Water Use

Regulatory Method (WAT-RM-01)

Regulation of Abstractions and Impoundments

Version: v4.3

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Update Summary

Version	Description
v1.0	First draft using approved content from the following documents: KC_WR_Process_Summary_Water_Manual_final.doc WR5_1_Registration_Screening_Procedure_SWABS_final.doc WR5_2_Registration_Escalation_Guidance_SWABS_final.doc
v1.1	First review and inclusion of proposed Stage 2 Assessment
V2	Inclusion of Environmental Standards and expanded Stage 2 Assessment. The document reflects the recent changes to GIS and Hydrology work procedures.
v3	Reconfiguration to combine Stage 1 and Stage 2 Assessments, and inclusion of Impoundments Guidance, weblinks updated
v4	s7.1.1 updated, Flood risk (s7.6) moved to new s7.7, App.4 (Wetlands) added, WAT-FORM-27 deleted, Figs 1 & 3 updated
v4.1	s7.1.2 revised, intranet links and contacts updated.
v4.2	Contact details revised (Helpdesk and s8.2), charging scheme references & doc links updated
v4.3	s7.8 Invasive non-native species (INNS) added

Notes

References: Linked references to other documents have been disabled in this web version of the document. See the References section for details of all referenced documents.

Printing the Document: This document is uncontrolled if printed and is only intended to be viewed online. If you need to print the document, the best results are achieved using Booklet printing or else double-sided, Duplex (2-on-1) A4 printing (both four pages per A4 sheet).

Always refer to the online document for accurate and up-to-date information.

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1. Purpose of Document

This regulatory method sets out SEPA's process for determining applications for both abstraction authorisations from surface water and the installation, modification and removal of impoundments under the *Water Environment (Controlled Activities) (Scotland) Regulations 2011* ("CAR").

- Operators making, or considering making, an application should refer to the SEPA website for information on application forms and guidance on how to complete them.
- Only abstractions from the water environment will require authorisation. All abstraction activities from wetlands and surface waters (including canals and lades) are covered by this regulatory method. For guidance on authorising abstractions from groundwater refer to *WAT-RM-11: Licensing Groundwater Abstractions including Dewatering*. Note that third party abstractions from infrastructure or pipework which conveys water already abstracted from the water environment do not require authorisation.
- This regulatory method concentrates on new activities, although the process set out will also apply to technical variations in much the same way as it does to new applications. *WAT-RM-09: Modifications to CAR Authorisations* deals with generic aspects of modifications to CAR authorisations, both technical and administrative variations and reviews. *Section 3.2* of this document describes the general approach to variations.

1.1 Supporting guidance

This regulatory method provides general guidance for all surface water abstraction and impoundment applications. Some aspects of the determination process apply to specific user sectors, and these are covered in more detail in the relevant sector guidance (SG) as follows:

- *WAT-SG-69: Sector-specific Guidance - Distilleries*
- *WAT-SG-70: Sector-specific Guidance - Agriculture*
- *WAT-SG-71: Sector-specific Guidance - Canals*

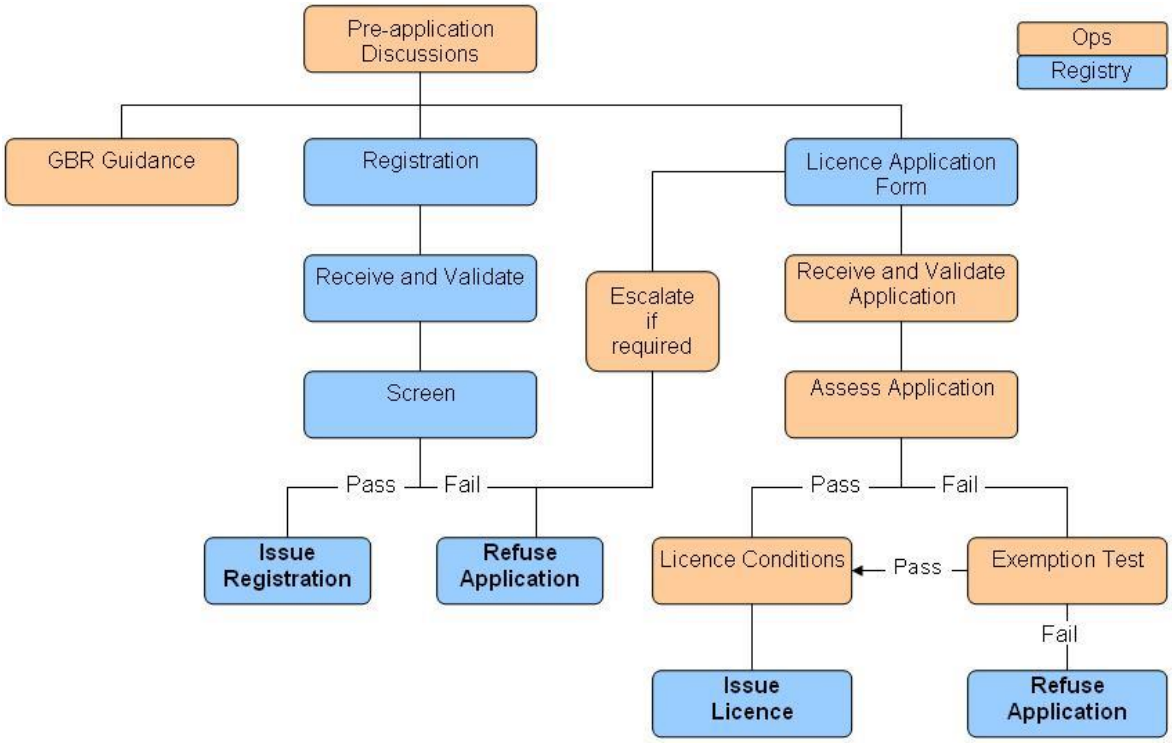
1.2 Further information and updates

For clarification on any aspect of this guidance please contact the *DL-Water Unit*.

2. Process Summary

Figure 1 below details the stages within the process summary. It is colour coded to identify main responsibilities between EPI and Registry at each step. This regulatory method covers all the steps for registrations and licences up to issue of the licence.

Figure 1 Authorisation Process Flowchart



3. Pre-application

Pre-application discussions should be used to minimise the number of applications received that are either rejected for being incomplete, at the wrong level of authorisation, require amendment, or are refused for not meeting the relevant assessment criteria. Pre-application discussions should also aim to promote best practice and efficient water use. It is important to emphasise that SEPA cannot pre-judge the outcome of any application in advance of the formal determination.

3.1 Pre-application checklist

Table 1 below provides links to the necessary guidance documents which may be required at the pre-application stage. Table 1 provides a checklist of issues which the Coordinating Officer (CO) should raise at the pre-application discussion stage.

Table 1 Pre-application Discussions

Issue	Further guidance
Supporting Info	The CO should consult the appropriate sector specific *Supporting Guidance* note and/or the local *Water Resource Specialist*.
Levels of Authorisation	*Controlled Activities Regulations: A Practical Guide*
Charging	*Water Environment (Controlled Activities) Charging Scheme*
Water Efficiency	*Section 7.4*
Justification	*Section 7.5*
Mitigation	*Section 7.6*

3.2 Variation and review of authorisations

SEPA undertakes both administrative and technical variations to existing authorisations. Pre-application discussions are also necessary when considering variations to existing licences.

For definitions of variations see *WAT-RM-09: Modifications to CAR Authorisations*, and for the appropriate charging see the *Environmental Regulation (Scotland) Charging Scheme 2016*.

This regulatory method only considers technical variations to existing abstraction and impoundment authorisations. Technical variations will be required where there is a potential increase in risk to the water environment. For example, an increase in abstraction rate or volume, an increase in impoundment height, or a reduction in compensation flow etc. would be considered in this category.

Where a variation would lead to a change in authorisation level (i.e. a registration needing to be replaced by a licence), a full licence determination would be necessary to take account of the increased environmental risk. The application process will be the same as for a new application and will follow all the procedures and charges described in this and associated documents.

4. Application Forms

No application to SEPA is required before carrying out a GBR-level activity, but operators must follow the rules set out in the *Water Environment (Controlled Activities) (Scotland) Regulations 2011*.

CAR Application Forms and comprehensive guidance for applicants on how these should be completed are available from the SEPA website. There is also a *CAR Online Registration* facility available.

For licensable abstractions and impoundments applicants should complete Licence Application **Form A** (general information), together with **Form D: Abstractions and Impoundments**.

NOTE: Where a registration is subsequently escalated to a licence by SEPA, the application fee is not affected; however, the applicant will be required to submit additional information including nomination of a responsible person.

Applications submitted in a lower category than is appropriate will be rejected and applicants requested to resubmit. The application fee will be returned.

5. Receiving an Application

Following receipt, all CAR applications are passed to Registry for validation and initial entry onto CLAS (see *Licence Administration (CLAS)* for details). This initial, non-technical validation check will ensure that the application has been signed by the correct person and the correct fee enclosed. Valid applications for registration will then be screened by Registry following the procedures described in Section 6. Valid licence applications will be passed to the appropriate local EPI team.

The CO should also check whether there are currently any other applications in progress for the same locality, and ensure that the order of receipt is taken into account. Applications should be considered on a 'first come first served' basis as capacity cannot be reserved.

Consideration should also be given to existing water users. For example, consider whether the proposal will significantly impact upon any downstream abstractions (particularly those with prescribed flow conditions) or discharges.

5.1 Grouped and associated activities

Applications where the sites meet the criteria below for associated activities should normally be included in a single authorisation, independent of the number of risk assessments carried out.

Associated Activity Definition

Abstractions and impoundments are considered to be associated if they are operated as a single scheme. This is the case where there is a link by common pipe or distribution networks to feed a single factory, treatment works or power station. This also includes a number of mobile plants operated by one person or by one company, and a number of impoundments managed as part of an estate.

5.2 Consultation and advertising

SEPA has a duty to consult other bodies and agencies with responsibilities that may be affected by activities authorised by SEPA. Any consultation must take place prior to an authorisation being issued, and SEPA must take all consultation responses into account when determining the authorisation.

SEPA also has a duty to consult when it considers an activity will have a significant adverse effect on the water environment or on the interests of other users of the water environment. In these instances the applicant may be required to advertise the application so that the views of the public can be gauged.

Advertising and consultation requirements should be identified as early as possible to avoid unnecessary delays to the determination process.

WAT-RM-20: Advertising and Consultation gives guidance on advertising and consultation procedures, as well as how to deal with the responses.

6. Registration Assessment

The registration assessment applies to all proposed inland water abstractions between 10m^3/day and 50m^3/day inclusive, and coastal and transitional water abstractions of 10m^3/day and above. The registration screening process is carried out by Registry on receipt of application.

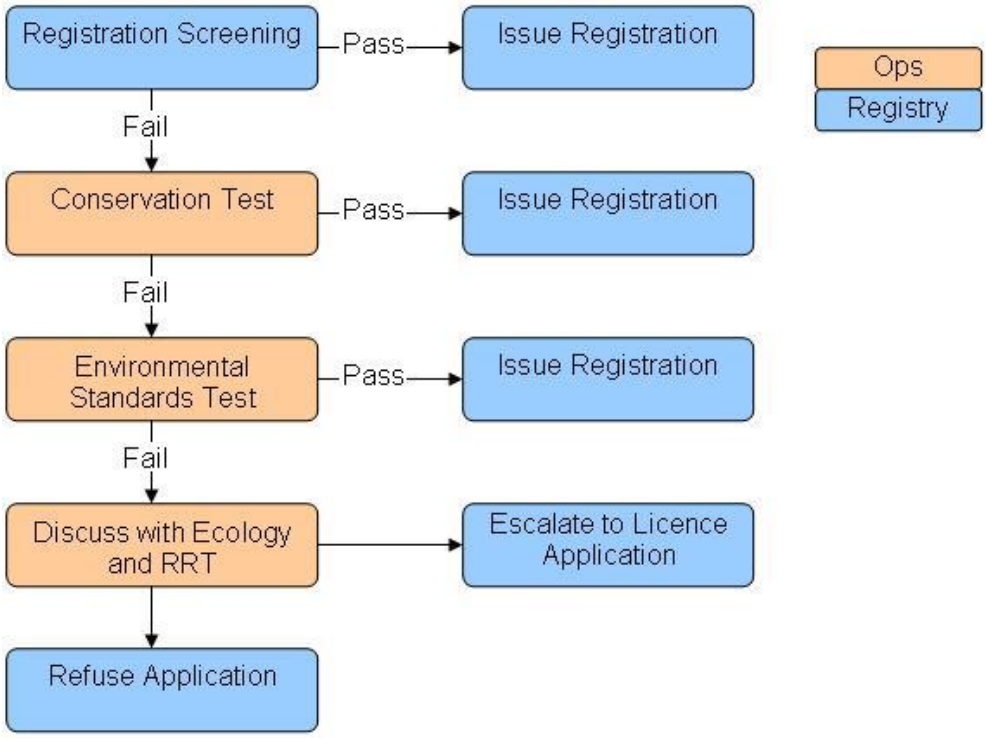
The purpose of assessment is to establish whether the proposed registration level activity risks damaging any nearby water-dependent areas of conservation and to provide a mechanism for dealing with those that do.

Those applications which could pose a risk to such sites will be forwarded to the appropriate EPI team for a decision on whether to:

- Issue;
- Refuse, or
- Escalate the application for registration to an application for a licence.

Each registration activity applied for should be assessed separately, regardless of whether multiple activities are submitted on a single form.

Figure 2 Technical assessment for registration applications



6.1 Conservation test (registrations)

The conservation test is a simple screening process to determine if any areas of conservation are at risk from a proposed abstraction. This test ensures that SEPA meets its environmental and conservation duties under CAR. The

test is identical to the conservation test used to assess licence-level activities (*section 7.2*).

If the proposed abstraction is downstream of the area of conservation, or if the area of conservation is not water-dependent, this test is passed. The application should be returned to Registry for authorisation as a registration.

However, where the proposed abstraction lies within the boundary of a water-dependent area of conservation, or within 500m upstream of such an area, the conservation test failed. The CO should then assess the application against the environmental standards test.

6.2 Environmental standards test (registrations)

This test is identical to the environmental standards test (EST) used to assess licence-level activities (*section 7.1*), and the same procedure should be followed. Where the application passes the EST, it should be returned to Registry for authorisation as a Registration.

If the application fails the EST the CO should discuss with the applicant the reasons for this and determine whether they wish to revise the proposed location or volume. *Appendix 1* provides some further suggestions.

Where no further modifications can be made to the application, Ecology should be consulted. Ecology should review the data from the test in relation to the specific designation characteristics of the vulnerable site to consider whether further investigation or consultation with SNH is necessary.

Where there is uncertainty concerning the risk or where site specific conditions or environmental monitoring are considered appropriate, it may be necessary to escalate the application to a licence, and the issue should be raised with the Regulatory Review Team (RRT). The RRT will recommend whether the application should be refused or escalated.

NOTE: Where the EST has failed, this may require agreement with the applicant on an extension to the 30 day registration application period under Reg 17(1) to allow for the additional considerations described above. If this is the case, registry should be notified of the required extension date.

6.3 Escalation procedure (registrations)

Under Regulation 11 of CAR, SEPA can escalate a registration application to a licence where additional measures are necessary to protect the water environment.

The CO should submit a report to the regional RRT for recommendation. If the recommendation is to escalate to a licence-level application, the applicant should be contacted to explain the reason for the escalation, and to request completion of a licence application form. This is necessary because a licence application provides additional data for the risk assessment, and because a responsible person will be required. It would be helpful to pre-populate the

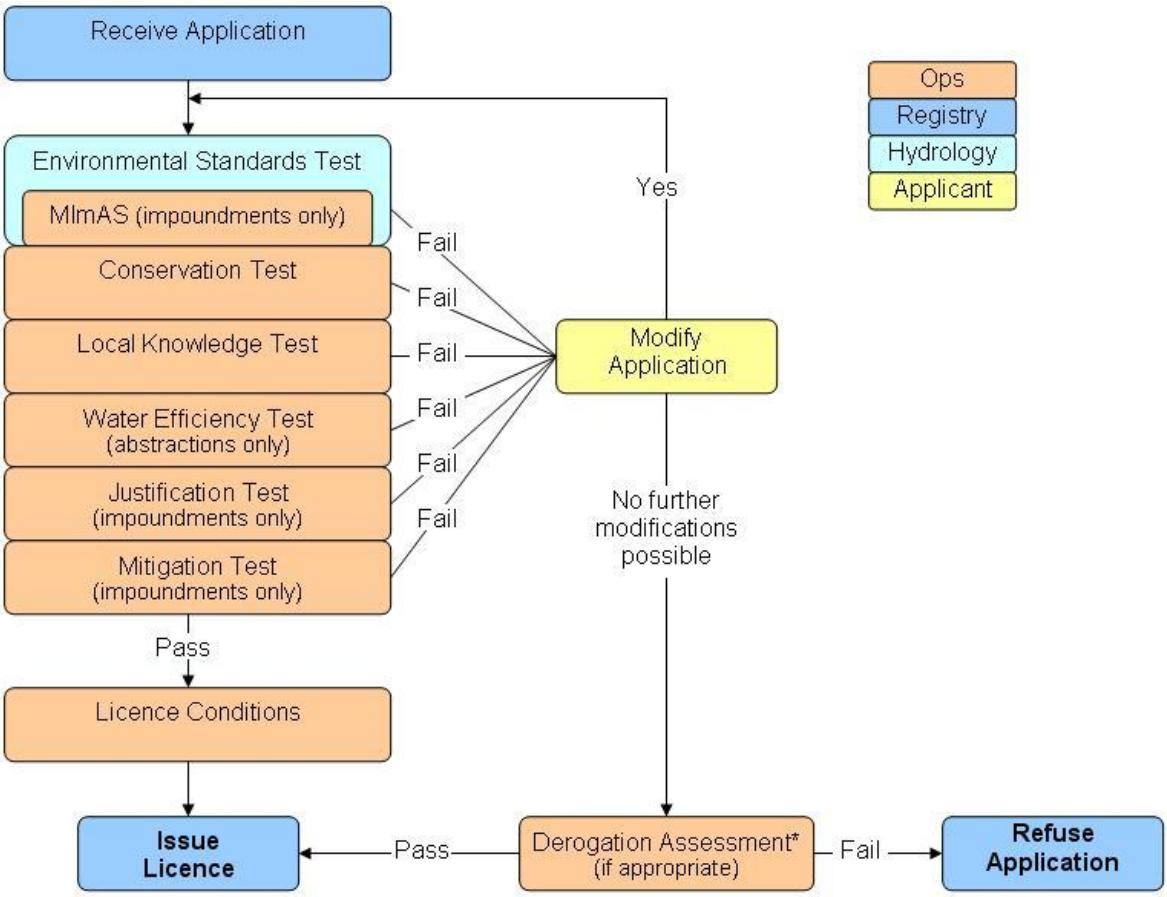
form with the information already held before sending it out. There is no increase in application fee as the volume falls in the lowest charging band, and there will be no ongoing subsistence charges.

NOTE: This does not apply to registration applications which are invalid, for example because they exceed the abstraction rate threshold. These applications should not go forward to the escalation procedure but will be returned, complete, to the applicant by Registry, with a request to submit a licence application with the appropriate fee.

7. Licence Assessment

The licence assessment process involves a number of tests to be carried out for every licence-level activity, including those for registrations which have been escalated to licence-level. The CO should record the outcome of the following tests using *WAT-FORM-28: CAR Decision Document*. The decision document should also record the details of any consultations, demonstrate whether consultation requirements have been followed, and confirm whether the agreed outcomes have been met.

Figure 3 Technical Assessment for Abstraction Applications



Full details of each stage are given in sections 7.1 to 7.6.

*The derogation assessment (described in *WAT-RM-34: Derogation Determination - Adverse Impacts on the Water Environment*) is used to determine whether a project that is likely to cause a breach of environmental standard, but which has wider socio-economic benefits, may be still be licensed.

7.1 Environmental standards test (abstractions and impoundments)

This is the key test which ensures SEPA meets its WFD obligations and that surface waterbody status is not prejudiced by granting abstraction and

impoundment authorisations. It determines whether surface water resources are available to meet the applicant's requirements and under what conditions these activities can be licensed (if at all). An explanation of environmental standards is given in *Appendix 2*.

7.1.1 Abstractions

The environmental standards test for abstraction applications will be carried out by Water Resources Hydrology.

The coordinating officer (CO) should contact Water Resources Hydrology with details of the application at the earliest possible opportunity. To do this, the CO should include in an email the grid reference of abstraction point (and return point if appropriate) and volume proposed for abstraction, and send this to *E&F Advice Helpdesk*. The subject heading of the email should make it clear it is for the attention of Water Resources Hydrology.

Contact will thereafter be made by the Water Resources Hydrologist to discuss the proposal. Once the test has been carried out, a full report detailing the outcomes will be returned to the CO.

Where an Environmental Standard is breached, further discussions should take place with the applicant. For details of specific issues which should be considered see *Appendix 1*.

7.1.2 Impoundments

The Morphological Impact Assessment System (MImAS) is used to assess the risk of impoundments on the water environment. MImAS should be applied where the proposed impoundment is to be situated on a river marked on a 1:50 000 scale map. The CO should follow the relevant guidance in *WAT-RM-02: Regulation of Licence-level Engineering Activities* and *WAT-SG-21: Environmental Standards for River Morphology* to carry out the assessment.

7.2 Conservation test (abstractions and impoundments)

The conservation test is a simple screening process for all applications to determine whether any areas of conservation are at risk from a proposed activity. This test ensures that SEPA meets its environmental and conservation duties.

The distances that a proposed abstraction or impoundment can impact on an area of conservation interest is set out in the *Nature Conservation Procedure*. In summary, a conservation site should be considered where:

- the proposed **abstraction** lies within the boundary of an area of conservation, or within 500m upstream of such an area; or
- the proposed **impoundment** lies within the boundary of an area of conservation, or within 500m of such an area.

GIS is to be used to determine whether the proposed site is likely to affect an area of conservation.

To apply the test:

1. Determine whether the proposed location is within the boundary of an area of conservation, or an appropriate distance upstream of such an area;
2. If this is the case, the CO must identify whether the potentially affected area of conservation is water dependent.
    a) Zoom to the location grid reference on the GIS interactive map;
    b) Select the 'Designations' theme from the drop down list and click 'Add';
    c) Check Designations as active and tick the following layers from the top right hand list:
    SNH Sites of Special Scientific Interest;
    Water Dependent SACs; and
    Water Dependent SPAs;
    d) In addition select 'Biodiv-Reg' theme from the drop down list and click 'Load';
    e) Check 'uncategorised' theme as active and tick all layers **except**:
    Environmental Justice Address Points;
    Environmental Justice Data Zones/Air Quality; and
    Waterbody Midpoints.
3. Use the *Identify* icon from the left hand button menu to display the information table for any displayed areas of conservation;
4. The SACs and SPAs shown have already been assessed as water-dependent. Further information on the water-dependent SACs and SPAs can be viewed on the SNH website accessed through the link in the right hand column of the information table;
5. To determine whether the downstream SSSI is water dependent click on the Midas Code to link through to *Water Dependency Information Table*;
6. Water dependency is ranked by numeric categories 1,2,3,9 and 99. Criteria for these categories are accessed by clicking on the category number. If the SSSI has a water dependency category of 1, 2 or 3 then the site is water dependent;
7. More information about the SSSI is available from the SNH website via the link at the bottom of the water dependency page or in the GIS information table. If the SNH information isn't clear on the water dependency of the site then consult SEPA Ecology.
    If the activity is within the area of search, or an appropriate distance upstream of such an area, the application requires further assessment.

NOTE: Lamprey passage must be installed on impoundments downstream of any designated lamprey site. The table below shows the existing designated

sites. This table was accurate at the time of writing. If there is any doubt about its contents, contact Ecology.

River Bladnoch	River Tay	River Teith
River Dee	River Spey	Solway Firth
Insh Marshes	Endrick Water	Monadhliath
River Tweed	Creag Meagaidh	

7.2.1 Further assessment

When further consideration is necessary, the CO should follow the *Nature Conservation Procedure*. This is to meet the requirements of the conservation legislation. The local Senior Ecologist, Environmental Science staff and SNH should be consulted where indicated by the procedure.

The CO will need to consider how to incorporate any responses from SNH and whether special conditions should be incorporated in the licence to overcome any adverse effects. These must be agreed by Ecology who should wherever possible ensure that they meet SNH requirements. Note, however, that it is the responsibility of the CO to determine whether this test is passed or failed.

7.3 Local knowledge test (abstractions and impoundments)

This test offers a further opportunity to ensure all relevant information available to the CO has been included in the assessment process, including local information which may not be recorded on SEPA national databases. The main objectives are to ensure the interests of other water users can be protected.

The CO should also check whether there are currently any other applications in progress for the same locality, and ensure that the order of receipt is taken into account. Applications should be considered on a 'first come first served' basis as capacity cannot be reserved.

Consideration should also be given to existing water users. For example, consider whether the proposal will significantly impact upon any downstream abstractions (particularly those with prescribed flow conditions) or discharges.

GIS should be consulted to check for other abstractions and discharges downstream, and to identify any water quality issues. CLAS will give details of volumes and (ideally) any conditions such as hands-off flow requirements and/or compensation flows which might be affected by the proposal. WR Hydrology, as part of the Environmental Standards Test, will take into account the presence of upstream abstractions and impoundments.

(The 'hands-off flow' is the water level at which an abstraction must cease (or reduce), and a 'compensation flow' is the minimum release of water below a reservoir/loch, provided for environmental mitigation).

Issues to Consider in Local Knowledge Test

Where consultation and advertisement has been carried out, were any issues raised?

Will the proposal impact upon any known local amenity issues?

Will the proposal significantly impact upon water quality?

Will the proposal impact upon any local fisheries?

Is there history of local water related controversy?

Will the proposal significantly impact upon any downstream abstractions (particularly those with prescribed flow conditions) or discharges?

Will the proposal involve an industrial site which is subject to PPC?

Is there any requirement for additional seasonal constraints on abstraction to protect other users?

Are there other applications in progress which would affect the outcome of this application?

Is there any requirement to condition abstraction at higher flows than Q95 to protect other users?

Any other concerns?

If the CO is satisfied there are no significant local impacts the application passes the test. If there are any issues, or any other concerns, the application will require further consideration, using Table 2 below.

Table 2 Local Knowledge Test Further Considerations

Reason for further consideration	Issues to consider
Relevant upstream abstractions	Assess influence. WR Hydrology will have an input to this through the environmental standards test.
Relevant downstream abstractions or water resource management issues which must be protected	Discuss with WR Hydrology. Conditions may be required to protect other water users, over and above those required to meet standards. Any existing downstream abstraction constraints (e.g. a hands-off flow) will need to be taken into account. These might include conditions to confine abstractions to higher flows e.g. for filling winter storage reservoirs, or agreements with fishery boards e.g. for protecting migration flows. A Water Resources Specialist should be consulted if any such arrangements may be affected.
Other 3rd party interests e.g. recreation, fisheries	Consider whether appropriate consultation and/or advertising procedures has/have been followed. Ensure representations are considered.
Impact on loch littoral zone	For proposals which involve large-scale storage which could impact the littoral zones of a loch or reservoir, contact your local hydrogeomorphologist via the *E&F Advice Helpdesk*.
PPC site	Separate CAR authorisation required for abstractions and impoundments. Liaise with PPC co-ordinating officer.
Discharges – impact on dilution	Discuss with WR Hydrology. Conditions may be required to ensure adequate dilution downstream. Consider whether the discharges need to be remodelled on the basis of a lower flow in receiving water.

7.4 Water efficiency test (abstractions only)

Efficiency of water use is an important consideration in the determination of the appropriate volumes and rates of abstraction to include in the licence. When advising on water demand it is important to be aware of requirements with regard to water efficiency. All those carrying out controlled activities under CAR have a duty to "...take all reasonable steps to secure efficient and sustainable water use" (Reg 5 CAR). In addition, when dealing with applications, CAR requires SEPA to "assess what steps may be taken to ensure efficient and sustainable water use". (Reg 15(1)(d) CAR).

The main concern is to establish that the volumes requested by the applicant are reasonable - typical water demand figures can be found in the relevant *Supporting Guidance* notes. Specific guidance on agricultural abstractions can be found in the Silsoe Report, *Abstraction Controls for Agricultural Irrigation in Scotland*.

To apply the water efficiency test:

1. Refer to the appropriate section of the *Supporting Guidance* for the use stated in the application. This will enable the CO to estimate the volumes likely to be required for the stated purposes. Consider both the overall total annual requirement and also the maximum daily and hourly operational rates where these are available.
2. Compare these estimates with the volumes and rates requested in the application, referring also to any supporting calculations submitted by the applicant.
3. If there is reasonable agreement (i.e. the proposed abstraction is within the range given in the guidance, or not more than 120% where a single figure is given, the test is passed.
4. If the applicant is asking for more than this, a more detailed examination is required.
5. Ensure all results are fully documented before proceeding.

7.4.1 Further assessment

This consists of a more in-depth re-examination of the data and circumstances of the application. This is likely to include discussion of options with the applicant. *Appendix 1* provides some suggestions.

Review initial test results

Where use of the best practice guidelines gives rise to a significant discrepancy with the volumes and rates requested by the applicant, bear in mind that the *Supporting Guidance* gives typical or average values. The applicant should demonstrate that local circumstances which might render the guidelines unreasonable have been taken into account. Where issues beyond the scope of the methods given arise, the CO should refer the matter to a Water Resources Specialist.

Reasonableness

The duty is on the applicant to demonstrate that all reasonable steps to secure efficient use have been taken. Reasonableness needs to take account of:

- **Impact on resource availability**. For example, if the proposal is close to the threshold for an environmental standard more stringent approach may be justifiable;
- **Consumptiveness of the proposed water use**. Proposals involving highly consumptive use may justify a more stringent approach than for non-consumptive uses. ‘Consumptiveness’ describes the volume of water removed from the environment without return;

- **Sustainability**. Inefficient abstraction may result in otherwise unnecessary use of energy for pumping, or chemicals for treatment;
- **Applicant's circumstances**. Any water efficiency requirements will need to be commensurate with these, although time limitations on the operation of less efficient machinery may be appropriate;
- **Age of the plant**. It is reasonable to expect new installations/equipment to be more efficient than older plant.

Modifications to the proposal

Where the review confirms that the water use significantly exceeds best practice guidelines, the CO should contact the applicant to compare his/her calculations with those of the applicant and request further information to establish how the applicant's estimates were derived. Consider what steps might be taken by the applicant to remedy the discrepancy, applying reasonable criteria as described above.

If the difference cannot be resolved, and the applicant is not prepared to revise the application, the CO should consult a Water Resources Specialist. Refusal of an application solely on water efficiency grounds would require very strong individual justification.

7.5 Justification test (impoundments only)

SEPA expects the construction of all new impoundments to follow good practice to ensure sustainable use of the water environment. In particular, the applicant must demonstrate that there is a need for the impoundment and that other options have been considered.

7.5.1 Demonstrated need

An impoundment should not be authorised where there is no clear demonstrated need for it. Activities carried out without a demonstrated need can negatively impact ecological quality and tie up capacity in the water environment, making it no longer available for activities with real needs. Therefore, in order to demonstrate best practice, the applicant must satisfy SEPA that the application is associated with a real need for an impoundment. See table 3 for guidance.

Table 3 Guide for justification of demonstrated need for new impoundments

Proposed Activity	Likelihood of Justification
New impoundments required for water abstraction Issues to consider: Are there other alternatives to an impoundment e.g. side intake? For further information see *WAT-SG-28: Good Practice Guide - Intakes & Outfalls*. Water may be able to be taken from an existing abstraction point. However, before abstraction volumes are increased SEPA should be contacted to discuss implications for existing water users and impact on the water environment.	Strong Justification
New on-line flood management impoundments (intermittent & permanent storage) (Note: off-line impoundments used for flood management are controlled through the Engineering regime). Issues to consider: Broadly speaking, there are two types of on-line impoundments used for flood management. The more common type uses intermittent storage (achieved using a hydraulic control structure) that does not impound water under normal flows, but holds back water during higher flows. The hydraulic control structure can be designed to allow for free passage of fish, other wildlife and sediment. New impoundments that use permanent storage (i.e. create a reservoir) should only be considered where intermittent storage isn't feasible. Within the range of options available for flood risk management, the use of new impoundments should only be considered where other, less damaging, measures have been ruled out due to cost or technical unfeasibility. Where flood storage using an impoundment is deemed necessary, options to use existing reservoirs within catchments to provide storage volume should be explored. All flood management projects should adhere to the principles of sustainable flood management. This includes looking at all options and ensuring the best environmental option is chosen. SEPA has a duty to promote sustainable flood management under section 2(4) of the *Water Environment and Water Services (Scotland) Act 2003* WEWS). The Scottish Government is currently developing guidance for local authorities on flood management that will include guidance on sustainable flood management.	Strong justification
New impoundments for habitat restoration Issue to consider: Impoundments can be used for habitat restoration projects, particularly for the restoration of wetlands. It should be demonstrated that habitat is in fact degraded habitat and that an impoundment is the best option for restoration. On-line impoundments in rivers for habitat restoration are unusual, and would only represent the best option in a very limited number of cases.	Potential Justification in wetlands Unlikely to be justified in rivers

New impoundments for fisheries management In some cases impoundments are used to increase fish catches in rivers. This is unlikely to represent good practice. Where habitat restoration is provided as the justification, other options should be assessed e.g. restoring riparian vegetation or installing in-stream habitat features/structures such as large woody debris or croys, etc. Habitat enhancement for fisheries improvements must be looked at on the catchment scale - this is in line with the Scottish Government document *A Strategic Framework for Scottish Freshwater Fisheries*.	Unlikely to be justified
New impoundments for sediment traps Issue to consider: Impoundments can be used to trap sediment in order that it can be easily removed from behind the impoundment. This can be for a number of reasons e.g. where excess sediment is causing an increase in flood risk or is degrading river habitat. It should be shown that there is an increase in sediment supply to the channel, and the cause of this increase, together with options on how to best address the cause, should be investigated. For further information see *WAT-SG-26: Good Practice Guide - Sediment Management*.	Unlikely to be justified. Strong evidence of genuine need would be required
New impoundments for erosion control Issue to consider: New structures - Impoundments can be used to control erosion rates, in particular around bridges. Where a new bridge or structure is being constructed this is unlikely to be justified. New bridges or other structures should be constructed to minimise the risk of erosion therefore reducing the need for erosion control works (For further information see *WAT-SG-25: Good Practice Guide - River Crossings*). Existing structures - Where erosion control is required, all other options (such as bank or bed reinforcement) should be assessed before an impoundment is considered. For guidance, see *WAT-SG-23: Good Practice Guide - Bank Protection*. It may be justified in cases where there is a risk to infrastructure and property / important habitat / species due to channel instability.	Unlikely to be justified. Strong evidence of genuine need would be required

7.6 Mitigation test (impoundments only)

Appropriate mitigation is essential in minimising the impact of an impoundment on the water environment and is a key element of good practice. Table 4 should be used by the CO as a checklist of mitigation measures that should be considered. Where the CO considers that mitigation is required but is not adequately provided this test is failed. Details of each mitigation option are provided later in this section.

Table 4 Mitigation Considerations

Mitigation Test	Points to Consider	Appropriate?	In Place?
Fish Passage	Are structures or other mechanisms proposed so as to enable salmonid fish, eels, and lampreys to access waters upstream and downstream of the impounding works (e.g. fish pass, bypass channel, etc)?		
Downstream Flows	Does the impoundment provide a downstream Q95 flow?		
	Will the volume and timing of flow in the downstream river be sufficient to enable and, where relevant, trigger fish migration?		
	Is the magnitude and frequency of short-duration higher flows sufficient to maintain river habitats through stimulating sediment movement?		
Sediment Management	Has the developer provided information on sediment continuity?		
Physiochemical Measures	Is the impoundment >25Ml, with a set compensation flow where that compensation flow is not delivered from the surface of the waterbody?		
	Are there downstream engineering structures to ensure adequate dissolved oxygen and temperature?		

Mitigation Test	Points to Consider	Appropriate?	In Place?
Loch Level Regime	Will the rate and range of any artificial drawdown be appropriately managed to maintain aquatic plant and animal communities in the shore zones of impoundments with gently shelving shore zones?		
	Will fish be able to access relevant feeder-streams draining into the reservoir at appropriate times for spawning and migration?		
	Will the seasonal pattern of water levels during each year be managed so as to enable the establishment and retention of aquatic plant and animal communities in the shore zone of the impoundment?		
Erosion Control	Lochs: Is the rate of artificial drawdown appropriately managed to minimise erosion? Can loch shore management be improved (riparian planting / exclusion of livestock) to minimise erosion?		
	Downstream watercourse: Can sediment management be addressed (see above) to minimise erosion? Can riparian management be improved (riparian planting / exclusion of livestock) to minimise erosion? Is bank reinforcement required?		
	Erosion at impoundment: what are the options for dissipating water energy and bank and bed reinforcement?		
Construction-phase Method Statement	Have satisfactory proposals been suggested to minimise damage to habitat and risk of pollution?		

7.6.1 Fish passage

In all cases there is a presumption that salmonid fish and eel passage is incorporated into any new impoundment structure. Passage for lampreys may also be required on any designated lamprey site. One of the most significant impacts resulting from any impoundment structure is the break in continuity in the river system, and enabling fish access to the habitats upstream and downstream is key to mitigating this.

There are a number of designs for fish and eel passes, and a short description of the main fish pass types are given in *Appendix 3*. Ensuring the correct design from the outset is important as it can be difficult and costly to amend designs following construction. Where there are any concerns or queries regarding a proposed design consult the local Senior Ecologist for advice.

For large scale structures (typically associated with hydropower or public water supply) it may be appropriate to request a fish survey including an

estimate of population density for all migratory species such as salmon, sea trout, lampreys and eels. In combination with post development monitoring any adverse impact on population can be determined. Where such a survey may be required the local Senior Ecologist should be consulted for further details.

Where a developer believes that fish passage is not necessary, a survey is required to show there are not species present for which fish passage would normally be expected. Where a survey is carried out, this should be designed to identify beyond reasonable doubt the presence or absence of species. Survey protocols should therefore state that they have followed SFCC (Scottish Fisheries Coordination Centre) guidelines (or similar standards) and should cover a minimum of 100 square metres at each location. Sites should be chosen to ensure that a representative range of habitat types are included and that appropriate habitat types for the species in question are covered. Sites with a high proportion of bedrock and uniform depth should be avoided where possible. A minimum of contextual information should also be provided to allow interpretation of the survey, including a site photograph and the information in the following table. Any survey should be passed to ecology to ensure the techniques and timings are suitable.

7.6.2 Downstream flows

There should always be a flow downstream of an impoundment in order to protect the aquatic ecology of the downstream waters.

If the impoundment has no abstraction associated with it, the downstream flow regime will not be significantly altered as a result of the structure and no further consideration of downstream flows is necessary.

Where the impoundment has an abstraction associated with it, a Q95 flow should be delivered as a minimum, either as a hands-off flow or compensation flow. In many cases this will be delivered via a notch structure in the impoundment, meaning that as the flow in the river rises so the volume of water passing across the impoundment will also rise, providing a variation in flow.

Further consideration of compensation flows or freshets may be necessary where the impoundment is greater than 1m and either has (a) an abstraction associated with it or (b) no provision for variable downstream flows. In such cases Water Resources Hydrology should be contacted via the *E&F Advice Helpdesk*. Hydrology will then verify any hydrological data provided by the developer and suggest whether the proposed residual, hands-off and/or compensation flows meet with current best practice. At present, best practice is a minimum Q95 residual or compensation flow with an additional variation in flow of around Q80 or Q85 when the impoundment begins to spill. However, further flow conditions may be applied where a site is deemed more sensitive to changing flow conditions because of its ecology or conservation value.

Please note that, especially for larger structures or those located in waters with associated fisheries or conservation interests, there may be further flow conditions applied. These flow conditions should be developed in consultation with the local District Salmon Fisheries Board and other relevant third parties. This may include seasonal flow conditions, periods of shut down, variable or stepped flows as well as freshet releases. Where third party representations are made, please discuss these with Water Resources Hydrology and a Water Resources Specialist.

7.6.3 Sediment management

Impoundments can trap sediment, disrupting its natural movement and causing erosion of the bed and banks downstream. This can lead to serious negative impacts and cause damage to or loss of ecologically important channel habitats (morphology). The effects can be long-lived and sometimes irreversible, and can be detected several kilometres downstream of the impoundment.

Sediment trapped at an impoundment may also lead to a maintenance issue, e.g. blocking of intakes. For these reasons it is good practice for developers to assess the likely impact of impoundments on sediment continuity and associated morphological processes and habitats.

For impoundments **less than or equal to** 1m in height no sediment management assessment will be required. For impoundments **greater than** 1m appropriate standard conditions should be included in the licence. For further advice contact the local WR Specialist.

7.6.4 Physiochemical measures

These should only be considered for impoundments which store greater than 25Ml and where:

- a compensation flow is to be set; and
- this flow may be delivered from points behind the structure other than the surface level.

Where there is no compensation flow, or it is delivered from the surface level, there is unlikely to be any impact from low dissolved oxygen or temperature.

Low dissolved oxygen and temperature may be an issue where water behind large impoundments becomes stratified and the main water releases are taken from depth. Where it is not practicable to release water from the surface layers of the reservoir, engineering modifications to the downstream river may sometimes be possible to help improve oxygenation (i.e. by creating an area of turbulent flow immediately downstream of the point of release).

7.6.5 Loch level regime

Impoundments that store large volumes of water may create an unnatural level regime, where the water levels are drawn down to supply power or drinking water during certain periods. This can have a significant impact on the littoral zone surrounding the waterbody.

This test is only applicable to those impoundments that store more than 25Ml. Where this is the case, the CO should contact a Water Resources Specialist for further advice.

7.6.6 Erosion control

Erosion can occur at the impoundment structure itself. Most erosion will occur when high flows spill over the impoundment and scour the bed and bank below. Hard reinforcement of the bed and banks or energy dissipation structures are likely to be required at the impoundment structure itself. It is up to the applicant to determine appropriate solutions.

Erosion can also occur further downstream of an impoundment. This can be caused when sediment supply is reduced at downstream reaches because it is trapped behind the impoundment. When sediment is reduced in a river, erosion of the bed and banks increases. This is because the river cannot use its energy to move sediment and so uses its energy in erosion. Erosion can be reduced by considering sediment transport past the impoundment. For further guidance the local Senior Ecologist and Hydromorphologist should be consulted.

Erosion can occur where a loch is impounded or a reservoir created and the rate of drawdown causes the banks and shore zone of the loch to erode. Considerations to reduce erosion include the rate of artificial drawdown being appropriately managed.

7.6.7 Construction-phase method statements

Every reasonable effort should be taken during the construction phase of a project to minimise both damage to habitat and risk of pollution.

The purpose of the method statement is to explain exactly how the applicant and any contractors will ensure this requirement is met. As a minimum, an outline method statement is required at the time of application. The outline method statement requires details of timings, temporary works, site drainage, pollution prevention measures, fish migration measures and measures to protect habitats during works.

If concerns exist with regard to any of these issues, a more detailed method statement should be requested with specific working methods and other measures detailed prior to authorisation being issued. Additional guidance on temporary construction methods is available in *WAT-SG-29: Good Practice Guide - Construction Methods*.

At the time of authorisation, a licence condition will be inserted requiring a full method statement to be agreed with SEPA some fixed period before works commence.

7.7 Flood risk and CAR

SEPA's regulatory duties under CAR only extend to the protection of the water environment from harm e.g. adverse impacts upon ecology and habitats. CAR is not a regulatory function for controlling flood risk and SEPA will not seek to control or regulate flood risk through CAR. SEPA will not set licence conditions specifically for the control of flood waters, or the successful operation of any flood defences.

There may be circumstances where flood related matters inform the determination of an application.

- Works which will cause harm (breach an environmental standard e.g. 500m test). An applicant will be expected to justify the proposed works and demonstrate that good practice will be adhered to (see 'Good Practice Test'). Justification for higher impact engineering may include benefits to flood risk management e.g. installation of properly designed flood defence structures to protect a community from flooding. Works which cause environmental harm but are poorly justified are more likely to require amendment or may even be refused, to avoid unnecessary or unjustified adverse impacts to the water environment.
- Applications subject to a Derogation Test (described in *WAT-RM-34*). Where an application is likely to cause a high degree of environmental harm, e.g. downgrade a waterbody, an assessment of the balance between negative and positive impacts of the proposal will be undertaken (WAT-RM-34). The flood risk impact (increases or decreases in risk) resulting from the proposal may be fed into the balancing assessment. Should the wider benefits of the proposal be outweighed by the adverse environmental impacts then the application may need to be amended, or potentially refused to avoid unnecessary or unjustified adverse impacts to the water environment.

For further information on flood risk issues see: www.sepa.org.uk

Notes:

- 13 June 2012 The Scottish Government issued a Policy Note to SEPA clarifying that while SEPA is obliged to promote or encourage sustainable flood risk management under CAR, SEPA does not have a regulatory duty to control or reduce flood risk using CAR.
- SEPA is only required to take account of flood risk in CAR when determining whether the WFD derogation tests are met, alongside a wide range of social, environmental and economic factors – SEPA WAT-SG-67 guidance refers.

- Local Authorities, and in particular their Planning procedures, remain the primary tool for controlling flood risk in Scotland. The mitigation of the effects of floods and droughts should also be a feature of the RBMP process between interested parties. SEPA provides advice to planning authorities on the implications of proposed development on flood risk, and it is the role of planning authorities to set any conditions they consider appropriate to mitigate that risk.

7.8 Invasive Non-Native Species.

Activities associated with abstraction and impoundment can cause the spread of Invasive non-native species (INNS) if not appropriately undertaken. For example moving pumps for spray irrigation or transferring water between water courses or using equipment in a water course and not adequately cleaning it before it is moved to a different water body. INNS can be spread from one part of the water environment to another by water transfers. All life stages of INNS, including very small ones such as eggs, larvae or plant fragments can be spread. In addition, although a water body may not currently contain INNS it is possible that it may do so in the future. It would be impossible to monitor for the presence of all INNS in order to prevent the spread of any new arrivals.

CAR allows SEPA to control the spread of those INNS species listed as 'high impact' in relation to WFD classification because they can cause a deterioration in waterbody status. There are a number of high impact INNS listed in Directions that can cause a deterioration in status but others are likely to be added to the list in the future. SEPA can therefore use CAR to control all species that are considered to be 'invasive' in the water environment. CAR cannot control the spread of non-native species that are not 'invasive'.

A requirement of an application for a CAR abstraction licence is to provide, for mobile spray irrigation abstractions and water transfers, a method statement detailing how each activity is to be carried out to prevent the spread of invasive non-native species.

For mobile spray irrigations that move their pumps between different water bodies this will normally involve adequately draining and cleaning the pumps and pipework in line with:

- *Check, clean, dry* procedure, and/or
- *GPP5: Works and maintenance in or near water*

When considering the risk that a water transfer will cause the spread of an INNS SEPA staff should contact the Water Unit.

8. Surrenders and Structure Removal/Maintenance

An operator may surrender an authorisation at any time, and under Regulation 24 of CAR has an obligation to assess the risks associated with the cessation of the activity.

The removal of an already licensed activity should be dealt with as a licence surrender, with a *CAR Application Form* (**Form I – Surrender**) being submitted by the Responsible Person. This should include method statements and details of any remedial or engineering works that are to be carried out. A surrender notice can then be issued which contains details of any steps necessary to avoid risk of adverse impact on the water environment from the removal.

8.1 Abstractions

When SEPA receives an application for surrender of an abstraction authorisation the CO must be satisfied that the abstraction has ceased and seek to have any structures associated with the abstraction removed and the affected area restored (unless greater environmental damage is caused by the removal).

8.2 Impoundments

In principle, SEPA is supportive of proposals to remove impoundments; however, there are a number of issues which need careful consideration before impoundment removal is carried out. The most significant risks to the environment include the movement of sediment, and changes to the patterns of erosion and deposition. There could also be potential impacts on designated sites, and changes to flood risk in the area.

As each impoundment removal is site specific, specialist advice will be required from the outset. You should contact your local water resources specialist, and hydromorphology, ecology, and flood risk hydrology staff.

The activity of removing an unauthorised or GBR-level impoundment should be covered by a simple licence, as set out in *Controlled Activities Regulations: A Practical Guide*. The licence application should be advertised since the removal of the structure could have an effect on the interests of third parties.

8.3 Maintenance and alteration of impoundments

SEPA will not normally require any authorisation for the maintenance of existing structures provided the design and footprint of the structure remains the same, and the same (or equivalent) materials are used. If the work involves the replacement of a structure then a simple licence will be required.

SEPA will only require authorisation (at simple licence level) for alterations to impoundments that have an impact on the water environment. For example, the addition of a gantry to a dam would not need authorisation. The

retrospective fitting of a wave wall will not require authorisation, provided the overall height or volume of the water stored behind the dam is not increased. The new works must not impact on any overflow structures or compensation flows.

A simple licence will be required for any works (either temporary or permanent) that alter the height of the dam or the maximum capacity impounded. This is also required if there are any impacts on structures that are for the purpose of fish passage.

9. Assessment Outcomes

Licence applications which pass all the tests and which do not require advertising or consultation should be issued as a licence with appropriate conditions. See *WAT-TEMP-14: Bank of Conditions Water Resources (Abstraction)* and *WAT-TEMP-16: Bank of Conditions Water Resources (Impoundments)*.

WAT-FORM-28: CAR Decision Document should be completed to demonstrate that relevant matters have been considered and recorded, and that decisions made are justified. This will provide a basis for the determination result and, where the proposal is subsequently authorised, for drafting the licence conditions.

Where the application fails a test (and the application cannot be modified), the application may need to go through the derogation assessment (described in *WAT-RM-34*).This is designed for applications which cause deterioration in the status of a waterbody or a failure of local environmental standards but where the socio-economic benefits may outweigh the environmental cost. Where there is a failure of any other tests but a licence is still to be issued, a full account of the reasons and justifications should be provided in a decision document.

In dealing with all applications, bear in mind SEPA's overriding duties to contribute to sustainable development whilst meeting the objectives and requirements of the WFD and complying with other relevant legislation, including our conservation duties. The approach must therefore be, as far as is consistent with these duties, to enable the applicant to achieve their own reasonable aims wherever possible while ensuring adequate and justifiable protection of the environment. Constraints that impose unnecessary or arbitrary restriction on the activities of the applicant or impose unreasonable costs may be challenged at appeal. Determination decisions will therefore require robust, transparent and consistent justification based on good science and practice.

Applications that pass the tests should be determined as quickly as possible (noting the caution below) and have an appropriate licence drafted.

In complex cases the balance between conflicting factors may need to be considered. Professional judgement and experience will be important factors in deciding how to proceed, and the CO should take advice as necessary and seek to reach agreement with relevant colleagues and specialists on the most appropriate response. Where SNH are involved, agreement with the relevant staff is also desirable, but the final decision will rest with SEPA. Careful consideration should be given to the appropriate conditions and mitigation measures which should be incorporated to enable the application to be granted and a licence issued.

CAUTION: before finalising a determination, ensure that no other, earlier, application is in progress and no authorised activity exists which could be prejudiced by the decision. If there is any potential conflict, the applications should take into account the order of receipt, to ensure that the principle of "first come first served" is maintained.

10. Authorisation Conditions and Issue

10.1 Registrations

Once a registration is granted Registry will issue the applicant with a Notice of Registration listing all authorised activities and related conditions.

10.2 Licences

Once a licence is granted registry will issue the responsible person with a licence document detailing the conditions he/she should comply with.

Licence documents should be prepared using the latest Multi Water Use Licence Template, available on Q-Pulse. This is also the appropriate template to use where two or more regimes (e.g. water resource and point source) are involved. A Specialist should be contacted for advice on how to deal with any complex cross-regime situation.

Specific water resources conditions associated with the abstraction activities should be detailed in the water resources schedules of the licence document. The conditions used will vary depending on the type of water resource activity being carried out.

The outcomes of the tests should suggest appropriate licence conditions. The Bank of Conditions lists available conditions and some guidance ("justification") for their use. All licence conditions must be reasonable and have a specific objective. A Water Resources Specialist can be contacted on how to select conditions which achieve the measures required.

If the Bank of Conditions does not provide what is required, this should be confirmed with a Water Resources Specialist. Any additional conditions will need to be carefully drafted to ensure they are enforceable and unambiguous, in which case Legal advice should be sought. Licences containing such conditions will need to be passed forward to the Unit Manager for consideration. In some circumstances the Regulatory Review Team will also need to be consulted.

10.3 CLAS, charging and inspections

Inspections carried out during the construction phase should ensure that the authorised works are being undertaken in line with the agreed method statements and design. Guidance on inspection frequencies, including those to be taken after construction, can be found on the *DREAM* (Dynamic Regulatory Effort Assessment Model & Risk Assessment Tool) intranet pages and in *Water Resource Abstraction/Impoundment Licence Inspection Guidance* (IPM-WG-11).

Once authorised, the details of the activity will have to be input to CLAS (see *Licence Administration (CLAS)* for details), including any subsistence charges applicable. Details of the appropriate charges can be found in the *Environmental Regulation (Scotland) Charging Scheme 2016*.

10.4 Data returns

In the majority of cases a licence holder will be required to submit data returns which provide details of the quantities of water abstracted. The table below indicates the only sectors liable to provide data returns.

Table 5 Data Returns

Sector	When Required	Data Recording	Returns Required
All Agriculture (inc. irrigation)	All licences	Daily totals	31st January
Golf Courses	All licences	Daily totals	31st January
Public Water Supply	All licences	Daily totals	31st March
Hydropower	All licences	Daily totals	31st January
Distillers	>1000m^3/day or >25% Q95	Daily totals	31st January
Fish Farms	>1000m^3/day or >25% Q95	Daily totals	31st January
Industrial/Commercial	>1000m^3/day or >25% Q95	Daily totals	31st January
Mining	>1000m^3/day or >25% Q95	Daily totals	31st January
Other	>1000m^3/day or >25% Q95	Daily totals	31st January

The analysis of data returns is likely to be carried out annually, as an assessment of compliance to complement site inspections carried out at other times during the year. Note that the carrying out of data analysis can count as an inspection without the need to undertake a site visit; however, it is strongly recommended that EPI officers undertake site visits in the initial years.

When studying any abstraction data returns the officer should be looking for periods of abstractions when daily, monthly, annual etc. licensed totals have been exceeded. Where a licence has a seasonal abstraction period it should also be examined to ensure abstraction did not occur outside of this period. If abstraction did occur outside of licensed periods this will count as non-compliance and appropriate action should be taken in line with SEPA's enforcement policy.

There may be circumstances where the licence and/or monitoring plans ask for compensation flows and levels to be recorded and submitted to SEPA, similar to the abstraction records. Where possible, they should be studied before undertaking a site visit to ensure the licence holder has complied with the conditions on their licence. As with abstraction returns, analysis of these records can be deemed an inspection but it is recommended that site visits are undertaken in the initial years.

In a number of catchments there may be in place ‘Management Agreements’ which restrict licence holders from abstracting on certain days or restricting the quantities of water that may be abstracted. The CO should be familiar with any agreement and should consider it when undertaking any analysis of data returns.

10.5 Monitoring and maintenance

Licensed abstraction activities are generally subject to monitoring and reporting requirements. Some of the larger operators in specific sectors are expected to provide monitoring plans. There is a condition in the template referring to this requirement, which should be completed allowing a reasonable timescale for agreement of the plan. Further sector information on monitoring requirements is provided in *WAT-SG-51: Water Resource Licence Monitoring Plan Guidance*.

Once the draft licence has been prepared it should be approved by either an EPI unit manager or the regional Regulatory Review Team before updating information on CLAS and sending to registry for issue.

For further guidance on licence conditions, templates and issuing of a new or modified authorisation please refer to:

- *WAT-TEMP-09: Generic Water Use Licence Front Sheet*
- *WAT-TEMP-10: Multiple Water Use Licence Template*
- *WAT-TEMP-14: Bank of Conditions Water Resources (Abstraction)*
- *WAT-TEMP-16: Bank of Conditions Water Resources (Impoundments)*
- *WAT-RM-09: Modifications to CAR Authorisations*

Appendices

- *Appendix 1: Abstractions – further considerations*
- *Appendix 2: Environmental Standards*
- *Appendix 3: Fish and Eel Passage Design*
- *Appendix 4: Glossary*

Appendix 1: Abstractions – further considerations

Does the applicant need water all year?

Although the environmental standards assessment is based on a range of flows across the flow duration curve, ecological research has shown there is a specific need to protect low flow conditions such as Qn95 and Qn90. Such flows often occur during the later summer months, particularly in groundwater-fed catchments, and therefore water demands that fall mainly or entirely outside this period may well be capable of being met without prejudicing low flow conditions (e.g. early crop potatoes). If the applicant is happy to accept this limitation a licence can be granted provided appropriate conditions are incorporated to ensure the agreed limitation is enforceable. A licence could, for example, restrict abstraction for the period April-June. This should be discussed with Water Resources Hydrology who will confirm whether more water would indeed be available and what flow analysis should be carried out to in order to set the allowable abstraction rate.

Use of hands-off and variable flow conditions

Where Environmental Standards are exceeded it may be appropriate to include a condition whereby abstractions can only take place under certain flow conditions. For example, conditions could be incorporated which prevent abstraction when the flow is below a pre-set threshold ('Hands-Off Flow'), or variable abstraction volumes set ('Variable Flow') at a control location. The CO should contact a WR Specialist for specific guidance on the application of either condition.

Use of compensation flow

Compensation flow provides for environmental mitigation, and relates only to those impoundments which have a provision for storage. *Section 7.7.2* contains further details on downstream flows.

Use of offline storage

If there is insufficient water available to meet demand directly at the required time, but there is more water at other times of year, offline storage may be an option. The principle of using storage to balance out supply and demand is well developed for large-scale public water supply but SEPA also encourages

farmers to consider this option, either individually or co-operatively. Farmers are often looking to abstract for irrigation at relatively high rates from small watercourses for short periods of time. Irrigation is often required when flows in watercourses are at their lowest, so the maximum allowable % of Qn95 might well be insufficient. However, if a farmer has a storage reservoir he can potentially take advantage of higher flows to increase his abstraction rate, whilst remaining within the standards. In order to check whether this would be a viable option the resource availability at higher flows should be considered. Values of Qn70 and Qn60 will be provided on the hydrology report for the Environmental Standards Test (*section 7.1*). These values can then be used in a similar manner as before, to calculate maximum allowable abstraction at Qn60 and Qn70. This will allow an indicative assessment of water availability in wetter conditions, and determine what volume of storage would be appropriate. The detailed assessment would be a matter for the applicant and/or his advisor to undertake, but relevant data will need to be provided to them to enable the analysis to be done and to decide whether to go ahead. The CO will need to indicate any limiting conditions which would apply to the licence, e.g. a hands-off flow to protect downstream users.

If this option is relevant and of interest to the applicant the CO should consult a Water Resources Specialist for more detailed advice.

Consideration of alternative abstraction regime

Various options could be discussed with the applicant, depending upon the circumstances. If there is resource available but at a lesser rate than applied for, it may be that the applicant can modify the intended abstraction to reduce demand in peak periods. Investment in more efficient equipment to enable reduced consumption may become more viable (for example it may be a cheaper alternative than considering provision of balancing storage).

Where the resource availability situation is marginal and demand is required on a limited number of days in the week, for example from Monday to Friday only, it may be possible for a weekly balancing tank or reservoir to be constructed to allow 7 day abstraction at a lower rate, but sufficient to meet the total weekly demand.

Consideration of management agreement

A further option to explore in situations where water availability is limited may be a management agreement between several operators. Such agreements are provided for in the WEWS Act. With a suitable agreement in place, it may be possible to revise limits and conditions to ensure that the environment is protected and available resources shared out efficiently and equitably. It does however rely on co-operation between several abstractors. The CO should consult a Water Resources Specialist if considering a refusal on resource availability grounds and thinks this approach may be potentially useful.

Can the applicant abstract more at higher flows?

Many water uses (such as direct river abstraction for public water supply) require a constant reliable abstraction rate. However, others such as hydropower have a higher intake capacity and benefit from abstracting more at high flows.

If this is the case, the CO should consider how much water is available at higher flows. The CO should consult Water Resources Hydrology for a more detailed analysis of resource availability if this option is to be considered. It will also be necessary to consider attaching a condition to the licence to ensure that the abstraction only takes place at the prescribed flows. Any such approach will need detailed discussion with the applicant, and consideration of potential impacts on other water users.

Appendix 2: Environmental standards

The fundamental principle SEPA applies when considering applications under CAR is whether the proposed activity will operate within the carrying capacity of the environment. The limits of the carrying capacity of the environment have been defined by the Scottish Government in terms of Environmental Standards (ES).

Proposals which would not breach the ES are likely to be acceptable to SEPA and therefore receive a CAR authorisation. *Section 6.2* details the procedure for determining registration-level activities which would breach the ES. Proposals for licence-level activities which would breach the ES will require further assessment using the derogation assessment.

The appropriate standard to apply when considering a water resource proposal is the river flow standard, even where this standard is higher than the classification of the waterbody concerned.

The overall process of assessing a proposal against the ES may be considered in a stepwise fashion as follows.

1. Email *E&F Advice Helpdesk* to request that WR Hydrology carry out the EST. WR Hydrology will return a report with the results.
2. If the standard is **not** breached, the proposal may be authorised without the use of the derogation assessment, provided there are no other reasons for refusal.
3. If the standard **is** breached but this is **not** expected to cause deterioration of status or compromise the achievement of a Ministerial objective, apply the 'general protection tests' in the derogation assessment to assess whether the proposal can be authorised.
4. If a standard **is** breached and this **is** expected to cause deterioration of status or compromise the achievement of a Ministerial objective, apply the derogation assessment to assess whether the proposal can be authorised.

Heavily modified water bodies

Heavily modified water bodies (HMWBs) by definition are bodies of water which are not achieving Good Ecological Status and are not capable of doing so without having a significant impact on the use for which the modification was made.

The primary assessment of any proposal in a HMWB is against the ES which would be achieved if the waterbody were not designated as Heavily Modified. For example the waterbody may currently achieve poor status within the affected stretch and therefore the assessment of any proposal would be against the standards for poor status. It is important to note that where a HMWB has been assessed as achieving Good Ecological Potential (GEP), it is also necessary to test whether the proposed activity would compromise the

achievement of this GEP status. For example a HMWB may have a requirement to maintain a Q95 flow in the downstream waterbody and therefore any activity which may affect the delivery of that compensation flow would have to be assessed using the derogation assessment in the same way as any breach of an identified ES.

Appendix 3: Fish and eel passage design

The design requirements for fish passes are such that the flow conditions in the pass must be well within the capacity of the fish to negotiate safely upstream or downstream in all levels of flow.

Upstream migrating fish must be able to locate the entrance to the pass and exit rapidly at the downstream end. Downstream migrating fish must also be able to locate the upstream end of the pass and be carried safely past the dam.

Fish pass type

Fish lift

A fish lift operates by attracting fish into a chamber where they are confined by a travelling crush from downstream. The container is raised at intervals up a shaft or rail to the top water level where the fish are released into the reservoir. While effective, fish lifts require the services of operators, and where they are to be constructed on existing dams, may require a supported culvert or aqueduct to convey the fish from the shaft to the reservoir.

Borland fish lock

A Borland fish lock comprises a sloping or vertical shaft with water cascading down from a top chamber fed from the impoundment. Fish enter a chamber at the bottom of the shaft, a gate or valve closes this chamber, and the shaft fills until the water level reaches the top chamber and the fish can swim out. A travelling brail may be required to ascend beneath the fish to encourage their departure. This type of pass is suitable for construction within the dam; however, constructing a Borland pass within an existing dam may require a supported culvert or aqueduct to convey the fish from the shaft to the reservoir. Variations in upstream water levels are problematic for the design of this type of fish pass.

Pool passes

Pool passes are extensively used worldwide for many fish species. The principle of the pass is to divide the height gain required to traverse the impoundments structure into a series of small steps and pools.

The traverse between pools can take various forms including notched weirs, orifices and slots, either alone or in combination, which operate across a range of flow characteristics. This particular type of pass is not suitable where upstream and/or downstream fluctuations in water level are significant due to the sensitivity of the drop and pool size to dissipate energy from the plunging flow.

Vertical slot passes are good where varieties of migratory fish species are present, and are suitable where upstream and/or downstream fluctuations in water level are significant. However, they require significant flow for migratory fish.

The pools must be of sufficient size to both help dissipate the energy of the water flowing through the pass and provide a resting area for the fish.

Baffle passes

A baffle pass allows water to spill down a sloping channel where deflectors or baffles are used to dissipate energy by the creation of helical currents and reduce the velocity of the flow such that fish can swim up the pass.

Baffle passes are one of the easiest types of pass to design and construct but they do have a number of limitations: they are generally unsuitable for watercourses carrying a significant bed material which could be deposited between the baffles; they are only suitable for species with sufficient swimming capacity; and are not suitable for small fish.

In general, the length of baffle pass should not exceed 12m without the provision of a resting pool.

Natural fish passes

A natural bypass channel, or diversion channel, consists of an excavated channel in one of the banks of the river from upstream to downstream of the impoundment structure. The use of a diversion channel provides a natural looking pass for fish at weirs; however, the channel requires a very gentle gradient (typically 1%) and hence is generally very long.

Easements

In narrow rivers where the differential head is low, such as some raw water intake weirs, an easement such as a pre-barrage or rock ramp can be formed downstream of the weir. This enables the water level downstream of the weir to be progressively raised in small steps over a length of channel to enable fish passage at the obstruction. A maximum design gradient of 5% is generally adopted.

Entrance and exit locations

The location of the fish pass is important in attracting migratory fish to the pass. It is advisable to install the entrance of the fish pass as close as possible to the most upstream point reached by migrating fish. It is also preferable to site fish passes on or near the river bank since fish tend to migrate along the banks rather than in the centre of the river. Consideration should also be given to the need for auxiliary flow in cases where competing flows (such as from an adjacent outfall) may cause confusion.

Unless significant vertical drops exist, smolts will generally be carried over weirs and spillways without damage. However, downstream passage through the designed fish pass is preferable for the young fish. To encourage fish to find the upstream end of the fish pass, measures can be taken to attract fish to the pass (for example through good positioning and lighting), or to prevent fish passing over the weir. The latter usually involves the installation of screens which has the drawback of collecting debris and which require regular cleaning to ensure continued operation.

Eel passage

Elvers and small eels, at the stages when it is essential to pass upstream, are very poor swimmers compared to the adult stages of other fish. Eels are not capable of jumping. In principle two types of passage facility can be provided for elvers and small eels – open or closed. Both types rely on providing a wetted medium with a low velocity of water.

A closed type of pass is typically a pipe or trough containing a medium of rolled geotextile, horticultural mesh etc. through which a small volume of water is passed. For larger structures, resting areas may be necessary every 2-3m. It is important to ensure that the medium extends to the upstream and downstream river bed and that it remains wetted throughout its entire length.

Open type eel pass ramps are covered in a medium similar to those mentioned above and can include Astroturf, providing a substrate for the eels to wriggle through or over.

As with all fish pass structures, maintenance is required to ensure that the pass is not damaged blocked by debris.

Appendix 4: Wetlands guidance

Works outwith the immediate channel can also carry a significant risk of harm. Any activities that can alter surface levels or out-of-bank flows within one channel width or 10m of the bank top will require authorisation. These can impact on the environmental quality of rivers, and affect in-channel hydraulics and dependent habitats.

Regulation of wetlands under CAR

Only activities which could affect surface water dependent wetlands should be assessed for potential authorisation.

SEPA has specialist wetland ecologists who can provide help and advice about wetland issues, and they should be contacted via the senior regional ecologist. There are some key wetlands* which may be associated with surface waters e.g. river channels, loch sides, river banks and flood plains:

- Wet Woodlands (type 1b)
- Marshy grassland (type 2a)
- Fen (type 4)
- Swamp (type 5)
- Reed Bed (type 6)
- Wet heath (type 7)
- Quaking bog (type 8b)

If it is unclear whether a wetland is implicated by a proposed controlled activity the CO should ask the senior regional ecologist for advice.

SEPA GIS currently identifies protected wetlands (e.g. SACs, SPAs, SSSIs) and wetlands of local biodiversity value. Wetland locations can also be highlighted by information submitted by applicants, site visits and the use of OS maps, photographs and through the consultation process.

The CO should have regard to the above categories of wetlands that may be affected by the works, and seek advice from senior regional ecologists if they believe wetlands are implicated.

* Taken from A Functional Wetland Typology for Scotland. The above wetland categories are described in Appendix A of the referenced document. Further descriptions and a wetland identification field guide are available from the SEPA Intranet, or from senior regional ecologist or national wetland staff.

Appendix 5: Glossary

Term	Meaning
Terms marked * are defined in statute [WEWS (ss 3 and 20) or CAR (s2)]. Statutory definitions always prevail over any alternative version.	
Abstraction*	The doing of anything whereby any water is removed or diverted by mechanical means, pipe or any engineering structure or works from any part of the water environment, whether temporarily or permanently, including anything whereby the water is so removed or diverted for the purpose of being transferred to another part of the water environment, and includes: the construction or extension of any well, borehole, water intake or other work by which water may be abstracted; and the installation or modification of any machinery or apparatus by which additional quantities of water may be abstracted by means of a well, borehole, water intake or other work.
Associated activity	Abstractions are considered to be associated if they are operated as a single scheme. This is the case where the abstractions are linked by common pipe or distribution networks to feed a single factory, treatment works or power station. This also includes a number of mobile plants operated by one person or by one company
Authorisation*	The power or document that specifically authorises the carrying out of a controlled activity under Regulations 7,8, or 9. [GBRs, registration or licence.]
CAR	The Water Environment (Controlled Activities) (Scotland) Regulations 2011 (or Controlled Activities Regulations).
Coastal water*	Water (other than groundwater) within the area extending landward from the 3 mile limit up to the limit of the highest tide or, where appropriate, the seaward limits of any bodies of transitional water, but does not include any water beyond the seaward limits of the territorial sea of the United Kingdom adjacent to Scotland.
Compensation Flow	A minimum release of water below a reservoir/loch in order to provide for environmental mitigation.
Controlled* activity	An activity to which the CAR Regulations apply, in accordance with regulation 4(1) of the Regulations
Day	Any period of 24 consecutive hours
Designated site	A conservation site that has been designated under national or European legislation for its conservation value and which is subject to special procedures in assessing any authorisation that might have an effect on the site. SSSIs, SPAs and SACs are examples of designated sites
Environmental service	The carrying out, operation or maintenance of any activity which is, in the view of SEPA, solely for the benefit of the environment, not being for commercial purposes or in implementation of a statutory duty.
Fish pass	Any fish pass, ladder, fish way, lift or other device which facilitates

	the free passage, upstream or downstream, of fish around, over or through any dam
Flow Duration Curve	A graph showing the percentage of time that the flow exceeds certain long term values.
GBR	General Binding Rule
Groundwater*	The water body below the surface of the ground in the saturation zone and in direct contact with the ground or subsoil.
Hands-off Flow	The water level at which an abstraction must cease (or reduce).
Height	(in relation to an impoundment) - the height as measured from the downstream toe of the impoundment structure to the crest or top of the spillway
Impoundment*	a) any dam, weir or other works by which water may be impounded; or b) Any works diverting surface waters in connection with the construction or alteration of any dam, weir or other works falling within (a) above. Raising the level of an existing natural loch is also considered an impoundment. NB: A pond or lake created by excavation below the pre-existing ground level (e.g. a dug pond or flooded quarry) is not included.
Impoundment (On-line)	'On-line' impoundments hold back flows in the water environment (wetlands, rivers, artificial water bodies, lochs and estuaries) and consequently affect downstream water flows, sediment transport and migration of fish.
Impoundment (Off-line)	'Off-line' impoundments are built to store water (including surface run-off, groundwater, or land drainage) and are not on-line (as above).
Lade	A gravity fed and predominantly open, continuous artificial channel or stream leaving a watercourse and re-entering the water environment at a downstream location.
Land drainage	A series of subsoil pipes or ditches, which are designed to drain an area of land to allow development or for agricultural use.
Loch	An inland body of water formed in a depression on the land surface (usually a loch has a discernable inlet and outlet).
Managed weir	An impoundment across a watercourse that is associated with an abstraction or where the upstream water level can be raised or lowered due to the operation of sluice gates, valves etc.
Month	A calendar month,
Off-line impoundment	See Impoundment (Off-line)
On-line impoundment	See Impoundment (On-line)
Passive weir	An impoundment across a watercourse that is not associated with an abstraction of water and where the water level cannot be varied. Typically the sole purpose is to raise the water level upstream of the structure.

Point source discharge	A discharge of an effluent or other matter to the water environment or land by means of a fixed installation, pipe, outlet or otherwise.
Raised loch	A loch where the surface water level has been increased above its natural level. This is typically due to the installation of a physical structure, such as a small dam or an embankment, which raised the level of the outflow from the loch.
Reservoir	Artificial storage places for water (e.g. ponds, impoundments and raised lochs) from which the water may be withdrawn for such purposes as electricity generation, irrigation or water supply.
Responsible person*	A person who is responsible for securing compliance with the terms of a water use licence and has been identified as such by SEPA in accordance with regulation 9(6) of the Regulations, and in this context 'person' includes a body corporate, limited liability partnership and Scottish partnership
SAC	Sites designated under The Conservation (Natural Habitats, &c) Regulations 1994 (the Habitats Directive) as being of Community importance.
SPA	Special Protection Area designated under the European Wild Birds directive and included within the list of sites designated as SACs
SSSI	Site of special scientific interest, designated as such under the Nature Conservation (Scotland) Act 2004 and preceding legislation
SUDS	Sustainable Urban Drainage System
Surface water*	Inland water (other than groundwater), transitional water and coastal water
Transitional waters*	A term used by the WFD to represent estuaries: 'Transitional waters' are bodies of surface water in the vicinity of river mouths which are partly saline in character as a result of their proximity to coastal waters but which are substantially influenced by freshwater flows.
Water environment*	All surface water, groundwater and wetlands
Week	Any period of 7 consecutive days
Weir	An overflow structure that is used for controlling upstream water level.
Wetland*	An area of ground the ecological, chemical and hydrological characteristics of which are attributable to frequent inundation or saturation by water and which is directly dependent, with regard to its water needs, on a body of groundwater or a body of surface water. [WEWS - s3(5)]
WEWS	Water Environment and Water Services (Scotland) Act 2003
WFD	Water Framework Directive
Year	Any period of 12 consecutive months

References

NOTE: Linked references to other documents have been disabled in this web version of the document.

See the Water >Guidance pages of the SEPA website for Guidance and other documentation (www.sepa.org.uk/regulations/water/guidance/).

All references to external documents are listed on this page along with an indicative URL to help locate the document. The full path is not provided as SEPA can not guarantee its future location.

Key documents

WAT-RM-02: Regulation of Licence-level Engineering Activities

WAT-RM-09: Modifications to CAR Authorisations

WAT-RM-11: Licensing Groundwater Abstractions including Dewatering

WAT-RM-20: Advertising and Consultation

WAT-RM-34: Derogation Determination - Adverse Impacts on the Water Environment (including derogation assessment)

Supporting guidance

WAT-SG-21: Environmental Standards for River Morphology

WAT-SG-23: Good Practice Guide - Bank Protection

WAT-SG-25: Good Practice Guide - River Crossings

WAT-SG-26: Good Practice Guide - Sediment Management

WAT-SG-28: Good Practice Guide - Intakes & Outfalls

WAT-SG-29: Good Practice Guide - Construction Methods

WAT-SG-51: Water Resource Licence Monitoring Plan Guidance

WAT-SG-69: Sector-specific Guidance - Distilleries

WAT-SG-70: Sector-specific Guidance - Agriculture

WAT-SG-71: Sector-specific Guidance - Canals

WAT-FORM-28: CAR Decision Document

WAT-TEMP-09: Generic Water Use Licence Front Sheet

WAT-TEMP-10: Multiple Water Use Licence Template

WAT-TEMP-14: Bank of Conditions Water Resources (Abstraction)

WAT-TEMP-16: Bank of Conditions Water Resources (Impoundments)

SEPA publications

CAR Application Forms and Guidance (www.sepa.org.uk)

- Form A - General Information
- Form D - Abstractions and Impoundments
- Form I - Surrender

CAR Online Registration (www.sepa.org.uk/wfdreg)

Controlled Activities Regulations: A Practical Guide (www.sepa.org.uk)

DREAM (Dynamic Regulatory Effort Assessment Model & Risk Assessment Tool) SEPA Intranet

Environmental Regulation (Scotland) Charging Scheme 2016

Licence Administration (CLAS) SEPA Intranet

Nature Conservation Procedure SEPA Intranet

Water Resource Abstraction/Impoundment Licence Inspection Guidance (Doc No.: IPM-WG-11)

Other publications

A Strategic Framework for Scottish Freshwater Fisheries July 2008 (www.scotland.gov.uk)

Silsoe Report, *Abstraction Controls for Agricultural Irrigation in Scotland*. Knox, J.W., Weatherhead, E.K. and Brewer, T.R. 2004

Check, clean, dry procedure, NNSS (http://www.nonnativespecies.org)

GPP5: Works and maintenance in or near water (http://www.netregs.org.uk)

Water Environment (Controlled Activities) (Scotland) Regulations 2011 SSI 209 (www.netregs.org.uk)

Water Environment and Water Services (Scotland) Act 2003 (www.netregs.org.uk)

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