

National Random Sampling Programme of Fuel Licence Holders

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1 Introduction

This report outlines the findings of a National Random Sampling Programme, conducted with a view to quantifying the extent to which illicit fuel (i.e., laundered road diesel) is evidenced among licensed fuel outlets.

As outlined in the more detail in the following section, the introduction of a new marker in Marked Gas Oil in April 2015 is the latest in a series of initiatives by Revenue to enhance compliance in the fuel trade. Following a suitable 'bedding-in' period, Revenue determined to conduct a national sampling programme within the licensed road diesel market, looking for evidence of the presence of the new marker (Accutrace S10™).

The programme methodology entails taking samples of road diesel from a randomly selected group of Auto Fuel Trader Licence holders (mostly forecourt retailers and fuel distributors) and testing each for the presence of the marker.

The field testing was conducted by Revenue's specialist enforcement teams. The programme, in terms of independent case selection and outcome reporting, was conducted under the auspices of Revenue's Statistics & Economic Research Branch. The project was coordinated by the Excise Working Group, located in Revenue's Planning Division. Cases were randomly selected and distributed to each Region, with sampling conducted in a co-ordinated nationwide programme over a four-week period in January 2016.

This random sampling exercise, conducted on a national level over a short time period, provides a powerful and robust measurement of the scale of the selling of laundered fuel in the State. If repeated in the future, this exercise provides a benchmark against which to compare later outcomes.

2 Revenue's Strategy to Combat the Trade in Illicit Fuel

In 2011, responding to a significant increase in diesel laundering by organised criminal gangs, Revenue devised and implemented a comprehensive strategy to combat the trade in illicit fuel. The strategy encompassed: a more robust licensing regime, supported by strengthened legislative provisions including reckless trading provisions to ensure due diligence by suppliers of marked fuels; the introduction of supply-chain controls including the introduction of an electronic return of all mineral oil movements from licensed traders, intensified and coordinated enforcement activity; and, in partnership with Her Majesty's Revenue and Customs (HMRC), the introduction of a new fiscal marker (**Accutrace S10™**) for marked mineral oil products.

Accutrace S10™ is a colourless marker whose chemical properties are similar to that of diesel, rendering it resistant to conventional dye-washing laundering methods.¹ From midnight on the 31st of March 2015, Accutrace S10™ is required to be added, in addition to the existing mineral oil marker dyes, to any supply of rebated fuel removed from an oil warehouse in the Republic of Ireland or the United Kingdom.

Following an open procurement exercise, Revenue acquired portable analysers to support its enforcement teams in detecting the presence of Accutrace S10™ in road diesel. The analysers use micro-gas chromatograph technology and, following a period of training, have been deployed throughout the country. Detection of Accutrace S10™ in road diesel, particularly where no trace of the other marking agents (i.e., marker dyes) is found, is a clear indication of laundered fuel. However, it should be noted that while a detection of the new marker in road fuel empowers Revenue to detain or seize suspect fuel, subsequent prosecutions are only initiated following formal testing and certification of the presence of the marker by the State Laboratory.

¹ Laundering involves the removal of the dye from Marked Gas Oil (MGO or "green diesel") primarily intended for use in agriculture, construction or certain non-road activities, which is taxed at a lower rate than auto diesel.

3 Sampling Methodology

Sampling

Any trader that produces, sells, deals in, or keeps for sale or delivery road diesel is legally obliged to hold an Auto Fuel Trader Licence (AFTL). The total population of AFTL holders at the outset of the programme (i.e., those holding a valid licence) was 2,572. Of these, 231 were selected for sampling (9% of the overall population). Selection was based on a random-selection algorithm and no post-selection refinement of the sample group was permitted.

Revenue Enforcement Teams tested for the presence of the marker, Accutrace S10™ by taking samples of road diesel in the storage tanks of the randomly selected traders. All sampling took place between 1st Jan 2016 and 31st Jan 2016. Figure 1A shows the timing of the sampling and a breakdown of the sample population is outlined in Table 1.

Table 1 – Auto Fuel Trader Licence Sample and Population

Revenue Region	AFTL Population	% AFTL Population	AFTL Random Sample	% AFTL Random Sample
Border, Midlands & West	971	38%	89	39%
Dublin	262	10%	24	10%
East & South East	728	28%	66	29%
South West	609	24%	52	23%
Total	2,572	100%	231	100%

Source: Revenue analysis. Note: 3 sample cases are in Revenue's Large Cases Division; these were excluded from the testing programme.

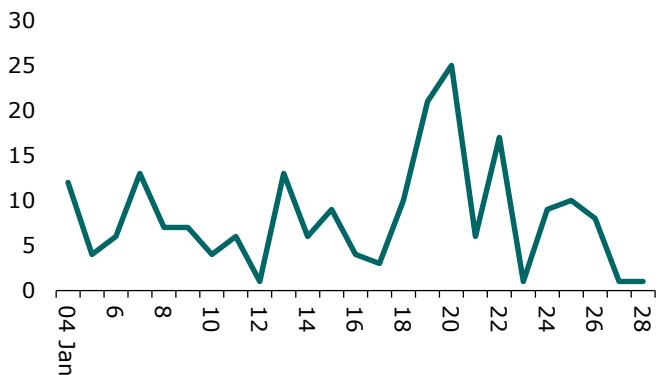
Representativeness

The purpose of randomly sampling a large number of traders is to ensure representativeness of all national fuel traders. There are a number of ways to test representativeness, including by comparing distributions of selected characteristics in the sample and the population. For the purpose of this exercise, geographical location (Revenue Regions and Districts), the number of years the trader is in operation and the status of the trader are examined, as shown in Figure 1 overleaf.² On the basis of these distributional comparisons, the results show a close match, which provides confidence that the sample is likely to be representative of all AFTL holders in Ireland.

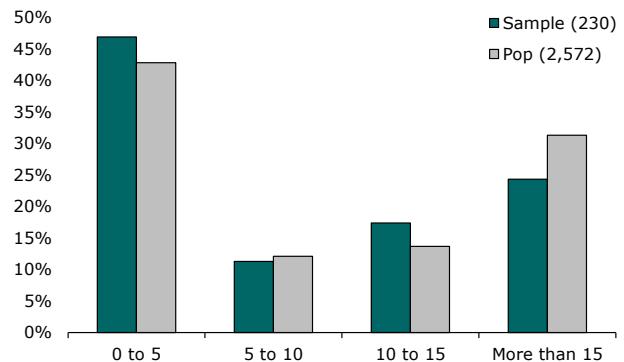
² Status refers to the status of the trader's AFTL, with a status of Under Enquiry indicating that some aspect of the licence conditions is under review.

Figure 1 – Sampling and Representativeness

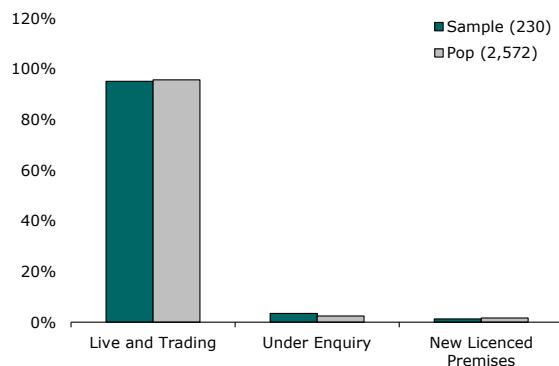
A. Date of Sampling



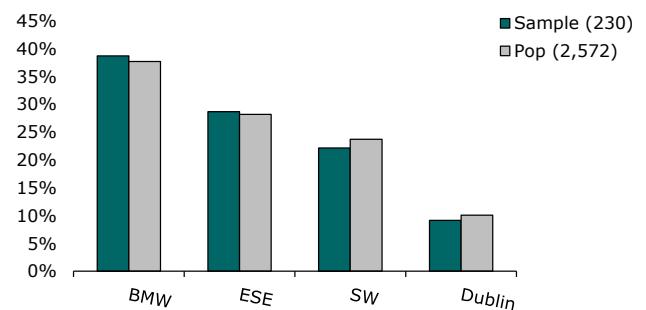
B. Years in Operation



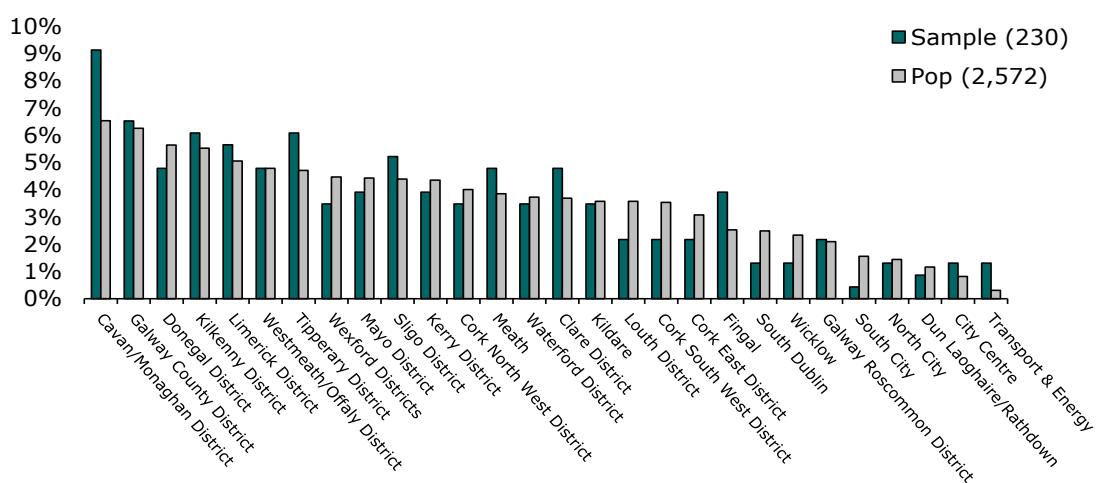
C. Case Status



D. Revenue Region



E. Revenue District



Source: Revenue analysis. Note: Sample data in this Figure reflect 230 cases, one further case from the sample (231) is not linked for this part of the analysis.

4 Results and Conclusion

Results

Of the random sample of 231, 34 cases were unavailable for testing for a number of reasons including the trader not being involved in selling road diesel or having gone out of business. This results in an effective sample of 197. On this basis, the margin of error around the sample results is 5.6%.³

No evidence of Accutrace S10™ was found in any of the 197 traders sampled.

Table 2 – Results

Region	Random Sample	Unavailable for test	Tested	Evidence of Accutrace™
Border, Midlands & West	89	14	75	0%
Dublin	22	5	17	0%
East & South East	66	8	58	0%
South West	51	4	47	0%
Total	231	34	197	0%

Source: Revenue Analysis. Note: 3 sample cases are in Revenue's Large Cases Division; these were excluded from the testing programme.

Discussion

The findings represent a further, authoritative confirmation of the effectiveness of the various measures introduced by Revenue in recent years to enhance compliance in the fuel trade. The sample, nearly one in ten traders, is significantly larger than required to provide robust statistical results that can be extrapolated to the full population.

The results of the random sampling programme show no evidence of the systematic sale of laundered fuel on a large scale across the State. However, in risk targeted interventions, in the nine months subsequent to the introduction of the new fiscal marker, a small number of successful detections of laundered fuel were made by Revenue enforcement teams. The majority of these detections occurred in the early months, with evident decreases in detections over the nine-month period. Nonetheless, it is fully recognised by Revenue that while the results of the Random Sampling Programme do not signify the complete elimination of the illicit trade in fuel, they do demonstrate that the selling of laundered fuel is negligible and close to being fully eliminated. This conclusion is supported by previous research and trends.

³ Margin of error based on a sample of 197, a population of 2,572 and a 90% confidence interval.

Research published in 2015 shows that the series of Revenue compliance initiatives from mid-2012 onwards are followed by significant changes in the patterns of Marked Gas Oil (MGO) and diesel clearances.⁴ Extrapolating trends pre-2013 against current clearances suggests that Revenue compliance initiatives may be responsible for lowering MGO clearances by around 40 million litres in 2014 (product that could otherwise have been destined for being laundered) and increases of legitimate diesel clearances in a range between 245 million to 295 million litres per annum.

Clearances of MGO from tax warehouses dropped significantly in 2013 (-2.2%) and 2014 (-9.4%) and were stable (+0.3%) in 2015 despite the strengthening economic recovery that saw auto diesel clearances rise in the same year (+9.1%).

While partially anecdotal in nature, these indicators confirm positive feedback from the legitimate fuel trade to Revenue and a marked reduction in MGO supply to suspected high risk traders. These findings are further supported by fewer discoveries of sludge dumps (the waste product from laundering) in recent years in the State. In the nine-month period April to December 2014, Louth and Monaghan County Councils recovered a combined total of 606 sludge-filled IBCs.⁵ In the nine-month period April to December 2015 this figure dropped to 250, a 59% decrease.

In conclusion, the results of this Random Sampling Programme show that Revenue's overall strategy is successfully addressing the illicit trade in fuel and reaffirms the effectiveness of the various measures introduced by Revenue over recent years.

⁴ Report available at: <http://www.revenue.ie/en/about/publications/oil-market-analysis.pdf>.

⁵ 1,000-litre Intermediate Bulk Containers (IBCs) are the means by which the sludge, a by-product of fuel laundering, is invariably dumped.