

**SEPA Guidance:**

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**Identifying a substantial change for Industrial Activities**

#### Table of contents

[1. Introduction 4](#_Toc192257463)

[2. What is a change in operation? 4](#_Toc192257464)

[2.1 Change in the nature of an installation 4](#_Toc192257465)

[2.2 Change in the functioning of an installation 4](#_Toc192257466)

[2.3 An extension of an installation or authorised place 5](#_Toc192257467)

[3. What is a substantial change in operation? 5](#_Toc192257468)

[3.1 Who decides if the change is substantial? 5](#_Toc192257469)

[3.2 Constitutes the carrying on of a listed activity 5](#_Toc192257470)

[3.3 Significant negative effect 6](#_Toc192257471)

[3.4 Carrying out of a Solvent Emissions Activity 6](#_Toc192257472)

[3.5 Extension of a Large Combustion Plant Activity 10](#_Toc192257473)

[3.6 Incineration or Co-incineration Activity 10](#_Toc192257474)

[4. Criteria for assessing significance 10](#_Toc192257475)

[4.1 Extension of the installation boundary 10](#_Toc192257476)

[4.2 Changes to Ambient Pollutant Concentrations 10](#_Toc192257477)

[4.3 Releases of Substances to Groundwater 11](#_Toc192257478)

[4.4 Accumulation of Released Substances in the Environment 11](#_Toc192257479)

[4.5 Releases of “Special Substances” (The Precautionary Principle) 12](#_Toc192257480)

[4.6 Energy Efficiency and Releases of Greenhouse Gases 12](#_Toc192257481)

[4.7 Releases of Substances that Deplete the Ozone Layer 13](#_Toc192257482)

[4.8 Releases of Substances Causing Low Level Ozone Formation 13](#_Toc192257483)

[4.9 Effects of Releases on Visual Amenity 14](#_Toc192257484)

[4.10 Odour Effects of Releases 14](#_Toc192257485)

[4.11 Increased Likelihood or Consequences of Accidents 14](#_Toc192257486)

[4.12 Increases in Production of Waste 15](#_Toc192257487)

[4.13 Heat 15](#_Toc192257488)

[4.14 Noise and Vibration 16](#_Toc192257489)

[4.15 Effects on designated/sensitive receptors 16](#_Toc192257490)

[4.16 Environmental Impact Assessment (Scotland) Regulations 2010 17](#_Toc192257491)

[Disclaimer 18](#_Toc192257492)

**This guidance has been updated to meet accessibility standards and to replace certain references to legislation with references to the Environmental Authorisations (Scotland) Regulations 2018. It has not been reviewed beyond this. We are aware that sections of this guidance may need to be updated, and this work will be completed in due course.**

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## Introduction

This note provides guidance on how to determine if a proposed change in the operation of an activity under a schedule 20 Industrial Emissions Activity permit or a Schedule 23 Organic Solvent emissions permit (defined in schedule 19 of The Environmental Authorisations (Scotland) Regulations 2018 (EASR)) is considered a substantial change.

If a proposed change is considered to be substantial, the application will require public consultation (schedule 20(17) (public consultation)), along with a higher application fee. It will also likely require work with our public body partners and potentially require pre-application community engagement as stated in our Public Participation Statement.

It is possible for SEPA initiated variations to allow a substantial change and this guidance should be used to assess this.

While the legislative requirements of this guidance apply to the activities in schedules 20 (emission activities) and 23 (organic solvent activities), SEPA may apply this guidance to other industrial activities when assessing substantiality.

## What is a change in operation?

Schedule 19, Regulation 4(1) of EASR defines a change in operation as:

“a change in the nature or functioning, or an extension, of an installation or combustion plant, waste incineration or waste co-incineration plant”.

### 2.1 Change in the nature of an installation

A ‘change in the nature of an installation’ refers to a change made in the activities carried out at the installation.

However, where the purpose of an installation is changed entirely, with one set of activities replacing a completely different set, SEPA would consider this to constitute a new installation, not a change in operation.

### 2.2 Change in the functioning of an installation

A ‘change in the functioning of an installation’ refers to change in how the activities are carried out such as changes in procedures, control programs or the process (like the order components are added), as well as any new techniques used to carry out activities.

### 2.3 An extension of an installation or authorised place

‘An extension’ covers physical extensions such as increasing the size or capacity of the installation or authorised place.

## What is a substantial change in operation?

Schedule 19, Regulation 4(1) of the EASR 2025 Regulations defines a substantial change as:

 “substantial change” means—

(a) a change in the nature or functioning, or an extension, of an installation or combustion plant, waste incineration or waste co-incineration plant which SEPA considers may—

(i) have significant negative effect on human health or the environment, or

(ii) which in itself constitutes the carrying on of an activity to which any of schedules 20-24 apply, that reaches any threshold capacity specified in those schedules and includes the activities in sub-paragraphs (2) and (3),

### 3.1 Who decides if the change is substantial?

SEPA is responsible for determining if a proposed change is substantial or not.

The use of ‘may’ allows SEPA to consider possible or potential environmental impacts, even if it is not certain that will harm will occur. However, potential impacts should not be too speculative.

The ‘effects on human health or the environment’ should be considered in relation to the scope of the EASR Regulations. Effects on the environment out with the scope of EASR should not normally be considered.

### 3.2 Constitutes the carrying on of a listed activity

If the proposed change itself would count as a listed activity, then is then it should be treated as a substantial change i.e. if the increase in the capacity of the plant by itself would exceed the activity threshold.

For example, a slaughterhouse needs a permit if it processes over 50 tonnes of carcasses per day. If an already authorised operator wants to increase their capacity by a further 51 tonnes per day, it would be considered a substantial change.

Please note this does not apply to an activity described in Schedule 20 that does not specify a threshold – only the test of significant negative effect would be relevant to such activities.

### 3.3 Significant negative effect

To determine if there is a significant negative effect on human health or the environment, SEPA should:

* Consider the likely effect of individual substances released into the environment. If a substance could have a significant negative effect on human beings or the environment then the change should be considered substantial.
* Consider potential impact on the whole environment. Collectively, even small individual changes could have an overall significant negative effect. Similarly, if a mixture of substances is released then ‘in combination’ effects’ should be considered.
* Consider that even if the overall impact of a proposal is positive; there could still be significant negative effects on individual environmental media. In such circumstances the proposed change should be considered substantial.
* Compare the potential impact of the proposed change with the current impact of the installation.
* Look at the scale of any potential impact, including the geographical area effected, the population, the probability, magnitude, duration, frequency, or reversibility of any effect. Any transboundary implications or effects on protected areas, species, or assets of particular significance.
* If an installation undergoes a series of small changes over time, each change should be assessed individually. However, after a certain point, these changes could add up to a significant negative effect. In such a case consideration should be given to requiring statutory/public participation of a variation application even although it does not in itself constitute a substantial change.

### 3.4 Carrying out of a Solvent Emissions Activity

For solvent emissions activities, a substantial change is more clearly defined by specific percentage limits on the increase in solvent emissions. These limits determine whether the change is considered substantial:

* For a small solvents installation - more than a 25% increase in solvent emissions due to the change in nominal capacity.
* For other solvents installations - more than a 10% increase in solvent emissions due to the change in nominal capacity.

#### NOTE:

A schedule 23 activity (Such as those listed in Table 1 overleaf) can form part of an installation with a schedule 20 activity or be carried out alongside a schedule 26 activity.

#### Small solvents installation:

* Falls within the lower threshold band of activities 1, 3(a), 3(b), 4, 5, 8, 10, 13, 16 or 17 of Table 2 in schedule 23 of the regulations.
* Or, for all the other activities in the table, has a solvent consumption of less than 10 tonnes per year.

**Table 1 Table Organic solvent emission activities and their solvent consumption thresholds**

|  |  |  |
| --- | --- | --- |
|   | **Activity description** | **Solvent consumption threshold in tonnes/year** |
| 1 | Heatset web offset printing | 15-25>25 |
| 2 | Publication rotogravure | >25 |
| 3(a) | Other rotogravure, flexography, rotary screen printing, laminating or varnishing units (>15) | 15-25>25 |
| 3(b) | Rotary screen printing on textile/cardboard (>30) | >30 |
| 4 | Surface cleaning using using substances containing hazard statement solvent substances | 1-5>5 |
| 5 | Other surface cleaning | 2-10>10 |
| 6 | Vehicle coating (<15) and vehicle refinishing (applies to original coating away from the manufacturing line) | 0.5 |
| 7 | Coil coating | >25 |
| 8 | Other coating, including metal, plastic, textile, fabric, film and paper coating (>5) | 5-15>15 |
| 9 | Winding wire coating | >5 |
| 10 | Coating of wooden surfaces (>15) | 15-25>25 |
| 11 | Dry cleaning |   |
| 12 | Wood impregnation | >25 |
| 13 | Coating of leather (>10) | 10-25>25>10 for furnishing & particular leather goods used as small consumer goods like bags, belts, wallets, etc. |
| 14 | Footwear manufacture | >5 |
| 15 | Wood & plastic lamination | >5 |
| 16 | Adhesive coating (>5) | 5-15>15 |
| 17 | Manufacture of coating mixture, varnishes, inks & adhesives (>100) | 100-1000>1000 |
| 18 | Rubber conversion | >15 |
| 19 | Vegetable oil & animal fat extraction and vegetable oil refining activities | >10 |
| 20 | Manufacturing of pharmaceutical products | >50 |

**Nominal capacity** means the maximum mass input of organic solvents at the installation averaged over one day, if that installation is operated at its design output under conditions other than start up and shut down operations or relating to the maintenance of equipment.

**Input** means the quantity of solvent used (pure or the quantity in mixtures) when carrying on an activity (including solvents recycled inside and outside the installation) and which are counted every time they are used to carry out the activity.

**Solvent consumption threshold** equals the total input of solvents into an installation per year, less any volatile organic compounds that are recovered for reuse.

### 3.5 Extension of a Large Combustion Plant Activity

A substantial change in operation includes the extension of the rated thermal input of a combustion plant as defined in Regulation 2(1) of EASR by 50MW or more.

### 3.6 Incineration or Co-incineration Activity

Where an operator of an incineration or co-incineration plant for non-hazardous waste proposes a change in operation to include the incineration of co-incineration of hazardous waste for the first time, the change is regarded as substantial.

## Criteria for assessing significance

### 4.1 Extension of the installation boundary

The change should be assessed with regard to the potential impact on the geographical area. On its own, however, an extension to the boundary of the installation is unlikely to indicate a substantial change.

In most cases it will be the proposed use of the extended area which is the overriding factor in determining substantial change e.g. the boundary extension is required to extend the process, add a new activity, etc. These factors may trigger substantial change in themselves.

In other circumstances such as extending the boundary to install wetland treatment systems or swales, could be seen as a positive effect on the environment, and therefore should not normally be regarded as a substantial change.

### 4.2 Changes to Ambient Pollutant Concentrations

This test considers the effects of releases against EU and UK Environmental Quality Standards (EQSs), and Environmental Assessment Levels (EALs). EALs for air are set out in our [H1 risk assessment tool](https://www.sepa.org.uk/regulations/pollution-prevention-and-control/guidance/air-emissions-risk-assessment-for-environmental-permits/) which can be found on our Air Emissions Risk Assessment webpage along with further instructions. Other EALs are set out in Technical Guidance Note IPPC H1 on “Environmental Assessment and Appraisal of BAT” and include figures for water, and land. The EALs for land are defined in terms of deposition rates but will also be used in cases of direct release, for example, the spreading of sludge based on a knowledge of the composition of the sludge.

A change in concentration of a substance in the environment will not normally be regarded as substantial if both of the following criteria are met:

* it produces an additional impact of less than 2% of an EQS/EAL or equivalent (or the limit of detection if this is greater than 2% of an EQS/EAL) and
* The additional impact combined with the background concentration is less than 70% of the EQS/EAL.

Conversely a change would normally be considered substantial if:

* It produces an additional impact of more than 10% of an EQS/EAL or
* The additional impact combined with the background concentration is greater than 70% of the EQS/EAL.

For releases to water, the assessment of an impact on an EQS/EAL should be undertaken at SEPA's nominated environmental monitoring point. For releases to atmosphere, the assessment should be at the point of maximum ground level concentration under poor but not extreme weather conditions (e.g. the worst year in 10) that is consistent with the receptor and time-averaging properties of the EQS/EAL being considered.

For cases falling between the two sets of criteria the overall impact of the change on an environmental medium should be considered when making the decision.

### 4.3 Releases of Substances to Groundwater

Any additional release which may lead to pollution of groundwater by List II substances will be considered a substantial change. The conclusions of any groundwater risk assessment should be taken into account. Changes which may lead to the entry of List I substances into groundwater are unlikely to be permitted.

### 4.4 Accumulation of Released Substances in the Environment

Some releases such as heavy metals or persistent organic compounds, for example dioxins might lead to a build-up of polluting substances in the environment or bio-accumulation in the food chain. In many cases there is considerable uncertainty in assessing the build-up of pollutants in the environment or biota and it may be difficult to find appropriate criteria.

Under these circumstances, the decision should take into account the magnitude of the release, the potential for accumulation the likely receptors and the uncertainty in the assessment. However, an increase in the release of substances whose half-life is greater than 30 days, water solubility is less than 1mg/litre or partition coefficient (log k octanol/water) is greater than 5 should be considered significant, and therefore potentially a substantial change.

### 4.5 Releases of “Special Substances” (The Precautionary Principle)

The precautionary principle should be applied where there are concerns as to the risks arising from the release of particular substances. Any additional releases of the substances below into the environment, other than a trivial release, would be considered a substantial change.

* Nonylphenol
* Nonylphenol ethoxylate
* Octylphenol
* Ocylphenol ethoxylate
* Ethinyl oestradiol
* 17\* oestradiol
* Oestrone
* Octa-, deca-, penta-, bromodiphenyl ether

### 4.6 Energy Efficiency and Releases of Greenhouse Gases

Energy efficiency is unlikely to be an issue that will give rise to considerations of substantial change particularly where the site is covered by a climate change agreement.

However, any increased release of greenhouse gases arising from an installation (carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons and sulphur hexafluoride) should be considered. The Government has set a target for reductions in greenhouse gas emissions to 81% below 1990 levels by 2035. In principle, emissions of these pollutants from industrial processes should be reducing with time.

The greenhouse potential of a range of gasses can be converted into CO2-equivalent, using the global warming potential factors given in Annex H of UK technical guidance IPPC H1.

### 4.7 Releases of Substances that Deplete the Ozone Layer

Depletion of stratospheric ozone is caused by chemicals containing chlorine and bromine such as chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs), carbon tetrachloride, 1,1,1-trichloroethane, halons and methyl bromide. International agreements will eventually lead to the phasing out of these substances, with some exemptions for essential uses.

Any change that has the potential to lead to additional releases greater than 100kg/year, expressed as CFC-11, should be considered substantial. This relates to any year, not just the first year after the change. For substances other than CFC-11, conversion factors are given in Regulation (EC) No 2037/2000 of the European Parliament and of the council on substances that deplete the ozone layer.

### 4.8 Releases of Substances Causing Low Level Ozone Formation

Ground level ozone forms as a result of the interaction between sunlight, hydrocarbons, and nitrogen species. The extent of ozone formation will depend on the air quality, the mixture of hydrocarbons, time of year or day. Ideally, detailed modelling would be undertaken however where this is unavailable you may be able to use the Photochemical Ozone Creation Potential (POCP) values.

Based on modelling undertaken by the Met Office, release rates likely to give rise to ground level ozone concentrations approximately equivalent to 20% of the Expert Panel Air Quality Standards (50ppb ozone as an 8-hour rolling average) have been calculated for representative substances in each category. These are given in Table 2 overleaf:

If the change in the release rate is greater than that shown in the second column, then the change will normally be regarded as substantial. Where a mixture of hydrocarbons released, the proportional contribution of each hydrocarbon should be calculated for both the 20% criteria and the proportions summed.

**Table 2 POCP value and their release rate equivalent**

|  |  |
| --- | --- |
| **POCP value** | **Change in release rate equivalent to 20% of EPAQS criteria (t/hr)** |
| >100 | 3 |
| <100-80 | 5 |
| <80-75 | 7 |
| <75-65 | 14 |
| <65-60 | 26 |
| <60-30 | 41 |
| <30-14 | 55 |
| <14 (Category B VOCs) | 126 |

### 4.9 Effects of Releases on Visual Amenity

Visual amenity of the installation itself is not an issue for EASR. The effects of polluting emissions, however, are a EASR issue. For example, the appearance of any dispersed plume in air or water (e.g. dyes) will be relevant. An emission which causes offence to man’s senses should be considered. Any interactive effects of the new or altered plume with other plumes should also be considered.

### 4.10 Odour Effects of Releases

Any increase in the release of odorous substances from individual or diffuse sources should be considered. Whether such changes are substantial will normally depend on effect in terms of increased exposure (duration, frequency and/or concentration) and any likely increase in offence to human senses. Where a proposal has the potential to increase odour complaints or interference with amenity it should be considered substantial.

### 4.11 Increased Likelihood or Consequences of Accidents

Any test for substantial change should take account of hazards and risks associated with foreseeable but unplanned events. Changes should consider in:

* The inherent hazardous nature of the substances (potential).
* The complexity and frequency of the operations.
* The probability/frequency of any harmful release occurring taking into account measures to control, and mitigate any release and
* The consequences for human health and the environment once a substance(s) has been released.

If the proposed change would give rise to new hazards with potentially severe consequences, or for less severe consequences, an increased likelihood of occurrence, then the change is likely to be substantial.

### 4.12 Increases in Production of Waste

Proposals which lead to a significant increase in the waste disposal capacity required in a particular location will potentially constitute a substantial change. However, provided that waste can be properly disposed of or recovered and goes to an authorized facility, an increase in waste production is unlikely to be considered a substantial change as it will be properly regulated and controlled so the net environmental impact is likely to be small in most cases.

Changes in waste production could also lead to increased accident hazards or risks, which should be considered as described above.

### 4.13 Heat

For a discharge into freshwaters, a substantial change can be defined with reference to the limits given in WAT-SG-85 – Applications of Standards to Thermal Discharges[.](http://stir-app-qpl01/LinkToQPulse/Documents.svc/documents/active/attachment?number=WAT-SG-85) Different limits apply to cyprinid and salmonid waters. Any proposed change with the potential to increase the temperature by more than 20% of the limit or exceed 80% of the total allowable limit for any given water body should be considered substantial. Rapid changes in temperature should also be considered.

Substantial changes for coastal and brackish waters can be defined with reference to the guideline values in EU Directive (79/923/EEC) on the quality required of shellfish waters. Thus, a substantial change would mean an incremental increase in water temperature due to change of 0.4oC [20% of 2oC] or if the increment is less than 0.4oC, but the resulting temperature difference is greater than 2oC, this should also be regarded as substantial.

For groundwater an increase of 2oC (average 50m downstream) is considered substantial.

Additional requirements will arise in connection with natural heritage sites, where habitats and species are protected under the Conservation (Natural Habitats &c.) Regulations 1994. A change in mean temperature of more than 0.2oC may require an “Appropriate Assessment” under these regulations. It will therefore also be regarded as a substantial change where a discharge takes place into an area protected for its natural heritage under these regulations.

### 4.14 Noise and Vibration

Consideration should be given to any change in noise/vibration characteristics or perceptibility (e.g. level, tone, frequency, impulsiveness, irregularity). Where a change to noise/vibration patterns or levels are likely to give rise to complaint (offence to human senses or interference with amenity) either through increased irritation of a sensitive receptor already affected or on a new receptor this would indicate that the change is likely to be substantial.

When determining whether complaints are likely the standards applied in BS4142:2014 - Methods for rating and assessing industrial and commercial sound may be used as a guide. The change should be determined at the appropriate noise sensitive receptor.

In general, the change is likely to be substantial if:

* A different sensitive receptor would be exposed to a noise level which is likely to give reasonable cause for annoyance.
* An existing noise sensitive receptor is likely to experience a 5dB or more increase in the Rating Level or
* The LA max is likely to exceed 60dB at the façade of a room regularly used for sleeping.

NOTE: noise and vibration may also affect non-human receptors and any potential impact particularly on a designated site should be considered.

### 4.15 Effects on designated/sensitive receptors

If a sensitive receptor is affected this may indicate that the proposed change is substantial. Sensitive or designated receptors may include Sites of Special Scientific Interest, land to which Nature Conservation Orders apply, Special Protected Areas, Special Areas of Conservation, Ramsar Sites, National Scenic Areas, World Heritage Sites, or Scheduled Ancient Monuments.

Special regard should be given to sites covered by the Conservation (Natural Habitats &c.) Regulations1994 (SPA, SAC and Ramsar Sites). Where the proposal “is likely to have a significant effect” on one of these sites an “Appropriate Assessment” of the implications for the site, in view of its conservation objectives, must be undertaken. Where it is necessary to undertake an Appropriate Assessment, this is likely to indicate that a substantial change is being proposed.

The SEPA guidance on applying the Habitats Regulations contains screening distance that should be used to determine whether the Habitats Regulations are relevant.

In general, installations beyond the screening distances from a European site are unlikely to have a significant effect. It is important, however, that these criteria are not used in isolation and without proper reference to the Habitats guidance. This states that judgement should be used in applying the criteria, and the distances extended if necessary, depending on the nature of the installation, prevailing wind conditions, etc. Power stations, for example, may have potentially significant effects over a very long range (several hundred km).

### 4.16 Environmental Impact Assessment (Scotland) Regulations 2010

Where a Local Planning Authority (LPA) has required an Environmental Statement (ES) under these Regulations in respect of a change or extension, it must have determined that the change or extension may have “significant adverse effects on the environment”. If the LPA’s decision was based on criteria which are within the remit of the permit this would indicate that the proposal is likely to be substantial. Any relevant information or conclusions about the environmental impact assessment must be considered by SEPA during the determination process.

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