.50E+04	3.75E+01	IR	1.23E+03	2.57E+02	1.03E+02	6.30E+01	4.93E+01	4.26E+01	2.39E+01																						
4	METALS	Tin	Y	2.20E+04	1.27E+01	3.18E+00	3.18E+00	IR	IR	IR	IR	IR	IR	IR	IR	IR	IR																				
4	METALS	Zinc	Y	5.00E+03	1.62E+07	6.17E+05	2.30E+02	2.02E+03	1.84E+03	1.55E+03	1.22E+03	8.61E+02	7.41E+02	6.43E+02	4.03E+02																						



URS site-specific controlled waters risk assessment tool

designed on the principles and methodologies contained within EA Remedial Targets Methodology, 2006



**PROBABILISTIC
GROUNDWATER**

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Version: CWRA, version 7.292min

Date: 13/07/2011

WATER RESULTS OUTPUT SUMMARY -
PROBABILISTIC OUTPUT BY TIME

Navigation Page										RISK LEVEL																			
Vert:	YES									9.50E-01																			
Dil:	NO																												
Order	Group	Determinand	Select	DWS / Freshwater	Solubility	Model GW Conc	Time for S/S	VERTICAL			Year: 1	Year: 2	Year: 5	Year: 10	Year: 50	Year: 100	Year: 1000	Year: 10000	Year: 1	Year: 2	Year: 5	Year: 10	Year: 50	Year: 100	Year: 1000	Year: 10000			
								Simulated	HI	GWTC3	SIMULATED CONCENTRATION								CALCULATED HAZARD INDEX										
1.01	TPH 1	TPH (<EC5-7) aromatic (1)	Y		µg/l	µg/l	Years	µg/l			µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	1.05E+00	6.57E+00	1.18E+01	1.20E+01	1.20E+01	1.20E+01	1.20E+01	1.20E+01			
1.02	TPH 1	TPH (<EC7-8) aromatic (1)	Y		1.00E+01	1.80E+06	1.21E+03	4.62E+00	5.94E+00	5.94E-01	2.04E+03	1.05E+01	6.57E+01	1.18E+02	1.20E+02	1.20E+02	1.20E+02	1.20E+02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01			
1.03	TPH 1	TPH (<EC8-10) aromatic (1)	Y		7.00E+02	1.30E+05	3.92E+02	6.29E+00	1.59E+00	<0.01	IR	4.69E-03	6.53E-01	3.25E+00	3.58E+00	3.58E+00	3.58E+00	3.58E+00	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01			
1.04	TPH 1	TPH (<EC10-12) aromatic (1)	Y		3.00E+02	6.50E+04	1.33E+04	1.93E+01	2.61E+01	8.69E-02	1.53E-05	1.33E-05	1.33E-05	1.59E-04	2.26E-02	5.22E-02	5.22E-02	5.22E-02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01			
1.05	TPH 1	TPH (<EC12-16) aromatic (1)	Y		9.00E+01	2.50E+04	1.01E+03	3.63E+01	2.60E+00	2.89E-02	3.50E+04	1.01E-06	1.01E-06	1.01E-06	9.35E-04	3.89E-02	3.90E-02	3.90E-02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01			
1.08	TPH 1	TPH (<EC5-6) aliphatic (1)	Y		9.00E+01	5.80E+03	1.43E+02	5.13E+01	2.21E-01	<0.01	IR	1.43E-07	1.43E-07	1.43E-07	1.43E-07	2.26E-05	2.26E-05	2.26E-05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01			
1.09	TPH 1	TPH (<EC6-8) aliphatic (1)	Y		1.50E+04	3.60E+04	3.08E+02	1.25E+01	7.67E-01	<0.01	IR	3.08E-07	4.44E-07	2.76E-03	1.19E-02	1.26E-02	1.26E-02	1.26E-02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01			
1.1	TPH 1	TPH (<EC6-8) aliphatic (1)	Y		1.50E+04	5.40E+03	6.97E+02	2.67E+01	4.24E-01	<0.01	IR	3.63E-07	3.63E-07	3.63E-07	3.63E-07	3.63E-07	3.63E-07	3.63E-07	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01			
1.11	TPH 1	TPH (<EC8-10) aliphatic (1)	Y		3.00E+02	4.30E+02	4.30E+02	9.18E+01	2.40E-03	<0.01	IR	2.24E-07	2.24E-07	2.24E-07	2.24E-07	2.24E-07	2.24E-07	2.24E-07	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01			
1.2	TPH 1	TOTAL TPH (1)	Y	No Criterion	3.40E+01	3.40E+01	3.39E+02	6.28E-09	<0.01	IR	1.77E-08	1.77E-08	1.77E-08	1.77E-08	1.77E-08	1.77E-08	1.77E-08	1.77E-08	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01			
2	BTEX	Benzene	Y		1.00E+00	1.78E+06	1.46E+03	4.62E+00	7.18E+00	7.18E+00	2.03E+02	1.13E+01	8.20E+01	1.41E+02	1.44E+02	1.44E+02	1.44E+02	1.44E+02	1.13E+01	8.20E+01	1.41E+02	1.44E+02	1.44E+02	1.44E+02	1.44E+02				
2.01	BTEX	Toluene	Y		7.00E+02	5.90E+05	4.65E+02	6.28E+00	1.98E+00	<0.01	IR	6.17E-03	7.77E-01	4.02E+00	4.38E+00	4.38E+00	4.38E+00	4.38E+00	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01			
2.02	BTEX	Ethylbenzene	Y		3.00E+02	1.69E+05	2.35E+03	1.04E+01	8.62E+00	2.87E-02	8.18E+04	2.35E-06	2.12E-02	2.96E+00	6.71E+00	6.81E+00	6.81E+00	6.81E+00	<0.01	<0.01	<0.01	2.24E-02	2.27E-02	2.27E-02	2.27E-02				
2.03	BTEX	Xylenes	Y		5.00E+02	2.00E+05	6.48E+03	1.05E+01	2.38E+01	4.76E-02	1.36E+05	6.48E-06	4.86E-02	7.71E+00	1.62E+01	1.71E+01	1.71E+01	1.71E+01	<0.01	<0.01	1.54E-02	3.24E-02	3.43E-02	3.43E-02	3.43E-02				
3	PAH	Fluorene	Y		1.50E+03	1.90E+03	2.05E+01	3.84E+01	5.03E-04	<0.01	IR	2.05E-10	2.05E-10	2.05E-10	5.74E-08	3.57E-06	3.57E-06	3.57E-06	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01			
3	PAH	Naphthalene	Y		1.00E+00	1.90E+04	1.75E+02	1.83E+01	7.54E-01	7.54E-01	2.32E+02	1.75E-07	6.55E-05	2.57E-01	1.44E+00	2.28E+00	2.28E+00	2.28E+00	<0.01	<0.01	2.57E-01	1.44E+00	2.28E+00	2.28E+00	2.28E+00				

**WATER RESULTS OUTPUT SUMMARY -
PROBABILISTIC OUTPUT BY TIME**

Navigation Page																												
Vert:	YES		RISK LEVEL		9.50E-01																							
Dil:	NO										Year: 1	Year: 2	Year: 5	Year: 10	Year: 50	Year: 100	Year: 1000	Year: 10000										
Order	Group	Determinand	Select	DWS / Freshwater							Solubility	Model GW Conc	GWTC3 horizontal								GWTC4 Dilution	Vertical	TIME					
					µg/l	µg/l	µg/l	µg/l	µg/l	µg/l			µg/l	µg/l	µg/l	µg/l	Stage 3: Year: 1	Stage 3: Year: 2	Stage 3: Year: 5	Stage 3: Year: 10			Stage 3: Year: 50	Stage 3: Year: 100	Stage 3: Year: 1000	Stage 3: Year: 10000	Stage 4: Dilution	
1.01	TPH 1	TPH (>EC5-7) aromatic (1)	Y	1.00E+01	1.80E+06	1.21E+03	1.15E+03	1.84E+02	1.03E+02	1.00E+02	1.00E+02	1.00E+02	1.00E+02	1.00E+02	µg/l	Vertical	Stage 3: Year: 1	Stage 3: Year: 2	Stage 3: Year: 5	Stage 3: Year: 10	Stage 3: Year: 50	Stage 3: Year: 100	Stage 3: Year: 1000	Stage 3: Year: 10000	Stage 4: Dilution			
1.02	TPH 1	TPH (>EC7-8) aromatic (1)	Y	7.00E+02	1.30E+05	3.92E+02	IR	IR	IR	IR	IR	IR	IR	IR	µg/l	Vertical	Stage 3: Year: 1	Stage 3: Year: 2	Stage 3: Year: 5	Stage 3: Year: 10	Stage 3: Year: 50	Stage 3: Year: 100	Stage 3: Year: 1000	Stage 3: Year: 10000	Stage 4: Dilution			
1.03	TPH 1	TPH (>EC8-10) aromatic (1)	Y	3.00E+02	6.50E+04	1.33E+04	IR	IR	IR	IR	IR	IR	IR	IR	µg/l	Vertical	Stage 3: Year: 1	Stage 3: Year: 2	Stage 3: Year: 5	Stage 3: Year: 10	Stage 3: Year: 50	Stage 3: Year: 100	Stage 3: Year: 1000	Stage 3: Year: 10000	Stage 4: Dilution			
1.04	TPH 1	TPH (>EC10-12) aromatic (1)	Y	9.00E+01	2.50E+04	1.01E+03	IR	IR	IR	IR	IR	IR	IR	IR	µg/l	Vertical	Stage 3: Year: 1	Stage 3: Year: 2	Stage 3: Year: 5	Stage 3: Year: 10	Stage 3: Year: 50	Stage 3: Year: 100	Stage 3: Year: 1000	Stage 3: Year: 10000	Stage 4: Dilution			
1.05	TPH 1	TPH (>EC12-16) aromatic (1)	Y	9.00E+01	5.80E+03	1.43E+02	IR	IR	IR	IR	IR	IR	IR	IR	µg/l	Vertical	Stage 3: Year: 1	Stage 3: Year: 2	Stage 3: Year: 5	Stage 3: Year: 10	Stage 3: Year: 50	Stage 3: Year: 100	Stage 3: Year: 1000	Stage 3: Year: 10000	Stage 4: Dilution			
1.08	TPH 1	TPH (>EC5-6) aliphatic (1)	Y	1.50E+04	3.60E+04	3.08E+02	IR	IR	IR	IR	IR	IR	IR	IR	µg/l	Vertical	Stage 3: Year: 1	Stage 3: Year: 2	Stage 3: Year: 5	Stage 3: Year: 10	Stage 3: Year: 50	Stage 3: Year: 100	Stage 3: Year: 1000	Stage 3: Year: 10000	Stage 4: Dilution			
1.09	TPH 1	TPH (>EC6-8) aliphatic (1)	Y	1.50E+04	5.40E+03	6.97E+02	IR	IR	IR	IR	IR	IR	IR	IR	µg/l	Vertical	Stage 3: Year: 1	Stage 3: Year: 2	Stage 3: Year: 5	Stage 3: Year: 10	Stage 3: Year: 50	Stage 3: Year: 100	Stage 3: Year: 1000	Stage 3: Year: 10000	Stage 4: Dilution			
1.1	TPH 1	TPH (>EC8-10) aliphatic (1)	Y	3.00E+02	4.30E+02	4.30E+02	IR	IR	IR	IR	IR	IR	IR	IR	µg/l	Vertical	Stage 3: Year: 1	Stage 3: Year: 2	Stage 3: Year: 5	Stage 3: Year: 10	Stage 3: Year: 50	Stage 3: Year: 100	Stage 3: Year: 1000	Stage 3: Year: 10000	Stage 4: Dilution			
1.11	TPH 1	TPH (>EC10-12) aliphatic (1)	Y	3.00E+02	3.40E+01	3.40E+01	IR	IR	IR	IR	IR	IR	IR	IR	µg/l	Vertical	Stage 3: Year: 1	Stage 3: Year: 2	Stage 3: Year: 5	Stage 3: Year: 10	Stage 3: Year: 50	Stage 3: Year: 100	Stage 3: Year: 1000	Stage 3: Year: 10000	Stage 4: Dilution			
1.2	TPH 1	TOTAL TPH (1)	Y	No Criterion		1.75E+04									µg/l	Vertical	Stage 3: Year: 1	Stage 3: Year: 2	Stage 3: Year: 5	Stage 3: Year: 10	Stage 3: Year: 50	Stage 3: Year: 100	Stage 3: Year: 1000	Stage 3: Year: 10000	Stage 4: Dilution			
2	BTEX	Benzene	Y	1.00E+00	1.78E+06	1.46E+03	1.29E+02	1.78E+01	1.03E+01	1.01E+01	1.01E+01	1.01E+01	1.01E+01	1.01E+01	µg/l	Vertical	Stage 3: Year: 1	Stage 3: Year: 2	Stage 3: Year: 5	Stage 3: Year: 10	Stage 3: Year: 50	Stage 3: Year: 100	Stage 3: Year: 1000	Stage 3: Year: 10000	Stage 4: Dilution			
2.01	BTEX	Toluene	Y	7.00E+02	5.90E+05	4.65E+02	IR	IR	IR	IR	IR	IR	IR	IR	µg/l	Vertical	Stage 3: Year: 1	Stage 3: Year: 2	Stage 3: Year: 5	Stage 3: Year: 10	Stage 3: Year: 50	Stage 3: Year: 100	Stage 3: Year: 1000	Stage 3: Year: 10000	Stage 4: Dilution			
2.02	BTEX	Ethylbenzene	Y	3.00E+02	1.69E+05	2.35E+03	IR	IR	IR	1.05E+05	1.04E+05	1.04E+05	1.04E+05	1.04E+05	µg/l	Vertical	Stage 3: Year: 1	Stage 3: Year: 2	Stage 3: Year: 5	Stage 3: Year: 10	Stage 3: Year: 50	Stage 3: Year: 100	Stage 3: Year: 1000	Stage 3: Year: 10000	Stage 4: Dilution			
2.03	BTEX	Xylenes	Y	5.00E+02	2.00E+05	6.48E+03	IR	IR	4.20E+05	2.00E+05	1.89E+05	1.89E+05	1.89E+05	1.89E+05	µg/l	Vertical	Stage 3: Year: 1	Stage 3: Year: 2	Stage 3: Year: 5	Stage 3: Year: 10	Stage 3: Year: 50	Stage 3: Year: 100	Stage 3: Year: 1000	Stage 3: Year: 10000	Stage 4: Dilution			
3	PAH	Fluorene	Y	1.50E+03	1.90E+03	2.05E-01	IR	IR	IR	IR	IR	IR	IR	IR	µg/l	Vertical	Stage 3: Year: 1	Stage 3: Year: 2	Stage 3: Year: 5	Stage 3: Year: 10	Stage 3: Year: 50	Stage 3: Year: 100	Stage 3: Year: 1000	Stage 3: Year: 10000	Stage 4: Dilution			
3	PAH	Naphthalene	Y	1.00E+00	1.90E+04	1.75E+02	IR	IR	6.80E+02	1.21E+02	7.69E+01	7.69E+01	7.69E+01	7.69E+01	µg/l	Vertical	Stage 3: Year: 1	Stage 3: Year: 2	Stage 3: Year: 5	Stage 3: Year: 10	Stage 3: Year: 50	Stage 3: Year: 100	Stage 3: Year: 1000	Stage 3: Year: 10000	Stage 4: Dilution			

WATER RESULTS OUTPUT SUMMARY - PROBABILISTIC OUTPUT BY DISTANCE

Navigation Page																										
Vert:	YES			RISK LEVEL		9.50E-01																				
Dil:	NO																									
Order	Group	Determinand	Select	DWS / Freshwater	Solubility	Model GW Conc	Distance 1	Distance 2	Distance 3	Distance 4	Distance 5	Distance 6	Distance 7	Distance 8	VERTICAL			Distance 1	Distance 2	Distance 3	Distance 4	Distance 5	Distance 6	Distance 7	Distance 8	
							STEADY STATE TIMES								Simulated	HI	GWTC3	SIMULATED CONCENTRATION								
							Years	Years	Years	Years	Years	Years	Years	Years	µg/l			µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l
1.01	TPH 1	TPH (>EC5-7) aromatic (t)	Y	µg/l	µg/l	1.21E+03	8.90E+01	1.56E+00	3.00E+00	3.88E+00	5.18E+00	5.85E+00	6.87E+00	1.12E+01	5.94E+00	5.94E-01	2.04E+03	1.00E+03	8.34E+02	4.21E+02	2.20E+02	1.20E+02	4.21E+01	1.71E+01	3.31E-01	
1.02	TPH 1	TPH (>EC7-8) aromatic (t)	Y	7.00E+02	1.30E+05	3.92E+02	1.55E+00	2.48E+00	4.29E+00	5.38E+00	7.17E+00	7.79E+00	9.05E+00	1.45E+01	1.59E+00	<0.01	IR	2.29E+02	1.40E+02	3.29E+01	1.02E+01	3.58E+00	5.84E+01	1.24E+01	1.53E-04	
1.03	TPH 1	TPH (>EC9-10) aromatic (t)	Y	6.50E+02	6.50E+02	1.30E+02	5.71E+00	8.37E+00	1.35E+01	1.87E+01	2.22E+01	2.37E+01	2.74E+01	1.34E+01	2.61E+01	8.68E-02	1.55E+05	1.60E+03	3.15E+02	6.91E+00	5.03E+01	5.52E+02	1.13E+03	4.50E+05	1.50E+05	
1.04	TPH 1	TPH (>EC10-12) aromatic (t)	Y	9.00E+02	2.50E+04	1.01E+03	1.04E+01	1.55E+01	2.54E+01	3.13E+01	4.71E+01	4.46E+01	5.16E+01	8.18E+01	2.60E+00	2.89E-02	3.50E+04	2.04E+02	5.68E+01	2.45E+02	1.08E+01	3.90E+02	1.49E+03	9.43E-05	1.14E-07	
1.05	TPH 1	TPH (>EC12-16) aromatic (t)	Y	9.00E+01	5.80E+03	1.43E+02	1.54E+01	2.24E+01	3.61E+01	4.43E+01	5.91E+01	6.29E+01	7.27E+01	1.15E+02	2.21E+01	<0.01	IR	7.81E+00	9.60E+01	8.31E+03	3.47E+04	2.26E+05	2.27E+07	3.95E+08	1.61E+08	
1.08	TPH 1	TPH (>EC5-6) aliphatic (t)	Y	1.50E+04	3.60E+04	3.08E+02	3.58E+00	5.33E+00	6.72E+00	1.08E+01	1.43E+01	1.53E+01	1.78E+01	2.82E+01	7.67E+01	<0.01	IR	6.31E+01	1.77E+01	7.77E-01	8.59E+02	1.26E+02	4.89E+04	3.14E+05	3.46E+08	
1.09	TPH 1	TPH (>EC6-8) aliphatic (t)	Y	1.50E+04	5.40E+03	6.97E+02	8.23E+00	1.18E+01	1.88E+01	2.31E+01	3.08E+01	3.27E+01	3.78E+01	5.97E+01	4.24E+01	<0.01	IR	4.02E+00	1.47E+01	1.22E+04	1.24E+06	3.63E+07	2.53E+07	1.93E+07	7.84E+08	
1.10	TPH 1	TPH (>EC9-10) aliphatic (t)	Y	3.00E+02	4.30E+02	4.30E+02	2.89E+01	4.09E+01	6.48E+01	7.94E+01	1.06E+02	1.12E+02	1.30E+02	2.05E+02	6.29E+01	<0.01	IR	5.36E+02	1.55E+07	9.82E+07	2.81E+07	1.56E+07	1.56E+07	1.15E+07	4.44E+08	
1.11	TPH 1	TPH (>EC10-12) aliphatic (t)	Y	3.00E+02	3.40E+01	3.40E+01	1.07E+02	1.52E+02	2.40E+02	2.94E+02	3.92E+02	4.16E+02	4.80E+02	7.59E+02	6.29E+01	<0.01	IR	3.40E+08	2.87E+08	2.27E+08	2.22E+08	1.77E+08	1.23E+08	9.40E+09	3.82E+09	
1.2	TPH 1	TOTAL TPH (t)	Y	No Criterion		1.75E+04									3.68E+01	#VALUE!	#VALUE!	2.84E+03	1.23E+03	4.39E+02	2.24E+02	1.22E+02	4.22E+01	1.71E+01	3.31E-01	
2.	BTEX	Benzene	Y	1.00E+00	1.78E+06	1.46E+03	8.90E-01	1.56E+00	3.00E+00	3.88E+00	5.18E+00	5.85E+00	6.87E+00	1.12E+01	7.18E+00	7.18E+00	2.03E+02	1.21E+03	1.00E+03	5.05E+02	2.63E+02	1.44E+02	5.02E+01	2.03E+01	3.89E-01	
2.01	BTEX	Toluene	Y	7.00E+02	5.90E+05	4.65E+02	1.55E+00	2.48E+00	4.29E+00	5.38E+00	7.17E+00	7.79E+00	9.05E+00	1.45E+01	1.98E+00	<0.01	IR	2.73E+02	1.68E+02	3.98E+01	1.25E+01	4.38E+00	7.21E+01	1.55E+01	1.96E-04	
2.02	BTEX	Emybenzene	Y	3.00E+02	1.69E+05	2.35E+03	2.73E+00	4.25E+00	7.19E+00	8.95E+00	1.19E+01	1.29E+01	1.49E+01	2.38E+01	8.62E+00	2.87E+02	8.18E+04	1.13E+03	5.88E+02	9.60E+01	2.37E+01	6.81E+00	8.01E+01	1.30E+01	5.02E-05	
2.03	BTEX	Xylenes	Y	5.00E+02	2.00E+05	6.48E+03	2.76E+00	4.28E+00	7.24E+00	9.01E+00	1.20E+01	1.30E+01	1.50E+01	2.40E+01	2.38E+01	4.76E+02	1.38E+05	3.06E+03	1.57E+03	2.50E+02	6.05E+01	1.71E+01	1.98E+00	3.12E-01	1.10E-04	
3	PAH	Fluorane	Y	1.50E+03	1.90E+03	2.05E+01	1.12E+01	1.65E+01	2.69E+01	3.32E+01	4.42E+01	4.72E+01	5.46E+01	8.86E+01	5.03E-04	<0.01	IR	3.47E+02	8.55E+03	2.91E+04	2.78E+05	3.57E+06	1.12E+07	6.01E+09	2.31E-11	
3	PAH	Naphthalene	Y	1.00E+00	1.90E+04	1.75E+02	4.42E+00	7.13E+00	1.25E+01	1.56E+01	2.09E+01	2.27E+01	2.75E+01	4.23E+01	7.54E+01	7.54E-01	2.32E+02	1.08E+02	6.94E+01	1.83E+01	6.11E+00	2.28E+00	4.12E+01	9.56E+02	1.70E-01	

WATER RESULTS OUTPUT SUMMARY - PROBABILISTIC OUTPUT BY DISTANCE

[illegible]

**WATER RESULTS OUTPUT SUMMARY -
PROBABILISTIC SUMMARY (SS @ CP)**

Navigation Page																										
Vert:	YES																									
Dil:	NO																									
		RISK LEVEL					9.50E-01																			
							0.05	0.1	0.25	0.5	0.8	0.9	0.95	1	0.05	0.1	0.25	0.5	0.8	0.9	0.95	1				
Order	Group	Determinand	Select	DWS / Freshwater	Solubility	Model GW Conc	SIMULATED CONCENTRATION								CALCULATED HAZARD INDEX											
							µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l												
1.01	TPH 1	TPH (>EC5-7) aromatic (1)	Y	1.00E+01	1.80E+06	1.21E+03	1.24E-02	1.03E-01	1.81E+00	1.31E+01	5.40E+01	8.57E+01	1.20E+02	2.34E+02	<0.01	1.03E-02	1.81E-01	1.31E+00	5.40E+00	8.57E+00	1.20E+01	2.34E+01				
1.02	TPH 1	TPH (>EC7-8) aromatic (1)	Y	7.00E+02	1.30E+05	3.92E+02	7.73E-07	9.13E-06	7.29E-04	3.02E-02	7.99E-01	1.97E+00	3.58E+00	2.06E+01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	2.95E-02				
1.03	TPH 1	TPH (>EC8-10) aromatic (1)	Y	3.00E+02	6.50E+04	1.33E+04	6.92E-06	6.92E-06	6.92E-06	6.92E-06	8.95E-04	1.20E-02	5.22E-02	6.72E+00	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	2.24E-02				
1.04	TPH 1	TPH (>EC10-12) aromatic (1)	Y	9.00E+01	2.50E+04	1.01E+03	5.26E-07	5.26E-07	5.26E-07	5.54E-06	1.67E-03	9.11E-03	3.90E-02	2.64E+00	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	2.93E-02				
1.05	TPH 1	TPH (>EC12-16) aromatic (1)	Y	9.00E+01	5.80E+03	1.43E+02	7.44E-08	7.44E-08	7.44E-08	7.44E-08	1.75E-07	3.72E-06	2.26E-05	1.50E-02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01				
1.08	TPH 1	TPH (>EC5-6) aliphatic (1)	Y	1.50E+04	3.60E+04	3.08E+02	1.60E-07	1.60E-07	1.60E-07	3.21E-06	7.28E-04	4.20E-03	1.26E-02	3.90E-01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01				
1.09	TPH 1	TPH (>EC6-8) aliphatic (1)	Y	1.50E+04	5.40E+03	6.97E+02	3.63E-07	3.63E-07	3.63E-07	3.63E-07	3.63E-07	3.63E-07	3.63E-07	4.38E-05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01				
1.1	TPH 1	TPH (>EC8-10) aliphatic (1)	Y	3.00E+02	4.30E+02	4.30E+02	2.24E-07	2.24E-07	2.24E-07	2.24E-07	2.24E-07	2.24E-07	2.24E-07	2.24E-07	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01				
1.11	TPH 1	TPH (>EC10-12) aliphatic (1)	Y	3.00E+02	3.40E+01	3.40E+01	1.77E-08	1.77E-08	1.77E-08	1.77E-08	1.77E-08	1.77E-08	1.77E-08	1.77E-08	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01				
1.2	TPH 1	TOTAL TPH (1)	Y	No Criterion			1.75E+04	1.88E-02	1.05E-01	1.87E+00	1.34E+01	5.49E+01	8.82E+01	1.22E+02	2.39E+02											
2	BTEX	Benzene	Y	1.00E+00	1.78E+06	1.46E+03	2.12E-02	1.32E-01	2.00E+00	1.41E+01	7.03E+01	1.11E+02	1.44E+02	2.63E+02	2.12E-02	1.32E-01	2.00E+00	1.41E+01	7.03E+01	1.11E+02	1.44E+02	2.63E+02				
2.01	BTEX	Toluene	Y	7.00E+02	5.90E+05	4.65E+02	5.50E-07	1.13E-05	1.18E-03	3.80E-02	7.79E-01	2.37E+00	4.38E+00	2.31E+01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	3.31E-02				
2.02	BTEX	Ethylbenzene	Y	3.00E+02	1.69E+05	2.35E+03	1.22E-06	1.22E-06	1.56E-04	1.49E-02	8.98E-01	2.89E+00	6.81E+00	5.42E+01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	2.27E-02	1.81E-01				
2.03	BTEX	Xylenes	Y	5.00E+02	2.00E+05	6.48E+03	3.37E-06	3.37E-06	5.20E-04	5.76E-02	2.16E+00	7.26E+00	1.71E+01	1.85E+02	<0.01	<0.01	<0.01	<0.01	<0.01	1.45E-02	3.43E-02	3.70E-01				
3	PAH	Fluorene	Y	1.50E+03	1.90E+03	2.05E-01	1.07E-10	1.07E-10	1.07E-10	2.51E-10	9.77E-08	7.67E-07	3.57E-06	2.43E-04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01				
3	PAH	Naphthalene	Y	1.00E+00	1.90E+04	1.75E+02	1.35E-06	1.92E-05	1.45E-03	3.60E-02	5.67E-01	1.21E+00	2.28E+00	1.35E+01	<0.01	<0.01	<0.01	3.60E-02	5.67E-01	1.21E+00	2.28E+00	1.35E+01				

**WATER RESULTS OUTPUT SUMMARY -
PROBABILISTIC SUMMARY (SS @ CP)**

Navigation Page																																							
Vert:	YES	RISK LEVEL															9.50E-01																						
Dil:	NO																0.05	0.1	0.25	0.5	0.8	0.9	0.95	1	RISK LEVEL														
Order	Group	Determinand	Select	DWS / Freshwater	Solubility	Model GW Conc	GWTC3 horizontal								GWTC4 Dilution	Stage 3: 0.05	Stage 3: 0.1	Stage 3: 0.25	Stage 3: 0.5	Stage 3: 0.8	Stage 3: 0.9	Stage 3: 0.95	Stage 3: 1	Stage 4: Dilution															
			Y	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l																								
1.01	TPH 1	TPH (>EC5-7) aromatic (1)	Y	1.00E+01	1.80E+06	1.21E+03	IR	1.17E+05	6.69E+03	9.20E+02	2.24E+02	1.41E+02	1.00E+02	5.18E+01																									
1.02	TPH 1	TPH (>EC7-8) aromatic (1)	Y	7.00E+02	1.30E+05	3.92E+02	IR	IR	IR	IR	IR	IR	IR	1.33E+04																									
1.03	TPH 1	TPH (>EC8-10) aromatic (1)	Y	3.00E+02	6.50E+04	1.33E+04	IR	IR	IR	IR	IR	IR	IR	5.94E+05																									
1.04	TPH 1	TPH (>EC10-12) aromatic (1)	Y	9.00E+01	2.50E+04	1.01E+03	IR	IR	IR	IR	IR	IR	IR	3.45E+04																									
1.05	TPH 1	TPH (>EC12-16) aromatic (1)	Y	9.00E+01	5.80E+03	1.43E+02	IR	IR	IR	IR	IR	IR	IR	IR																									
1.08	TPH 1	TPH (>EC5-6) aliphatic (1)	Y	1.50E+04	3.60E+04	3.08E+02	IR	IR	IR	IR	IR	IR	IR	IR																									
1.09	TPH 1	TPH (>EC6-8) aliphatic (1)	Y	1.50E+04	5.40E+03	6.97E+02	IR	IR	IR	IR	IR	IR	IR	IR																									
1.1	TPH 1	TPH (>EC8-10) aliphatic (1)	Y	3.00E+02	4.30E+02	4.30E+02	IR	IR	IR	IR	IR	IR	IR	IR																									
1.11	TPH 1	TPH (>EC10-12) aliphatic (1)	Y	3.00E+02	3.40E+01	3.40E+01	IR	IR	IR	IR	IR	IR	IR	IR																									
1.2	TPH 1	TOTAL TPH (1)	Y	No Criterion		1.75E+04																																	
2	BTEX	Benzene	Y	1.00E+00	1.78E+06	1.46E+03	6.89E+04	1.10E+04	7.29E+02	1.04E+02	2.08E+01	1.31E+01	1.01E+01	5.54E+00																									
2.01	BTEX	Toluene	Y	7.00E+02	5.90E+05	4.65E+02	IR	IR	IR	IR	IR	IR	IR	1.41E+04																									
2.02	BTEX	Ethylbenzene	Y	3.00E+02	1.69E+05	2.35E+03	IR	IR	IR	IR	IR	IR	IR	1.04E+05	1.30E+04																								
2.03	BTEX	Xylenes	Y	5.00E+02	2.00E+05	6.48E+03	IR	IR	IR	IR	IR	IR	4.46E+05	1.89E+05	1.75E+04																								
3	PAH	Fluorene	Y	1.50E+03	1.90E+03	2.05E-01	IR	IR	IR	IR	IR	IR	IR	IR																									
3	PAH	Naphthalene	Y	1.00E+00	1.90E+04	1.75E+02	IR	IR	IR	4.86E+03	3.09E+02	1.45E+02	7.69E+01	1.30E+01																									

SSTL SUMMARY

Navigation Page																	
Vert:	YES	RISK LEVEL9.50E-01															
Dil:	NO																
Order	Group	Determinand	Select	DWS / Freshwater	Solubility	Soil Saturation Limit	Max Soil Conc	Model GW Conc	SOIL - STC3				GROUNDWATER - GWTC3				
									50 m	75 m	100 m	250 m	50 m	75 m	100 m	250 m	
									50 m	75 m	100 m	250 m	50 m	75 m	100 m	250 m	
			Y	µg/l	µg/l	mg/kg	mg/kg	µg/l	mg/kg	mg/kg	mg/kg	mg/kg	µg/l	µg/l	µg/l	µg/l	
1.01	TPH 1	TPH (>EC5-7) aromatic (1)	Y	1.00E+01	1.80E+06	1.12E+03	-	1.21E+03	-	-	-	-	1.00E+02	2.87E+02	7.07E+02	3.65E+04	
1.02	TPH 1	TPH (>EC7-8) aromatic (1)	Y	7.00E+02	1.30E+05	2.08E+02	-	3.92E+02	-	-	-	-	IR	IR	IR	IR	
1.03	TPH 1	TPH (>EC8-10) aromatic (1)	Y	3.00E+02	6.50E+04	7.60E+02	3.11E-01	1.33E+04	IR	IR	IR	IR	IR	IR	IR	IR	
1.04	TPH 1	TPH (>EC10-12) aromatic (1)	Y	9.00E+01	2.50E+04	4.61E+02	3.65E-01	1.01E+03	IR	IR	IR	IR	IR	IR	IR	IR	
1.05	TPH 1	TPH (>EC12-16) aromatic (1)	Y	9.00E+01	5.80E+03	2.13E+02	5.24E+01	1.43E+02	IR	IR	IR	IR	IR	IR	IR	IR	
1.06	TPH 1	TPH (>EC16-21) aromatic (1)	Y	9.00E+01	6.50E+02	6.71E+01	6.71E+01	-	IR	IR	IR	IR	-	-	-	-	
1.07	TPH 1	TPH (>EC21-35) aromatic (1)	Y	9.00E+01	6.60E+00	6.07E+00	6.07E+00	-	IR	IR	IR	IR	-	-	-	-	
1.08	TPH 1	TPH (>EC5-6) aliphatic (1)	Y	1.50E+04	3.60E+04	3.29E+02	2.03E-02	3.08E+02	IR	IR	IR	IR	IR	IR	IR	IR	
1.09	TPH 1	TPH (>EC6-8) aliphatic (1)	Y	1.50E+04	5.40E+03	1.72E+02	1.48E-01	6.97E+02	IR	IR	IR	IR	IR	IR	IR	IR	
1.1	TPH 1	TPH (>EC8-10) aliphatic (1)	Y	3.00E+02	4.30E+02	9.75E+01	3.78E-01	4.30E+02	IR	IR	IR	IR	IR	IR	IR	IR	
1.11	TPH 1	TPH (>EC10-12) aliphatic (1)	Y	3.00E+02	3.40E+01	5.99E+01	5.47E-01	3.40E+01	IR	IR	IR	IR	IR	IR	IR	IR	
1.12	TPH 1	TPH (>EC12-16) aliphatic (1)	Y	3.00E+02	7.60E-01	2.98E+01	2.98E+01	-	IR	IR	IR	IR	-	-	-	-	
1.13	TPH 1	TPH (>EC16-21) aliphatic (1)	Y	1.00E+01	2.50E-03	1.15E+01	1.15E+01	-	IR	IR	IR	IR	-	-	-	-	
1.14	TPH 1	TPH (>EC21-35) aliphatic (1)	Y	1.00E+01	8.91E-02	4.94E+03	4.11E+02	-	IR	IR	IR	IR	-	-	-	-	
1.2	TPH 1	TOTAL TPH (1)	Y	No Criterion			5.80E+02	1.75E+04									
2	BTEX	Benzene	Y	1.00E+00	1.78E+06	1.07E+03	2.22E-03	1.46E+03	6.94E-02	2.13E-01	IR	IR	1.01E+01	2.91E+01	7.18E+01	3.75E+03	
2.01	BTEX	Toluene	Y	7.00E+02	5.90E+05	9.43E+02	1.13E-02	4.65E+02	IR	IR	IR	IR	IR	IR	IR	IR	
2.02	BTEX	Ethylbenzene	Y	3.00E+02	1.69E+05	5.71E+02	7.92E-03	2.35E+03	IR	IR	IR	IR	1.04E+05	IR	IR	IR	
2.03	BTEX	Xylenes	Y	5.00E+02	2.00E+05	6.84E+02	1.63E-02	6.48E+03	IR	IR	IR	IR	1.89E+05	IR	IR	IR	
3	PAH	Acenaphthene	Y	2.20E+03	3.80E+03	6.54E+01	2.09E+01	-	IR	IR	IR	IR	-	-	-	-	
3	PAH	Acenaphthylene	Y	1.00E+01	1.61E+04	2.15E+02	1.76E+00	-	IR	IR	IR	IR	-	-	-	-	
3	PAH	Anthracene	Y	1.10E+04	4.50E+01	1.85E+00	1.85E+00	-	IR	IR	IR	IR	-	-	-	-	
3	PAH	Benzo(a)anthracene	Y	2.90E-02	3.80E+00	2.15E+00	2.15E+00	-	IR	IR	IR	IR	-	-	-	-	
3	PAH	Benzo(a)pyrene	Y	1.00E-02	3.80E+00	3.58E+00	3.58E+00	-	IR	IR	IR	IR	-	-	-	-	
3	PAH	Benzo(b)fluoranthene	Y	2.50E-02	2.00E+00	1.53E+00	1.53E+00	-	IR	IR	IR	IR	-	-	-	-	
3	PAH	Benzo(g,h,i)perylene	Y	2.50E-02	2.60E-01	7.91E-01	7.91E-01	-	IR	IR	IR	IR	-	-	-	-	
3	PAH	Benzo(k)fluoranthene	Y	2.50E-02	8.00E-01	8.64E-01	8.64E-01	-	IR	IR	IR	IR	-	-	-	-	
3	PAH	Chrysene	Y	2.90E+00	2.00E+00	8.03E-01	8.03E-01	-	IR	IR	IR	IR	-	-	-	-	
3	PAH	Dibenzo(a,h)anthracene	Y	2.90E-03	6.00E-01	8.16E-01	8.16E-01	-	IR	IR	IR	IR	-	-	-	-	
3	PAH	Fluoranthene	Y	2.00E-01	2.30E+02	3.06E+01	3.06E+01	-	IR	IR	IR	IR	-	-	-	-	
3	PAH	Fluorene	Y	1.50E+03	1.90E+03	3.93E+01	1.77E+01	2.05E-01	IR	IR	IR	IR	IR	IR	IR	IR	
3	PAH	Indeno[1,2,3-cd]pyrene	Y	2.50E-02	2.00E-01	1.27E-01	1.27E-01	-	IR	IR	IR	IR	-	-	-	-	
3	PAH	Naphthalene	Y	1.00E+00	1.90E+04	9.13E+01	4.20E+00	1.75E+02	1.18E+00	5.58E+00	2.33E+01	IR	7.69E+01	4.25E+02	1.83E+03	IR	
3	PAH	Phenanthrene	Y	1.00E+01	1.10E+03	4.42E+01	4.42E+01	-	IR	IR	IR	IR	-	-	-	-	
3	PAH	Pyrene	Y	1.10E+03	1.30E+02	1.54E+01	1.54E+01	-	IR	IR	IR	IR	-	-	-	-	
4	METALS	Arsenic	Y	1.00E+01	1.70E+07	8.50E+06	2.19E+01	-	2.13E+01	3.25E+01	5.31E+01	1.17E+03	-	-	-	-	
4	METALS	Boron	Y	1.00E+03	5.50E+08	5.55E+06	1.36E+01	-	3.41E+01	4.13E+01	5.05E+01	1.14E+02	-	-	-	-	
4	METALS	Cadmium	Y	5.00E+00	5.70E+08	5.71E+07	8.75E-01	-	1.70E+00	2.11E+00	2.64E+00	7.13E+00	-	-	-	-	
4	METALS	Chromium III	Y	5.00E+01	6.29E+08	3.02E+09	3.11E+01	-	IR	IR	IR	IR	-	-	-	-	
4	METALS	Cobalt	Y	1.10E+01	1.40E+07	6.31E+05	1.05E+01	-	1.68E+00	2.03E+00	2.48E+00	5.95E+00	-	-	-	-	
4	METALS	Copper	Y	2.00E+03	8.00E+04	8.01E+03	1.06E+02	-	6.79E+02	8.44E+02	1.06E+03	2.85E+03	-	-	-	-	
4	METALS	Lead	Y	2.50E+01	5.00E+01	1.80E+03	1.28E+02	-	IR	IR	IR	IR	-	-	-	-	
4	METALS	Molybdenum	Y	2.00E+01	4.90E+05	9.85E+03	2.94E-01	-	1.36E+00	1.65E+00	2.01E+00	4.56E+00	-	-	-	-	
4	METALS	Nickel	Y	2.00E+01	1.90E+05	9.50E+04	3.75E+01	-	4.26E+01	6.50E+01	1.06E+02	2.35E+03	-	-	-	-	
4	METALS	Tin	Y	2.20E+04	1.27E+01	3.18E+00	3.18E+00	-	IR	IR	IR	IR	-	-	-	-	
4	METALS	Zinc	Y	5.00E+03	1.62E+07	6.17E+05	2.30E+02	-	6.43E+02	7.80E+02	9.53E+02	2.25E+03	-	-	-	-	

Appendix H - Stage 2 GAC Tables

TABLE 10
SOIL ANALYTICAL DATA with CPU and CW GAC

Stage2 Human Health GAC	Human Health CPU
Stage2 Controlled Waters GAC	Low foc <1% DWS
Sample Round	Hitchin October 2011
Site	Hitchin

					BH101		BH102		BH103		BH105		BH106		UP101	VP102	VP103
					0.8	5.4	0.8	2.7	1	3.2	0.6	4.1	0.5	3.9	0.6	0.4	0.7
Chem Class	Analyte	HH	CW	Units	27/09/2011	03/10/2011	27/09/2011	30/09/2011	27/09/2011	29/09/2011	27/09/2011	29/09/2011	28/09/2011	04/10/2011	28/09/2011	27/09/2011	26/09/2011
BTEX	BENZENE	2.73	0.000179	mg/kg	ND	ND	ND	ND	ND	ND	0.00222	ND	ND	ND	ND	ND	ND
		23500	(blank)	µg/l	ND	ND	NT	NT	ND	ND	1.11	ND	ND	ND	NT	NT	NT
	TOLUENE	>Sat	(blank)	µg/l	ND	ND	NT	NT	ND	ND	1.34	ND	ND	ND	NT	NT	NT
			0.0228	mg/kg	ND	ND	ND	ND	ND	ND	0.0113	ND	ND	ND	ND	ND	ND
	ETHYLBENZENE	>Sat	0.282	mg/kg	ND	ND	ND	ND	ND	ND	0.00792	ND	ND	ND	ND	ND	ND
			(blank)	µg/l	ND	ND	NT	NT	ND	ND	ND	ND	ND	ND	NT	NT	NT
	M_P_XYLENE	>Sat	(blank)	µg/l	ND	ND	NT	NT	ND	ND	2.53	ND	ND	ND	NT	NT	NT
		613	0.0288	mg/kg	ND	ND	ND	ND	ND	ND	0.0163	ND	ND	ND	ND	ND	ND
METALTOT	O_XYLENE	>Sat	(blank)	µg/l	ND	ND	NT	NT	ND	ND	2.73	ND	ND	ND	NT	NT	NT
			0.0288	mg/kg	ND	ND	ND	ND	ND	ND	0.0139	ND	ND	ND	ND	ND	ND
	TOTAL_ARSENIC	NP	5	mg/kg	19.6	NT	NT	NT	21.9	NT	21.2	NT	13.9	NT	NT	NT	NT
	TOTAL_BORON	NP	10	mg/kg	10.4	NT	NT	NT	10.7	NT	13.6	NT	9.31	NT	NT	NT	NT
	TOTAL_CADMIUM	NP	0.5	mg/kg	0.751	NT	NT	NT	0.875	NT	0.779	NT	0.367	NT	NT	NT	NT
	TOTAL_CHROMIUM	NP	65	mg/kg	31.1	NT	NT	NT	22.9	NT	22	NT	17.5	NT	NT	NT	NT
	TOTAL_COBALT	NP	0.495	mg/kg	10.5	NT	NT	NT	7.58	NT	6.19	NT	5.63	NT	NT	NT	NT
	TOTAL_COPPER	NP	1.1	mg/kg	18	NT	NT	NT	15	NT	106	NT	13.8	NT	NT	NT	NT
MISC	TOTAL_HEXAVALENT_CHROMIUM	NP	0.902	mg/kg	ND	NT	NT	NT	ND	NT	ND	NT	ND	NT	NT	NT	NT
	TOTAL_LEAD	NP	900	mg/kg	15.2	NT	NT	NT	24	NT	128	NT	37.1	NT	NT	NT	NT
	TOTAL_MERCURY	NP	0.000703	mg/kg	ND	NT	NT	NT	ND	NT	ND	NT	ND	NT	NT	NT	NT
	TOTAL_MOLYBDENUM	NP	1.4	mg/kg	0.217	NT	NT	NT	ND	NT	0.294	NT	ND	NT	NT	NT	NT
	TOTAL_NICKEL	NP	10	mg/kg	37.5	NT	NT	NT	25.4	NT	25.3	NT	17.1	NT	NT	NT	NT
	TOTAL_SELENIUM	NP	0.5	mg/kg	ND	NT	NT	NT	ND	NT	ND	NT	ND	NT	NT	NT	NT
	TOTAL_TIN	NP	5500	mg/kg	ND	NT	NT	NT	0.817	NT	12.2	NT	0.89	NT	NT	NT	NT
	TOTAL_ZINC	NP	190	mg/kg	81.3	NT	NT	NT	230	NT	200	NT	85.9	NT	NT	NT	NT
PAH	Total Organic Carbon	(blank)	(blank)	%	0.371	0.438	0.334	ND	0.746	0.288	2.09	ND	0.702	ND	1.23	0.766	1.87
	TEMPERATURE	(blank)	(blank)	°C	22.9	21.2	NT	NT	20.6	21.1	20.6	21.2	21.2	21.4	NT	NT	NT
RISKTTPH	Acenaphthene	>Sat	10.4	mg/kg	0.179	NT	NT	NT	0.0115	NT	5.89	NT	20.9	NT	NT	NT	NT
	Acenaphthylene	>Sat	0.33	mg/kg	ND	NT	NT	NT	0.0609	NT	1.76	NT	1.29	NT	NT	NT	NT
	Anthracene	>Sat	0.00113	mg/kg	0.09	NT	NT	NT	0.0667	NT	11.8	NT	17.8	NT	NT	NT	NT
	BENZO_A_ ANTHRACENE	>Sat	0.0045	mg/kg	0.0883	NT	NT	NT	0.432	NT	23.4	NT	14.8	NT	NT	NT	NT
	BENZO_A_PYRENE	>Sat	0.00258	mg/kg	0.077	NT	NT	NT	0.554	NT	23.9	NT	13.6	NT	NT	NT	NT
	BENZO_B_FLUORANTHENE	>Sat	0.00524	mg/kg	0.0938	NT	NT	NT	0.79	NT	26.7	NT	16.2	NT	NT	NT	NT
	BENZO_G_H_I_PERYLENE	>Sat	0.0208	mg/kg	0.0489	NT	NT	NT	0.467	NT	13.7	NT	6.88	NT	NT	NT	NT
	BENZO_K_FLUORANTHENE	>Sat	0.0074	mg/kg	0.0426	NT	NT	NT	0.339	NT	9.62	NT	5.79	NT	NT	NT	NT
	Chrysene	>Sat	0.319	mg/kg	0.0748	NT	NT	NT	0.481	NT	17.3	NT	12.4	NT	NT	NT	NT
	DIBENZ_A_H_ ANTHRACENE	>Sat	0.00108	mg/kg	ND	NT	NT	NT	0.0957	NT	3.44	NT	1.86	NT	NT	NT	NT
	Fluoranthene	>Sat	0.00729	mg/kg	0.211	NT	NT	NT	0.851	NT	55.6	NT	53.9	NT	NT	NT	NT
	Fluorene	>Sat	8.5	mg/kg	0.127	NT	NT	NT	0.0129	NT	6.7	NT	17.7	NT	NT	NT	NT
	INDENO_1_2_3_CD_PYRENE	>Sat	0.00436	mg/kg	0.0398	NT	NT	NT	0.358	NT	11.7	NT	5.78	NT	NT	NT	NT
	Naphthalene	19.9	0.00318	mg/kg	ND	NT	NT	NT	0.0201	NT	3.08	NT	4.2	NT	NT	NT	NT
	Phenanthrene	>Sat	0.992	mg/kg	0.298	NT	NT	NT	0.241	NT	35.6	NT	62.7	NT	NT	NT	NT
	Pyrene	>Sat	35.7	mg/kg	0.168	NT	NT	NT	0.735	NT	46.5	NT	41.8	NT	NT	NT	NT
	TOTAL_PAH	(blank)	(blank)	mg/kg	1.54	NT	NT	NT	5.52	NT	297	NT	297	NT	NT	NT	NT
RISKTTPH	RISK_TPH_C6_C7_AROM	>Sat	0.000179	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	RISK_TPH_C7_C8_AROM	>Sat	0.0228	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	RISK_TPH_C8_C10_AROM	387	0.969	mg/kg	ND	ND	ND	ND	ND	ND	0.311	ND	0.252	ND	ND	ND	0.0285
	RISK_TPH_C10_C12_AROM	>Sat	0.456	mg/kg	0.0131	ND	ND	ND	ND	ND	0.301	ND	0.365	ND	ND	ND	0.0161
	RISK_TPH_C12_C16_AROM	>Sat	0.905	mg/kg	8.16	7.32	9.82	3.51	1.6	19.8	52.4	ND	16.5	2.92	3.6	1.41	36.7
			(blank)	µg/l	13	ND	NT	NT	ND	ND	180	ND	46	ND	NT	NT	NT
	RISK_TPH_C16_C21_AROM	>Sat	2.55	mg/kg	12.8	4.9	10.1	1.73	5.68	101	271	ND	65	2.58	35.7	2.27	115
			(blank)	µg/l	ND	ND	NT	NT	ND	ND	122	ND	106	ND	NT	NT	NT
	RISK_TPH_C21_C35_AROM	>Sat	22.7	mg/kg	32.1	7.07	43.8	0.692	28.1	175	641	ND	183	6.11	146	18.4	616
			(blank)	µg/l	ND	ND	NT	NT	ND	ND	ND	ND	ND	NT	NT	NT	NT
	RISK_TPH_C5_C6_ALI	369	60.1	mg/kg	ND	ND	ND	ND	ND	ND	0.0203	ND	ND	ND	ND	ND	ND
	RISK_TPH_C6_C8_ALI	>Sat	160	mg/kg	0.0107	ND	ND	ND	ND	ND	0.148	ND	0.052	ND	ND	ND	ND
	RISK_TPH_C8_C10_ALI	>Sat	19.5	mg/kg	0.0107	ND	ND	ND	ND	ND	0.357	ND	0.378	ND	ND	ND	0.0422
	RISK_TPH_C10_C12_ALI	>Sat	146	mg/kg	0.019	ND	ND	ND	ND	ND	0.451	ND	0.547	ND	ND	ND	0.0248
	RISK_TPH_C12_C16_ALI	>Sat	3230	mg/kg	7.25	17.6	23.3	6.66	2.48	77.7	24.5	7.29	8.93	2.57	8.07	2.46	13.8
			(blank)	µg/l	ND	ND	NT	NT	ND	ND	ND	ND	ND	NT	NT	NT	NT
	RISK_TPH_C16_C21_ALI	>Sat	379000	mg/kg	5.31	7	11.9	6.37	2.87	223	44.1	5.6	21.6	2.15	15.8	2.73	27.3
			(blank)	µg/l	ND	ND	NT	NT	ND	ND	ND	ND	ND	NT	NT	NT	NT
	RISK_TPH_C21_C35_ALI	>Sat	4550000	mg/kg	12.3	7.79	38.4	1.08	12.5	303	411	ND	125	6.64	117	16.1	359
			(blank)	µg/l	ND	ND	NT	NT	ND	ND	ND	ND	ND	NT	NT	NT	NT
	RISK_TPH_C35_C44_ALI	>Sat	345000	mg/kg	3.13	1.42	17.6	ND	2.43	86.8	160	ND	83.9	1.49	72.7	3.53	438
	TPH_STAGE2_HI	1	(blank)	ratio	0.0012953	0.002373	0.0031076	0.0010055	0.0028922	0.003603	0.0080215	0.0009328	0.0048285	0.0005379	0.0012013	0.0004615	0.003436
VOC	DIPE	42.9	0.00484	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	ETHANOL	(blank)	0.584	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	MTBE	685	0.00302	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	TAME	20.8	0.00517	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
		248000	(blank)	µg/l	ND	ND	NT	NT	ND	ND	ND	ND	ND	ND	NT	NT	NT
	TBA	3330	0.00164	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	ETBE	65.1	0.00507	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MISC_CEN21	PH	(blank)	(blank)	pH Units	8.64	8.43	NT	NT	8.6	8.46	9.18	8.61	9.71	6.84	NT	NT	NT
	CONDUCTIVITY	(blank)	(blank)	µS/cm	400	756	NT	NT	415	227	466	274	468	190	NT	NT	NT
VOCSURR	TOLUENE_D8	(blank)	(blank)	%	100	97.6	97.5	NT	98.6	104	90.2	104	101	99	103	98.8	94.5

XX	Exceeds Human Health & Controlled Waters
XX	Exceeds Human Health Criteria
XX	Exceeds Controlled Waters Criteria

CSM / Assumptions:
Soil 1% SOM (0.58% TOC)
Soil properties for "sand"
Commercial site area 0.5ha
Soil gas ingress rates calculated by model
Infinite groundwater source at 1m.bgl for groundwater GAC
High density residential assume vapour exposure pathways only
CPU scenario modified from modelled commercial scenario by:
Building dimensions (l x w x h): 14m x 6.5m x 2.4m
Differential pressure: 2.6 pascals
Only vapour exposure pathways considered viable
Derived November 2010 using Human7.1 Issue9. MTF.

ND: Not detected above MDL
HH: Human Health
GAC: Generic Assessment Criteria
(blank): No criteria
NP: No pathway
>Sat: Unacceptatable risk not achieved due to calculated saturation of vapour pathway
NT: Not tested

TABLE 4
SOIL ANALYTICAL DATA with HDR and CW GAC

Stage2 Human Health GAC	Human Health High Density Residential
Stage2 Controlled Waters GAC	Low foc <1% DWS
Sample Round	Hitchin October 2011
Site	Hitchin

		BH101			BH102			BH103			BH105			BH106			UP101	VP102	VP103
		0.8	5.4		0.8	2.7		1	3.2		0.6	4.1		0.5	3.9		0.6	0.4	0.7
Chem Class	Analyte	HH	CW	Units	27/09/2011	03/10/2011	27/09/2011	30/09/2011	27/09/2011	29/09/2011	27/09/2011	29/09/2011	28/09/2011	04/10/2011	28/09/2011	27/09/2011	26/09/2011		
BTEX	BENZENE	0.0928	0.000179	mg/kg	ND	ND	ND	ND	ND	ND	0.00222	ND	ND	ND	ND	ND	ND	ND	
	222	0.0228	mg/kg		ND	ND	ND	ND	ND	ND	0.0113	ND	ND	ND	ND	ND	ND	ND	
	ETHYLBENZENE	60.1	0.282	mg/kg	ND	ND	ND	ND	ND	ND	0.00792	ND	ND	ND	ND	ND	ND	ND	
	M P XYLENE	19.7	0.0288	mg/kg	ND	ND	ND	ND	ND	ND	0.0163	ND	ND	ND	ND	ND	ND	ND	
	O XYLENE	21.1	0.0288	mg/kg	ND	ND	ND	ND	ND	ND	0.0139	ND	ND	ND	ND	ND	ND	ND	
METALTOT	TOTAL ARSENIC	NP	5	mg/kg	19.6	NT	NT	NT	21.9	NT	21.2	NT	13.9	NT	NT	NT	NT	NT	
	TOTAL BORON	NP	10	mg/kg	10.4	NT	NT	NT	10.7	NT	13.6	NT	9.31	NT	NT	NT	NT	NT	
	TOTAL CADMIUM	NP	0.5	mg/kg	0.751	NT	NT	NT	0.875	NT	0.779	NT	0.367	NT	NT	NT	NT	NT	
	TOTAL CHROMIUM	NP	65	mg/kg	31.1	NT	NT	NT	22.9	NT	22	NT	17.5	NT	NT	NT	NT	NT	
	TOTAL COBALT	NP	0.495	mg/kg	10.5	NT	NT	NT	7.58	NT	6.19	NT	5.63	NT	NT	NT	NT	NT	
	TOTAL COPPER	NP	1.1	mg/kg	18	NT	NT	NT	15	NT	106	NT	13.8	NT	NT	NT	NT	NT	
	TOTAL HEXAVALENT CHROMIUM	NP	0.902	mg/kg	ND	NT	NT	NT	ND	NT	ND	NT	ND	NT	NT	NT	NT	NT	
	TOTAL LEAD	NP	900	mg/kg	15.2	NT	NT	NT	24	NT	128	NT	37.1	NT	NT	NT	NT	NT	
	TOTAL MERCURY	NP	0.000703	mg/kg	ND	NT	NT	NT	ND	NT	ND	NT	ND	NT	NT	NT	NT	NT	
	TOTAL MOLYBDENUM	NP	1.4	mg/kg	0.217	NT	NT	NT	ND	NT	0.294	NT	ND	NT	NT	NT	NT	NT	
	TOTAL NICKEL	NP	10	mg/kg	37.5	NT	NT	NT	25.4	NT	25.3	NT	17.1	NT	NT	NT	NT	NT	
	TOTAL SELENIUM	NP	0.5	mg/kg	ND	NT	NT	NT	ND	NT	ND	NT	ND	NT	NT	NT	NT	NT	
	TOTAL TIN	NP	5500	mg/kg	ND	NT	NT	NT	0.817	NT	12.2	NT	0.89	NT	NT	NT	NT	NT	
	TOTAL ZINC	NP	190	mg/kg	81.3	NT	NT	NT	230	NT	200	NT	85.9	NT	NT	NT	NT	NT	
MISC	Total Organic Carbon	(blank)	(blank)	%	0.371	0.438	0.334	ND	0.746	0.288	2.09	ND	0.702	ND	1.23	0.766	1.87		
	TEMPERATURE	(blank)	(blank)	°C	22.9	21.2	NT	NT	20.6	21.1	20.6	21.2	21.2	21.4	NT	NT	NT		
PAH	Acenaphthene	>Sat	10.4	mg/kg	0.179	NT	NT	NT	0.0115	NT	5.89	NT	20.9	NT	NT	NT	NT	NT	
	Acenaphthylene	>Sat	0.33	mg/kg	ND	NT	NT	NT	0.0609	NT	1.76	NT	1.29	NT	NT	NT	NT	NT	
	Anthracene	>Sat	0.00113	mg/kg	0.09	NT	NT	NT	0.0667	NT	11.8	NT	17.8	NT	NT	NT	NT	NT	
	BENZO A ANTHRACENE	>Sat	0.0045	mg/kg	0.0883	NT	NT	NT	0.432	NT	23.4	NT	14.8	NT	NT	NT	NT	NT	
	BENZO A PYRENE	>Sat	0.00258	mg/kg	0.077	NT	NT	NT	0.554	NT	23.9	NT	13.6	NT	NT	NT	NT	NT	
	BENZO B FLUORANTHENE	>Sat	0.00524	mg/kg	0.0938	NT	NT	NT	0.79	NT	26.7	NT	16.2	NT	NT	NT	NT	NT	
	BENZO G H I PERYLENE	>Sat	0.0208	mg/kg	0.0489	NT	NT	NT	0.467	NT	13.7	NT	6.88	NT	NT	NT	NT	NT	
	BENZO K FLUORANTHENE	>Sat	0.0074	mg/kg	0.0426	NT	NT	NT	0.339	NT	9.62	NT	5.79	NT	NT	NT	NT	NT	
	Chrysene	>Sat	0.319	mg/kg	0.0748	NT	NT	NT	0.481	NT	17.3	NT	12.4	NT	NT	NT	NT	NT	
	DIBENZ A H ANTHRACENE	>Sat	0.00108	mg/kg	ND	NT	NT	NT	0.0957	NT	3.44	NT	1.86	NT	NT	NT	NT	NT	
	Fluoranthene	>Sat	0.00729	mg/kg	0.211	NT	NT	NT	0.851	NT	55.6	NT	53.9	NT	NT	NT	NT	NT	
	Fluorene	>Sat	8.5	mg/kg	0.127	NT	NT	NT	0.0129	NT	6.7	NT	17.7	NT	NT	NT	NT	NT	
	INDENO 1 2 3 CD PYRENE	>Sat	0.00436	mg/kg	0.0398	NT	NT	NT	0.358	NT	11.7	NT	5.78	NT	NT	NT	NT	NT	
	Naphthalene	0.599	0.00318	mg/kg	ND	NT	NT	NT	0.0201	NT	3.08	NT	4.2	NT	NT	NT	NT	NT	
	Phenanthrene	>Sat	0.992	mg/kg	0.298	NT	NT	NT	0.241	NT	35.6	NT	62.7	NT	NT	NT	NT	NT	
	Pyrene	>Sat	35.7	mg/kg	0.168	NT	NT	NT	0.735	NT	46.5	NT	41.8	NT	NT	NT	NT	NT	
	TOTAL PAH	(blank)	(blank)	mg/kg	1.54	NT	NT	NT	5.52	NT	297	NT	297	NT	NT	NT	NT	NT	
RISKTPH	RISK TPH C6 C7 AROM	92	0.000179	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
	RISK TPH C7 C8 AROM	222	0.0228	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
	RISK TPH C8 C10 AROM	12.9	0.969	mg/kg	ND	ND	ND	ND	ND	ND	0.311	ND	0.252	ND	ND	ND	ND	0.0285	
	RISK TPH C10 C12 AROM	70.6	0.456	mg/kg	0.0131	ND	ND	ND	ND	ND	0.301	ND	0.365	ND	ND	ND	ND	0.0161	
	RISK TPH C12 C16 AROM	>Sat	0.905	mg/kg	8.16	7.32	9.82	3.51	1.6	19.8	52.4	ND	16.5	2.92	3.6	1.41	36.7		
	RISK TPH C16 C21 AROM	>Sat	2.55	mg/kg	12.8	4.9	10.1	1.73	5.68	101	271	ND	65	2.58	35.7	2.27	115		
	RISK TPH C21 C35 AROM	>Sat	22.7	mg/kg	32.1	7.07	43.8	0.692	28.1	175	641	ND	183	6.11	146	18.4	616		
	RISK TPH C5 C6 ALI	14	60.1	mg/kg	ND	ND	ND	ND	ND	ND	0.0203	ND	ND	ND	ND	ND	ND	ND	
	RISK TPH C6 C8 ALI	30.7	160	mg/kg	0.0107	ND	ND	ND	ND	ND	0.148	ND	0.052	ND	ND	ND	ND	ND	
	RISK TPH C8 C10 ALI	7.46	19.5	mg/kg	0.0107	ND	ND	ND	ND	ND	0.357	ND	0.378	ND	ND	ND	ND	0.0422	
	RISK TPH C10 C12 ALI	36.4	146	mg/kg	0.019	ND	ND	ND	ND	ND	0.451	ND	0.547	ND	ND	ND	ND	0.0248	
	RISK TPH C12 C16 ALI	>Sat	3230	mg/kg	7.25	17.6	23.3	6.66	2.48	77.7	24.5	7.29	8.93	2.57	8.07	2.46	13.8		
			(blank)	µg/l	ND	ND	NT	NT	ND	ND	ND	ND	ND	ND	NT	NT	NT		
	RISK TPH C16 C21 ALI	>Sat	379000	mg/kg	5.31	7	11.9	6.37	2.87	223	44.1	5.6	21.6	2.15	15.8	2.73	27.3		
			(blank)	µg/l	ND	ND	NT	NT	ND	ND	ND	ND	ND	ND	NT	NT	NT		
	RISK TPH C21 C35 ALI	>Sat	4550000	mg/kg	12.3	7.79	38.4	1.08	12.5	303	411	ND	125	6.64	117	16.1	359		
			(blank)	µg/l	ND	ND	NT	NT	ND	ND	ND	ND	ND	ND	NT	NT	NT		
	RISK TPH C35 C44 ALI	>Sat	345000	mg/kg	3.13	1.42	17.6	ND	2.43	86.8	160	ND	83.9	1.49	72.7	3.53	438		
	TPH STAGE2 HI	1	(blank)	ratio	0.038874	0.0712508	0.0933111	0.0301831	0.0617843	0.1081551	0.2406315	0.028008	0.1447994	0.016138	0.0360549	0.0138464	0.1030854		
VOC	DIPE	1.52	0.00484	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
	ETHANOL	(blank)	0.584	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
	MTBE	23.5	0.00302	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
	TAME	0.738	0.00517	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	NT	
		11700	(blank)	µg/l	ND	ND	NT	NT	ND	ND	ND	ND	ND	ND	NT	NT	NT		
	TBA	111	0.00164	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
	ETBE	2.31	0.00507	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
MISC_CEN21	PH	(blank)	(blank)	pH Units	8.64	8.43	NT	NT	8.6	8.46	9.18	8.61	9.71	6.84	NT	NT	NT		
	CONDUCTIVITY	(blank)	(blank)	µS/cm	400	756	NT	NT	415	227	466	274	468	190	NT	NT	NT		
VOCSURR	TOLUENE_D8	(blank)	(blank)	%	100	97.6	97.5	NT	98.6	104	90.2	104	101	99	103	98.8	94.5		

XX	Exceeds Human Health & Controlled Waters
>X	Exceeds Human Health Criteria
XX	Exceeds Controlled Waters Criteria

CSM / Assumptions:

Soil 1% SOM (0.58% TOC)

Soil properties for "sand"

Commercial site area 0.5ha

Soil gas ingress rates calculated by model

Infinite groundwater source at 1m.bgl for groundwater GAC

High density residential assume vapour exposure pathways only

CPU scenario modified from modelled commercial scenario by:

Building dimensions (l x w x h): 14m x 6.5m x 2.4m

Differential pressure: 2.6 pascals

Only vapour exposure pathways considered viable

Derived November 2010 using Human7.1 Issue9. MTF.

ND: Not detected above MDL

HH: Human Health

GAC: Generic Assessment Criteria

(blank): No criteria

NP: No pathway

>Sat: Unacceptable risk not achieved due to calculated saturation of vapour pathway

NT: Not tested

TABLE 12
LEACHATE ANALYTICAL DATA with CW GAC

Stage2 Human Health	Human Health CPU
Stage2 Controlled Waters	DWS
Sample Round	Hitchin October 2011
Site	Hitchin

Chem Class	Method	Analyte	Units	MDL	CW	BH101		BH103		0019011_BH10		BH106	
						27/09/2011	03/10/2011	27/09/2011	29/09/2011	27/09/2011	29/09/2011	28/09/2011	04/10/2011
METALDIS	LEACH2	ANTIMONY	µg/l	0.16	(blank)	NT	NT	NT	NT	NT	NT	NT	0.168
	LEACH2	ARSENIC	µg/l	0.12	10	NT	NT	NT	NT	NT	NT	NT	0.276
	LEACH2	BARIUM	µg/l	0.03	(blank)	NT	NT	NT	NT	NT	NT	NT	9.24
	LEACH2	CADMIUM	µg/l	0.1	5	NT	NT	NT	NT	NT	NT	NT	ND
	LEACH2	CHROMIUM	µg/l	0.22	50	NT	NT	NT	NT	NT	NT	NT	2.51
	LEACH2	COPPER	µg/l	0.85	2000	NT	NT	NT	NT	NT	NT	NT	ND
	LEACH2	LEAD	µg/l	0.02	25	NT	NT	NT	NT	NT	NT	NT	0.484
	LEACH2	MERCURY	µg/l	0.01	1	NT	NT	NT	NT	NT	NT	NT	0.0119
	LEACH2	MOLYBDENUM	µg/l	0.24	70	NT	NT	NT	NT	NT	NT	NT	0.274
	LEACH2	NICKEL	µg/l	0.15	20	NT	NT	NT	NT	NT	NT	NT	0.771
	LEACH2	SELENIUM	µg/l	0.39	10	NT	NT	NT	NT	NT	NT	NT	ND
	LEACH2	ZINC	µg/l	0.41	5000	NT	NT	NT	NT	NT	NT	NT	ND
RISKTPH	Calculation	TPH_STAGE2_HI	ratio	0.02	(blank)	0.0002484	0.0002484	0.0002484	0.0002484	0.0003077	0.0002484	0.0002766	0.0002484
				10	(blank)	0.0041197	0.0041197	0.0017173	0.0041197	0.0082346	0.0041197	0.0064412	0.0041197
MISC	LEACH2	SULPHATE	µg/l	2000	(blank)	NT	NT	NT	NT	NT	NT	NT	11800
		CHLORIDE	µg/l	2000	(blank)	NT	NT	NT	NT	NT	NT	NT	8500

XX Exceeds Controlled Waters Criteria

CSM / Assumptions:

Soil 1% SOM (0.58% TOC)
 Soil properties for "sand"
 Commercial site area 0.5ha
 Soil gas ingress rates calculated by model
 Infinite groundwater source at 1m.bgl for groundwater GAC
 High density residential assume vapour exposure pathways
 CPU scenario modified from modelled commercial scenario
 Building dimensions (l x w x h): 14m x 6.5m x 2.4m
 Differential pressure: 2.6 pascals
 Only vapour exposure pathways considered viable
 Derived November 2010 using Human7.1 Issue9. MTF.

ND: Not detected above MDL

HH: Human Health

CW: Controlled Waters

NP: No pathway

NT: Not tested

>Sat: Unacceptable risk not achieved due to calculated saturation of vapour pathway

(blank): No criteria

TABLE 13
GROUNDWATER ANALYTICAL DATA with CPU and CW GAC

Stage2 Human Health	Human Health CPU
Stage2 Controlled Waters	DWS
Sample Round	Hitchin October 2011
Site	Hitchin

Chem Class	Analyte	HH	CW	MDL	Units	BH101	BH102	BH103	BH105
						12/10/2011	12/10/2011	12/10/2011	12/10/2011
						W	W	W	W
BTEX	BENZENE	23500	1	1	µg/l	ND	1460	ND	ND
	TOLUENE	>Sat	700	1	µg/l	ND	465	ND	ND
	ETHYLBENZENE	>Sat	300	1	µg/l	ND	2350	ND	ND
	M P XYLENE	>Sat	500	1	µg/l	ND	6480	ND	ND
	O XYLENE	>Sat	500	1	µg/l	ND	2460	ND	ND
PAH	Acenaphthene	>Sat	2200	0.015	µg/l	ND	ND	ND	NT
	Acenaphthylene	>Sat	90	0.011	µg/l	ND	ND	ND	NT
	Anthracene	>Sat	10000	0.015	µg/l	ND	ND	ND	NT
	BENZO A ANTHRACENE	>Sat	0.029	0.017	µg/l	ND	ND	ND	NT
	BENZO A PYRENE	>Sat	0.01	0.009	µg/l	ND	ND	ND	NT
	BENZO B FLUORANTHENE	>Sat	0.025	0.023	µg/l	ND	ND	ND	NT
	BENZO G H I PERYLENE	>Sat	0.025	0.016	µg/l	ND	ND	ND	NT
	BENZO K FLUORANTHENE	>Sat	0.025	0.027	µg/l	ND	ND	ND	NT
	Chrysene	>Sat	2.9	0.013	µg/l	ND	ND	ND	NT
	DIBENZ A H ANTHRACENE	>Sat	0.0029	0.016	µg/l	ND	ND	ND	NT
	Fluoranthene	>Sat	0.2	0.017	µg/l	ND	ND	ND	NT
	Fluorene	>Sat	1500	0.014	µg/l	ND	0.205	ND	NT
	INDENO 1 2 3 CD PYRENE	>Sat	0.025	0.014	µg/l	ND	ND	ND	NT
	Naphthalene	16700	1	0.1	µg/l	ND	175	ND	NT
	Phenanthrene	>Sat	90	0.022	µg/l	ND	ND	ND	NT
	Pyrene	>Sat	1100	0.015	µg/l	ND	ND	ND	NT
	TOTAL_PAH	(blank)	(blank)	0.247	µg/l	ND	176	ND	NT
VOC	DIPE	535000	120	1	µg/l	ND	ND	ND	ND
	ETBE	733000	40	1	µg/l	ND	ND	ND	ND
	ETHANOL	(blank)	1100000	50	µg/l	ND	ND	ND	ND
	MTBE	7240000	30	1	µg/l	ND	ND	ND	ND
	TAME	248000	140	1	µg/l	ND	ND	ND	ND
RISKTPH	TBA	17400000	40	10	µg/l	ND	ND	ND	ND
	RISK TPH C6 C7 AROM	>Sat	1	10	µg/l	ND	1210	ND	ND
	RISK TPH C7 C8 AROM	>Sat	700	10	µg/l	17	392	14	ND
	RISK TPH C8 C10 AROM	>Sat	300	10	µg/l	12	13300	12	ND
	RISK TPH C10 C12 AROM	>Sat	90	10	µg/l	ND	1010	ND	ND
	RISK TPH C12 C16 AROM	>Sat	90	10	µg/l	ND	143	ND	NT
	RISK TPH C16 C21 AROM	>Sat	90	10	µg/l	ND	ND	ND	NT
	RISK TPH C21 C35 AROM	>Sat	90	10	µg/l	ND	ND	ND	NT
	RISK TPH C5 C6 ALI	>Sat	15000	10	µg/l	ND	308	ND	ND
	RISK TPH C6 C8 ALI	>Sat	15000	10	µg/l	ND	697	ND	ND
	RISK TPH C8 C10 ALI	>Sat	300	10	µg/l	ND	3220	ND	ND
	RISK TPH C10 C12 ALI	>Sat	300	10	µg/l	ND	1510	ND	ND
	RISK TPH C12 C16 ALI	>Sat	300	10	µg/l	ND	ND	ND	NT
	RISK TPH C16 C21 ALI	>Sat	300	10	µg/l	ND	ND	ND	NT
	RISK TPH C21 C35 ALI	>Sat	300	10	µg/l	ND	ND	ND	NT
	TPH_STAGE2_HI	1	(blank)	10	ratio	0.0046193	0.1450797	0.0046192	0.0041197

XX	Exceeds Human Health & Controlled Waters
XX	Exceeds Human Health Criteria
XX	Exceeds Controlled Waters Criteria

CSM / Assumptions:

Soil 1% SOM (0.58% TOC)
Soil properties for "sand"
Commercial site area 0.5ha
Soil gas ingress rates calculated by model
Infinite groundwater source at 1m.bgl for groundwater GAC
High density residential assume vapour exposure pathways only
CPU scenario modified from modelled commercial scenario by:
Building dimensions (l x w x h): 14m x 6.5m x 2.4m
Differential pressure: 2.6 pascals
Only vapour exposure pathways considered viable
Derived November 2010 using Human7.1 Issue9. MTF.

ND: Not detected above MDL
HH: Human Health
CW: Controlled Waters
NP: No pathway
NT: Not tested
>Sat: Unacceptable risk not achieved due to calculated saturation of vapour pathway
(blank): No criteria

TABLE 14
GROUNDWATER ANALYTICAL DATA with HDR and CW GAC

Stage2 Human Health	Human Health High Density Residential
Stage2 Controlled Waters	DWS
Sample Round	Hitchin October 2011
Site	Hitchin

Chem Class	Analyte	HH	CW	MDL	Units	BH101	BH102	BH103	BH105
						12/10/2011	12/10/2011	12/10/2011	12/10/2011
BTEX	BENZENE	1100	1	1	µg/l	ND	1460	ND	ND
	TOLUENE	>Sat	700	1	µg/l	ND	465	ND	ND
	ETHYLBENZENE	173000	300	1	µg/l	ND	2350	ND	ND
	M P XYLENE	51600	500	1	µg/l	ND	6480	ND	ND
	O XYLENE	62100	500	1	µg/l	ND	2460	ND	ND
PAH	Acenaphthene	>Sat	2200	0.015	µg/l	ND	ND	ND	NT
	Acenaphthylene	>Sat	90	0.011	µg/l	ND	ND	ND	NT
	Anthracene	>Sat	10000	0.015	µg/l	ND	ND	ND	NT
	BENZO A ANTHRACENE	>Sat	0.029	0.017	µg/l	ND	ND	ND	NT
	BENZO A PYRENE	>Sat	0.01	0.009	µg/l	ND	ND	ND	NT
	BENZO B FLUORANTHENE	>Sat	0.025	0.023	µg/l	ND	ND	ND	NT
	BENZO G H I PERYLENE	>Sat	0.025	0.016	µg/l	ND	ND	ND	NT
	BENZO K FLUORANTHENE	>Sat	0.025	0.027	µg/l	ND	ND	ND	NT
	Chrysene	>Sat	2.9	0.013	µg/l	ND	ND	ND	NT
	DIBENZ A H ANTHRACENE	>Sat	0.0029	0.016	µg/l	ND	ND	ND	NT
	Fluoranthene	>Sat	0.2	0.017	µg/l	ND	ND	ND	NT
	Fluorene	>Sat	1500	0.014	µg/l	ND	0.205	ND	NT
	INDENO 1 2 3 CD PYRENE	>Sat	0.025	0.014	µg/l	ND	ND	ND	NT
	Naphthalene	640	1	0.1	µg/l	ND	175	ND	NT
	Phenanthrene	>Sat	90	0.022	µg/l	ND	ND	ND	NT
	Pyrene	>Sat	1100	0.015	µg/l	ND	ND	ND	NT
	TOTAL_PAH	(blank)	(blank)	0.247	µg/l	ND	176	ND	NT
VOC	DIPE	25300	120	1	µg/l	ND	ND	ND	ND
	ETBE	34600	40	1	µg/l	ND	ND	ND	ND
	ETHANOL	(blank)	1100000	50	µg/l	ND	ND	ND	ND
	MTBE	331000	30	1	µg/l	ND	ND	ND	ND
	TAME	11700	140	1	µg/l	ND	ND	ND	ND
RISKTPH	TBA	628000	40	10	µg/l	ND	ND	ND	ND
	RISK TPH C6 C7 AROM	1090000	1	10	µg/l	ND	1210	ND	ND
	RISK TPH C7 C8 AROM	>Sat	700	10	µg/l	17	392	14	ND
	RISK TPH C8 C10 AROM	9830	300	10	µg/l	12	13300	12	ND
	RISK TPH C10 C12 AROM	>Sat	90	10	µg/l	ND	1010	ND	ND
	RISK TPH C12 C16 AROM	>Sat	90	10	µg/l	ND	143	ND	NT
	RISK TPH C16 C21 AROM	>Sat	90	10	µg/l	ND	ND	ND	NT
	RISK TPH C21 C35 AROM	>Sat	90	10	µg/l	ND	ND	ND	NT
	RISK TPH C5 C6 ALI	10300	15000	10	µg/l	ND	308	ND	ND
	RISK TPH C6 C8 ALI	>Sat	15000	10	µg/l	ND	697	ND	ND
	RISK TPH C8 C10 ALI	302	300	10	µg/l	ND	3220	ND	ND
	RISK TPH C10 C12 ALI	>Sat	300	10	µg/l	ND	1510	ND	ND
	RISK TPH C12 C16 ALI	>Sat	300	10	µg/l	ND	ND	ND	NT
	RISK TPH C16 C21 ALI	>Sat	300	10	µg/l	ND	ND	ND	NT
	RISK TPH C21 C35 ALI	>Sat	300	10	µg/l	ND	ND	ND	NT
	TPH_STAGE2_HI	1	(blank)	10	ratio	0.0986376	3.1001248	0.0986351	0.0879971

XX	Exceeds Human Health & Controlled Waters
xx	Exceeds Human Health Criteria
XX	Exceeds Controlled Waters Criteria

CSM / Assumptions:

Soil 1% SOM (0.58% TOC)
 Soil properties for "sand"
 Commercial site area 0.5ha
 Soil gas ingress rates calculated by model
 Infinite groundwater source at 1m.bgl for groundwater GAC
 High density residential assume vapour exposure pathways only
 CPU scenario modified from modelled commercial scenario by:
 Building dimensions (l x w x h): 14m x 6.5m x 2.4m
 Differential pressure: 2.6 pascals
 Only vapour exposure pathways considered viable
 Derived November 2010 using Human7.1 Issue9. MTF.

ND: Not detected above MDL
 HH: Human Health
 CW: Controlled Waters
 NP: No pathway
 NT: Not tested
 >Sat: Unacceptable risk not achieved due to calculated saturation of vapour pathway
 (blank): No criteria

Appendix I - Hydrogeological Data

WELL ID: BH101 - test 1

INPUT	
Construction:	
Casing dia. (d_c)	0.101 Meter
Annulus dia. (d_w)	0.2 Meter
Screen Length (L)	3.2 Meter
Depths to:	
water level (DTW)	7.615 Meter
top of screen (TOS)	5.8 Meter
Base of Aquifer (DTB)	10 Meter
Annular Fill:	
across screen --	Coarse Sand
above screen --	Bentonite
Aquifer Material -- Medium Sand	

COMPUTED	
L_{wetted}	1.385 Meter
D =	2.385 Meter
H =	1.385 Meter
L/r_w	13.85
Y_0 -DISPLACEMENT =	0.08 Meter
Y_0 -SLUG =	0.08 Meter
From look-up table using L/r_w	
Partial penetrate A =	2.027
B =	0.303
$\ln(Re/r_w)$ =	1.625
Re =	1.67 Meter
Slope =	0.004824 $\log_{10}/\text{sec}$
$t_{90\%}$ recovery =	207 sec

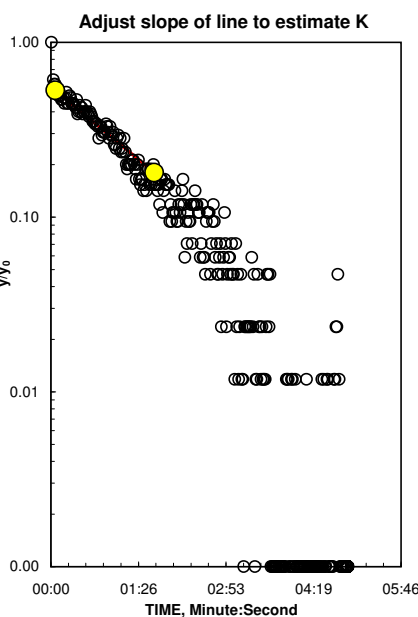
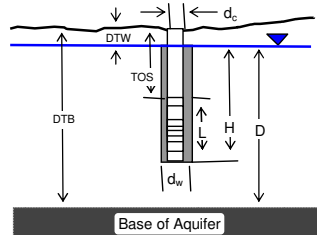
Input is consistent.

K = 0.000017 Meter/Second

Local ID: BH101

Date: 26/10/2011

Time: 00:00



K= 0.000017 is less than likely minimum of 0.0000705 for Medium Sand

REMARKS:

Bouwer and Rice analysis of slug test, WRR 1976

Reduced Data

Entry	Time, Hr:Min:Sec	Water Level
1	0:00:00.0	11.68
2	0:00:06.0	11.64
3	0:00:12.0	11.64
4	0:00:18.0	11.64
5	0:00:24.0	11.63
6	0:00:30.0	11.63
7	0:00:36.0	11.63
8	0:00:42.0	11.63
9	0:00:48.0	11.62
10	0:00:54.0	11.62
11	0:01:00.0	11.62
12	0:01:06.0	11.62
13	0:01:12.0	11.62
14	0:01:18.0	11.61
15	0:01:24.0	11.61
16	0:01:30.0	11.61
17	0:01:36.0	11.61
18	0:01:42.0	11.61
19	0:01:48.0	11.61
20	0:01:54.0	11.61
21	0:02:00.0	11.60
22	0:02:06.0	11.61
23	0:02:12.0	11.60
24	0:02:18.0	11.61
25	0:02:24.0	11.61
26	0:02:30.0	11.60
27	0:02:36.0	11.60
28	0:02:42.0	11.60
29	0:02:48.0	11.60
30	0:02:54.0	11.60
31	0:03:00.0	11.60
32	0:03:06.0	11.60
33	0:03:12.0	11.60
34	0:03:18.0	11.60
35	0:03:24.0	11.60
36	0:03:30.0	11.60
37	0:03:36.0	11.60
38	0:03:42.0	11.60
39	0:03:48.0	11.59
40	0:03:54.0	11.60
41	0:04:00.0	11.60
42	0:04:06.0	11.59
43	0:04:12.0	11.60
44	0:04:18.0	11.60
45	0:04:24.0	11.59

WELL ID: BH101 - test 2

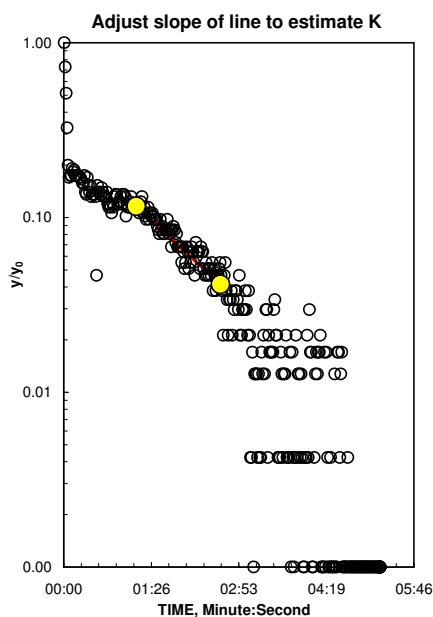
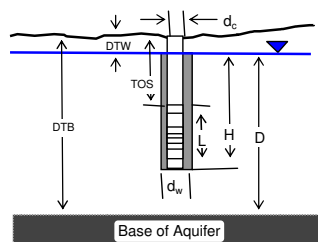
INPUT	
Construction:	
Casing dia. (d_c)	0.058 Meter
Annulus dia. (d_w)	0.2 Meter
Screen Length (L)	3.2 Meter
Depths to:	
water level (DTW)	7.615 Meter
top of screen (TOS)	5.8 Meter
Base of Aquifer (DTB)	10 Meter
Annular Fill:	
across screen --	Coarse Sand
above screen --	Bentonite
Aquifer Material -- Medium Sand	

COMPUTED	
L_{wetted}	1.385 Meter
D =	2.385 Meter
H =	1.385 Meter
L/r_w	13.85
y_0 -DISPLACEMENT =	0.24 Meter
y_0 -SLUG =	0.25 Meter
From look-up table using L/r_w	
Partial penetrate A =	2.027
B =	0.303
$\ln(Re/r_w)$	1.625
Re =	1.67 Meter
Slope =	0.005389 $\log_{10}/\text{sec}$
$t_{90\%}$ recovery =	186 sec

Input is consistent.

$$K = 6.1E-06 \text{ Meter/Second}$$

Local ID: BH101
Date: 26/10/2011
Time: 00:00



K= 0.0000061 is less than likely minimum of 0.0000705 for Medium Sand

REMARKS:

Bouwer and Rice analysis of slug test, WRR 1976

Reduced Data

Entry	Time, Hr:Min:Sec	Water Level
1	0:00:00.0	11.35
2	0:00:06.0	11.54
3	0:00:12.0	11.54
4	0:00:18.0	11.55
5	0:00:24.0	11.55
6	0:00:30.0	11.55
7	0:00:36.0	11.55
8	0:00:42.0	11.55
9	0:00:48.0	11.56
10	0:00:54.0	11.56
11	0:01:00.0	11.55
12	0:01:06.0	11.55
13	0:01:12.0	11.56
14	0:01:18.0	11.56
15	0:01:24.0	11.56
16	0:01:30.0	11.56
17	0:01:36.0	11.56
18	0:01:42.0	11.56
19	0:01:48.0	11.56
20	0:01:54.0	11.57
21	0:02:00.0	11.57
22	0:02:06.0	11.57
23	0:02:12.0	11.57
24	0:02:18.0	11.57
25	0:02:24.0	11.57
26	0:02:30.0	11.58
27	0:02:36.0	11.58
28	0:02:42.0	11.58
29	0:02:48.0	11.58
30	0:02:54.0	11.58
31	0:03:00.0	11.58
32	0:03:06.0	11.58
33	0:03:12.0	11.58
34	0:03:18.0	11.58
35	0:03:24.0	11.58
36	0:03:30.0	11.58
37	0:03:36.0	11.58
38	0:03:42.0	11.58
39	0:03:48.0	11.58
40	0:03:54.0	11.58
41	0:04:00.0	11.58
42	0:04:06.0	11.58
43	0:04:12.0	11.58
44	0:04:18.0	11.58
45	0:04:24.0	11.58

WELL ID: BH101 - test 3

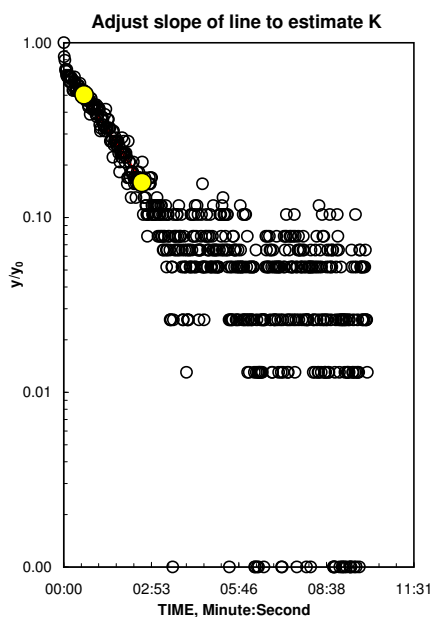
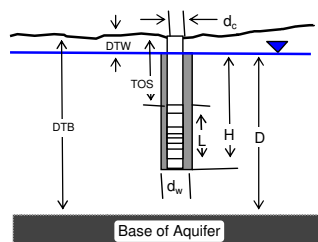
INPUT	
Construction:	
Casing dia. (d_c)	0.101 Meter
Annulus dia. (d_w)	0.2 Meter
Screen Length (L)	3.2 Meter
Depths to:	
water level (DTW)	7.615 Meter
top of screen (TOS)	5.8 Meter
Base of Aquifer (DTB)	10 Meter
Annular Fill:	
across screen --	Coarse Sand
above screen --	Bentonite
Aquifer Material -- Medium Sand	

COMPUTED	
L_{wetted}	1.385 Meter
D =	2.385 Meter
H =	1.385 Meter
L/r_w	13.85
y_0 -DISPLACEMENT =	0.08 Meter
y_0 -SLUG =	0.08 Meter
From look-up table using L/r_w	
Partial penetrate A =	2.027
B =	0.303
$\ln(Re/r_w)$	1.625
Re =	1.67 Meter
Slope =	0.00441 $\log_{10}/\text{sec}$
$t_{90\%}$ recovery =	227 sec

Input is consistent.

K = 0.000015 Meter/Second

Local ID: BH101
Date: 26/10/2011
Time: 00:00



K= 0.000015 is less than likely minimum of 0.0000705 for Medium Sand

REMARKS:

Bouwer and Rice analysis of slug test, WRR 1976

Reduced Data

Entry	Time, Hr:Min:Sec	Water Level
1	0:00:00.0	11.66
2	0:00:13.0	11.63
3	0:00:26.0	11.63
4	0:00:39.0	11.62
5	0:00:52.0	11.61
6	0:01:05.0	11.61
7	0:01:18.0	11.61
8	0:01:31.0	11.61
9	0:01:44.0	11.60
10	0:01:57.0	11.60
11	0:02:10.0	11.60
12	0:02:23.0	11.60
13	0:02:36.0	11.60
14	0:02:49.0	11.60
15	0:03:02.0	11.59
16	0:03:15.0	11.59
17	0:03:28.0	11.59
18	0:03:41.0	11.59
19	0:03:54.0	11.59
20	0:04:07.0	11.59
21	0:04:20.0	11.59
22	0:04:33.0	11.59
23	0:04:46.0	11.59
24	0:04:59.0	11.59
25	0:05:12.0	11.59
26	0:05:25.0	11.59
27	0:05:38.0	11.59
28	0:05:51.0	11.59
29	0:06:04.0	11.59
30	0:06:17.0	11.58
31	0:06:30.0	11.58
32	0:06:43.0	11.59
33	0:06:56.0	11.59
34	0:07:09.0	11.58
35	0:07:22.0	11.58
36	0:07:35.0	11.59
37	0:07:48.0	11.59
38	0:08:01.0	11.59
39	0:08:14.0	11.59
40	0:08:27.0	11.59
41	0:08:40.0	11.59
42	0:08:53.0	11.58
43	0:09:06.0	11.59
44	0:09:19.0	11.58
45	0:09:32.0	11.59

WELL ID: BH101 - test 4

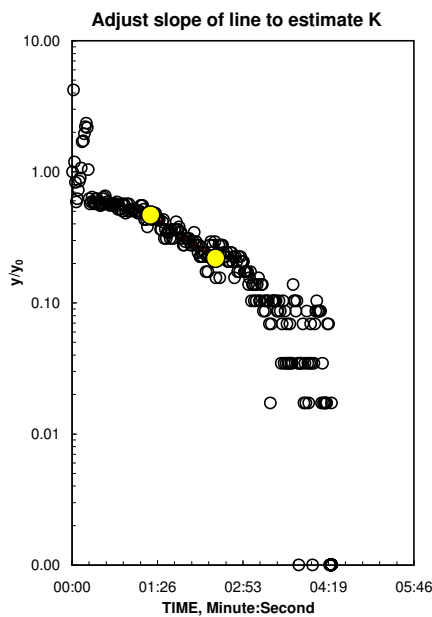
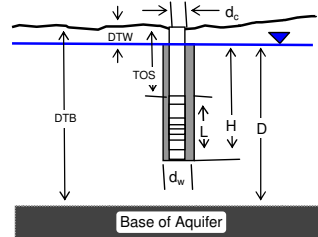
INPUT	
Construction:	
Casing dia. (d_c)	0.117 Meter
Annulus dia. (d_w)	0.2 Meter
Screen Length (L)	3.2 Meter
Depths to:	
water level (DTW)	7.615 Meter
top of screen (TOS)	5.8 Meter
Base of Aquifer (DTB)	10 Meter
Annular Fill:	
across screen --	Coarse Sand
above screen --	Bentonite
Aquifer Material -- Medium Sand	

COMPUTED	
L_{wetted}	1.385 Meter
D =	2.385 Meter
H =	1.385 Meter
L/r_w	13.85
y_0 -DISPLACEMENT =	0.06 Meter
y_0 -SLUG =	0.06 Meter
From look-up table using L/r_w	
Partial penetrate A =	2.027
B =	0.303
$\ln(Re/r_w)$	1.625
Re =	1.67 Meter
Slope =	0.005026 $\log_{10}/\text{sec}$
$t_{90\%}$ recovery =	199 sec

Input is consistent.

K = 0.000023 Meter/Second

Local ID: BH101
Date: 26/10/2011
Time: 00:00



K= 0.000023 is less than likely minimum of 0.0000705 for Medium Sand

REMARKS:

Bouwer and Rice analysis of slug test, WRR 1976

Reduced Data

Entry	Time, Hr:Min:Sec	Water Level
1	0:00:00.0	11.53
2	0:00:05.0	11.55
3	0:00:10.0	11.49
4	0:00:15.0	11.46
5	0:00:20.0	11.55
6	0:00:25.0	11.55
7	0:00:30.0	11.55
8	0:00:35.0	11.55
9	0:00:40.0	11.55
10	0:00:45.0	11.55
11	0:00:50.0	11.55
12	0:00:55.0	11.55
13	0:01:00.0	11.56
14	0:01:05.0	11.56
15	0:01:10.0	11.55
16	0:01:15.0	11.56
17	0:01:20.0	11.56
18	0:01:25.0	11.56
19	0:01:30.0	11.56
20	0:01:35.0	11.57
21	0:01:40.0	11.56
22	0:01:45.0	11.56
23	0:01:50.0	11.57
24	0:01:55.0	11.57
25	0:02:00.0	11.57
26	0:02:05.0	11.57
27	0:02:10.0	11.57
28	0:02:15.0	11.58
29	0:02:20.0	11.57
30	0:02:25.0	11.58
31	0:02:30.0	11.57
32	0:02:35.0	11.57
33	0:02:40.0	11.57
34	0:02:45.0	11.57
35	0:02:50.0	11.57
36	0:02:55.0	11.58
37	0:03:00.0	11.58
38	0:03:05.0	11.58
39	0:03:10.0	11.58
40	0:03:15.0	11.58
41	0:03:20.0	11.58
42	0:03:25.0	11.58
43	0:03:30.0	11.58
44	0:03:35.0	11.58
45	0:03:40.0	11.58

WELL ID: BH101 - test 5

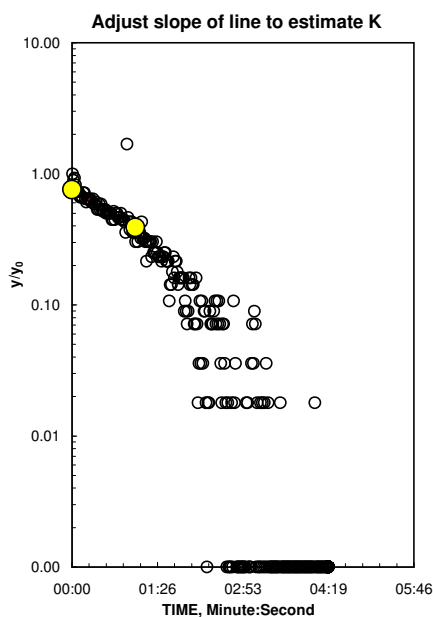
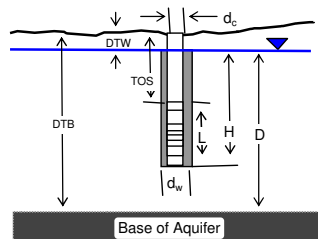
INPUT	
Construction:	
Casing dia. (d_c)	0.117 Meter
Annulus dia. (d_w)	0.2 Meter
Screen Length (L)	3.2 Meter
Depths to:	
water level (DTW)	7.615 Meter
top of screen (TOS)	5.8 Meter
Base of Aquifer (DTB)	10 Meter
Annular Fill:	
across screen --	Coarse Sand
above screen --	Bentonite
Aquifer Material -- Medium Sand	

COMPUTED	
L_{wetted}	1.385 Meter
$D =$	2.385 Meter
$H =$	1.385 Meter
$L/r_w =$	13.85
y_0 -DISPLACEMENT =	0.06 Meter
y_0 -SLUG =	0.06 Meter
From look-up table using L/r_w	
Partial penetrate A =	2.027
B =	0.303
$\ln(Re/r_w) =$	1.625
$Re =$	1.67 Meter
Slope =	0.004536 $\log_{10}/\text{sec}$
$t_{90\%}$ recovery =	220 sec

Input is consistent.

$$K = 0.000021 \text{ Meter/Second}$$

Local ID: BH101
Date: 26/10/2011
Time: 00:00



K= 0.000021 is less than likely minimum of 0.0000705 for Medium Sand

REMARKS:

Bouwer and Rice analysis of slug test, WRR 1976

Reduced Data

Entry	Time, Hr:Min:Sec	Water Level
1	0:00:00.0	11.65
2	0:00:05.0	11.63
3	0:00:10.0	11.63
4	0:00:15.0	11.63
5	0:00:20.0	11.63
6	0:00:25.0	11.62
7	0:00:30.0	11.62
8	0:00:35.0	11.62
9	0:00:40.0	11.62
10	0:00:45.0	11.62
11	0:00:50.0	11.62
12	0:00:55.0	11.69
13	0:01:00.0	11.62
14	0:01:05.0	11.61
15	0:01:10.0	11.62
16	0:01:15.0	11.60
17	0:01:20.0	11.60
18	0:01:25.0	11.61
19	0:01:30.0	11.60
20	0:01:35.0	11.60
21	0:01:40.0	11.60
22	0:01:45.0	11.60
23	0:01:50.0	11.60
24	0:01:55.0	11.60
25	0:02:00.0	11.60
26	0:02:05.0	11.60
27	0:02:10.0	11.59
28	0:02:15.0	11.59
29	0:02:20.0	11.60
30	0:02:25.0	11.60
31	0:02:30.0	11.59
32	0:02:35.0	11.59
33	0:02:40.0	11.59
34	0:02:45.0	11.59
35	0:02:50.0	11.59
36	0:02:55.0	11.59
37	0:03:00.0	11.59
38	0:03:05.0	11.60
39	0:03:10.0	11.59
40	0:03:15.0	11.59
41	0:03:20.0	11.59
42	0:03:25.0	11.59
43	0:03:30.0	11.59
44	0:03:35.0	11.59
45	0:03:40.0	11.59

WELL ID: BH101 - test 6

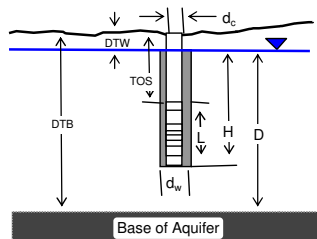
INPUT	
Construction:	
Casing dia. (d_c)	0.14 Meter
Annulus dia. (d_w)	0.2 Meter
Screen Length (L)	3.2 Meter
Depths to:	
water level (DTW)	7.615 Meter
top of screen (TOS)	5.8 Meter
Base of Aquifer (DTB)	10 Meter
Annular Fill:	
across screen --	Coarse Sand
above screen --	Bentonite
Aquifer Material -- Medium Sand	

COMPUTED	
L_{wetted}	1.385 Meter
$D =$	2.385 Meter
$H =$	1.385 Meter
$L/r_w =$	13.85
y_0 -DISPLACEMENT =	0.04 Meter
y_0 -SLUG =	0.04 Meter
From look-up table using L/r_w	
Partial penetrate A =	2.027
B =	0.303
$\ln(Re/r_w) =$	1.625
Re =	1.67 Meter
Slope =	$0.003041 \log_{10}/\text{sec}$
$t_{90\% \text{ recovery}} =$	329 sec

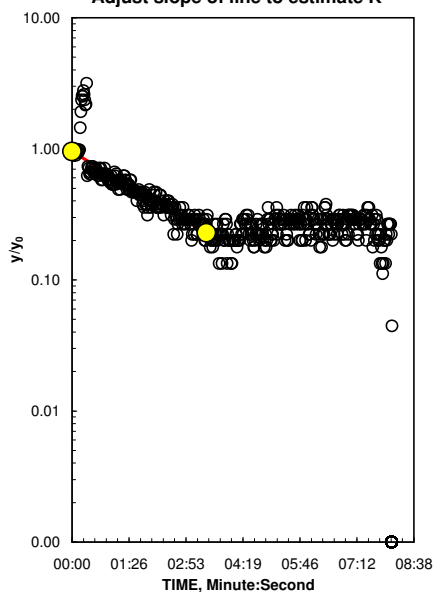
Input is consistent.

$$K = 0.00002 \text{ Meter/Second}$$

Local ID: BH101
Date: 26/10/2011
Time: 00:00



Adjust slope of line to estimate K



K= 0.00002 is less than likely minimum of 0.0000705 for Medium Sand

REMARKS:

Bouwer and Rice analysis of slug test, WRR 1976

Reduced Data

Entry	Time, Hr:Min:Sec	Water Level
1	0:00:00.0	11.54
2	0:00:10.0	11.55
3	0:00:20.0	11.49
4	0:00:30.0	11.56
5	0:00:40.0	11.56
6	0:00:50.0	11.56
7	0:01:00.0	11.57
8	0:01:10.0	11.57
9	0:01:20.0	11.57
10	0:01:30.0	11.57
11	0:01:40.0	11.57
12	0:01:50.0	11.57
13	0:02:00.0	11.57
14	0:02:10.0	11.57
15	0:02:20.0	11.57
16	0:02:30.0	11.58
17	0:02:40.0	11.58
18	0:02:50.0	11.58
19	0:03:00.0	11.58
20	0:03:10.0	11.58
21	0:03:20.0	11.58
22	0:03:30.0	11.58
23	0:03:40.0	11.58
24	0:03:50.0	11.58
25	0:04:00.0	11.58
26	0:04:10.0	11.58
27	0:04:20.0	11.58
28	0:04:30.0	11.58
29	0:04:40.0	11.58
30	0:04:50.0	11.58
31	0:05:00.0	11.58
32	0:05:10.0	11.57
33	0:05:20.0	11.58
34	0:05:30.0	11.58
35	0:05:40.0	11.58
36	0:05:50.0	11.58
37	0:06:00.0	11.58
38	0:06:10.0	11.58
39	0:06:20.0	11.58
40	0:06:30.0	11.58
41	0:06:40.0	11.58
42	0:06:50.0	11.58
43	0:07:00.0	11.58
44	0:07:10.0	11.58
45	0:07:20.0	11.58

WELL ID: BH101 - test 7

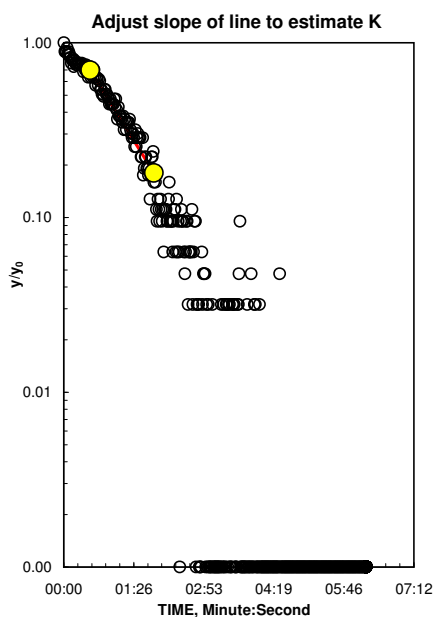
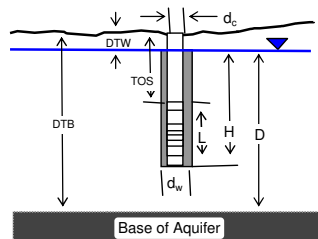
INPUT	
Construction:	
Casing dia. (d_c)	0.117 Meter
Annulus dia. (d_w)	0.2 Meter
Screen Length (L)	3.2 Meter
Depths to:	
water level (DTW)	7.615 Meter
top of screen (TOS)	5.8 Meter
Base of Aquifer (DTB)	10 Meter
Annular Fill:	
across screen --	Coarse Sand
above screen --	Bentonite
Aquifer Material -- Medium Sand	

COMPUTED	
L_{wetted}	1.385 Meter
$D =$	2.385 Meter
$H =$	1.385 Meter
$L/r_w =$	13.85
y_0 -DISPLACEMENT =	0.06 Meter
y_0 -SLUG =	0.06 Meter
From look-up table using L/r_w	
Partial penetrate A =	2.027
B =	0.303
$\ln(Re/r_w) =$	1.625
Re =	1.67 Meter
Slope =	$0.007491 \log_{10}/\text{sec}$
$t_{90\%}$ recovery =	133 sec

Input is consistent.

K = 0.000035 Meter/Second

Local ID: BH101
Date: 26/10/2011
Time: 00:00



K= 0.000035 is less than likely minimum of 0.0000705 for Medium Sand

REMARKS:

Bouwer and Rice analysis of slug test, WRR 1976

Reduced Data

Entry	Time, Hr:Min:Sec	Water Level
1	0:00:00.0	11.64
2	0:00:08.0	11.63
3	0:00:16.0	11.63
4	0:00:24.0	11.62
5	0:00:32.0	11.63
6	0:00:40.0	11.62
7	0:00:48.0	11.61
8	0:00:56.0	11.61
9	0:01:04.0	11.61
10	0:01:12.0	11.60
11	0:01:20.0	11.60
12	0:01:28.0	11.60
13	0:01:36.0	11.60
14	0:01:44.0	11.59
15	0:01:52.0	11.59
16	0:02:00.0	11.59
17	0:02:08.0	11.59
18	0:02:16.0	11.59
19	0:02:24.0	11.59
20	0:02:32.0	11.59
21	0:02:40.0	11.59
22	0:02:48.0	11.58
23	0:02:56.0	11.58
24	0:03:04.0	11.58
25	0:03:12.0	11.58
26	0:03:20.0	11.58
27	0:03:28.0	11.58
28	0:03:36.0	11.58
29	0:03:44.0	11.58
30	0:03:52.0	11.58
31	0:04:00.0	11.58
32	0:04:08.0	11.58
33	0:04:16.0	11.58
34	0:04:24.0	11.58
35	0:04:32.0	11.58
36	0:04:40.0	11.58
37	0:04:48.0	11.58
38	0:04:56.0	11.58
39	0:05:04.0	11.58
40	0:05:12.0	11.58
41	0:05:20.0	11.58
42	0:05:28.0	11.58
43	0:05:36.0	11.58
44	0:05:44.0	11.58
45	0:05:52.0	11.58

WELL ID: BH101 - test 8

INPUT

Construction:	
Casing dia. (d_c)	0.128 Meter
Annulus dia. (d_w)	0.2 Meter
Screen Length (L)	3.2 Meter
Depths to:	
water level (DTW)	7.615 Meter
top of screen (TOS)	5.8 Meter
Base of Aquifer (DTB)	10 Meter
Annular Fill:	
across screen --	Coarse Sand
above screen --	Bentonite
Aquifer Material -- Medium Sand	

COMPUTED

L_{wetted}	1.385 Meter
$D =$	2.385 Meter
$H =$	1.385 Meter
$L/r_w =$	13.85
y_0 -DISPLACEMENT =	0.05 Meter
y_0 -SLUG =	0.05 Meter
From look-up table using L/r_w	
Partial penetrate A =	2.027
B =	0.303
$\ln(Re/r_w) =$	1.625
Re =	1.67 Meter
Slope =	0.007295 $\log_{10}/\text{sec}$
$t_{90\%}$ recovery =	137 sec

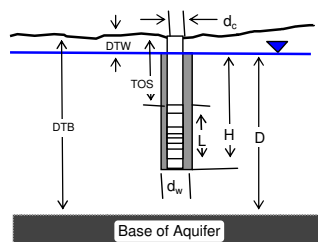
Input is consistent.

$$K = 0.00004 \text{ Meter/Second}$$

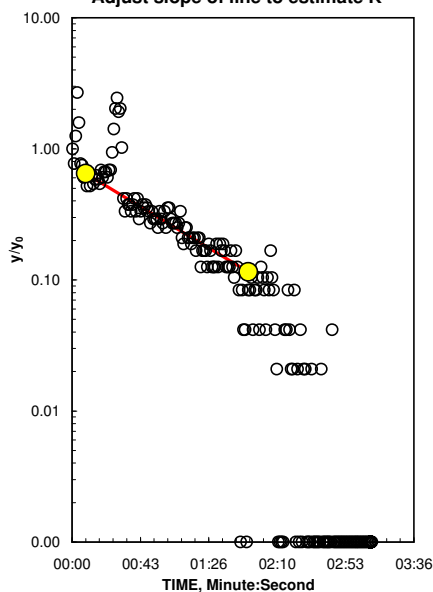
Local ID: BH101

Date: 26/10/2011

Time: 00:00



Adjust slope of line to estimate K

**K= 0.00004 is less than likely minimum of 0.0000705 for Medium Sand**

REMARKS:

Bouwer and Rice analysis of slug test, WRR 1976

Reduced Data

Entry	Time, Hr:Min:Sec	Water Level
1	0:00:00.0	11.53
2	0:00:04.0	11.50
3	0:00:08.0	11.55
4	0:00:12.0	11.55
5	0:00:16.0	11.55
6	0:00:20.0	11.55
7	0:00:24.0	11.54
8	0:00:28.0	11.46
9	0:00:32.0	11.56
10	0:00:36.0	11.56
11	0:00:40.0	11.56
12	0:00:44.0	11.56
13	0:00:48.0	11.56
14	0:00:52.0	11.56
15	0:00:56.0	11.56
16	0:01:00.0	11.56
17	0:01:04.0	11.56
18	0:01:08.0	11.56
19	0:01:12.0	11.57
20	0:01:16.0	11.57
21	0:01:20.0	11.57
22	0:01:24.0	11.57
23	0:01:28.0	11.57
24	0:01:32.0	11.57
25	0:01:36.0	11.57
26	0:01:40.0	11.57
27	0:01:44.0	11.57
28	0:01:48.0	11.58
29	0:01:52.0	11.57
30	0:01:56.0	11.57
31	0:02:00.0	11.57
32	0:02:04.0	11.57
33	0:02:08.0	11.58
34	0:02:12.0	11.58
35	0:02:16.0	11.57
36	0:02:20.0	11.57
37	0:02:24.0	11.58
38	0:02:28.0	11.58
39	0:02:32.0	11.58
40	0:02:36.0	11.58
41	0:02:40.0	11.58
42	0:02:44.0	11.58
43	0:02:48.0	11.58
44	0:02:52.0	11.58
45	0:02:56.0	11.58

WELL ID: BH102 - Test 1

INPUT	
Construction:	
Casing dia. (d_c)	0.05 Meter
Annulus dia. (d_w)	0.2 Meter
Screen Length (L)	3.2 Meter
Depths to:	
water level (DTW)	7.32 Meter
top of screen (TOS)	5.8 Meter
Base of Aquifer (DTB)	10 Meter
Annular Fill:	
across screen --	Gravel
above screen --	Bentonite
Aquifer Material -- Fine Sand	

COMPUTED	
L_{wetted}	1.68 Meter
D =	2.68 Meter
H =	1.68 Meter
L/r_w	16.80
y_0 -DISPLACEMENT =	0.32 Meter
y_0 -SLUG =	0.33 Meter
From look-up table using L/r_w	
Partial penetrate A =	2.113
B =	0.324
$\ln(Re/r_w)$	1.785
Re =	1.96 Meter
Slope =	$0.00288 \log_{10}/\text{sec}$
$t_{90\%}$ recovery =	347 sec

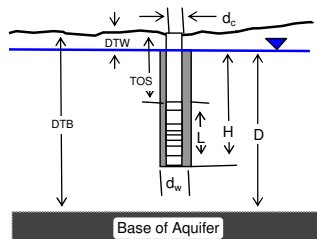
Input is consistent.

$$K = 2.2E-06 \text{ Meter/Second}$$

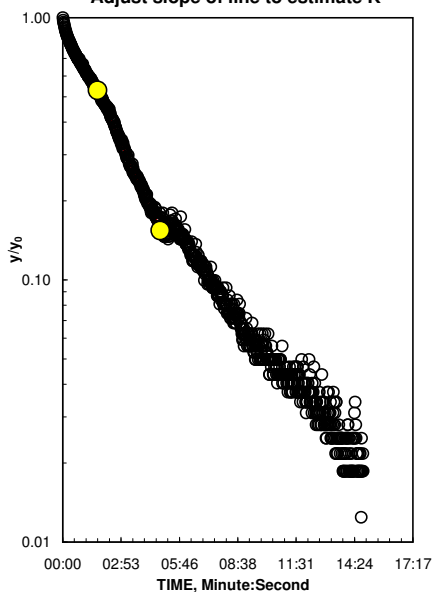
Local ID: BH102

Date: 26/10/2011

Time: 00:00



Adjust slope of line to estimate K



K= 0.0000022 is less than likely minimum of 0.0000106 for Fine Sand

REMARKS:

Bouwer and Rice analysis of slug test, WRR 1976

Reduced Data

Entry	Time, Hr:Min:Sec	Water Level
1	0:00:00.0	11.42
2	0:00:19.0	11.36
3	0:00:38.0	11.33
4	0:00:57.0	11.31
5	0:01:16.0	11.29
6	0:01:35.0	11.28
7	0:01:54.0	11.26
8	0:02:13.0	11.25
9	0:02:32.0	11.23
10	0:02:51.0	11.21
11	0:03:10.0	11.20
12	0:03:29.0	11.19
13	0:03:48.0	11.18
14	0:04:07.0	11.17
15	0:04:26.0	11.16
16	0:04:45.0	11.16
17	0:05:04.0	11.15
18	0:05:23.0	11.15
19	0:05:42.0	11.15
20	0:06:01.0	11.15
21	0:06:20.0	11.14
22	0:06:39.0	11.14
23	0:06:58.0	11.14
24	0:07:17.0	11.13
25	0:07:36.0	11.13
26	0:07:55.0	11.13
27	0:08:14.0	11.13
28	0:08:33.0	11.12
29	0:08:52.0	11.12
30	0:09:11.0	11.12
31	0:09:30.0	11.12
32	0:09:49.0	11.12
33	#N/A	#N/A
34	#N/A	#N/A
35	#N/A	#N/A
36	#N/A	#N/A
37	#N/A	#N/A
38	#N/A	#N/A
39	#N/A	#N/A
40	#N/A	#N/A
41	#N/A	#N/A
42	#N/A	#N/A
43	#N/A	#N/A
44	#N/A	#N/A
45	#N/A	#N/A

WELL ID: BH102 - Test 2

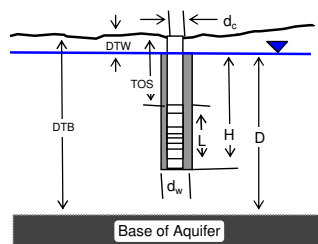
INPUT	
Construction:	
Casing dia. (d_c)	0.057 Meter
Annulus dia. (d_w)	0.2 Meter
Screen Length (L)	3.2 Meter
Depths to:	
water level (DTW)	7.32 Meter
top of screen (TOS)	5.8 Meter
Base of Aquifer (DTB)	10 Meter
Annular Fill:	
across screen --	Gravel
above screen --	Bentonite
Aquifer Material -- Fine Sand	

COMPUTED	
L_{wetted}	1.68 Meter
D =	2.68 Meter
H =	1.68 Meter
L/r_w	16.80
y_0 -DISPLACEMENT =	0.25 Meter
y_0 -SLUG =	0.26 Meter
From look-up table using L/r_w	
Partial penetrate A =	2.113
B =	0.324
$\ln(Re/r_w)$	1.785
Re =	1.96 Meter
Slope =	$0.001637 \log_{10}/\text{sec}$
$t_{90\%}$ recovery =	611 sec

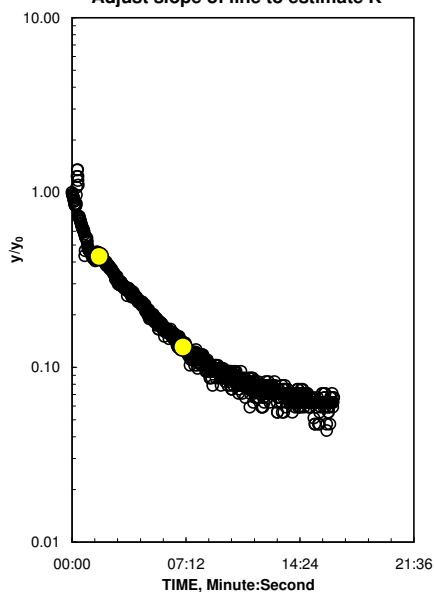
Input is consistent.

$$K = 1.6E-06 \text{ Meter/Second}$$

Local ID: BH102
Date: 26/10/2011
Time: 00:00



Adjust slope of line to estimate K



K= 0.0000016 is less than likely minimum of 0.0000106 for Fine Sand

REMARKS:

Bouwer and Rice analysis of slug test, WRR 1976

Reduced Data

Entry	Time, Hr:Min:Sec	Water Level
1	0:00:00.0	10.85
2	0:00:23.0	10.81
3	0:00:46.0	10.96
4	0:01:09.0	10.99
5	0:01:32.0	10.99
6	0:01:55.0	11.00
7	0:02:18.0	11.01
8	0:02:41.0	11.02
9	0:03:04.0	11.03
10	0:03:27.0	11.04
11	0:03:50.0	11.04
12	0:04:13.0	11.05
13	0:04:36.0	11.05
14	0:04:59.0	11.06
15	0:05:22.0	11.06
16	0:05:45.0	11.07
17	0:06:08.0	11.07
18	0:06:31.0	11.07
19	0:06:54.0	11.08
20	0:07:17.0	11.08
21	0:07:40.0	11.08
22	0:08:03.0	11.08
23	0:08:26.0	11.08
24	0:08:49.0	11.08
25	0:09:12.0	11.08
26	0:09:35.0	11.08
27	0:09:58.0	11.08
28	#N/A	#N/A
29	#N/A	#N/A
30	#N/A	#N/A
31	#N/A	#N/A
32	#N/A	#N/A
33	#N/A	#N/A
34	#N/A	#N/A
35	#N/A	#N/A
36	#N/A	#N/A
37	#N/A	#N/A
38	#N/A	#N/A
39	#N/A	#N/A
40	#N/A	#N/A
41	#N/A	#N/A
42	#N/A	#N/A
43	#N/A	#N/A
44	#N/A	#N/A
45	#N/A	#N/A

WELL ID: BH102 - Test 3

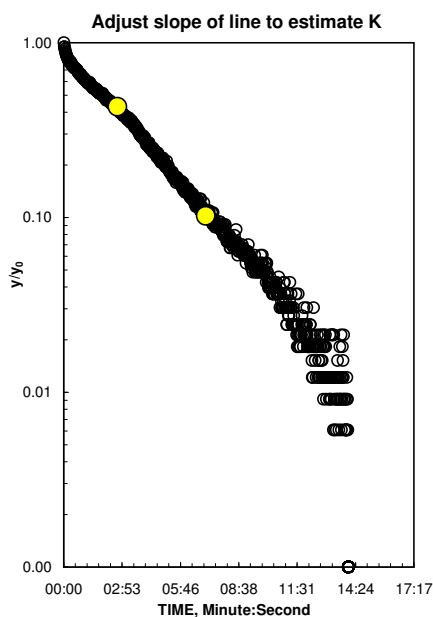
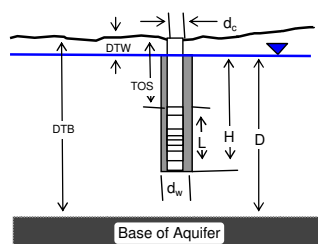
INPUT	
Construction:	
Casing dia. (d_c)	0.05 Meter
Annulus dia. (d_w)	0.2 Meter
Screen Length (L)	3.2 Meter
Depths to:	
water level (DTW)	7.32 Meter
top of screen (TOS)	5.8 Meter
Base of Aquifer (DTB)	10 Meter
Annular Fill:	
across screen --	Gravel
above screen --	Bentonite
Aquifer Material -- Fine Sand	

COMPUTED	
L_{wetted}	1.68 Meter
D =	2.68 Meter
H =	1.68 Meter
L/r_w	16.80
y_0 -DISPLACEMENT =	0.33 Meter
y_0 -SLUG =	0.33 Meter
From look-up table using L/r_w	
Partial penetrate A =	2.113
B =	0.324
$\ln(Re/r_w)$	1.785
Re =	1.96 Meter
Slope =	$0.002384 \log_{10}/\text{sec}$
$t_{90\%}$ recovery =	420 sec

Input is consistent.

$$K = 1.8E-06 \text{ Meter/Second}$$

Local ID: BH102
Date: 26/10/2011
Time: 00:00



K= 0.0000018 is less than likely minimum of 0.0000106 for Fine Sand

REMARKS:

Bouwer and Rice analysis of slug test, WRR 1976

Reduced Data

Entry	Time, Hr:Min:Sec	Water Level
1	0:00:00.0	11.43
2	0:00:18.0	11.36
3	0:00:36.0	11.34
4	0:00:54.0	11.31
5	0:01:12.0	11.30
6	0:01:30.0	11.28
7	0:01:48.0	11.27
8	0:02:06.0	11.26
9	0:02:24.0	11.25
10	0:02:42.0	11.24
11	0:03:00.0	11.23
12	0:03:18.0	11.22
13	0:03:36.0	11.21
14	0:03:54.0	11.20
15	0:04:12.0	11.19
16	0:04:30.0	11.18
17	0:04:48.0	11.17
18	0:05:06.0	11.17
19	0:05:24.0	11.16
20	0:05:42.0	11.16
21	0:06:00.0	11.15
22	0:06:18.0	11.15
23	0:06:36.0	11.14
24	0:06:54.0	11.14
25	0:07:12.0	11.14
26	0:07:30.0	11.13
27	0:07:48.0	11.13
28	0:08:06.0	11.13
29	0:08:24.0	11.13
30	0:08:42.0	11.13
31	0:09:00.0	11.12
32	0:09:18.0	11.12
33	0:09:36.0	11.12
34	0:09:54.0	11.12
35	#N/A	#N/A
36	#N/A	#N/A
37	#N/A	#N/A
38	#N/A	#N/A
39	#N/A	#N/A
40	#N/A	#N/A
41	#N/A	#N/A
42	#N/A	#N/A
43	#N/A	#N/A
44	#N/A	#N/A
45	#N/A	#N/A

WELL ID: BH102 - Test 4

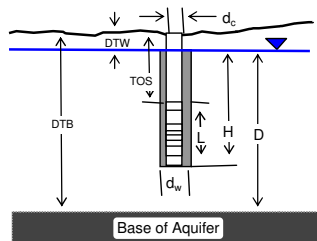
INPUT	
Construction:	
Casing dia. (d_c)	0.059 Meter
Annulus dia. (d_w)	0.2 Meter
Screen Length (L)	3.2 Meter
Depths to:	
water level (DTW)	7.32 Meter
top of screen (TOS)	5.8 Meter
Base of Aquifer (DTB)	10 Meter
Annular Fill:	
across screen --	Gravel
above screen --	Bentonite
Aquifer Material -- Fine Sand	

COMPUTED	
L_{wetted}	1.68 Meter
D =	2.68 Meter
H =	1.68 Meter
L/r_w	16.80
y_0 -DISPLACEMENT =	0.23 Meter
y_0 -SLUG =	0.24 Meter
From look-up table using L/r_w	
Partial penetrate A =	2.113
B =	0.324
$\ln(Re/r_w)$ =	1.785
Re =	1.96 Meter
Slope =	$0.00183 \log_{10}/\text{sec}$
$t_{90\%}$ recovery =	546 sec

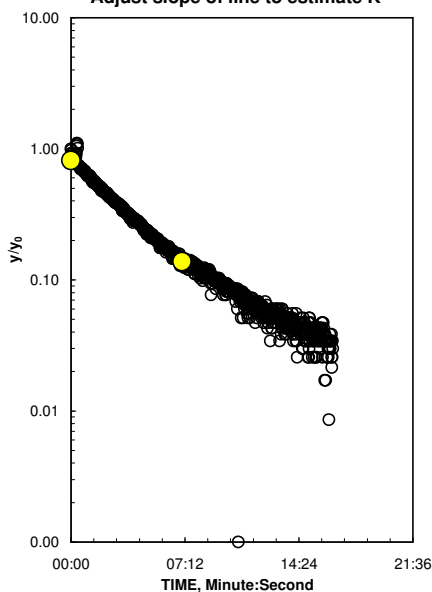
Input is consistent.

$$K = 1.9E-06 \text{ Meter/Second}$$

Local ID: BH102
Date: 26/10/2011
Time: 00:00



Adjust slope of line to estimate K



Reduced Data

Entry	Time, Hr:Min:Sec	Water Level
1	0:00:00.0	10.87
2	0:00:24.0	10.84
3	0:00:48.0	10.94
4	0:01:12.0	10.96
5	0:01:36.0	10.97
6	0:02:00.0	10.99
7	0:02:24.0	11.00
8	0:02:48.0	11.01
9	0:03:12.0	11.02
10	0:03:36.0	11.03
11	0:04:00.0	11.03
12	0:04:24.0	11.04
13	0:04:48.0	11.04
14	0:05:12.0	11.05
15	0:05:36.0	11.06
16	0:06:00.0	11.06
17	0:06:24.0	11.07
18	0:06:48.0	11.06
19	0:07:12.0	11.07
20	0:07:36.0	11.07
21	0:08:00.0	11.07
22	0:08:24.0	11.07
23	0:08:48.0	11.07
24	0:09:12.0	11.08
25	0:09:36.0	11.08
26	#N/A	#N/A
27	#N/A	#N/A
28	#N/A	#N/A
29	#N/A	#N/A
30	#N/A	#N/A
31	#N/A	#N/A
32	#N/A	#N/A
33	#N/A	#N/A
34	#N/A	#N/A
35	#N/A	#N/A
36	#N/A	#N/A
37	#N/A	#N/A
38	#N/A	#N/A
39	#N/A	#N/A
40	#N/A	#N/A
41	#N/A	#N/A
42	#N/A	#N/A
43	#N/A	#N/A
44	#N/A	#N/A
45	#N/A	#N/A

K= 0.0000019 is less than likely minimum of 0.0000106 for Fine Sand

REMARKS:

Bouwer and Rice analysis of slug test, WRR 1976

WELL ID: BH102 - Test 5

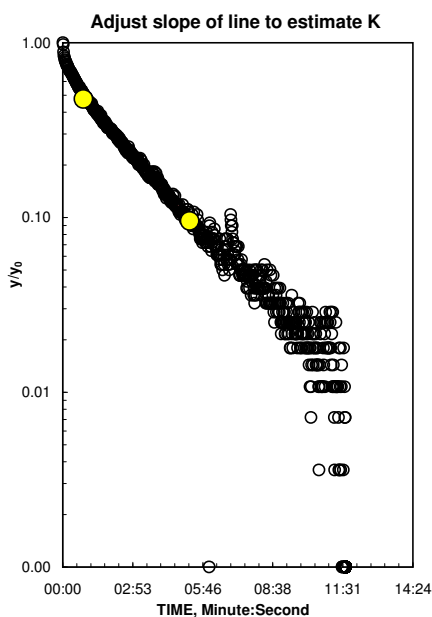
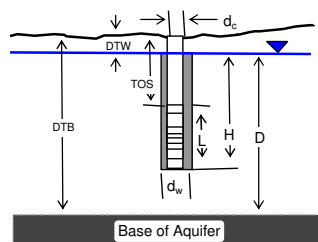
INPUT	
Construction:	
Casing dia. (d_c)	0.05 Meter
Annulus dia. (d_w)	0.2 Meter
Screen Length (L)	3.2 Meter
Depths to:	
water level (DTW)	7.32 Meter
top of screen (TOS)	5.8 Meter
Base of Aquifer (DTB)	10 Meter
Annular Fill:	
across screen --	Gravel
above screen --	Bentonite
Aquifer Material -- Fine Sand	

COMPUTED	
L_{wetted}	1.68 Meter
D =	2.68 Meter
H =	1.68 Meter
L/r_w	16.80
y_0 -DISPLACEMENT =	0.28 Meter
y_0 -SLUG =	0.33 Meter
From look-up table using L/r_w	
Partial penetrate A =	2.113
B =	0.324
$\ln(Re/r_w)$	1.785
Re =	1.96 Meter
Slope =	$0.002661 \log_{10}/\text{sec}$
$t_{90\%}$ recovery =	376 sec

Input is consistent.

K = 0.000002 Meter/Second

Local ID: BH102
Date: 26/10/2011
Time: 00:00



K= 0.000002 is less than likely minimum of 0.0000106 for Fine Sand

REMARKS:

Bouwer and Rice analysis of slug test, WRR 1976

Reduced Data

Entry	Time, Hr:Min:Sec	Water Level
1	0:00:00.0	11.38
2	0:00:15.0	11.30
3	0:00:30.0	11.27
4	0:00:45.0	11.25
5	0:01:00.0	11.24
6	0:01:15.0	11.22
7	0:01:30.0	11.21
8	0:01:45.0	11.20
9	0:02:00.0	11.19
10	0:02:15.0	11.18
11	0:02:30.0	11.17
12	0:02:45.0	11.17
13	0:03:00.0	11.16
14	0:03:15.0	11.16
15	0:03:30.0	11.15
16	0:03:45.0	11.15
17	0:04:00.0	11.15
18	0:04:15.0	11.14
19	0:04:30.0	11.14
20	0:04:45.0	11.13
21	0:05:00.0	11.13
22	0:05:15.0	11.13
23	0:05:30.0	11.13
24	0:05:45.0	11.12
25	0:06:00.0	11.12
26	0:06:15.0	11.12
27	0:06:30.0	11.12
28	0:06:45.0	11.12
29	0:07:00.0	11.12
30	0:07:15.0	11.12
31	0:07:30.0	11.12
32	0:07:45.0	11.11
33	0:08:00.0	11.12
34	0:08:15.0	11.11
35	0:08:30.0	11.11
36	0:08:45.0	11.11
37	0:09:00.0	11.11
38	0:09:15.0	11.11
39	0:09:30.0	11.11
40	0:09:45.0	11.11
41	#N/A	#N/A
42	#N/A	#N/A
43	#N/A	#N/A
44	#N/A	#N/A
45	#N/A	#N/A

WELL ID: BH102 - Test 6

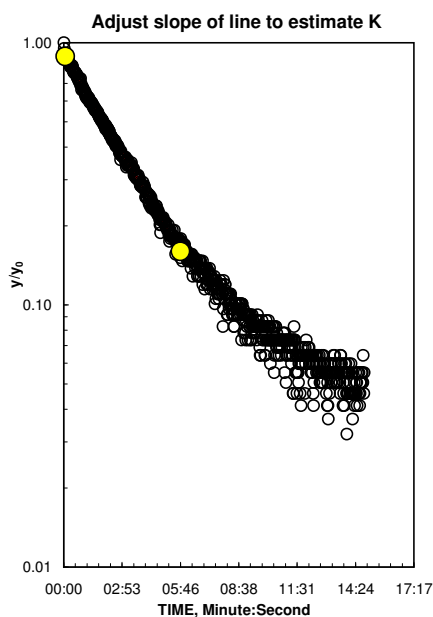
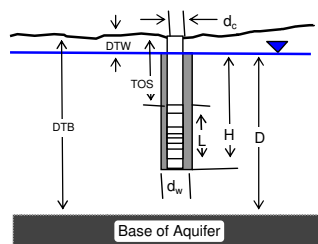
INPUT	
Construction:	
Casing dia. (d_c)	0.061 Meter
Annulus dia. (d_w)	0.2 Meter
Screen Length (L)	3.2 Meter
Depths to:	
water level (DTW)	7.32 Meter
top of screen (TOS)	5.8 Meter
Base of Aquifer (DTB)	10 Meter
Annular Fill:	
across screen --	Gravel
above screen --	Bentonite
Aquifer Material -- Fine Sand	

COMPUTED	
L_{wetted}	1.68 Meter
D =	2.68 Meter
H =	1.68 Meter
L/r_w	16.80
y_0 -DISPLACEMENT =	0.22 Meter
y_0 -SLUG =	0.22 Meter
From look-up table using L/r_w	
Partial penetrate A =	2.113
B =	0.324
$\ln(Re/r_w)$	1.785
Re =	1.96 Meter
Slope =	$0.002186 \log_{10}/\text{sec}$
$t_{90\%}$ recovery =	458 sec

Input is consistent.

$$K = 2.5E-06 \text{ Meter/Second}$$

Local ID: BH102
Date: 26/10/2011
Time: 00:00



K= 0.0000025 is less than likely minimum of 0.0000106 for Fine Sand

REMARKS:

Bouwer and Rice analysis of slug test, WRR 1976

Reduced Data

Entry	Time, Hr:Min:Sec	Water Level
1	0:00:00.0	10.88
2	0:00:19.0	10.92
3	0:00:38.0	10.93
4	0:00:57.0	10.95
5	0:01:16.0	10.97
6	0:01:35.0	10.98
7	0:01:54.0	10.99
8	0:02:13.0	11.00
9	0:02:32.0	11.01
10	0:02:51.0	11.02
11	0:03:10.0	11.02
12	0:03:29.0	11.03
13	0:03:48.0	11.04
14	0:04:07.0	11.04
15	0:04:26.0	11.05
16	0:04:45.0	11.06
17	0:05:04.0	11.06
18	0:05:23.0	11.06
19	0:05:42.0	11.06
20	0:06:01.0	11.06
21	0:06:20.0	11.07
22	0:06:39.0	11.07
23	0:06:58.0	11.07
24	0:07:17.0	11.07
25	0:07:36.0	11.08
26	0:07:55.0	11.08
27	0:08:14.0	11.08
28	0:08:33.0	11.08
29	0:08:52.0	11.08
30	0:09:11.0	11.08
31	0:09:30.0	11.08
32	0:09:49.0	11.08
33	#N/A	#N/A
34	#N/A	#N/A
35	#N/A	#N/A
36	#N/A	#N/A
37	#N/A	#N/A
38	#N/A	#N/A
39	#N/A	#N/A
40	#N/A	#N/A
41	#N/A	#N/A
42	#N/A	#N/A
43	#N/A	#N/A
44	#N/A	#N/A
45	#N/A	#N/A

WELL ID: BH103 - Test 1

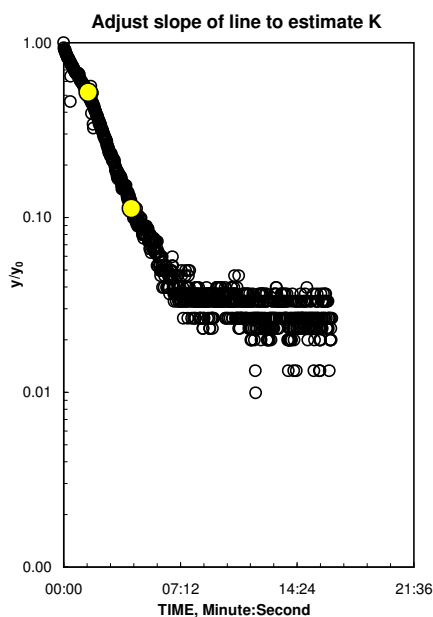
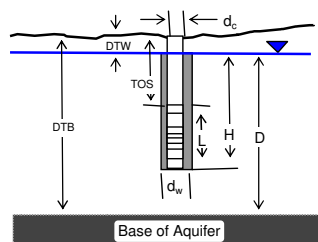
INPUT	
Construction:	
Casing dia. (d_c)	0.05 Meter
Annulus dia. (d_w)	0.2 Meter
Screen Length (L)	3.2 Meter
Depths to:	
water level (DTW)	7.46 Meter
top of screen (TOS)	5.8 Meter
Base of Aquifer (DTB)	10 Meter
Annular Fill:	
across screen --	Coarse Sand
above screen --	Bentonite
Aquifer Material -- Fine Sand	

COMPUTED	
L_{wetted}	1.54 Meter
D =	2.54 Meter
H =	1.54 Meter
L/r_w	15.40
y_0 -DISPLACEMENT =	0.30 Meter
y_0 -SLUG =	0.33 Meter
From look-up table using L/r_w	
Partial penetrate A =	2.075
B =	0.315
$\ln(Re/r_w)$	1.712
Re =	1.82 Meter
Slope =	0.00416 $\log_{10}/\text{sec}$
$t_{90\%}$ recovery =	240 sec

Input is consistent.

$$K = 3.3E-06 \text{ Meter/Second}$$

Local ID: BH103
Date: 26/11/2011
Time: 00:00



K= 0.0000033 is less than likely minimum of 0.0000106 for Fine Sand

REMARKS:

Bouwer and Rice analysis of slug test, WRR 1976

Reduced Data

Entry	Time, Hr:Min:Sec	Water Level
1	0:00:00.0	11.57
2	0:00:26.0	11.49
3	0:00:52.0	11.46
4	0:01:18.0	11.43
5	0:01:44.0	11.41
6	0:02:10.0	11.37
7	0:02:36.0	11.35
8	0:03:02.0	11.33
9	0:03:28.0	11.32
10	0:03:54.0	11.31
11	0:04:20.0	11.30
12	0:04:46.0	11.30
13	0:05:12.0	11.29
14	0:05:38.0	11.29
15	0:06:04.0	11.28
16	0:06:30.0	11.28
17	0:06:56.0	11.28
18	0:07:22.0	11.27
19	0:07:48.0	11.28
20	0:08:14.0	11.28
21	0:08:40.0	11.28
22	0:09:06.0	11.28
23	0:09:32.0	11.28
24	0:09:58.0	11.28
25	#N/A	#N/A
26	#N/A	#N/A
27	#N/A	#N/A
28	#N/A	#N/A
29	#N/A	#N/A
30	#N/A	#N/A
31	#N/A	#N/A
32	#N/A	#N/A
33	#N/A	#N/A
34	#N/A	#N/A
35	#N/A	#N/A
36	#N/A	#N/A
37	#N/A	#N/A
38	#N/A	#N/A
39	#N/A	#N/A
40	#N/A	#N/A
41	#N/A	#N/A
42	#N/A	#N/A
43	#N/A	#N/A
44	#N/A	#N/A
45	#N/A	#N/A

WELL ID: BH103 - Test 2

INPUT	
Construction:	
Casing dia. (d_c)	0.079 Meter
Annulus dia. (d_w)	0.2 Meter
Screen Length (L)	3.2 Meter
Depths to:	
water level (DTW)	7.46 Meter
top of screen (TOS)	5.8 Meter
Base of Aquifer (DTB)	10 Meter
Annular Fill:	
across screen --	Coarse Sand
above screen --	Bentonite
Aquifer Material -- Fine Sand	

COMPUTED	
L_{wetted}	1.54 Meter
D =	2.54 Meter
H =	1.54 Meter
L/r_w	15.40
y_0 -DISPLACEMENT =	0.13 Meter
y_0 -SLUG =	0.13 Meter
From look-up table using L/r_w	
Partial penetrate A =	2.075
B =	0.315
$\ln(Re/r_w)$	1.712
Re =	1.82 Meter
Slope =	0.000277 $\log_{10}/\text{sec}$
$t_{90\%}$ recovery =	3614 sec

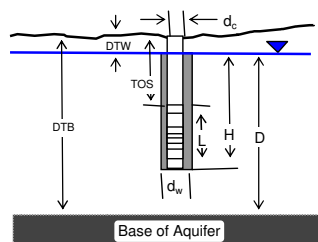
Input is consistent.

$$K = 5.5E-07 \text{ Meter/Second}$$

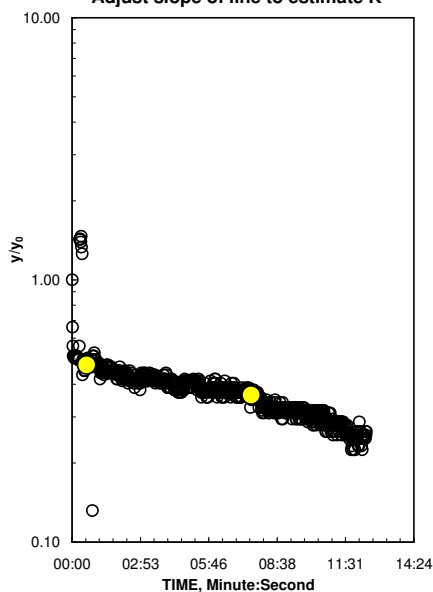
Local ID: BH103

Date: 26/11/2011

Time: 00:00



Adjust slope of line to estimate K



K= 0.00000055 is less than likely minimum of 0.0000106 for Fine Sand

REMARKS:

Bouwer and Rice analysis of slug test, WRR 1976

Reduced Data

Entry	Time, Hr:Min:Sec	Water Level
1	0:00:00.0	11.14
2	0:00:16.0	11.21
3	0:00:32.0	11.22
4	0:00:48.0	11.21
5	0:01:04.0	11.21
6	0:01:20.0	11.22
7	0:01:36.0	11.22
8	0:01:52.0	11.22
9	0:02:08.0	11.22
10	0:02:24.0	11.22
11	0:02:40.0	11.22
12	0:02:56.0	11.22
13	0:03:12.0	11.22
14	0:03:28.0	11.22
15	0:03:44.0	11.22
16	0:04:00.0	11.22
17	0:04:16.0	11.22
18	0:04:32.0	11.22
19	0:04:48.0	11.22
20	0:05:04.0	11.22
21	0:05:20.0	11.22
22	0:05:36.0	11.22
23	0:05:52.0	11.23
24	0:06:08.0	11.22
25	0:06:24.0	11.22
26	0:06:40.0	11.23
27	0:06:56.0	11.23
28	0:07:12.0	11.22
29	0:07:28.0	11.23
30	0:07:44.0	11.23
31	0:08:00.0	11.23
32	0:08:16.0	11.23
33	0:08:32.0	11.23
34	0:08:48.0	11.23
35	0:09:04.0	11.23
36	0:09:20.0	11.23
37	0:09:36.0	11.23
38	0:09:52.0	11.23
39	#N/A	#N/A
40	#N/A	#N/A
41	#N/A	#N/A
42	#N/A	#N/A
43	#N/A	#N/A
44	#N/A	#N/A
45	#N/A	#N/A

WELL ID: BH103 - Test 3

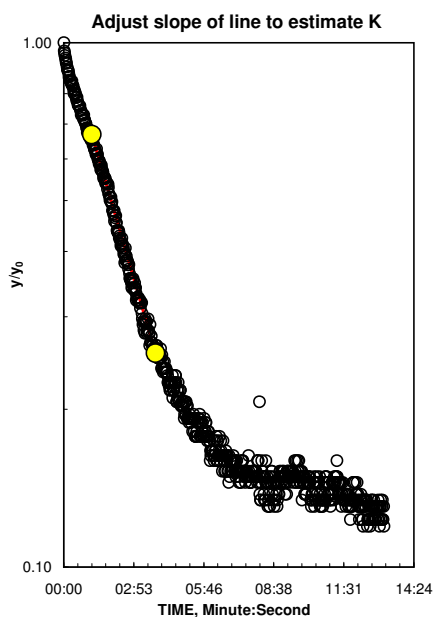
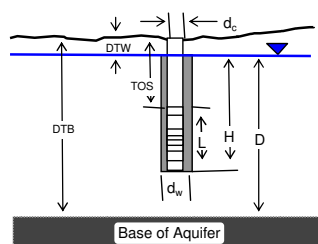
INPUT	
Construction:	
Casing dia. (d_c)	0.05 Meter
Annulus dia. (d_w)	0.2 Meter
Screen Length (L)	3.2 Meter
Depths to:	
water level (DTW)	7.46 Meter
top of screen (TOS)	5.8 Meter
Base of Aquifer (DTB)	10 Meter
Annular Fill:	
across screen --	Coarse Sand
above screen --	Bentonite
Aquifer Material --	
Fine Sand	

COMPUTED	
L_{wetted}	1.54 Meter
D =	2.54 Meter
H =	1.54 Meter
L/r_w	15.40
y_0 -DISPLACEMENT =	0.28 Meter
y_0 -SLUG =	0.33 Meter
From look-up table using L/r_w	
Partial penetrate A =	2.075
B =	0.315
$\ln(Re/r_w)$	1.712
Re =	1.82 Meter
Slope =	$0.002652 \log_{10}/\text{sec}$
$t_{90\%}$ recovery =	377 sec

Input is consistent.

$$K = 2.1E-06 \text{ Meter/Second}$$

Local ID: BH103
Date: 26/11/2011
Time: 00:00



K= 0.0000021 is less than likely minimum of 0.0000106 for Fine Sand

REMARKS:

Bouwer and Rice analysis of slug test, WRR 1976

Reduced Data
Time,
Hr:Min:Sec
Water
Level

Entry	Time, Hr:Min:Sec	Water Level
1	0:00:00.0	11.52
2	0:00:17.0	11.47
3	0:00:34.0	11.45
4	0:00:51.0	11.44
5	0:01:08.0	11.42
6	0:01:25.0	11.40
7	0:01:42.0	11.39
8	0:01:59.0	11.38
9	0:02:16.0	11.36
10	0:02:33.0	11.35
11	0:02:50.0	11.34
12	0:03:07.0	11.33
13	0:03:24.0	11.32
14	0:03:41.0	11.31
15	0:03:58.0	11.31
16	0:04:15.0	11.30
17	0:04:32.0	11.30
18	0:04:49.0	11.30
19	0:05:06.0	11.29
20	0:05:23.0	11.29
21	0:05:40.0	11.29
22	0:05:57.0	11.29
23	0:06:14.0	11.29
24	0:06:31.0	11.28
25	0:06:48.0	11.28
26	0:07:05.0	11.28
27	0:07:22.0	11.28
28	0:07:39.0	11.28
29	0:07:56.0	11.28
30	0:08:13.0	11.28
31	0:08:30.0	11.28
32	0:08:47.0	11.28
33	0:09:04.0	11.28
34	0:09:21.0	11.28
35	0:09:38.0	11.28
36	0:09:55.0	11.28
37	#N/A	#N/A
38	#N/A	#N/A
39	#N/A	#N/A
40	#N/A	#N/A
41	#N/A	#N/A
42	#N/A	#N/A
43	#N/A	#N/A
44	#N/A	#N/A
45	#N/A	#N/A

WELL ID: BH103 - Test 4

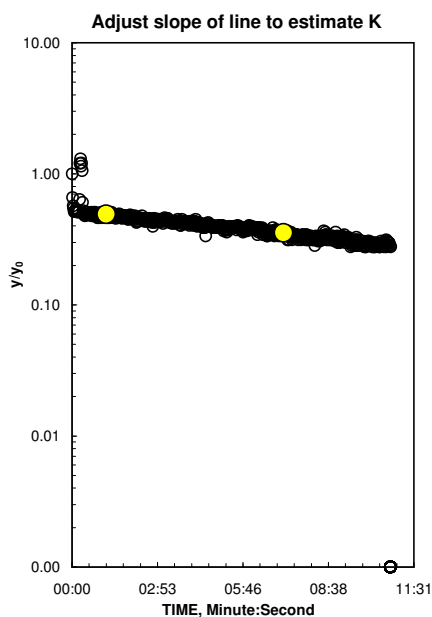
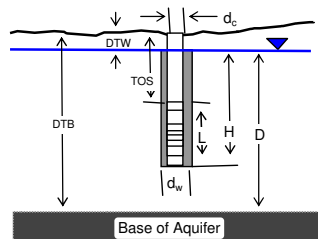
INPUT	
Construction:	
Casing dia. (d_c)	0.079 Meter
Annulus dia. (d_w)	0.2 Meter
Screen Length (L)	3.2 Meter
Depths to:	
water level (DTW)	7.46 Meter
top of screen (TOS)	5.8 Meter
Base of Aquifer (DTB)	10 Meter
Annular Fill:	
across screen --	Coarse Sand
above screen --	Bentonite
Aquifer Material -- Fine Sand	

COMPUTED	
L_{wetted}	1.54 Meter
D =	2.54 Meter
H =	1.54 Meter
L/r_w	15.40
y_0 -DISPLACEMENT =	0.13 Meter
y_0 -SLUG =	0.13 Meter
From look-up table using L/r_w	
Partial penetrate A =	2.075
B =	0.315
$\ln(Re/r_w)$	1.712
Re =	1.82 Meter
Slope =	0.00039 $\log_{10}/\text{sec}$
$t_{90\%}$ recovery =	2561 sec

Input is consistent.

$$K = 7.8E-07 \text{ Meter/Second}$$

Local ID: BH103
Date: 26/11/2011
Time: 00:00



K= 0.00000078 is less than likely minimum of 0.0000106 for Fine Sand

REMARKS:

Bouwer and Rice analysis of slug test, WRR 1976

Reduced Data

Entry	Time, Hr:Min:Sec	Water Level
1	0:00:00.0	11.14
2	0:00:14.0	11.21
3	0:00:28.0	11.21
4	0:00:42.0	11.21
5	0:00:56.0	11.22
6	0:01:10.0	11.21
7	0:01:24.0	11.22
8	0:01:38.0	11.21
9	0:01:52.0	11.22
10	0:02:06.0	11.22
11	0:02:20.0	11.22
12	0:02:34.0	11.22
13	0:02:48.0	11.22
14	0:03:02.0	11.22
15	0:03:16.0	11.22
16	0:03:30.0	11.22
17	0:03:44.0	11.22
18	0:03:58.0	11.22
19	0:04:12.0	11.22
20	0:04:26.0	11.22
21	0:04:40.0	11.22
22	0:04:54.0	11.22
23	0:05:08.0	11.22
24	0:05:22.0	11.23
25	0:05:36.0	11.22
26	0:05:50.0	11.23
27	0:06:04.0	11.22
28	0:06:18.0	11.23
29	0:06:32.0	11.23
30	0:06:46.0	11.23
31	0:07:00.0	11.23
32	0:07:14.0	11.23
33	0:07:28.0	11.23
34	0:07:42.0	11.23
35	0:07:56.0	11.24
36	0:08:10.0	11.24
37	0:08:24.0	11.23
38	0:08:38.0	11.23
39	0:08:52.0	11.23
40	0:09:06.0	11.23
41	0:09:20.0	11.24
42	0:09:34.0	11.24
43	0:09:48.0	11.24
44	#N/A	#N/A
45	#N/A	#N/A

WELL ID: BH103 - Test 5

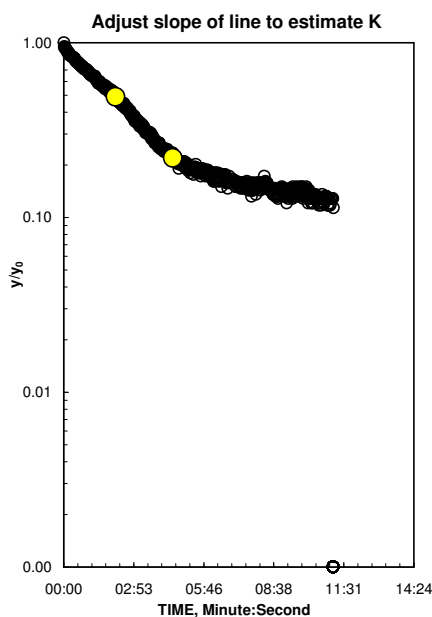
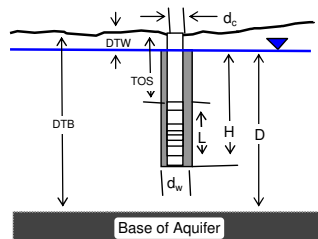
INPUT	
Construction:	
Casing dia. (d_c)	0.05 Meter
Annulus dia. (d_w)	0.2 Meter
Screen Length (L)	3.2 Meter
Depths to:	
water level (DTW)	7.46 Meter
top of screen (TOS)	5.8 Meter
Base of Aquifer (DTB)	10 Meter
Annular Fill:	
across screen --	Coarse Sand
above screen --	Bentonite
Aquifer Material --	
Fine Sand	

COMPUTED	
L_{wetted}	1.54 Meter
D =	2.54 Meter
H =	1.54 Meter
L/r_w	15.40
y_0 -DISPLACEMENT =	0.27 Meter
y_0 -SLUG =	0.33 Meter
From look-up table using L/r_w	
Partial penetrate A =	2.075
B =	0.315
$\ln(Re/r_w)$	1.712
Re =	1.82 Meter
Slope =	0.00247 $\log_{10}/\text{sec}$
$t_{90\%}$ recovery =	405 sec

Input is consistent.

K = 0.000002 Meter/Second

Local ID: BH103
Date: 26/11/2011
Time: 00:00



K= 0.000002 is less than likely minimum of 0.0000106 for Fine Sand

REMARKS:

Bouwer and Rice analysis of slug test, WRR 1976

Reduced Data

Entry	Time, Hr:Min:Sec	Water Level
1	0:00:00.0	11.51
2	0:00:14.0	11.48
3	0:00:28.0	11.46
4	0:00:42.0	11.44
5	0:00:56.0	11.43
6	0:01:10.0	11.42
7	0:01:24.0	11.41
8	0:01:38.0	11.40
9	0:01:52.0	11.39
10	0:02:06.0	11.38
11	0:02:20.0	11.37
12	0:02:34.0	11.36
13	0:02:48.0	11.35
14	0:03:02.0	11.34
15	0:03:16.0	11.33
16	0:03:30.0	11.32
17	0:03:44.0	11.31
18	0:03:58.0	11.31
19	0:04:12.0	11.31
20	0:04:26.0	11.30
21	0:04:40.0	11.30
22	0:04:54.0	11.30
23	0:05:08.0	11.29
24	0:05:22.0	11.29
25	0:05:36.0	11.29
26	0:05:50.0	11.29
27	0:06:04.0	11.29
28	0:06:18.0	11.29
29	0:06:32.0	11.29
30	0:06:46.0	11.28
31	0:07:00.0	11.28
32	0:07:14.0	11.28
33	0:07:28.0	11.28
34	0:07:42.0	11.28
35	0:07:56.0	11.28
36	0:08:10.0	11.28
37	0:08:24.0	11.28
38	0:08:38.0	11.28
39	0:08:52.0	11.28
40	0:09:06.0	11.28
41	0:09:20.0	11.28
42	0:09:34.0	11.28
43	0:09:48.0	11.28
44	#N/A	#N/A
45	#N/A	#N/A

WELL ID: BH103 - Test 6

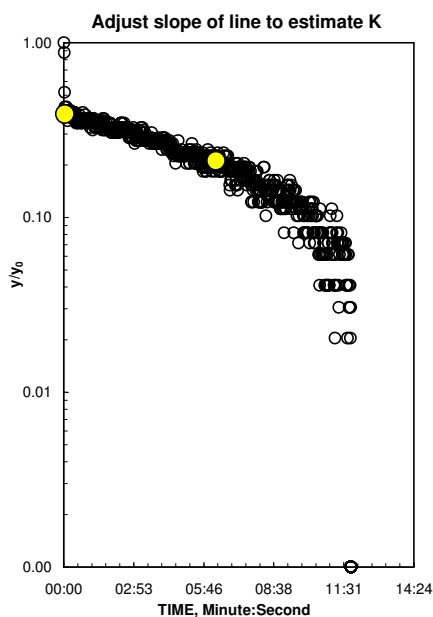
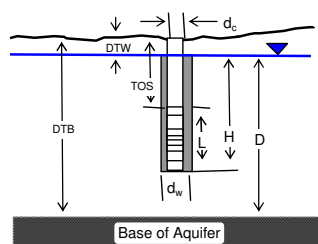
INPUT	
Construction:	
Casing dia. (d_c)	0.09 Meter
Annulus dia. (d_w)	0.2 Meter
Screen Length (L)	3.2 Meter
Depths to:	
water level (DTW)	7.46 Meter
top of screen (TOS)	5.8 Meter
Base of Aquifer (DTB)	10 Meter
Annular Fill:	
across screen --	Coarse Sand
above screen --	Bentonite
Aquifer Material -- Fine Sand	

COMPUTED	
L_{wetted}	1.54 Meter
D =	2.54 Meter
H =	1.54 Meter
L/r_w	15.40
y_0 -DISPLACEMENT =	0.10 Meter
y_0 -SLUG =	0.10 Meter
From look-up table using L/r_w	
Partial penetrate A =	2.075
B =	0.315
$\ln(Re/r_w)$	1.712
Re =	1.82 Meter
Slope =	$0.000717 \log_{10}/\text{sec}$
$t_{90\%}$ recovery =	1395 sec

Input is consistent.

$$K = 1.9E-06 \text{ Meter/Second}$$

Local ID: BH103
Date: 26/11/2011
Time: 00:00



K= 0.0000019 is less than likely minimum of 0.0000106 for Fine Sand

REMARKS:

Bouwer and Rice analysis of slug test, WRR 1976

Reduced Data		
Entry	Time, Hr:Min:Sec	Water Level
1	0:00:00.0	11.15
2	0:00:15.0	11.21
3	0:00:30.0	11.21
4	0:00:45.0	11.21
5	0:01:00.0	11.21
6	0:01:15.0	11.21
7	0:01:30.0	11.22
8	0:01:45.0	11.21
9	0:02:00.0	11.22
10	0:02:15.0	11.22
11	0:02:30.0	11.22
12	0:02:45.0	11.22
13	0:03:00.0	11.22
14	0:03:15.0	11.22
15	0:03:30.0	11.22
16	0:03:45.0	11.22
17	0:04:00.0	11.22
18	0:04:15.0	11.22
19	0:04:30.0	11.22
20	0:04:45.0	11.22
21	0:05:00.0	11.23
22	0:05:15.0	11.22
23	0:05:30.0	11.22
24	0:05:45.0	11.23
25	0:06:00.0	11.23
26	0:06:15.0	11.23
27	0:06:30.0	11.23
28	0:06:45.0	11.23
29	0:07:00.0	11.23
30	0:07:15.0	11.23
31	0:07:30.0	11.23
32	0:07:45.0	11.23
33	0:08:00.0	11.24
34	0:08:15.0	11.23
35	0:08:30.0	11.23
36	0:08:45.0	11.24
37	0:09:00.0	11.24
38	0:09:15.0	11.24
39	0:09:30.0	11.24
40	0:09:45.0	11.24
41	#N/A	#N/A
42	#N/A	#N/A
43	#N/A	#N/A
44	#N/A	#N/A
45	#N/A	#N/A

APPENDIX I
Hydraulic Conductivity Test Data

Shell Hitchin Service Station
Bedford Road
Hitchin, SG5 2TY
URS Project No. 46370079

Monitoring Well	Well Diameter (m)	Borehole Diameter (m)	Installed Screened Interval (m bgl)	Initial Depth to NAPL (m bgl)	Initial Depth to Water (m bgl)	Initial Depth to Base (m bgl)	Effective Screened Strata	Aquifer Test	Date of Test	Hydraulic Conductivity (m/s)	Hydraulic Conductivity (m/d)
									Analysis	Bouwer Rice	Bouwer Rice
BH101	0.05	0.2	6.0 - 9.0	ND	7.615	8.77	Silty Sand	Falling - 1	13/10/2011	1.70E-05	1.47E+00
								Rising - 1		6.10E-06	5.27E-01
								Falling - 2		1.50E-05	1.30E+00
								Rising - 2		2.30E-05	1.99E+00
								Falling - 3		2.10E-05	1.81E+00
								Rising - 3		2.00E-05	1.73E+00
								Falling - 4		3.50E-05	3.02E+00
								Rising - 4		4.00E-05	3.46E+00
BH102	0.05	0.2	6.0 - 9.0	ND	7.32	7.98	Silty Sand	Falling - 1	13/10/2011	2.20E-06	1.90E-01
								Rising - 1		1.60E-06	1.38E-01
								Falling - 2		1.80E-06	1.56E-01
								Rising - 2		1.90E-06	1.64E-01
								Falling - 3		1.00E-06	8.64E-02
								Rising - 3		2.50E-06	2.16E-01
BH103	0.05	0.2	6.0 - 9.0	ND	7.445	8.39	Silty Sand	Falling - 1	13/10/2011	3.30E-06	2.85E-01
								Rising - 1		5.50E-07	4.75E-02
								Falling - 2		2.10E-06	1.81E-01
								Rising - 2		7.80E-07	6.74E-02
								Falling - 3		2.00E-06	1.73E-01
								Rising - 3		1.90E-06	1.64E-01

Average K: 0.85m/d