Alliance for Water Stewardship

Site Level

CONFIDENTIAL

Client Name:	NHS Highlands
Audit date(s):	4th and 5th November 2019
Audit location:	Caithness General Hospital, Bankhead, Wick KW1 5NS, United Kingdom
Audit report completed by:	Kevin O'Grady
Report issue date:	This is the date that the report is issued to the client
Proposed date of next audit:	December 2020

Introduction to the Alliance for Water Stewardship

The AWS Standard ("the Standard") is intended to drive water stewardship, which is defined as *the use of water that is socially equitable, environmentally sustainable and economically beneficial, achieved through a stakeholder-inclusive process that involves site- and catchment-based actions.* Good water stewards understand their own water use, catchment context and shared concerns in terms of water governance, water balance, water quality and Important Water-Related Areas, then engage in meaningful individual and collective actions that benefit people and nature.

The Standard outlines a series of actions, criteria and indicators for how one should manage water at the site level and how water management should be stewarded beyond the boundaries of a site. In this Standard, the "site" refers to the implementing entity that is responsible for fulfilling the criteria. The site includes the facility and the property over which the implementer that is using or managing water (i.e., withdrawing, consuming, diverting, managing, treating and/or discharging water or effluent into the environment) has control.

The current AWS Standard is Version 2.0 launched on 22nd March 2019.

Disclaimer

The BM TRADA audit was based on a sampling approach and therefore non-conformities may exist which have not been identified.

A copy of this report shall be distributed to the certified client and to BM TRADA.

The ownership of this audit report is maintained by BM TRADA.

BM TRADA shall keep confidential all information relating to the audit and your organisation and shall not disclose such information to any third party except as required by law of by Accreditation Bodies.

BM TRADA assumes no responsibility (legal or otherwise) or accepts no liability to any person(s) for any loss, damage or expense caused by reliance on information provided in this audit report.

Guidance on BM TRADA nonconformities issued against the AWS standard requirements

Details of all nonconformities issued at the audit are contained in separate nonconformity reports and should have been presented to you at the closing meeting.

Please send all nonconformity response to your local BM TRADA office. Once we have received responses they will be forwarded to your auditor for review. We will contact you if further submission is required.

Audit finding shall be assigned (or 'graded') into one of three categories: major non-conformity, minor non-conformity, and observation.

Major Non-Conformities

A major non-conformity is raised if:

The issue represents a systematic problem of substantial consequence;

The issue is a known and recurring problem that the client has failed to resolve;

The issue fundamentally undermines the intent of the AWS Standard; or

The nature of the problem may jeopardize the credibility of AWS.

All major non-conformities must satisfactorily address by the client within thirty **(30)** days.

Minor Non-Conformities

Where the audit team has evaluated an audit finding and determines that the seriousness of the issue does not meet the any of the criteria for major non-compliance the audit team shall grade the finding as a minor non-conformity.

All minor non-conformities must satisfactorily address by the client within thirty **(90)** days unless an alternative timeframe, supported by written justification, has otherwise been agreed with the CAB.

2.9.3 For certificate holders, the CAB shall require that minor non-conformities are satisfactorily addressed within ninety **(90)** days

If corrective actions are inadequate to resolve a minor non-conformity by the time of the next scheduled audit, the CAB shall upgrade the audit finding to a major non-conformity.

All other finding that are not major or minor non – conformities can be raised as observations.

BM TRADA is unable to issue / reissue an AWS certificate of approval until all non-conformities are verified and closed.

Failure to address and close nonconformities within required timescales will result in suspension of certification.

Your auditor will clarify at the closing meeting if you require a follow up audit to verify correction and corrective action implementation or if documentary evidence will be acceptable to close the nonconformity.

Note: non-conformity will hereinafter be referred to as NCR.

1. Client and Certificate Details

Client & Site Details

Address of certified operation:	NHS Highland at Caithness General Hospital, Bankhead, Wick KW1 5NS, United Kingdom
Management representative:	Pam Garbe - Hospital Manager
Contact email address:	pam.garbe@nhs.net
Contact phone number:	0195588349
Website address:	www.nhshighland.scot.nhs.ul/Services/Pages/caithnessgenralhospital.asxp

BM TRADA Certificate Details

Type of certificate holder:	Single site		
Certificate Number:	NA	**Date of first certification:**	NA
Current Certificate start date:	NA	**Current Certificate expiry date**	NA
Contact phone number:	+61 428570762		
Website address:	info@bmtrada.com.auw		

2. Details of Audit and Scope of Certification

Audit Details

Audit type:	Initial	X	Surveillance		Scope Extension		

Audit team and roles:	Kevin O'Grady Lead auditor, Steven Brown Local auditor, Richard Fyfe Catchment expert (not on site)
Standard:	The AWS International Water Stewardship Standard Version V 2.0 (March 2019)

Scope of Certification

Scope of Certification:	Water Stewardship in Hospital and Healthcare Operations
Operations covered by scope of certification:	Hospital and Healthcare operations at Caithness General Hospital
Other certification scheme(s) this company is certified for:	

Outsourcing:
Does the client outsource operations or activities within the scope to independent third parties? *

*Activities of suppliers to the operation are not considered outsourcing.

3. Executive Summary

Main Items / Critical Control Points / Places Inspected

Main items / Critical Control Points / Places inspected (including names & affiliations of people consulted	Number of NCRs
Gather and understand	4
Commit and Plan	1
Implement	1
Evaluate	1
Communicate and disclose	0
Total number of nonconformities issued at this audit:	7

Previous NCR(s)

Were there any NCR(s) issued at the previous audit? Yes ☐ No X

Allocation of points and Lead Auditor Recommendations

1.4.3
The embedded water use of primary inputs in catchment(s) of origin shall be quantified
0 Points allocated as guidance requires the embedded water use of primary inputs in catchment to be quantified. The report offers only generic *identification* of embedded water.
1.5.8
Efforts by the site to support and undertake catchment level water-related data collection shall be identified
0 Points allocated as sensor equipment planned, but not installed at time of audit.
Range of possible points based on degree of effort
1.5.9
The adequacy of WASH provision within the catchments of origin of primary inputs shall be identified
0 Points allocated as not assessed by site.

1.6.3
Future water issues shall be identified, including anticipated impacts and trends
0 points allocated. The site identified a report but it is somewhat outdated (2015) and there are multiple other and more recent reports likely to be available.
1.6.4
Potential water-related social impacts from the site shall be identified, resulting in a social impact assessment with a particular focus on water
0 Points allocated as not assessed by site.
STEP TWO
2.1.2
A statement that explicitly covers all requirements set out in Indicator 2.1.1 and is signed by the organization's senior-most executive or governance body and publicly disclosed shall be identified
1 point allocated, as criteria and indicator achieved.
2.3.3
The site's partnership/water stewardship activities with other sites within the same catchment (which may or may not be under the same organizational ownership) shall be identified and described
4 points allocated. The site demonstrated high levels of partnership working. This was evident from the stakeholder engagement process and throughput the audit.
2.3.4
The site's partnership/water stewardship activities with other sites in another catchment(s) (either under same corporate structure or with another corporate site) shall be identified
4 points allocated. The site demonstrated high levels of partnership working. This was evident from the stakeholder engagement process and throughput the audit.
2.3.5
Stakeholder consensus shall be sought on the site's water stewardship plan. Consensus should be achieved on at least one target. A list of targets that have consensus and which stakeholders are involved shall be identified
0 Points allocated as not assessed by site.
2.4.2
A plan to mitigate or adapt to water risks associated with climate change projections developed in co-ordination with relevant public-sector and infrastructure agencies shall be identified
0 points allocated. Although the evidence refers to a report focussed on climate change adaptation, there is limited evidence of a plan which has been developed in co-ordination with other agencies. The referenced report includes recommendations but there is no evident plan to implement these recommendations.

STEP THREE
3.1.3
Evidence of improvements in water governance capacity from a site-selected baseline date shall be identified
0 points allocated.
3.1.4
Evidence from a representative range of stakeholders showing consensus that the site is seen as positively contributing to the good water governance of the catchment shall be identified
2 points awarded. It was evident during the audit that stakeholder engagement was widely implemented in this project.
3.3.4
The total volume of water voluntarily re-allocated (from site water savings) for social, cultural and environmental needs shall be quantified
0 points allocated as water shortages not identified.
3.5.2
Evidence of completed restoration of non-functioning or severely degraded Important Water-Related Areas including where appropriate cultural values from a site-selected baseline date shall be identified. Restored areas may be outside of the site, but within the catchment
0 points allocated not relevant to site.
3.5.3
Evidence from a representative range of stakeholders showing consensus that the site is seen as positively contributing to the healthy status of Important Water-Related Areas in the catchment shall be identified.

0 points allocated not relevant to site.
3.6.3
A list of actions taken to support the provision to stakeholders in the catchment of access to safe drinking water, adequate sanitation and hygiene awareness shall be identified
0 points allocated not relevant to site.
3.6.4
In catchments where WASH has been identified as a shared water challenge, evidence of efforts taken with relevant public-sector agencies to share information and to advocate for change to address access to safe drinking water and sanitation shall be identified
0 points allocated not relevant to site.
3.7.3
Actions taken to address water related risks and challenges related to indirect water use outside the catchment shall be documented and evaluated
0 points allocated as no evidence provided by site.
3.9.6
Achievement of identified best practice related to targets in terms of good water governance shall be quantified
0 points allocated as no evidence provided by site.
3.9.7
Achievement of identified best practice related to targets in terms of sustainable water balance shall be quantified
8 points allocated, the site reports that sustainable water use is implemented on-site.
3.9.8
Achievement of identified best practices related to targets in terms of water quality shall be quantified
8 points allocated, the site is helping pioneer research into water quality issues related to pharmaceuticals discharged to water.
3.9.9
Achievement of identified best practices related to targets in terms of the site's maintenance of Important Water-Related Areas have been implemented
0 points allocated. Not assessed.
3.9.10
Achievement of identified best practice related to targets in terms of WASH shall be quantified
0 points allocated. Not assessed.
3.9.11
A list of efforts to spread best practices shall be identified
0 points allocated. Not assessed.
3.9.12
A list of collective action efforts, including the organizations involved, positions of responsible persons of other entities involved, and a description of the role played by the site shall be identified
0 points allocated. Not assessed.
3.9.13
Evidence of the quantified improvement that has resulted from the collective action relative to a site-selected baseline date shall be identified and evidence from an appropriate range of stakeholders linked to the collective action (including both those implementing the action and those affected by the action) that the site is materially and positively contributing to the achievement of the collective action shall be identified
0 points allocated. Not assessed.
STEP FOUR
4.1.4
A governance or executive-level review, including discussion of shared water challenges, water risks, and opportunities, and any water-related cost savings or benefits realized, and any relevant incidents shall be identified
0 points allocated. Not assessed.
4.3.2
The site's efforts to address shared water challenges shall be evaluated by stakeholders. This shall include stakeholder reviewing of the site's efforts across all five outcome areas, and their suggestions for continual improvement
0 points allocated. Not completed at this stage.
STEP FIVE
5.3.2

The site's efforts to implement the AWS Standard shall be disclosed in the organization's annual report
0 points allocated. Criteria not achieved.
5.3.3
Benefits to the site and stakeholders from implementation of the AWS Standard shall be quantified in the organization's annual report
0 points allocated. Criteria not achieved.

Summary

It is recommended that the site be awarded 27 points of the advanced indicator points available.

1.4.3	0
1.5.8	0
1.5.9	0
1.6.3	0
1.6.4	0
2.1.2	1
2.3.3	4
2.3.4	4
2.3.5	0
2.4.2	0
3.1.3	0
3.1.4	2
3.3.4	0
3.5.2	0
3.5.3	0
3.6.3	0
3.6.4	0
3.7.3	0
3.9.6	0
3.9.7	8
3.9.8	8
3.9.9	0
3.9.10	0
3.9.11	0
3.9.12	0
3.9.13	0
4.1.4	0
4.3.2	0
5.3.2	0
5.3.3	0
	27

Note: the above recommendation is subject to review and (continued) Certification / Recertification decision.

Allocation of Points

The audit team shall complete the allocation of points within thirty **(30)** days of completion of the on-site audit and, in any event, before finalizing the assessment report.

Where a client has one or more unresolved major nonconformity, the audit team shall not allocate points to any advanced-level indicators.

Prior to allocating points, the audit team shall review the assessment results to confirm that the client has met all core indicators.

Where one or more minor non-conformity has been raised against core indicators, the audit team should consider the adequacy of corrective action plans submitted by the client when applying.

Audit teams shall award points in accordance with the indicator-specific point allocation system given in the AWS Standard.

Certification level shall be determined based on the total sum of points awarded, in any combination, to all advanced-level indicators.

Thresholds for the three (3) AWS certification levels are given in Table 2.

Table 2. Thresholds for AWS Certification Levels.

Point Total	AWS Certification Level
0 to 39	AWS Core Certified
40 to 79	AWS Gold Certified
80 or greater	AWS Platinum Certified

4. Audit Observations, Findings and Conclusions

Description of Operation and Catchment

Please provide commentary on the following:

Caithness General Hospital is part of NHS Highland which is the responsible regional Health Board. It has been in place 35 years. Originally Caithness and Sutherlands trust board which became NHS highland 10 - 15 years ago

General and surgical. Weekly Chemotherapy on an outpatient, IV medication. 42 Beds therefore a small hospital but with high activity. High substance abuse patient numbers (non Prescription).

In Patient outpatient surgery and emergency surgery, Ambulatory care unit for dialysis, chemotherapy etc)

Number of Employees 200

Catchment Narrative (from discussions with the catchment expert)

Caithness General Hospital is in the town of Wick which lies to the east of the county of Caithness in the Highland Region of Scotland. The water supply to the hospital is from the public water mains operated by Scottish Water and is part of the North Coast Regional Scheme. The raw water for this scheme is abstracted[1] from Loch Calder which is located approximately 30km to the west.

Loch Calder Catchment

Loch Calder has been designated as a Heavily Modified Water Body (HMWB) under the Water Framework Directive (2000/60/EC) and is currently classified as being at Poor Ecological Potential. The water body has been designated as a heavily modified water body on account of physical alterations that cannot be addressed without a significant impact on water storage for public drinking water. The poor classification is due to impacts on fish migration as a result of barrier created when the loch level was raised for public water supply purposes. The loch outflows to both the River Thurso and to the Water of Forss, both of which are classified as being at Good Ecological Status.[2] The abstraction for public water supply is the only significant water resource pressure within the catchment.

[1] Abstractions are controlled by the Scottish Environment Protection Agency under the Water Environment (Controlled Activities) (Scotland) Regulations 2011

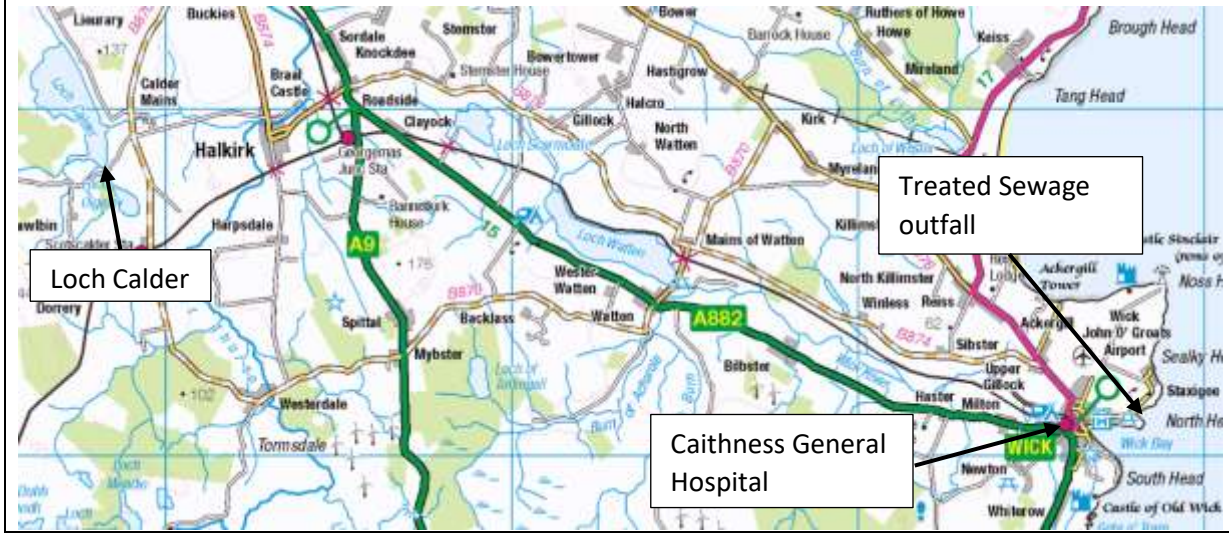
[2] SEPA Water Classification Hub https://www.sepa.org.uk/data-visualisation/water-classification-hub/

Loch Calder has the following designations; Special Protection Area[3] (SPA), RAMSAR[4] site and a Site of Special Scientific Interest (SSSI)[5]. The loch is part of a complex of six lochs which support, in winter, populations of European significance of whooper swan *Cygnus Cygnus,* Greenland white fronted goose *Anser albifrons flavirostris* and greylag goose *Anser anser.*[6] The qualifying species are currently in favourable condition.

Parts of the wider catchment upstream area also designated as Special Area of Conservation (SAC), SPA and SSSI as part of the Caithness Peatlands, and also as a SSSI for Low Calcium Flows. The River Thurso, into which Loch Calder discharges, is designated as a SAC for it population of Atlantic salmon *Salmo salar*. The River Thurso is currently classified as being in unfavourable recovering condition. The pressures are identified as forestry operations and overgrazing. The unfavourable recovering classification reflects the fact that the underlying pressures are being addressed and the habitat is being restored.

Drinking Water Quality

The water supply to the hospital is generally good with one failure for Iron content in 2018 all other parameters met the requirements of the legislation[7] [8]. Drinking water in Scotland is regulated by the Drinking Water Quality Regulator for Scotland (DWQR). Sampling and analysis is carried out by Scottish Water and audited by the DWQR. The water treatment work at Loch Calder supplies approximately 30,000 domestic customers as well as industrial users.



[3] The Conservation (Natural Habitats, &c.) Regulations 1994
[4] Ramsar Convention on Wetlands
[5] Nature Conservation (Scotland) Act 2004
[6] Data from Scottish Natural Heritage
[7] Data from Scottish Water https://www.scottishwater.co.uk/en/Your-Home/Your-Water/Water-Quality/Water-Quality
[8] The Public Water Supplies (Scotland) Regulations 2014 which implements the requirements of the European Drinking Water Directive (98/83/EC)

General Location of Loch Calder and Caithness General Hospital

Wick River

The town of Wick stands next to the Wick River which drains into the North Sea. The Wick River has been classified as being at Moderate Ecological status due to historic morphological impacts (straightening) and fish populations. The water quality of the river is good. Other parts of the wider catchment (Burn of Winless) are classified as being at bad status, this is due to historic morphological impacts where watercourses have been straightened for agricultural purposes. Addressing these historic modifications is a major challenge under the Water Framework Directive and it may prove to be disproportionately expensive to restore these waterbodies to good status. This may result in the waterbodies being designated as HMWB or a less stringent objective agreed. Water quality is generally good. There are no significant abstraction pressures within the catchment.

Coastal Waters

The adjacent coastal waterbody which stretches from Duncansby Head to Noss Head is classified as being at Good Ecological Status.

There are no direct discharges from the hospital to the water environment. The foul drainage from the hospital discharges to the public sewer which is operated by Scottish Water. The foul drainage from the town of Wick receives secondary treatment and is discharged to the North Sea from an outfall at North Head. The discharge from the treatment works has an excellent compliance record with no breaches of the licence conditions recorded from 2010-2018.

The seabed to the east of Noss Head is designated as a Nature Conservation Marine Protected Area under the Marine (Scotland) Act 2010[9]. The protected features of the site are recorded as Horse mussel beds *Modiolus modiolus,* which are the largest horse mussel beds in Scotland. The activities considered capable of affecting the protected features, identified by SNH[10], do not include any activities associated with the Hospital.

The East Caithness Cliffs SPA sits to the south of Wick and is designated for its seabird assemblage. The most recent assessment of the condition of the qualifying populations has identified four species, Cormorant *Phalacrocorax carbo*, Great black-backed gull *Larus marinus,* Herring gull *Larus argentatus* and Shag *Phalacrocorax aristotelis,* as being in unfavourable condition. The negative pressures leading to this decline have not been identified.

Recreational Fishing

The Rivers Thurso and Wick are recognised for their salmon fisheries. These fisheries are managed by the Caithness District Salmon Fishery Board[11]. Both rivers have been categorised as being grade 1 under the Conservation of Salmon (Scotland) Regulations 2016, which is administered by Marine Scotland[12].

Areas of Cultural or Historical Significance

The area is rich in archaeological interest with large numbers of Neolithic sites, cairns and brochs, as well as more recent features of historical interest. There are no known features of historical significance which are related to the water environment within the catchment.

Key Water Challenges

Water quality in the catchment of the rivers Wick and Thurso is good. There are localised pressures from diffuse pollution resulting from agricultural activities. These pressures are regulated by SEPA under the Water Environment (Controlled Activities) (Scotland) Regulations 2011 (CAR). Specifically the regulations require activities which may result in the pollution of the water environment, to be carried out in accordance with a series of General Binding Rules (GBR). These GBRs apply to the storage and application of fertiliser, keeping of livestock, cultivation of land and operation of sheep dipping facilities. These GBRs, if complied with, are intended to protect water quality within the catchment. Inspections are carried out by SEPA officers and the GBRs enforced where necessary. Much of the River Thurso is designated as a Drinking Water Protection Zone (DWPZ). SEPA is required to ensure that any activities do not result in an impact on the quality of the water for abstraction. This is achieved through conditions attached to CAR licences, however, there is relatively little activity in the catchment upstream of the drinking water abstraction and in practice this is not a significant issue.

[9] Noss Head Nature Conservation Marine Protected Area Order 2014

[10] https://www.nature.scot/sites/default/files/2017-11/Marine%20Protected%20Area%20-%20management%20options%20paper%20-%20Noss%20Head%20possible%20MPA.pdf

[11] http://caithness.dsfb.org.uk/

[12] https://www2.gov.scot/Topics/marine/Salmon-Trout-Coarse/fishreform/licence/status

The headwaters of the river Thurso have been impacted by historic forestry operations. These impacts have been largely addressed by the use of forest design plans which require good practice such as maintaining appropriate buffer zones between planted areas and watercourses and adoption of good practice during planting and felling operations. Planting and felling are controlled by Scottish Forestry[13] and operations are subject to the Forestry (Environmental Impact Assessment) (Scotland) Regulations 2017.
There are a limited number of abstractions within the catchment and these are controlled by SEPA under licences issued under CAR. These licences contain conditions which are designed to ensure that the activities do not result in a significant impact on the water environment.

[13] https://forestry.gov.scot/support-regulations/woodland-creation

STEP 1: GATHER AND UNDERSTAND
Gather data to understand shared water challenges and water risks, impacts and opportunities

Intent: To ensure that the site gathers data on its water use and its catchment context and that the site uses these data to understand its shared water challenges as well as its contributions (both positive and negative) to these challenges, water risks, impacts, and opportunities. This information also informs the development of the site's water stewardship strategy and plan (Step 2) and guides the actions (Step 3) necessary to fulfil the site's commitments.

Criteria		Indicators	Response Area
1.1 Gather information to define the site's physical scope for water stewardship purposes, including: • its operational boundaries; • the water sources from which the site draws; • the locations to which the site returns its discharges; • the catchment(s) that the site affect(s) and upon which it is reliant.	1.1.1	The physical scope of the site shall be mapped, considering the regulatory landscape and zone of stakeholder interests, including: Site boundaries; Water-related infrastructure, including piping network, owned or managed by the site or its parent organization; Any water sources providing water to the site that are owned or managed by the site or its parent organization; Water service provider (if applicable) and its ultimate water source; Discharge points and waste water service provider (if applicable) and ultimate receiving water body or bodies; Catchment(s) that the site affect(s) and is reliant upon for water.	Evidence A site boundaries map and floor plans of the actual hospital itself showing the location within the town of Wick. Additional material was provided to further develop the wider context Supporting Documents ● NHS Highland Caithness Site Map, Ground and First floor plans ● NHS Highland Location Plan ● Hospital boundaries map The water service provider is Scottish Water which draws water from Loch Calder. Maps are included which also show the catchment for the Loch, outlined in red on the map. On- site water services are provided by WAVE, part of Anglian Water which is responsible for the water from the point of access to the site to the point of discharge into the public system. Supporting Documents Scottish Water Loch Calder WTW map

			Wastewater is discharged to Proudfoot Rocks Waste Water Treatment Plant and then into Wick Bay at a discharge point at North Head, Wick.
1.2 Understand relevant stakeholders, their water related challenges, and the site's ability to influence beyond its boundaries.	1.2.1	Stakeholders and their water-related challenges shall be identified. The process used for stakeholder identification shall be identified. This process shall: Inclusively cover all relevant stakeholder groups including vulnerable, women, minority, and Indigenous people; Consider the physical scope identified, including stakeholders, representative of the site's ultimate water source and ultimate receiving water body or bodies; Provide evidence of stakeholder consultation on water-related interests and challenges; Note that the ability and/or willingness of stakeholders to participate may vary across the relevant stakeholder groups; Identify the degree of stakeholder engagement based on their level of interest and influence.	Agency stakeholders identified were Scottish Water (SW), Scottish Environmental Protection Agency (SEPA), The Highland Council and Highlands and Islands Enterprise (HIE), CREW (Centre for Expertise for Water). The Drinking Water Quality Regulator was also approached but declined the offer of involvement as the drinking water quality in the region is 100% compliant with regulations in all but one instances where the percentage compliance is 95.8%.Local stakeholders were identified through a desk based internet search but also using local knowledge provided by the University of The Highlands and Islands which was commissioned to do the original analytical work on the water quality. A list of these potential stakeholders was inspected. Stakeholders were all invited to an initial stakeholders meeting in Wick on Feb 26th. A second stakeholder engagement effort was carried out on April 26th, 2019. Prior to this public event, efforts were made to engage with the local Councillor and an article was placed in the Caithness Courier which explained the work which was on-going and inviting people to attend an information and feedback event in Wick. The auditors conducted their own 360 degree stakeholder consultation and confirmed that the Stakeholders had been contacted and this confirmed s high degree of stakeholder engagement and knowledge of the project. Supporting Documents Inspected ● Media Press Release for public consultation in Wick, April 26, 2019 ● List of potential stakeholders identified and contacted ● Stakeholder or interested party spreadsheet

			• AWS Stakeholder meeting, February 2019, Wick • Minutes from meeting, Interagency, Centre for Health Science, 08/01/2019
	1.2.2	Current and potential degree of influence between site and stakeholder shall be identified, within the catchment and considering the site's ultimate water source and ultimate receiving water body for wastewater.	Inspected the Document "AWS Final Version 2019" which is a criteria by criteria description of the sites processes to meet the AWS standards. There is a list that shows these stakeholders indicating the degree of influence and the level of engagement for the stakeholders. Inspected "Stakeholder or interested party spreadsheet" This correctly showed levels of engagement and degree of influence.
1.3 Gather water-related data for the site including: • water balance • water quality, • important Water Related Areas • water governance • WASH; • water-related costs, revenues, and shared value creation.	1.3.1	Existing water-related incident response plans shall be identified.	Inspected The current site Water Emergency Plan, dated May 2019. V19 Ref PP107.
	1.3.2	Site water balance, including inflows, losses, storage, and outflows shall be identified and mapped.	The report WAVE NHS water efficiency report 23 Oct 2019 maps inflows and outflows based on current measurements and analyses use patterns by area then related to benchmarks for water efficiency. This complies with the intent of the standard. Observation. The analysis is not based on sophisticated measurements. There is a plan to move to real time monitoring of quantity and quality and relate this back to benchmarks.
	1.3.3	Site water balance, inflows, losses, storage, and outflows, including indication of annual variance in water usage rates, shall be quantified. Where there is a water-related challenge that would be a threat to good water balance for people or environment, an	The report WAVE NHS water efficiency report 23 Oct 2019 is based on current measurements and analyses use patterns by area then elated to benchmarks for water efficiency. This complies with the intent of the standard. Water quantity is not a water-related challenge that would be a threat to good water balance for people or environment.

	indication of annual high and low variances shall be quantified.	Even estimated for climate change scenarios indicate that water quality is unlikely to be a future challenge. Evidence: inspected -Document “Climate Change Impact Assessment for the NHS Estate”
1.3.4	Water quality of the site’s water source(s), provided waters, effluent and receiving water bodies shall be quantified. Where there is a water-related challenge that would be a threat to good water quality status for people or environment, an indication of annual, and where appropriate, seasonal, high and low variances shall be quantified.	Water source analysis is done by the appropriate authority, Scottish water. Information freely available from the Scottish Evidence: the Scottish Water website provides analysis of the Loch Calder water source. The results show that the water source quality passes on all parameters with the exception of occasional levels of iron being found to be high (4.17% of the time) so is not considered a shared challenge. Variability in the incidence of pharmaceuticals in the wastewater was detected and the researchers from the University of the Highlands and Islands suggest this is down to the variations in times when samples were taken. Inspected. “Preliminary study to understand the water quality and wastewater treatment cycle in relation to Caithness General Hospital – Final report” There have been no breaches of discharge consents recorded by Scottish Water regarding the effluent from the hospital.
1.3.5	Potential sources of pollution shall be identified and if applicable, mapped, including chemicals used or stored on site.	Variability in the incidence of pharmaceuticals in the wastewater was detected and the researchers from the University of the Highlands and Islands suggest this is down to the variations in times when samples were taken. Preliminary study to understand the water quality and wastewater treatment cycle in relation to Caithness General Hospital – Final report

			The results suggest that the hospital is an important source of pharmaceuticals entering municipal wastewater in Wick, and selected associated water quality parameters (turbidity, COD, DOC, phosphate, chloride, copper, potassium and zinc) are impacted by CGH. The report states on page 1, “Seven pharmaceuticals were present in the WWTP, indicating that the treatment techniques were ineffective for pharmaceutical pollutants….Pharmaceutical concentrations are not co-dependent on water quality parameters, as expected since pharmaceuticals are prescribed/administered independently of water quality parameters” The risk assessment was carried out by comparing observed environmental concentrations, eco-toxicity data and prescription rates. This suggested that the compounds of most environmental concern are paracetamol, fluoxetine, diclofenac, clarithromycin and 17α-ethynylestradiol. This is identified as the key shared catchment challenge. Interview with Ivor Campbell site manager and Donna Robertson Hotel and services support manager. Chemicals stored on-site are listed, along with their COSHH information on a digital system (Sypol). They include disinfectants, tile cleaning liquids, carpet shampoo, dishwasher soap, dishwasher cleaner and surface cleaners. These are kept in cupboards and used according to their manufacturer’s instructions and so are not especially risky to water courses. There has never been a pollution event. There is an MSDS on site and on the Sypol system Evidence inspected data sheet for carpet shampoo, dishwasher soap, general hand wash. Fuel oil is in bunded areas that meet strict Scottish EPA requirements.

		There has been only one identified pollution event 7 years ago related to leakage from a pipe which was detected by Scottish water and addresses by a refit of the pipes. It was noted that there was no policy for use of cleaning products and detergent which are washed into the wastewater after use e.g. use of low phosphate or grey water safe detergent. Donna mentioned this would have to be a regional policy. On site the significant water quality testing is for Legionellae. Daily flushing of taps and weekly flushing of little used taps e.g. hose pipes. There are other methods used to reduce standing or stored water because of legionella risk. Testing is recorded on the LAMS Interview with Russell Macay pharmacy re disposal. Disposal of pharmaceutical waste is very highly regulated. All unused drugs are incinerated, certain drugs like psycho toxics are sorted before disposal. Only Saline solution is flushed to the sewers. Muriel Rodriguez (ambulatory care),manages protocols for chemotherapy patients using specific toilets to contain contamination from unresolved chemotherapy drugs Interview with Snr Charge nurse Bruce Honeyman. There is also Reverse osmosis producing Dialysis water which is discharge to sewer. This discharge solution is not toxic.

1.3.6	On-site Important Water-Related Areas shall be identified and mapped, including a description of their status including Indigenous cultural values.	There are no on-site Important Water Related Areas to be considered.
1.3.7	Annual water-related costs, revenues, and a description or quantification of the social, cultural, environmental, or economic water-related value generated by the site shall be identified and used to inform the evaluation of the plan in 4.1.2.	The Water Mapping and Efficiency Support Document commissioned by NHS Highland and by Mabbett and Associates Ltd give total fixed variable and hidden costs. It also quantities potential savings on ss 4 pg. 20 also detailing pay back periods. This will become targets in the Water Stewardship plan. It's not clear how this will be repeated in order to monitor costs and savings going forward. The document "AWS Final" notes some Shared value creation could be expected to develop as solutions to the shared challenge of pharmaceutical loading in wastewater become available. For example, ● Reduced costs to society of preventing acquired antimicrobial resistance ● Reduced costs to Scottish Water of treatment of wastewater with pharmaceuticals ● As a test-bed for new IoT solutions, Caithness General will help to develop the business case for the One Health Breakthrough Partnership approach to the challenge. Several of the pharmaceuticals being targeted in this work are of concern worldwide. Hence, solutions identified in Scotland will likely have applications worldwide. This infographic provides some idea of the scale of this opportunity. Each of these reflects the intent to the criteria and indictors but Each is a significant project but there is a question on how these benefits will be tracked and reported annually in the context of an annual AWS audit cycle.

			NCR 01 The social, cultural and environmental values generated by the site at the day to day or year to year management level have not been widely considered as envisaged by the guidance.
	1.3.8	Levels of access and adequacy of WASH at the site shall be identified.	There are no restrictions to access to suitable sources of clean water on-site. Drinking water quality is high and information freely available from Scottish water shows that in the 12 month period from April 2018 to March 2019 there was 100% compliance with the standards required by the Scottish Drinking Water Regulator. ● Evidence inspected https://www.scottishwater.co.uk/waterqualitysearch

1.4 Gather data on the site's indirect water use, including: its primary inputs; the water use embedded in the production of those primary inputs the status of the waters at the origin of the inputs (where they can be identified); and water used in out-sourced water-related services.	1.4.1	The embedded water use of primary inputs, including quantity, quality and level of water risk within the site's catchment, shall be identified.	There is indirect water in Laundry, Food and materials The site does not draw any degree of significant primary inputs from within it's own catchment area other than the water itself Supporting documents inspected .● WAVE Report - Caithness Water Efficiency Report

	1.4.2	The embedded water use of outsourced services shall be identified, and where those services originate within the site's catchment, quantified.	There are no outsourced services that originate in the catchment. Energy seems not to be an issue since it is almost exclusively wind, with some wave and Hydro electric power.

1.5 Gather water-related data for the catchment, including: water governance, water balance, water quality, Important Water-Related Areas, infrastructure, and WASH	1.5.1	Water governance initiatives shall be identified, including catchment plan(s), water-related public policies, major publicly-led initiatives under way, and relevant goals to help inform site of possible opportunities for water stewardship collective action.	A schematic provided showed the structure of the Water Regulatory Framework in Scotland. At national level, the Scottish Government recognises the importance of national water resources and seeks to share information and best practice internationally through the Hydro Nation Policy (https://www.gov.scot/publications/scotland-hydro-nation-annual-report-2018/pages/6/) The structure of this programme is provided at this web address: https://www.gov.scot/publications/scotland-hydro-nation-annual-report-2018/pages/5/ The Scottish Government is committed to making Scotland a 'Hydro Nation': *'Our water resource is significant and in a world demanding more food and water, there is good reason to nurture it for long term sustainable use. Water is of fundamental importance for Scotland's economy, health, social wellbeing and environment. All businesses rely on the water environment in some way or another and water plays a prominent role in the success of many sectors of the economy. Some are of strategic importance to Scotland's economy, such as tourism, food and drinks manufacturing and renewable energy generation'*. (www.gov.scot/Topics/Business-Industry/waterindustryscot/ScotlandtheHydroNation - see Appendix 1) The Hydro Nation programme was created to fulfil the statutory duties outlined in the Water Resources (Scotland) Act 2013...http://www.legislation.gov.uk/asp/2013/5 to enable Scottish Ministers to "take such reasonable steps as they consider appropriate for the purpose of ensuring the development of the value of Scotland's water resources". The programme itself is managed by Scotland's Centre for Expertise on Waters (CREW)...https://www.crew.ac.uk/

			Part of the remit for CREW is River Basin Management Planning, which is a requirement of the Water Framework Directive which aims to protect and improve water quality across Europe. Implemented in Scotland via domestic legislation the overarching aim is to achieve 'good status' in 97% of water bodies by 2027. Management plans at the level of the entire country but also for more detailed and specific areas are available. Abbreviated copies are included in the folder. See *"The river basin management plan for the Scotland river basin district 2015-2017"* and its supplement *"North Highland Area Management Plan".* These plans are currently being updated by SEPA and will be available by the end of 2019. In the interim, SEPA have made their external engagement strategy available and copies are included in hard and digital copies. Additional data is available online at the "Water environment hub portal', provided by SEPA...https://www.sepa.org.uk/data-visualisation/water-environment-hub/ SEPA have also prepared an updated *Water Supply and Waste Water Sector Plan* to support the sector in Scotland achieves goals that are in line with the UN Sustainable Development Goals. A digital copy is included and a link to the website is here...https://sectors.sepa.org.uk/water-supply-and-waste-water-sector-plan/ These reports detail both the current status of water resources as well as targets reaching until 2027. They acknowledge the integrated nature of the water resources of Scotland and their impact on wildlife and economically important industries such as fishing and shellfish. NHS Highland must take notice of the Scottish Government Infrastructure Development Plans **documents provided inspected** ● *Water Regulatory Framework in Scotland schematic* ● *The river basin management plan for the Scotland river basin district 2015-2017*

			• *North Highland Area Management Plan, 2010 to 2015* • *Scottish Government Infrastructure Investment Plan 2015* • *Scottish Water - Your future water and wastewater services - Strategic Projections.* • *Scottish Water `strategic Environmental Assessment of Scottish Waters Strategic Projections, Post Adoption Statement* • *Scottish Water - Annual Reports 2017/18* • *Hydrological Summary for the United Kingdom, February 2019* • *Maps showing ground water and coastal water quality around Wick.* Possible opportunities for water stewardship collective action include the roll out of a scheme to monitor the real time monitoring of water quality and quantity data. Caithness is the test site for the initiative that can be rolled out to other NHS sites. A public sector approach to keep people healthier and out of hospital will also reduce Pharmaceutical use and thus the issue of pharmaceuticals in wastewater. This site could provide a measurable test of this concept.

	1.5.2	Applicable water-related legal and regulatory requirements shall be identified, including legally-defined and/or stakeholder-verified customary water rights.	The document “AWS final” notes that: At the point of abstraction (Loch Calder) the main piece of Legislation to apply is the Water Environmental (Controlled Activities) (Scotland) Regulations 2011 (commonly known as CAR). This is the mechanism Scotland uses to deliver on the requirements of the Water Framework Directive which is the overarching piece of legislation to protect water bodies. SEPA issue licences under CAR for abstractions and discharges, but there are various levels of regulation within this (see attached). SEPA also must consider other legislation when setting licences to e.g. protect habitats, natural heritage, etc. Scottish Water have a licence which allows them to abstract water from Loch Calder which limits how much they can take, controls the impounding structure, and specifies how much flow they need to maintain in the Calder Burn and River Thurso. The Hospital then uses this water and takes it from the mains supply where it is metered. The site therefore, requires no abstraction licence. Scottish Water undertakes treatment to remove impurities in the raw water and this generates a discharge. They have a discharge licence under CAR for that which limits flow rates (to avoid things like scouring of the bank/bed of the river which can cause habitat loss, impact on spawning etc) and includes limits on suspended solids (to avoid discolouration, deposition of solids which can block sunlight, smother flora and generally impact habitat, etc) and pH (pH can effect e.g. solubility of metals and make them more toxic to fish). If they used e.g. alum or ferric salts in the treatment process this would have limits for residual Al/Fe What is supplied at tap must meet the requirements of the Public Water Supplies (Scotland) Regulations (enabling legislation for Drinking Water Directive.). This is the responsibility of Scottish Water.

			When it comes to the hospital, CAR has a role to play e.g. CAR General Binding Rules cover the discharge of surface water from car parks etc to land/rivers, and the storage of fuel. For all discharges to the sewer the relevant legislation is the Sewerage (Scotland) Act 1968 as amended. This offers protection from what would now be called sewer abuse (disposal of inappropriate items – e.g. wet wipes) but is also the legislation Scottish Water use to issue a Trade Effluent Consent for the hospital. This will contain conditions on flow and organic content, etc. The Hospital site has a discharge licence with Scottish Water and a complete copy of this is included in digital format (Direction Registration Number 3225A/3/D effective from June 25, 2018.) For discharges from the sewer network CAR is again the main piece of legislation along with the Urban Wastewater Treatment (Scotland) Regulations 1994 (enabling legislation for the Urban Wastewater Treatment Directive, commonly referred to as UWWT) however SEPA must also give consideration to other pieces of legislation such as the Freshwater Fish Directive (to protect salmonids), Wildlife and Countryside Act 1981 (enabling legislation for the Birds and Habitats Directive). The discharge licence contains conditions relating to things like provision of screens, pass forward flow at any overflows, emergency situations at pump stations, volume discharge rate, pH, temperature, At the Wastewater Treatment Works CAR and UWWT (Urban Waste Water Treatment Works) are the main drivers. Wick WWTW is a UWWT qualifying discharge and requires secondary treatment – basically UWWT initially sought to reduce the pollutant load to the North Sea (which then extended to all water bodies) rather than protect water quality. CAR is the legislation that sets limits to protect receiving water quality.

			"The Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended) *A Practical Guide" is a practical and comprehensive guide to the regulations and is provided in digital form. The link to the document online is* *https://www.sepa.org.uk/media/34761/car_a_practical_guide.pdf* Additionally, all NHS Highland sites including Caithness General Hospital are subject and compliant with Scottish Water By-laws and are randomly inspected by Scottish Water By-Law inspectors. A copy of these by-laws are included in digital copy. Water By-Law infringements are also covered under Legionella Risk Assessment under General Risk and this is reviewed every two years. **Supporting Documents and references** ● Regulatory Framework in Scotland diagram ● Environmental Legislation and Regulation diagram --- ● Controlled Activities Regulations - CAR diagram ● Urban Waste Water Treatment (Scotland) regulations and CAR - ● Role of SEPA - ● Scottish Water Responsibilities ● Scotland's WFD (Water Framework Directive) Monitoring Strategy ● Discharge licence There are no regulatory or known customary rights to consider.

	1.5.3	The catchment water-balance, and where applicable, scarcity, shall be quantified, including indication of annual, and where appropriate, seasonal, variance.	The SEPA Water Environment Hub notes that the catchment water balance and shows that the water flows and levels have been classed as “good” since 2014 and the long term outlook is also classed as “good”. Current levels of rainfall are above average and so it is reasonable to assume that, as far as can be reasonably predicted, there are no issues with water balance or scarcity in the Loch Calder catchment. (https://www.sepa.org.uk/data-visualisation/water-environment-hub/) There is no sarcullity of water **Supporting Documents inspected** ● Loch Calder supply demand balance zonal information ● AWS Water catchment e mail between Aurora Sustainability and Scottish Water ● Halkirk Tipping Bucket Rainguage, from 1998 until July 2019

	1.5.4	Water quality, including physical, chemical, and biological status, of the catchment shall be identified, and where possible, quantified. Where there is a water-related challenge that would be a threat to good water quality status for people or environment, an indication of annual, and where appropriate, seasonal, high and low variances shall be identified	SEPA monitors the physical, chemical, and biological status, of the catchment and rates the water quality of Loch Calder to be good at present and to continue to be so in the future. Water flows and levels are expected to be classified as "good", with the physical condition to also be classified as "good", with a high degree of freedom from invasive species. A copy of the web page is contained in the folder, and the web address is https://www.sepa.org.uk/data-visualisation/water-environment-hub/ The report states that: *" Physical barriers which are preventing fish migration are the main barrier to the water quality not being maintained. Remedial work on this issue is regarded as technically unfeasible at this time"* However, this decision is to be revisited for period 2021 to 2027 The document "AWS final" says: There is evidence of occasional algal blooms caused by farm run-off and excess nitrogen levels. The stakeholder engagement process identified new ownership of land around the Loch Calder area but privacy laws make it extremely difficult to identify the new owners. We have asked the local Councillor for the Wick area to try and identify who this new owner is in order to involve them in the stakeholder process. However, no action has been taken by SEPA on this issue until this point so, as yet, no action has been deemed necessary, however attempts to identify the new owner continue. " The Cyanobacteria in Inland Lochs and Inshore waters" report covers this issue and is due for review before summer 2020. This review will inform the basis of Scottish Government approach on the matter and will include the most up-to-date information from the World Health Organisation which is due for release in the coming months. See email from NHS Highland. *"The Sustainable Land Management: Catchment Investigations, Loch Calder (2014)"* document provided by Scottish Water describes the water treatment process from the catchment to the customer and gives

			details of physical and chemical treatment it undergoes. It also examines seasonal variations in the incidence of small algal blooms that have been reported and draws the conclusion that this is not a seasonal issue i.e. to do with farming or seasonal variation, but it is, in fact, point sources such as septic tanks and livestock grazing that are the likely source of nutrients. This points to possibilities to consider for future catchment improvement opportunities with stakeholder involvement. The document also provides biological and physical data for Loch Calder, specifically “Total Algal cells/ml” and “Turbidity”. The report finds no correlation between high rainfall events and high levels of fungal cells in the raw water over a nine month period of study. Turbidity can be a sign of eutrophication caused by the algal blooms but the data does not support this and the level of turbidity remains consistently below 5NTU, with two exceptions, 2 years apart. **Supporting Documents** ● Date visualisation Water Environment Hub - Loch Calder (Copy contained in S1.3) ● Sustainable Land Management: Catchment Investigations Loch Calder, August 2014 - NEEDS SCANNED ● Cyanobacteria (Blue green algae) in Inland and Inshore waters: Assessment and Minimisation of Risks To Public Health, revised Guidance 2012 (Scottish Government) ● Cyanobacteria email from NHS Highland These issues are not identified as key shared catchment challenges for the site.

	1.5.5	Important Water-Related Areas shall be identified, and where appropriate, mapped, and their status assessed including any threats to people or the natural environment, using scientific information and through stakeholder engagement.	There are many sites of Special Scientific Interest (SSSI) in Caithness.. There are also numerous RAMSAR sites around Caithness. Arguably the main IWRA is known as the “Flow Country”. Wick is part of the “*Flow Country*”, a large, rolling expanse of peatland and wetland area of Caithness and Sutherland It is the largest expanse of blanket bog in Europe, and covers about 4,000 km^2 (1,500 sq mi). It is an area of deep peat, dotted with bog pools and a very important habitat for wildlife, as well as climate change mitigation. As peat is largely made up of the remains of plants, which are themselves made up of carbon, it locks up large stores of carbon for thousands of years. This carbon would otherwise be released to the atmosphere and contribute to global warming. The Flow Country is currently being considered as a potential World Heritage Site on account of its unparalleled blanket bog habitat. The loch is viewed as being in a favourable condition and is especially important for different kinds of geese and whooper swans. Human activity such as forestry, trampling habitat and burning is having a negative impact in some areas and on the habitat of some species of mammals. Bird habitats seem to be more resilient and are listed as being in a “favourable” condition. **Supporting Documents** ● List of Sites of Special Scientific Interest in Caithness ● Scottish Natural Heritage - Caithness and Sutherland Places to visit for wildlife and landscape ● SNH Loch Calder SSSI Site Management Statement ● Conservation Objectives for Caithness and Sutherland Peatlands Special Arera of Conservation ● Caithness and Sutherland Peatlands Map

			• Caithness Lochs Map NHS Highland has no shared water challenges of IWRA upstream of the Hospital or the wastewater stream. The unresolved pharmaceuticals issue only impacts in the wastewater stream.

	1.5.6	Existing and planned water-related infrastructure shall be identified, including condition and potential exposure to extreme events.	There are no real challenges in freshwater water supply and Scottish water have a regular update and maintenance. Consideration needs to be given to the challenges around the current wastewater infrastructure and its inability to process unresolved pharmaceuticals. NCR 02/19 - Current wastewater infrastructure and its inability to process unresolved pharmaceuticals needs to be considered as a key shared challenge in the Water Stewardship plan
	1.5.7	The adequacy of available WASH services within the catchment shall be identified.	All of the population within the catchment area has adequate access to WASH services and the water drinking quality is within legal requirements. The Drinking Water Quality Regulator is responsible for ensuring safe access to WASH Services and can be viewed at this site. http://dwqr.scot/public-water-supply/check-your-local-water-quality/ Detailed results for the postal code area around the hospital area can be found at this web address https://www.scottishwater.co.uk/you-and-your-home/water-quality/waterqualitysearch

	1.5.8	**Advanced Indicator** Efforts by the site to support and undertake catchment level water-related data collection shall be identified.	There is a plan to develop monitoring in real time where the Hospital is taking part. This is not yet in place. Criteria not yet met.
	1.5.9	**Advanced Indicator** The adequacy of WASH provision within the catchments of origin of primary inputs shall be identified.	No assessed
1.6 Understand current and future shared water challenges in the catchment, by linking the water challenges identified by stakeholders with the site's water challenges.	1.6.1	Shared water challenges shall be identified and prioritized from the information gathered.	The issue of pharmaceuticals entering municipal wastewater in Wick. Is clearly identified as the key and priority shared challenge. This is detailed in the document AWS Final. Climate change is undoubtedly a potential shared challenge that is within the interests of many stakeholders but Scottish Water have indicated in their communications and forecasts that it is not of immediate concern. The projected catchment water balance is not showing any cause for concern as indicated in Section 1.5.3 While there are some minor issues regarding the water source supply e.g. minor instances of algal blooms and possible future scenarios where climate change may impact on water levels in Loch Calder, these are all out with the site's and NHS Highland's direct control. This provides a possible avenue to be explored for future water stewardship efforts. NCR 03/19 - Other shared water challenges are apparent but have not been formally identified or prioritised e.g. the inability of wastewater infrastructure to resolve the pharmaceuticals in water issue and the need for improved data collection for effect and cause identification.

	1.6.2	Initiatives to address shared water challenges shall be identified.	NHS Highland has been proactive in addressing the shared water challenge of Pharmaceuticals in wastewater as identified through the research undertaken by The University of the Highlands and Islands. NHS Highland is involved with efforts both within Scotland and internationally to seek solutions to a problem for which there is, yet, no simple solution available using current technology. This is a global problem which every hospital in the world is facing. “Pharmaceuticals and priority chemicals in the Highlands and Islands Environment” was held in Inverness on June 21, 2017 in Inverness. It brought together 80 senior people from across the world and all sectors to learn and prioritise together. Out of 10 priority areas that had a Sustainability Process applied to them, pharmaceuticals in the environment was highlighted as the most urgent and invisible environmental issue given the cost to both the NHS, society, the environment and key partners. Most water treatment plants cannot fully remove these modern chemicals which end up in wastewater and sludge, ultimately ending up in aquatic and animal life as well as in crops. This is a negative circular economy, where efforts to improve health have unintended consequences for the environment and society. There is also a study to find alternatives drugs that pose no or less toxicity risk. Some other issues have not been identified or prioritised (see NCR 03/19) this may lead to further initiatives. .
	1.6.3	**Advanced Indicator** Future water issues shall be identified, including anticipated impacts and trends	The report “The climate change impact assessment for the NHS estate dated Oct 2015 has been factored into planning. Observation. It is an opportune time to revisit the findings of this report.

	1.6.4	**Advanced Indicator** Potential water-related social impacts from the site shall be identified, resulting in a social impact assessment with a particular focus on water.	Not assessed.
1.7 Understand the site's water risks and opportunities: Assess and prioritize the water risks and opportunities affecting the site based upon the status of the site, existing risk management plans and/or the issues and future risk trends identified in 1.6	1.7.1	Water risks faced by the site shall be identified, and prioritized, including likelihood and severity of impact within a given timeframe, potential costs and business impact.	The main risk to the water stewardship outcomes remains the presence of pharmaceuticals in the wastewater. The cost implications are far reaching and not fully understood. Evidence: Inspected the CREW Website showing that work being done in Scotland by CREW (Centre of Expertise for Water) and The One Health Breakthrough Partnership is attempting to develop a baseline understanding of this cost.

	1.7.2	Water-related opportunities shall be identified, including how the site may participate, assessment and prioritization of potential savings, and business opportunities.	Evidence inspected showed that Work has been done in several areas: The Water Mapping and Efficiency Support Document commissioned by NHS Highland and delivered by Mabbett and Associates Ltd gives several options for financial and water savings through efficiencies. It also provides carbon savings which will contribute to NHS efforts to reduce climate impact in line with Sections 1.6.1 and 1.6.3. The full report is here. The circular economy approach to the issue of pharmaceuticals could deliver business opportunities as much as in any other industry. This is identified by at yet unquantified. Going forward, there is an opportunity is to utilise CGH as a test bed in order to develop, test and adopt technologies that improve the quality and reduce the quantity of water passing through the hospital. The primary objective is cleaner water but this creates opportunity through infrastructure and resource to generate revenue. There is an opportunity to create a smart water network of physical sensors that will provide better metrology and control of the system and will reduce loss and waste and reduce water bills. The sensors technology will mean ● Continuous monitoring in real time, changing the time delay between incidence and response and an improved understanding of the whole scenario. ● It will allow for monitoring of an increased number of pollutants in the water. ● It will reduce carbon emissions associated with monitoring ● It will allow cost savings to be made and valuable personnel to be employed more usefully.

Understand best practice towards achieving AWS outcomes: Determining sectoral best practices having a local/catchment, regional, or national relevance	1.8.1	Relevant catchment best practice for water governance shall be identified	Examples of best practice in water governance include the following areas in which the NHS Highlands is active in: • *The development of a comprehensive water stewardship plan that is routinely reviewed and updated* • *Designating responsibility for water stewardship to senior staff –* *There is no clear evidence of an NHS Highland designating responsibility within the organisation. However a phone interview with John Buchanan confirmed he is the responsible person..* *Each site also has its own estate manager.* *NCR 04/19* - The standards calls for Training of all employees on the principles of water stewardship and how they can incorporate them within their daily tasks and responsibilities There is no training evident Obsrevation. The NHS Highland AWS at Caithness could form a relevant case study to support training • Engaging with peer organizations and stakeholders to promote water stewardship - The One Health Breakthrough Partnership is a multi-agency endeavour to understand the issues surrounding pharmaceuticals in the water and how this issue can be improved. This also involves an element of international collaboration. NHS Highland will continue to work with relevant Scottish agencies on the water stewardship agenda and seek innovative approaches to improve the outcomes for the Caithness site.

			• Demonstrating your support for good water governance and stewardship with appropriate authorities - There is evidence of extensive stakeholders consultation, confirmed by the CABs own stakeholder consultation exercise. • Communicating on your own water stewardship to set a leading example to others- NHS Highland has been featured in several newspaper articles about their efforts to promote water stewardship and to promote the AWS standard. The link provided here is an article in a leading Scottish newspaper which advertises the work being done. https://www.pressandjournal.co.uk/fp/news/highlands/1641453/caithness-hospital-leading-the-way-worldwide-through-environmental-work/
	1.8.2	Relevant sector and/or catchment best practice for water balance (either through water efficiency or less total water use) shall be identified.	• Train workers on how to improve efficiency in the work they do, and on basic daily activities, such as switching off taps. • Undertake a leak detection and measurement assessment, followed up by actions to reduce leaks. • Install water efficient fittings, for example for toilets, washrooms, equipment washing facilities, etc.
	1.8.3	Relevant sector and/or catchment best practice for water quality shall be identified, including rationale for data source.	Notwithstanding that catchment water balance is not a key issue or challenge NHS highland have used publicly available data to show awareness of relevant best practice issues “Diffuse pollution is the release of potential pollutants from a range of activities that, individually, may have no effect on the water environment, but, at the scale of a catchment, can have a significant effect.
	1.8.4	Relevant catchment best practice for site maintenance of Important Water-Related Areas shall be identified.	The site has no IWRAs but best practice for IWRAs within the catchment are discussed above in Section 1.8.3

	1.8.5	Relevant sector and/or catchment best practice for site provision of equitable and adequate WASH services shall be identified.	WASH is not an unmet need and services are fully available in Scotland.

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STEP 2: COMMIT AND PLAN ***Commit to be a responsible water steward and develop a water stewardship plan*** Intent: To ensure there is sufficient leadership support, site authority, and allocated resources for the site to implement the AWS Standard. It focuses on how a site will act on shared water challenges and improve its performance and the status of its catchment in terms of the AWS water stewardship outcomes. Step 2 links the information gathered in Step 1 to the actions implemented in Step 3, by describing who will do what and when.			
Criteria		**Indicators**	**Response Area**
2.1 Commit to water stewardship by having the senior-most manager in charge of water at the site, or if necessary, a suitable individual within the organization head office, sign and publicly disclose a commitment to water stewardship, the implementation of the AWS Standard and achieving its five outcomes, and the allocation of required resources.	2.1.1	A signed and publicly disclosed site statement OR organizational document shall be identified. The statement or document shall include the following commitments: That the site will implement and disclose progress on water stewardship program(s) to achieve improvements in AWS water stewardship outcomes; That the site implementation will be aligned to and in support of existing catchment sustainability plans; That the site's stakeholders will be engaged in an open and transparent way ; That the site will allocate resources to implement the Standard.	NHS Highland has made publicly available the following documents which are displayed on the website and at sites around the hospital itself. Water Stewardship Commitment Water Stewardship Policy These meet the requirements of 2.1.1 and associates guidance.
	2.1.2	**Advanced Indicator** A statement that explicitly covers all requirements set out in Indicator 2.1.1 and is signed by the organization's senior-most executive or governance body and	The Water Stewardship Commitment was inspected on the NHS website. It is signed by the Chief Executive of NHS Highland. It covers the requirements set out in criterion 2.1.1

		publicly disclosed shall be identified.	
2.2 Develop and document a process to achieve and maintain legal and regulatory compliance.	2.2.1	The system to maintain compliance obligations for water and wastewater management shall be identified, including: Identification of responsible persons/positions within facility organizational structure; Process for submissions to regulatory agencies.	NetRegs is a partnership between the Northern Ireland Environment Agency (NIEA) in Northern Ireland and the Scottish Environment Protection Agency (SEPA) in Scotland. It provides free comprehensive environmental guidance and up-to-date information for all matters relating to legal and regulatory requirements in Northern Ireland and Scotland. https://www.netregs.org.uk/... Interview with Bruce Barr the individual responsible in NHS Highland for compliance with the appropriate legislation. All instances of non-compliance, fines and corrective actions are handled in the following manner The Scottish Health Technical Memorandum 04-01 document provides comprehensive guidance on matters relating to complying with water related legislation. NHS Highland uses the SYPOL COSHH Management Software to manage hazardous substances which are likely to have an adverse impact on water quality more effectively, recommending strategies for elimination and substitution, assessing risk and providing guidance on how to control the use of substances within the operations of the estate. https://www.alcumusgroup.com/software-solutions/sypol-cms **Supporting Documents** ● Scottish Health Technical Memorandum 04-01 ○ Part A - design, installation and testing ○ Part B - Operational Management ○ Part C - TVC Testing protocol ○ Part D - Disinfection of hot water systems ○ Part E - Alternative materials and filtration ○ Part F - Chlorination of water supplies ○ Part G - Operational procedures and Exemplar Written Scheme

2.3 Create a water stewardship strategy and plan including addressing risks (to and from the site), shared catchment water challenges, and opportunities.	2.3.1	A water stewardship strategy shall be identified that defines the overarching mission, vision, and goals of the organization towards good water stewardship in line with this AWS Standard.	The document AWS Final Pg. 50 outlines the Water Stewardship strategy.
	2.3.2	A water stewardship plan shall be identified, including for each target: How it will be measured and monitored; Actions to achieve and maintain (or exceed) it; Planned timeframes to achieve it; Financial budgets allocated for actions; Positions of persons responsible for actions and achieving targets; Where available, note the link between each target and the achievement of best practice to help address shared water challenges and the AWS outcomes.	There is a water stewardship plan that focuses in detail on the key catchment challenge of unresolved pharmaceuticals in wastewater. NCR 05/19 Major There is no plan developed yet as envisaged by the standard and there are other challenges identified are not yet in the plan. In the document there seems to be an overarching SMART Target for the Pharmaceutical issues as follows: , R*eduction in waste pharma volumes being sent for incineration to Birmingham, reduction in carbon footprint of prescribed medicines, reduction in harm to the environment, change in levels of Watch List substances being detected by Scottish Water during testing.* The plan for Pharmaceuticals includes 9 SMART based targets. ● To establish a baseline of specific pharmaceuticals in the hospital water to monitor change ● To minimise waste entering the water system – reduce over-prescribing and promote return facilities for unused or unwanted medicines. The use of waste return facilities will be monitored annually and linked to prescribed quantities of medicines to

			ascertain whether there has been an overall decrease in prescribing and an increase in the use of return facilities. ● 1 in 4 of prescriptions is never used – In 5 years reduce this to 1 in 10 through ongoing research and public awareness campaigns. Research with the public will be carried out to establish baseline level of understanding of when a medicine is useful, how to take them, waste facilities and current waste disposal behaviour and then repeat surveys will be undertaken every 3 years to compare knowledge and behaviour. ● Work with manufacturers to improve packaging making it more sustainable/ recyclable and easier for patients to use to help improve compliance with dosage instructions. This will involve attending meetings of the Sustainable Development Unit at which industry representatives are present and working collaboratively on solutions. ● To encourage greener medicines where possible to contribute to WWTP savings – Top 10 negative pharma replaced with green options in 5 years- NHS Highland will be working to adopt the WISE list of medicines. The prescribing rates for the changes from hazardous to more environmentally friendly medicines will be monitored on a 3 monthly basis and reported on an annual basis the changes in prescribing rates of hazardous medicines ● To reduce the carbon footprint for Scotland from pharmaceuticals which contribute almost 50% of the NHS total footprint. Work with National Services Scotland to improve standards for pharmaceutical suppliers (carbon footprint and environmental damage caused by the manufacture and supply of their medicines). The target for a new standard is December 2020. ● To generate innovation opportunities for SMEs and academia for technology/social/ behavioural solutions and knowledge- this is an ongoing piece of work and NHS Highland will proactively seek research and innovation calls. Evidence of some of the success so far is included in the slide below.

			● To change the culture - a move away from a “Pill for every ill” culture to personal responsibility, Green/Blue prescribing. Target for a PhD student to start researching this topic is October 2019. This is also linked to the research stated above which will be repeated on a 3 yearly basis to educate the public that using nature especially water can lead to both physical and mental health improvements and reduce or remove the need for medicines. ● A specific target which has been agreed by OHBP is to encourage the use of greener medicines where possible to contribute to WWTP savings with the top 10 environmentally hazardous replaced with green options in 5 years For the issue of pharmaceuticals the following are not addressed in the plan How it will be measured and monitored - Actions to achieve and maintain (or exceed) it - Planned timeframes to achieve it - Financial budgets allocated for actions - Positions of persons responsible for actions and achieving targets - Where available, note the link between each target and the achievement of best practice to help address shared water challenges and the AWS outcomes Other issues not yet identified are not in the plan and don’t have the required elements envisaged by the standards. SMART Targets. How it will be measured and monitored

			- Actions to achieve and maintain (or exceed) it - Planned timeframes to achieve it - Financial budgets allocated for actions - Positions of persons responsible for actions and achieving targets - Where available, note the link between each target and the achievement of best practice to help address shared water challenges and the AWS outcomes
	2.3.3	**Advanced Indicator** The site's partnership/water stewardship activities with other sites within the same catchment (which may or may not be under the same organisational ownership) shall be identified and described.	Inspected the OHBP leaflet NHS Highland and UHI (ERI) are working with other members of the OHBP to develop a leaflet for the public and professionals to inform them of pharmaceuticals in the environment and how they can contribute to better water stewardship. Whilst this leaflet has been developed as a result of the Caithness work it will be available on the internet for global access. The site is the Beta site for the proposed NHS wager stewardship approach to address the pharmaceuticals issues and other issues.
	2.3.4	**Advanced Indicator** The site's partnership/water stewardship activities with other sites in another catchment(s) (either under same corporate structure or with another corporate site) shall be identified.	OHBP leaflet NHS Highland and UHI (ERI) are working with other members of the OHBP to develop a leaflet for the public and professionals to inform them of pharmaceuticals in the environment and how they can contribute to better water stewardship. Whilst this leaflet has been developed as a result of the Caithness work it will be available on the internet for global access. The site is the Beta site for the proposed NHS wager stewardship approach to address the pharmaceuticals issues and other issues. NHS Highland is using the data from the research in Caithness General Hospital to work alongside partners in other catchment areas, both within NHS Highland and with other agencies and SMEs. Examples of some of the work include:

		Water stewardship activities within NHS Highland Antimicrobial and water stewardship video Within the NHS Highland region a project has started to develop a video for the Argyll and Bute locality. This is in association with SmartMed (an SME that has developed a medicines information app) and if funded by a grant from The Pebble Trust. The theme of the video is antimicrobial resistance (AMR). The local microbiology team from Raigmore hospital will be developing key messages for the public to reduce AMR. This includes patient expectations, inappropriate requests for/ use of antimicrobials, how to take antimicrobials, safe disposal of unused supplies (not flushed down the toilet) and information about increasing AMR caused by environmental pollution. Development of a Clinicians for Planetary Health network in NHS Highland. This involves raising the issue of pharmaceuticals in the water and what clinicians can do to minimise the impact across various specialties in Raigmore Hospital. Specialties include microbiology, anaesthetics, ophthalmology and respiratory to date. Presentations have been made to the various departments and workshops attended. There has been a high level of interest on this little known issue and steps are in hand to develop a Clinicians for Planetary Health network across Highland initially to share good practice and reduce the impact of pharmaceuticals on the environment by decreasing the prescribing of the more environmentally toxic medicines and considering other means of reducing plastic waste. It is believed that this will be the first such network in the NHS in Scotland. Undergraduate medical teaching module Also in the Inverness catchment area within NHS Highland is working with anaesthetic colleagues to develop a new undergraduate teaching module covering sustainable healthcare, global and planetary health. Funding is being provided by the University of

		Aberdeen. Initial scoping discussions have taken place and a draft course outline is currently being developed. The module was originally funded for medical students but it is hoped that it will be available to a much wider audience including dentists, nurses and pharmacists. Water stewardship across Scotland and internationally. Developing an innovative interagency methodology to understand how prescribing rates correlate with levels of pharmaceuticals in the environment NHS Highland is working with Scottish Water and SEPA to develop a methodology to elucidate the impact of prescribing pharmaceuticals on the water system. NHS Highland are combining data sources from each partner (which is a first for the UK public agencies) including the results of NHS Highland AWS research, looking at WISE list medicines along with Watch List priority substances and CIP 1 and CIP 2 pharmaceuticals. NHS Highland have identified the antimicrobial clarithromycin as the pilot for the work. NHS Highland are looking at intrinsic hazard, environmental fate and behaviour of the medicine, current levels in the environment along with WWTP efficiency and attempting to link this to prescribing data and population postcodes within the catchment areas across Scotland to understand more about how prescribing rates influence levels of environmental pollution and subsequently undertake some modelling to show how reductions in the prescribing of hazardous medicines could improve water stewardship. This project will be applicable all over the world, not just in Scotland so it is an exciting issue to have come out of the AWS work. Driving forward water stewardship across Scotland. NHS Highland and OHBP are currently seeking support from the Scottish Government to consolidate and build a sustainable partnership, to address the challenges and opportunities framed by the One-Health agenda, and in doing so align with, and contribute to Scottish National Performance Outcomes (diagram below) and to Government Hydro Nation objectives i.e. to:

			- develop the value of its naturally abundant water resources; - improve the productivity of its water industry - capitalise on the international market potential of water and respond to the water challenges - ensure that the environment in Scotland is protected and enhanced - make water an energy asset e.g. water efficiency & by generating more energy from water; - contribute to the global water debate by increasing Scotland's profile as a Hydro Nation.
	2.3.5	**Advanced Indicator** Stakeholder consensus shall be sought on the site's water stewardship plan. Consensus should be achieved on at least one target. A list of targets that have consensus and in which stakeholders are involved shall be identified.	There is no plan as yet
2.4 Demonstrate the site's responsiveness and resilience to respond to water risks	2.4.1	A plan to mitigate or adapt to identified water risks developed in co-ordination with relevant public-sector and infrastructure agencies shall be identified.	The document AWS Final says: An emergency water plan is available. It includes an alternative supply summary, temporary supply options, and roles and responsibilities of NHS Highland, Scottish Water and WAVE. The first step to delivering a risk-based, sustainable and plan-led approach to flood risk management is SEPA's National Flood Risk Assessment (NFRA). The NFRA considers the likelihood of flooding from rivers, the sea and surface water. The likelihood of flooding is examined alongside the estimated impact on people, the economy, cultural heritage and the environment.

			The flood risk management strategies coordinate the efforts of organisations that tackle flooding. The strategies concentrate the work of these organisations to where the risk of flooding and benefits of investment are greatest. The strategies set out the short to long term ambition for flood risk management in Scotland, stating objectives and actions for tackling flooding in high risk areas. Climate change may in the future lead to risks to water supplies due to unseasonable variations or potential for algal blooms in heat-stressed water bodies.The document CyanoBacteria in Inland and Offshore Waters:Assessment and Minimisation of the risk to Public health deals with this challenge. The document includes guidance on assessing the nature and risk to the public, triggers for action, responses and roles and responsibilities. Annex J of the document lists roles and responsibilities of various potential stakeholders in managing this shared water challenge. The role of the NHS is defined as follows: *"Health Protection Scotland (HPS) is the principal focus in Scotland, within the NHS, for advice on issues relating to health risks associated with infectious diseases and environmental hazards, including water contamination related incidents. HPS carries out surveillance of algal, including cyanobacterial, incidents, which have affected or have the potential to affect human health, using the Scottish Environmental Incident Surveillance System (SEISS), an on-line electronic reporting system for SEPA, Local Authorities, and NHS Boards. Data on incidents are available via a password protected site to registered users, and annual reports are provided via the HPS weekly report and web-site."* Supporting Documents: Scotland's Water Framework Directive Aquatic monitoring strategy Cyanobacteria in Inland and Offshore Waters
	2.4.2	Advanced Indicator	The NHS Climate change Impact Assessment (inspected) was carried out in October 2015. The report identifies threats and some opportunities NHS Highland may encounter with

		A plan to mitigate or adapt to water risks associated with climate change projections developed in co-ordination with relevant public-sector and infrastructure agencies shall be identified.	regards to water use, mainly changing rainfall patterns in summer and winter. The report lists a series of potential actions for NHS Highland to consider including awareness.

STEP 3: IMPLEMENT

Improve Impacts
Intent: To ensure that the site is implementing the plan outlined in Step 2, mitigating risks and driving actual improvements in performance.

Criteria		Indicators	Response Area
3.1 Implement plan to participate positively in catchment governance.	3.1.1	Evidence that the site has supported good catchment governance shall be identified.	NHS Highland has made efforts to involve various stakeholders during the process of understanding their responsibilities to effective water stewardship. Evidence. Inspected minutes of two stakeholder events have been held in January 2019, February 2019 and April 2019 to reach out to local stakeholders which no one attended. It was noted that NHS Highland took advise local councillors and the Caithness Chamber of Commerce on effective engagement. Public agencies have been instrumental in providing information relevant to this application and have been involved at every opportunity. Multi-agency co-operation is something that happens as a matter of course in Scotland. This was confirmed several times in the stakeholder 360 exercise. The lead up to this certification process has involved a great deal of communication with agencies that have an interest in the health of the catchment. In particular regular contact with Scottish Waters Catchment Liaison team leader. Supporting Documents: ● Email exchange with Catchment Liaison Team at Scottish Water ● Email exchanges with Scottish Water ● Email exchanges with Scottish Forestry ● E mail exchanges with Wick Councillor
	3.1.2	Measures identified to respect the water rights of others including Indigenous peoples, that	In Scotland there is no identified indigenous group however, As in many countries, the rights of people are a complicated.

		are not part of 3.2 shall be implemented.	Evidence inspected: NHS Highland have sought guidance. They contacted Dr Sarah Hendry, Head of Law at Dundee University who presented at the first meeting in Inverness on June 1, 2016 regarding the work on water stewardship. Inspected e mail communication with a summary of her reply being " there are no specific legal rights but everyone in Scotland has the expectation that they have access to water through the Sustainable Development Goals". The Salmon Board were also engaged but there was no further contact. The land and access rights around fishing is clearly outlined in law. Supporting Documents: ● Email exchange with Dr Sarah Hendry, Head of Law, University of Dundee Email exchange with Caithness District Salmon Fishery Board
	3.1.3	**Advanced Indicator** Evidence of improvements in water governance capacity from a site-selected baseline date shall be identified.	Not able to be assessed at this time since internal governance is not yet clarified.
	3.1.4	**Advanced Indicator** Evidence from a representative range of stakeholders showing consensus that the site is seen as positively contributing to the good water governance of the catchment shall be identified.	There was a variety of evidence notes during the audit that showed a very positive consensus to the water stewardship project and its leadership in the key catchment challenge (unresolved Pharmaceuticals). The evidence also showed an expectation from the various governance bodies that this site would be a model for further water stewardship projects each contributing positively to catchment governance.

3.2 Implement system to comply with water-related legal and regulatory requirements and respect water rights.	3.2.1	A process to verify full legal and regulatory compliance shall be implemented.	All NHS Highland sites including Caithness General Hospital are subject and compliant with Scottish Water By-laws and are randomly inspected by Scottish Water By-Law inspectors. Scottish Water carry out sampling of consented discharges, to monitor whether the discharge complies with these limits. Scottish Water have their own internal enforcement procedure in the event of serious breaches of consent conditions. Supporting Documents: Trade Effluent Direction Notice (sewerage Scotland Act) 1968 for Caithness General Scottish Water byelaws The document AWS final described the system including: For effluent, Scottish Water randomly sample water to ensure compliance. Any breaches are notified to the NHS Compliance Team at which point remedial action is undertaken. If there is an observed accident or incident that has the potential to cause water pollution, e.g. a spill of chemicals, NHS Highlands have a duty of care to notify Scottish Water directly. The Estates Officer for the site (Ivor Campbell) would notify the Compliance Manager (Bruce Barr) in NHS Highland. A report is then filed through an online system known as DATIX, which is accessible to all NHS staff. Different categories of incidents initiate a line of response which automatically generates involvement from predetermined individuals within the organisation. For water over consumption alerts WAVE, the on site water service provider, automatically send notifications by email to the Environment and Sustainability team. This online system, MyWater also provides details on bills, consumption history etc
	3.2.2	Where water rights are part of legal and regulatory requirements, measures identified to respect the water rights of others	There are no indigenous issues and the issue of legal rights for water is not clear. Evidence inspected confirms that the Caithness General Hospital is not impinging on the rights of other water users through over-abstraction, now, nor is this likely in the future.

		including Indigenous peoples, shall be implemented.	
3.3 Implement plan to achieve site water balance targets.	3.3.1	Status of progress towards meeting water balance targets set in the water stewardship plan shall be identified.	WAVE, part of Anglian Water, have been tasked with determining opportunities for improvement in the use of water on-site. The water balance targets are not yet in the Water Stewardship plan (see NCR 5/19) However the report Water Mapping and Efficiency Support Document commissioned by NHS Highland and by Mabbett and Associates Ltd showed that water balance has been quantified and new targets set for water savings. The report shows that water use has fallen in the last 2 years. Future projects to improve water data capture will facilitate future progress. This is to be which is also to be noted as a target in the WSP.
	3.3.2	Where water scarcity is a shared water challenge, annual targets to improve the site's water use efficiency, or if practical and applicable, reduce volumetric total use shall be implemented.	Water scarcity is not an issue at this time in the catchment area, and as stated in other parts of this report, Scottish Water do not anticipate any scarcity issues in the foreseeable future. Evidence: Recent email 22 July 2019 confirming that there is no shortage or anticipated shortage - Jarrad Stewart Technical Lead from catchment management department for Scottish water.
	3.3.3	Legally-binding documentation, if applicable, for the re-allocation of water to social, cultural or environmental needs shall be identified.	This is not applicable to the NHS Highland or the Caithness site as there are no water shortages anticipated.

	3.3.4	**Advanced Indicator** The total volume of water voluntarily re-allocated (from site water savings) for social, cultural and environmental needs shall be quantified.	N/A as there are no anticipated water shortages
3.4 Implement plan to achieve site water quality targets.	3.4.1	Status of progress towards meeting water quality targets set in the water stewardship plan shall be identified.	Evidence Supporting Documents: One Health Breakthrough Partnership GANTT Chart This shows the action planning and progress towards the key water quality target of unresolved pharmaceuticals in wastewater.
	3.4.2	Where water quality is a shared water challenge, continual improvement to achieve best practice for the site's effluent shall be identified and where applicable, quantified.	Effluent from the site is compliant with regulation. Evidence. No breaches recorded. Interviews with key on site staff show that protocol for the disposal of pharmaceuticals ensures nothing enters the wastewater stream.
3.5 Implement plan to maintain or improve the site's and/or catchment's Important	3.5.1	Practices set in the water stewardship plan to maintain and/or enhance the site's Important Water-Related Areas shall be implemented.	The site itself has no Important Water- Related Areas.

Water-Related Areas.	3.5.2	**Advanced Indicator** Evidence of completed restoration of non-functioning or severely degraded Important Water-Related Areas including where appropriate cultural values from a site-selected baseline date shall be identified. Restored areas may be outside of the site, but within the catchment.	The site itself has no Important Water- Related Areas. This cannot be assessed.
	3.5.3	**Advanced Indicator** Evidence from a representative range of stakeholders showing consensus that the site is seen as positively contributing to the healthy status of Important Water-Related Areas in the catchment shall be identified.	The site itself has no Important Water- Related Areas. This cannot be assessed.
3.6 Implement plan to provide access to safe drinking water, effective sanitation, and protective	3.6.1	Evidence of the site's provision of adequate access to safe drinking water, effective sanitation, and protective hygiene (WASH) for all workers	Although WASH is not an unmet need at the site the following information was presented in the document ASW Final. The Scottish Health Technical Memorandum 04-01 document provides comprehensive guidance on all matters regarding provision of safe drinking water.

hygiene (WASH) for all workers at all premises under the site's control.		onsite shall be identified and where applicable, quantified.	Modernising the facilities with new, water-efficient models are being considered as a matter of priority within the site water stewardship plan.
	3.6.2	Evidence that the site is not impinging on the human right to safe water and sanitation of communities through their operations, and that traditional access rights for Indigenous and local communities are being respected, and that remedial actions are in place where this is not the case, and that these are effective.	There is no evidence that the site is impinging on human rights to safe water and sanitation of communities Supporting Documents: • Scottish Water Quality Search Results Summary Table, 1/4/18 to 31/03/19 • E mail communication with SW Catchment Team
	3.6.3	**Advanced Indicator** A list of actions taken to support the provision to stakeholders in the catchment of access to safe drinking water, adequate sanitation and hygiene awareness shall be identified.	**Not assessed**

	3.6.4	**Advanced Indicator** In catchments where WASH has been identified as a shared water challenge, evidence of efforts taken with relevant public-sector agencies to share information and to advocate for change to address access to safe drinking water and sanitation shall be identified.	**Not assessed**
3.7 Implement plan to maintain or improve indirect water use within the catchment.	3.7.1	Evidence that indirect water use targets set in the water stewardship plan, as applicable, have been met shall be quantified.	In Step 1 it was identified that there was very limited if any considerations for embedded water (from within the catchment). Areas identified was Laundry (done on site) Food and Pharmaceuticals. Insufficient time has elapsed to determine possible actions to influence embedded water of imported pharmaceuticals. This will form part of on-going efforts to secure continual improvements.
	3.7.2	Evidence of engagement with suppliers and service providers, as well as, when applicable, actions they have taken in the catchment as a result of the site's engagement related to indirect water use, shall be identified.	Notwithstanding that there are little or no embedded water issues within the catchment the One Health Breakthrough Partnership will be engaging with this issue in the coming months and years on wider issues including reducing embedded water in pharmaceuticals by reducing or modifying pharmaceuticals.

	3.7.3	**Advanced Indicator** Actions taken to address water related risks and challenges related to indirect water use outside the catchment shall be documented and evaluated.	**No information**
3.8 Implement plan to engage with and notify the owners of any shared water-related infrastructure of any concerns the site may have.	3.8.1	Evidence of engagement, and the key messages relayed with confirmation of receipt, shall be identified.	*The site at Caithness does not have dir any water-related infrastructure issues. The site does not have any immediate concerns regarding water-related infrastructure. The site head engineer estimates that the pipework under the site is in the order of twenty years old and estimates that its lifespan is likely to be around 50 years old.* *The Wick Waste Water Treatment Plant is relatively new and was commissioned in 2004.* *The water innovation group have discussed this issue and NHS Highland are involved.* There is no evidence of direct engagement with Scottish water on the wastewater issues. NCR 06/19 - Since the inability of the wastewater treatment plant to remove unresolved pharmaceuticals has not yet been identified as a key challenge (see NCR 2/19) then there has been no engagement to date on this issue.
3.9 Implement actions to achieve best practice towards AWS outcomes: continually improve towards achieving sectoral best practice having	3.9.1	Actions towards achieving best practice, related to water governance, as applicable, shall be implemented.	Examples of best practice in water governance which NHS Highlands is pursuing include: • *A comprehensive water stewardship plan that is routinely reviewed and updated.* The water stewardship plan for NHS Highlands site is reviewed every 6 months as the work of the One Health Breakthrough Partnership develops. The plan willl be updated as a result of this audit (see NCR 6/19) A meeting with management, site personnel and relevant agencies will consider issues arising and how plans are performing. • *Designating responsibility for water stewardship to senior staff*

a local/catchment, regional, or national relevance.			*John Burnside is the management representative with responsible people at each site* *Evidence a draft organizational plan was inspected.* • *Training of all employees on the principles of water stewardship and how they can incorporate them within their daily tasks and responsibilities* Not yet in place see NCR 05/19 • *Engaging with peer organizations and stakeholders to promote water stewardship* The NHS Highland's involvement with The One Health Breakthrough Partnership ensures that peer involvement is an on-going process on the national agenda as well as the international stage. • *Demonstrating your support for good water governance and stewardship with appropriate authorities* NHS Highlands is in close contact with SEPA and water suppliers regarding the importance that they wish to place on good water stewardship. Commitment to the Water Stewardship certification has been demonstrated by a financial investment to achieving the standard at a time when many other pressures are bearing down on the organisation. • *Communicating on your own water stewardship to set a leading example to others* NHS Highland is running this AWS project as a pilot to explore the potential for other NHS sites across Scotland and it will, if successful or otherwise, continue to engage with the international efforts to solve the pharmaceutical problem as it has been doing.
	3.9.2	Actions towards achieving best practice, related to targets in terms of water balance shall be implemented.	Notwithstanding that there are no water balance issues, there are Examples of best practice for water efficiency: • Undertake a detailed study "Water Mapping and Efficiency Support" Document commissioned by NHS Highland and by Mabbett and Associates Ltd on how water is used in the organization, when and what for (as an extension of the water balance assessment of 1.3.2). This will help to prioritize where to focus water efficiency efforts or installation of water efficient technology. • Train workers on how to improve efficiency in the work they do. • Undertake a leak detection and measurement assessment, followed up by actions to reduce leaks.

			• Install water efficient fittings, for example for toilets, wash rooms, equipment washing facilities, etc. Implement improved monitoring to allow for effect and cause identification in water use issue.
	3.9.3	Actions towards achieving best practice, related to targets in terms of water quality shall be implemented.	As there are few issues regarding the water supply quality in Caithness, any efforts to improving water quality must look primarily to downstream impacts. This is largely the focus of the One Health Breakthrough Partnership as it seeks to reduce or remove the introduction of pharmaceuticals into the water body. Actions taken as a result of that work will be targeted at the challenge in the WSP. Work to date has defined target chemicals (most toxic) and developed ways of measuring but this is a long project and is ongoing.
	3.9.4	Actions towards achieving best practice, related to targets in terms of the site's maintenance of Important Water-Related Areas shall be implemented.	There are no IWRA areas on the Caithness site.
	3.9.5	Actions towards achieving best practice related to targets in terms of WASH shall be implemented.	Notwithsanding that there are no unmet WASH needs there are examples of best practice for on-site WASH provision: • Provision of sufficient supplies of safe drinking water for all workers, considering increased needs in hot weather. • Provision of sufficient and high standard facilities for toilets and washrooms for men and women, and any other relevant needs, such as for disabilities, age and religion. • Provision of showers for workers who may not have adequate provision in their own homes. • Provide training for workers and their families on good hygiene practices, within their community if appropriate.
	3.9.6	**Advanced Indicator** Achievement of identified best practice related to targets in	The site has been identified as test site for AWS and in particular moves to address the key challenges. Governance structures have been developed and is working. However this has not yet been quantified.

	terms of good water governance shall be quantified.	Criteria not met.
3.9.7	**Advanced Indicator** Achievement of identified best practice related to targets in terms of sustainable water balance shall be quantified.	Scottish Water do not anticipate any issues with catchment-level water balance within 25 years. However Water-use best practice is being implemented on the site which will make a positive contribution to on-site water balance.
3.9.8	**Advanced Indicator** Achievement of identified best practices related to targets in terms of water quality shall be quantified.	For the key issue of unresolved pharmaceuticals in wastewater, NHS Highland are leaders and Pioneers in the UK. Relative to other initiatives for this issue worldwide NHS Highland demonstrates and continues to define best practice.
3.9.9	**Advanced Indicator** Achievement of identified best practices related to targets in terms of the site's maintenance of Important Water-Related Areas have been implemented.	**No assessed. There are no IWRA on site**
3.9.10	**Advanced Indicator** Achievement of identified best practice related to targets in terms of WASH shall be quantified.	**Not assessed. There are no unmet WASH needs.**

	3.9.11	**Advanced Indicator** A list of efforts to spread best practices shall be identified.	**Not assessed.**
	3.9.12	**Advanced Indicator** A list of collective action efforts, including the organizations involved, positions of responsible persons of other entities involved, and a description of the role played by the site shall be identified.	**Not Assessed**
	3.9.13	**Advanced Indicator** Evidence of the quantified improvement that has resulted from the collective action relative to a site-selected baseline date shall be identified and evidence from an appropriate range of stakeholders linked to the collective action (including both those implementing the action and those affected by the action) that the site is materially and positively contributing to the achievement of the	**Not assessed**

		collective action shall be identified.	

STEP 4: EVALUATE ***Evaluate the site's performance*** Intent: To review a site's performance against the actions taken in Step 3, learn from the results – both intended and unintended – and inform the next iteration of the site's water stewardship plan. This evaluation shall occur at least annually, but sites should consider more frequent evaluations.			
Criteria		**Indicators**	**Response Area**
4.1 Evaluate the site's performance in light of its actions and targets from its water stewardship plan and demonstrate its contribution to achieving water stewardship outcomes.	4.1.1	Performance against targets in the site's water stewardship plan and the contribution to achieving water stewardship outcomes shall be evaluated.	The plan has not been functioning as a WSP for long enough to evaluate. Performance improvements in water use will be examined after a 6 month implementation period has passed. Based on the baseline data and targets in the report - Water Mapping and Efficiency Support Document commissioned by NHS Highland and by Mabbett and Associates Ltd NCR 07/19 - 4.1 Timeframes have been set for evaluation of the WSP but not enough time has yet elapsed for a meaningful evaluation. This evaluation needs to be done before the first surveillance audit.
	4.1.2	Value creation resulting from the water stewardship plan shall be evaluated.	The plan has not been functioning as a WSP for long enough to evaluate. Performance improvements in water use will be examined after a 6 month implementation period has passed.

			It was noted in step 1 that social and environmental benefits have to be considered also.
	4.1.3	The shared value benefits in the catchment shall be identified and where applicable, quantified.	The plan has not been functioning as a WSP for long enough to evaluate. Performance improvements in water use will be examined after a 6 month implementation period has passed.
	4.1.4	**Advanced Indicator** A governance or executive-level review, including discussion of shared water challenges, water risks, and opportunities, and any water-related cost savings or benefits realized, and any relevant incidents shall be identified.	**Not assessed.**
4.2 Evaluate the impacts of water-related emergency incidents (including extreme events), if any occurred, and determine the effectiveness of corrective and preventative measures.	4.2.1	A written annual review and (where appropriate) root-cause analysis of the year's emergency incident(s) shall be prepared and the site's response to the incident(s) shall be evaluated and proposed preventative and corrective actions and mitigations against future incidents shall be identified.	A plan review meeting was on …… No emergency incidents have been recorded in the last year. An updated emergency response plan has been released in May 2019. Evidence: V6 May 6 2019 was inspected. No extreme weather events were recorded in the last year.
4.3 Evaluate stakeholders' consultation feedback regarding the site's water stewardship performance, including the effectiveness of the site's engagement process.	4.3.1	Consultation efforts with stakeholders on the site's water stewardship performance shall be identified.	Regular meetings with agency stakeholders will continue. The first inter-agency meeting was on June 1, 2016. The importance of the issue of pharmaceuticals in the water will continue to be a focus for agencies and this will be reflected in these on-going meetings, events and research Efforts are being made to engage public stakeholders. For example, Health Centres run information videos on loop explaining the limits of the antibiotics as an attempt to reduce their use and

			contribution to wastewater pollution. Paper handouts explaining the issues are also becoming available. Evidence of stakeholder feedback evaluation: Minutes of the Meeting of the One Health partnership 20/09/19 from which The 2 leaflets “A prescription for a healthy Environment” were developed after stakeholder input.
	4.3.2	**Advanced Indicator** The site’s efforts to address shared water challenges shall be evaluated by stakeholders. This shall include stakeholder reviewing of the site’s efforts across all five outcome areas, and their suggestions for continual improvement.	Agencies to be emailed for their opinion on the AWS standard and opinions on how to move forward. This is not yet done Criteria not met.

4.4 Evaluate and update the site’s water stewardship plan, incorporating the information obtained from the evaluation process in the context of continual improvement.	4.4.1	The site’s water stewardship plan shall be modified and adapted to incorporate any relevant information and lessons learned from the evaluations in this step and these changes shall be identified.	The plan has not been functioning as a WSP for long enough to evaluate. See NCR 06/19 The following water-use targets for the Caithness site have been identified and these will be checked at Half yearly intervals • The data points are the right data points to be collected; • Context information has changed; As the work of the One Health Breakthrough Partnership develops, the context of the water stewardship targets must take that learning on-board

			and develop appropriate plans and strategies. This updated contextual information is re-appraised at regular meetings of the One Health Breakthrough Partnership and the Water Quality Innovation Group. It is possible that the Climate change impacts that must be taken into account may alter in such a way that this issue rises up the political and social agenda. In particular, the Climate Emergency which has been declared by the Scottish Government may have implications, but this will not become apparent for some months yet. This will require a regular consideration of the appropriateness of information gathered and appropriate responses. • Any lessons learned/areas for improvement are noted; NHS Highland is considering implementing the AWS standard across other sites. Lessons have been learned regarding several important aspects of building a compliant water stewardship approach. These include: ● Knowing the appropriate people in other agencies who have technical information regarding water related data and catchment level information. ● Understanding what is generic information that can be applied across any site in the country e.g. National plans, compared to catchment or site-specific issues e.g. mass balance, IWRA sites. ● The importance of engaging early with appropriate staff in individual sites to ensure buy-in to the stewardship outcomes. ● The importance of senior level personnel being engaged with the process in order to effectively engage with others in the organisation.

			● To effectively engage with the population who expect a quick-fix solution i.e. a pill for any ill, that they must also play a part in reduction in pharmaceutical pollution (see informatics from the One Health Breakthrough Partnership) • Successful strategies and/or best management practices have emerged/been implemented; • Stakeholder engagement efforts have been well-received (including transparency); • Water risks have changed since the last evaluation (the last time Criterion 2.7 was evaluated); ● Scottish Water have indicated that there are no anticipated challenges to the water balance at the catchment level within a 25 year timeframe. • Efforts have been effective and efficient in terms of costs/benefits (financially, socially, economically and environmentally to the site or the catchment). This will be a combination of quantitative and qualitative analysis, and include: • Lessons learned from implementing the plan • Whether circumstances have changed or affected performance • A review of regulatory changes and enforcement It is difficult to anticipate how the regulatory framework and legislation in the next few years due to BREXIT uncertainties. This will include which pharmaceuticals will be legislated about. • Areas of strong/weak performance • Changes in water risks and the catchment context

			• Whether water stewardship efforts are being effective in mitigating water risks, decreasing shared water challenges or creating value

STEP 5: COMMUNICATE & DISCLOSE

Communicate about water stewardship and disclose the site's stewardship efforts

Intent: To encourage transparency and accountability through communication of performance relative to commitments, policies, and plans. The disclosure of relevant information allows others to make informed opinions on a site's operations
and tailor their involvement to suit.

Criteria		Indicators	Response Area
5.1 Disclose water-related internal governance of the site's management, including the positions of those accountable for legal compliance with water-related local laws and regulations.	5.1.1	The site's water-related internal governance, including positions of those accountable for compliance with water-related laws and regulations shall be disclosed.	The general structure is made publicly available on the NHS Highland web site www.nhsdev.scot.nhs.uk/organiationalstructure John Burnside (John.Burnside@nhs.net) is NHS Highland Sustainability Manager who maintains an awareness of how the water-related issues fit into the wider context of NHS Highland's environmental footprint. He reports to Eric Greene, Head of Estates. John Has overall responsibility for the AWS approach. Bruce Barr (Bruce.Barr@nhs.net) is responsible for the overall compliance of NHS Highland's estate with water-related laws and regulations. He reports to Eric Greene, Head of Estates Pam Garbe (Pam.Garbe@nhs.net) who is the hospital manager who has overall responsibility for the Caithness site. She reports to Michelle Johnson area manager North Ivor Campbell (Ivor.Campbell@nhs.net) who is the on-site manager who deals with compliance issues. He reports to Magnus Bain.

			Fiona Miller (Fiona.Miller@nhs.net) is Health & Safety Manager for Estates & N&W Division (north area) and she has responsibility for matters relating to substances kept and used on site that have the potential to adversely impact water. She reports to Bob Summers, Head of Health and Safety
5.2 Communicate the water stewardship plan with relevant stakeholders.	5.2.1	The water stewardship plan, including how the water stewardship plan contributes to AWS Standard outcomes, shall be communicated to relevant stakeholders.	The plan has not been functioning as a WSP for long enough to evaluate. See NCR 06/19 NHS Highland is in regular contact with all major stakeholders on a regular basis. These include Scottish Water, Scottish Environmental Protection Agency, Highlands and Islands Enterprise, Scottish Natural Heritage, Scottish Forestry, James Hutton Institute and Glasgow Caledonian University. These agencies, plus others on an international stage, are indirectly involved in on-going work to collaboratively seek solutions to the shared water challenge represented by pharmaceuticals in the water. This is evidenced by the work of the One Health Breakthrough Partnership

5.3 Disclose annual site water stewardship summary, including the relevant information about the site's annual water stewardship performance and results against the site's targets.	5.3.1	A summary of the site's water stewardship performance, including quantified performance against targets, shall be disclosed annually at a minimum.	The plan has not been functioning as a WSP for long enough to evaluate. See NCR 06/19 However existing forums are in place. The site has made efforts to engage with water regulators, waste treatment agencies, environmental protection agencies and local stakeholders, public and commercial. It is recognised that this is an on-going process, particularly with regard to the possible impacts of climate change on water resources. Regular meetings are held with such stakeholders, particularly those who have a potential direct impact on efforts to seek solutions to shared challenges. This work has been shared with relevant stakeholders at regular intervals to encourage discussion and involvement and to ensure the accuracy of information. The site recently benefitted from investment in a community heating system which reduces the overall water consumption levels on-site as well as reducing fossil fuel emissions which contribute to climate change and future threats to water availability. This is very much a case of the site leading by example and working co-operatively with local stakeholders.
	5.3.2	**Advanced Indicator** The site's efforts to implement the AWS Standard shall be disclosed in the organization's annual report.	Information regarding the AWS standard application will be included in the next annual report which will be around the spring of 2020. Criteria not yet met.

	5.3.3	**Advanced Indicator** Benefits to the site and stakeholders from implementation of the AWS Standard shall be quantified in the organization's annual report.	This information will be included in the 2020 annual report Criteria not yet met.
5.4 Disclose efforts to collectively address shared water challenges, including: efforts to address the challenges; engagement with stakeholders; and co-ordination with public-sector agencies.	5.4.1	The site's shared water-related challenges and efforts made to address these challenges shall be disclosed.	The major water challenge identified on-site is the release of pharmaceuticals into the water Efforts to engage with stakeholders who have a shared interest in the identified water challenges are ongoing. This has been disclosed and is the subject of press articles Evidence: https://www.pressandjournal.co.uk/fp/news/highlands/1641453/caithness-hospital-leading-the-way-worldwide-through-environmental-work/
	5.4.2	Efforts made by the site to engage stakeholders and coordinate and support public-sector agencies shall be identified.	Efforts to actively engage with stakeholders have been undertaken. Public events were held in Wick to encourage and allow stakeholders in the local business and population to engage with the work and to be heard on any issues that are of concern. Regular contact with public sector agencies is a matter of course for NHS Highland. An inter-agency approach has been business as usual from before the AWS standard was considered as an option for the Caithness site. This is shown by the diverse range of participants at various meetings and events that form part of the history of this application. This approach is actually enabled because the solution to the pharmaceutical loading of water can

			only be found by an inter-agency approach. Involving the university sector and the private sector is also essential as it is from these areas that potential solutions are being sought. Various meetings and events at which the challenge posed by pharmaceuticals in the waste water were discussed and shared are included in Section 1.6.2, initiatives for shared challenges. Public agencies involved with the AWS certification process include: Scottish Environment Protection Agency (SEPA) Lindsey Green, Innovation Team - participants in The One Health Breakthrough Partnership Scottish Water : Mark Burton, ; Jared Stewart Catchment Team Liason Officer University of the Highlands and Islands, Professor Stuart Gibb, Director, Environmental Research Institute Forest Enterprise Scotland, Neil McInnes, Planning Forester Highlands and Islands Enterprise, Diane Duncan Supporting Documents provided: ● Email Invitation for feedback from Agency stakeholders ● Email regarding SEPA attendance at stakeholder meeting, Wick, Feb 2019 ● E mail to Highlands and Islands Enterprise ● Emails to Scottish Forestry

5.5 Communicate transparency in water-related compliance: make any site water-related compliance violations available upon request as well as any corrective actions the site has taken to prevent future occurrences.	5.5.1	Any site water-related compliance violations and associated corrections shall be disclosed.	There have been no regulatory breaches regarding water provision or effluent. This is recorded on the DATIX system and was confirmed by inspection at the audit.
	5.5.2	Necessary corrective actions taken by the site to prevent future occurrences shall be disclosed if applicable.	There have been no corrective actions required. The DATIX system, automatically informs the appropriate people. Observation. Availability on request is in principle but not yet documented.
	5.5.3	Any site water-related violation that may pose significant risk and threat to human or ecosystem health shall be immediately communicated to relevant public agencies and disclosed.	There have been no water-related violations.

END OF REPORT