

Kupe

Introduction

Origin Energy Resources (Kupe) Ltd is the legal entity that operates Kupe on behalf of the Kupe Joint Venture involving Genesis Energy, New Zealand Oil & Gas Ltd, and Mitsui E&P Australia Pty Ltd.

The Kupe Gas Project comprises an unmanned non processing facility Wellhead Platform and a sub-sea multiphase raw gas pipeline to bring the unprocessed gas and liquids from the Wellhead Platform to the shore.

Frodo document # 793252

Contact Information

Origin Kupe WHP	0275554508 / UHF ch. 16
Origin General Manager	06 7699872 / 0212237537
Origin Env. Advisor	06 7599861 / 0274557874
Kupe Operations Superintendent	06 7699846 / 0276311208
Maritime NZ Rescue Coordination Centre	04) 577 8030
Taranaki Regional Council (24hrs)	0800 736 222
STOS Oil Spill Containment & Recovery Unit (OSCAR)	06) 7577249 / 026107755 / 0263565617



Location Information

Well Head Platform	1749711E: 395109S
Distance from Shore	30km offshore, southwest of Hawera, in 34m water depth
Prevailing Wind	South East and West
Prevailing Current	North West / South East (NW / SE)
Median Water Temperature (°C)	15 (Sea water temp. varies between 12 -18.°C)

Oil Characteristics

Common Name	Kupe Condensate
Description	Condensate / Oil
Pour Point (°C)	Condensate - 18; Gas - 34
Specific Gravity (15°C)	0.780-0.787
API Gravity (15°C)	49.4-49.9
Viscosity Temperature (°C)	<12
Flash Point (°C)	N/A

Fluids from the Kupe field are light, but have a high wax content with resultant high pour point (~18°C) resulting in 'firm' oil at low ambient temperatures. Oil spill trajectory results show that there is a **very low probability** that the spilled oil would beach in coastal regions beyond the zone from Cape Egmont to Porirua. Exceptions are D'Urville Island and the outer margins of Marlborough Sounds. The travel times for the spilled oil to beach range from a minimum time of 27 hours (Patea) to a maximum averaged time of 1672 hours (near Wellington). In spring (September - November) the highest beaching probabilities are along the Manawatu coast; In autumn (March - May) the highest beaching probabilities are along the Manawatu coast; In winter (June - August) the highest probabilities of beaching are along the South Taranaki / Patea coast; and in summer (December - February) the predicted impacts are approximately equivalent for the coastline from South Taranaki to the Manawatu coast.

Use of Dispersants

The fresh oil is readily dispersible, but dispersion is likely to be undesirable most of the time because of the high toxicity of the light volatile fractions and the fact that most of this will evaporate if it is not dispersed. The weathered oil residues are likely to be difficult to disperse chemically, but are comparatively non-toxic and best suited to physical recovery if it comes ashore; and the most likely response options are considered to be natural recovery (primarily be removal via evaporation), on-water containment and recovery, or shoreline cleanup.

Dispersant applied at recommended rates is unlikely to cause significant adverse effects, even with multiple applications. Oil dispersed into water greater than 10m in depth will quickly dilute to levels where acute toxic effects are unlikely. Dispersant use is generally not appropriate in shallow, near shore areas, with limited circulation and flushing; near aquaculture facilities, shellfish beds and fish spawning grounds and around seawater intakes.

Dispersant – Important Information

Window of Opportunity	<3 hours
Use of dispersant recommended	No (dispersant should only be applied on freshly spilled crude oil)
Dispersant Types	Type 2: Diluted as 10% solution in seawater Type 3: Undiluted from aircraft/vessel (1:20-25 disp.: oil)
Most effective dispersant	1. Corexit 9527; 2. Gamlen OSD LT; 3. Corexit 9500
Boat Availability	Pacific Chieftain is fitted with 2 x 6 m spray booms with direct suction pump

Dispersant Types

Type 1 Dispersant	Type 2 Dispersant	Type 2/3 Dispersant	Type 3 Dispersant
BP 1100X	BP 1100WD	Atpet 787	BP Enersperse 1037
BP A-B	Castrol Solvex OSD 9 Conc	Corexit 9527	Shell Dispersant HEC
Castrol Atlas OSD	Gamlen OSD LT*	Shell VDC/Slickgone LTSW	Tergo (Rochem) R40*
Gamlen OSR LT	Corexit 9600	Simple Green*	
Shell Dispersant ND	Shell Dispersant Conc		
Shell SD LT(X)	Tergo (Rochem) OSR LT		
Tergo (Romchem) OSR WSA			

Note: Dispersants highlighted in bold are available in the Taranaki region.

Location of Dispersant

	Gamlen**	Shell Disp VCD	Corexit 9527	Tergo R40	Simple Green	Slickgone LTSW	Shell Herder	BP 1100 WD
NOSSC Te Atatu	10,400	17,000	14,000	25,900	15,820	70,000		
MSA Taranaki (Port Taranaki)	4,000	800	3200					
MSA Wanganui		1,600						
MSA Waikato	4,000	800						
MSA Wellington	4,000	800	7,200					
MSA Auckland	4,000	800						
MSA Northland	4,000	800	9,600	3,200	4,180			
STOS Paratutu Stores - NP				210				
Port Taranaki	4,180						20	180
TRC Spill Trailer	20							

* Considered appropriate for freshwater use

** MSA stock Gamlen OSD LT; Port Taranaki stocks 2090L of Gamlen OST KT, 2090L of Gamlen OSD KT and 4000L of Gamlen OSD LT; TRC Spill trailer stocks Gamlen (product specifications unknown).

Maari

Introduction

OMV NZ Ltd is developing the Maari field using a Wellhead Platform with dry trees tied back to a Floating Production, Storage and Offloading vessel (FPSO). The FPSO is under the management of Tanker Pacific.

Frodo document # 557210; 557211



Contact Information

OMV NZ Ltd New Plymouth	06) 9086610
OMV NZ Ltd Duty Manager	0274 368 000
OMV NZ Ltd EMT Leader	04) 910 2500/0274 368 000
OMV NZ Ltd ERG New Plymouth	06) 968 6606
Maritime NZ Rescue Coordination Centre	04) 577 8030
Taranaki Regional Council (24hrs)	0800 736 222
STOS Oil Spill Containment And Recovery Unit (OSCAR)	06) 7577249/026107755/0263565617

Location Information

Well Head Platform	1731751E: 395821S
FPSO	1731737E: 395909S
Distance from Shore	80km west of Taranaki coast 36km south of Maui B 70km NNE of Farewell spit
Prevailing Wind	South East and West
Prevailing Current	North North West/ South South East (NNW/ SSE)
Median Water Temperature (°C)	15 (Sea water temp. varies between 13.2 -18.2°C)

Oil Characteristics

Common Name	Maari Crude
Description	Oil
Pour Point (°C)	27
Specific Gravity (15°C)	0.838-0.855
API Gravity (15°C)	34.58
Viscosity Temperature (°C)	30
Flash Point (°C)	Unknown

Maari Crude is considered to be a Group II Oil (light crudes) as it has a specific gravity of 0.80-0.85. These oils can lose up to 40% by volume through evaporation but, because of their tendency to form viscous emulsions, there is an initial volume increase as well as a curtailment of natural dispersion.

The highest probability of oil beaching is between Cape Egmont and Kapiti Island with only 27-42% of the oil expected to evaporate/dispersing before impacting on the coastline.

Use of Dispersants

The use of chemical dispersant is not recommended for spills of Maari Crude due to its high wax content (18%) and a pour point above ambient seawater temperature (27°C). Any dispersant to be used must be used as soon as possible after a spill occurs.

Dispersant applied at recommended rates is unlikely to cause significant adverse effects, even with multiple applications. Oil dispersed into water greater than 10m in depth will quickly dilute to levels where acute toxic effects are unlikely. Dispersant use is generally not appropriate in shallow, near shore areas, with limited circulation and flushing; near aquaculture facilities, shellfish beds and fish spawning grounds and around seawater intakes.

Dispersant – Important Information

Window of Opportunity	<3 hours
Use of dispersant recommended	No (dispersant should only be applied on freshly spilled crude oil)
Dispersant Types	Type 2: Diluted as 10% solution in seawater Type 3: Undiluted from aircraft/vessel (1:20-25 disp.: oil)
Boat Availability	Pacific Chieftain can be fitted with 2 x 6 m spray booms with direct suction pump

Dispersant Types

Type 1 Dispersant	Type 2 Dispersant	Type 2/3 Dispersant	Type 3 Dispersant
BP 1100X	BP 1100WD	Atpet 787	BP Enersperse 1037
BP A-B	Castrol Solvex OSD 9 Conc	Corexit 9527	Shell Dispersant HEC
Castrol Atlas OSD	Gamlen OSD LT*	Shell VDC/Slickgone LTSW	Tergo (Rochem) R40*
Gamlen OSR LT	Corexit 9600	Simple Green*	
Shell Dispersant ND	Shell Dispersant Conc		
Shell SD LT(X)	Tergo (Rochem) OSR LT		
Tergo (Romchem) OSR WSA			

Note: Dispersants highlighted in bold are available in the Taranaki region.

Location of Dispersant

	Gamlen**	Shell Disp VCD	Corexit 9527	Tergo R40	Simple Green	Slickgone LTSW	Shell Herder	BP 1100 WD
NOSSC Te Atatu	10,400	17,000	14,000	25,900	15,820	70,000		
MSA Taranaki (Port Taranaki)	4,000	800	3200					
MSA Wanganui		1,600						
MSA Waikato	4,000	800						
MSA Wellington	4,000	800	7,200					
MSA Auckland	4,000	800						
MSA Northland	4,000	800	9,600	3,200	4,180			
STOS Paratutu Stores - NP				210				
Port Taranaki	4,180						20	180
TRC Spill Trailer	20							

* Considered appropriate for freshwater use

** MSA stock Gamlen OSD LT; Port Taranaki stocks 2090L of Gamlen OST KT, 2090L of Gamlen OSD KT and 4000L of Gamlen OSD LT; TRC Spill trailer stocks Gamlen (product specifications unknown).

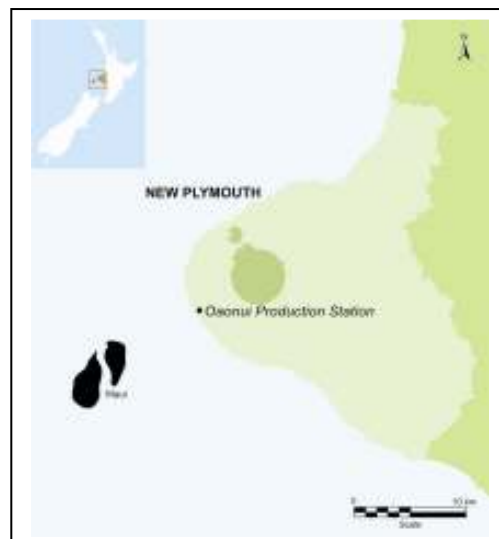
Maui

Introduction

The Maui field is operated by Shell Todd Oil Services (STOS). The Maui field comprises two production platforms:

- Maui Platform Alpha (MPA)
- Maui Platform Brave (MPB) located 15 km south-west of MPA
- Subsea pipelines, between MPA and MPB and between MPA and the Maui production station

Maui Contingency Plan - Frodo document # 777852/777856



Contact Information

STOS Response Coordinator (24hrs)	027 4422 723
STOS New Plymouth Office	06) 758 7609
STOS Maui Production Station	06) 7618604/0900 367199
Maritime NZ Rescue Coordination Centre	04) 577 8030
Taranaki Regional Council (24hrs)	0800 736 222
STOS Oil Spill Containment And Recovery Unit (OSCAR)	06) 7577249/026107755/0263565617

Location Information

G.P.S Coordinates	Maui A - 1732657E: 393324N Maui B - 1731856E: 393856N
Distance from Shore	Maui A - 39km from shore Maui B - 50km from shore
Prevailing Wind	West West South (WWS)
Prevailing Current	North North West/ South South East (NNW/ SSE)
Median Water Temperature (°C)	15

Oil Characteristics

Common Name	Maui Condensate
Description	Light Oil/Gas
Pour Point (°C)	< -51
Specific Gravity (15°C)	0.7413
API Gravity (15°C)	59.4
Viscosity Temperature (°C)	20
Flash Point (°C)	-61.6

Maui Condensate is considered to be a Group I Oil (light distillate) as it has a specific gravity <0.80; is non-persistent; highly toxic to biota; high spread rate; tends to dissipate completely through evaporation within a few hours and does not normally form emulsions.

The light nature of Maui Condensate means the vast majority of the oil is likely to evaporate relatively quickly. Studies have shown that Maui condensate has a high rate of evaporation with 49% evaporating after 24 hours and 69% by 96 hours. The remaining condensate showed no characteristics of persistent oil, and viscosity remained low.

Use of Dispersants

Dispersant use on Maui Condensate is unlikely to be necessary. Lighter fractions of oil generally contain the most toxic fractions so dispersing Maui condensate into the water column may cause adverse impacts that are otherwise avoidable (through evaporation). On this basis any consideration of chemical dispersant use for Maui Condensate would need to be strongly justified.

However, ecological impacts of oil are generally longer lasting and more persistent than most other impacts. Dispersant applied at recommended rates is unlikely to cause significant adverse effects, even with multiple applications. Oil dispersed into water greater than 10m in depth will quickly dilute to levels where acute toxic effects are unlikely. Dispersant use is generally not appropriate in shallow, near shore areas, with limited circulation and flushing; near aquaculture facilities, shellfish beds and fish spawning grounds and around seawater intakes.

Dispersant – Important Information

Window of Opportunity	Anytime
Use of dispersant recommended	No
Dispersibility	Yes (sea temperature > 7 °C)
Dispersant Types	Type 2: Diluted as 10% solution in seawater Type 3: Undiluted from aircraft/vessel (1:20-25 disp.: oil)
Boat Availability	Pacific Chieftain is fitted with spray booms

Dispersant Types

Type 1 Dispersant	Type 2 Dispersant	Type 2/3 Dispersant	Type 3 Dispersant
BP 1100X	BP 1100WD	Atpet 787	BP Enersperse 1037
BP A-B	Castrol Solvex OSD 9 Conc	Corexit 9527	Shell Dispersant HEC
Castrol Atlas OSD	Gamlen OSD LT*	Shell VDC/Slickgone LTSW	Tergo (Rochem) R40*
Gamlen OSR LT	Corexit 9600	Simple Green*	
Shell Dispersant ND	Shell Dispersant Conc		
Shell SD LT(X)	Tergo (Rochem) OSR LT		
Tergo (Romchem) OSR WSA			

Note: Dispersants highlighted in bold are available in the Taranaki region.

Location of Dispersant

	Gamlen**	Shell Disp VCD	Corexit 9527	Tergo R40	Simple Green	Slickgone LTSW	Shell Herder	BP 1100 WD
NOSSC Te Atatu	10,400	17,000	14,000	25,900	15,820	70,000		
MSA Taranaki (Port Taranaki)	4,000	800	3200					
MSA Wanganui		1,600						
MSA Waikato	4,000	800						
MSA Wellington	4,000	800	7,200					
MSA Auckland	4,000	800						
MSA Northland	4,000	800	9,600	3,200	4,180			
STOS Paratutu Stores - NP				210				
Port Taranaki	4,180						20	180
TRC Spill Trailer	20							

* Considered appropriate for freshwater use

** MSA stock Gamlen OSD LT; Port Taranaki stocks 2090L of Gamlen OST KT, 2090L of Gamlen OSD KT and 4000L of Gamlen OSD LT; TRC Spill trailer stocks Gamlen (product specifications unknown).

Pohokura

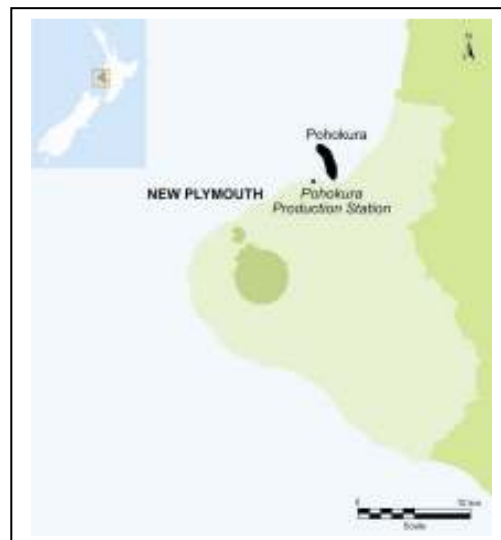
Introduction

Shell Exploration New Zealand limited (SENZL) operates the Pohokura field on behalf of Shell Todd Oil Services (STOS). The offshore installations comprise of one unmanned platform known as PPB.

Pohokura Contingency Plan - Frodo document # 793807

Contact Information

Pohokura Control Room	06)757 7126
STOS Response Coordinator (24hrs)	027 4422 723
STOS New Plymouth Office	06) 758 7609
Maritime NZ Rescue Coordination Centre	04) 577 8030
Taranaki Regional Council (24hrs)	0800 736 222
STOS Oil Spill Containment And Recovery Unit (OSCAR)	06) 7577249/026107755/0263565617



Location Information

G.P.S Coordinates	1741615E:385442N
Distance from Shore	8.5km from adjacent coast 26km from New Plymouth
Prevailing Wind	Westerly Winds
Prevailing Current	North North West/ South South East (NNW/ SSE)
Median Water Temperature (°C)	15

Oil Characteristics

Common Name	Pohokura Condensate
Description	Light Oil/Gas
Pour Point (°C)	21
Specific Gravity (15°C)	0.75-0.77
API Gravity (15°C)	46.71
Viscosity Temperature (°C)	40
Flash Point (°C)	-33.9

A high proportion of Pohokura condensate liquid is comprised of light hydrocarbon which is highly volatile and will convert to a vapour at the time of a spill. Approximately **50% will evaporate in the first 4 hours** and 63% will evaporate between 24-48 hours after spill. The remaining oil becomes more viscous and is likely to persist at sea for long periods of time.

Pohokura Condensate is considered to be a Group I Oil (light distillate) as it has a specific gravity <0.80; is non-persistent; highly toxic to biota; high spread rate; tends to dissipate completely through evaporation within a few hours and does not normally form emulsions. However, **an emulsion is predicted to form when 27% of the Pohokura condensate has evaporated.**

Use of Dispersants

With ambient sea temperatures below the Pohokura condensate pour point (21°C), dispersant is unlikely to be effective except as an immediate response option on freshly spilled condensate.

Test results have shown Slickgone LTSW, Corexit 9527, Corexit 9500 and Tergo R40 are unlikely to disperse weathered Pohokura condensate.

Lighter fractions of oil generally contain the most toxic fractions so dispersing Pohokura condensate into the water column may cause adverse impacts that are otherwise avoidable (through evaporation). On this basis any consideration of chemical dispersant use for Pohokura Condensate would need to be strongly justified.

However, ecological impacts of oil are generally longer lasting and more persistent than most other impacts. Dispersant applied at recommended rates is unlikely to cause significant adverse effects, even with multiple applications. Oil dispersed into water greater than 10m in depth will quickly dilute to levels where acute toxic effects are unlikely. Dispersant use is generally not appropriate in shallow, near shore areas, with limited circulation and flushing; near aquaculture facilities, shellfish beds and fish spawning grounds and around seawater intakes.

Dispersant – Important Information

Window of Opportunity	<4 hours
Use of dispersant recommended	Yes but only on freshly spilled condensate
Dispersant Types	Type 2: Diluted as 10% solution in seawater Type 3: Undiluted from aircraft/vessel (1:20-25 disp.: oil)
Boat Availability	Pacific Chieftain can be fitted with 2 x 6 m spray booms with direct suction pump

Dispersant Types

Type 1 Dispersant	Type 2 Dispersant	Type 2/3 Dispersant	Type 3 Dispersant
BP 1100X	BP 1100WD	Atpet 787	BP Enersperse 1037
BP A-B	Castrol Solvex OSD 9 Conc	Corexit 9527	Shell Dispersant HEC
Castrol Atlas OSD	Gamlen OSD LT*	Shell VDC/Slickgone LTSW	Tergo (Rochem) R40*
Gamlen OSR LT	Corexit 9600	Simple Green*	
Shell Dispersant ND	Shell Dispersant Conc		
Shell SD LT(X)	Tergo (Rochem) OSR LT		
Tergo (Romchem) OSR WSA			

Note: Dispersants highlighted in bold are available in the Taranaki region.

Location of Dispersant

	Gamlen**	Shell Disp VCD	Corexit 9527	Tergo R40	Simple Green	Slickgone LTSW	Shell Herder	BP 1100 WD
NOSSC Te Atatu	10,400	17,000	14,000	25,900	15,820	70,000		
MSA Taranaki (Port Taranaki)	4,000	800	3200					
MSA Wanganui		1,600						
MSA Waikato	4,000	800						
MSA Wellington	4,000	800	7,200					
MSA Auckland	4,000	800						
MSA Northland	4,000	800	9,600	3,200	4,180			
STOS Paratutu Stores - NP				210				
Port Taranaki	4,180						20	180
TRC Spill Trailer	20							

* Considered appropriate for freshwater use

** MSA stock Gamlen OSD LT; Port Taranaki stocks 2090L of Gamlen OST KT, 2090L of Gamlen OSD KT and 4000L of Gamlen OSD LT; TRC Spill trailer stocks Gamlen (product specifications unknown).

Tui

Introduction

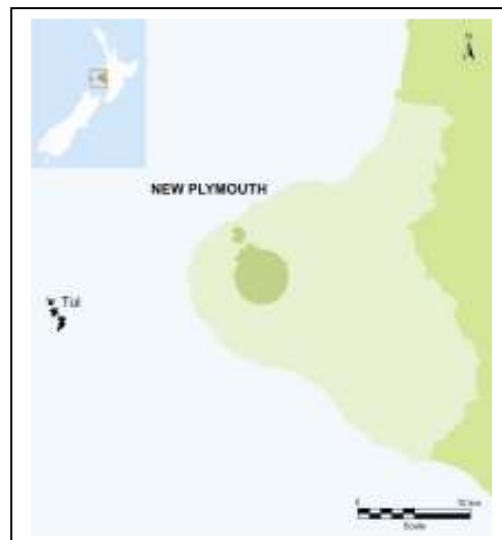
AWE Taranaki Limited, a subsidiary of Australian Worldwide Exploration Limited is the operator for the Tui field. The FPSO "Umuroa" is a converted oil tanker designed to handle daily production rates of up to 50,000 barrels of oil, 0.7 million standard cubic metres of gas, and a total of 120,000 barrels of liquid per day. It weighs 67,684 tonnes (GRT) and cargo tank capacity, excluding slop tanks, of 773,245 barrels.

Frodo document # 785913

Contact Information

AWE New Plymouth
Maritime NZ Rescue Coordination Centre
Taranaki Regional Council (24hrs)
STOS Oil Spill Containment And Recovery Unit (OSCAR)

06) 7592173
04) 577 8030
0800 736 222
06) 7577249/026107755/0263565617



Location Information

The location of the individual wells; associated subsea trees and the UMUROA, which will be moored at a single point within the Tui Area, are summarised below

UMUROA (n or near Turret centre)	173° 14' 12.40"E: 39° 25' 39.80"S
Tui-3H	173° 14' 09.22"E: 39° 26' 40.78"S
Tui 2H	173° 14' 10.51"E: 39° 26' 41.46"S
Amokura-2H	173° 12' 44.11"E: 39° 25' 30.10"S
Pateke-3H	173° 12' 25.06"E: 39° 22' 58.86"S

Distance from Shore	27nm to Oanui Production Station 46nm to New Plymouth Port
Prevailing Wind	Westerly Winds (WWS)
Prevailing Current	North North West/ South South East (NNW/ SSE)
Median Water Temperature (°C)	15 (Sea water temp. varies between 12 -18.7°C)

Oil Characteristics

Common Name	Tui Crude
Description	Oil
Pour Point (°C)	24
Specific Gravity (15°C)	0.80
API Gravity (15°C)	42.9
Viscosity Temperature (°C)	50
Flash Point (°C)	Unknown

Tui Crude is considered to be a Group II Oil (light crudes) as it has a specific gravity of 0.80-0.85. These oils can lose up to 40% by volume through evaporation but, because of their tendency to form viscous emulsions, there is an initial volume increase as well as a curtailment of natural dispersion.

Use of Dispersants

A dispersibility study on Tui Crude Oil using six dispersants as part of a multi stage study showed Corexit 9527 was the most effective dispersant on Tui Crude Oil at 15°C, but was not effective at 10°C. This dispersant gave a mean efficacy result of 23%.

Slickgone LTSW was the second most effective dispersant which gave an efficacy result of 17%. 29% of the oil with have evaporated after 12 hours, 39% after 24 hours, 48% after 48 hours and 52% after 96 hours.

Dispersant applied at recommended rates is unlikely to cause significant adverse effects, even with multiple applications. Oil dispersed into water greater than 10m in depth will quickly dilute to levels where acute toxic effects are unlikely. Dispersant use is generally not appropriate in shallow, near shore areas, with limited circulation and flushing; near aquaculture facilities, shellfish beds and fish spawning grounds and around seawater intakes.

Dispersant – Important Information

Window of Opportunity	<3 hours
Use of dispersant recommended	Yes but only on freshly spilled crude oil
Dispersant Types	Type 2: Diluted as 10% solution in seawater Type 3: Undiluted from aircraft/vessel (1:20-25 disp.: oil)
Recommended Brands	Corexit 9524 & Slickgone LTSW
Boat Availability	Pacific Chieftain can be fitted with 2 x 6 m spray booms with direct suction pump

Dispersant Types

Type 1 Dispersant	Type 2 Dispersant	Type 2/3 Dispersant	Type 3 Dispersant
BP 1100X	BP 1100WD	Atpet 787	BP Enersperse 1037
BP A-B	Castrol Solvex OSD 9 Conc	Corexit 9527	Shell Dispersant HEC
Castrol Atlas OSD	Gamlen OSD LT*	Shell VDC/Slickgone LTSW	Tergo (Rochem) R40*
Gamlen OSR LT	Corexit 9600	Simple Green*	
Shell Dispersant ND	Shell Dispersant Conc		
Shell SD LT(X)	Tergo (Rochem) OSR LT		
Tergo (Romchem) OSR WSA			

Note: Dispersants highlighted in bold are available in the Taranaki region.

Location of Dispersant

	Gamlen**	Shell Disp VCD	Corexit 9527	Tergo R40	Simple Green	Slickgone LTSW	Shell Herder	BP 1100 WD
NOSSC Te Atatu	10,400	17,000	14,000	25,900	15,820	70,000		
MSA Taranaki (Port Taranaki)	4,000	800	3200					
MSA Wanganui		1,600						
MSA Waikato	4,000	800						
MSA Wellington	4,000	800	7,200					
MSA Auckland	4,000	800						
MSA Northland	4,000	800	9,600	3,200	4,180			
STOS Paratutu Stores - NP				210				
Port Taranaki	4,180						20	180
TRC Spill Trailer	20							

* Considered appropriate for freshwater use

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