ENVIRONMENTAL MANAGEMENT GROUP

Technical report

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HAWKE'S BAY REGIONAL COUNCIL

SAFEGUARDING YOUR ENVIRONMENT + KAITIAKI TUKU IHO

HBRCs requirements for the use of portable pumps used to report water use

February 2013
EMT 13/07
HBRC plan 4471

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SAFEGUARDING YOUR ENVIRONMENT + KAITIAKI TUKU IHO

Environmental Management Group
Technical Requirements

HBRCs Requirements for the use of Portable pumps used to report water use

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1.0 INTRODUCTION

This technical specification has been developed to describe the acceptable installation and configuration of water meters used to report consented water use when fitted to a portable pump.

The 2010 regulations for the Measurement and Reporting of Water Takes require permit holders to keep records that provide a continuous measurement of water taken under a water permit. The records must be kept using a system or device that measures the water taken with an accuracy of +/-5%, the water measuring device must be fitted at the point of take (unless council provides an exception) and be as tamper proof as practicable.

The use of portable pumps that are intermittently connected to a point of take and are used to report the water used must follow the specifications outlined below.

The following specifications do not have to be followed, if a portable pump is used were a water measuring device has been permanently installed at the point of take, as per HBRCs current specifications for the selection and installation of flow meters.

The following minimum requirements must be adhered to

2.0 METER REQUIREMENTS

- The flow meter must meet Hawke's Bay Regional Councils technical specifications and pattern approved OIML R49.
- Selected to be within +/-2% error of the flow-meters accuracy curve throughout the expected and consented flow rates.
- Installed and proved to be reading within +/-5% error of the flow meters accuracy curve throughout the minimum and maximum expected flow rates.
- The meter must be selected and installed to unsure the water quality does not adversely affect the performance and life expectancy of the flow meter.
- The meter must be installed in fixed steel pipe work.

3.0 IDENTIFICATION

Each portable pump shall have its unique identifier clearly displayed on the side of the pump unit.

4.0 REPORTING REQUIRMENTS

A telemetry device must be connected and report the water use from the portable pump, , this shall be recorded no at no greater interval than 15 minutes and date and time stamped in NZST.

If the pump unit is operated and reporting the water use for two or more consents a telemetry device with a GPS unit must be connected, to report the pumps location when pumping occurs, this shall be recorded no at no greater interval than 15 minutes and date and time stamped in NZST.

The telemetry device must be compatible with the Hawke's Bay Regional Councils telemetry reporting system.

The telemetry device must report to HBRC at least four (4) times in every 24 hour period.

5.0 LOCATION OF WATER METER

The water meter shall be mounted within a permanent steel pipe on the portable pump unit as per Photo 1 and 2 below.

Photo 1

Photo 2

Any deviations from photo 1 or 2 must be approved by HBRC before pumping commences.

6.0 ADDITIONAL REQUIREMENTS

A telemetry unit must be installed according to the manufactures written instructions and Hawke's Bay Regional Councils minimum requirements.

The telemetry device must be mounted in such a way that it allows for both easy access for reading of the display unit and any maintenance requirements.

The telemetry device shall have a logging capacity to hold at least 28 days of location and water use data.

7.0 SECURITY

The flow-meter installation shall be sealed (i.e. tamper proof) in such a way there is no possibility of dismantling, altering or removing the flow-meter or any adjacent components (e.g. data loggers, telemetry equipment etc) without visibly damaging the protective devices.

The installation will have tamper tags fitted through the flow meter mounting bolts or tamper tape on loggers and cable junction boxes fitted in such a way that the meter cannot be removed and should pumping occur without the destruction of a tamper tag.

8.0 ENVIRONMENT

The meter and telemetry device shall be protected from risk of damage from external environmental conditions (such as flooding, stock, corrosion etc) and mounted in such a way that vibration does not affect the longevity of the meter or quality of water use records.

9.0 COMMISSIONING

Commissioning is required to ensure the meter is ready for use and must be validated.
The commissioning process shall be conducted by the flow meter installer, telemetry installer and consent holder.

Steps in the commissioning process shall consist of, but not be limited to those listed below.

- Check that the telemetry provider or measurement instrument has been approved by or is compatible with Hawke's Bay Regional Council requirements.
- Check that the instruments have been installed in accordance with the Hawke's Bay Regional Council requirements and the manufacturer's installation instructions.
- Where applicable, check that the flow computer has been programmed with any revised parameters and the pump unit number is used as the data identifier.
- Where applicable, check that the correct version of software has been installed.
- Check installation, and install tamper seals and secure electronic settings that may alter the accuracy and integrity of the telemetry unit and or associated devices.
- Record initial flow meter reading at the time of installation.
- Run the pump and check that HBRC has received the water use and location in the correct format and that the water meters multipliers have been set up correctly.
- Complete appropriate documentation and return to Hawke's Bay Regional Council within one (1) month of the completion of the flow-meter installation and prior to pumping ocuring.

Table 1: Terms and Definitions

Discharge side of meter	Downstream of the meter
Data logger	An electronic device that records data over time either with a built in instrument, sensor or via external instruments and sensors.
Intake side of the meter	Upstream of the meter
Pipe flow	Water moving through a closed conduit under pressure.
Pipe work, Pipe line, Pipe run.	The plumbing (pipe run) that connects to the water meter.
Volume display unit	The part of the meter that displays the measurement results.
Portable pump	A device which has the primary function of pumping water for the purposes of irrigation and has the ability to be moved with ease (or a certain time frame ie 1 hour).
Flow meter (a "meter")	An instrument ("water meter") that continuously measures and records the volume of water passed through a pipe and includes any ancillary device attached to or incorporated in the instrument.

	The instrument must be able to measure and display the cumulative flow volume and allow for readings to be taken to determine the instantaneous flow rate of water passing through the pipeline.

10.0 TELEMETRY EQUIPMENT:

Telemetry Description	Requirements
Data	Minimum data retrieval frequency on daily basis, once per 24 hours Water use location data date and time stamped in NZST on device Able to be interrogated for data retrieval SMS or email alarm capability The telemetry devices logging capacity shall have the ability hold at least 28 days of location and water use data.
GPS	Lat Long accuracy better than +\- 20 mtr
Operating Environment of transmitting equipment	Ambient temperature range –10 to +50 degrees C (0 to +50 degrees C indoor installation) Minimum of IP 65 indoor or IP 68 outdoors Operate in environments where 240v power supply is not available
Communications	Secure and reliable Future proof – e.g. protocols 3G compatible, internet.

11.0 PROTOCOLS AND FORMATS

Hilltop Format for Water Take and GPS Location

To correctly report water use and location the following xml file format must be used.

```
<?xml version="1.0"?>
<Hilltop>
<Measurement SiteName="WS080123">
<DataSource Name="Compliance Volume and Location" NumItems="3">
<Interpolation>Incremental</Interpolation>
</DataSource>
<Data DateFormat="Calendar">
<V>10-Apr-2008 11:06:15 10 39.352794 76.431522</V>
<V>10-Apr-2008 11:25:56 10 39.352794 76.431522</V>
<V>10-Apr-2008 11:46:02 10 39.352794 76.431522</V>
<V>10-Apr-2008 12:05:15 10 39.531015 76.433173</V>
</Data>
</Measurement>
</Hilltop>
```

For further information on hilltop file transfer please contact XXXXXXX at the Hawke's Bay Regional Council