

OSRL Inland Spills: Case Studies from Recent Years

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Introduction

Oil spills on inland environments are common place, this is due to inland pipeline infrastructure; on land and under ground storage tank facilities; refineries; and oil transported via road and rail.

As global oil production has increased in recent years, so has the number of inland spill incidents OSRL has attended. Since 2004 OSRL has responded to over 30 inland oil spills varying in size, type, location and source. Below is a list of some of these incidents:

Date	Name	Location	Source	Product	Volume	Oil Type
10/09/2004	Inland Oil Well Blow Out	Georgia	Loss of Well Control	Crude Oil	≥1000m ³	1
15/12/2005	Immingham Oil Refinery	Humber, UK	Pipeline	Crude Oil	100m ³ - 1000m ³	2/3
01/08/2006	Domestic Oil Spill	Swanwick, UK	Storage Tank	Diesel	≤100m ³	2
15/09/2006	Tetney Terminal Spill	Grimsby, UK	Storage Tank	Crude Oil	≤100m ³	3
11/12/2006	Buncefield Oil Depot	Hemel Hempstead, UK	Storage Tank	Refined Oil	≥1000m ³	1/2
12/01/2007	Ambes Storage Tank	Bordeaux, France	Storage Tank	Crude Oil	≥1000m ³	3
2008	Odidi 36	Warri, Nigeria	Illegal Bunkering	Crude Oil	≥1000m ³	4
15/05/2008	Batanga Lagoon	Gabon	Pipeline	Crude Oil	≤100m ³	4
04/06/2008	Kahrir Field	Seiyun, Yemen	Storage Pit	Crude Oil	100m ³ - 1000m ³	2/3
20/08/2008	Mukalla Wadi	Yemen	Road Tanker	Waste Oil	≤100m ³	2/3
23/01/2009	Refinery Spill	Fawley, UK	Pipeline	Crude Oil	≤100m ³	3
04/03/2009	Refinery Spill	Fawley, UK	Pipeline	Crude Oil	100m ³ - 1000m ³	3
15/05/2009	Cross River Spill	Calabar, Nigeria	Pipeline	Crude Oil	100m ³ - 1000m ³	3
01/06/2011	Port of Gibraltar Storage Tank	Gibraltar, UK	Storage Tank	Waste Oil	100m ³ - 1000m ³	2/3
17/01/2012	BGP Diesel Tanker	Iraq	Road Tanker	Diesel	≤100m ³	2
22/04/2012	Taq Taq	Kurdistan	Storage Tank	Crude Oil	≤100m ³	1
21/08/2012	Stanlow Oil Refinery	Manchester Ship Canal, UK	Pipeline	MGO	≤100m ³	1
19/11/2012	Olende Pipeline	M'Polunie West, Gabon	Pipeline	Crude Oil	≤100m ³	2/3
10/03/2013	Wytch Farm	Poole, UK	Storage Tank	Crude Oil	≤100m ³	2/3

21/09/2013	Brechin	Brechin, UK	Pipeline	Crude Oil	≤100m ³	2/3
17/12/2013	La Brea	Trinidad	Transfer Operations	HFO	100m ³ - 1000m ³	4
17/02/2014	Balabo	Cameroon	Road Tanker	Waste Oil	≤100m ³	2
18/02/2014	UK Flooding	Somerset, UK	Storage Tanks	Fuel Oil	≤100m ³	2/3
26/03/2014	MEG Well Site Spill	Papa New Guinea	Well Head	Crude Oil	≤100m ³	2/3
21/07/2015	Trans-Andean Pipeline	Colombia	Pipeline	Crude Oil	≥1000m ³	2/3
15/08/2016	Puerto Sandino Oil Terminal	Nicaragua	Storage Tank	Crude Oil	≥1000m ³	4
17/03/2017	Jahar Highway	Jurong Singapore	Road Tanker	Refined Oil	<100 m ³	2/3
10/04/2017	Refinery Spill	Fawley, UK	Pipeline	Crude Oil	100m ³ - 1000m ³	3
20/12/2017	Redmoss	Netherley, UK	Pipeline	Crude Oil	≤100m ³	2/3

Table 1: OSRL Inland Oil Spill Incidents attended since 2004. For client confidentiality reasons, responsible party names have been omitted, source of spill has been grouped into categories and spilled volumes have been congregated into: less than 100m³, 100m³ to 1000m³ and more than 1000m³.

Main Results

Six incidents are presented as case studies.

Pipeline Incidents

Case Study 1

Name: **Refinery Spill**

Date: **10/04/2017**

Location: **Fawley, UK**

Source: **Pipeline**

Product: **Crude Oil**

Volume: **100m³ - 1000m³**

Oil Type: **3**



Case Study 2

Name: **Trans-Andean Pipeline**

Date: **21/07/2015**

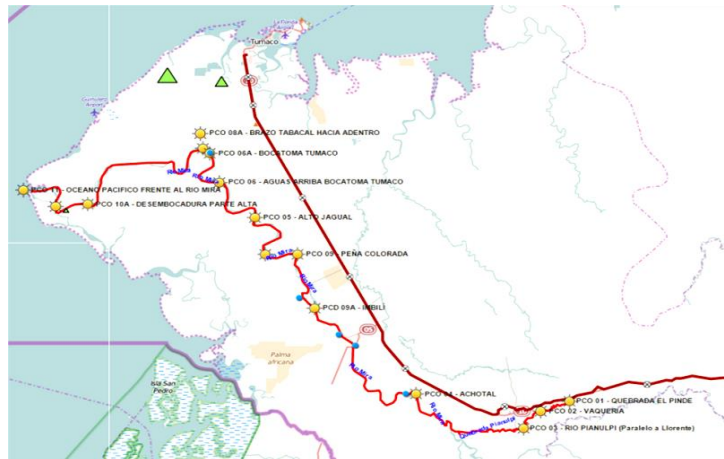
Location: **Colombia**

Source: **Pipeline**

Product: **Crude Oil**

Volume: **$\geq 1000\text{m}^3$**

Oil Type: **2/3**



Storage Tank Incidents

Case Study 3

Name: **Taq Taq**

Date: **22/04/2012**

Location: **Kurdistan**

Source: **Storage Tank**

Product: **Crude Oil**

Volume: **$\leq 100\text{m}^3$**

Oil Type: **2/3**



Case Study 4

Name: **Puerto Sandino Oil Terminal**

Date: **15/08/2016**

Location: **Nicaragua**

Source: **Storage Tank**

Product: **Crude Oil**

Volume: **$\geq 1000\text{m}^3$**

Oil Type: **4**



Case Study 5

Name: **Tetney Terminal Spill**

Date: **15/09/2006**

Location: **Grimsby, UK**

Source: **Storage Tank**

Product: **Crude Oil**

Volume: **≤100m³**

Oil Type: **3**



Road Tanker Incident

Case Study 6

Name: **Balabo**

Date: **17/02/2014**

Location: **Cameroon**

Source: **Road Tanker**

Product: **Waste Oil**

Volume: **≤100m³**

Oil Type: **2**



Conclusion

Lessons Learned

When responding to inland spills the main factor to consider is the geography of the spill site. Equipment selection and the tactics employed may change very little in relation to the volume of oil to be recovered.

Overcoming waste management issues in remote locations is a considerable challenge. Often in remote locations, (especially in jungles) the quality of the road infrastructure can be so inadequate that transporting oiled waste long distances can be very difficult or impossible to achieve. Sometimes other options such as onsite incineration may be a more appropriate approach.

Low viscosity hydrocarbons transit along inland waterways at great speeds. Responders are faced with the challenge of finding and intercepting mobile oil on water courses before any recovery operations can commence. A robust tier 1 capability can assist responders in the initial stages of a response and ensure time and resources are used to the greatest effect.

Seasonal variation has an enormous effect on response techniques. The feasibility of the response techniques used in an inland response strategy will change throughout the year. Water courses that

may be dry or flowing at very low levels in the dry season can turn into wide, fast flowing channels at other times of the year.

Technical Advisors play a key role in the initial stages of a response. Important tasks such as: prioritisation of sensitive resources; writing tactical response plans; inland SCAT; and support to the client can be carried out by oil spill specialists.

Information on the pathways for pollution into water courses is essential. Refineries and storage tank facilities benefit from understanding the drainage routes for mobile oil away from the source. Oil will travel overland or through drainage systems away from the source. Tactical response plans should provide information on pathways for pollution so that if containment is breached, secondary response sites are identified.

In country security is always a major factor to consider when responding to remote locations in politically un stable countries. Controls must be in place to ensure responder safety before the start of any operations. This is established during the risk assessment process and monitored throughout the response.

Oil that has penetrated sediments can seep out over prolonged periods of time requiring long term monitoring strategies to be implemented post spill termination. To achieve a greater understanding of the environmental impacts of inland spills and for possible remobilisation of resources an effective post spill monitoring strategy should be in place.