

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		MADE GROUND			0.0
			0		0.1		Loose, black, clayey gravel			
					0.2		Firm, brown, clayey sand			
					0.5		Loose, black, ash with clinker and some clay			0.5
			0		0.8		MADE GROUND		Moist	
					0.9		Firm, grey, slightly sandy clay			
					1.0		MADE GROUND			1.0
					1.1		Loose, black, ash and clinker with silt		Wet	
					1.2		MADE GROUND			
					1.3		Soft, brown, sandy clay			1.5
		*137		1.4						
		*837		1.8		MADE GROUND		Hydrocarbon odour		
				2.0		CLAY			2.0	
				2.1		Soft to firm, brown-grey, sandy clay with occasional gravel clasts at depth				
		11.7		2.5					2.5	
				2.8						
		*680		3.0				Wet		
		144		3.1					3.0	
		*466		3.2		SAND		Hydrocarbon odour		
				3.3		Soft to firm, grey, silty, fine to coarse sand, with trace fine gravel clasts				
				3.5					3.5	
				3.6						
				3.7						
				3.8						
				3.9						
				4.0					4.0	
				4.1						
				4.2						
				4.3						
				4.4						
				4.5					4.5	
				4.6						
				4.7						
				4.8						
				4.9						
				5.0					5.0	
							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
Drg. Size: _____ BOREHOLELOG

BOREHOLE CONSTRUCTION	SAMPLE		SOIL VAPOUR (ppm)	GROUNDWATER	DEPTH (m)	GEOLOGY	BOREHOLE NUMBER: RFSW011		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: 50mm HDPE	
							CHECKED BY :		SCREEN SLOT SIZE: 1mm	
					0.0	CONCRETE Concrete hard standing				0.0
			27				SAND AND GRAVEL Loose, black, gravelly sand with some silt	Moist Hydrocarbon odour		
			39		0.5	CLAY Soft, dark brown, slightly sandy clay			0.5	
			39			SAND Medium-dense, brown-grey silty fine sand with occasional gravel	Moist Hydrocarbon odour		1.0	
			41							
			*153		1.5	CLAY Soft to firm, brown, slightly sandy clay	Moist Hydrocarbon odour		1.5	
						GRAVEL Loose, poorly graded gravel				
			101		2.0	CLAY Soft, brown, sandy clay	Moist Hydrocarbon odour		2.0	
			*309			SAND Firm, brown-grey, silty, fine sand with fine to coarse gravels				
			99		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: NVO = No visual orolfactory 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 Drg. Size: _____ BOREHOLE LOG				

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 finesandw ith somegravel, 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 Moist	1.0	
			23.2		1.5				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

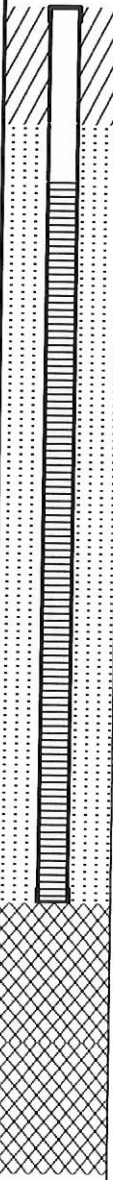
Ref:

Scale:

Job No: 39991-016

Dwg. Size:

BOREHOLELOG

BOREHOLE CONSTRUCTION	SAMPLE		SOIL VAPOUR (ppm)	GROUNDWATER	DEPTH (m)	GEOLOGY	BOREHOLE NUMBER: 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: 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: 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: NVO = No visual or off actory 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: _____ Drawn: AR Scale: _____ Drg. Size: _____	Date: August 2002 Ref: _____ Job No: 39991-16 BOREHOLELOG

BOREHOLE CONSTRUCTION	SAMPLE		SOIL VAPOUR (ppm)	GROUNDWATER	DEPTH (m)	GEOLOGY	BOREHOLE NUMBER: RFSW016		PAGE 1 of 1	
	NUMBER	TYPE					DRILLING DATES: 26/10/2000		DRILLING METHODS : Window Sampling	
							DRILLER : Geotechnical		BOREHOLE DIAMETER : 78,68,58	
							LOGGED BY : JG		SCREEN TYPE & DIAM: 50mm HDPE	
		CHECKED BY :		SCREEN SLOT SIZE: 1mm						
					0.0		CONCRETE			0.0
					0.5		MADE GROUND Firm medium plastic clay with fine sand and occasional fine gravel	Moist		0.5
					1.0		MADE GROUND Ash & Clinker			
			*27		1.0		MADE GROUND Soft to firm, grey, medium plastic clay with some fine sand	Wet		1.0
					1.5		MADE GROUND Wet Ash & Clinker			
			*523		1.5		SAND Firm grey clayey medium plastic, fine sand			1.5
					2.0					2.0
					2.5					2.5
					3.0					3.0
					3.5					3.5
						2.5	End of Borehole			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	BOREHOLE LOG		
NVO = No visual or olfactory 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
			Dwg. Size:	BOREHOLE LOG

BOREHOLE CONSTRUCTION	SAMPLE		SOIL VAPOUR (ppm)	GROUNDWATER	DEPTH (m)	GEOLOGY	BOREHOLE NUMBER: MSTP306		PAGE 1 of 1			
	NUMBER	TYPE					START DATE: 25/2/99	DRILLING METHOD: Window Sampling	FINISH DATE: 25/2/99	BOREHOLE DIAMETER: 100 mm	DRILLER: GEOTECHNICAL	SCREEN TYPE & DIAMETER: UPVC 50 mm
							DESCRIPTION	COMMENTS				
							0	Firm brown to greyish brown gravelly CLAY	Strong Hydrocarbon odour			
							0.3	Loose black/grey sub-angular GRAVEL	green oil / grease at 0.3m			
							0.35.8	Loose orange GRAVEL and cobble fragments of brick.	Free product at 0.3-0.4m			
							0.5	Soft blue grey CLAY becoming firmer with depth.				
							1.0	Soft to firm greyish brown silty CLAY becoming gravelly with depth frequent particles of grey silt.	Wet			
							1.5	Medium dense grey silty coarse GRAVEL cobbles of sandstone.	Dry			
							2.0	Loose orange silty GRAVEL.	Moderate to strong hydrocarbon odour			
							2.5	Soft orange very gravelly SILT with some clay.	Dry			
							3.0	Borehole terminated at 4.0 mbgl.	Wet. Weak to moderate hydrocarbon odour			
							3.5		Wet. Weak hydrocarbon odour			
4.0		Wet										
4.5												
5.0												

LOCATION / NOTES:

- All measurements in m below ground level (mbgl)
- Installation constructed to prevent perched oily water observed at 0.3m from entering the water unit observed in the orange silt/gravel.
- Borehole collapsed to 3.0m

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/DS/BIR/LON**

Date **APRIL 99**

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

DAMES & MOORE GROUP

BOREHOLE CONSTRUCTION	SAMPLE		SOIL VAPOUR (ppm)	GROUNDWATER	DEPTH (m)	GEOLOGY	BOREHOLE NUMBER: DSB001		PAGE 1 of 2		
	NUMBER	TYPE					START DATE: 06/04/99	DRILLING METHOD: HYDRAULIC PERCUSSIVE			
							FINISH DATE: 06/04/99	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			
							CONCRETE (MADE GROUND)		0		
							loose brown and white clayey fine to medium GRAVEL	Dry			
							Loose to medium dense grey fine GRAVEL with some medium and occasional coarse gravel and sand	No yellow product observed strong solvent odour			
							Medium dense dark grey coarse GRAVEL with some yellow product	strong solvent odour some product visible petrol odour at 1.5-1.7m			
							Firm black slightly gravelly CLAY	slightly eggy solvent odour			
							Soft orange-brown very sandy gravelly SILT with infrequent black mottling	damp slight odour			
							becoming more gravelly at 2.5m				
							very gravelly between 3.25 and 3.5m with some cobbles	water ingress observed through gravel layer slight solvent odour			
							clay more brown in colour at 3.6m				
							becoming reddish brown towards 4m				
firm orange brown very sandy silty CLAY with occasional fine gravel	no odour at 4m some collapse of sandy silt sample 'warm'										
firm reddish brown mottled slightly gravelly CLAY	becoming dry										

LOCATION / NOTES:

- All measurements in m below ground level (mbgl)
- Shallow well installed using 19mm HDPE
- Hole size telescoped to smaller diameter with depth
- Borehole collapsed to 4.8m

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: DSB001		PAGE 2 of 2	
	NUMBER	TYPE					START DATE: 06/04/99		DRILLING METHOD: HYDRAULIC PERCUSSIVE	
							FINISH DATE: 06/04/99		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		
					5		Firm reddish brown mottled slightly gravelly CLAY	Some fall back from sandy silt warm sample returns	5	
					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	

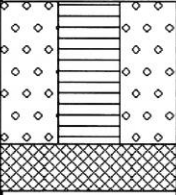
LOCATION / NOTES: 1. All measurements in m below ground level (mbgl) 2. Shallow well installed using 19mm HDPE 3. Hole size telescoped to smaller diameter with depth 4. Borehole collapsed to 4.8m		LEGEND Disturbed Sample Undisturbed Sample * Headspace Analysis + Down Borehole Analysis ▽ Groundwater Table ▽ 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: DSB002		PAGE 1 of 1	
	NUMBER	TYPE					START DATE: 06/04/99		DRILLING METHOD: HYDRAULIC PERCUSSIVE	
							FINISH DATE: 06/04/99		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		0
							0.5	Loose grey/greenish grey, coarse GRAVEL with some fine to medium gravel and cobbles and wood fragments	Oily appearance Slight to moderate solvent odour No yellow product observed slight solvent odour	0.5
							1.0	Loose to medium dense black fine to medium GRAVEL with cobbles		1.0
							1.5	Soft to firm greyish brown and black silty CLAY with some fine gravel		1.5
							2.0	Dense grey coarse GRAVEL and cobbles of slag material (possibly fall back from ~1m)	coring from 1.6m due to concrete slight odour	2.0
							2.5	Soft to firm greyish brown and black sandy and silty CLAY with occasional fine gravel	moderate solvent odour damp	2.5
							3.0	Soft to firm slightly orangey brown very sandy and slightly clayey SILT with occasional fine subrounded gravels	moderate solvent odour damp	3.0
							3.5	becoming cobbles at 3.5m		3.5
							4.0			4.0
							4.5	Very gravelly at 4.5m		4.5
							5.0	Borehole terminated at 5 mbgl		5.0

LOCATION / NOTES:	LEGEND	BOREHOLE LOG	
1. All measurements in m below ground level (mbgl)	Disturbed Sample	Job Title SOIL & GROUNDWATER INVESTIGATION	
2. No PID result from 2m	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 with depth	† Down Borehole Analysis	App'd DRAFT	
5. Borehole collapsed to 3.7m	Groundwater Table	Ref. SG/CR/BRS	
	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: DSB003		PAGE 1 of 2	
	NUMBER	TYPE					START DATE: 31/3/99		DRILLING METHOD: HYDRAULIC PERCUSSIVE	
							FINISH DATE: 01/04/99		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	
						0.5	Loose brown and pinkish brown sandy fine to medium GRAVEL with occasional cobbles (MADE GROUND)	Slight sweet odour damp	0.5	
						1.0	Loose black sandy GRAVEL (MADE GROUND)	very strong garlic odour wet yellow product observed at 1m	1.0	
						1.5	Loose grey slightly silty sandy GRAVEL	very very strong garlic odour wet yellow product at 1.6m	1.5	
						2.0	loose greyish green fine to coarse GRAVEL	Free phase yellow solvent observed on larger gravels	2.0	
						2.5	Loose brown slightly silty clayey GRAVEL	very strong odour	2.5	
						3.0	Loose greyish green fine to coarse GRAVEL		3.0	
						3.5	Firm orangey brown gravelly CLAY stained black from 2.9 to 30m becoming sandy at 3.25m with some brown mottling	moderate to strong 'garlic-like' solvent odour damp	3.5	
						4.0			4.0	
						4.5	Soft brown slightly sandy SILT with some clay and occasional cobbles.	wet strong solvent odour	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 installation 19mm HDPE	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: DSB003		PAGE 2 of 2	
	NUMBER	TYPE					START DATE: 31/3/99		DRILLING METHOD: HYDRAULIC PERCUSSIVE	
							FINISH DATE: 1/4/99		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	Medium dense orange-brown silty and clayey GRAVEL and cobbles	Wet Sheen visible Strong solvent odour	5	
						5.5	Soft to firm orange- brown very gravelly silty and sandy CLAY		5.5	
						Borehole terminated at 5.65 mbgl				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: 1. All measurements in m below ground level (mbgl) 2. Shallow installation 19mm HDPE 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/BR5 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: DSB004		PAGE 1 of 1	
	NUMBER	TYPE					START DATE: 6/4/99		DRILLING METHOD: HYDRAULIC PERCUSSIVE	
							FINISH DATE: 7/4/99		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 brown and grey sandy fine gravel (MADE GROUND)	Dry		
						0.5	Wood at 0.75m	Yellow free product (becoming black) visible	0.5	
							Medium dense grey fine to coarse GRAVEL and cobbles	Strong solvent odour	1.0	
						1.0	Loose to medium dense grey sandy fine GRAVEL with some medium to coarse gravel	Wet		
						1.5		Strong solvent odour, wet	1.5	
							very dense at 2m - 2.35m	Free product		
						2.0	Firm black slightly gravelly CLAY (BOULDER CLAY)	Borehole bentonite seal set at 2m to prevent potential creation of pathway	2.0	
						2.5		No returns from 2.8m	2.5	
						3.0	Cobble at 3.45m		3.0	
						3.5	Borehole terminated at 3.45 mbgl due to shoe breaking off barrel, leaving hardened steel drill shoe at base of borehole		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. Borehole collapsed to 3.2 m	Undisturbed Sample	Location LLANDARCY REFINERY	
3. Bentonite seal from 3.2-2.0 m	* Headspace Analysis	Client BP LLANDARCY LTD	
4. Hole size telescoped to smaller diameter with depth	+ Down Borehole Analysis	App'd DRAFT	DAMES & MOORE GROUP
	Groundwater Table	Ref. SG/CR/BRs	
	Perched Water Table	Date MAY 99	
		Job No. 39991-004-401	

BOREHOLE CONSTRUCTION	SAMPLE		SOIL VAPOUR (ppm)	GROUNDWATER	DEPTH (m)	GEOLOGY	BOREHOLE NUMBER: DSB005		PAGE 1 of 1		
	NUMBER	TYPE					START DATE: 1/4/99		DRILLING METHOD: HYDRAULIC PERCUSSIVE		
							FINISH DATE: 1/4/99		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	
						0.5		Loose grey and pink with grey fine to coarse silty GRAVEL with wood fragments at 0.5m (MADE GROUND)		Damp	
								Loose brownish grey fine to coarse slightly silty GRAVEL (MADE GROUND)			
						1.0		Loose grey fine to medium sandy GRAVEL (MADE GROUND)		Damp to wet Moderate solvent odour	
						1.5		Loose to medium dense black sandy medium to coarse GRAVEL (MADE GROUND)		Strong hydrocarbon odour Stained	
								becoming ashy at 1.75m		Wet, with strong hydrocarbon and solvent odour	
						2.0		some brick fragments and concrete at 2m		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		BOREHOLE LOG	
1. All measurements in m below ground level (mbgl)		☒ Disturbed Sample		Job Title SOIL & GROUNDWATER INVESTIGATION	
2. Borehole collapsed after casing to 1.7m		■ 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: DSB006		PAGE 1 of 1	
	NUMBER	TYPE					START DATE: 1/4/99		DRILLING METHOD: HYDRAULIC PERCUSSIVE	
							FINISH DATE: 01/04/99		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
					0.5		Loose brownish and pinkish grey fine to medium GRAVEL with some silt (MADE GROUND)			0.5
					1.0		Loose red and grey-brown brick fragments and fine to medium gravel (MADE GROUND)			1.0
					1.5		Loose grey and brown-grey coarse GRAVEL with some fine and medium gravel			1.5
					2.0		Loose grey fine to medium GRAVEL with some sand and silt becoming black at 1.2m	Yellow product observed with strong garlic-like solvent odour at 0.75m yellow product down to 1m Wet from 0.5m		2.0
					2.5		Sandstone boulder at 1.3m,	Odour very strong from gravel		2.5
					3.0		Firm to stiff brown and orange-brown gravelly CLAY	Medium odour at 2.15m in cobbles		3.0
					3.5		Hard brown-blue grey weathered sandstone GRAVEL			3.5
					4.0		Firm to stiff brown gravelly CLAY with boulders and cobbles at 2.4m	Dry Becoming damp at 2.8m		4.0
					4.5		Firm orange-brown very sandy gravelly silty CLAY			4.5
					5.0		Soft to very stiff brown slightly gravelly CLAY			5.0
							Borehole terminated at 4.0 mbgl on refusal			

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 with 19mm HDPE pipe	Undisturbed Sample	Location LLANDARCY REFINERY	
3. Temporarily cased to 2.2m	* 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: DSB007		PAGE 1 of 2	
	NUMBER	TYPE					START DATE: 29/3/99		DRILLING METHOD: HYDRAULIC PERCUSSIVE	
							FINISH DATE: 29/3/99		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	Loose brown and grey sub-rounded to sub-angular fine to coarse GRAVEL (MADE GROUND)	Some water at 0.3m		0	
					0.5	Loose red coarse SAND to fine gravel with some ash (MADE GROUND)			0.5	
						Loose black medium to coarse sand sized ASH with some clinker fragments (MADE GROUND)				
						Soft to firm greyish brown clayey GRAVEL (MADE GROUND)				
					1.0	Loose black and red coarse GRAVEL and brick fragments (MADE GROUND)	Slight hydrocarbon odour		1.0	
						Firm greyish brown CLAY with orange streaks and rootlets				
						Soft black silty fibrous PEAT				
					1.5	Soft to firm greyish brown CLAY with frequent orange stained rootlets	Damp at 1.5m		1.5	
					2.0	becoming greyer at 2.0m	Damp with moderate hydrocarbon odour from 1.5m		2.0	
					2.5	Soft brown-grey gravelly CLAY with some orange stained rootlets	Slight sheen on gravel surface at 2.7m		2.5	
					3.0	Blue-grey coarse sandstone gravel at 3m	Slightly sweet garlic odour Damp at 3.0m - 3.5m		3.0	
						Firm to stiff brown slightly silty CLAY with some fine to medium gravel				
					3.5	Loose to medium dense brown-grey coarse SAND with some fine gravel and silt	Slight sheen at 3.5m with moderate odour		3.5	
						Loose soft and grey-brown sandy SILT with occasional fine to medium gravel.				
					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 ■ Undisturbed Sample * Headspace Analysis † Down Borehole Analysis ▼ Groundwater Table ▽ Perched Water Table		Job Title SOIL & GROUNDWATER INVESTIGATION Location LLANDARCY REFINERY Client BP LLANDARCY LTD App'd DRAFT Ref. SG/CR/BR Date MAY 99 Job No. 39991-004-401	
2. Hole size telescoped to smaller diameter with depth				 DAMES & MOORE GROUP	

BOREHOLE CONSTRUCTION	SAMPLE		SOIL VAPOUR (ppm)	GROUNDWATER	DEPTH (m)	GEOLOGY	BOREHOLE NUMBER: DSB007		PAGE 2 of 2	
	NUMBER	TYPE					START DATE: 29/3/99		DRILLING METHOD: HYDRAULIC PERCUSSIVE	
							FINISH DATE: 29/3/99		BOREHOLE DIAMETER: 130/80 mm	
							DRILLER: GEOTECHNICAL		SCREEN TYPE & DIAMETER: POLYPROPYLENE 50mm	
		LOGGED BY: SG APPR'D BY:		SCREEN SLOT SIZE: 1 mm						
					5	X-X-X	Soft to very soft grey-brown silty CLAY	Moderate garlic like odour wet	5	
						X-X-X	Very soft orange-brown silty CLAY			
					5.5	X-X-X	Firm to stiff brown gravelly CLAY	Dry	5.5	
						X-X-X	Firm orange-brown very sandy silty CLAY			
							Firm to stiff brown gravelly CLAY with a cobbles at 6m			
					6.0		Firm orange-brown very gravelly (fine to coarse sub-rounded to sub-angular) CLAY with occasional cobbles		6.0	
				6.5				6.5		
					7.0			Strong solvent odour at 7m	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 Disturbed Sample Undisturbed Sample Headspace Analysis Down Borehole Analysis Groundwater Table Perched Water Table	BOREHOLE LOG	
		SOIL & GROUNDWATER INVESTIGATION	
		LLANDARCY REFINERY	
		BP LLANDARCY LTD	
		DRAFT	
		SG/CR/BRS	
		MAY 99	
		39991-004-401	

BOREHOLE CONSTRUCTION	SAMPLE		SOIL VAPOUR (ppm)	GROUNDWATER	DEPTH (m)	GEOLOGY	BOREHOLE NUMBER: DSB008		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	
						0.5	Loose brown and pink-brown sandy gravel with some wood and occasional cobbles (MADE GROUND)		0.5	
						1.0			1.0	
						1.25		Yellow product at 1.2m to 1.4m Wet	1.25	
						1.5	Loose black sandy GRAVEL	Very strong hydrocarbon and garlic like odours	1.5	
						2.0	Loose grey sandy fine to medium GRAVEL	Wet, Strong garlic odour	2.0	
						2.5		Damp with strong garlic odour	2.5	
						3.0	Firm brown to orange-brown slightly gravelly CLAY becoming sandy at 2.8m	Strong garlic odour	3.0	
						3.5	Firm grey-brown clayey and sandy SILT with occasional fine to medium sub-rounded gravel and some black-brown organic mottling	Strong sweet garlic odour	3.5	
						4.0	Firm brown to orange-brown very sandy silty CLAY with some sub-rounded fine to medium gravel becoming more gravelly at 4m	Odour decreasing at 4.9m	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 installation 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/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: DSB008		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	
							DESCRIPTION		COMMENTS	
					5		Firm brown to orange- brown very sandy silty CLAY with some sub-rounded fine to medium gravel	No returns from	5	
					5.5		Borehole terminated at 5.25 mbgl		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	
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	
		 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: DSB009		PAGE 1 of 2	
	NUMBER	TYPE					START DATE: 06/04/99		DRILLING METHOD: HYDRAULIC PERCUSSIVE	
							FINISH DATE: 06/04/99		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 light brown slightly sandy fine to medium GRAVEL with some concrete fragments (MADE GROUND)	Slight solvent odour Dry		
						0.5	Loose greyish brown medium GRAVEL	Strong solvent odour Wet	0.5	
							Loose grey sandy fine to medium sub-angular GRAVEL	Yellow product observed		
						1.0		Strong solvent odour Wet	1.0	
							Loose grey coarse SAND			
						1.5	Loose grey fine to medium sub-angular GRAVEL with some sand	Strong solvent odour Wet	1.5	
						2.0			2.0	
							Firm to stiff brown CLAY with occasional fine gravel	Slight odour Dry		
						2.5			2.5	
							cobbles at 2.8 and 3.1m			
						3.0		Moderate to strong solvent odour from 3m	3.0	
						3.5			3.5	
						4.0	Firm grey-brown very gravelly silty CLAY		4.0	
							Soft to firm grey-brown very silty gravelly SAND with some clay	wet strong solvent odour		
						4.5		wet strong solvent odour	4.5	
							Soft to firm brown sandy and gravelly CLAY			
						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/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: DSB009		PAGE 2 of 2	
	NUMBER	TYPE					START DATE: 06/04/99	DRILLING METHOD: HYDRAULIC PERCUSSIVE		
							FINISH DATE: 06/04/99	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	
					5		Soft to firm brown sandy and gravelly CLAY		Very sweet solvent odour	5
					5.5		Loose to medium dense orange-brown fine SAND			5.5
					6.0		Firm to stiff orange-brown gravelly CLAY			6.0
							Borehole terminated at 6.15 mbgl			
					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: 1. All measurements in m below ground level (mbgl) 2. Hole size telescoped to smaller diameter with depth 3. Borehole collapsed to 4.9 mbgl		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/BR Date MAY 99 Job No. 39991-004-401	
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BOREHOLE CONSTRUCTION	SAMPLE		SOIL VAPOUR (ppm)	GROUNDWATER	DEPTH (m)	GEOLOGY	BOREHOLE NUMBER: DSB010		PAGE 1 of 1	
	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
					0.5		Loose grey medium GRAVEL	No odour		0.5
			*5.0		1.0		Loose brown sandy and silty GRAVEL	Damp with slight sweet hydrocarbon odour		1.0
			*5.5		1.5		Medium dense black silty sandy GRAVEL with occasional cobbles	Wet and oily with strong hydrocarbon odour		1.5
			*16.2		2.0		Loose green-grey fine to medium GRAVEL	Very strong garlic odour wet		2.0
			*94.0		2.5		Firm brown gravelly CLAY	Yellow crystals observed in gravel at 1.5m		2.5
			*78		3.0		Borehole terminated at 2.5 mbgl	medium to strong garlic like odour		3.0
			*84		3.5			Borehole terminated due to casing jamming and collapse		3.5
					4.0					4.0
					4.5					4.5
					5.0					5.0

LOCATION / NOTES:

- All measurements in m below ground level (mbgl)
- DUP11 = DSB010-1.75m
- Hole size telescoped to smaller diameter with depth
- Borehole terminated due to collapse and

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**

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