Trade Effluent Review Project

Date: July 2022

Version: 1

We are the Environment Agency. We protect and improve the environment.

We help people and wildlife adapt to climate change and reduce its impacts, including flooding, drought, sea level rise and coastal erosion.

We improve the quality of our water, land and air by tackling pollution. We work with businesses to help them comply with environmental regulations. A healthy and diverse environment enhances people's lives and contributes to economic growth.

We can't do this alone. We work as part of the Defra group (Department for Environment, Food & Rural Affairs), with the rest of government, local councils, businesses, civil society groups and local communities to create a better place for people and wildlife.

Published by:

Environment Agency
Horizon House, Deanery Road,
Bristol BS1 5AH

www.gov.uk/environment-agency

Further copies of this report are available from our publications catalogue: www.gov.uk/government/publications or our National Customer Contact Centre: 03708 506 506

Email: enquiries@environment-agency.gov.uk

Contents

Foreword

This report presents the findings of the Trade Effluent Review Project carried out by members the Environment Agency Water Quality, Groundwater and Land Contamination team in 2021 to 2022.

This has been an extremely useful exercise and the Environment Agency team would like to thank everyone from the companies who contributed in such a supportive and open manner.

Executive summary

During 2021 to 2022 Environment Agency Officers carried out a review of Water Company Trade Effluent Practices. This report presents the findings from this work.

Overall, the project team conclude that generally companies manage their trade effluent processes well and that protecting the environment is an important part of company considerations as part of this. There is variation between companies and there are aspects of trade effluent management which should be considered for improvement by individual companies and the industry as a whole. For example:

- There is a reliance on operators to identify chemicals in their discharges and all companies agree that this could result in chemicals being missed from risk assessments if they are not declared with the application.
- Companies also agreed that knowledge and, in some cases, control of priority hazardous substances (PHS) and persistent organic pollutants (POPs) could be improved and that they would welcome closer working with the Environment Agency on this to help identify sources of these and to establish what to do if these are found in a discharge.
- All companies carry out risk assessments of chemicals in discharges applying the surface water pollution risk assessment to a greater or lesser extent. However, some companies apply the screening steps without the secondary phase of modelling, meaning that the guidance may be being applied in a way that was not intended.

There are several other actions and good practice examples highlighted throughout this report to be considered for inclusion in a possible industry action plan to improve trade effluent management and protection of the environment.

Trade Effluent Review Project

Background

Over recent years there has been increasing focus on chemicals[1] in discharges and the environment. The water industry has played a big part in increasing our understanding of this issue through the Chemicals Investigation Programme (CIP), which has been sampling and analysing water company effluents since 2010. CIP has shown that the main source of many of the chemicals in water company wastewater effluents is domestic, but that industrial and trade sources are also an important source in many sewerage catchments.

Under the Water Industry Act 1991, Water Companies (Sewerage Undertakers in the Act) are required to provide consent for discharges to sewer on application by the occupier of a trade premises for a discharge of trade effluent. The provisions of the Act allow companies to set conditions which the discharge must meet, including conditions controlling the composition and volume of the discharge. Chemicals discharged to sewer have the potential to impact the environment if discharged in effluent from water company wastewater treatment works and the trade effluent regime is an important element in managing this risk. Moreover, the potential risks of chemicals released in discharges from storm overflows has recently been raised by academics and environmental non-governmental organisations, and as part of the recent Environmental Audit Committee investigation into water quality in rivers.

The Government recognised that the water industry has an important role to play in managing chemical risks in its Twenty-Five Year Environment Plan. The plan states:

"As well as source control mechanisms (regulations on chemical management or changes in individuals' behaviour) actions to manage prioritised substances will range from environmental interventions around the pathway-to-the-water environment; point source (end-of-pipe) controls; and taking no further action where controls already exist that can address concerns and evidence shows they are effective.

We will look to the water industry and manufacturers of pesticides and other agri-sector industries to deliver these various approaches. They will be encouraged to develop good practices, and voluntary and catchment-based initiatives to protect drinking and/or groundwater resources."

[1] In this report we use the terms chemicals and substance interchangeably since legislation, government plans and previously published documents use both terms.

It also states that: "*The government makes it clear that we expect the regulator to challenge water and sewerage companies to improve the way they manage wastewater to meet the needs of customers while protecting the environment*".

The Government will be producing a chemicals strategy and trade effluent control must be an important element of the strategy and delivering these approaches.

The 25-year plan also has the aim of:

Substantially increasing the amount of Persistent Organic Pollutants (POPs) material being destroyed or irreversibly transformed by 2030, to make sure there are negligible emissions to the environment.

The water industry's role as regulator of discharges to sewer puts it in a strong position to contribute to achieving the aims of the 25-year environment plan, including helping to reduce the emission of POPs to the environment.

Through discussions with the water companies, we are aware that trade effluent control practices are not standardised and vary between companies. At the same time the Trade Effluent Provisions of the Water Industry Act, which is thirty years old, have been identified as being out of date and in need of reform. One example of this is the Special Category Effluent (SCE) sections of the Act, which were highlighted as one area in need of reform through the Government's Red Tape Challenge in 2014. The Environment Agency worked with the Water Industry and Defra and issued a Regulatory Position Statement (RPS) that enabled companies not to follow the SCE provisions as long as they were carrying out a surface water pollution risk assessment in line with the guidance on gov.uk surface water pollution risk assessment. Part of the reason for this approach was that the SCE provisions did not cover some of the important substances of concern that have emerged in the years since the Act was implemented. This includes priority hazardous substances (PHS) and persistent organic pollutants (POPs) which carry the greatest risk to the environment and, in some cases, have risks for human health. The RPS is temporary and will be removed when the Water Industry Act Special Category Effluent Provisions have been updated.

The Act does not provide sufficient detailed guidance for the regulation of trade effluent to adequately address current chemical issues and concerns. Water companies have therefore developed their own approaches, which has led to inconsistencies and may mean differences in the level of environmental protection between companies. Differences in approach may also be apparent to trade effluent customers who operate in more than one water company area.

The Environment Agency wanted to understand how companies are controlling and carrying out risk assessments of substances in discharges to sewer, including PHS and POPs which are now of particular concern.

We have worked with the water industry to understand how each company regulates trade effluent, identify good practice, and recommend areas that could be strengthened with the aim of improving protection of the environment from chemicals discharged to sewer.

Project Proposal

In 2018 the Environment Agency proposed a collaborative joint project with the water industry to review trade effluent consenting practices as part of helping achieve the 25-year environment plan goals and objectives set out above. This proposal was set out in a correspondence paper to the joint Strategic Water Quality and Waste Planning Group (SWQWPG).

The proposed aims of this work were to:

1. Review industry trade effluent practices to understand how different companies are managing chemical inputs to sewer that could impact the environment.

2. Identify good practice and areas that could be strengthened.

Aspects for particular focus were identified in the paper as:

- How are the environmental impacts of new or increased discharges of chemicals to sewer assessed and managed?
- Are all company trade effluent teams aware of all chemicals with environmental quality standards (EQSs), including new chemicals with EQSs in 2018 and how do they ensure the right substances are assessed in relation to a particular discharge?
- What action is taken to identify and control unconsented discharges to sewer?
- Do companies take action to help achieve the Water Framework Directive aim of ceasing and phasing out emissions of PHS, with a particular emphasis on those substances identified as POPs?
- How are consent limits set and how is compliance assessed?

The proposed output of the work was a report setting out the Environment Agency's view of good practice and areas that could be strengthened. The report would be used to support further discussion with the industry and/or individual companies regarding how trade effluent control can better support achieving the aims of the Twenty-Five Year Environment Plan. The Environment Agency also recognised this was an opportunity to use the findings to consider how Agency processes and guidance can be improved to facilitate water companies managing trade effluent.

This proposal was accepted by SWQWPG with the proviso that it was made clear that this was a process review and not an audit or a compliance assessment process. It was also suggested that the project conclusions could be used to create a joint action plan to implement changes to trade effluent consenting practices which, depending on the scale of findings, might take several years to develop.

A list of proposed questions was shared with the water industry prior to commencement of the project. These were reviewed by the companies and no objections were raised. One company provided some additional questions which they considered would be useful to include. The final list of questions used to inform this project is provided in Annex 1.

Methodology

The original expectation was that the Environment Agency team would visit each company in person in 2020 for face-to-face meetings. This plan was revised and delayed due to the COVID 19 pandemic and meetings were instead held virtually with companies between December 2021 and December 2022.

The questions were sent to company representatives prior to each meeting. The Environment Agency team also reviewed the publicly available information on Trade Effluent Consenting on company websites prior to the meetings.

Meetings were held using Microsoft Teams. One Environment Agency team member led by asking the questions as set out in Annex 1. A second recorded Company answers. The Agency asked follow-up questions to clarify or build on the answers provided. In some cases, companies provided written responses to the questions in advance of the meeting, which was used to follow up on the written answers and provide additional clarification where needed.

In total all nine water companies with powers to regulate trade effluent in England took part in this review. Dyr Cymru were not included as their operations predominantly take place in Wales.

Where possible the Microsoft Teams screen share facility was used to view company computer systems used to manage trade effluent consenting.

The Environment Agency team jointly reviewed the draft record of the answers after each meeting and then provided these to the company representatives to clarify, amend or add to the information provided at the meeting.

The Environment Agency team considered that virtual meetings worked well but felt that this format may have unavoidably limited some aspects of our discussions e.g., it may have been easier to delve into the detail of some practices at a face-to-face meeting. However, discussions were very constructive and company representatives were very open and provided very full and helpful information.

Main findings

Throughout the report we have anonymised the companies by randomly allocating them a letter between A and I.

In this section of the report, we have provided summaries of companies' responses to the questions, drawn out our main conclusions and highlighted areas that we consider represent good practice and others that could perhaps be strengthened. We have also provided suggested action points.

It is inevitable that by summarising the in-depth responses from nine companies we will not present all the detail that was provided. Instead, we have attempted to provide a broad overview of the approaches adopted and highlighted exceptions to this where it is helpful to do so in the context of the majority practice.

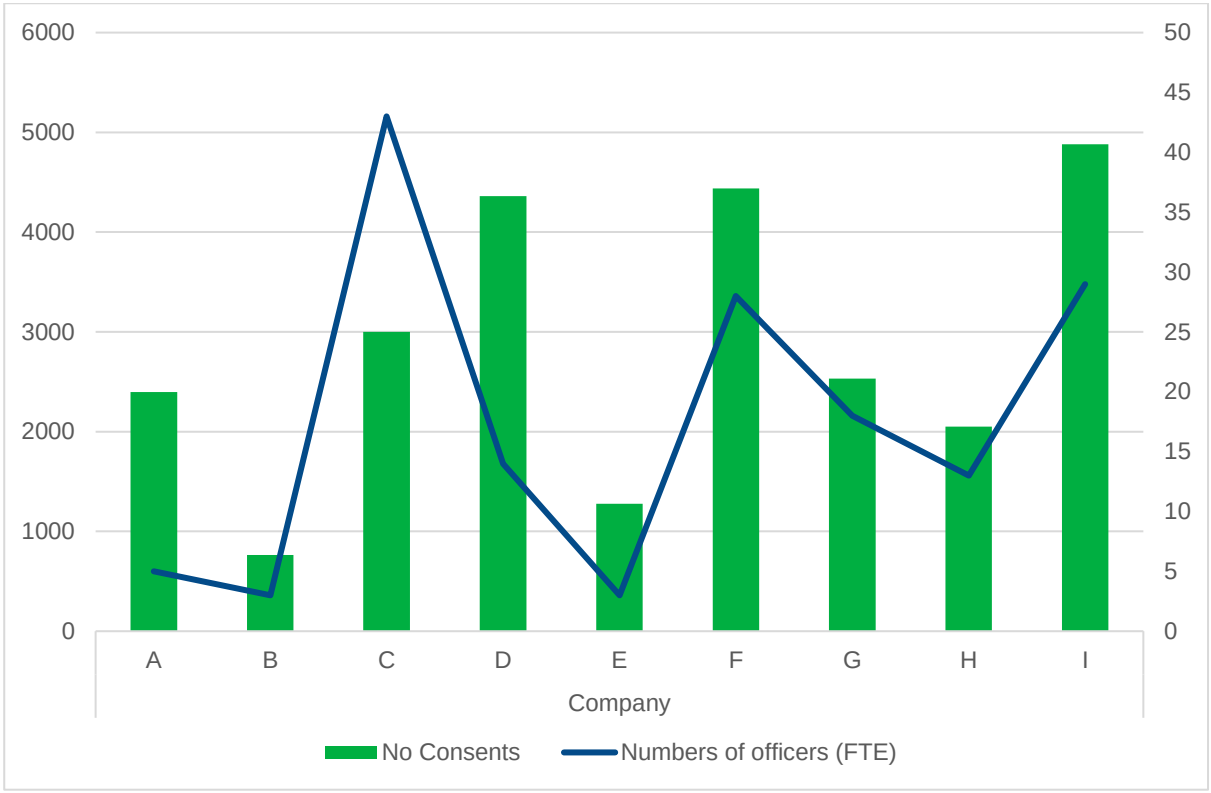
Numbers and types of consents, authorisations and resourcing

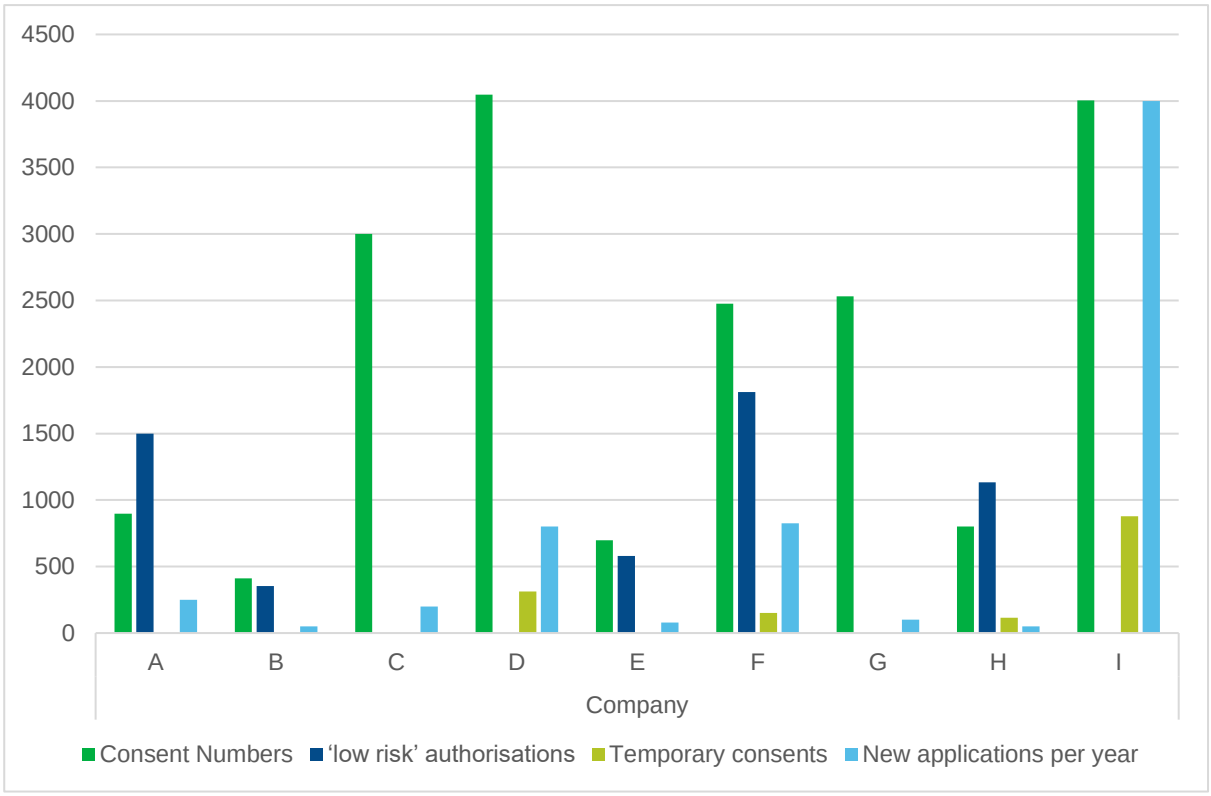
Consents and authorisations

Companies confirmed their current numbers of live consents and temporary consents as set out in Table 1. As expected, these varied significantly between companies, primarily influenced by the amount of industry in given catchments.

As well as trade effluent consents companies issue authorisations for low risk and low volume activities. These have different names such as letters of authority or 'type 2' consents.

Company	A	B	C	D	E	F	G	H	I
Consent Numbers	897	411	3000	4048	697	2475	2531	802	4005
'Low risk' authorisations	1000 – 1500	354			580	1811		1133	
Temporary consents				313		151		115	877
New applications per year	200 - 250	50	200	600 - 800	80	825	50 - 100	50	4000
Numbers of officers (FTE)	5	3	43	14	3	28	18	13	29
Consent and low risk authorisations divided by number of officers	479	255	70	289	426	153	141	149	138





Most companies use these low-risk position statements, or letters of acknowledgement or authorisation, to control smaller low risk discharges to sewer. However, there are some companies that rely entirely on issuing trade effluent consents to control all discharges to sewer to ensure they know exactly who is discharging what and when. The low-risk position statements or letters of acknowledgment/authorisation are generally used to control small volume, low impact discharges, for example, laundrettes, fire water testing, oven cleaning and wheelie bin cleaning. In addition, during the COVID 19 pandemic,

position statements for the disposal of waste beer and milk were issued. For certain discharges some of the companies also use the Water UK best practice guidance to control discharges from, for example, dentists, residential care sites and hospitals.

Not all companies issue low risk authorisations, preferring to consent all discharges in the same way. Company E reported that there were historic reasons for the two types and that in future they intended to bring them together. A few companies reported issuing temporary consents for activities such as hot or cold-water heating flushing, groundwater remediation and seasonal activities.

During the completion of this report evidence from CIP has been presented which suggests that apparently low risk discharges can be a source of hazardous chemicals. For example, launderettes and laundries have been confirmed as sources of elevated levels of TBT, HBCDD and cypermethrin.

Conclusion	**Companies have different approaches to issuing low risk authorisations with some using these and others not.**
Action	**Companies could consider if low risk authorisations from some activities are appropriate and perhaps work together to develop industry standard 'low risk authorisations'. This should include a review to confirm whether or not discharges which have been categorised as low risk contain substances which mean their risk level needs further consideration.**

Resourcing

Companies provided the numbers of officers working on trade effluent. These included several different roles with differing names such as managers, technicians, samplers, advisors, and catchment quality scientists. This information was provided at a high level, and it is difficult to compare resourcing across the companies with any degree of certainty, especially as resourcing will naturally vary with company size and the number of trade effluents in the catchment. However, it does appear that there are differences in the amount of resource that companies devote to trade effluent control based on a simple comparison of consent numbers and overall resource across companies.

The information provided also suggests that there are significant differences in the numbers of new consent applications received by companies, with this ranging from 6% to 20% of the existing consent and low risk authorisation stock. Again, it is not possible to make any certain conclusions from this analysis, but it is an interesting observation which may indicate differences in economic activity between the different areas covered by companies and/or different company consenting practices.

Application Refusal

All companies refuse some applications. In some cases, an initial refusal may be due to incomplete information on the application form which is subsequently rectified.

Other reasons for refusal include:

- Lack of sewer capacity or wastewater treatment works (WwTW) capacity i.e. insufficient headroom at the WwTW
- Discharges which are unsuitable for treatment such as high strength discharges or the presence of materials which will cause foaming
- Failure of the surface water pollution risk assessment / too high a load of a chemical/controlled substance
- No sewer connection or no planning permission granted
- Presence of oil, asbestos or solid material

If the application is not initially refused, the trader may conclude that they are unable to meet the proposed consent limits, so the application does not proceed. In these cases, the trader may decide to pursue their own treatment or move to a catchment with more capacity. Another option is to tanker away the effluent and this may be to another company's facility outside of the original company's area.

Company G reported recently rejecting two applications because of historic non-compliance by the trader. However, it seems that overall, the number of outright refusals by companies is relatively small and that often there is a negotiation with the trader to try to find a way to accommodate the discharge. This may mean the trader implementing measures such as flow attenuation or balancing, pre-treatment or tankering some of the load to another catchment.

Conclusion	**All companies will refuse applications if this is required to protect their WwTW and/or the environment, or to comply with legislation. Companies attempt to work with the trader to try to find ways to accommodate them within this context.**
Good Practice	**The approaches of all the companies to working with traders within the context of protecting the environment is considered good practice by the Environment Agency Team.**
Action	**The example of refusing a consent application based on previous performance may be an approach that other companies may wish to consider.**

Consent Reviews

All companies have consent review programmes which are usually based on the risk and/or age of a discharge. There also may be reactive reviews, for example triggered by traders applying to vary a consent after adding a new production line or new process. Company A reported that their new enforcement procedure has triggered consent reviews because this has highlighted that some consents are not fit for purpose and/or that traders have added a new process to address non-compliance.

Company D stated that they review high-risk consents every five years e.g., landfill or electroplating and low risk consents every ten years, equating to 320 consents to be reviewed in 2021 from a total of 4048. These are proactive reviews but, in the interim, customers may apply to vary a consent which gives another opportunity for review. Their 'low risk' consents such as launderettes or car washes may wait longer than ten years for a review.

Other companies reported similar approaches to Company D although the consent review period may differ. For example, Company E have an internal target to review all consents every four years.

The differences in targets and risk assessment processes appears to result in significantly different numbers of consents being reviewed per company. For example, Company G reported 20 to 30 reviews on an annual basis compared to 145 reviews in 2020 reported by company H. Assuming these figures are correct this means that company G is reviewing approximately 1 percent of its consents every year compared to 18 percent by company H. It should be noted that it was not possible to get a full understanding of the extent or complexity of the reviews carried out and reported by companies, so simple comparisons of the numbers may be misleading.

Conclusion	**All companies have a risk-based approach to carrying out consent reviews, but this appears to result in significant differences in the number of reviews carried out.**
Action	**Companies may wish to consider developing good practice guidance to risk assessment and review prioritisation as part of their role in protecting the environment.**

Consent Revocations

The Water Industry Act does not allow revocation of trade effluent consents and several companies stated that they considered this power should be provided if the Act is updated, as revocation or a temporary suspension would be useful in dealing with persistent non-compliance by traders.

Company A stated that if a trader confirms that a consent is no longer required, they will revoke it, but other companies reported that they only had the power to issue a zero-volume direction (direction to nil), referred to as a 'termination'.

Company G reported that although it is possible to use the zero-volume direction approach this brings the risk of an appeal. There is also the possibility to use threat to health and safety, public health or the environment to apply to a court for a "prohibitory injuction", but this is very rare and companies are expected to work with traders to resolve issues first.

Conclusion	**Companies do not have the power to revoke or suspend consents but consider that this power would be a useful tool in managing non-compliance with consent conditions.**
Action	**All to raise the issue of consent revocations if and when there is the possibility of the review of the Water Industry Act.**
Action	**Companies to consider the use of injunctions as a mechanism to stop a problematic discharge.**

Risk Assessment of Substances in Trade Effluent Discharges

Companies were asked 'how do you assess the risk of new or increased discharges to sewer from trade premises? In this context risk means the impact on the receiving water course from the increase in concentration of the substance in the discharge from the WwTW serving the sewerage system'.

All companies reported that they have processes and procedures to carry out risk assessments, although the requirements for these and their complexity varies. For example, Company B reported that most of their consents are for food and drink manufacture and chemicals are rarely declared with applications.

Several companies apply the screening tests provided in the Environment Agency's Surface Water Pollution Risk Assessment guidance on gov.uk and in its Permitting of Hazardous Chemicals and Elements Operational Instruction (OI). For example, Company F's Environmental Regulations and Permits (ERP) team assess the proposed volumes and concentrations and proposed limits through an MS Excel spreadsheet against the

annual loadings (for PHS) and the four screening tests detailed in the Phase 1 assessment of the guidance.

Company F's spreadsheet identifies if the discharge will cause a failure of the screening tests and then gives an accept or reject advisory note against each substance. Depending upon the outcome of the screening tests, the trade effluent team will revise the proposed limits in conjunction with the customer (applicant) or formalise a rejection. Where any substances are shown to be 'borderline' against the screening tests and they are substances with bioavailable EQSs (i.e., metals such as copper, zinc, lead, nickel and manganese) then the ERP team will advise on the necessary additional sampling (discharge and watercourse) that will be required to allow the ERP team to undertake a full bioavailability assessment.

Other companies, for example companies A, E and G, have similar processes, in some cases using bespoke tools to carry out the screening assessment. Company D also apply the screening steps but with an additional five 'de-minimus' tests that are applied prior to screening. These include calculating the baseline load and assessing if the discharge will increase the substance concentration by less than 1%. If this is confirmed, then the substance is not assessed further.

Companies appear to be applying a high level of precaution in assessing risk by focussing the assessment on the screening steps in the surface water pollution risk assessment guidance and Permitting of Hazardous Chemicals and Elements OI and refusing the application if the steps are failed. This approach has the benefit of providing a high level of protection to the environment, but it also has the effect of limiting what can be discharged to sewer beyond what is required to achieve compliance with EQS. This is because the screening steps are designed to provide a quick and easy way to identify substances in discharges which are of such low risk that they need to no further assessment. Under the permitting guidance, substances which fail screening need to be further assessed by more detailed modelling which may show that the substance can in fact be accommodated without threatening compliance with the EQS. This is true for all substances but is particularly the case for metals with bioavailable EQSs for which the modelling stage is crucial in assessing the environmental impact of the discharge as it takes into account the environmental factors which are relevant for toxicity.

Companies' priorities include preventing new limits for substances being added to their WwTW permits and they take steps to prevent this by limiting what the trader can discharge by assessing the discharge against the screening steps. Although this precautionary approach results in good protection of the environment it could be over-precautionary, potentially limiting trader activity and acting as a barrier to economic growth. It is possible that the approach applied by most companies could be difficult to defend in the event of an appeal against a refusal of consent.

Conclusion	**All companies are actively assessing consent applications and taking steps to protect the environment. Companies that are only**

	using some or all of the screening steps and not applying modelling are potentially excluding and limiting some discharges which may not have a significant environmental impact.
Action	**Companies to consider if the approach to risk management is appropriate as it may contribute to limiting economic growth. Companies to consider if the modelling steps should be incorporated into their risk assessment processes.**

Company D reported that they do carry out the modelling steps from the guidance. They confirmed that if a modelling step is failed they will modify the proposed trade effluent consent limit (or limits across multiple consents) and re-run the modelling. If after these steps the modelling demonstrates that a permit limit will still be required, then the discharge will be refused.

Good practice	**Company D's application of the modelling steps is seen as good practice.**

It seems that companies do not retrospectively review consents after the introduction of new or altered EQSs, for example the introduction of bioavailable metal EQSs. This means that companies could be allowing discharges to sewer to continue that cause a failure of the EQS in the receiving watercourse or could be unduly limiting discharges to sewer where the EQS is no longer threatened. We believe this applies to all companies.

Action	**Companies should review consents after the introduction of new or tightened EQSs. Companies could consider carrying out reviews of bioavailable metals compliance in all sewerage catchments with these metals in discharges.**

Substances assessed

Companies reported that they carry out assessments for substances with statutory or operational EQSs as included in the spreadsheets on gov.uk or in the Permitting of Hazardous Chemicals and Elements OI. These spreadsheets are made available to traders during the application process and it is unlikely that substances which are not on these lists are reported as part of trader applications.

Not all substances of concern have EQS, including, for example, some of the POPs which are listed under the Stockholm Convention. These are currently not included on the trade

effluent application substance spreadsheets because they don't have an EQS. Further consideration will be needed regarding the identification and control of these.

The EQS development process follows on from other risk identification work, such as that carried out under the Stockholm Convention and UK REACH for example. This can lead to a significant time lag between a substance being listed as a POP and an EQS being published. This could lead to potential risks both legal and to the environment if these substances are not considered.

Further information is available at: -

https://www.gov.uk/guidance/using-persistent-organic-pollutants-pops#legislation

Action	**Companies should review the application form to make it less likely that substances of concern such as POPs are not declared by the trader.**

Some companies confirmed that they apply less control to substances such as POPs and 'obscure organics', finding it difficult to know what to do about these.

Companies confirmed that they would assess substances such as pesticides which were declared by the operator but generally would not look for or attempt to control substances that did not have a formal or operational EQSs.

All companies reported that they would only assess substances which are declared by the trader as part of the application, although they would also apply knowledge of the discharge type which would help them identify any obviously missing substances. They would also use safety data sheets to identify substances.

Company A said that where they have no or little data about the industry and process generating the discharge, they may take independent samples or ask the trader to test the discharge for certain parameters. Once consented, they may carry out routine sampling which can confirm the presence of specific substances and highlight any substance that might need adding or removing from the consent.

Company G generally rely on applicant declaration but occasionally will do further checking. They consider the type of trade effluent and consider any historical knowledge of the discharge that may inform the need for further assessment work. They occasionally monitor for substances if there is a concern.

All companies operate similarly, and all agreed that it was possible and perhaps likely that substances would be missed from assessments if they were not declared by the operator.

Companies D and G pointed out that there are thousands of toxic substances without statutory EQSs and asked where the line should be drawn in terms of assessment and

control?

Conclusion	**Companies are reliant on traders to confirm the substances that are in the discharge and all companies accept that there may be substances which are missed. This may be particularly the case for substances such as POPs. Companies focus on substances with statutory and operational EQSs and are less likely to identify other harmful substances as needing assessment, even those that are designed to be toxic such as pesticides.**
Good Practice	**Reviews of materials safety data sheets, using knowledge of similar discharges and sampling and analysis are seen as good practice.**
Action	**Companies to consider if there is more that can be done to identify substances that are not declared by the trader, including those without statutory EQSs that may be toxic, for example pesticides or other biocides.**
Action	**Environment Agency and companies to consider working together to improve companies' knowledge of sources of POPs, and ways to better manage them via a joint working group.**
Action	**Companies could share lists of expected chemicals from different type of discharges with each other.**

Consent Limits

Companies reported differing approaches to setting limits. Company C stated that they would set standard limits based on trader types as a starter but will set tighter or less stringent limits as needed.

Company F explained that the starting point is the schedule on the application form. In some cases, they are provided with an analysis schedule from the customer, or they will ask for analysis data from an applicant to help them make an informed decision on

acceptability. After assessment they will either include a standard limit or a bespoke limit related to EQS and removal rates.

Company G stated that limits for chemicals are set to achieve the EQSs taking into account the concentrations of a substance already in the receiving watercourse and bearing in mind conditions in their WwTW permit and the need to protect sewage sludge quality and processes.

Company D referred to minimum consented values (MCVs) which are set for certain substances e.g., copper, with it being mandatory to set a limit if the concentration in the effluent is above this value and discretionary if it is below e.g. perhaps included if it could represent a significant load.

Company A confirmed that a limit is usually set for each substance in their Indicative Limits List that has the potential of being present in the discharge. Whilst the list provides a starting point, the limit value can then vary and it is based on an individual assessment.

Regarding the compliance statistic, companies generally use maximum concentrations, although load limits are also used more rarely, usually for larger dischargers that have flow monitoring. Company C stated that load limits are set as a 95% percentiles and Company B stated that their concentration limits were set as 99% percentiles. Company D can set percentile limits, but they do not have any of these in place at present.

Companies also include flow and temperature limits.

Metal Limits

The majority of companies set limits for individual metals and not total metals i.e., a 10 mg/l limit for all metals combined. The exception is Company C who generally use total limits for metals such as zinc or copper, though they set separate cadmium and mercury limits. They also set limits for individual metals if the WwTW receiving the trade effluent has a copper or zinc limit for example.

Historically Company F has consented combined total metals, but these are being removed during consent reviews. Company E consents individual metals but also has combined total metals in addition in some cases.

Companies appear to take different approaches regarding whether to set metal limits as dissolved or total.

Action	**Companies should review any remaining consents with total metal limits and change these to limits for individual metals**

Action	**Bioavailability should be considered as part of risk assessment and limit setting which will involve modelling as explained elsewhere in the document.**

Monitoring of trade discharges

All companies monitor trade effluent discharges to sewer and most companies use the TERA (trade effluent risk assessment) methodology to determine sampling frequency. This approach takes into consideration several factors, for example, the type of discharge, its contents, strength and volume, whether there is pre-treatment of effluent prior to discharge, and the sensitivity of the sewer catchment and/or WwTW that receives the discharge. These are used to calculate a risk score and this determines how often a discharge is monitored. Other factors can also determine the frequency of sampling, for example the annual charge or the compliance status with the trade effluent consent.

Good Practice	**Company E try to coincide trade effluent monitoring with UWWT influent/effluent monitoring which has, at times, identified potential issues with a trade discharge.**

Many of the companies do ask traders to take samples but this is generally quite infrequent and only requested where the water company may have difficulties in obtaining a sample, for example, where a discharge is made at night or made from a batch process and, in some instances, for reasons of health and safety. Company G complete all monitoring themselves and do not ask traders to take samples. This is driven by the need to ensure sampling and analysis is completed to a recognised standard and this removes any potential ambiguity around taking legal/enforcement action. Several companies provide auto-samplers to enable monitoring of batch discharges whereas Company G undertake targeted monitoring for batch discharges, and this can be out of hours.

All companies said they monitor for the substances on the trade effluent consents and many do monitor for other substances where there is a specific need, for example, in response to an incident, an investigation, evidence or concern that a trader hasn’t declared all substances, or where a trader is performing badly. Company D complete a programme of evaluation monitoring every year and complete a wider suite of analysis on their trade effluents, and Company A have recently implemented analysis for biological oxygen demand, ammonia and phosphorus on all routinely monitored trade effluents.

All of the companies contributed to the United Kingdom Water Industry Research (UKWIR) report “Trade effluent risk assessment and monitoring good practice guide” and do generally align with this from an operational point of view.

We asked the companies whether they monitor the sewer network for substances that are not consented and many said they did not do this on a routine basis but this would be completed if triggered by an incident at an asset or if a specific problem has been detected and needed investigating.

If unconsented substances are identified most companies will work with the trader and try to consent the substance. However, in some situations this is not possible and companies will either refuse to consent or will take enforcement action.

Company D completes routine sewer catchment reviews to understand what substances are entering the network. This approach considers both consented and unconsented substances. Reactive reviews are completed where the Trade Effluent Team is notified of an issue in the network or at the WwTW by operational staff. If the source is suspected as being non-domestic the company would complete an investigation to trace the source in the network. Company E also complete a proactive review programme based on various risk factors including types of substances discharged, flow compliance, pollution inventory, modelling and through consultation with operational staff. This includes monitoring of selected sectors where the company will analyse for a wider sweep of substances to check for those that may be undeclared.

We asked the companies about illegal discharges to sewer and how these are identified. Most companies use a variety of methods in addition to monitoring to do this. Desktop/internet searches are used to identify local businesses that may generate trade effluents, one company engages with their customer service team to identify new customers that may generate trade effluents (e.g., a new brewery) and water consumption data are sometimes used to identify sites with unusually high water usage that may indicate a new or increased trade discharge.

Many companies carry out pro-active catchment checks, including site visits to industrial estates or new developments. Local knowledge is also very important and TE officers generally manage their own dedicated patch and will therefore have intelligence on potential new traders.

CCTV surveys are sometimes used to identify illegal discharges and misconnections. Sometimes teams receive tip offs from the public or from operational staff in the field about illegal discharges.

Company C’s innovation team are currently looking to trial in-sewer monitoring approaches using both passive samplers and continuous monitoring probes to identify sewage composition changes.

Good Practice	**Company action to identify unconsented discharges is a positive part of protecting the environment.**
Good practice	**Routine monitoring to find unconsented substances as carried out by Company D is seen as good practice.**

Non-compliance and enforcement

Companies have similar approaches to dealing with non-compliance.

Company A's new staged process for managing exceedances is similar to that used by many companies and is used here as an example. Stage 1 in the process is to ask traders for the reasons for the non-compliance and what have they done to prevent further exceedances. In many cases this has resulted in easy solutions to prevent further exceedances. If a trader has multiple exceedances and these continues it means that there are systemic problems. This takes the trader to stage 2 of the process, the action plan. The company sends the trader guidance and asks them to develop a plan to solve the problem. They then meet with the trader to review and agree the plan. All companies have limited power to prescribe a plan and it must be the discharger's choice to decide what they do. This allows the company to hold the trader to the plan. If the trader delivers the plan and complies with the consent then Company A close the case. If they don't complete the planned actions or if these are unsuccessful the case is escalated to stage 3 and is taken to the companies' enforcement panel. This year Company A are going to implement a cost recovery tool under which they will recover the cost of extra sampling, meetings, cleaning of sewer etc incurred through dealing with non-compliance. These costs appear to be having a positive result in motivating traders to take action.

Company E stated that they have an enforcement procedure agreed with their legal team. This may lead to potential legal action but they try to avoid this if possible. Traders are expected to cooperate and take action to achieve compliance with their consent. They treat traders as needing to take responsibility for discharge. Every exceedance results in a response and each exceedance has a consequence. The aim is to get remedial action to prevent further problems and non-compliance. By taking this approach they reduce the likelihood of needing to go to court and ensure traders understand the importance of complying with their consent.

Other companies have similar approaches. Several publish information about their enforcement process on their websites.

Conclusion	**Companies' approaches to enforcement appear robust and designed to give the operator an opportunity to make improvements, with escalating consequences if this doesn't happen.**

Good Practice	**Charging traders for additional sampling etc incurred during enforcement may be positive in encouraging quicker resolution of problems and could be considered by all companies.**

Engaging with or advising customers on best practice/minimising discharges to sewer

There was quite a varied response to the question around engaging with or advising customers on best practice and minimising discharges to sewer. One company said they don't provide advice because they expect traders to comply with the consents they issue. Two companies provide basic advice to customers if requested and one company provides standard high-level advice through their website. Some companies provide advice on best practice, good house-keeping or minimising discharges during the consent application process and sometimes in response to consent breaches. One company said that market reform has made it more difficult to give advice to customers and they also said there was an increased risk that any advice provided could potentially undermine any potential future enforcement activities.

Conclusion	**Companies have different approaches to advising on best practice and minimising discharges to sewer.**
Action	**Companies could consider working together to agree a consistent approach to advice and guidance on minimising discharges to sewer as part of their efforts to help achieve the aims of the 25 Year Environment Plan**

Control of Discharges to Sewer that could have significant impact on WwTW performance

All companies regulate discharges that that could have significant impact on WwTW performance and take steps to manage them. For some discharges Company D have automatic self-notification systems, for example a brewery where a message is sent to the Operational Management Centre (OMC) if the discharge is non-compliant with the consent. Company A are working on telemetry systems that can be used to monitor temperature and pH and are connected to an alarm system. They are planning to implement many more of these (60-70 data loggers and 20-30 discharges with telemetry). Company A arrange visits to WwTW so that the traders can understand what the impacts of their discharge could be. Company H also have telemetry at one site which represents a particular risk.

All companies reported that it was important to work with these consent holders and to encourage good practice to manage the quality of discharge and prevent problems.

Conclusion	**Companies are aware of and take steps to manage discharges which could have significant impacts on works performance.**
Good Practice	**Working with traders so that they understand the impacts their discharge can have, improving their management of discharges and the use of telemetry is seen as good practice.**

Conclusions and recommendations

Throughout this report, we have recorded our conclusions and highlighted aspects of trade effluent control that we consider to be good practice and suggested actions for consideration.

Overall, we conclude that generally companies manage their trade effluent processes well and that protecting the environment is an important part of company considerations. There is variation between companies and there are aspects of trade effluent management which should be considered for improvement by individual companies and the industry as a whole. For example:

- There is a reliance on operators to identify chemicals in their discharges and all companies agree that this could result in chemicals being missed from risk assessments if they are not declared with the application.
- Companies also agreed that knowledge and in some cases control of PHS and POPs could be improved and that they would welcome closer working with the Environment Agency on this to help identify sources of these and to establish what to do if these are found in a discharge.
- All companies carry out risk assessments of chemicals in discharges applying the surface water pollution risk assessment to a greater or lesser extent. However, applying the screening steps without the secondary phase of modelling means that the guidance may be being applied in a way that is not intended.

There are several other actions and good practice examples highlighted throughout this report to be considered for inclusion in an action plan. In many cases it would be beneficial for all companies to have a standard approach for assessing discharges, issuing consents and monitoring compliance.

Next steps

We recommend that the water industry reviews this report, consider all its conclusions, and creates an action plan to take forward its recommendations. This would be with the aim of building on existing trade effluent practices as part of the industry playing its part in achieving the aims of the Government's 25 Year Environment Plan.

Annex 1 Trade Effluent Review Questions

How many trade effluent consents do you have?

How many new applications do you receive per year?

Do you ever refuse an application? For what reasons?

How many are reviewed per year?

How many are revoked?

How do you assess the risk of new or increased discharges to sewer from trade premises? In this context risk means the impact on the receiving water course from the increase in concentration of the substance in the discharge from the WwTW serving the sewerage system.

Do you follow the surface water pollution risk assessment guidance on gov.uk? Do you use our Operational Instruction on permitting hazardous substances? Are there any issues with using this guidance you would like to highlight?

If not, do you have a process to assess the risk? What is this?

Does the process you follow consider all of the substances with statutory EQS?

If no what substances do you consider?

Do you consider those substances with operational EQS in the guidance?

Do you assess substances without an EQS but which could be toxic to the environment, such as pesticides and biocides? If yes how do you do this?

If you follow the guidance in the surface water pollution risk assessment what happens if this demonstrates your discharge fails the screening steps?

Do you refer these to the Agency?

Do you carry out the modelling steps?

What happens if the modelling steps show that a permit limit is required?

What is your criteria for setting a limit on a trade effluent consent? Do you set limits for all substances in the discharge or is there a threshold?

What form are the limits that you set? Concentration, load? Mean or maximum? Percentile?

What limits do you set for metals? Are these for individual metals or are they total metals?

What do you do if a limit is exceeded? What do you do if there are multiple exceedances at a site?

What is your enforcement process?

How do you determine which substances a trader is discharging? Do you rely on what the trader declares or do you do any independent checks?

Is it possible that you may not know about substances in a discharge, either because the trade doesn't declare them deliberately or in ignorance?

Do you use position statements or other similar approaches to manage trade effluent, rather than a formal trade effluent consent?

What's the criteria for these?

What conditions do they contain?

How often do you monitor discharges? How is frequency decided on?

Do you ever ask dischargers to provide the sample – for example if the discharge is intermittent?

What do you monitor for? Is this just the substances on the permit or are others included?

Have you reviewed the recent UKWIR report ‘Trade Effluent Risk Assessment Sampling and Monitoring Good Practice Guide’? Have you made any changes in response to this?

Do you carry out any monitoring to discover if substances are being discharged into the sewerage system that are not consented?

What form does this take? How often is this done?

What do you do if you suspect an unconsented substance?

Do you do any monitoring to determine if there are substances being discharged in addition to those consented in the catchment. For example if Zinc is consented do you monitor to detect if there are additional sources that are being discharged illegally?

Are there any ways other than monitoring that you attempt to detect illegal discharges, for example inspections of trading estates or other premises?

As a company or within the trade effluent department do you engage with customers on best practice or behavioural change all help reduce the need to remove chemicals through treatment?

Do you provide any advice or guidance to traders to help them minimise their emissions to sewer?

How often do you review consents?

How are reviews prioritised?

What is the review process?

Do you ever remove headroom from consents if the full consented concentration or load is not being used?

Do you ever review all of the consents in a sewerage catchment for a particular substance to manage the risk to WwTW effluent compliance?

What do you do if a new or tightened limit is required on a WwTW permit? Do you review consents to prevent the need for a limit?

Do you have computer systems to administer and manage trade effluent consents? What are these and what do they do?

Are you aware of the relevant permit conditions on the WwTW such as the emission of substances without emission limits and the notification of change conditions?

Does your trade effluent control help to ensure compliance with these conditions? How?

What are the links between trade effluent control and permitting in your company?

Are you made aware of changes to permits that could have an impact on trade effluent consenting? For example a new limit.

Do you make permitting aware of change to trade effluent consents if they could affect permit compliance?

How do you keep aware of new or tightened EQS? For example do you know about the new EQS that came in to force in December 2018?

WFD requires ceasing or phasing out emissions of PHS? Do you take any action to help achieve this aim?

Are you aware of POPs legislation which requires certain substances to be destroyed? Do you monitor for these substances? What do you do if you find any of these in discharges?

Do you do pollution prevention campaigns or visits?

How do you target these?

What form do they take?

What advice, guidance or other interventions do you use with these?

How many trade effluent officers do you have?

Are you aware of discharges to sewer that rely on on-site treatment to prevent a significant impact on WwTW operation?

What systems do you have in place to manage this risk?

List of abbreviations

CIP - Chemicals Investigation Programme

EQS - Environmental Quality Standards

ERP Team - Environmental Regulations and Permits Team

MCV minimum consented value

NGOs – Non-governmental Organisation

OI – Operational Instruction

PHS - Priority Hazardous Substances

PNEC- Predicted No Effect Concentration

POPs - persistent organic pollutants

RPS - Regulatory Position Statement

SCE - Special Category Effluent (SCE)

SWQWPG - Strategic Water Quality and Waste Planning Group

TERA - Trade Effluent Risk Assessment

WwTW - Wastewater Treatment Works

Would you like to find out more about us or your environment?

Then call us on

03708 506 506 (Monday to Friday, 8am to 6pm)

Email: enquiries@environment-agency.gov.uk

Or visit our website

www.gov.uk/environment-agency

incident hotline

0800 807060 **(24 hours)**

floodline

0345 988 1188 **(24 hours)**

Find out about call charges (https://www.gov.uk/call-charges)

Environment first

Are you viewing this onscreen? Please consider the environment and only print if absolutely necessary. If you are reading a paper copy, please don’t forget to reuse and recycle.