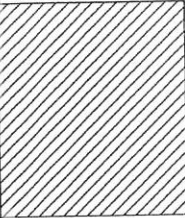
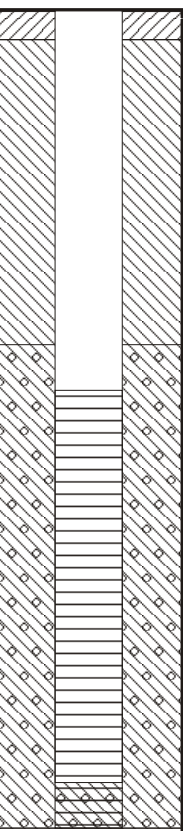


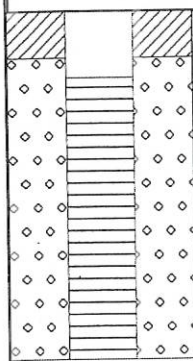
BOREHOLE CONSTRUCTION	SAMPLE		SOIL VAPOUR (ppm)	GROUNDWATER	DEPTH (m)	GEOLOGY	BOREHOLE NUMBER: RHRW031		PAGE 1 of 1		
	NUMBER	TYPE					START DATE: 08/01/01		DRILLING METHOD: DYNAMIC SAMPLING		
							FINISH DATE: 08/01/01		BOREHOLE DIAMETER: 128/113/98 mm		
							DRILLER: Geotechnical		SCREEN TYPE & DIAMETER: N/A		
				LOGGED BY: SC APPR'D BY:		SCREEN SLOT SIZE: N/A					
						DESCRIPTION		COMMENTS		0	
						Soft, loose, dark brown, sandy, silty GRAVEL with rootlets (TOPSOIL)		Damp. No odour or staining		0	
						Loose, light brown-yellow, very sandy, sub-angular to sub-rounded, fine to medium GRAVEL		Damp. No odour or staining			
						Soft, brown, slightly sandy SILT with occasional gravel with rootlets		Dry. No odour or staining		0.5	
						Soft, orange-brown, slightly clayey, slightly sandy SILT		Damp. No odour or staining			
						Boulder at base					
						Borehole terminated at 0.7 mbgl on refusal				1.0	
										1.5	
										2.0	
										2.5	
										3.0	
										3.5	
										4.0	
										4.5	
										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 WESTERN MARGIN INVESTIGATION Location BP LLANDARCY REFINERY Client BP LLANDARCY LTD			
2. Borehole backfilled with bentonite on completion				 Dames & Moore O'Brien Kreitzberg Thorburn Colquhoun		App'd DRAFT Ref. SG/CR/BR5 Date MAR 2001 Job No. 39991-016-402	

BOREHOLE CONSTRUCTION	SAMPLE		SOIL VAPOUR (ppm)	GROUNDWATER	DEPTH (m)	GEOLOGY	BOREHOLE NUMBER: RHRW031B		PAGE 1 of 1	
	NUMBER	TYPE					START DATE: 08/01/01		DRILLING METHOD: DYNAMIC SAMPLING	
							FINISH DATE: 08/01/01		BOREHOLE DIAMETER: 143/128/113/98 mm	
							DRILLER: Geotechnical		SCREEN TYPE & DIAMETER: HDPE 1 mm	
							LOGGED BY: sc APPR'D BY:		SCREEN SLOT SIZE: 1 mm	
							DESCRIPTION	COMMENTS		
						0	Soft, dark brown, sandy, silty GRAVEL with frequent wood fragments (TOPSOIL)	Damp. No odour or staining	0	
							Loose, light brown-yellow, very sandy GRAVEL	Damp. No odour or staining		
						0.5	Soft, brown, slightly sandy SILT with occasional gravel with rootlets	Dry. No odour or staining	0.5	
							Loose, light brown, very silty, sandy GRAVEL with some cobbles	Dry. No odour or staining		
						1.0	Loose, light to mid-orange-brown, sandy, cobbly, sub-rounded to sub-angular GRAVEL	Dry. No odour or staining	1.0	
						1.5			1.5	
							Loose, grey, sandy, cobbly fine to coarse sub-angular GRAVEL	Moist. Slight to moderate odour		
						2.0			2.0	
							Very cobbly from 2.2m	Staining from 2.2m		
	2.5	Fractured SANDSTONE (BEDROCK)	Wet. Slight odour	2.5						
						Borehole terminated at 2.7 mbgl on refusal				
						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 Undisturbed Sample Headspace Analysis Down Borehole Analysis Groundwater Table Perched Water Table	Job Title WESTERN MARGIN INVESTIGATION Location BP LLANDARCY REFINERY Client BP LLANDARCY LTD	URS Dames & Moore O'Brien Kreitzberg Thorburn Colquhoun
		App'd	DRAFT
		Ref.	SG/CR/BRS
		Date	MAR 2001
		Job No.	39991-016-402

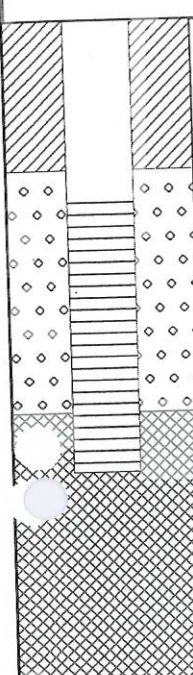
BOREHOLE CONSTRUCTION	SAMPLE		SOIL VAPOUR (ppm)	GROUNDWATER	DEPTH (m)	GEOLOGY	BOREHOLE NUMBER: RHRW032		PAGE 1 of 1					
	NUMBER	TYPE					START DATE: 08/01/01		DRILLING METHOD: DYNAMIC SAMPLING					
							FINISH DATE: 08/01/01		BOREHOLE DIAMETER: 143/128/113/98 mm					
							DRILLER: Geotechnical		SCREEN TYPE & DIAMETER: HDPE 1 mm					
							LOGGED BY: SG APPR'D BY:		SCREEN SLOT SIZE: 1 mm					
					DESCRIPTION		COMMENTS							
					0		No odour or staining		0					
					Borehole terminated at 3.0 mbgl on refusal									
					0.5		No odour or staining		0.5					
					1.0		No odour or staining		1.0					
					1.5		No odour or staining. Dry		1.5					
					2.0		Damp. Slight hydrocarbon odour		2.0					
					2.5		Slight hydrocarbon dour		2.5					
					3.0		Very strong hydrocarbon odour. Wet		3.0					
					3.5		Very strong hydrocarbon odour		3.5					
					4.0				4.0					
4.5				4.5										
5.0				5.0										
LOCATION / NOTES: 1. All measurements in m below ground level (mbgl)					LEGEND ☒ Disturbed Sample ■ Undisturbed Sample * Headspace Analysis † Down Borehole Analysis ▼ Groundwater Table ▽ Perched Water Table					BOREHOLE LOG				
										Job Title WESTERN MARGIN INVESTIGATION Location BP LLANDARCY REFINERY Client BP LLANDARCY LTD				
					 Dames & Moore O'Brien Kreitzberg Thorburn Colquhoun					App'd Ref. SG/CR/BRS Date MAR 2001 Job No. 39991-016-402				
										DRAFT				

BOREHOLE CONSTRUCTION	SAMPLE		SOIL VAPOUR (ppm)	GROUNDWATER	DEPTH (m)	GEOLOGY	BOREHOLE NUMBER: RHRW040		PAGE 1 of 1	
	NUMBER	TYPE					START DATE: 05/02/01		DRILLING METHOD: WINDOW SAMPLER	
							FINISH DATE: 05/02/01		BOREHOLE DIAMETER: 80-60 mm	
							DRILLER: GEOTECHNICAL		SCREEN TYPE & DIAMETER: HDPE 50mm	
							LOGGED BY: NL APPR'D BY:		SCREEN SLOT SIZE: 0.5 mm	
						DESCRIPTION	COMMENTS			
						Leaf litter and vegetation (TOPSOIL)	Damp	0		
						Black-brown, sandy and gravelly ASH (MADE GROUND)		Water strike at 0.5m	0.5	
						Well sorted, loose brown SILT with some fine sand, some organic matter and rootlets	Hydrocarbon sheen and moderate odour		1.0	
						Soft, grey silty CLAY with occasional gravel		1.5		
						Borehole terminated at 1.15 mbgl on refusal		2.0		
								2.5		
								3.0		
								3.5		
								4.0		
								4.5		
								5.0		

LOCATION / NOTES: 1. All measurements in m below ground level (mbgl)		LEGEND  Disturbed Sample  Undisturbed Sample  Headspace Analysis  Down Borehole Analysis  Groundwater Table  Perched Water Table		BOREHOLE LOG Job Title WESTERN MARGIN INVESTIGATION Location TRIANGLE SEPARATOR AREA Client BP LLANDARCY REFINERY LTD  Dames & Moore O'Brien Kreitzberg Thorburn Colquhoun				App'd DRAFT Ref. NL/CR/BRS Date APR 2001 Job No. 39991-016-402	
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BOREHOLE CONSTRUCTION	SAMPLE		SOIL VAPOUR (ppm)	GROUNDWATER	DEPTH (m)	GEOLOGY	BOREHOLE NUMBER: RHRW042		PAGE 1 of 1	
	NUMBER	TYPE					START DATE: 05/02/01		DRILLING METHOD: WINDOW SAMPLER	
							FINISH DATE: 05/02/01		BOREHOLE DIAMETER: 80-60 mm	
							DRILLER: GEOTECHNICAL		SCREEN TYPE & DIAMETER: HDPE 50mm	
							LOGGED BY: NL APPR'D BY:		SCREEN SLOT SIZE: 0.5 mm	
							DESCRIPTION	COMMENTS		
							0 Leaf litter and rootlets (TOPSOIL) Loose black-brown (with some orange mottling), silt and sand sized ASH with occasional gravel. (MADE GROUND) Becoming stiffer with depth, compacted and more cohesive	Heavy hydrocarbon odour and sheen Water strike at 0.9m	0	
										0.5
										1.0
										1.5
							Borehole terminated at 1.2 mbgl on refusal		2.0	
									2.5	
									3.0	
									3.5	
									4.0	
									4.5	
									5.0	

LOCATION / NOTES: 1. All measurements in m below ground level (mbgl)		LEGEND Disturbed Sample Undisturbed Sample Headspace Analysis Down Borehole Analysis Groundwater Table Perched Water Table		BOREHOLE LOG Job Title WESTERN MARGIN INVESTIGATION Location TRIANGLE SEPARATOR AREA Client BP LLANDARCY REFINERY LTD Dames & Moore O'Brien Kreitzberg Thorburn Colquhoun	
				App'd DRAFT Ref. NL/CR/BRS Date APR 2001 Job No. 39991-016-402	

BOREHOLE CONSTRUCTION	SAMPLE		SOIL VAPOUR (ppm)	GROUNDWATER	DEPTH (m)	GEOLOGY	BOREHOLE NUMBER: RHRW043		PAGE 1 of 1	
	NUMBER	TYPE					START DATE: 05/02/01		DRILLING METHOD: WINDOW SAMPLER	
							FINISH DATE: 05/02/01		BOREHOLE DIAMETER: 80-60 mm	
				DRILLER: GEOTECHNICAL		SCREEN TYPE & DIAMETER: HDPE 50mm				
				LOGGED BY: NL APPR'D BY:		SCREEN SLOT SIZE: 0.5 mm				
						DESCRIPTION	COMMENTS			
						0	Leaf litter and rootlets (TOPSOIL)	Damp	0	
							Loose black, sandy ASH with some brown silt. (MADE GROUND)			
						0.5	Becoming looser at 0.5m	Wet	0.5	
						1.0	Less ash with depth Silt content increases with depth	Water strike at 0.9m Moderate odour, no staining	1.0	
						1.5			1.5	
						2.0	Firm, grey, silty CLAY with yellow streaks		2.0	
						2.0	Fine sandy SILT with very frequent grey-brown gravel	Strong heavy hydrocarbon odour and staining and product	2.0	
							Borehole terminated at 2.2 mbgl on collapse		2.5	
						2.5			2.5	
						3.0			3.0	
						3.5			3.5	
						4.0			4.0	
						4.5			4.5	
						5.0			5.0	

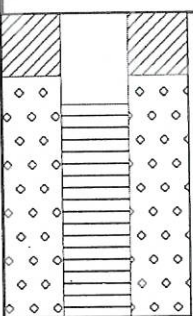
LOCATION / NOTES:		LEGEND		BOREHOLE LOG	
1. All measurements in m below ground level (mbgl) 2. Borehole collapsed to 1.3 m, casing pushed into sludge at base of hole to 1.5 m		☒ Disturbed Sample ■ Undisturbed Sample * Headspace Analysis † Down Borehole Analysis ▽ Groundwater Table ▽ Perched Water Table		Job Title WESTERN MARGIN INVESTIGATION Location TRIANGLE SEPARATOR AREA Client BP LLANDARCY REFINERY LTD URS Dames & Moore O'Brien Kreitzberg Thorburn Colquhoun	
				App'd DRAFT Ref. NL/CR/BRs Date APR 2001 Job No. 39991-016-402	

BOREHOLE CONSTRUCTION	SAMPLE		SOIL VAPOUR (ppm)	GROUNDWATER	DEPTH (m)	GEOLOGY	BOREHOLE NUMBER: RHRW044		PAGE 1 of 1	
	NUMBER	TYPE					START DATE: 05/02/01		DRILLING METHOD: WINDOW SAMPLER	
							FINISH DATE: 05/02/01		BOREHOLE DIAMETER: 80-60 mm	
							DRILLER: GEOTECHNICAL		SCREEN TYPE & DIAMETER: HDPE 50mm	
							LOGGED BY: NL APPR'D BY:		SCREEN SLOT SIZE: 0.5 mm	
						DESCRIPTION	COMMENTS			
						Leaf litter and rootlets (TOPSOIL)	Hydrocarbon sheen and odour from 0.6m Wet. Strong hydrocarbon odour and sheen Strong odour	0		
						Loose black, sand and gravel sized ASH with organic matter (MADE GROUND)		0.5		
						Less organic matter with depth				
						Becoming looser with depth				
						More gravel sized clasts with depth		1.0		
*9999						Borehole terminated at 1.5 mbgl on refusal		1.5		
								2.0		
								2.5		
								3.0		
								3.5		
								4.0		
								4.5		
								5.0		

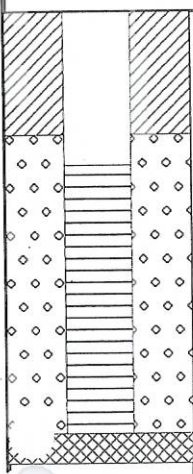
LOCATION / NOTES: 1. All measurements in m below ground level (mbgl)		LEGEND Disturbed Sample Undisturbed Sample Headspace Analysis Down Borehole Analysis Groundwater Table Perched Water Table		BOREHOLE LOG Job Title WESTERN MARGIN INVESTIGATION Location TRIANGLE SEPARATOR AREA Client BP LLANDARCY REFINERY LTD Dames & Moore O'Brien Kreitzberg Thorburn Colquhoun		App'd DRAFT Ref. NL/CR/BR5 Date APR 2001 Job No. 39991-016-402	
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BOREHOLE CONSTRUCTION	SAMPLE		SOIL VAPOUR (ppm)	GROUNDWATER	DEPTH (m)	GEOLOGY	BOREHOLE NUMBER: RHRW045		PAGE 1 of 1		
	NUMBER	TYPE					START DATE: 05/02/01		DRILLING METHOD: WINDOW SAMPLER		
							FINISH DATE: 05/02/01		BOREHOLE DIAMETER: 80-60 mm		
				DRILLER: GEOTECHNICAL		SCREEN TYPE & DIAMETER: HDPE 35mm					
				LOGGED BY: NL APPR'D BY:		SCREEN SLOT SIZE: 0.5 mm					
						DESCRIPTION		COMMENTS			
						0		Leaf litter and rootlets (TOPSOIL)		No odour or staining	0
						0.5		Loose black, gravel sized clasts of ASH with some gravel (MADE GROUND)		Hydrocarbon sheen and odour	0.5
						1.0		Cobble size clasts at 0.7m			1.0
						1.5		Soft grey, silty SAND with black streaks in clasts of up to 10cm		Strong solvent odour and black staining	1.5
						2.0		Becomes firmer with depth		Less product. Moderate odour.	2.0
						1.65		Sub-rounded sandstone cobbles observed			
						Borehole terminated at 1.65 mbgl on refusal					
						2.0					
						2.5					
						3.0					
						3.5					
						4.0					
						4.5					
						5.0					

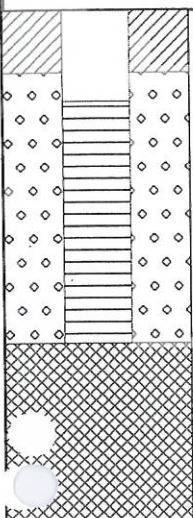
LOCATION / NOTES:	LEGEND	BOREHOLE LOG	
1. All measurements in m below ground level (mbgl)	Disturbed Sample Undisturbed Sample Headspace Analysis Down Borehole Analysis Groundwater Table Perched Water Table	Job Title	WESTERN MARGIN INVESTIGATION
		Location	TRIANGLE SEPARATOR AREA
		Client	BP LLANDARCY REFINERY LTD
		URS	App'd
		Dames & Moore O'Brien Kreitzberg Thorburn Colquhoun	DRAFT
			Ref. NL/CR/BRS
			Date APR 2001
			Job No. 39991-016-402

BOREHOLE CONSTRUCTION	SAMPLE		SOIL VAPOUR (ppm)	GROUNDWATER	DEPTH (m)	GEOLOGY	BOREHOLE NUMBER: RHRW046		PAGE 1 of 1	
	NUMBER	TYPE					START DATE: 05/02/01		DRILLING METHOD: WINDOW SAMPLER	
							FINISH DATE: 05/02/01		BOREHOLE DIAMETER: 80-60 mm	
							DRILLER: GEOTECHNICAL		SCREEN TYPE & DIAMETER: HDPE 50mm	
							LOGGED BY: NL APPR'D BY:		SCREEN SLOT SIZE: 0.5 mm	
						DESCRIPTION		COMMENTS		
						0		Leaf litter and rootlets (TOPSOIL)		0
						0.5		Loose, black-brown sand and gravel sized ASH with some cobbles and silt (MADE GROUND)		Slight sheen Slight odour
						0.5		Soft grey-brown SILT with some fine sand.		Strong odour and sheen
						1.0		Rounded to sub-rounded cobbles observed		Very strong odour and sheen
						Borehole terminated at 1.0 mbgl		Saturated		1.0
						1.5				1.5
						2.0				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: 1. All measurements in m below ground level (mbgl)		LEGEND  Disturbed Sample  Undisturbed Sample  Headspace Analysis  Down Borehole Analysis  Groundwater Table  Perched Water Table		BOREHOLE LOG Job Title WESTERN MARGIN INVESTIGATION Location TRIANGLE SEPARATOR AREA Client BP LLANDARCY REFINERY LTD  Dames & Moore O'Brien Kreitzberg Thorburn Colquhoun				App'd DRAFT Ref. NL/CR/BRS Date APR 2001 Job No. 39991-016-402	
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BOREHOLE CONSTRUCTION	SAMPLE		SOIL VAPOUR (ppm)	GROUNDWATER	DEPTH (m)	GEOLOGY	BOREHOLE NUMBER: RHRW047		PAGE 1 of 1	
	NUMBER	TYPE					START DATE: 05/02/01		DRILLING METHOD: WINDOW SAMPLER	
							FINISH DATE: 05/02/01		BOREHOLE DIAMETER: 80-60 mm	
							DRILLER: GEOTECHNICAL		SCREEN TYPE & DIAMETER: HDPE 50mm	
							LOGGED BY: NL APPR'D BY:		SCREEN SLOT SIZE: 0.5 mm	
						DESCRIPTION	COMMENTS			
						Leaf litter and rootlets (TOPSOIL)	Wet. No staining. Slight odour	0		
						Loose, black ASH with some gravel clasts (MADE GROUND)				
						Firm brown SILT, with some fine sand and occasional gravel clasts	No odour or staining. Damp	0.5		
						Soft green-grey SILT with occasional gravel and cobbles	Very strong odour No sheen noted Damp	1.0		
						Becomes firmer from 1.1m	Very heavy black staining and strong odour	1.5		
						Borehole terminated at 1.5 mbgl on collapse		1.5		
								2.0		
								2.5		
								3.0		
								3.5		
								4.0		
								4.5		
								5.0		

LOCATION / NOTES: 1. All measurements in m below ground level (mbgl) 2. Borehole collapsed to 1.4m		LEGEND  Disturbed Sample  Undisturbed Sample  Headspace Analysis  Down Borehole Analysis  Groundwater Table  Perched Water Table	BOREHOLE LOG Job Title WESTERN MARGIN INVESTIGATION Location TRIANGLE SEPARATOR AREA Client BP LLANDARCY REFINERY LTD	
		 Dames & Moore O'Brien Kreitzberg Thorburn Colquhoun	App'd Ref. NL/CR/BRS Date APR 2001 Job No. 39991-016-402	DRAFT

BOREHOLE CONSTRUCTION	SAMPLE		SOIL VAPOUR (ppm)	GROUNDWATER	DEPTH (m)	GEOLOGY	BOREHOLE NUMBER: RHRW048a		PAGE 1 of 1	
	NUMBER	TYPE					START DATE: 06/02/01		DRILLING METHOD: WINDOW SAMPLER	
							FINISH DATE: 06/02/01		BOREHOLE DIAMETER: 80-60 mm	
							DRILLER: GEOTECHNICAL		SCREEN TYPE & DIAMETER: HDPE 50mm	
							LOGGED BY: NL APPR'D BY:		SCREEN SLOT SIZE: 0.5 mm	
						DESCRIPTION	COMMENTS			
						0	Leaf litter and rootlets (TOPSOIL)		0	
						0.5	Loose, black sandy ASH with some gravel and organic matter (MADE GROUND)	No odour or staining		
						0.5	Soft, grey-brown SILT with some fine sand and occasional gravel .	Damp		
						0.5	Becomes gradually lighter brown with depth with occasional rounded to sub-rounded cobbles	No odour. Sheen on water		
						1.0	Becomes softer	Wet		
*2225 *4959 * > 9999						1.5	Gravel and cobble rich layer from 1.4-1.5m	No odour or staining	1.5	
						1.5	Stiff grey SILT with fine sand with light grey to dark grey laminations	Strong odour, moderate sheen		
						2.0	Borehole terminated at 1.7 mbgl on refusal			
						2.5				
						3.0				
						3.5				
						4.0				
						4.5				
						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 WESTERN MARGIN INVESTIGATION	DRAFT
2. Borehole backfilled to 1.1m with arisings		Location TRIANGLE SEPARATOR AREA	
		Client BP LLANDARCY REFINERY LTD	
		 Dames & Moore O'Brien Kreitzberg Thorburn Colquhoun	
		App'd Ref. NL/CR/BRS Date APR 2001 Job No. 39991-016-402	

BOREHOLE CONSTRUCTION	SAMPLE		SOIL VAPOUR (ppm)	GROUNDWATER	DEPTH (m)	GEOLOGY	BOREHOLE NUMBER: RHRW048b		PAGE 1 of 1	
	NUMBER	TYPE					START DATE: 05/02/01		DRILLING METHOD: WINDOW SAMPLER	
							FINISH DATE: 05/02/01		BOREHOLE DIAMETER: 80-60 mm	
							DRILLER: GEOTECHNICAL		SCREEN TYPE & DIAMETER: HDPE 50mm	
				LOGGED BY: NL APPR'D BY:		SCREEN SLOT SIZE: 0.5 mm				
							DESCRIPTION	COMMENTS		
							0 Leaf litter and rootlets (TOPSOIL) Loose, dark brown SILT with rootlets and organic matter Soft to firm, brown, sandy SILT with occasional gravel	Dry. No odour or staining. Damp.	0	
							0.5 Very soft, yellow-brown fine silty SAND with occasional sub-rounded cobbles Becomes firmer with depth Firm at 1m Becomes grey from 1.2m	Wet No odour or staining	0.5	
							1.0 Firm at 1m Becomes grey from 1.2m	No odour or staining	1.0	
							1.5 Borehole terminated at 1.7 mbgl	Moderate sheen. Strong odour	1.5	
							2.0		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	

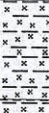
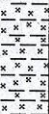
LOCATION / NOTES:	LEGEND	BOREHOLE LOG	
1. All measurements in m below ground level (mbgl)	Disturbed Sample Undisturbed Sample Headspace Analysis Down Borehole Analysis Groundwater Table Perched Water Table	Job Title WESTERN MARGIN INVESTIGATION	
		Location TRIANGLE SEPARATOR AREA	
		Client BP LLANDARCY REFINERY LTD	
		 Dames & Moore O'Brien Kreitzberg Thorburn Colquhoun	App'd NL/CR/BRS Date APR 2001 Job No. 39991-016-402
			DRAFT

BOREHOLE CONSTRUCTION	SAMPLE		SOIL VAPOUR (ppm)	GROUNDWATER	DEPTH (m)	GEOLOGY	BOREHOLE NUMBER: RHRW049		PAGE 1 of 1	
	NUMBER	TYPE					START DATE: 05/02/01		DRILLING METHOD: WINDOW SAMPLER	
							FINISH DATE: 05/02/01		BOREHOLE DIAMETER: 80-60 mm	
							DRILLER: GEOTECHNICAL		SCREEN TYPE & DIAMETER: HDPE 30mm	
							LOGGED BY: NL APPR'D BY:		SCREEN SLOT SIZE: 0.5 mm	
						DESCRIPTION	COMMENTS			
						0	Brown SILT with organic matter and grass and reeds at surface	Wet	0	
						0.5	Firm, light grey (with orange, yellow and tan mottling in places) SILT with some clay and fine sand and occasional gravel	Odour and sheen noted	0.5	
						1.0	Soft, blue-grey (with dark blue-grey streaks) clayey SILT with some gravel clasts	Moderate odour and sheen	1.0	
						1.5	Soft to firm, dark brown-grey SILT with dark streaks and occasional gravel and cobbles	Very strong odour and sheen. Wet	1.5	
						2.0	Firm, light grey (with yellow mottling) silty CLAY with occasional gravel		2.0	
						2.45	Borehole terminated at 2.45 mbgl		2.45	
						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: 1. All measurements in m below ground level (mbgl) 2. Hole collapsed to 0.7m 3. Screen pushed to 1.8m		LEGEND Disturbed Sample Undisturbed Sample Headspace Analysis Down Borehole Analysis Groundwater Table Perched Water Table		BOREHOLE LOG Job Title WESTERN MARGIN INVESTIGATION Location TRIANGLE SEPARATOR AREA Client BP LLANDARCY REFINERY LTD Dames & Moore O'Brien Kreitzberg Thorburn Colquhoun		DRAFT App'd Ref. NL/CR/BR5 Date APR 2001 Job No. 39991-016-402	
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BOREHOLE CONSTRUCTION	SAMPLE		SOIL VAPOUR (ppm)	GROUNDWATER	DEPTH (m)	GEOLOGY	BOREHOLE NUMBER: RFSW021		PAGE 1 of 1	
	NUMBER	TYPE					DRILLING DATES: 17/10/2000		DRILLING METHODS : Percussive	
							DRILLER : Geotechnical		BOREHOLE DIAMETER : 128mm	
							LOGGED BY : JG		SCREEN TYPE & DIAM: 50mm HDPE	
							CHECKED BY :		SCREEN SLOT SIZE: 1mm	
					0.0	GRAVEL Loose, brown, clayey gravel with some rootlets.	NVO	0.0		
					0.5	CLAY Firm, brown, sandy clay.	NVO	0.5		
					1.0	SILTY SAND Brown, fine to coarse, silty sand.		1.0		
			*12.1		1.5	Increasing silt fraction from 1.7m	Hydrocarbon odour	1.5		
			*125		2.0		Hydrocarbon odour	2.0		
			*314		2.5	CLAY Stiff, brown clay with some sand and gravel		2.5		
		*6.4		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:	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: 16/09/2002
		Drawn : SS	Ref:
		Scale: As scale	Job No: 39991-016
		Drg. Size: A4	BOREHOLE LOG

BOREHOLE CONSTRUCTION	SAMPLE		SOIL VAPOUR (ppm)	GROUNDWATER	DEPTH (m)	GEOLOGY	BOREHOLE NUMBER: NSTP024		PAGE 1 of 1	
	NUMBER	TYPE					DRILLING DATES: 04/11/03		DRILLING METHODS : JCB	
							DRILLER : JCB		BOREHOLE DIAMETER : -	
							LOGGED BY : SS		SCREEN TYPE & DIAM: -	
							CHECKED BY : SG		SCREEN SLOT SIZE: -	
							DESCRIPTION	COMMENTS	S,V	
	NSTP024 - 0.5m (S,L,P)		*4.6	0.0		Loose, pale brown, very sandy silt with occasional coarse gravel, some brick fragments and rare cobbles. (MADE GROUND)	Dry-damp. NVO	0,0		
			*11.2	0.5					Increase in cobbles from 0.4m	Grey staining from 0.4m with hydrocarbon odour. Water ingress from 0.3m
	NSTP024 - 1.0m (S,L)		*11.4	1.0		Firm, grey-brown, silty CLAY with occasional gravel	Dark grey/black staining at N end of pit	2,2		
			*81.3	1.5					Becoming very soft to soft, brown, clayey SILT with occasional cobbles.	Dry, slight grey staining. Slight hydrocarbon odour
				*9.0	2.0		Trial pit terminated at 3.4m due to refusal.	No staining or odour to base. Dry	0,0	
				*11.9	2.5					
				*8.1	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



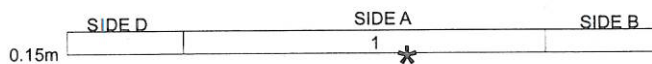
App'd:	Date: November 2003
Drawn : SS	Ref:
Scale: As scale	Job No: 39991-044-785
Drg. Size: A4	BOREHOLE LOG

BOREHOLE CONSTRUCTION	SAMPLE		SOIL VAPOUR (ppm)	GROUNDWATER	DEPTH (m)	GEOLOGY	BOREHOLE NUMBER: NSMW025 (PIT)		PAGE 1 of 1	
	NUMBER	TYPE					DRILLING DATES: 04/11/03		DRILLING METHODS : JCB	
							DRILLER : JCB		BOREHOLE DIAMETER : -	
							LOGGED BY : SS		SCREEN TYPE & DIAM: -	
							CHECKED BY : SG		SCREEN SLOT SIZE: -	
DESCRIPTION		COMMENTS	S,V							
	NSMW025 - 0.3m (S,L,P)		*6.1		0.0	Soft, dark brown, sandy silt with rootlets. (Topsoil)	Damp. NVO	0,0		
					0.5	Soft, yellow-brown, slightly sandy silt with occasional cobbles, some rootlets and rare ash (MADE GROUND)	NVO	0,0		
					1.0	Soft, golden brown, clayey SILT with rare rounded cobbles.	NVO	0,0		
	NSMW025 - 1.3m (S,L)		*6.4		1.5	Becoming loose, light grey-brown, slightly silty, fine to medium SAND with frequent rounded cobbles.	NVO	0,0		
					2.0	Becoming loose, grey, silty, fine SAND with frequent, stiff, grey, silty clay patches.	Dry-damp. NVO	0,0		
	NSMW025 - 1.5m (ARUP)		*5.9		2.5	Decreasing silty sand with increasing clay patches.	Damp. NVO	0,0		
					3.0	Stiff, grey, slightly silty CLAY.	Dry-damp. NVO	0,0		
					3.5	Trial pit terminated at 3.7m due to refusal.	Damp. NVO	0,0		
					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	Job Title: BP Llandarcy Whole Site Investigation	
		 Headspace Analysis	 Down Borehole Analysis	Location: BP Llandarcy Refinery	
		 Groundwater Table	 Perched Water Table	Client: BP/WDA	
				App'd:	Date: November 2003
				Drawn : SS	Ref:
				Scale: As scale	Job No: 39991-044-785
				Drg. Size: A4	BOREHOLE LOG

TRIAL PIT NUMBER: MSTP207
 GROUND ELEVATION: -
 DATE OF EXCAVATION: 25/6/98
 WATER LEVEL: DRY
 LOGGED BY: RF/SP
 APPROVED BY:

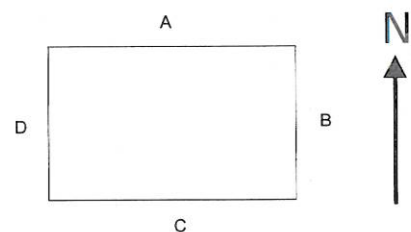
SIDE ELEVATIONS



SIDE C

As side A

PLAN



0 1 2m
 Vertical Scale

Key:

- * Soil Sample location
- WA Water Sample
- HS Headspace Analysis
- Water Ingress

STRATA DESCRIPTIONS	COMMENTS	SAMPLES
1. Cobble rich, dark brown CLAY Hand augered boring terminated on refusal at 0.155 mbgl	a. No hydrocarbon odour or staining evident b. Hand augered	<u>PID RESULTS</u> 0.5m - 0 ppm <u>SOIL SAMPLES</u> MSTP207-0.15m

Job Title: SOIL & GROUNDWATER INVESTIGATION

Location: LLANDARCY REFINERY

Client: BP LLANDARCY

Job No: 39991-001-401

DRAFT



DAMES & MOORE

TRIAL PIT NUMBER: MSTP214
 GROUND ELEVATION: -
 DATE OF EXCAVATION: 25/6/98
 WATER LEVEL: DRY
 LOGGED BY: RF/SP
 APPROVED BY:

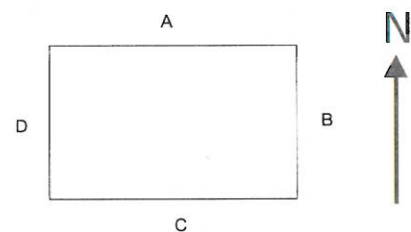
SIDE ELEVATIONS

	SIDE D	SIDE A	SIDE B
0.2m		1	
0.4m		2 *	

SIDE C

As side A

PLAN



0 1 2m
 Vertical Scale

Key:

- * Soil Sample location
- WA Water Sample
- HS Headspace Analysis
- Water Ingress

STRATA DESCRIPTIONS	COMMENTS	SAMPLES
1. Dark brown, firm clay SOIL with worms 2. Orange/dark brown, plastic CLAY and roots Hand augered coring terminated on refusal at 0.4 mbgl	a. No hydrocarbon odour or staining evident b. Hand augered due to access restrictions	<u>PID RESULTS</u> 0.4m - 0 ppm <u>SOIL SAMPLES</u> MSTP214-0.4m

Job Title: SOIL & GROUNDWATER INVESTIGATION

Location: LLANDARCY REFINERY

Client: BP LLANDARCY

Job No: 39991-001-401

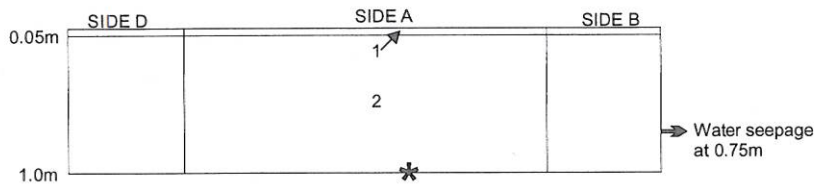
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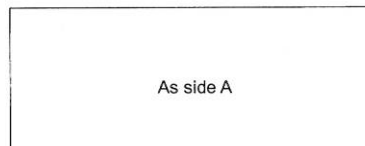
DAMES & MOORE

TRIAL PIT NUMBER: MSTP217
GROUND ELEVATION: -
DATE OF EXCAVATION: 08/6/98
WATER LEVEL: 0.75
LOGGED BY: RF
APPROVED BY:

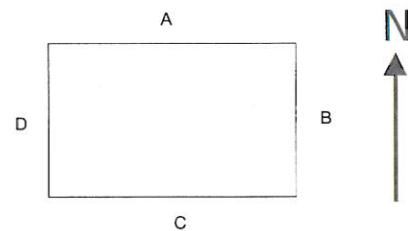
SIDE ELEVATIONS



SIDE C



PLAN



Key:

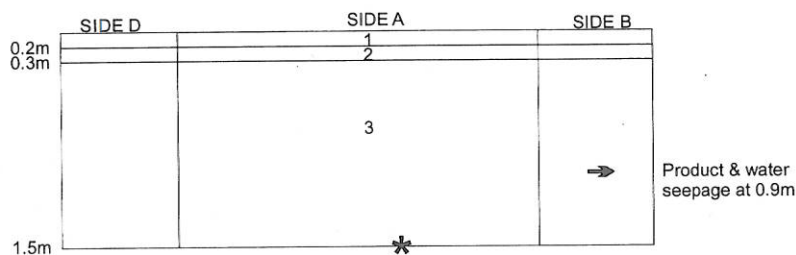
- * Soil Sample location
- WA Water Sample
- HS Headspace Analysis
- Water Ingress

STRATA DESCRIPTIONS	COMMENTS	SAMPLES
- Clay rich, brown TOPSOIL and root mat - Stiff, brown CLAY with pebbles and stones, clay also has grey and black bands Trial pit terminated at 1.0 mbgl	Strong hydrocarbon odour and staining	<u>PID RESULTS</u> 0.5m - 39.2 ppm 1.0m - 62.8 ppm <u>SOIL SAMPLES</u> MSTP217-1.0m

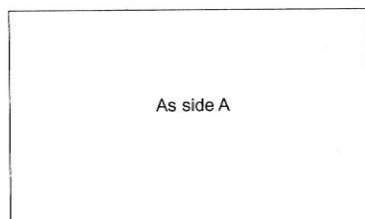
Job Title:	SOIL & GROUNDWATER INVESTIGATION	
Location:	LLANDARCY REFINERY	
Client:	BP LLANDARCY	
Job No:	39991-001-401	DRAFT
 DAMES & MOORE		

TRIAL PIT NUMBER: MSTP221
GROUND ELEVATION: -
DATE OF EXCAVATION: 09/6/98
WATER LEVEL: DRY
LOGGED BY: RC
APPROVED BY:

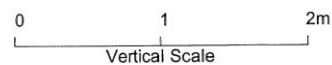
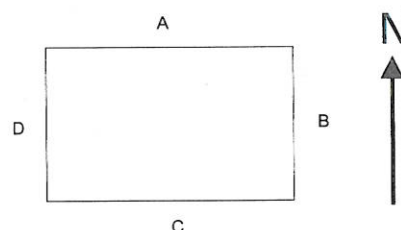
SIDE ELEVATIONS



SIDE C



PLAN



Key:

- * Soil Sample location
- WA Water Sample
- HS Headspace Analysis
- ➔ Water Ingress

STRATA DESCRIPTIONS	COMMENTS	SAMPLES
1. Loose brown EARTH, rootlets 2. Loose, black ASHY fill 3. Medium to soft, dark brown, sandy slightly clayey fill (MADE GROUND) Trial pit terminated at 1.5 mbgl due to water strike and health and safety (breathing zone) concerns	a. Very strong hydrocarbon odour and some staining from 1.0 mbgl b. Possible product oozing from Side B at approx. 0.9 mbgl	<u>PID RESULTS</u> 0.5m - 7.2 ppm 1.0m - 291 ppm 1.5m - 390 ppm <u>SOIL SAMPLES</u> MSTP221-1.5m

Job Title: SOIL & GROUNDWATER INVESTIGATION

Location: LLANDARCY REFINERY

Client: BP LLANDARCY

Job No: 39991-001-401

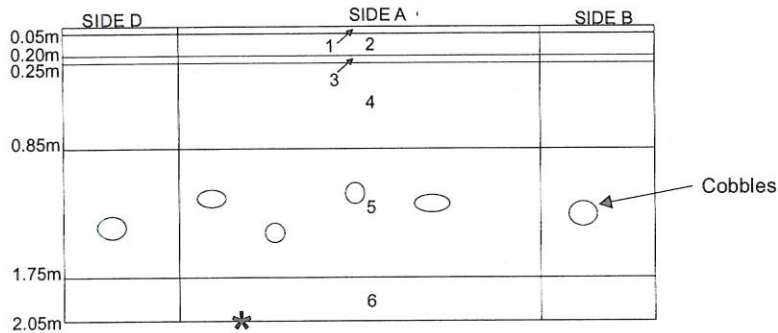
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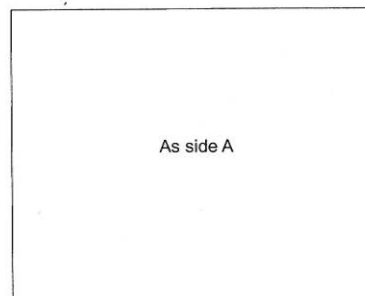
DAMES & MOORE

TRIAL PIT NUMBER: MSTP222
GROUND ELEVATION: -
DATE OF EXCAVATION: 8/6/98
WATER LEVEL: DRY
LOGGED BY: RF
APPROVED BY:

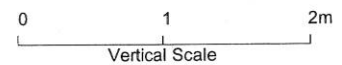
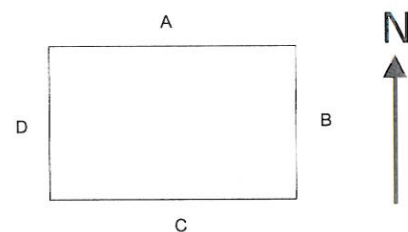
SIDE ELEVATIONS



SIDE C



PLAN



Key:

- * Soil Sample location
- WA Water Sample
- HS Headspace Analysis
- Water Ingress

STRATA DESCRIPTIONS	COMMENTS	SAMPLES
1. Silty sandy CLAY with frequent gravel (MADE GROUND) 2. Orange-brown medium SAND (MADE GROUND) 3. Black tarry coarse FLY ASH (MADE GROUND) 4. Firm orange-brown CLAY 5. Firm brown friable CLAY with some cobbles 6. Blue-grey and orange-brown CLAY with some sandstone gravel Trial pit terminated at 2.05 mbgl on refusal	a. No odour or staining	<u>PID RESULTS</u> 0.5m - 8 ppm 1.0m - 7.5 ppm 1.5m - 7.8 ppm 2.0m - 32.7 ppm <u>SOIL SAMPLES</u> MSTP222-2.0m

Job Title: **SOIL & GROUNDWATER INVESTIGATION**

Location: **LLANDARCY REFINERY**

Client: **BP LLANDARCY**

Job No: **39991-001-401**

DRAFT



DAMES & MOORE

BOREHOLE CONSTRUCTION	SAMPLE		SOIL VAPOUR (ppm)	GROUNDWATER	DEPTH (m)	GEOLOGY	BOREHOLE NUMBER: MSTP257		PAGE 1 of 1	
	NUMBER	TYPE					START DATE: 26/02/99		DRILLING METHOD: Window Sampling	
							FINISH DATE: 26/02/99		BOREHOLE DIAMETER: 100 mm	
							DRILLER: GEOTECHNICAL		SCREEN TYPE & DIAMETER: UPVC 50 mm	
				LOGGED BY: SG APPR'D BY:		SCREEN SLOT SIZE: 1 mm				
							DESCRIPTION	COMMENTS		
					0		Loose orange brown silty SAND (MADE GROUND)	No odour		0
					0.5		Loose black silty SAND with some ash (MADE GROUND)			0.5
							Soft brown silty CLAY (MADE GROUND)			
							Loose black SAND with ash and coal fragments (MADE			
					1.0		Soft to firm orange brown slightly gravelly CLAY with some ash and coal fragments (MADE GROUND)			1.0
					1.5					1.5
					2.0					2.0
					2.5		Firm grey brown and black silty CLAY with rare gravel.	Moderate to strong hydrocarbon		2.5
					3.0		Borehole terminated at 3.0 mbgl			3.0
					3.5					3.5
					4.0					4.0
					4.5					4.5
					5.0					5.0

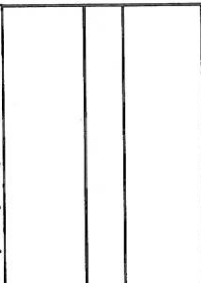
LOCATION / NOTES:	LEGEND	BOREHOLE LOG	
1. All measurements in m below ground level (mbgl)	□ Disturbed Sample ■ Undisturbed Sample * Headspace Analysis † Down Borehole Analysis ▽ Groundwater Table ▽ Perched Water Table	Job Title	SOIL & GROUNDWATER INVESTIGATION
		Location	LLANDARCY REFINERY
		Client	BP LLANDARCY LTD
		TI App'd	DRAFT
		Ref.	CR/RH/MCH
		Date	APRIL 99
		Job No.	39991-004-401
		 DAMES & MOORE GROUP	

BOREHOLE CONSTRUCTION	SAMPLE		SOIL VAPOUR (ppm)	GROUNDWATER	DEPTH (m)	GEOLOGY	BOREHOLE NUMBER: WSMW002		PAGE 1 of 1	
	NUMBER	TYPE					DRILLING DATES: 7/1/2004		DRILLING METHODS : Beretta	
							DRILLER : APEX -Rhym		BOREHOLE DIAMETER : 100-115mm	
							LOGGED BY : HM		SCREEN TYPE & DIAM: 50mm HDPE	
							CHECKED BY : SG		SCREEN SLOT SIZE: 1mm	
					0.0		DESCRIPTION		COMMENTS	S,V
					0.0		Very soft, light brown silt. (MADE GROUND)		Wet, black staining, hydrocarbon odour, Percussive.	
					0.0		Black ash gravel, occasional medium to coarse sand. (MADE GROUND)			
					0.5		Soft, orange brown becoming brown silt with occasional fine gravel. (MADE GROUND)		With oily sheen, wet, dark staining and medium odour.	4,5
					1.0		Becoming light brown, sandy SILT with occasional fine to coarse gravel, occasional grey sandstone cobbles and boulders.		Damp, patchy staining, strong hydrocarbon odour.	3,3
					1.5		With increasing sandstone cobbles.		Less staining and odour with depth. Air hammer from 2.0m, percussive refusal due to boulder.	
					2.0					
					2.5					
					3.0					
					3.5		Borehole terminated at 3.5m.		Wet	
				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:	Date: February 2004
	Groundwater Table	Drawn : CM	Ref:
	Perched Water Table	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: MSMW100		PAGE 1 of 2	
	NUMBER	TYPE					START DATE: 23/3/99		DRILLING METHOD: ROTARY AIR FLUSH	
							FINISH DATE: 23/3/99		BOREHOLE DIAMETER: 165 mm	
						DRILLER: R3		SCREEN TYPE & DIAMETER: 50 mm ID UPVC		
						LOGGED BY: JC APPR'D BY:		SCREEN SLOT SIZE: 0.5 mm		
						DESCRIPTION	COMMENTS			
						Loose mottled yellow-brown-dark brown sandy SILT with fine gravel and occasional medium to coarse gravel	Dry. No hydrocarbon odour	0		
						Grey-brown clayey SILT with occasional gravel	Damp. Strong hydrocarbon odour	1.0		
						Grey-brown silty SAND with occasional gravel	Minor water seepage at 1.2m	2.0		
						Grey-brown slightly sandy clayey SILT with occasional gravel		3.0		
						Brown very clayey SILT with occasional gravel	Damp	4.0		
						GRAVEL with light brown clay and silt		5.0		
							Water strike at 5.7m	6.0		
							No hydrocarbon odour	7.0		
						Light brown very gravelly, clayey SILT		8.0		
						ROCKHEAD - Weathered, highly fractured blue-grey	Productive	9.0		
								10		

LOCATION / NOTES: 1. All measurements in m below ground level (mbgl) 2. ODEX to 9m, Rotary to 12m 3. Riser pulled up 0.8m during casing removal		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: MSMW100		PAGE 2 of 2	
	NUMBER	TYPE					START DATE: 23/3/99		DRILLING METHOD: ROTARY AIR FLUSH	
							FINISH DATE: 23/3/99		BOREHOLE DIAMETER: 165 mm	
							DRILLER: R3		SCREEN TYPE & DIAMETER: 50 mm ID UPVC	
LOGGED BY: JC		APPR'D BY:		SCREEN SLOT SIZE: 0.5 mm						
						DESCRIPTION		COMMENTS		
						10 SANDSTONE (BEDROCK)		Productive		10
						11				11
						12 Borehole terminated at 12.0 mbgl				12
						13				13
						14				14
						15				15
						16				16
						17				17
						18				18
						19				19
						20				20
LOCATION / NOTES:						LEGEND		BOREHOLE LOG		
1. All measurements in m below ground level (mbgl)						 Disturbed Sample		Job Title SOIL & GROUNDWATER INVESTIGATION		
						 Undisturbed Sample		Location LLANDARCY REFINERY		
						 Headspace Analysis		Client BP LLANDARCY LTD		
						 Down Borehole Analysis		App'd DRAFT		
						 Groundwater Table		Ref. CR/MC/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: MSMW103D		PAGE 1 of 2	
	NUMBER	TYPE					START DATE: 23/3/99		DRILLING METHOD: ROTARY AIR FLUSH	
							FINISH DATE: 24/3/99		BOREHOLE DIAMETER: 165 mm	
						DRILLER: R3		SCREEN TYPE & DIAMETER: 50 mm ID UPVC		
						LOGGED BY: JC APPR'D BY:		SCREEN SLOT SIZE: .05 mm		
							DESCRIPTION	COMMENTS		
							Soft dark brown slightly gravelly SILT with some white flecks	Dry. No hydrocarbon odour		
							Loose brown, slightly sandy SILT with occasional cobbles			
							Soft brown, slightly silty CLAY with occasional fine gravel			
							Medium dense, brown, medium to coarse GRAVEL with some clay and frequent cobbles	damp at 3.4m Water strike at 4m		
							Brown-grey clayey SILT with frequent gravel			
							Brown-grey silty CLAY with frequent gravel	Dry to slightly damp		
							becoming more gravelly at 9.4m	No hydrocarbon odour		
							Grey very gravelly silty CLAY			
LOCATION / NOTES: 1. All measurements in m below ground level (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. 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: MSMW103D		PAGE 2 of 2		
	NUMBER	TYPE					START DATE: 23/3/99		DRILLING METHOD: ROTARY AIR FLUSH		
							FINISH DATE: 24/3/99		BOREHOLE DIAMETER: 165 mm		
							DRILLER: R3		SCREEN TYPE & DIAMETER: 50 mm ID UPVC		
				LOGGED BY: JC APPR'D BY:		SCREEN SLOT SIZE: 0.5 mm					
						DESCRIPTION		COMMENTS			
						10	Grey very gravelly silty CLAY	Dry at depth but water at 10.9m after 30 mins standing time		10	
						11				11	
						12	clay content decreasing, gravel content increasing at 12m			12	
						13				13	
						14				14	
						15				15	
						16				16	
						17				17	
						18				18	
						19				19	
						20				20	

LOCATION / NOTES:

1. All measurements in m below ground level (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. **CR/MC/BRS**

Date **MAY 99**

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

DAMES & MOORE
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BOREHOLE CONSTRUCTION	SAMPLE		SOIL VAPOUR (ppm)	GROUNDWATER	DEPTH (m)	GEOLOGY	BOREHOLE NUMBER: MSMW103S		PAGE 1 of 1	
	NUMBER	TYPE					START DATE: 8/3/99		DRILLING METHOD: CABLE PERCUSSION	
							FINISH DATE: 9/3/99		BOREHOLE DIAMETER: 150 mm	
							DRILLER: CP1		SCREEN TYPE & DIAMETER: 50 mm ID UPVC	
				LOGGED BY: SG APPR'D BY:		SCREEN SLOT SIZE: 0.5 mm				
							DESCRIPTION		COMMENTS	
					0	Soft dark brown slightly gravelly SILT with some white flecks	No dour	0		
					1.0	Loose brown, slightly sandy SILT with occasional cobbles	No dour Chiselling at 1m Chasing boulder from 0-1m	1.0		
					2.0	Soft brown, slightly silty CLAY with occasional fine gravel	No returns from 1-2m	2.0		
					4.0	Medium dense, brown, medium to coarse GRAVEL with some clay and frequent cobbles	Water strike at 4m rising to	4.0		
					5.0				5.0	
					6.0				6.0	
					7.0				7.0	
					8.0				8.0	
					9.0				9.0	
					10				10	

LOCATION / NOTES:

- All measurements in m below ground level (mbgl)
- Soil vapour results appear to be natural and not hydrocarbon caused
- No soil vapour results from 1.5m due to poor returns

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**

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