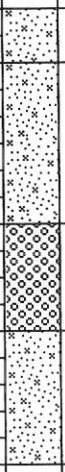
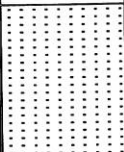


BOREHOLE CONSTRUCTION	SAMPLE		SOIL VAPOUR (ppm)	GROUNDWATER	DEPTH (m)	GEOLOGY	BOREHOLE NUMBER: DSB020S2		PAGE 2 of 2	
	NUMBER	TYPE					DRILLING DATES: 16/01/02		DRILLING METHODS : Hydraulic Percussive	
							DRILLER : Geotechnical Engineering		BOREHOLE DIAMETER : 125mm	
							LOGGED BY : PEW		SCREEN TYPE & DIAM: HDPE 50mm	
							CHECKED BY :		SCREEN SLOT SIZE: 1mm	
	DSB020		*393		5.5		Loose, grey-brown, slightly silty SAND.		Increasing odour from Wet. Moderate solvent odour	5.5
	5.8m		*38.8	6.0	Hard sandstone COBBLES and GRAVELS			6.0		
			*189	6.5	Firm, grey-brown sandy SILT with occasional gravel		No odour. Wet	6.5		
	DSB020		*48.0	7.0	End of Borehole			7.0		
					7.5					7.5
					8.0					8.0
					8.5					8.5
					9.0					9.0
					9.5					9.5
					10.0					10.0

LOCATION / NOTES:	LEGEND	BOREHOLE LOG	
NVO = No visual or olfactory evidence	 Disturbed Sample  Undisturbed Sample  Headspace Analysis  Down Borehole Analysis  Groundwater Table  Perched Water Table	Job Title: DiMe Investigation Location: BP Llandarcy Refinery Client: BP Oil Llandarcy Refinery	
			App'd: _____ Date: 18/09/2002 Drawn : SS Ref: _____ Scale: As scale Job No: 39991-022 Drg. Size: A4 BOREHOLE LOG

BOREHOLE CONSTRUCTION	SAMPLE		SOIL VAPOUR (ppm)	GROUNDWATER	DEPTH (m)	GEOLOGY	BOREHOLE NUMBER: DSB020S1		PAGE 1 of 2	
	NUMBER	TYPE					DRILLING DATES: 16/01/02		DRILLING METHODS : Hydraulic Percussive	
							DRILLER : Geotechnical Engineering		BOREHOLE DIAMETER : 125mm	
							LOGGED BY : PEW		SCREEN TYPE & DIAM: HDPE 50mm	
							CHECKED BY :		SCREEN SLOT SIZE: 1mm	
							DESCRIPTION	COMMENTS		
	DSB020 2.2m		*28.8		0.0	Concrete. MADE GROUND	Wet. Strong HC odour.	0.0		
					0.5	Loose, angular, med-coarse GRAVEL with sand. MADE GROUND		0.5		
					1.0	Dense, grey, very silty sandy angular GRAVEL with frequent angular cobbles. MADE GROUND		1.0		
				*58.3		1.5	Loose to dense, fine to coarse, sandy GRAVEL of slag with sandstone cobbles. MADE GROUND	Strong solvent odour at 1.3m	1.5	
					2.0	Sandstone COBBLE	Solvent odour	2.0		
DSB020 4.3m		*36.7		2.5	Soft to firm, grey sandy SILT with coarse rounded gravel and angular gravel. 2.3-2.5m.	Strong solvent and HC odour. Staining	2.5			
				3.0	Grey brown from 3.3m		3.0			
				3.5			3.5			
			*9.1		4.0	Loose, grey brown, silty SAND with frequent rounded gravel	Wet. Strong odour 4.0-4.3m	4.0		
				4.5				4.5		
		*74.9		5.0			5.0			
		*47.8								
		*1889								
		*1133								
		*182								

LOCATION / NOTES:	LEGEND	BOREHOLE LOG	
NVO = No visual or olfactory evidence	Disturbed Sample Undisturbed Sample Headspace Analysis Down Borehole Analysis Groundwater Table Perched Water Table	Job Title: DiMe Investigation Location: BP Llandarcy Refinery Client: BP Oil Llandarcy Refinery	
			App'd: _____ Date: 18/09/2002 Drawn : SS Ref: _____ Scale: As scale Job No: 39991-022 Drg. Size: A4 BOREHOLE LOG

BOREHOLE CONSTRUCTION	SAMPLE		SOIL VAPOUR (ppm)	GROUNDWATER	DEPTH (m)	GEOLOGY	BOREHOLE NUMBER: DSB020S1		PAGE 2 of 2	
	NUMBER	TYPE					DRILLING DATES: 16/01/02		DRILLING METHODS : Hydraulic Percussive	
							DRILLER : Geotechnical Engineering		BOREHOLE DIAMETER : 125mm	
							LOGGED BY : PEW		SCREEN TYPE & DIAM: HDPE 50mm	
							CHECKED BY :		SCREEN SLOT SIZE: 1mm	
 	DSB020		*393		5.5	Loose, grey-brown, slightly silty SAND.	COMMENTS Increasing odour from Wet. Moderate solvent odour No odour. Wet		5.5	
	5.8m		*38.8		6.0	Hard sandstone COBBLES and GRAVELS			6.0	
			*189		6.5	Firm, grey-brown sandy SILT with occasional gravel			6.5	
	DSB020		*48.0		7.0	End of Borehole			7.0	
					7.5				7.5	
					8.0				8.0	
					8.5				8.5	
					9.0				9.0	
					9.5				9.5	
					10.0				10.0	

LOCATION / NOTES:	LEGEND	BOREHOLE LOG	
NVO = No visual or olfactory evidence	 Disturbed Sample  Undisturbed Sample  Headspace Analysis  Down Borehole Analysis  Groundwater Table  Perched Water Table	Job Title: DiMe Investigation Location: BP Llandarcy Refinery Client: BP Oil Llandarcy Refinery	
			App'd: _____ Date: 18/09/2002 Drawn : SS Ref: _____ Scale: As scale Job No: 39991-022 Drg. Size: A4 BOREHOLE LOG

BOREHOLE CONSTRUCTION	SAMPLE		SOIL VAPOUR (ppm)	GROUNDWATER	DEPTH (m)	GEOLOGY	BOREHOLE NUMBER: DSB019S2		PAGE 1 of 2	
	NUMBER	TYPE					DRILLING DATES: 18/01/02		DRILLING METHODS : Hydraulic Percussive	
							DRILLER : Geotechnical Engineering		BOREHOLE DIAMETER : 125mm	
							LOGGED BY : LT		SCREEN TYPE & DIAM: HDPE 50mm	
							CHECKED BY :		SCREEN SLOT SIZE: 1mm	
DESCRIPTION							COMMENTS			
					0.0	Loose gravel of slag, clinker and brick. MADE GROUND	Weak HC odour	0.0		
			*0.0		0.5	Concrete with liner at base. MADE GROUND	Oily on liner	0.5		
					1.0	Loose GRAVEL of slag and clinker, some stained green. Also, solid lumps of slag and clinker in a fine, loose sand matrix. MADE GROUND	HC odour	1.0		
					1.5	Loose, coarse, sub-rounded COBBLES and coarse GRAVEL coated in black oily grease. MADE GROUND	Strong HC odour	1.5		
			*271		2.0	Concrete. MADE GROUND		2.0		
					2.0	Solid lumps of slag and clinker. MADE GROUND	Cased to 2.0m	2.0		
			*409		2.5	Sandstone COBBLES. (Cored through). MADE GROUND		2.5		
					2.5	Firm, orange-brown, sandy SILT with angular cobbles.	Strong solvent odour.	2.5		
					3.0	Firm, brown, slightly sandy SILT with gravelly horizons.	Iridescent sheen on fracture faces. Solvent odour	3.0		
					3.5	Becoming more sandy at 3.2m		3.5		
				3.5	Sand decreasing at 3.4m		3.5			
				4.0		Cased to 3.6m	4.0			
				4.0		Very strong DCM odour	4.0			
				4.5		Cased to 4.5m	4.5			
				4.5		Sheen on returns 5.0-5.5m	5.0			
				5.0			5.0			
					5.0	Soft, very sandy SILT with occasional gravel and cobbles.		5.0		

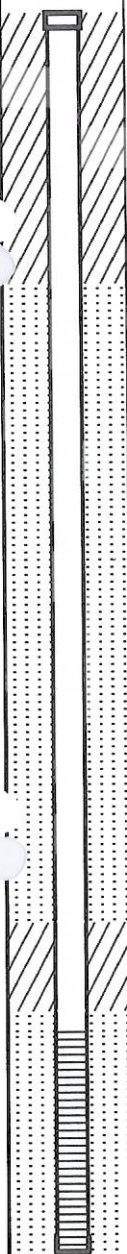
LOCATION / NOTES:	LEGEND	BOREHOLE LOG	
NVO = No visual or olfactory evidence	Disturbed Sample Undisturbed Sample Headspace Analysis Down Borehole Analysis Groundwater Table Perched Water Table	Job Title: DiMe Investigation Location: BP Llandarcy Refinery Client: BP Oil Llandarcy Refinery	
			App'd: _____ Date: 19/09/2002 Drawn : SS Ref: _____ Scale: As scale Job No: 39991-022 Drg. Size: A4 BOREHOLE LOG

BOREHOLE CONSTRUCTION	SAMPLE		SOIL VAPOUR (ppm)	GROUNDWATER	DEPTH (m)	GEOLOGY	BOREHOLE NUMBER: DSB019S2		PAGE 2 of 2	
	NUMBER	TYPE					DRILLING DATES: 18/01/02		DRILLING METHODS : Hydraulic Percussive	
							DRILLER : Geotechnical Engineering		BOREHOLE DIAMETER : 125mm	
							LOGGED BY : LT		SCREEN TYPE & DIAM: HDPE 50mm	
							CHECKED BY :		SCREEN SLOT SIZE: 1mm	
	DSB019 6.5m				5.5	Firm, slightly sandy SILT	COMMENTS	Weak to mod odour	5.5	
					6.0	Loose, sandy GRAVEL			6.0	
					6.5	Firm, orange-brown, slightly sandy SILT with frequent gravel.			6.5	
					7.0	End of Borehole			7.0	
					7.5				7.5	
					8.0				8.0	
					8.5				8.5	
					9.0				9.0	
					9.5				9.5	
					10.0				10.0	

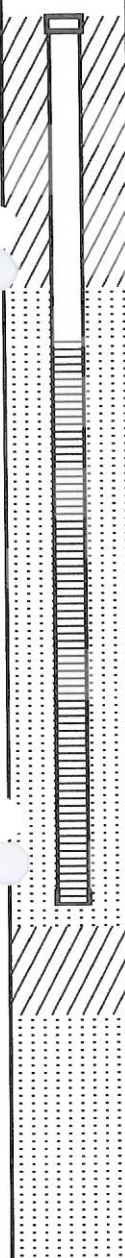
LOCATION / NOTES: NVO = No visual or olfactory evidence		LEGEND  Disturbed Sample  Undisturbed Sample  Headspace Analysis  Down Borehole Analysis  Groundwater Table  Perched Water Table		BOREHOLE LOG Job Title: DiMe Investigation Location: BP Llandarcy Refinery Client: BP Oil Llandarcy Refinery 				App'd: _____ Date: 19/09/2002 Drawn : SS Ref: _____ Scale: As scale Job No: 39991-022 Drg. Size: A4 BOREHOLE LOG	
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BOREHOLE CONSTRUCTION	SAMPLE		SOIL VAPOUR (ppm)	GROUNDWATER	DEPTH (m)	GEOLOGY	BOREHOLE NUMBER: DSB019S1		PAGE 1 of 2	
	NUMBER	TYPE					DRILLING DATES: 18/01/02		DRILLING METHODS: Hydraulic Percussive	
							DRILLER: Geotechnical Engineering		BOREHOLE DIAMETER: 125mm	
							LOGGED BY: LT		SCREEN TYPE & DIAM: HDPE 50mm	
		CHECKED BY:		SCREEN SLOT SIZE: 1mm						
					0.0		Loose gravel of slag, clinker and brick. MADE GROUND	Weak HC odour	0.0	
					0.5		Concrete with liner at base. MADE GROUND	Oily on liner	0.5	
					1.0		Loose GRAVEL of slag and clinker, some stained green. Also, solid lumps of slag and clinker in a fine, loose sand matrix. MADE GROUND	HC odour	1.0	
					1.5		Loose, coarse, sub-rounded COBBLES and coarse GRAVEL coated in black oily grease. MADE GROUND	Strong HC odour	1.5	
					2.0		Concrete. MADE GROUND	Cased to 2.0m	2.0	
					2.0		Solid lumps of slag and clinker. MADE GROUND			
					2.0		Sandstone COBBLES. (Cored through). MADE GROUND			
					2.5		Firm, orange-brown, sandy SILT with angular cobbles.	Strong solvent odour. Irrescent sheen on fracture faces. Solvent odour	2.5	
					2.5		Firm, brown, slightly sandy SILT with gravelly horizons.			
					3.0		Becoming more sandy at 3.2m			
				3.5		Sand decreasing at 3.4m	Cased to 3.6m	3.5		
				4.0						
				4.5			Very strong DCM odour	4.0		
				4.5						
				4.5		Soft, very sandy SILT with occasional gravel and cobbles.	Cased to 4.5m	4.5		
				5.0			Sheen on returns 5.0-5.5m	5.0		

LOCATION / NOTES:	LEGEND	BOREHOLE LOG	
NVO = No visual or olfactory evidence	Disturbed Sample Undisturbed Sample Headspace Analysis Down Borehole Analysis Groundwater Table Perched Water Table	Job Title: DiMe Investigation Location: BP Llandarcy Refinery Client: BP Oil Llandarcy Refinery	
			App'd: _____ Date: 19/09/2002 Drawn: SS Ref: _____ Scale: As scale Job No: 39991-022 Drg. Size: A4 BOREHOLE LOG

BOREHOLE CONSTRUCTION	SAMPLE		SOIL VAPOUR (ppm)	GROUNDWATER	DEPTH (m)	GEOLOGY	BOREHOLE NUMBER: DSB018S2		PAGE 1 of 1	
	NUMBER	TYPE					DRILLING DATES: 17/01/01		DRILLING METHODS : Hydraulic Percussive	
							DRILLER : Geotechnical Engineering		BOREHOLE DIAMETER : 125mm	
							LOGGED BY : LT		SCREEN TYPE & DIAM: HDPE 50mm	
							CHECKED BY :		SCREEN SLOT SIZE: 1mm	
							DESCRIPTION	COMMENTS		
	DSB018 0.8m		*782		0.0		Concrete to 0.15m overlying gravel comprised of slag and solid lump of slag material. MADE GROUND	HC odour	0.0	
					0.5		Loose slag and clinker material coated in thick, yellow grease/resin. MADE GROUND		0.5	
					1.0		Hard concrete		1.0	
	DSB018 3.0m		*252		1.5		Loose gravel of slag and some grease.	Free product at base of concrete. Drilling water black	1.5	
					2.0		Soft black SILT with cobbles and rounded gravel		2.0	
					2.5		Firm, dark brown, slightly sandy SILT with occasional to frequent sub-rounded medium gravel and cobbles.		2.5	
	DSB018 4.0m		*150		3.0		Loose, gravelly silty SAND	Solvent odour Damp with no odour	3.0	
					3.5		Soft, dark brown, slightly silty SAND with occasional cobbles and medium sub-rounded gravel comprised of sandstone		3.5	
					4.0		Firm, dark brown, slightly sandy SILT with frequent sub-angular to sub-rounded cobbles and gravel.		4.0	
	DSB018 5.0m		*200		4.5		More sandy horizons at 4.6-4.7m and 4.9m	Damp	4.5	
					5.0		Becoming orange-brown at 5.0m, with small, black, coal-like pieces.		5.0	
					5.5				5.5	
							End of Borehole	No odour	6.0	
									6.0	

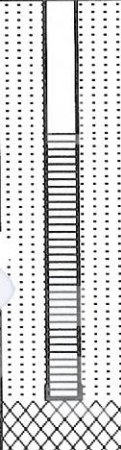
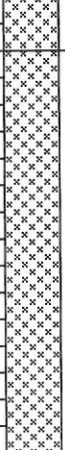
LOCATION / NOTES:		LEGEND		BOREHOLE LOG			
NVO = No visual or olfactory evidence			Disturbed Sample	Job Title: DiMe Investigation			
			Undisturbed Sample	Location: BP Llandarcy Refinery			
			Headspace Analysis	Client: BP Oil Llandarcy Refinery			
			Down Borehole Analysis			App'd:	Date: 19/09/2002
			Groundwater Table			Drawn : SS	Ref:
			Perched Water Table			Scale: As scale	Job No: 39991-022
						Drg. Size: A4	BOREHOLE LOG

BOREHOLE CONSTRUCTION	SAMPLE		SOIL VAPOUR (ppm)	GROUNDWATER	DEPTH (m)	GEOLOGY	BOREHOLE NUMBER: DSB018S1		PAGE 1 of 1	
	NUMBER	TYPE					DRILLING DATES: 17/01/01		DRILLING METHODS : Hydraulic Percussive	
							DRILLER : Geotechnical Engineering		BOREHOLE DIAMETER : 125mm	
							LOGGED BY : LT		SCREEN TYPE & DIAM: HDPE 50mm	
							CHECKED BY :		SCREEN SLOT SIZE: 1mm	
							DESCRIPTION	COMMENTS		
	DSB018 0.8m		*782		0.0	Concrete to 0.15m overlying gravel comprised of slag and solid lump of slag material. MADE GROUND	HC odour	0.0		
					0.5	Loose slag and clinker material coated in thick, yellow grease/resin. MADE GROUND		0.5		
					1.0	Hard concrete		1.0		
	DSB018 3.0m		*252		1.5	Loose gravel of slag and some grease.	Free product at base of concrete. Drilling water black	1.5		
					2.0	Soft black SILT with cobbles and rounded gravel		2.0		
					2.5	Firm, dark brown, slightly sandy SILT with occasional to frequent sub-rounded medium gravel and cobbles.		2.5		
	DSB018 4.0m		*150		3.0		Solvent odour Damp with no odour	3.0		
					3.5	Loose, gravelly silty SAND		3.5		
					4.0	Soft, dark brown, slightly silty SAND with occasional cobbles and medium sub-rounded gravel comprised of sandstone		4.0		
	DSB018 5.0m		*200		4.5	Firm, dark brown, slightly sandy SILT with frequent sub-angular to sub-rounded cobbles and gravel.	Damp	4.5		
					5.0	More sandy horizons at 4.6-4.7m and 4.9m		5.0		
					5.5	Becoming orange-brown at 5.0m, with small, black, coal-like pieces.		5.5		
							End of Borehole	No odour	6.0	

LOCATION / NOTES:		LEGEND		BOREHOLE LOG	
NVO = No visual or olfactory evidence		 Disturbed Sample		Job Title: DiMe Investigation	
		 Undisturbed Sample		Location: BP Llandarcy Refinery	
		 Headspace Analysis		Client: BP Oil Llandarcy Refinery	
		 Down Borehole Analysis			
		 Groundwater Table		App'd:	Date: 19/09/2002
		 Perched Water Table		Drawn : SS	Ref:
				Scale: As scale	Job No: 39991-022
				Drg. Size: A4	BOREHOLE LOG

BOREHOLE CONSTRUCTION	SAMPLE		SOIL VAPOUR (ppm)	GROUNDWATER	DEPTH (m)	GEOLOGY	BOREHOLE NUMBER: DSB017S2		PAGE 1 of 2	
	NUMBER	TYPE					DRILLING DATES: 17/01/02		DRILLING METHODS : Hydraulic Percussive	
							DRILLER : Geotechnical Engineering		BOREHOLE DIAMETER : 125mm	
							LOGGED BY : LT		SCREEN TYPE & DIAM: HDPE 50mm	
							CHECKED BY :		SCREEN SLOT SIZE: 1mm	
	DSB017 3.8m				0.0	Concrete with liner at base. MADE GROUND	DESCRIPTION	COMMENTS	0.0	
										Loose gravel of slag-like material and clinker. MADE GROUND
							Firm, dark brown (black staining in places) sandy SILT with frequent medium to coarse gravel of sst and slag. Occasional cobbles.	Becoming damp and softer	1.0	
										Soft brown/grey slightly sandy SILT with occasional gravelly horizons and rounded cobbles.
							Firm, brown, very sandy SILT with occasional coarse, sub-rounded gravel. Sand content decreasing after 2.5m	Weak HC odour	2.5	
										Soft, brown/grey silty SAND
							Firm, dark grey SILT with occasional rounded cobbles		4.0	
										Large COBBLE (cored) of hard, grey sandstone with soft, very sandy silt.
							Firm, gravelly SILT with fine to coarse sub-angular gravel		5.0	
										Soft, grey-brown, fine to medium silty SAND
							Firm, brown, sandy SILT with occasional orange mottling and fine, sub-rounded gravel			

LOCATION / NOTES:	LEGEND	BOREHOLE LOG	
NVO = No visual or olfactory evidence	Disturbed Sample Undisturbed Sample Headspace Analysis Down Borehole Analysis Groundwater Table Perched Water Table	Job Title: DiMe Investigation Location: BP Llandarcy Refinery Client: BP Oil Llandarcy Refinery	
			App'd: _____ Date: 18/09/2002 Drawn : SS Ref: _____ Scale: As scale Job No: 39991-022 Drg. Size: A4 BOREHOLE LOG

BOREHOLE CONSTRUCTION	SAMPLE		SOIL VAPOUR (ppm)	GROUNDWATER	DEPTH (m)	GEOLOGY	BOREHOLE NUMBER: DSB017S2		PAGE 2 of 2	
	NUMBER	TYPE					DRILLING DATES: 17/01/02		DRILLING METHODS : Hydraulic Percussive	
							DRILLER : Geotechnical Engineering		BOREHOLE DIAMETER : 125mm	
							LOGGED BY : LT		SCREEN TYPE & DIAM: HDPE 50mm	
							CHECKED BY :		SCREEN SLOT SIZE: 1mm	
	DSB017		*10			Firm, orange/brown, sandy SILT with occasional lenses of fine sand and red/orange staining. Horizons of cobbles and coarse, rounded, medium gravel in a silty sand matrix. Borehole terminated at 6.7m, collapsed to 6.5m		COMMENTS Small recovery		
						End of Borehole		No odour		
					5.5				5.5	
					6.0				6.0	
					6.5				6.5	
					7.0				7.0	
					7.5				7.5	
					8.0				8.0	
					8.5				8.5	
					9.0				9.0	
					9.5				9.5	
					10.0				10.0	

LOCATION / NOTES:	LEGEND	BOREHOLE LOG	
NVO = No visual or olfactory evidence	 Disturbed Sample  Undisturbed Sample  Headspace Analysis  Down Borehole Analysis  Groundwater Table  Perched Water Table	Job Title: DiMe Investigation Location: BP Llandarcy Refinery Client: BP Oil Llandarcy Refinery	
			App'd: _____ Date: 18/09/2002 Drawn : SS Ref: _____ Scale: As scale Job No: 39991-022 Drg. Size: A4 BOREHOLE LOG

BOREHOLE CONSTRUCTION	SAMPLE		SOIL VAPOUR (ppm)	GROUNDWATER	DEPTH (m)	GEOLOGY	BOREHOLE NUMBER: DSB017S1		PAGE 1 of 2	
	NUMBER	TYPE					DRILLING DATES: 17/01/02		DRILLING METHODS : Hydraulic Percussive	
							DRILLER : Geotechnical Engineering		BOREHOLE DIAMETER : 125mm	
							LOGGED BY : LT		SCREEN TYPE & DIAM: HDPE 50mm	
							CHECKED BY :		SCREEN SLOT SIZE: 1mm	
							DESCRIPTION	COMMENTS		
	DSB017 3.8m	A	*153				Concrete with liner at base. MADE GROUND	Moderate HC odour	0.0	
							Loose gravel of slag-like material and clinker. MADE GROUND		0.5	
							Firm, dark brown (black staining in places) sandy SILT with frequent medium to coarse gravel of sst and slag. Occasional cobbles.	Becoming damp and softer	1.0	
							Soft brown/grey slightly sandy SILT with occasional gravelly horizons and rounded cobbles.		1.5	
							Firm, brown, very sandy SILT with occasional coarse, sub-rounded gravel.	Weak HC odour	2.0	
							Sand content decreasing after 2.5m		2.5	
							Soft, brown/grey silty SAND	Very weak to no odour	3.0	
							Firm, dark grey SILT with occasional rounded cobbles		3.5	
							Large COBBLE (cored) of hard, grey sandstone with soft, very sandy silt.	No odour	4.0	
							Firm, gravelly SILT with fine to coarse sub-angular gravel		4.5	
Soft, grey-brown, fine to medium silty SAND	5.0									
							Firm, brown, sandy SILT with occasional orange mottling and fine, sub-rounded gravel			

LOCATION / NOTES:

NVO = No visual or olfactory evidence

LEGEND

Disturbed Sample

Undisturbed Sample

Headspace Analysis

Down Borehole Analysis

Groundwater Table

Perched Water Table

BOREHOLE LOG

Job Title: DiMe Investigation

Location: BP Llandarcy Refinery

Client: BP Oil Llandarcy Refinery

App'd:

Drawn : SS

Scale: As scale

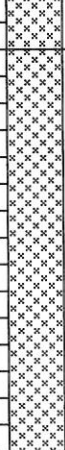
Drg. Size: A4

Date: 18/09/2002

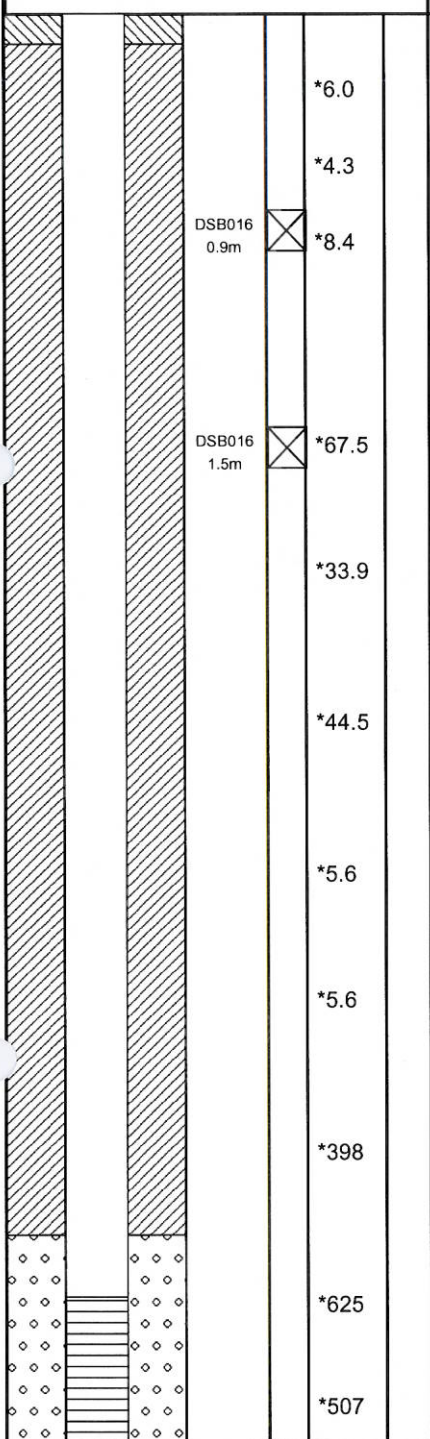
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Job No: 39991-022

BOREHOLE LOG

BOREHOLE CONSTRUCTION	SAMPLE		SOIL VAPOUR (ppm)	GROUNDWATER	DEPTH (m)	GEOLOGY	BOREHOLE NUMBER: DSB017S1		PAGE 2 of 2	
	NUMBER	TYPE					DRILLING DATES: 17/01/02		DRILLING METHODS : Hydraulic Percussive	
							DRILLER : Geotechnical Engineering		BOREHOLE DIAMETER : 125mm	
							LOGGED BY : LT		SCREEN TYPE & DIAM: HDPE 50mm	
							CHECKED BY :		SCREEN SLOT SIZE: 1mm	
	DSB017 6.4m		*10			Firm, orange/brown, sandy SILT with occasional lenses of fine sand and red/orange staining. Horizons of cobbles and coarse, rounded, medium gravel in a silty sand matrix. Borehole terminated at 6.7m, collapsed to 6.5m		COMMENTS Small recovery No odour	5.5 6.0 6.5 7.0 7.5 8.0 8.5 9.0 9.5 10.0	
						End of Borehole				

LOCATION / NOTES: NVO = No visual or olfactory evidence		LEGEND  Disturbed Sample  Undisturbed Sample  Headspace Analysis  Down Borehole Analysis  Groundwater Table  Perched Water Table		BOREHOLE LOG Job Title: DiMe Investigation Location: BP Llandarcy Refinery Client: BP Oil Llandarcy Refinery 				App'd: _____ Date: 18/09/2002 Drawn : SS _____ Ref: _____ Scale: As scale _____ Job No: 39991-022 Drg. Size: A4 _____ BOREHOLE LOG	
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BOREHOLE CONSTRUCTION	SAMPLE		SOIL VAPOUR (ppm)	GROUNDWATER	DEPTH (m)	GEOLOGY	BOREHOLE NUMBER: DSB016		PAGE 1 of 2	
	NUMBER	TYPE					START DATE: 30/3/99		DRILLING METHOD: HYDRAULIC PERCUSSIVE	
							FINISH DATE: 30/3/99		BOREHOLE DIAMETER: 130/80 mm	
							DRILLER: GEOTECHNICAL		SCREEN TYPE & DIAMETER: POLYPROPYLENE 50mm	
							LOGGED BY: SG APPR'D BY:		SCREEN SLOT SIZE: 1 mm	
						DESCRIPTION		COMMENTS		
						0		0		
						CONCRETE (MADE GROUND)				
						0.5		0.5		
						*4.3				
						*8.4		Oily sheen at 0.9m water ingress at 0.8m black oily water at 1m		
						1.0		1.0		
						*67.5		Oily sheen on gravel moderate to strong odour Moderate to strong hydrocarbon odour (stronger within grey streaks) Damp Sweet hydrocarbon odour from gravel/clay interface with black staining Odour decreases with depth		
						*33.9		2.0		
						*44.5		2.5		
						*5.6		3.0		
						3.0		3.0		
						Firm to stiff brown gravelly (fine to medium, sub-rounded to sub-angular) CLAY		Slight hydrocarbon odour		
						3.5		3.5		
						*5.6		Damp No odour		
						*398		4.0		
						*625		4.5		
						*507		5.0		
						predominantly sandy from 4.9 to 5m		No odour Damp		
LOCATION / NOTES:						LEGEND		BOREHOLE LOG		
- All measurements in m below ground level (mbgl) - Cased to 2m during drilling and installation - Hole size telescoped to smaller diameter with depth - Borehole collapsed to 5.5m						Disturbed Sample Undisturbed Sample				

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Headspace Analysis

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Down Borehole Analysis

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Groundwater Table

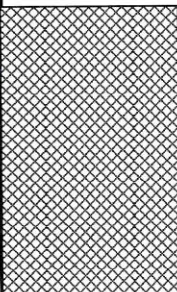
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Perched Water Table

[illegible]

BOREHOLE CONSTRUCTION	SAMPLE		SOIL VAPOUR (ppm)	GROUNDWATER	DEPTH (m)	GEOLOGY	BOREHOLE NUMBER: DSB015		PAGE 1 of 2		
	NUMBER	TYPE					START DATE: 30/3/99	DRILLING METHOD: HYDRAULIC PERCUSSIVE			
							FINISH DATE: 30/3/99	BOREHOLE DIAMETER: 130/80 mm			
							DRILLER: GEOTECHNICAL	SCREEN TYPE & DIAMETER: POLYPROPYLENE 50mm			
							LOGGED BY: SG	APPR'D BY:	SCREEN SLOT SIZE: 1 mm		
						0	DESCRIPTION		COMMENTS	0	
							CONCRETE(MADE GROUND)				
							Loose grey black silty GRAVEL (MADE GROUND)		Slight hydrocarbon odour		
							Loose green silty GRAVEL(MADE GROUND)				
							Loose grey brown sandy GRAVEL (MADE GROUND)				
							Loose yellowish brown silty and sandy fine to medium GRAVEL (MADE GROUND)				
							Medium dense grey to black sub-angular medium GRAVEL with clinker fragments (MADE GROUND) large cobbles at 1.2m		Oily appearance Moderate hydrocarbon odour		
							Medium dense black clayey GRAVEL with some cobbles		Oil noted at 2.4 and 2.7m Damp		
							Medium dense grey-brown very gravelly and silty CLAY		Moderate hydrocarbon odour (mainly from gravel)		
							Firm grey-yellow-brown very gravelly (fine to medium) slightly silty sandy CLAY				
							Loose black-grey silty GRAVEL		Oily appearance		
							Firm orange-brown gravelly CLAY with some grey patches		Slight hydrocarbon odour		
							Firm to stiff brown gravelly (fine to medium) CLAY with		Damp at 4.5m No odour Dry from 5m		

LOCATION / NOTES:		LEGEND		BOREHOLE LOG	
1. All measurements in m below ground level (mbgl)		☒ Disturbed Sample		Job Title SOIL & GROUNDWATER INVESTIGATION	
2. Hole size telescoped to smaller diameter with depth		■ Undisturbed Sample		Location LLANDARCY REFINERY	
3. Borehole collapsed to 4m		* Headspace Analysis		Client BP LLANDARCY LTD	
		† Down Borehole Analysis		App'd DRAFT	
		▼ Groundwater Table		Ref. SG/CR/BRS	
		▽ Perched Water Table		Date MAY 99	
				Job No. 39991-004-401	
				 DAMES & MOORE	

BOREHOLE CONSTRUCTION	SAMPLE		SOIL VAPOUR (ppm)	GROUNDWATER	DEPTH (m)	GEOLOGY	BOREHOLE NUMBER: DSB015		PAGE 2 of 2	
	NUMBER	TYPE					START DATE: 30/3/99		DRILLING METHOD: HYDRAULIC PERCUSSIVE	
							FINISH DATE: 30/3/99		BOREHOLE DIAMETER: 130/80 mm	
							DRILLER: GEOTECHNICAL		SCREEN TYPE & DIAMETER: POLYPROPYLENE 50mm	
							LOGGED BY: SG APPR'D BY:		SCREEN SLOT SIZE: 1 mm	
						DESCRIPTION		COMMENTS		
					5	Firm to stiff brown gravelly (fine to medium) CLAY with occasional cobbles				
DSB015 6.0m					5.5					
					6.0					
					6.5					
					7.0					
					7.5					
					8.0					
					8.5					
					9.0					
					9.5					
					10.0					

LOCATION / NOTES:

1. All measurements in m below ground level (mbgl)

2. Hole size telescoped to smaller diameter with depth

3. Borehole collapsed to 4m

LEGEND

 Disturbed Sample

 Undisturbed Sample

 Headspace Analysis

 Down Borehole Analysis

 Groundwater Table

 Perched Water Table

BOREHOLE LOG

Job Title

SOIL & GROUNDWATER INVESTIGATION

Location

LLANDARCY REFINERY

Client

BP LLANDARCY LTD

App'd

DRAFT

Ref.

SG/CR/BR5

Date

MAY 99

Job No.

39991-004-401



DAMES & MOORE

BOREHOLE CONSTRUCTION	SAMPLE		SOIL VAPOUR (ppm)	GROUNDWATER	DEPTH (m)	GEOLOGY	BOREHOLE NUMBER: DSB014		PAGE 1 of 1	
	NUMBER	TYPE					START DATE: 07/04/99	DRILLING METHOD: HYDRAULIC PERCUSSIVE	FINISH DATE: 07/04/99	BOREHOLE DIAMETER: 130/80 mm
							DESCRIPTION	COMMENTS		
						0	CONCRETE (MADE GROUND)		0	
						0.5	Loose brown coarse SAND and fine to medium gravel (MADE GROUND)	Slight solvent odour	0.5	
						1.0	Medium dense grey fine to coarse sandy GRAVEL (MADE GROUND)	Yellow free product observed Strong solvent odour	1.0	
						1.5	Soft black slightly sandy CLAY (MADE GROUND)	Oily appearance	1.5	
						2.0	Loose grey to green-grey coarse SAND and fine gravel with slag fragments (MADE GROUND) Predominantly brown porous slag below 1.75m	Solvent odour Sheen on slag surfaces	2.0	
						2.5	Firm dark grey slightly gravelly CLAY	Wet Sheen on water Strong odour	2.5	
						3.0	Firm brown to orange-brown gravelly CLAY gravel horizons at 2.25 and 2.5m	Water seeps from gravel	3.0	
						3.5		Faint odour	3.5	
						4.0	clay becomes soft at 3.25m		4.0	
						4.5			4.5	
						5.0	clay becomes firm and dark brown-grey at 4.1m	Slight hydrocarbon odour	5.0	

LOCATION / NOTES:	LEGEND	BOREHOLE LOG	
1. All measurements in m below ground level (mbgl)	Disturbed Sample	Job Title	SOIL & GROUNDWATER INVESTIGATION
2. PID malfunctioning	Undisturbed Sample	Location	LLANDARCY REFINERY
3. Shallow well installed using 19mm HDPE pipe	* Headspace Analysis	Client	BP LLANDARCY LTD
4. Hole size telescoped to smaller diameter	† Down Borehole Analysis	App'd	DRAFT
	Groundwater Table	Ref.	SG/CR/BRs
	Perched Water Table	Date	MAY 99
		Job No.	39991-004-401
		DAMES & MOORE	

BOREHOLE CONSTRUCTION	SAMPLE		SOIL VAPOUR (ppm)	GROUNDWATER	DEPTH (m)	GEOLOGY	BOREHOLE NUMBER: DSB013		PAGE 1 of 2	
	NUMBER	TYPE					START DATE: 31/3/99		DRILLING METHOD: HYDRAULIC PERCUSSIVE	
							FINISH DATE: 31/3/99		BOREHOLE DIAMETER: 130/80 mm	
							DRILLER: GEOTECHNICAL		SCREEN TYPE & DIAMETER: POLYPROPYLENE 50mm	
				LOGGED BY: SG APPR'D BY:		SCREEN SLOT SIZE: 1 mm				
							DESCRIPTION	COMMENTS		
					0		CONCRETE (MADE GROUND)			0
							Loose grey medium gravel (MADE GROUND)			
					0.5		Loose brown sandy and silty GRAVEL with some ash and polystyrene foam at 0.35m (MADE GROUND)	Damp		0.5
							Loose to medium coarse black-grey sandy fine to medium GRAVEL with some cobbles (MADE GROUND)	Oily appearance and odour		1.0
					1.0			Wet		
							becoming dense or large cobble at 1.3m			1.5
					1.5					
							Soft black fine silty sand (PFA) (MADE GROUND)	very strong 'sickly' sweet garlic-like odour		2.0
					2.0					
							Firm to stiff brown gravelly CLAY with occasional cobbles and some sand	Damp		2.5
					2.5			Sweet odour		
										3.0
					3.0			Slight sweet odour damp		
							becoming firm from 3.5m			3.5
					3.5					
										4.0
					4.0			No odour		
							Firm to stiff grey slightly gravelly sandy CLAY with predominantly gravel rich layers at 4.5m and 4.6m	Water ingress noted along gravel layers		4.5
					4.5			No odour		
										5.0
					5.0		Firm orange-brown sandy silty CLAY			

LOCATION / NOTES: 1. All measurements in m below ground level (mbgl) 2. Borehole backfilled with bentonite to 5m 3. Hole size telescoped to smaller diameter with depth		LEGEND ☒ Disturbed Sample ■ Undisturbed Sample * Headspace Analysis † Down Borehole Analysis ▼ Groundwater Table ▽ Perched Water Table	BOREHOLE LOG Job Title SOIL & GROUNDWATER INVESTIGATION Location LLANDARCY REFINERY Client BP LLANDARCY LTD App'd DRAFT Ref. SG/CR/BRS Date MAY 99 Job No. 39991-004-401	 DAMES & MOORE GROUP
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BOREHOLE CONSTRUCTION	SAMPLE		SOIL VAPOUR (ppm)	GROUNDWATER	DEPTH (m)	GEOLOGY	BOREHOLE NUMBER: DSB013		PAGE 2 of 2	
	NUMBER	TYPE					START DATE: 31/3/99		DRILLING METHOD: HYDRAULIC PERCUSSIVE	
							FINISH DATE: 31/3/99		BOREHOLE DIAMETER: 130/80 mm	
							DRILLER: GEOTECHNICAL		SCREEN TYPE & DIAMETER: POLYPROPYLENE 50mm	
		LOGGED BY: SG APPR'D BY:		SCREEN SLOT SIZE: 1 mm						
					5		DESCRIPTION		COMMENTS	
					5	X	Firm orange-brown sandy silty CLAY		No odour	
						X	Firm grey and orange-brown sandy clayey SILT with frequent fine to medium gravel and occasional cobbles		Dry	
			*0		5.5	X	Firm orange slightly sandy and silty CLAY with some fine gravel		No odour	
			*0		6.0	X			Dry	
					6.5	X				
					7.0					
					7.5					
					8.0					
					8.5					
					9.0					
					9.5					
					10.0		Borehole terminated at 6.5 mbgl			

LOCATION / NOTES: 1. All measurements in m below ground level (mbgl) 2. Borehole backfilled with bentonite to 5m 3. Hole size telescoped to smaller diameter with depth		LEGEND X Disturbed Sample ■ Undisturbed Sample * Headspace Analysis † Down Borehole Analysis ▼ Groundwater Table ▼ Perched Water Table	BOREHOLE LOG Job Title SOIL & GROUNDWATER INVESTIGATION Location LLANDARCY REFINERY Client BP LLANDARCY LTD App'd DRAFT Ref. SG/CR/BRs Date MAY 99 Job No. 39991-004-401	 DAMES & MOORE GROUP
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BOREHOLE CONSTRUCTION	SAMPLE		SOIL VAPOUR (ppm)	GROUNDWATER	DEPTH (m)	GEOLOGY	BOREHOLE NUMBER: DSB012		PAGE 1 of 1	
	NUMBER	TYPE					START DATE: 07/04/99		DRILLING METHOD: HYDRAULIC PERCUSSIVE	
							FINISH DATE: 07/04/99		BOREHOLE DIAMETER: 130/80 mm	
							DRILLER: GEOTECHNICAL		SCREEN TYPE & DIAMETER: POLYPROPYLENE 50mm	
				LOGGED BY: SG		APPR'D BY:		SCREEN SLOT SIZE: 1 mm		
							DESCRIPTION	COMMENTS		
						0	CONCRETE (MADE GROUND)			0
							Loose orange SAND (MADE GROUND)	'Orange-like' odour damp		
						0.5	Loose to medium dense grey fine GRAVEL with some sand (MADE GROUND)	Wet		0.5
							Wood (MADE GROUND)			
							Loose white fine GRAVEL			
						1.0	Loose brown-grey (with occasional green-grey patches) silty and clayey fine GRAVEL	Wet		1.0
						1.5	Soft to firm grey-black silty and gravelly CLAY	Slight oil / solvent odour		1.5
							Soft orange-brown very silty and sandy CLAY with some fine gravel becoming firm at 1.9m	slight oil / solvent odour		
						2.0				2.0
							Hard blue fine grained sandstone COBBLES			
						2.5	Firm orange-brown slightly sandy and silty gravelly CLAY with red-brown staining along gravel-clay interface	No odour		2.5
						3.0				3.0
							Firm to stiff grey (with occasional orange-brown patches) slightly silty very gravelly (medium sub-rounded) CLAY	Wet		
						3.5				3.5
						4.0				4.0
						4.5				4.5
						5.0				5.0

LOCATION / NOTES:	LEGEND	BOREHOLE LOG	
1. All measurements in m below ground level (mbgl)	Disturbed Sample	Job Title	SOIL & GROUNDWATER INVESTIGATION
2. Shallow well installed using 19mm HDPE pipe	Undisturbed Sample	Location	LLANDARCY REFINERY
3. Hole size telescoped to smaller diameter with depth	Headspace Analysis	Client	BP LLANDARCY LTD
	Down Borehole Analysis	App'd	DRAFT
	Groundwater Table	Ref.	SG/CR/BR5
	Perched Water Table	Date	MAY 99
		Job No.	39991-004-401
		DAMES & MOORE GROUP	

BOREHOLE CONSTRUCTION	SAMPLE		SOIL VAPOUR (ppm)	GROUNDWATER	DEPTH (m)	GEOLOGY	BOREHOLE NUMBER: DSB011		PAGE 1 of 2	
							START DATE: 29/3/99		DRILLING METHOD: HYDRAULIC PERCUSSIVE	
	NUMBER	TYPE					FINISH DATE: 30/3/99		BOREHOLE DIAMETER: 130/80 mm	
							DRILLER: GEOTECHNICAL		SCREEN TYPE & DIAMETER: POLYPROPYLENE 50mm	
		LOGGED BY: SG		APPR'D BY:		SCREEN SLOT SIZE: 1 mm				
							DESCRIPTION	COMMENTS		
DSB011 1.0m PCB *151 *39.2 *12.3 *6.2 *5.7 *6.4 *5.8 *5.8 *6.2 *5.7							0	CONCRETE (MADE GROUND)		0
							0.5	Loose brown SAND with gravel (MADE GROUND)	Damp below concrete	0.5
							1.0	CONCRETE (MADE GROUND)	Some fall back in initial sample run	1.0
							1.5	Soft greyish brown gravelly silty CLAY with some angular sandstone fragments and cobbles at 1.3m	Very strong hydrocarbon odour Damp	1.5
							2.0	Soft orange-brown silty CLAY with some gravel and fine sand and cobbles	Strong hydrocarbon odour	2.0
							2.5	Firm brown and slightly orangey CLAY with some sub-rounded fine gravel	No odour Dry	2.5
							3.0	Firm to stiff dark brown slightly gravelly (sub-angular) CLAY becoming stiff at 3m	Dry	3.0
							3.5	Soft to firm dark grey-brown gravelly CLAY	Gravels damp no odour	3.5
							4.0	Firm to stiff brown slightly gravelly CLAY becoming more gravelly at 3.6m		4.0
							4.5	Firm slightly orange-brown slightly silty and sandy CLAY with occasional coarse gravel		4.5
							5.0	Soft grey-brown sandy SILT	Wet No odour Poor returns	5.0

LOCATION / NOTES:

- All measurements in m below ground level (mbgl)
- Hole size telescoped to smaller diameter with depth

LEGEND

- Disturbed Sample
- Undisturbed Sample
- Headspace Analysis
- Down Borehole Analysis
- Groundwater Table
- Perched Water Table

BOREHOLE LOG

Job Title		SOIL & GROUNDWATER INVESTIGATION	
Location		LLANDARCY REFINERY	
Client		BP LLANDARCY LTD	
App'd	DRAFT		
Ref.	SG/CR/BR5		
Date	MAY 99		
Job No.	39991-004-401		

DAMES & MOORE