



Irish Petroleum Industry Association

## Importation and safe distribution of oil in Ireland

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## To begin...

### **Oil consumption in Ireland**

The amount of oil consumed in Ireland in 2015 was just under 7.5 billion litres of all products in addition to a small number of very large commercial users, like the ESB who import directly to satisfy their own requirements. The consumption includes petrol, diesel, homeheat oil, jet fuel for airlines, fuel oils for large industrial users, agricultural diesel and lubricating oils. Currently Ireland imports all of its oil requirements.

Oil is imported into the country as both crude oil, which is refined in the P66 refinery in Whitegate, Cork, and as finished, refined products, into several locations countrywide, such as Dublin, Galway, Foynes, and Whitegate.

The importation of oil products is received into a small number of large storage points, as outlined above and after this, the products are road transported directly to the end users such as petrol stations, in large consignments by “artic” fleet, or to smaller “inland” depots for local distribution, usually by smaller rigid oil tankers.

### **Oil shipping configurations**

The quantities of oil carried vary from small coastal tankers which carry 500 tonnes or about 600,000 litres, through typical configurations of 20,000 tonnes or 24 million litres, up to VLCC (very large crude carriers) which can hold in excess of 300,000 tonnes or 360 million litres.

### **Irish oil industry position**

Risk exists in all aspects of our lives and business endeavours and the transportation of oil by sea and road involves increased risk due to the nature of the product from fire and environmental incidents. The oil industry in Ireland is committed to observing the highest appropriate standards for oil transportation. The oil industry, in conjunction with local and State agencies, has measures in place to respond, deal with, mitigate and contain the damage resulting from any incident.

## Risk summary

### Shipping incidents

The Irish Sea is a very busy marine highway and is used for local oil transportation as well as journeys to and from numerous non local ports to almost any part of the world to and from the UK. The southern coast also has oil traffic moving to and from the UK and North America, and our western coast is used for consignments to Northern European ports to avoid the busy English Channel. In addition to this moving traffic there is a risk from any shipping sheltering from bad weather close to the Irish coast. All ships carry fuel regardless of the cargo they move: these range from small quantities up to large amounts in the region of 15,000 tonnes or 18 million litres.

### Inland transportation risks

The exposure here starts with the filling of oil into road tankers, its road journey to the Consumer or local oil depot and subsequent second journey to the Consumer and safe unloading at all points.

### Storage tank risks

The final risk element is during the storage of oil in any location including the import point, local storage depots and finally storage at the Consumers site. Risk reduces as we move from Import point to final Consumer purely on the basis that quantities are reduced. Individual importation points could for example, if full, store between 60 million litres to 600 million litres, Large Industrial Consumers typically store up to 5 million litres, Petrol Stations typically store up to 100,000 litres and an average home using homeheat stores 1,000 litres.

## Shipping incidents

The reaction and mobilization for an oil spill will depend on which classification the particular accident falls into. All incidents are serious but as the potential for damage increases so does the nature and force deployed to counter the threat. The threat level and response may be classified as follows,

### **Tier 1 - Small local spills**

Tier I covers operations at Oil Company owned, operated or shared facilities where events are largely controlled by the oil company's operating procedures and personnel and equipment can be made available to respond immediately to an "on site" incident. Such an incident would generally be associated with ship transfer or bunkering operations at a jetty, pier or mooring and around water-side storage tanks. The facility contingency plan should recognize the need for a rapid response capability aimed at quickly containing and, if possible, recovering the spill.

### **Tier II - Medium sized spills in the vicinity of an oil company's facilities**

Tier II covers spills beyond local response team capability where resources from other oil companies, industry and possibly government response agencies in the area can be called in on a mutual aid basis. The oil company may participate in a local co-operative where each member pools its Tier I resources and has access to any equipment which may have been jointly purchased by a co-operative. Tier II risks would typically be associated with shipping accidents in ports or harbours, in estuaries and coastal waters, but could also be from pipelines, tank failures or nearshore exploration.

### **Tier III - large spills**

This covers major incidents, typically from spillages at sea such as those from tankers and offshore platforms, the scale and scope of which is beyond the capabilities of the Tier II resources. Substantial further resources will be required and support from a national or international cooperative stockpile may be necessary. Because such incidents often become high profile and politically sensitive, the Tier III plan will most probably form part of a National Emergency Plan headed by an appropriate national agency or government department.

## Response to shipping incidents

A major oil incident will be responded to by all parties on a coordinated, planned basis as follows,

### Initial reporting & response

Reports of a marine oil spillage are usually first received by harbour authorities, by a ship's owner or agent. Harbour masters, agents or owners review the report quickly and alert the Irish Coast Guard, the primary agency tasked with the prevention and clean-up operations for oil spills at sea, which threaten our Country. In a major pollution incident involving oil, chemical or dangerous substance at sea which threatens pollution of the Irish coastline or related interests, the Coast Guard will seek and deploy resources from areas such as local harbour authorities and set up a Joint Response Centre with the Local Authorities and the company to direct and co-ordinate the on-shore response. The team may also be used to provide advice and assistance to the local authorities with regard to on-shore clean-up of oil, chemical or dangerous substance pollution. During the period the oil company involved will have initiated its own contingency plan, taking immediate action to minimize the loss of oil and to contain any which has been spilled. The tanker owner will be involved in assessment and response planning through the European Maritime Safety Agency (EMSA). This organization is contracted by the EU to provide oil spill recovery services to European countries. As part of this EMSA has contracted specialty shippers to provide oil recovery assets in parts of the Atlantic, the UK west coast and all areas of the Irish coast and at present the specialist company provides 3 oil response vessels based in Cork.

### Taking the battle to sea

If it is possible to do so, the spill is most effectively dealt with by tackling it speedily whilst it is still at sea. Aircraft spraying can be used to break up the oil, and wave action will complete the dispersion. Where wave heights are not excessive, it may also be possible to use mechanical means to contain and collect the oil with booms. In general, oil booms may be used to deflect oil away from a sensitive area, to guide oil towards a location in which it might be recovered, to encircle or entrap oil on the water. Different forms of skimmers, vacuum units and recovery devices may be used to remove the oil from the water surface. Dispersant chemicals may be used to disperse the oil on the surface of the water. Several types of absorbent material and products to enhance biological degradation are available.

### Shoreline protection

If it becomes apparent that the spillage is likely to reach the shore, the local authorities concerned (who have already alerted their emergency services) will action their contingency plans. The oil company will work with and co-ordinate action with the Coast Guard, EMSA and any other agencies involved with the process. Containment booms

may be deployed to protect specific areas but these are less than perfect in unfavorable weather and tidal conditions when the oil can be driven under and over floating booms.

Particular care is directed to protecting sensitive parts of the shore, such as those with nature reserves, salt marshes and river estuaries. The entities involved in the process will have to assess how changes of wind and tide are likely to affect the situation, and to work with environmental, tourist, leisure and fishing bodies in an effort to minimize damage to the environment and wildlife.

### **Shoreline cleanup**

If the oil does reach the beaches, the clean-up task could be a long drawn-out exercise over many weeks, and labour and equipment will have to be drawn from many sources including oil company personnel, local authority staff and, in the extreme, military personnel. The local authority in charge of the shoreline clean-up, can call upon government support to supplement its own resources as needed. Mechanical cleaning and physical removal of as much of the oil "mousse" as possible is the only way of cleaning-up. Specially-prepared approved dispersants may be available to help with final cleaning after the "mousse" has been removed, but they must be carefully selected to ensure no lasting damage is caused to the underlying ground ecology. Natural weathering by wind, sun and water will eventually degrade any remaining oil, and the shorelines will revert to their original condition.

### **Emergency response equipment**

Many of the oil and chemical companies have been involved in co-operation with harbour or other entities in establishing stocks of materials and equipment for use in the event of a spill or incident in harbours. To date such provisions have been put in place at Dublin, Cork, Limerick and Foynes. In addition, back-up resources may also be available from the worldwide stockpiles owned by the oil companies such as Oil Spill Response Limited at Southampton which has a multi-million pound oil spill response stockpile financed purely by the oil industry. These resources could be called out to provide a Tier III level of response.

## Inland transportation risks

The oil industry has through the years spent considerable resources on the prevention, minimization and reaction to any incidents involving the transportation of oil products and these may be summarized as follows,

Oil is transported from the main sea and refinery fed depots to retail service stations, large industrial and commercial users and inland storage depots using mainly 6 axle articulated vehicles. The fuels in the inland depots are then redelivered to farms, households and other smaller consumers using rigid vehicles.

The transport of fuel by road is heavily regulated by law under what is known as the “ADR agreement”. This is an international agreement on the transport of dangerous goods by road and sets standards for all aspects of the operation. It is currently transposed into Irish Law by SI 349 of 2011 as amended. The following is a non-exhaustive list of these requirements,

### **Driver training**

All drivers of road tankers must undergo certified ADR training and take a refresher course every five years.

### **Vehicle testing**

All road tankers must pass an ADR inspection annually in addition to the roadworthiness test required for commercial vehicles.

### **Road tankers**

All road tankers carrying fuels must pass a leakproof test every 3 years to ensure its integrity.

There are also regulations governing

- Vehicle marking (orange plates and placards).
- Equipment on board the vehicle (Fire extinguishers, spill kit, first aid, torch etc.
- Documentation to be carried.

These regulations are enforced by the Health and Safety Authority which has a dedicated ADR unit.

In addition to the statutory requirements outlined above, the IPIA has for many years operated an industry scheme to monitor the safety standards of vehicles. This scheme is known as the “Safe Load Pass” and a vehicle is not allowed operate at a sea or refinery fed terminal unless it is displaying a current safe load pass.

This scheme involves an annual inspection which requires the vehicle to have the necessary equipment and documents to comply with the legal requirements outlined above.

The scheme goes further in that checks are carried out on the tanker equipment to ensure that

- The tanker cannot be overfilled.
- The vehicle cannot drive away when hoses are connected.
- Electrical continuity is maintained to dissipate static electricity.
- The wiring and ancillary equipment are installed so as not to create a hazard.

A manual has been prepared for the safe load pass which is revised every three years. There are over 50 trained inspectors to carry out the annual safe load pass inspections.

The overall objective of the regulatory and industry schemes is to ensure that fuels are transported around the country with minimal risk to safety, health and the environment.



## Storage tank risks

The reactionary force that can be brought to bear on these incidents will depend on the severity and or sensitivity, such as proximity to water and may be summarized as follows,

### **Immediate action**

The action to be taken to deal with a spillage of any oil products depends on what the product is and on where the incident occurs. In each case the basic objectives are to minimise the spill and contain and recover what has been spilt. If the product involved is highly volatile, like petrol, there is less likelihood of lasting environmental damage but a higher safety risk. With a heavier, viscous (thickness) product, like lubricating or fuel oil, ground and water contamination will be more serious but the immediate safety risk will be comparatively low. The Water Pollution Act requires that where a spill occurs where product is likely to enter drains or water it must be reported to the local authority.

### **Inland oil spill consortium**

An inland oil spill consortium has been formed by a number of oil companies. The oil companies own stocks of material and equipment suitable for responding to a spillage of oil such as might be required following a road tanker accident or in the case of a tank leak or overflow.

### **Immediate response**

Within terminals, trained personnel and contingency plans are available to take immediate action to minimise and where possible contain any spilled oil. Dependent on the size of the spill, the fire service and the port authority may be involved. If the incident occurs whilst the product is on its way to customers, then the immediate response will be carried out by either one of, or a combination of, the oil companies involved, the Fire Service, the Gardai Siochana and the Local Authority. The oil company whose product is involved will be notified immediately.

Where an oil company has been made aware that an incident has occurred involving spillage of product they must ensure that the relevant authorities are notified. Usually the pollution officer of the local authority concerned will also be informed. For a significant incident a Response Control Group will be immediately set up on the site to co-ordinate the response and to deal with the problems occurring. Where a volatile product is involved, the fire service and Garda Siochana will promptly impose strict safety measures including, if necessary, the evacuation of members of the public from the area until the situation is rendered safe. The contractor for the inland oil spill consortium will be immediately mobilised to site by the oil company involved. They will carry out whatever cleanup is possible and necessary, usually in co-operation with the local authority. They will remain at the spill site until the clean up has been completed.

**Long term monitoring**

Longer-term measures to monitor ground water and water aquifers may be set up by the local authority until it is satisfied that all traces of the product are at acceptable levels. The condition of contaminated soil will need to be assessed and remedial action taken. This may require treatment and, in extreme cases, this soil may have to be excavated and remediated at a suitable waste management facility.

**Above ground storage tanks**

The vast majority of larger oil storage tanks are “bunded”, i.e. they are surrounded by a concrete or other suitable containment system which is designed to safely hold any oil spills which may occur.

**Underground storage tanks**

The legal requirements for service stations are contained in SI No.311 of 1979 The Dangerous Substances (Retail and Private Petroleum Stores) Regulations, as amended. These regulations control the licensing of petrol filling stations and private stores and lay down requirements for the design, construction, installation, maintenance and testing of equipment. This Statutory Instrument also contains regulations for the proper drainage of the site and the provision of oil interceptors to prevent the escape of petroleum to the environment.

The 1979 Regulations, require the periodic recording of the tank contents and dispenser pump meter readings for all underground storage tanks, as a leak precaution measure in situations where

- the soundness or integrity of a tank is suspect, or
- the tank has been installed for over 20 years, or
- it is specified as a license condition, or
- it is required by a Licensing Authority Notice.

The renovations of the service station networks of member oil companies over the past number of year’s means that standards are now higher than ever and the risks of leaks are lower. These standards are continually reviewed and updated to keep up with technological developments.

The risk of leakages at forecourts has been greatly reduced by a whole range of features such as double skinned tanks and pipework, sensitive leak detection including interstitial monitoring on double-wall tanks, concrete encasing of tanks or the installation of tanks in concrete vaults and greatly improved anti-corrosion treatments for buried tanks and pipe work. Spillages during delivery are prevented by developments such as level alarms, overspill prevention devices and full containment construction of tank manholes.

In the event of a spill on a petrol forecourt the oil is captured into an underground separation tank where it is safely contained.

Proper stock control using the 2001 Wetstock Inventory Control for Petrol Stations, published by the Health and Safety Authority will detect any leaks that may occur and allow prompt action to minimize environmental impact. All leaks are regarded extremely seriously and immediate steps are taken to prevent further leakage together with appropriate measures for any containment and clean-up that may be required.

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### **... to conclude**

All IPIA member companies have a zero tolerance policy to oil incidents at all stages of the importation, storage and distribution chain. Over the last quarter century or so major improvements in technology from double hulled ships to bund wall containment areas surrounding storage tanks, computer based warning and monitoring systems have all evolved and have been deployed to eliminate and mitigate the impact of any incident.

However the response of all stakeholders in a major incident will in the end determine the outcome of an incident and the IPIA members are ready, prepared and trained to play their part in any recovery operation.

Continued vigilance is of the utmost importance in this process and any comments by any interested party are welcome by email at [mail@ipia.ie](mailto:mail@ipia.ie)