Water Resource Assessment Flow Data Requirements

Purpose of Document

NIEA Hydrology team will require flow data to be submitted in support of an Abstraction & Impoundment Licence application. The purpose of this document is to provide guidance on the hydrological information required from applicants in support of any abstraction application. The requirements set out in this document are indicative, so additional information may be required in some cases.

In assessing any proposed new or review of an existing abstraction NIEA Hydrology need information on the flow characteristics of a river to conduct a Water Resource Assessment (WRA). The WRA assesses the impact of an abstraction on the natural flow regime of a river by Environmental Flow standards as outlined *in* *The WFD (Classification, Priority Substances and Shellfish Waters) Regulations (NI) 2015*.

The methodology applied to estimate flows at a given point on a watercourse is dependent on the available information and the scale or size of the catchment area of the point of interest. We therefore would encourage all applicants to engage early in the application process to ensure that their methodology for provision of flow data is fit for purpose. The hydrology team will make an assessment on the suitability of that flow data based on the following criteria:

1) The principle defining factor is the presence of a river flow gauging station (RFGS) at or near the requested site and how representative the observed flows are likely to be. This is dependent on both relative position of the RFGS and any influencing factors such as discharges or other abstractors between it and the point of interest. The principles applied to decide if use of RFGS data is appropriate are outlined below:
    - Both RFGS and point of estimation are on main river stretch (channel) and the relative catchment characteristics are similar and homogenous.
    - Catchment area of RFGS and estimated point are within 15% of each other.
    - No major influences between points (river tributary, large discharge or abstraction).

If the relative positions of the RFGS and requested point do not meet the above criteria it is unlikely that the estimate generated from adjusted observed records will be accepted. NIEA hydrology will advise and confirm if the RFGS is suitable to transpose to the proposed abstraction.

There is a single surface water hydrometric monitoring network within Northern Ireland maintained by the Rivers Agency, an executive agency of the Department for Infrastructure (DfI). Enquiries as to the current location of RFGS and any data series associated with these sites should be addressed to that agency at *hydrometrics@infrastructure-ni.gov.uk*

In the absence of suitable RFGS data the hydrology team will accept monitoring data supplied by the applicant or modelled data.

2) Monitoring data will be required in support of an application under the following circumstances:
    - If the catchment size of point of interest is 7km^2 or less – 12 months of continuous data will be required in support of the application
    - In support of the use of areal adjusted RFGS data that does not meet the above criteria – 6 months of continuous data can be used in support of the use areal adjusted figures however the applicant may wish to monitor for longer to establish a statistically significant correlation

There are a number of methods available to determine flow from monitoring such as v-notch weirs and flow monitoring in open channels. For further information on the suitability of flow monitoring associated with an abstraction proposal please contact the NIEA Hydrology Team.

3) Modelled (or monitoring) data can be supplied in support of an application where the catchment size of point of interest is greater than 7km^2. NIEA generate a flow duration curve using the LowFlows Enterprise software system for their own use to determine the suitability of the supplied data. User licence restrictions mean that NIEA are unable to provide LowFlows Enterprise estimates to a developer, agent or applicant. However, Wallingford Hydrosolutions provides a flow retrieval service using the same software. Should an applicant choose a different model to estimate a flow duration curve then details of it must be submitted in the supporting information including any calibration. The applicant should be aware that NIEA reserves the right to reject alternative models when it believes that LowFlows Enterprise will be statistically more robust.

For all proposals NIEA will review flow data submitted. Where discrepancies in methods occur NIEA hydrology will discuss with the applicant which approach will be best applied in support of the application. For further information on which method to apply and hydrological data required for a proposal please contact NIEA Hydrology at:

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