

## **Explanatory Memorandum to the Water Resources (Control of Pollution) (Oil Storage)(Wales) Regulations 2016**

This Explanatory Memorandum has been prepared by the Economy, Skills and Natural Resources Department and is laid before the National Assembly for Wales in conjunction with the above subordinate legislation and in accordance with:

Standing Order 27.1

### **Minister's Declaration**

In my view, this Explanatory Memorandum gives a fair and reasonable view of the expected impact of the Water Resources (Control of Pollution)(Oil Storage) (Wales) Regulations 2016. I am satisfied that the benefits justify the likely costs.

Carl Sargeant  
Minister for Natural Resources

9 February 2016

## **1. Description**

The proposed Regulations aim to reduce and prevent water pollution from inadequate and unsafe oil storage facilities that are above ground or in buildings. Key requirements will be for the storage container to be fit for purpose and to have a secondary containment system. This is normally a bund (an outer wall or enclosure) or a drip tray, designed to contain any contents escaping from the storage container.

The proposed Regulations also aim to replace existing provisions for agricultural fuel storage currently incorporated in the Silage, Slurry and Agricultural Fuel Oil Regulations 2010 (SSAFO).

## **2. Matters of special interest to the Constitutional and Legislative Affairs Committee**

Following the public consultation on these proposed Regulations, they were notified to the European Commission under the terms of the Technical Standards Directive. This requires a 3 month “standstill” before the Regulations may come in to force. The three month period ends 17 February 2016.

## **3. Legislative background**

These Regulations are subject to the affirmative procedure.

Under Section 92 of the Water Resources Act 1991 the Welsh Ministers may, by Regulations, impose controls upon how a person stores any poisonous, noxious or polluting matter for the purpose of preventing it from entering controlled waters. Section 92(2)(c) provides that such Regulations may provide for contravention to constitute a criminal offence.

Under Section 219 of the Water Resources Act 1991 those Regulations are subject to the negative resolution procedure of the National Assembly for Wales.

The powers contained in Sections 92 and 219 of the Water Resources Act 1991 were first exercisable by the Secretary of State for Wales but were transferred to the National Assembly for Wales and are now vested in the Welsh Ministers by virtue of Section 162 of and Schedule 11 to the Government of Wales Act 2006.

Section 62 of the Regulatory Enforcement and Sanctions Act 2008 enables the Welsh Ministers to impose civil sanctions (e.g. fixed or variable monetary penalties, enforcement notices or stop notices) as an alternative to prosecution under these Regulations. The section also provides that, where this power is exercised, any statutory instrument which would otherwise be subject to the negative procedure, is to be subject to the affirmative procedure.

#### **4. Purpose & intended effect of the legislation**

The Welsh Government vision for water in Wales is to ensure that Wales continues to have a thriving water environment which is sustainably managed to support healthy communities, flourishing businesses and the environment. We want the people of Wales to receive first class, value for money, water services with water used efficiently, safely and respectfully by all. The Water Strategy outlines what needs to be done to achieve this vision.

Despite significant improvements in water quality in recent years, the risk of pollution is a constant threat to our water environment and the benefits it provides. The impact oil spills can be very significant and may even cause public water supplies to be affected. The Water Strategy identifies the need to reduce the frequency and impact of oil pollution incidents.

Despite voluntary efforts over the last 20 years, the number of oil pollution incidents in Wales remains a cause for concern, and it continues to be one of the most frequently reported causes of pollution.

In addition, in some cases the loss of oil from a storage tank can cause serious damage to property, requiring extensive remediation measures which can be very distressing to occupants.

A large proportion of these incidents are the result of failures in oil storage installations and delivery processes. These draft Regulations therefore set minimum standards for oil storage facilities to reduce the risk of spillage and pollution.

Key requirements are for all new oil storage containers to be fit for purpose and to have a secondary containment system. This is normally a bund (an outer wall or enclosure) or a drip tray, designed to contain any contents escaping from the storage container. Existing oil storage facilities, other than domestic, will have between 2 and 4 years to comply.

Currently the only standards for oil storage facilities in Wales which aim to protect the water environment relate to agricultural fuel storage, waste oil and certain large industrial installations. Standards for tanks exceeding 3,500 litres for domestic properties are subject to Building Regulation controls when installed. However, the Regulations controlling agricultural fuel oil storage include an exemption for tanks installed before 1991. Because of the high risk that such old installation now pose, these Regulations will end this exemption.

Similar regulations to these proposed in this consultation have been in place in England since 2001, in Scotland since 2006 and were introduced in Northern Ireland in 2010.

Following the introduction of Regulations in England, the number of oil pollution incidents has fallen steadily. Despite a voluntary approach to oil pollution prevention in Wales, and the fact that many organisations which operate in other parts of the UK already apply these standards on a voluntary basis for

their sites within Wales, the number of such incidents in Wales still remains of concern.

## **5. Consultation**

A 12 week public consultation on these Regulations was carried out from 24 June 2015. Further details of the consultation are included in the RIA in Part 2 of this document.

## **PART 2 – REGULATORY IMPACT ASSESSMENT**

### **Options**

Only one policy option is proposed in addition to the ‘do nothing’ option. This is because it is considered that other potential options – such as economic incentives (e.g. grants and tax breaks) or a voluntary scheme – would not be feasible in achieving the policy objectives. A ‘voluntary’ scheme, whereby oil storage owners would be encouraged to comply with a standard for oil storage on a voluntary basis, is already in existence to some extent, and this has not proven effective in reducing the number of oil-related water pollution incidents in Wales. Therefore, the options are as follows:

**Option 1:** Do nothing – do not replace the existing Regulations/voluntary compliance on oil storage.

**Option 2:** Preferred option – introduce the Water Resources (Control of Pollution) (Oil Storage) (Wales) Regulations 2016 to replace voluntary compliance and existing provisions for agricultural fuel storage currently incorporated in the Silage, Slurry and Agricultural Fuel Oil Regulations 2010 (SSAFO).

### **Costs & benefits**

#### **Option 1 – do nothing**

This option represents the baseline, or current situation regarding oil storage in Wales. Natural Resources Wales (NRW) has existing powers to issue notices where it considers that oil is likely to enter into waterways and groundwater, causing environmental pollution. However, the cost of undertaking site inspections, issuing improvement notices, contesting appeals and following up on remedial work is considered to be an excessive and ineffective use of resources. It is anticipated that regulating to require oil storage containers to meet a required standard would be a more effective use of resources, and would contribute to prevention of incidents.

Under the baseline scenario, pollution incidents are assumed to continue at the current level, except where businesses take voluntary action to improve the standards of their oil storage facilities.

The total number of oil-related water pollution incidents in Wales has remained reasonably stable over the period 2005 to 2015, as indicated in the table below.

The most frequent polluting oil types are diesel (25.2%) and gas and fuel oils (16.5%)<sup>1</sup>. The reported incidents occurred mainly as a result of spills, leaks, inadequate facilities and irresponsible disposal.

***Annual Number of Substantiated Oil-Related Water Pollution Incidents in Wales, 2005 to 2015***

<b>Year</b>	<b>Number of incidents</b>	<b>Year</b>	<b>Number of incidents</b>
<b>2005</b>	316	<b>2011</b>	249
<b>2006</b>	282	<b>2012</b>	257
<b>2007</b>	278	<b>2013</b>	201
<b>2008</b>	219	<b>2014</b>	192
<b>2009</b>	299	<b>2015</b>	188
<b>2010</b>	294	<b>Annual Average</b>	<b>252</b>

*Source: Natural Resources Wales*

The ‘do nothing’ option would involve carrying on with ‘business as usual’ and not introducing Regulations to try and reduce the number of pollution incidents arising. This means that the average annual number of pollution incidents is likely to remain stable over the appraisal period, potentially leading to substantial environmental damage.

Although the number of incidents appears relatively stable between 2005 and 2015, averaging 252 incidents per year, there appears to be fewer incidents between 2013 and 2015. The average number of incidents over this period is 194 per year. This has been a result of a lower number of incidents being recorded – most likely due to an increase in the number of tanks that are banded. It is possible that the lower annual average may prevail into the future and we have therefore considered both averages in the possible scenarios.

The average number of incidents per annum is relatively low in comparison with the average annual number of incidents in England (approx. 5,000) and Scotland (over 500). However, the environmental damage arising as a result of these incidents is still considered to be substantial<sup>2</sup>. The average cost associated with clean-up and remedial measures has been estimated to be in the region of £23,000 to £57,000 per incident, with a mid point of £40,000, for a typical business with tank sizes of between 2,500 and 5,000 litres<sup>3</sup>. It assumed that costs to agriculture and domestic properties are at the same level, for the

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<sup>1</sup> NRW

<sup>2</sup> Number of incidents in England and Scotland obtained from England and Scotland Oil Storage Regulatory Impact Assessments.

<sup>3</sup> These costs are estimated based on figures provided in the Oil Storage Regulatory Impact Assessments for Northern Ireland and England. Figures have been converted into 2015 prices using GDP deflators.

purpose of analysis. Natural Resources Wales also incur costs per incident, with recoverable costs per incident attended estimated to be £402 on average<sup>4</sup>.

## **Option 2 – Regulate**

This option is considered to be the most effective way of controlling the number of oil-related water pollution incidents and ensuring equity and fairness between operators, as far as possible. In addition, there are a number of benefits to the operators of affected sites (although there would also be costs associated with meeting the requirements of the Regulations).

It is intended that the proposed Regulations will create a 'level playing field' for above ground oil storage facilities. They will set statutory minimum standards to control such facilities in the commercial, industrial, institutional, agricultural and domestic sectors.

It is anticipated that the cost of meeting the minimum standards proposed by the Regulations may be proportionally greater for operators of small tanks, such as small businesses and voluntary groups. The proposed Regulations may also affect the market for tanks and bunds and possibly encourage the production of less expensive plastic integrally bunded tanks at the smaller end of the market. This would be of benefit to small businesses and voluntary groups, since the costs of installation are relatively lower. This would have some effect on the market share of tank manufacturers and firms installing brick or concrete bunds, whose markets may shrink unless they can diversify. The major oil tank manufacturers in the UK are in Northern Ireland and Scotland and there are no high volume suppliers in Wales. Therefore the proposed Regulations are not likely to affect Welsh businesses on the supply side.

The Regulations proposed under Option 2 make provision for transitional cases coming into operation in three stages:

- new storage facilities will have to comply within six months of the Regulations coming into operation;
- existing higher risk storage facilities, defined as facilities which are located within 10 metres from a waterway or 50 metres from a well, spring or borehole, will have to comply within two years of the Regulations coming into operation; and
- remaining existing storage facilities will have to comply within four years of the Regulations coming into operation.

In addition, where Natural Resources Wales considers that there is a risk of pollution to a waterway or water contained in any underground strata, it will have the power to serve a notice on that person having custody or control of the above ground oil storage container in order to minimise the risks in transitional cases. Provision is also made for the right to appeal against a

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<sup>4</sup> This cost has been calculated using data provided by NRW on the number of oil spillage incidents and total recoverable costs from attended oil spillage incidents from 2005 to 2015.

notice served by Natural Resources Wales in transitional cases and for penalties to be applied when an offence has been committed.

In the first six years of the implementation of the Oil Storage Regulations in England there was a 41% reduction in reported oil and fuel incidents. However, the proposed Regulations for Wales will have a wider scope than the English Regulations. It is therefore estimated that the proposed Regulations could contribute to a reduction in the number of reported incidents in Wales by approximately 33% in the first five years, rising to a 50% overall reduction over the 10-year appraisal period. This would equate to an estimated reduction in reported incidents from an average of 252 per year in to around 169 per year after 5 years and around 126 per year after 10 years.

If 194 annual average incidents are assumed, a reduction of 64 incidents in the first five years is assumed and falling by 97 after 10 years.

### **Sectors affected**

The Regulations would mainly affect:

- domestic premises with new or replacement above ground oil storage facilities (with capacity less than 3,500 litres),
- commercial/industrial/institutional premises with new and existing above ground oil storage facilities, and;
- agricultural premises with new and existing above ground storage facilities (with capacity less than 1,500 litres) and ground storage facilities installed before 1991.

It is estimated that there are approximately 173,000 domestic households with oil storage tanks in Wales, with a further 17,300 in the commercial/industrial/institutional sector, and 17,300 in the agricultural sector.

Estimates for the number of oil storage tanks in Wales are based on information provided by oil storage tank suppliers and the proportion of 'tank condition' site improvement reports in each sector in Wales in December 2013 (83.3% in the domestic sector, 8.3% in the commercial/industrial/institutional sector, and 8.3% in the agricultural sector).

Oil storage tanks are assumed to have a lifetime of 25 years. Assuming that the age of Oil storage tanks is uniformly distributed, this would mean 4% (=1/25) of existing oil storage tanks would be replaced with a new oil storage tank each year.

This would mean an estimated 6,920 domestic, 692 commercial/industrial/institutional, and 692 agricultural oil storage tanks are purchased each year.

### **Costs**

The costs of Option 1 will be minimal for business. The costs for Option 2 will vary according to the total oil storage capacity at each site. For convenience, the cost of purchasing or upgrading an individual tank at different tank

capacities has been estimated. It is considered that small businesses and those with small oil storage facilities should anticipate costs at the lower end of the range.

### **Non-recurring costs (one-off costs)**

The main compliance cost to firms is the one-off cost of upgrading an existing tank or installing a new tank to the required design specification, and in particular providing a bund. The costs will vary depending on tank capacity, which can be 600 litres at the lower end and 150,000 litres at the upper end. Most commercial/industrial/institutional tanks affected by the proposed Regulations will have a capacity of about 2,500-5,000 litres. We consider that these will be typical businesses. This range is used to estimate costs and benefits. Small businesses are likely to have a tank capacity in the range of 1,000-2,500 litres.

Most agricultural tanks will have capacity of about 1,500-3,000 litres. However, there is a possibility that there are some tanks under this capacity. We have therefore assumed 10% of agricultural oil tanks used a size of 1,000 litres to estimate costs to this sector. The agricultural sector may also require pallets for the storage and transportation of oil drums on their properties.

As containers under 200 litres will be exempt, and tanks over 3,500 litres in the domestic sector are already covered under Building Regulations, it is assumed that most tanks affected in the domestic sector will have a capacity of about 1,000 litres.

These costs and benefits are broad estimates and are indicative only, since it has not been possible to calculate these using a robust methodology at this stage. However, they should allow a rough comparison of costs and benefits which can be used to gauge the merits of the proposed Regulations. It should also be noted that the costs and benefits are those over and above the status quo.

### Costs of installed new bunded tanks

It is assumed that new integrally bunded above ground tanks are purchased. There are no additional labour costs beyond the cost that would have been incurred under the 'business as usual' scenario. There may be marginal additional costs for pipework and mobile tank requirements, but we have been unable to cost these. It is estimated that the typical business is likely to face additional costs for installing new bunded tanks of £535 – £810<sup>5</sup>, and small businesses are likely to face additional costs of £382 – £535<sup>6</sup>. Domestic properties are assumed to face costs of £382. For the assumed 10% of tanks in the agricultural sector we have used an estimated cost of £382, corresponding

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<sup>5</sup> These costs are estimated by taking the average cost presented in the England and Northern Ireland RIAs, converted to 2015 prices using GDP deflators.

<sup>6</sup>This is based on figures provided in the England, Scotland and Northern Ireland Regulatory Impact Assessments.

with a tank size of 1,000 litres. The full range of costs for different tank capacities is below:

Tank capacity (litres)	1,000 and below	1,500	2,500	5,000	30,000	50,000	150,000
Extra cost of installing new bunded tank	£382	£476	£535	£810	£2,056	£2,994	£10,263

(2015 prices)

### Costs of Upgrading Existing tanks

The additional costs of upgrading existing above ground tanks will vary considerably depending on the amount of work that is needed to bring the facilities up to the standard by the proposals and the age of unbunded tanks. Tanks may require remedial work, and where new bund construction is called for it may be cheaper to completely replace with a new integrally bunded tank.

The typical business is likely to face additional costs in year 4 for upgrading existing tanks of £374+ for remedial work and £1,070+ for complete replacement<sup>6</sup>. Small businesses are likely to face additional costs of £374+ and £897+, and domestic properties are assumed to expect costs of £259 and £733, respectively. The agricultural sector is also expected to face costs of £259 and £733 respectively<sup>6</sup>. The full range of costs for different tank capacities is given below, assuming a 'worst case' scenario.

Tank Capacity (litres)	1,000 and below	1,500	2,500	5,000	30,000	50,000	150,000
Cost for tank where bund requires some remedial work	£259	£374	£374	£374	£603	£603	£718
Marginal cost for tank requiring upgrading/bunding*	£733	£897	£1,070	£1,642	£13,662	£17,684	£31,777

\*Note: this cost is dependent on the age of the tank after 4 years when, subject to the will of the Assembly, the proposed Regulations come into force/operation. It provides an example of the most expensive scenario, a 4-year old tank which – assuming an average lifespan of 25 years – would have another 21 years of use.

(2015 prices)

### Costs of pallets on farms

Agricultural properties may use oil drums in conjunction with their oil tanks which are transported around the premises and stored on pallets. However, such pallets might not be considered fit for storing drums adequately and spillages could occur. We have no information on the proportion of oil drums that are kept on farms that are stored on pallets. However, we have assumed that the proportion is fairly low as many farmers would most likely store drums securely. We have estimated a one-off cost of purchasing a suitable pallet at £100 and are purchased immediately. .

### **Recurring Costs**

The main recurring cost is likely to be routine maintenance to ensure the reasonable standards proposed in the Regulations are met at all times, through an annual inspection and service (and for open bunds, removal of collected rainwater). Maintenance proposals/requirements would not be onerous as storage tanks have few mechanical features and brick or concrete bund construction is very durable. (Plastic) integrally bunded tanks have minimal maintenance requirements (and don't need to have rainwater removed). These costs have not been included as routine maintenance could be incurred whether or not the proposals are introduced.

There are likely to be recurring costs for the minority of businesses in the supplier market. For many firms this is likely to be increased demand for products to meet the timing proposals in the Regulations, followed by some reduction in sales and thus lower profits in the interim years until new tanks are purchased. However, the cyclical nature of the loss of profits may be offset to some extent by the number of existing tanks that currently meet the proposals in the Regulations and the timing of any maintenance required. We have not been able to quantify these costs.

We have not estimated or factored in any monitoring or enforcement costs. This is because oil delivery companies are effectively performing this function already so there aren't likely to be significant costs in this respect. Oil delivery drivers can and do refuse to complete deliveries if they deem the storage facility to be inaccurate and record these occurrences. Furthermore, we are not expecting Natural Resources Wales to incur any additional monitoring costs than they currently have as they already carry out inspections of properties. Whilst the Regulations allow them power to enforce, it not expected that any legal action would be necessary to achieve compliance.

### **Total Compliance Costs**

We estimate that the total recurring and non-recurring compliance costs for the oil consumers affected by the proposed Regulations in the domestic, industrial/commercial/institutional and agricultural sectors would be as set out as below:

## New Tanks

The number of new tanks purchased per annum is estimated to be 4% of the existing number of tanks, per annum (as explained above). Therefore, it is estimated that 6,920 domestic, 692 commercial/industrial/institutional and 692 agricultural new tanks are purchased per annum.

In the domestic sector tanks over 3,500 litres are already covered by Building Regulations and containers less than 200 litres would also be exempt from the Regulations. However, for the purposes of analysis it is assumed that all new domestic tanks would be covered by the new proposals. This is likely to overestimate the costs of new tanks in the domestic sector. It is also assumed that between 60-80% would be bundled in absence of the Regulations. Therefore, only 20-40% of new domestic tanks would be impacted by the Regulations and face a new burden under low, central and high cost estimates.

In the commercial/industrial/institutional sector, it is assumed that some 60-90%<sup>6</sup> of new tanks purchased in the absence of Regulations would have been bundled anyway and would comply with our proposals. Therefore, the extra cost of the proposed Regulations (mainly the bund) would be for those 10-40% of commercial/industrial/institutional tanks which otherwise would have been bought unbundled.

In the agricultural sector, tanks above a capacity of 1,500 litres that are installed after 1991 are already covered by existing Regulations. It is also expected that most tanks in the agricultural sector have capacity of 1,500 to 3,000 litres. However, there may be some tanks in this sector under 1,500 litres. As explained above, although most tanks may be covered by existing legislation, we have assumed that 10% of tanks might be affected by the new Regulations (assuming 1,000 litre capacity) and this is factored into calculations under the low, central and high cost estimates. Of these, it is assumed that 60-90% of tanks would be bundled in the absence of Regulations, meaning costs would fall on between 10-40% of agricultural tanks. These proportions are the same as assumed for the commercial/industrial/institutional sector.

Taking this into account, the range of total recurring compliance costs for new tanks in all sectors in Wales is calculated as follows:

### Minimum

Under our minimum (low) cost estimate it is assumed that all commercial/industrial/institutional tanks that are bought are 2,500 litre tanks, and all domestic tanks are 1000 litre, for the purpose of analysis. It is also assumed that only 20% of domestic tanks covered by new Regulations and 10% of industrial/commercial/institutional tanks covered by new Regulations would otherwise be unbundled. In this scenario it is 10% of the bought tanks in

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<sup>6</sup> This is based on figures provided in the England, Scotland and Northern Ireland Regulatory Impact Assessments.

the agricultural sector are assumed to be unbunded and only 10% of these (only tanks of 1,000 litres) are covered by the Regulations.

- Total cost to Domestic sector =  $20\% \times 6,920 \times \text{£}382 = \text{£}528,000$  per annum
- Total cost to Commercial/Industrial/institutional sector =  $10\% \times 692 \times \text{£}535 = \text{£}37,000$  per annum
- Total cost to the Agricultural sector =  $10\% \times (10\% \times 692) \times \text{£}382 = \text{£}3,000$  per annum

**Total cost = £568,000 per annum**

#### Central

Under our central cost estimate the same assumptions are made as in the minimum cost estimate, except it is expected that 20% of domestic tanks would otherwise be unbunded. It is also assumed that 10% of industrial/commercial/institutional and agricultural tanks would otherwise be unbunded (a tank size of 1,000 litres is assumed for agriculture which accounts for 10% of these tanks).

- Total cost to Domestic sector =  $40\% \times 6,920 \times \text{£}382 = \text{£}1,057,000$  per annum
- Total cost to Commercial/Industrial/institutional sector =  $10\% \times 692 \times \text{£}535 = \text{£}37,000$  per annum
- Total cost to Agricultural sector =  $10\% \times (10\% \times 692) \times \text{£}382 = \text{£}3,000$  per annum

**Total cost = £1,096,000 per annum**

#### Maximum

Under our maximum (high) cost estimate it is assumed that all commercial/industrial/institutional and agricultural tanks that are bought are 5,000 litre tanks, and all domestic tanks are 1000 litre, for the purposes of analysis. It is also assumed that 60% of domestic tanks and 40% of industrial/commercial/institutional tanks would otherwise be unbunded. In the agricultural sector, it is assumed that 10% of the tanks are 1,000 litres capacity, and of these 40% are unbunded.

- Total cost to Domestic sector =  $60\% \times 6,920 \times \text{£}382 = \text{£}1,585,000$  per annum
- Total cost to Commercial/Industrial/institutional sector =  $40\% \times 692 \times \text{£}810 = \text{£}224,000$  per annum
- Total cost to the Agricultural sector =  $40\% \times (10\% \times 692) \times \text{£}382 = \text{£}11,000$  per annum

**Total cost = £1,820,000 per annum**

Therefore we estimate a range of **£568,000 - £1,820,000** per annum for new tanks, with a central estimate of **£1,096,000** per annum.

## Upgrading Existing Tanks

As highlighted above, it is estimated that there are 207,700 existing tanks in Wales, 173,000 of which are in the domestic sector, 17,300 in the commercial/industrial/institutional sector, and 17,300 in the agricultural sector.

Assuming that an oil storage tank has a lifetime of 25 years, after which it is replaced, it is believed that only a very small proportion of existing agricultural tanks would have been installed before 1991. It is believed that these tanks installed before 1991 would be replaced with a bunded tank regardless of the new proposals, and therefore the proposals would only be bringing costs forwards for these tanks, instead of creating new costs. It is also believed that the majority of agricultural tanks have capacity in the range 1,500-3,000 litres so would fall under existing Regulations. Again, there could be some tanks in this sector that are smaller than 1,500 litres, so a proportion of 10% of total existing tanks is assumed for the agriculture sector (as with the assumption for new tanks) with a capacity of 1,000 litres. Therefore there will be a retrospective application to this section of existing tanks, and it is also assumed that 60% of tanks are bunded, with 33% of these bunded tanks inadequately bunded. This amounts to 692 unbunded tanks and 340 inadequately bunded tanks.

There will also be retrospective application for commercial/industrial/institutional tanks. This assumes that 60% of all tanks will be bunded and 33% of these will be inadequately bunded. Overall, this is equal to 6,920 unbunded commercial/industrial/institutional tanks and 3,430 inadequately bunded commercial/industrial/institutional tanks that require upgrading.

It is not proposed that there will be retrospective application for domestic tanks to upgrade existing tanks. Therefore, there is no additional burden in the domestic sector in terms of upgrading existing tanks.

These non-recurring costs for existing tanks in Wales to comply with the proposals are calculated as follows, assuming that all commercial/industrial/institutional tanks are upgraded in year 4:

### Low and central estimate:

- Total cost of upgrading/bunding in the commercial/industrial/institutional sector =  $40\% \times 17,300 \times \text{£}1,070$   
= **£7,410,000**
- Total cost of re-bunding in the commercial/industrial/institutional sector =  $33\% \times 60\% \times 17,300 \times \text{£}374$  = **£1,280,000**
- Total cost of upgrading/bunding in the agricultural sector =  $40\% \times (10\% \times 17,300) \times \text{£}733$  = **£507,000**
- Total cost of re-bunding in the agricultural sector =  $33\% \times 60\% \times (10\% \times 17,300) \times \text{£}259$  = **£89,000**

**Total cost = £9,286,000**

High estimate:

- Total cost of upgrading/bunding in the commercial/industrial/institutional sector =  $40\% \times 17,300 \times £1,642 = \mathbf{£11,364,000}$
- Total cost of re-bunding in the commercial/industrial/institutional sector =  $33\% \times 60\% \times 17,300 \times £374 = \mathbf{£1,280,000}$
- Total cost of upgrading/bunding in the agricultural sector =  $40\% \times (10\% \times 17,300) \times £733 = \mathbf{£507,000}$
- Total cost of re-bunding in the agricultural sector =  $33\% \times 60\% \times (10\% \times 17,300) \times £259 = \mathbf{£89,000}$

**Total cost = £13,241,000**

Therefore the one-off cost to the industrial/commercial/institutional and agricultural sectors to update existing tanks are estimated to range from £9,286,000 to £13,241,000 with a best estimate of £9,286,000.

#### Bunded pallets for oil drums in the agricultural sector

To estimate the one-off cost of purchasing a suitable pallet for transporting/storing oil drums is assumed to be £100 per unit. The total number of pallets required in Wales is assumed to be fairly low – ranging between 0-10% of total households in the agricultural sector that have an oil tank. It is also assumed that the pallet is purchased in the first year. The calculation of this non-recurring cost is as follows (low estimate assumes no pallets are required):

Central estimate:

- Total cost of purchasing a suitable pallet in the agricultural sector =  $5\% \times 17,300 \times £100 = \mathbf{£87,000}$

High estimate:

- Total cost of purchasing a suitable pallet in the agricultural sector =  $10\% \times 17,300 \times £100 = \mathbf{£173,000}$

The total one-off cost in the agricultural sector to purchase a suitable pallet is estimated to range between £87,000 and £173,000 (best estimate of £87,000).

#### **Identifying any other costs**

The costs to the environment have been estimated for option 1. These figures become the benefits to the environment of regulating (option 2) by avoidance of clean-up costs.

It is possible that the oil consumer sector would pass on the costs of compliance with the proposed Regulations to citizens/customers by increasing the prices of goods and services. However, many may simply absorb the additional costs and overall we estimate that the impact on inflation would be minimal.

There would also be costs to the Welsh Government. It is expected that there will be set-up costs for Natural Resources Wales in terms of training staff and publicity of the Regulations. These are likely to be small given that existing staff are familiar with the issues around oil tank bunding and already enforce for the agricultural sector. It is assumed that there is a £5,000 cost in year 1.

## **Benefits**

### Option 1 – do nothing or ‘business as usual’ scenario.

There are no benefits as sites would be uncontrolled and the risk of pollution would continue at current high levels, except to the extent that businesses take voluntary action.

### Option 2 – Regulate to reduce and prevent oil-related water pollution incidents.

The principal benefit of the proposed Regulations will be the reduction in the number of oil-related water pollution incidents in Wales. This will reduce the risk to wildlife and habitats and help to safeguard surface waters and groundwater thus protecting drinking water supplies. Additionally, the reduction of further pollution to land, surface waters and groundwater will reduce the costs of remediation of contaminated land in the future. In England and Scotland, there has been a successful reduction in the number of incidents as a result of Regulations on oil storage. Reductions in incidents are a better indicator of the effectiveness of oil storage Regulations than number of notices and penalties etc.

It is difficult to quantify the environmental benefits of introducing the proposed Regulations. The value placed on benefits in this Regulatory Impact Assessment only refers to the savings made in relation to a reduction in clean-up costs. Therefore, it should be noted that the environmental benefits of preserving wildlife and habitats and safeguarding surface waters have not been quantified. However, the main quantifiable benefits of this option stem from reducing the costs of remediating land and water i.e. lower clean up costs.

For a typical business with tank sizes of 2,500 litres to 5,000 litres it is assumed that benefits in avoided clean-up costs, reimbursement to Natural Resources Wales and replacing lost fuels (denoted ‘clean-up savings henceforth’) are in

the range of £23,000 - £57,000 per incident<sup>7</sup>. Data on incidents from Natural Resources Wales contains details on agricultural and domestic incidents as well as business incidents. However, the majority of incidents in the data set occur in the business (commercial/Industrial/institutional) sector. We have therefore assumed the avoided clean-up costs to businesses apply across the three sectors.

In addition, polluters may face prosecution and fines for incidents – however, these fines are not included as they would be a transfer cost.

Government (Natural Resources Wales) would also avoid the costs of having to attend pollution incidents. This would be in the range of £315-£3,490 per incident, with an average of £402 per incident<sup>8</sup>.

The benefits arising from assuming the higher number of average incidents (252 per year) and the lower assumed incidents (194 per year) are outline below. The two scenarios are denoted 'scenario 1: high incidents' and 'scenario 2: low incidents' henceforth, respectively.

### **Scenario 1: high incidents**

Total quantifiable benefits for new and existing tanks and the saving to Government (Natural Resources Wales) are calculated as follows. We have assumed an average of 252 incidents (from Natural Resources Wales data) in year 1 which is reduced by 33% after 5 years and 50% in 10 years. This is equivalent to a reduction of 83 incidents per year compared to the baseline by year 5, increasing to 126 by year 10, which continues up to year 15.

Total clean-up savings over 15 years are in the range of **£32.8m to £81.2m** with a central estimate of **£57.0m**, and total savings to Government (Natural Resources Wales) of reduction in clean-up are in the range of **£0.4m to £5.0m** with a central estimate of **£0.6m**.

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<sup>7</sup> These costs are based on costs to Businesses in the Northern Ireland Regulatory Impact Assessment, which in turn were provided with assistance from Spill UK. They are converted into 2015 prices using GDP deflators.

<sup>8</sup> These costs are estimated using data received from Natural Resources Wales on number of substantiated oil pollution incidents, number of oil pollution incidents attended, and total recoverable costs.

### Scenario 1: benefits – high incidents

Year	0	1	2	3	4	5	6	7	8	9	10 to 15
Incidents	252	236	219	202	186	169	160	152	143	135	126
Reduction in incidents	£0	17	33	50	67	83	92	100	109	118	126
Clean-up cost saving (low estimate)	£0	£383k	£766k	£1,149k	£1,532k	£1,915k	£2,112k	£2,309k	£2,507k	£2,704k	£2,901k
Clean-up cost saving (central estimate)	£0	£666k	£1,332k	£1,998k	£2,664k	£3,330k	£3,673k	£4,016k	£4,359k	£4,702k	£5,045k
Clean-up cost saving (high estimate)	£0	£949k	£1,898k	£2,847k	£3,796k	£4,745k	£5,234k	£5,723k	£6,212k	£6,701k	£7,190k
Saving (NRW) (low estimate)	£0	£5k	£10k	£16k	£21k	£26k	£29k	£32k	£34k	£37k	£40k
Saving (NRW) (central estimate)	£0	£7k	£13k	£20k	£27k	£33k	£37k	£40k	£44k	£47k	£51k
Saving (NRW) (high estimate)	£0	£58k	£116k	£174k	£232k	£291k	£320k	£350k	£380k	£410k	£440k

Figures are rounded to the nearest £1,000.

### Scenario 2: low incidents

Quantifiable benefits and costs to Natural Resources Wales assuming 194 incidents are calculated in the same way as for scenario 1. A 33% reduction in incidents is assumed after 5 years and 50% after 10. This equates to 64 fewer incidents by year 5 and by year 10 there are 97 fewer incidents.

The total clean up cost savings range between **£25.2m** and **£62.4m** with a central estimate of **£43.8m**. The total savings to Natural Resources Wales are estimated to range between **£0.3m** and **£3.8m** (central estimate of **£0.4m**).

### Scenario 2: benefits – low incidents

Year	0	1	2	3	4	5	6	7	8	9	10 to 15
Incidents	194	181	168	155	143	130	123	117	110	103	97
Reduction in incidents	£0	13	26	38	51	64	70	77	84	90	97
Business saving (low estimate, 000s)	£0	£294k	£588k	£882k	£1,176k	£1,470k	£1,621k	£1,773k	£1,924k	£2,076k	£2,227k
Business Saving (central estimate, 000s)	£0	£511k	£1,023k	£1,534k	£2,045k	£2,556k	£2,820k	£3,083k	£3,347k	£3,610k	£3,873k
Business saving (high estimate, 000's)	£0	£729k	£1,457k	£2,186k	£2,914k	£3,643k	£4,018k	£4,394k	£4,769k	£5,144k	£5,520k
Saving (NRW) (low estimate,000s)	£0	£4k	£8k	£12k	£16k	£20k	£22k	£24k	£26k	£28k	£30k
Saving (NRW) (central estimate, 000s)	£0	£5k	£10k	£15k	£21k	£26k	£28k	£31k	£34k	£36k	£39k
Saving (NRW) (high estimate, 000s)	£0	£45k	£89k	£134k	£178k	£223k	£246k	£269k	£292k	£315k	£338k

Figures are rounded to the nearest £1,000.

### Summary and Recommendation

Recurring costs for maintenance, such as an annual inspection and service, have not been included as they could be incurred whether or not the proposals are introduced.

Total compliance cost-benefits of Option 2 for businesses in the oil consumer market and for Government would be recurring for newly purchased tanks, assuming that the level of unbundled or inadequately bundled stock remained the same if the proposals were not introduced. The total non-recurring costs of the proposals to regulate existing stock at 'significant risk' within 2 years and remaining existing stock within 4 years are also estimated, along with cost of suitable pallets for transportation/storage of oil drums on agricultural premises.

On both low and high incident scenarios, the central estimates of Net Present Value (NPV) are both positive.

Estimated total costs (at 2015 prices) and benefits for scenario 1: high incidents and scenario 2: low incidents are as follows:

### Scenario 1: high incidents

		Low	Central	High
Additional recurring costs of purchasing new tanks	Domestic	£7,924	£15,848	£23,772
	Commercial/Industrial/institutional	£556	£556k	£3,364k
	Agricultural	£40k	£40k	£158k
	<b>Total</b>	<b>£8,519k</b>	<b>£16,443k</b>	<b>£27,294k</b>
Additional one-off cost of worst case upgrade of existing tank by year 4 plus rebunding insufficiently banded tanks	Domestic	£0k	£0k	£0k
	Commercial/Industrial/institutional	£8,690k	£8,690k	£12,644k
	Agricultural	£596k	£596k	£596k
	<b>Total</b>	<b>£9,286k</b>	<b>£9,286k</b>	<b>£13,240k</b>
Additional one-off cost of purchasing pallets for agricultural premises	Agricultural	£0k	£87k	£173k
	<b>Total</b>	<b>£0k</b>	<b>£87k</b>	<b>£173k</b>
Additional one-off training costs to government (NRW)		£5k	£5k	£5k
<b>Total Costs</b>		<b>£17,810k</b>	<b>£25,821k</b>	<b>£40,713k</b>
Expected Total Benefit of Reduction in Clean Up (£000s)	Domestic, commercial/industrial/institutional, and agricultural	£32,783k	£57,014k	£81,244k
Costs avoided of attending pollution incidents	Government (NRW)	£449k	£573k	£4,794k
<b>Total Benefits</b>		<b>£33,232k</b>	<b>£57,587k</b>	<b>£86,219k</b>

(2015 prices)

### Scenario 2: low incidents

The costs for this scenario are identical to the high incident scenario. The estimated benefits are:

Expected Total Benefit of Reduction in Clean Up	Domestic, commercial/industrial/institutional, and agricultural	£25,167k	£43,769k	£62,370k
Costs avoided of attending pollution incidents	Government (NRW)	£345k	£440k	£3,819k
<b>Total Benefits</b>		<b>£25,512k</b>	<b>£44,209k</b>	<b>£66,189k</b>

(2015 prices)

In order to calculate the Net Present Value (NPV) of the proposal, we discount costs and benefits above over a 15-year appraisal period using a 3.5% discount rate. The NPVs for each scenario are below:

### **Scenario 1: high incidents**

Discounted costs are in the range £15,151,000 to £33,811,000 with a central estimate of £21,534,000, and discounted benefits of £25,003,000 to £64,870,000 with a central estimate of £43,328,000. This gives a NPV (discounted benefits minus discounted costs) of -£8,808,000 to +£49,719,000 with a central estimate of +£21,793,000.

### **Scenario 2: low incidents**

The discounted costs with the low incidents scenario are the same for scenario 1. The estimated discounted benefits for this option are between £19,195,000 and £49,800,000 with a central estimate of £33,262,000. The NPV range between -£14,616,000 and +£34,649,000 with a central estimate of +£11,728,000.

It should be noted that if the number of oil related incidents in Wales was reduced further then benefits would be greater.

The limitations of the calculations used to estimate these figures should be recognised. It has been assumed that all tanks in the commercial/industrial/institutional are in the range of 2,500 to 5,000 litres, and tanks in the domestic sector now coming under Regulations are roughly 1,000 litres, for the purposes of analysis. We have also assumed that most agricultural tanks are between 1,500 litres and 3,000 with some included in the calculations with a capacity of 1,000 litres. These are simply estimated assumptions. We have also made an assumption of the likely need for suitable pallets in the agricultural sector. In addition, it was not possible to quantify all of the benefits of introducing the Regulations; particularly in relation to reducing the risk to wildlife and habitats and helping to safeguard surface waters and groundwater. Nevertheless, the data included in this RIA should allow the merits of the proposed Regulations to be assessed.

The historic high incidence of water pollution from inadequate oil storage facilities justifies statutory measures to protect the environment. It is recommended that the proposed Regulations are brought into force as soon as possible in order to better protect the aquatic environment.

### **Consultation**

A twelve week consultation was undertaken from 24 June to 24 September 2015.

Given the potential impact on a wide range of stakeholders, the consultation was circulated to a wide audience, including representatives of business, agriculture and local authorities. A full list of those consulted is contained in the consultation summary and response, which is available at <http://gov.wales/consultations/environmentandcountryside/prevention-of-pollution-oil-storage-wales-regulations/?status=closed&lang=en> .

Twenty responses were received, the majority of which were supportive of the proposals. A number included comments on the details of the Regulations and guidance. Two responses from agricultural organisations sought to maintain the current status for agricultural oil storage, including an exemption for facilities pre-dating the 1991 Silage, Slurry and Agricultural Oil Storage Regulations.

Minor changes have been made to the draft Regulations to clarify how they apply for sites already subject to an environmental permit, to remove a potential conflict with electrical safety Regulations and to reflect current practice for tanks with siphonic oil delivery systems.

The agricultural sector has been aware of the appropriate standards for oil storage since 1991. We are concerned that farmers are still relying on an exemption within SSAFO to avoid bringing their facilities up to the standards applying in all other sectors. There is a strong link between the age of an oil storage tank and an increasing risk of failure resulting in the spillage of the contents, emphasising the value of secondary containment for such facilities. Current standards for oil storage tanks provide for a twenty year design life. We believe that allowing a further period of 2 to 4 years to achieve compliance, in line with other businesses, is reasonable.

### **Competition Assessment**

Although there may be some additional costs to a minority of small businesses and agricultural households, it is not likely to affect their competitiveness or profitability. It is considered that introducing the Regulations will not disproportionately affect small businesses or agriculture. Whilst the Regulations in Wales are more widespread, they are identical to Regulations in England, Scotland and Northern Ireland apart from that they cover domestic properties. Therefore Welsh businesses would not be put at a relative disadvantage to the rest of the UK. Furthermore, within Wales the standards within the Regulations are observed by many businesses on a voluntary basis. Introduction of the Regulations will provide a levelling of the playing field for all businesses.

Tank manufacturers and firms fitting, installing and maintaining tanks and bunds are expected to be affected indirectly. Suppliers will need to meet the increased demand for tanks, pipework and bunds to the standard required in the Regulations within the timescale for compliance. Thereafter, annual sales could be expected to stabilise at a lower level. There would be no additional costs in designing integrally banded tanks as they are already in production. There are only a few major suppliers of oil tanks in the UK, but these are companies from Northern Ireland and Scotland and there are no high volume oil tank suppliers in Wales. Therefore, the Regulations are assumed to have no adverse effects supplier competition in Wales, given there are no major Welsh firms in this market.

## **Post Implementation Review**

Given the four year transitional period, we anticipate a review of the effectiveness of these Regulations five years after implementation. The review will take account of data relating to the number, severity and source of oil pollution incidents reported to Natural Resources Wales. We also propose to work with oil delivery companies, those who install and maintain oil storage tanks and their insurers to assess the effectiveness of the regulations and to review the exemption for domestic installations which predate the implementation of these Regulations.