

BOREHOLE CONSTRUCTION	SAMPLE		SOIL VAPOUR (ppm)	GROUNDWATER	DEPTH (m)	GEOLOGY	BOREHOLE NUMBER: RFSW015		PAGE 1 of 1	
	NUMBER	TYPE					DRILLING DATES: 12/10/2000		DRILLING METHODS : Dynamic System	
							DRILLER : Geotechnical		BOREHOLE DIAMETER : 128,113 , 98mm	
							LOGGED BY : JG		SCREEN TYPE & DIAM: 50mm HDPE	
							CHECKED BY :		SCREEN SLOT SIZE: 1mm	
					0.0	GRAVEL Fine black, poorly graded gravel with some fine sand and occasional clay	Wet	0.0		
			32		0.5	SILTY SAND Firm fine black Silty S and	Wet	0.5		
					1.0	CLAY Soft to firm, brown, medium plastic CLAY with fine sand	Moist	1.0		
					1.5	SAND Firm grey-green fine silty sand with occasional fine gravel.	Wet	1.5		
			50		2.0			2.0		
			*350		2.5			2.5		
					3.0			3.0		
					3.5			3.5		
					4.0	End of Borehole		4.0		
					5.0			5.0		

LOCATION / NOTES:		LEGEND		BOREHOLE LOG	
NVO = No visual or off actory evidence		Disturbed Sample	Undisturbed Sample	Job Title: Sentinel Wells	
		Headspace Analysis	Down Borehole Analysis	Location: BP Llandarcy Refinery	
		Groundwater Table	Perched Water Table	Client: BP Oil UK	
					App'd: _____
					Date: August 2002
					Drawn: AR
					Ref: _____
				Scale: _____	Job No: 39991-16
				Dwg. Size: _____	BOREHOLE LOG

BOREHOLE CONSTRUCTION	SAMPLE		SOIL VAPOUR (ppm)	GROUNDWATER	DEPTH (m)	GEOLOGY	BOREHOLE NUMBER: RFSW014		PAGE 1 of 1	
	NUMBER	TYPE					DRILLING DATES: 12/10/00		DRILLING METHODS: Dynamic	
							DRILLER: Geotechnical		BOREHOLE DIAMETER: 128, 113, 98mm	
							LOGGED BY: JG		SCREEN TYPE & DIAM: 50mm HDPE	
							CHECKED BY:		SCREEN SLOT SIZE: 1mm	
					0.0		GRAVEL Loose, dark grey brown, poorly graded fine to coarse gravel with fine sand and some clay	Moist	0.0	
					0.5		CLAY Firm, black, fine sandy, medium plastic clay with fine to coarse gravel and organic material. Becomes brown from 0.9m	Moist	0.5	
					1.0			Wet	1.0	
					1.5				1.5	
					2.0		SAND Loose to firm brown silty fine sand with fine to coarse gravel. No returns from 2.25 - 3.0m	Wet	2.0	
					2.5				2.5	
					3.0		SAND Loose, brown, poorly graded fine sand with silt	Wet	3.0	
					3.5		GRAVEL Loose brown poorly graded fine gravel with occasional/some silt/clay	Wet	3.5	
					4.0		SAND Loose to firm, brown, silty fine sand with some/occasional fine gravels.		4.0	
					4.3	Drilled to 4.3m, collapsed to 4.2m				
				4.5	End of Borehole					
				5.0					5.0	

LOCATION / NOTES:	LEGEND	BOREHOLE LOG	
NVO = No visual or factory evidence	Disturbed Sample Undisturbed Sample Headspace Analysis Down Borehole Analysis Groundwater Table Perched Water Table	Job Title: Sentinel Wells Location: BP Llandarcy Refinery Client: BP Oil UK	
			App'd: _____ Date: August 2002 Drawn: AR Ref: _____ Scale: _____ Job No: 39991-016 Drg. Size: _____ BOREHOLE LOG

BOREHOLE CONSTRUCTION	SAMPLE		SOIL VAPOUR (ppm)	GROUNDWATER	DEPTH (m)	GEOLOGY	BOREHOLE NUMBER: RFSW013		PAGE 1 of 1	
	NUMBER	TYPE					DRILLING DATES: 10/10/2000		DRILLING METHODS: Percussive	
							DRILLER: Geotechnical		BOREHOLE DIAMETER: 128mm	
							LOGGED BY: JG		SCREEN TYPE & DIAM: 50mm HDPE	
		CHECKED BY:		SCREEN SLOT SIZE: 1mm						
					0.0	MADE GROUND Concrete.	DESCRIPTION	COMMENTS	0.0	
					0.5	MADE GROUND Loose, black, poorly sorted gravel. Asphalt base		NVO		
					1.0	GRAVEL Loose, brown, moist, poorly sorted gravel with some sand		Moist, hydrocarbon odour		
					1.5	CLAY Firm, yellow-brown, moist clay with some fine sand		Moist, hydrocarbon odour Grey staining		
					2.0					
					2.5	CLAYEY SAND Loose, grey-brown, wet, fine-medium clayey sand.		Wet		
					3.0					
					3.5					
					4.0					
					4.5					
				5.0	Drilled to 5.0m, collapsed at 3.84m					
					End of Borehole					

LOCATION / NOTES:	LEGEND	BOREHOLELOG	
NVO = No visual or offactory evidence	Disturbed Sample Undisturbed Sample Headspace Analysis Down Borehole Analysis Groundwater Table Perched Water Table	Job Title: Sentinel Wells Location: BP Llandarcy Refinery Client: BP Oil UK	
			App'd: _____ Date: August 2002 Drawn: SS Ref: _____ Scale: _____ Job No: 39991-016 Drg. Size: _____ BOREHOLELOG

BOREHOLE CONSTRUCTION	SAMPLE		SOIL VAPOUR (ppm)	GROUNDWATER	DEPTH (m)	GEOLOGY	BOREHOLE NUMBER: RFSW012		PAGE 1 of 1	
	NUMBER	TYPE					DRILLING DATES: 19/10/2000		DRILLING METHODS : Percussive	
							DRILLER : Geotechnical		BOREHOLE DIAMETER : 128mm	
							LOGGED BY : JG		SCREEN TYPE & DIAM: 50mm HDPE	
				CHECKED BY :		SCREEN SLOT SIZE: 1mm				
					0.0	CONCRETE	DESCRIPTION	COMMENTS	0.0	
					0.5	MADE GROUND Loose, black, silty finesand with some gravels, mixed with layers of loose, black ash and clinker		Moist	0.5	
			11.5		1.0	CLAY Firm, brown-grey, finesandy, clay with trace gravels		Hydrocarbon odour	1.0	
			23.2		1.5			Moist	1.5	
			*81.8		2.0	GRAVEL Loose, poorly graded, sandy, fine to coarse gravel with some silt		Hydrocarbon odour	2.0	
			52		2.5	SAND Firm, brown, poorly graded, silty finesand		Wet	2.5	
			37		3.0	Sand becomes medium to coarse from 2.35m		Hydrocarbon odour	3.0	
			*885		3.5	No returns from 2.7 - 3m			3.5	
			278		4.0	Goes dark grey from 3m			4.0	
			0		4.5	SAND Firm, grey, clayey, fine sand with occasional coarse gravel clasts		Wet	4.5	
		*37.5		5.0	No returns from 4 - 4.6m			5.0		
		0			End of Borehole					

LOCATION / NOTES:

NVO = No visual orolfactory evidence

LEGEND

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

BOREHOLELOG

Job Title: Sentinel Wells

Location: BP Llandarcy Refinery

Client: BP Oil UK

App'd:	Date: August 2002
Drawn: NML	Ref:
Scale:	Job No: 39991-016
Dwg. Size:	BOREHOLELOG

BOREHOLE CONSTRUCTION	SAMPLE		SOIL VAPOUR (ppm)	GROUNDWATER	DEPTH (m)	GEOLOGY	BOREHOLE NUMBER: RFSW011		PAGE 1of 1
	NUMBER	TYPE					DRILLING DATES: 12/10/2000		DRILLING METHODS : Percussive
							DRILLER : Geotechnical		BOREHOLE DIAMETER : 128mm
							LOGGED BY : JG		SCREEN TYPE & DIAM: 50mm HDPE
							CHECKED BY :		SCREEN SLOT SIZE: 1mm
							DESCRIPTION	COMMENTS	
							CONCRETE Concrete hard standing	Moist Hydrocarbon odour	0.0
							SAND AND GRAVEL Loose, black , gravelly sand w ith some silt		0.5
							CLAY Soft, dark brown, slightly sandy clay	Moist Hydrocarbon odour	1.0
							SAND Medium-dense, brown-grey silty fine sand with occasional gravel		1.5
							CLAY Soft to firm , brown , slightly sandy clay	Moist Hydrocarbon odour	2.0
							GRAVEL Loose, poorly graded gravel		2.5
							CLAY Soft, brown, sandy clay	Moist Hydrocarbon odour	3.0
							SAND Firm, brown-grey, silty , fine sand w ith fine to coarse gravels		3.5
							Noreturns from 2.7 -3.67m		4.0
							End of Borehole		4.5
									5.0

LOCATION / NOTES:
NVO = No visual orolfactory evidence

LEGEND

- [X] Disturbed Sample
- [■] Undisturbed Sample
- * Headspace Analysis
- + Down Borehole Analysis
- Groundwater Table
- = Perched Water Table

BOREHOLE LOG

Job Title: Sentinel Wells
Location: BP Llandarcy Refinery
Client: BP Oil UK

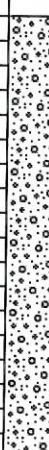
App'd:

Date: August 2002

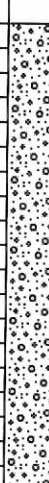
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Scale: Job N o: 39991-016

Bored Hole Size: BOREHOLE LOG

BOREHOLE CONSTRUCTION	SAMPLE		SOIL VAPOUR (ppm)	GROUNDWATER	DEPTH (m)	GEOLOGY	BOREHOLE NUMBER: RFSW010B		PAGE 1 of 1	
	NUMBER	TYPE					DRILLING DATES: 12/10/2000		DRILLING METHODS : Percussive	
							DRILLER : Geotechnical		BOREHOLE DIAMETER : 128mm	
							LOGGED BY : JG		SCREEN TYPE & DIAM:	
							CHECKED BY :		SCREEN SLOT SIZE:	
					0.0		DESCRIPTION		COMMENTS	0.0
			32		0.5		GRAVEL Poorly graded, black, loose sandy gravel with some silt		Wet Hydrocarbon odour	0.5
			50		1.0		Goes brown-grey at 1.2m			1.0
			*203		1.5					1.5
			37		2.0		End of Borehole			2.0
					2.5					2.5
					3.0					3.0
					3.5					3.5
					4.0					4.0
					4.5					4.5
					5.0					5.0

LOCATION / NOTES:	LEGEND	BOREHOLELOG	
NVO = No visual orolf actory evidence	 Disturbed Sample  Undisturbed Sample  Headspace Analysis  Down Borehole Analysis  Groundwater Table  Perched Water Table	Job Title: Sentinel Wells Location: BP Llandarcy Refinery Client: BP Oil UK	
			App'd: _____ Date: August 2002 Drawn: NML Ref: _____ Scale: _____ Job No: 39991-016 Drg. Size: _____ BOREHOLELOG

BOREHOLE CONSTRUCTION	SAMPLE		SOIL VAPOUR (ppm)	GROUNDWATER	DEPTH (m)	GEOLOGY	BOREHOLE NUMBER: RFSW010A		PAGE 1 of 1										
	NUMBER	TYPE					DRILLING DATES: 12/10/2000		DRILLING METHODS : Percussive										
							DRILLER : Geotechnical		BOREHOLE DIAMETER : 128mm										
							LOGGED BY : JG		SCREEN TYPE & DIAM:										
CHECKED BY :		SCREEN SLOT SIZE:																	
			25		0.0		DESCRIPTION		COMMENTS	0.0									
					0.5		GRAVEL Poorly graded, gravel with some sand and clay		Hydrocarbon odour	0.5									
			55		1.0		Becomes brown-grey from 0.85m			1.0									
			*105		1.5					1.5									
			39		2.0		Goes black from 1.6m			2.0									
			42		2.5					2.5									
					3.0		End of Borehole			3.0									
					3.5					3.5									
					4.0					4.0									
					4.5					4.5									
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: Sentinel Wells Location: BP Llandarcy Refinery Client: BP Oil UK  <table border="1"> <tr> <td>App'd:</td> <td>Date: August 2002</td> </tr> <tr> <td>Drawn: NML</td> <td>Ref:</td> </tr> <tr> <td>Scale:</td> <td>Job No: 39991-016</td> </tr> <tr> <td>Dwg. Size:</td> <td>BOREHOLE LOG</td> </tr> </table>				App'd:	Date: August 2002	Drawn: NML	Ref:	Scale:	Job No: 39991-016	Dwg. Size:	BOREHOLE LOG
App'd:	Date: August 2002																		
Drawn: NML	Ref:																		
Scale:	Job No: 39991-016																		
Dwg. Size:	BOREHOLE LOG																		

BOREHOLE CONSTRUCTION	SAMPLE		SOIL VAPOUR (ppm)	GROUNDWATER	DEPTH (m)	GEOLOGY	BOREHOLE NUMBER: RFSW009		PAGE 1 of 1	
	NUMBER	TYPE					DRILLING DATES: 19/10/2000		DRILLING METHODS : Percussive	
							DRILLER : Geotechnical		BOREHOLE DIAMETER : 128mm	
							LOGGED BY : JG		SCREEN TYPE & DIAM: 50mm HDPE	
				CHECKED BY :		SCREEN SLOT SIZE: 1mm				
					0.0		DESCRIPTION	COMMENTS	0.0	
			0		0.0		MADE GROUND Loose, black, clayey gravel			
					0.5		Firm, brown, clayey sand			
			0		0.5		Loose, black, ash with clinker and some clay			
					1.0		MADE GROUND Firm, grey, slightly sandy clay	Moist		
					1.0		MADE GROUND Loose, black, ash and clinker with silt	Wet		
			*137		1.5		MADE GROUND Soft, brown, sandy clay			
			*837		1.5		MADE GROUND Loose, black ash and clinker	Hydrocarbon odour		
			11.7		2.0		CLAY Soft to firm, brown-grey, sandy clay with occasional gravel clasts at depth			
			*680		2.5			Wet		
		144		3.0		SAND Soft to firm, grey, silty, fine to coarse sand, with trace fine gravel clasts	Hydrocarbon odour			
		*466		3.5						
				4.0		No returns from 3.2 - 4.0m				
				4.0		Collapse back to 3.2m				
				4.0		End of Borehole				
				4.5						
				5.0						

LOCATION / NOTES:
NVO = No visual or off actory evidence

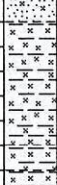
LEGEND
 Disturbed Sample
 Undisturbed Sample
 Headspace Analysis
 Down Borehole Analysis
 Groundwater Table
 Perched Water Table

BOREHOLE LOG
Job Title: Sentinel Wells
Location: BP Llandarcy Refinery
Client: BP Oil UK

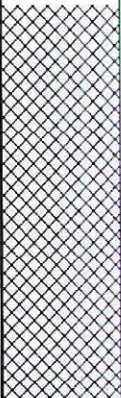
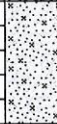
App'd:	Date: August 2002
Drawn: NML	Ref:
Scale:	Job No: 39991-016
Dwg. Size:	BOREHOLE LOG

BOREHOLE CONSTRUCTION	SAMPLE		SOIL VAPOUR (ppm)	GROUNDWATER	DEPTH (m)	GEOLOGY	BOREHOLE NUMBER: RFSW008		PAGE 1 of 1	
	NUMBER	TYPE					DRILLING DATES: 26/10/2000		DRILLING METHODS : Percussive	
							DRILLER : Geotechnical		BOREHOLE DIAMETER : 128mm	
							LOGGED BY : JG		SCREEN TYPE & DIAM: 50mm HDPE	
							CHECKED BY :		SCREEN SLOT SIZE: 1mm	
							DESCRIPTION	COMMENTS		
				0.0	CONCRETE		Concretehard standing		0.0	
				0.5	MADE GROUND		Loose, grey, poorly graded gravel	Slight hydrocarbon odour	0.5	
				0.5	MADE GROUND		Loose, black, ash and clinker			
				1.0	CLAY		Soft to firm, brown-grey, slightly sandy clay		1.0	
				1.5			No returns from 1.5 - 2m		1.5	
				2.0				Slight hydrocarbon odour	2.0	
				2.5			Lense of brown silty sand 2.65 - 2.75m		2.5	
				3.0			End of Borehole		3.0	
				3.5					3.5	
				4.0					4.0	
				4.5					4.5	
				5.0					5.0	

LOCATION / NOTES: NVO = No visual orolf actory evidence		LEGEND Disturbed Sample Undisturbed Sample Headspace Analysis Down Borehole Analysis Groundwater Table Perched Water Table		BOREHOLE LOG Job Title: Sentinel Wells Location: BP Llandarcy Refinery Client: BP Oil UK <table border="1"> <tr> <td>App'd:</td> <td>Date: August 2002</td> </tr> <tr> <td>Drawn: NML</td> <td>Ref:</td> </tr> <tr> <td>Scale:</td> <td>Job No: 39991-016</td> </tr> <tr> <td>Drg. Size:</td> <td>BOREHOLE LOG</td> </tr> </table>		App'd:	Date: August 2002	Drawn: NML	Ref:	Scale:	Job No: 39991-016	Drg. Size:	BOREHOLE LOG
App'd:	Date: August 2002												
Drawn: NML	Ref:												
Scale:	Job No: 39991-016												
Drg. Size:	BOREHOLE LOG												

BOREHOLE CONSTRUCTION	SAMPLE		SOIL VAPOUR (ppm)	GROUNDWATER	DEPTH (m)	GEOLOGY	BOREHOLE NUMBER: WSTP161		PAGE 1 of 1	
	NUMBER	TYPE					DRILLING DATES: 03/12/03		DRILLING METHODS : JCB	
							DRILLER : JCB - Viv		BOREHOLE DIAMETER : -	
							LOGGED BY : EM		SCREEN TYPE & DIAM: -	
							CHECKED BY : SG		SCREEN SLOT SIZE: -	
						DESCRIPTION		COMMENTS	S,V	
	WSTP161 - 0.4m. (S,L)		*2.4		0.0		Soft to firm, dark yellow brown, clayey silt, with frequent fine to coarse gravels, occasional cobbles and boulders, beige bricks and brick fragments. (MADE GROUND)		Damp to dry. NVO	
					0.5		Medium dense, light brown clayey sand with frequent fine to coarse gravel, subangular and tabular cobbles, boulders and occasional red brick fragments. (MADE GROUND)		Damp to dry. NVO Damp to dry. NVO	0,0
	WSTP161 - 1.9m. (S,L)		*4.4		1.0		Soft, dark grey brown, fine sandy SILT with frequent fine to coarse gravels, subangular and tabular cobbles and boulders.		Dry. NVO	0,0
					1.5		Loose, dark brown, slightly clayey, silty fine SAND with frequent fine to coarse, subangular to rounded gravels and tabular cobbles and boulders, including occasional very large tabular boulders.		Dry. NVO	0,0
					2.0		With rare cobbles and boulders from 1.9m.		Damp. Faint hydrocarbon odour	1,0
					2.5		Becoming silty sand with frequent tabular large cobbles and boulders.		Slight hydrocarbon odour	2,0
	WSTP161 - 3.1m. (S,L)		*3.2		3.0		Becoming loose, orange brown silty fine SAND.		Faint hydrocarbon odour	1,0
					3.5		Becoming soft to firm, orange brown silty clay. With frequent fine to coarse gravels, subangular and tabular cobbles and boulders.		Damp. NVO Damp. NVO	
					4.0		With frequent tabular sandstone cobbles and boulders from 3.5m.		Faint hydrocarbon odour, occasional black to dark grey staining.	1,0
					4.5		Becoming dark brown in colour.			
5.0					Trial pit terminated at 3.7m.					

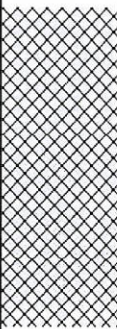
LOCATION / NOTES:		LEGEND		BOREHOLE LOG	
NVO = No visual or olfactory evidence of contamination S,V = Contamination Observations S - Odour score (0-5) V - Visual score (0-5)		 Disturbed Sample  Undisturbed Sample  Headspace Analysis  Down Borehole Analysis  Groundwater Table  Perched Water Table		Job Title: BP Llandarcy Whole Site Investigation Location: BP Llandarcy Refinery Client: BP/WDA	
				App'd: _____ Drawn : EM Scale: As Scale Drg. Size: A4	Date: December 2003 Ref: _____ Job No: 39991-044-785 BOREHOLE LOG

BOREHOLE CONSTRUCTION	SAMPLE		SOIL VAPOUR (ppm)	GROUNDWATER	DEPTH (m)	GEOLOGY	BOREHOLE NUMBER: WSTP160		PAGE 1 of 1	
	NUMBER	TYPE					DRILLING DATES: 04/12/03		DRILLING METHODS: JCB	
							DRILLER: JCB - Viv		BOREHOLE DIAMETER: -	
							LOGGED BY: EM		SCREEN TYPE & DIAM: -	
							CHECKED BY: SG		SCREEN SLOT SIZE: -	
							DESCRIPTION	COMMENTS	S,V	
	WSTP 160 - 0.6m. (S,L,P)		*23.5		0.0	Soft, dark brown, sandy silt with concrete, bricks, reinforcing bars, pipes, metal, fine to coarse gravels, cobbles and boulders and grey ash fragments. (MADE GROUND)	Damp. NVO	0,0		
					0.5					
					1.0	Soft, brown, fine sandy silt with frequent fine to coarse gravels, subangular to subrounded cobbles and boulders with occasional brick fragments. (MADE GROUND)	Damp. NVO	0,0		
					1.5	Soft to firm, stained black, slightly sandy SILT with occasional fine to coarse gravels, cobbles and boulders.	Damp. Moderate hydrocarbon odour and heavy staining	3,4		
	WSTP 160 - 1.4m. (S,L)		*381		1.5	Trial pit terminated at 1.6m due to refusal.	Damp. Moderate hydrocarbon odour and heavy staining	3,4		
					2.0					
					2.5					
					3.0					
					3.5					
					4.0					
					4.5					
					5.0					

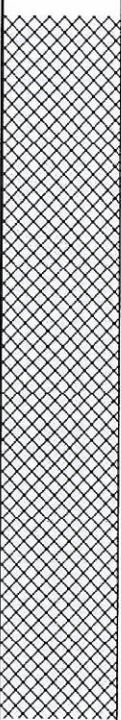
LOCATION / NOTES:	LEGEND	BOREHOLE LOG	
NVO = No visual or olfactory evidence of contamination	 Disturbed Sample	Job Title: BP Llandarcy Whole Site Investigation	
S,V = Contamination Observations	 Undisturbed Sample	Location: BP Llandarcy Refinery	
S - Odour score (0-5)	 Headspace Analysis	Client: BP/WDA	
V - Visual score (0-5)	 Down Borehole Analysis		App'd: _____
	 Groundwater Table		Date: December 2003
	 Perched Water Table		Drawn: EM
			Scale: As Scale
		Drg. Size: A4	Job No: 39991-044-785
			BOREHOLE LOG

BOREHOLE CONSTRUCTION	SAMPLE		SOIL VAPOUR (ppm)	GROUNDWATER	DEPTH (m)	GEOLOGY	BOREHOLE NUMBER: WSTP139		PAGE 1 of 1	
	NUMBER	TYPE					DRILLING DATES: 18/11/2003		DRILLING METHODS: JCB	
							DRILLER: JCB		BOREHOLE DIAMETER: -	
							LOGGED BY: CM		SCREEN TYPE & DIAM: -	
							CHECKED BY: SG		SCREEN SLOT SIZE: -	
	WSTP139 - 0.5m (S,L,2xP)		*0.6		0.0		DESCRIPTION		COMMENTS	S,V
							Loose to medium dense brown slightly silty fine to coarse sand with ash and fine to coarse angular to subrounded concrete, sandstone, brick gravel with occasional bricks and cobbles. (MADE GROUND) Trial pit terminated at 0.5m due to refusal on concrete.		Dry	0,0
					0.5					
					1.0					
					1.5					
					2.0					
					2.5					
					3.0					
					3.5					
					4.0					
					4.5					
					5.0					

LOCATION / NOTES:	LEGEND	BOREHOLE LOG	
NVO = No visual or olfactory evidence of contamination S,V = Contamination Observations S - Odour score (0-5) V - Visual score (0-5)	 Disturbed Sample  Undisturbed Sample  Headspace Analysis  Down Borehole Analysis  Groundwater Table  Perched Water Table	Job Title: BP Llandarcy Whole Site Investigation Location: BP Llandarcy Refinery Client: BP/WDA 	
		App'd:	Date: February 2004
		Drawn: HM	Ref:
		Scale: As scale	Job No: 39991-044-785
		Drg. Size: A4	BOREHOLE LOG

BOREHOLE CONSTRUCTION	SAMPLE		SOIL VAPOUR (ppm)	GROUNDWATER	DEPTH (m)	GEOLOGY	BOREHOLE NUMBER: WSTP132		PAGE 1 of 1	
	NUMBER	TYPE					DRILLING DATES: 04/12/03		DRILLING METHODS: JCB	
							DRILLER: JCB-Viv		BOREHOLE DIAMETER: -	
							LOGGED BY: EM		SCREEN TYPE & DIAM: -	
							CHECKED BY: SG		SCREEN SLOT SIZE: -	
	WSTP132 - 0.6m (S,L,BULK)				0.0		DESCRIPTION		COMMENTS	S,V
							Loose, brown, silty fine sand with abundant large coarse gravels. (MADE GROUND) Becoming light brown in colour from 0.25m. (MADE GROUND) Concrete, cemented gravels and small cobbles. (MADE GROUND) Loose, grey to dark grey silty sandy gravel, subangular to subrounded cobbles and occasional boulders with brick fragments. (MADE GROUND) Concrete. (MADE GROUND) Trial pit terminated at 1.3m due to refusal on concrete.		Damp. NVO Damp. Faint hydrocarbon odour and slight staining.	0,0 1,2
					0.5					
					1.0					
					1.5					
					2.0					
					2.5					
					3.0					
					3.5					
					4.0					
					4.5					
					5.0					

LOCATION / NOTES: NVO = No visual or olfactory evidence of contamination S,V = Contamination Observations S - Odour score (0-5) V - Visual score (0-5)	LEGEND  Disturbed Sample  Undisturbed Sample  Headspace Analysis  Down Borehole Analysis  Groundwater Table  Perched Water Table	BOREHOLE LOG Job Title: BP Llandarcy Whole Site Investigation Location: BP Llandarcy Refinery Client: BPWDA	
			App'd: _____ Date: January 2004 Drawn: EM Ref: _____ Scale: As Scale Job No: 39991-044-785 Drg. Size: A4 BOREHOLE LOG

BOREHOLE CONSTRUCTION	SAMPLE		SOIL VAPOUR (ppm)	GROUNDWATER	DEPTH (m)	GEOLOGY	BOREHOLE NUMBER: WSTP131a		PAGE 1 of 1	
	NUMBER	TYPE					DRILLING DATES: 12/12/03		DRILLING METHODS: JCB	
							DRILLER: JCB-VIV		BOREHOLE DIAMETER: -	
							LOGGED BY: EM		SCREEN TYPE & DIAM: -	
				CHECKED BY: SG		SCREEN SLOT SIZE: -				
					0.0		DESCRIPTION	COMMENTS	S,V	
							Loose, silty sand with abundant bricks and brick fragments. (MADE GROUND)	Damp. NVO	0,0	
			*4.8				Concrete. (MADE GROUND)			
					0.5		Soft brown silt with abundant black coarse gravel and large cobbles. (MADE GROUND)	Damp. Faint hydrocarbon odour.	1,0	
	WSTP131a - 0.8m (S,L,P)		*28.3		1.0		Soft, grey brown, silt with frequent fine to coarse gravels, angular to subrounded cobbles, and boulders and occasional brick fragments. (MADE GROUND)	Wet. Moderate hydrocarbon odour and free product.	3,5	
	WSTP131a - 1.5m (PSD)		*31.8		1.5			Saturated. Slight hydrocarbon odour and moderate staining	2,3	
					2.0		With abundant subrounded cobbles and boulders from 2.0m.			
	WSTP131a - 2.4m. (S,L)		*42.8		2.5			Slight hydrocarbon odour and moderate staining	2,3	
					3.0		Trial pit terminated at 2.8m.			
					3.5					
					4.0					
					4.5					
					5.0					

LOCATION / NOTES:

NVO = No visual or olfactory evidence of contamination
S,V = Contamination Observations
S - Odour score (0-5)
V - Visual score (0-5)

LEGEND

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

BOREHOLE LOG

Job Title: BP Llandarcy Whole Site Investigation
Location: BP Llandarcy Refinery
Client: BP/WDA



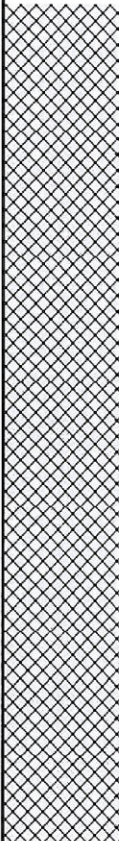
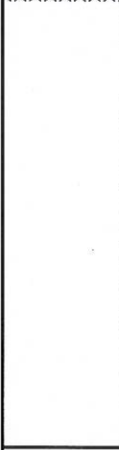
App'd:	Date: December 2003
Drawn: HM	Ref:
Scale: As scale	Job No: 39991-044-785
Org. Size: A4	BOREHOLE LOG

BOREHOLE CONSTRUCTION	SAMPLE		SOIL VAPOUR (ppm)	GROUNDWATER	DEPTH (m)	GEOLOGY	BOREHOLE NUMBER: WSTP131		PAGE 1 of 1	
	NUMBER	TYPE					DRILLING DATES: 27/11/03		DRILLING METHODS : JCB	
							DRILLER : JCB - WILL		BOREHOLE DIAMETER : -	
							LOGGED BY : OG		SCREEN TYPE & DIAM: -	
							CHECKED BY : SG		SCREEN SLOT SIZE: -	
							DESCRIPTION	COMMENTS	S,V	
				0.0			Loose, light brown, fine to coarse sand, abundant grey angular gravel, frequent brick sand and whole bricks with occasional cobble size concrete fragments. (MADE GROUND) With large thin-metal fragments from 0.45m. Trial pit terminated at 0.5m.	NVO Dry to damp	0,0	
				0.5				Wet Rapid water ingress on the east side, brown to red with sheen	0,4	
				1.0						
				1.5						
				2.0						
				2.5						
				3.0						
				3.5						
				4.0						
				4.5						
				5.0						

LOCATION / NOTES: NVO = No visual or olfactory evidence of contamination S,V = Contamination Observations S - Odour score (0-5) V - Visual score (0-5)	LEGEND Disturbed Sample Undisturbed Sample Headspace Analysis Down Borehole Analysis Groundwater Table Perched Water Table	BOREHOLE LOG Job Title: BP Llandarcy Whole Site Investigation Location: BP Llandarcy Refinery Client: BP/WDA <table border="1"> <tr> <td>App'd:</td> <td>Date: November 2003</td> </tr> <tr> <td>Drawn: HM</td> <td>Ref:</td> </tr> <tr> <td>Scale: As scale</td> <td>Job No: 39991-044-785</td> </tr> <tr> <td>Drg. Size: A4</td> <td>BOREHOLE LOG</td> </tr> </table>	App'd:	Date: November 2003	Drawn: HM	Ref:	Scale: As scale	Job No: 39991-044-785	Drg. Size: A4	BOREHOLE LOG
App'd:	Date: November 2003									
Drawn: HM	Ref:									
Scale: As scale	Job No: 39991-044-785									
Drg. Size: A4	BOREHOLE LOG									

BOREHOLE CONSTRUCTION	SAMPLE		SOIL VAPOUR (ppm)	GROUNDWATER	DEPTH (m)	GEOLOGY	BOREHOLE NUMBER: WSTP129		PAGE 1 of 1	
	NUMBER	TYPE					DRILLING DATES: 4/12/03		DRILLING METHODS : JCB	
							DRILLER : JCB - JOHN		BOREHOLE DIAMETER : -	
							LOGGED BY : JG		SCREEN TYPE & DIAM: -	
							CHECKED BY : SG		SCREEN SLOT SIZE: -	
							DESCRIPTION	COMMENTS	S,V	
	WSTP129 0.5m (S,L)		*4.0				0.0	Re-inforced concrete. (MADE GROUND)	Thick black oil. Heavy hydrocarbon odour. Water ingress from fill. Concrete walls both sides and at end of pit. Flexible plastic pipe runs into pit from west side.	0, 0
							0.5	Loose, yellow brown, medium sand with cobble sized rubble and silt. Bags of sand, wood, metal scraps also observed at east end of pit. (MADE GROUND)		
							1.0	Trial pit terminated at 1.0m due to refusal.		
			*13				1.5			
							2.0			
							2.5			
							3.0			
							3.5			
							4.0			
							4.5			
							5.0			

LOCATION / NOTES:	LEGEND	BOREHOLE LOG	
NVO = No visual or olfactory evidence of contamination S,V = Contamination Observations S - Odour score (0-5) V - Visual score (0-5)	Disturbed Sample Undisturbed Sample Headspace Analysis Down Borehole Analysis Groundwater Table Perched Water Table	Job Title: BP Llandarcy Whole Site Investigation Location: BP Llandarcy Refinery Client: BP/WDA 	
		App'd:	Date: January 2004
		Drawn : JG	Ref:
		Scale: As scale	Job No: 39991-044-785
		Drg. Size: A4	BOREHOLE LOG

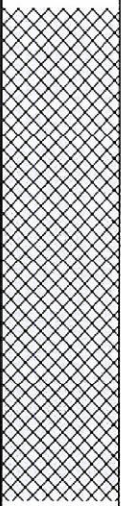
BOREHOLE CONSTRUCTION	SAMPLE		SOIL VAPOUR (ppm)	GROUNDWATER	DEPTH (m)	GEOLOGY	BOREHOLE NUMBER: WSTP128		PAGE 1 of 1	
	NUMBER	TYPE					DRILLING DATES: 12/11/2003		DRILLING METHODS: JCB	
							DRILLER: JCB		BOREHOLE DIAMETER: -	
							LOGGED BY: OG		SCREEN TYPE & DIAM: -	
							CHECKED BY: SG		SCREEN SLOT SIZE: -	
DESCRIPTION		COMMENTS	S,V							
	WSTP128-0.5m (S,L)		*2.5	0.0	Loose, light brown, silty fine to coarse sand with abundant angular to subangular gravel, frequent angular cobbles, boulder size concrete blocks, metal pieces, lagging and cables. (MADE GROUND)	Dry	0,0			
				0.5	Black fine to medium sand with abundant angular gravel. (MADE GROUND)	Damp				
	WSTP128-2.5m (S,L)		*0.2 *0.2 *0.7 *18.8 *10.3 *5.2	1.0	Soft to firm, orange rare small patches of grey mottling CLAY and frequent rootlets.	Concrete at east end of pit at 0.7m	1,0			
				1.5	Loose, light brown, silty fine to medium SAND with frequent subangular gravel and occasional subangular cobbles.	Damp				
				2.0	Becoming light brown and grey mottling with small amounts of soft silty clay from 2.0m.	Dry	2,1			
				2.5	With occasional sandstone boulders and increasing subangular cobbles from 2.5m.		2,2			
				3.0	Mottled brown and dark grey silty CLAY with frequent subangular gravel and cobbles.	Damp. Slow water ingress at 2.4m.	3,2			
				3.5	Trial pit terminated at 3.4m.	Areas of black staining.	4,3			
				4.0		Strong hydrocarbon odour.	4,3			
				4.5						
				5.0						

LOCATION / NOTES:	LEGEND	BOREHOLE LOG	
NVO = No visual or olfactory evidence of contamination S,V = Contamination Observations S - Odour score (0-5) V - Visual score (0-5)	 Disturbed Sample  Undisturbed Sample  Headspace Analysis  Down Borehole Analysis  Groundwater Table  Perched Water Table	Job Title: BP Llandarcy Whole Site Investigation Location: BP Llandarcy Refinery Client: BP/WDA 	
		App'd:	Date: February 2004
		Drawn: CM	Ref:
		Scale: As scale	Job No: 39991-044-785
		Drg. Size: A4	BOREHOLE LOG

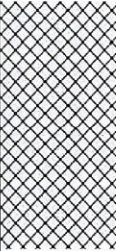
BOREHOLE CONSTRUCTION	SAMPLE		SOIL VAPOUR (ppm)	GROUNDWATER	DEPTH (m)	GEOLOGY	BOREHOLE NUMBER: WSTP034		PAGE 1 of 1	
	NUMBER	TYPE					DRILLING DATES: 19/12/03		DRILLING METHODS: Pick Axe	
							DRILLER: JW		BOREHOLE DIAMETER: -	
							LOGGED BY: JW		SCREEN TYPE & DIAM: -	
							CHECKED BY: SG		SCREEN SLOT SIZE: -	
							DESCRIPTION		COMMENTS	S,V
				0.0			Loose brown fine to coarse sand with frequent fine to coarse gravel, occasional cobbles of sandstone, occasional brick gravel and frequent rootlets. (MADE GROUND)		NVO	0,0
	WSMW034-0.5m (S,L)			0.5			Excavation terminated at 0.5m on refusal			
				1.0						
				1.5						
				2.0						
				2.5						
				3.0						
				3.5						
				4.0						
				4.5						
				5.0						
LOCATION / NOTES: NVO = No visual or olfactory evidence of contamination S,V = Contamination Observations S - Odour score (0-5) V - Visual score (0-5)						LEGEND Disturbed Sample Undisturbed Sample Headspace Analysis Down Borehole Analysis Groundwater Table Perched Water Table		BOREHOLE LOG Job Title: BP Llandarcy Whole Site Investigation Location: BP Llandarcy Refinery Client: BP/WDA 		
								App'd:	Date: December 2003	
								Drawn: JW	Ref:	
								Scale: As Scale	Job No: 39991-044-785	
								Drg. Size: A4	BOREHOLE LOG	

BOREHOLE CONSTRUCTION	SAMPLE		SOIL VAPOUR (ppm)	GROUNDWATER	DEPTH (m)	GEOLOGY	BOREHOLE NUMBER: WSTP004		PAGE 1 of 1	
	NUMBER	TYPE					DRILLING DATES: 5/12/03		DRILLING METHODS : JCB	
							DRILLER : JCB - John		BOREHOLE DIAMETER : -	
							LOGGED BY : J.G		SCREEN TYPE & DIAM: -	
							CHECKED BY : LT		SCREEN SLOT SIZE: -	
							DESCRIPTION	COMMENTS	S,V	
	WSTP004 - 0.5m (S,L,2x P)		*2.3			0.0	Loose, buff yellow, medium grained sand with occasional rubble fragments. (MADE GROUND)	Hydrocarbon odour, grey staining, dry.	0,0	
						0.5	With grey staining and occasional metal fragments from 0.2m. (MADE GROUND)		2,3	
							Loose, medium to coarse black ash (MADE GROUND)		2,5	
						1.0	Loose, medium grained sand with occasional patches of medium to coarse black ash. (MADE GROUND)			
			*11.9				Firm to stiff, grey silty CLAY with fine sand and occasional cobbles. Cobbles becoming more frequent with depth.	Slow ingress of oily water at 0.6m Cable at 0.7m		
			*17.8			1.5		Drain pipe at 1.3m		
			*23.1			2.0			1,2	
						2.5	Trial pit terminated at 2.2m due to refusal.			
						3.0				
						3.5				
						4.0				
						4.5				
						5.0				

LOCATION / NOTES: NVO = No visual or olfactory evidence of contamination S,V = Contamination Observations S - Odour score (0-5) V - Visual score (0-5)		LEGEND Disturbed Sample Undisturbed Sample Headspace Analysis Down Borehole Analysis Groundwater Table Perched Water Table		BOREHOLE LOG Job Title: BP Llandarcy Whole Site Investigation Location: BP Llandarcy Refinery Client: BP/WDA App'd: _____ Date: January 2004 Drawn : JG Ref: _____ Scale: As scale Job No: 39991-044-785 Drg. Size: A4 BOREHOLE LOG	
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BOREHOLE CONSTRUCTION	SAMPLE		SOIL VAPOUR (ppm)	GROUNDWATER	DEPTH (m)	GEOLOGY	BOREHOLE NUMBER: WSTP003		PAGE 1 of 1	
	NUMBER	TYPE					DRILLING DATES: 5/12/03		DRILLING METHODS: JCB	
							DRILLER: JCB - John		BOREHOLE DIAMETER: -	
							LOGGED BY: J.G		SCREEN TYPE & DIAM: -	
							CHECKED BY: LT		SCREEN SLOT SIZE: -	
							DESCRIPTION	COMMENTS	S,V	
	WSTP003 - 0.5m (S,L,2xP)		*1.6	0.0		Loose, dark grey, silty medium sand with crushed brick cobbles and rubble gravel. (MADE GROUND)	Black sheen on ingressing water at 0.5m.	0, 2		
				0.5		Loose, black medium to coarse grained ash with gravel and small subrounded to subangular cobbles and occasional scrap metal. (MADE GROUND)		1, 4		
				1.0		Re-enforced concrete		Water saturation resulted in no sample being collected.		
				1.5		Loose to medium dense crushed slag / rubble gravel and cobbles, tar like clasts. (MADE GROUND)			0, 3	
				2.0		Trial pit terminated at 2.0m due to refusal.				
				2.5						
				3.0						
				3.5						
				4.0						
				4.5						
				5.0						

LOCATION / NOTES:	LEGEND	BOREHOLE LOG	
NVO = No visual or olfactory evidence of contamination S,V = Contamination Observations S - Odour score (0-5) V - Visual score (0-5)	 Disturbed Sample  Undisturbed Sample  Headspace Analysis  Down Borehole Analysis  Groundwater Table  Perched Water Table	Job Title: BP Llandarcy Whole Site Investigation Location: BP Llandarcy Refinery Client: BP/WDA 	
		App'd:	Date: January 2004
		Drawn: JG	Ref:
		Scale: As scale	Job No: 39991-044-785
		Drg. Size: A4	BOREHOLE LOG

BOREHOLE CONSTRUCTION	SAMPLE		SOIL VAPOUR (ppm)	GROUNDWATER	DEPTH (m)	GEOLOGY	BOREHOLE NUMBER: WSTP002b		PAGE 1 of 1										
	NUMBER	TYPE					DRILLING DATES: 05/12/03		DRILLING METHODS: JCB										
							DRILLER: JCB-Viv		BOREHOLE DIAMETER: -										
							LOGGED BY: JG		SCREEN TYPE & DIAM: -										
							CHECKED BY: SG		SCREEN SLOT SIZE: -										
							DESCRIPTION		COMMENTS	S,V									
					0.0		Concrete hardstanding. (MADE GROUND)		Damp. No odour, black staining.	0,3									
					0.5		Black gravel and coarse ash.(MADE GROUND)												
					1.0		Trial pit terminated at 1.0m due to refusal at concrete.												
					1.5														
					2.0														
					2.5														
					3.0														
					3.5														
					4.0														
					4.5														
					5.0														
LOCATION / NOTES: NVO = No visual or olfactory evidence of contamination S,V = Contamination Observations S - Odour score (0-5) V - Visual score (0-5)						LEGEND  Disturbed Sample  Undisturbed Sample  Headspace Analysis  Down Borehole Analysis  Groundwater Table  Perched Water Table			BOREHOLE LOG Job Title: BP Llandarcy Whole Site Investigation Location: BP Llandarcy Refinery Client: BP/WDA  <table border="1"> <tr> <td>App'd:</td> <td>Date: December 2003</td> </tr> <tr> <td>Drawn: EM</td> <td>Ref:</td> </tr> <tr> <td>Scale: As Scale</td> <td>Job No: 39991-044-785</td> </tr> <tr> <td>Drg. Size: A4</td> <td>BOREHOLE LOG</td> </tr> </table>			App'd:	Date: December 2003	Drawn: EM	Ref:	Scale: As Scale	Job No: 39991-044-785	Drg. Size: A4	BOREHOLE LOG
App'd:	Date: December 2003																		
Drawn: EM	Ref:																		
Scale: As Scale	Job No: 39991-044-785																		
Drg. Size: A4	BOREHOLE LOG																		

BOREHOLE CONSTRUCTION	SAMPLE		SOIL VAPOUR (ppm)	GROUNDWATER	DEPTH (m)	GEOLOGY	BOREHOLE NUMBER: WSTP002		PAGE 1 of 1							
	NUMBER	TYPE					DRILLING DATES: 04/12/2003		DRILLING METHODS : JCB							
							DRILLER : JCB - Will		BOREHOLE DIAMETER : -							
							LOGGED BY : SS		SCREEN TYPE & DIAM: -							
							CHECKED BY : LT		SCREEN SLOT SIZE: -							
DESCRIPTION		COMMENTS		S,V												
 WSTP002 - 0.2m (S,L)  WSTP002 - 0.5m (2xP)		 		0.0 Reinforced concrete hardstand with plastic liner at base. 0.5 Loose, grey/red/brown, silty, sandy gravel of brick, concrete and sandstone rubble. (MADE GROUND) 1.0 Terminated at 0.8m due to product leaking into pit from adjacent drain. Moved to WSTP002A 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0		Damp-wet. Slight-moderate hydrocarbon odour and black staining from 0.6m 2,3										
LOCATION / NOTES: NVO = No visual or olfactory evidence of contamination S,V = Contamination Observations S - Odour score (0-5) V - Visual score (0-5)			LEGEND  Disturbed Sample  Undisturbed Sample  Headspace Analysis  Down Borehole Analysis  Groundwater Table  Perched Water Table			BOREHOLE LOG Job Title: BP Llandarcy Whole Site Investigation Location: BP Llandarcy Refinery Client: BP/WDA  <table border="1"> <tr> <td>App'd:</td> <td>Date: December 2003</td> </tr> <tr> <td>Drawn : SS</td> <td>Ref:</td> </tr> <tr> <td>Scale: As scale</td> <td>Job No: 39991-044-785</td> </tr> <tr> <td>Drg. Size: A4</td> <td>BOREHOLE LOG</td> </tr> </table>			App'd:	Date: December 2003	Drawn : SS	Ref:	Scale: As scale	Job No: 39991-044-785	Drg. Size: A4	BOREHOLE LOG
App'd:	Date: December 2003															
Drawn : SS	Ref:															
Scale: As scale	Job No: 39991-044-785															
Drg. Size: A4	BOREHOLE LOG															

BOREHOLE CONSTRUCTION	SAMPLE		SOIL VAPOUR (ppm)	GROUNDWATER	DEPTH (m)	GEOLOGY	BOREHOLE NUMBER: WSTP001		PAGE 1 of 1	
	NUMBER	TYPE					DRILLING DATES: 04/12/2003		DRILLING METHODS : JCB	
							DRILLER : JCB - Will		BOREHOLE DIAMETER : -	
							LOGGED BY : SS		SCREEN TYPE & DIAM: -	
							CHECKED BY : LT		SCREEN SLOT SIZE: -	
	WSTP001 - 0.5m (S,L)		*34.3		0.0		DESCRIPTION		COMMENTS	S,V
							Loose, light brown, slightly silty sand with gravel of brick and concrete. (MADE GROUND)	Damp. NVO	0,0	
					0.5		Loose, black fine to medium sand. (Bedding sand) (MADE GROUND)	Black staining from 0.2m	2,4	
					*62.3			Cables from 0.7m	3,4	
					1.0		Terminated at 1.0m due to cables.			
					1.5					
					2.0					
					2.5					
					3.0					
					3.5					
					4.0					
					4.5					
					5.0					

LOCATION / NOTES: NVO = No visual or olfactory evidence of contamination S,V = Contamination Observations S - Odour score (0-5) V - Visual score (0-5)		LEGEND  Disturbed Sample  Undisturbed Sample  Headspace Analysis  Down Borehole Analysis  Groundwater Table  Perched Water Table		BOREHOLE LOG Job Title: BP Llandarcy Whole Site Investigation Location: BP Llandarcy Refinery Client: BP/WDA 			
				App'd:	Date: December 2003		
				Drawn : SS	Ref:		
				Scale: As scale	Job No: 39991-044-785		
				Drg. Size: A4	BOREHOLE LOG		

BOREHOLE CONSTRUCTION	SAMPLE		SOIL VAPOUR (ppm)	GROUNDWATER	DEPTH (m)	GEOLOGY	BOREHOLE NUMBER: MSMW225S		PAGE 1 of 2	
	NUMBER	TYPE					START DATE: 20/4/99	DRILLING METHOD: ROTARY AIR FLUSH	FINISH DATE: 20/4/99	BOREHOLE DIAMETER: 165 mm
							DESCRIPTION	COMMENTS		
					0		Loose GRAVEL with clinker, ash and brick and wood fragments (MADE GROUND)			
					1.0		Soft grey CLAY			
					2.0		Soft dark grey-brown, silty gravelly CLAY			
					3.0		becoming increasingly gravelly at 3.7m			
					4.0		Soft brown silty fine gravelly friable CLAY			
					5.0					
					6.0		gravel content increasing at 6m			
					7.0		Soft brown silty clayey GRAVEL			
					7.0		Firm dark grey silty gravelly CLAY			
					7.0		Firm brown silty gravelly CLAY			
					7.0		Stiff dark grey CLAY with occasional gravel			
					8.0		Soft friable grey gravelly CLAY			
					8.0		Firm brown-light brown silty CLAY			
					9.0					
					10					

LOCATION / NOTES:

- All measurements in m below ground level (mbgl)
- Located 2 metres from 225D

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.	CR/MC/BRS		
Date	MAY 99		
Job No.	39991-004-401		

DAMES & MOORE

BOREHOLE CONSTRUCTION	SAMPLE		SOIL VAPOUR (ppm)	GROUNDWATER	DEPTH (m)	GEOLOGY	BOREHOLE NUMBER: MSMW225S		PAGE 2 of 2		
	NUMBER	TYPE					START DATE: 20/4/99		DRILLING METHOD: ROTARY AIR FLUSH		
							FINISH DATE: 20/4/99		BOREHOLE DIAMETER: 165 mm		
							DRILLER: R1		SCREEN TYPE & DIAMETER: 50 mm ID UPVC		
				LOGGED BY: DB APPR'D BY:		SCREEN SLOT SIZE: 0.5 mm					
						DESCRIPTION		COMMENTS			
						Soft light brown mudstone BOULDERS				10	
						Loose brown to light brown silty GRAVEL				11	
						Soft brown clayey SAND with occasional gravel				12	
						Soft orange brown very sandy CLAY with occasional gravel				13	
						Borehole terminated at 15.0 mbgl				14	
										15	
										16	
										17	
										18	
										19	
										20	

LOCATION / NOTES: 1. All measurements in m below ground level (mbgl) 2. Located 2 metres from 225D		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. CR/MC/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: MSMW225D		PAGE 1 of 3	
	NUMBER	TYPE					START DATE: 19/4/99		DRILLING METHOD: ROTARY AIR FLUSH	
							FINISH DATE: 20/4/99		BOREHOLE DIAMETER: 165/115 mm	
						DRILLER: R1		SCREEN TYPE & DIAMETER: 50 mm ID UPVC		
						LOGGED BY: DB APPR'D BY:		SCREEN SLOT SIZE: 0.5 mm		
							DESCRIPTION	COMMENTS		
							Loose GRAVEL with clinker, ash and brick and wood fragments (MADE GROUND)	Heavy oil staining from 0.3m Wet at 0.6m	0	
							Soft grey CLAY	Poor returns Strong hydrocarbon odour	1.0	
							Soft dark grey-brown, silty gravelly CLAY	Damp Strong light hydrocarbon odour	2.0	
							becoming increasingly gravelly at 3.7m		3.0	
							Soft brown silty fine gravelly friable CLAY	Strong to moderate light Hydrocarbon odour	4.0	
							gravel content increasing at 6m		5.0	
							Soft brown silty clayey GRAVEL	Moderate to slight hydrocarbon odour	6.0	
							Firm dark grey silty gravelly CLAY	Slight hydrocarbon odour	7.0	
							Firm brown silty gravelly CLAY	Slight hydrocarbon odour	8.0	
							Stiff dark grey CLAY with occasional gravel	Slight hydrocarbon odour	9.0	
Soft friable grey gravelly CLAY	Slight hydrocarbon odour	10.0								
Firm brown-light brown silty CLAY	Dry, slight hydrocarbon odour Slight hydrocarbon									

LOCATION / NOTES:

- All measurements in m below ground level (mbgl)
- ODEX with Rotary throughout

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. **CR/MC/BRS**

Date **MAY 99**

Job No. **39991-004-401**

DAMES & MOORE

BOREHOLE CONSTRUCTION	SAMPLE		SOIL VAPOUR (ppm)	GROUNDWATER	DEPTH (m)	GEOLOGY	BOREHOLE NUMBER: MSMW225D		PAGE 2 of 3	
	NUMBER	TYPE					START DATE: 19/4/99		DRILLING METHOD: ROTARY AIR FLUSH	
							FINISH DATE: 20/4/99		BOREHOLE DIAMETER: 165/115 mm	
						DRILLER: R1		SCREEN TYPE & DIAMETER: 50 mm ID UPVC		
						LOGGED BY: DB APPR'D BY:		SCREEN SLOT SIZE: 0.5 mm		
						DESCRIPTION	COMMENTS			
						Soft light brown mudstone BOULDERS		10		
						Loose to light brown silty GRAVEL	No odour Slightly damp	11		
						Soft brown clayey SAND with occasional gravel	No odour Damp	12		
						Soft orange brown very sandy CLAY with occasional gravel	Wet No odour Very productive Poor returns	14		
						Stiff grey-brown gravelly CLAY	Wet No odour	15		
						Weathered grey MUDSTONE (WEATHERED BEDROCK)	Poor returns	16		
						Grey MUDSTONE becoming hard light grey crystalline SANDSTONE	No odour Very productive immediately	17		
								18		
								19		
								20		
LOCATION / NOTES: 1. All measurements in m below ground level (mbgl) 2. ODEX with Rotary throughout						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. CR/MC/BRS Date MAY 99 Job No. 39991-004-401		
								DAMES & MOORE		