

Yorkshire Water Services Ltd

Lemonroyd Sludge Treatment Facility

Surrender of Permit (No. KP3036LW)

Surrender Site Condition Report

09/01/2025



Document Version

Revision	Date	Description	Author	Checked	Reviewed	Approved
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1 Introduction

1.1 Report context

Lemonroyd Sludge Treatment Facility (STF) is owned by Yorkshire Water Services (YWS) Ltd. This report has been produced by YWS to support the surrender of Environmental Permit number KP3036LW for Lemonroyd STF.

1.2 Background

The original permit application (EPR number KP3036LW) was determined in 2007. In September 2008, there was an administration variation (variation notice KP3036LW/V002) to amend and remove various conditions to add clarity to the permit. In September 2008 YWS appealed several permit clauses within the STF PPC permits.

YWS propose to surrender this permit following cessation of dewatering for disposal. The site will remain operational with dewatered sludge sent for recycling only. Under the Environmental Permitting (England and Wales) Regulations 2016, this activity is exempt from requiring a permit. The STF will remain managed by YWS.

1.3 Permit surrender requirements

In order to surrender the permit for the works, it must be demonstrated that the necessary measures have been taken:

- (a) To avoid a pollution risk resulting from the operation of the regulated installation;
- (b) To return the site of the regulated installation to a satisfactory state, having regard to the state of the site before the installation was put into operation.

This surrender site condition report has been prepared to assess whether the ground and groundwater beneath the site are in a suitable condition for a surrender.

Reference sources used in preparing this report include the following documents:

- RGN 9: Surrender;
- Application Site Report;
- Lemonroyd STF Environmental Permit (EPR/KP3036LW);
- Lemonroyd STF Environmental Permit Variation Notice V002 (EPR/KP3036LW/V002); and,
- Lemonroyd STF Environmental Permit Variation Notice V003 (EPR/KP3036LW/V003).

1.4 Site Location

The STF is located at Lemonroyd Waste water Treatment Works (WwTW), Fleet Lane, Oulton, Leeds, West Yorkshire, LS26 8AB. The WwTW is at NGR SE 37844 27965 and Lemonroyd STF is at NGR SE 37940 27959.

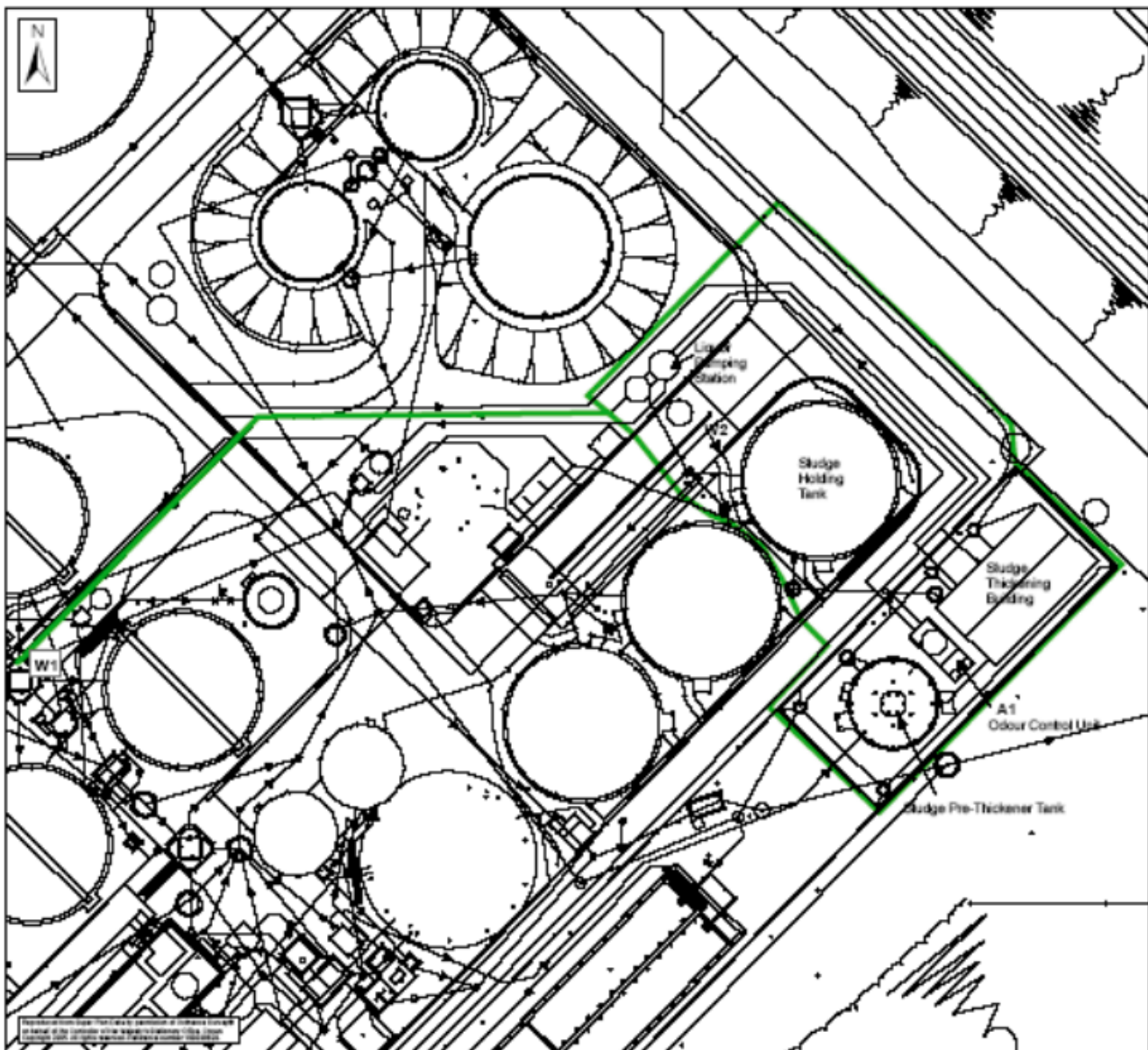
Figure 1 shows Lemonroyd WwTW and STF. Figure 2 shows the Lemonroyd STF permit boundary.

Figure 1. Lemonroyd Sludge Treatment Facility





Figure 2. Lemonroyd STF



1.5 Site operations

The STF is designed to reduce the water content of surplus activated sludge (SAS) produced by the adjacent WwTW. The WwTW does not form part of the permitted installation. The STF infrastructure within the permit boundary includes:

- Sludge thickener building
- Gravity belt thickener (GBT)
- Surface and foul water drainage system
- Sludge pre-thickener tank
- Thickened sludge tank
- Below ground liquor pumping station
- Sludge loading area
- Odour control unit

Unthickened sludge is pumped, under control, from SAS storage tanks. These tanks are not part of the installation – they are part of the Urban Waste Water Treatment Directive (UWWTD) WwTW. The unthickened sludge is pumped into the STF onto the GBT for sludge thickening. Polymer is added to aid flocculation.

Liquids coming from the GBT process are pumped back to the WwTW for treatment. Liquids from drains are pumped to the WwTW for treatment.

The containment system in place has prevented any releases to the environment including any potential risks to the River Aire. There are no discharges to groundwater from the installation.

The activities carried out do not create noise pollution

2 Condition at permit issue

The Application Site Report for Lemonroyd STF was submitted as part of an application for a permit to operation an installation under Regulation 10 of the Pollution Prevention and Control (England and Wales) Regulations 2000, which have since been replaced by EPR.

Records of the site and surrounding areas were reviewed, along with operational site records, in order to describe the condition of the site and, in particular, to identify any substance in, on, or under the land that may constitute a pollution risk to the land. Pollution prevention measures were identified and an assessment of pollution potential to land was undertaken.

An assessment of the likelihood of land pollution was undertaken for each of the site operations or site zones listed in Section 1.4. The conclusions of the report were that there was little likelihood that land pollution or leaks to land would occur during the future life of the permit. Therefore, there was no requirement for reference/baseline sample data to be collected.

3 Permitted activities

3.1 Permitted activities

The original permit application for Lemonroyd STF was determined in 2007 and the original permitted activities are displayed in Table 1.

Table 1: Original Permitted Activities at the Lemonroyd STF

Environmental Permit Number	Activity listed in Schedule 1 of the PPC Regulations	Description of specified activity and WFD Annex IIA and IIB operations	Limits of specified activity and waste types
KP3036LW	S5.4 A1(a)(ii)	Physico-chemical treatment of Non-hazardous sewage sludge (D9)	Receipt of sewage sludge into process, thickening, polymer make up, liquor storage, and return pipework, storage of thickened sewage sludge. Waste types to be as specified in Schedule 3 tables(s) S3.2, S3.3, etc.

3.1.1 Changes to permit

There was an administration variation in 2008 (KP3036LW V002) to amend and remove various conditions to add clarity to the permit.

There was a further permit variation in 2014 (KP3036LW V003) instigated by the EA in order to implement changes to the listed activities following the introduction of the Industrial Emissions Directive.

3.1.2 Dangerous substances resulting from permitted activities

A list of all substances used, stored, manufactured (or waste by-products from the manufacturing process) are displayed in Table 2.

Table 2. Lemonroyd STF Potentially Polluting Substances.

Substances used, stored, and by-products	Maximum Volume Stored	Environmental Properties		
		Toxicity	Behaviour	Transport
Sewage sludge (in sludge pre-thickener tank)	874m ³	Toxic	Odorous material. May contain variety of heavy metals, pathogens, and organic pollutants	Leaks to soil and groundwater.
Sewage sludge (in thickened sludge tank)	392m ³	Toxic	Odorous material. May contain variety of heavy	Leaks to soil and groundwater.

			metals, pathogens, and organic pollutants	
Return liquor	None – This is not stored but pumped straight to a return liquor wet well and pumped back to the WwTW.	Low	May contain variety of heavy metals, pathogens, and organic pollutants.	Leaks to soil and groundwater.
Polymer	0.427m ³	Not known	Remains in soil and groundwater.	Leaks to soil and groundwater.

4 Summary of application site conditions record

4.1 Background

In support of the Lemonroyd STF permit YWS developed:

- An application site condition report;
- A site-specific Odour Management Plan; and,
- A Site Closure Plan.

4.1.1 Site Condition Report – Underground pipes and sumps

A risk assessment was submitted as part of the Lemonroyd STF EPR Site Condition report. This concluded that there was little likelihood of pollution risk to the environment from the storage of substances in tanks at the installation and that there was no risk to the environment from the transfer of substances in underground pipework.

All structures and pipework on YWS operational sites are designed to relevant British Standards, Codes of Practice, and to YWS own additional Engineering Specifications to ensure that they are fit for purpose and will maintain their structural integrity for the duration of their asset life.

4.1.2 Lemonroyd STF odour management plan

The Lemonroyd STF Odour Management Plan was submitted to the EA by YWS during the original environmental permit application process.

4.1.3 Site Closure Plan



A Site Closure Plan was submitted as part of the original permit application. However, this is not relevant because the site will continue to operate under T21 exemption and will not cease to operate after surrendering the permit.

5 Site inspection

5.1 EA Site Inspection

YW had arranged a site inspection with the EA for the permit surrender application on 17th September 2024. The site visit was carried out by Penny Johnston, who was accompanied by David Shaw, Senior Compliance Analyst at YW. The site was found to be in a satisfactory state and deemed suitable for a low risk surrender. An EPR Compliance Assessment Report was issued from the site visit on 19th September 2024, as included in Appendix B

5.2 Asset Inspection

Asset inspections have been conducted by YWS on the integrity of the assets (storage tanks, below and above ground pipes and sumps). The assets are up to the required standard. The report is included in Appendix C.

6 Monitoring and reporting

6.1 Monitoring

The STF operates in accordance with the YWS Integrated Management System (IMS) which identifies and minimises risks of pollution by regular inspection of above and below ground assets within the permit boundary.

Throughout the life of the permit, YW's Senior Compliance Analyst has undertaken monthly TCM inspections at the site. YW's site operators have and will continue to undertake daily checks.

The STF is surrounded by other WWTW plant on all sides, and the majority of the ground surface is concrete or tarmac, with very little vegetation.



The GBT process is checked to ensure that the system is running effectively and to minimise the use of polymer conditioning chemicals.

Sludge sampling and analysis is carried out to optimise the process and produce a good sludge product, using the least amount of conditioning chemicals. The samples are tested on site and recorded.

An example of the YWS IMS monitoring and maintenance records are included in Appendix D.

6.2 Reporting

All relevant data has been provided to the EA in accordance with conditions for the Permit.

7 Summary of surrender site condition

7.1 General

A site walkover of the Lemonroyd STF was undertaken on the 10th July 2024 to visually assess the land condition and site infrastructure. Selected photographs are included in Appendix A.

7.2 Drainage and hardstanding

Liquors from the STF are pumped to the WwTW via a pumping station.

During the site visit, the drains and hardstanding appeared to be in satisfactory condition and free from obstruction.

There are no watercourses or drainage ditches within the STF boundary.

7.3 Site buildings and infrastructure

7.3.1 *Sludge Thickening Building*

The Sludge Thickening Building is well maintained. During the site visit, it was tidy and orderly (see Appendix A, Photo 1). The Sludge Thickening Building is approximately 17 years old. The building consists of one floor. There are some materials on the floor, but it is reasonably tidy with no appearance of staining.

7.3.2 *Polymer make up, and dosing*

Next to the Sludge Thickening Building, there is an area where the polymer is made up and mixed (see Appendix A, Photo 2). It is in a satisfactory condition.

7.3.3 *Gravity belt thickeners*

Following the polymer dosage, the sludge is then thickened in the GBTs which are located inside the sludge thickening building, on concrete flooring (see Appendix A, Photo 4).

7.3.4 Thickened sludge storage tank

There is one thickened sludge storage tank which is in a satisfactory condition (see Appendix A, Photo 6).

7.3.5 Sludge Holding Tank

The sludge holding tank next to the Sludge Thickening Building is in a satisfactory condition.

7.3.6 Return liquors

The return liquors are pumped back to the WwTW via a pumping station.

7.3.7 Fuel Storage

There is no fuel stored within the permitted boundary.

7.4 Land condition

There is no evidence of contamination within the permit boundary.

7.5 Pollution incidents and complaints

There have been no complaints regarding noise at the STF.

There has been unsubstantiated odour reports received via the EA over the years. Correspondence between EA and YW on the effort to determine the source of odour complaint is included in the Appendix E.

There have been no pollution incidents from the STF activities.

7.6 Remediation

There has been no remediation at the STF.

8 Statement of Site Condition

YWS wish to surrender the permit for the STF following the cessation of thickening before disposal (via incineration). The permit has been in operation since 2007.

The Surrender Site Condition Report has demonstrated through a review of monitoring records during the lifetime of the permit, discussions with YW 's operatives, and a site visit that the condition of the land and the STF assets are in a satisfactory state.

The records of the site and surrounding areas that have been reviewed, along with operational site records and the site visit demonstrate that there has been no pollution to land.

The STF will remain operational and managed by YWS with thickened sludge from this site being sent to onwards recovery (via digestion) . Under the Environmental Permitting (England and Wales) Regulations 2016, this activity is exempt from requiring a permit.

The conclusion of the report is the land has not deteriorated from the baseline condition since the permit application was submitted. Therefore, the permit may be surrendered because the site condition is satisfactory.

Appendix A. Lemonroyd STF photographs from 10th July 2024

The photographs of Lemonroyd STF were taken during the site visit on Wednesday 10th July 2024.



Photo 1. Sludge Thickening Building



Photo 2. Polymer Mixing Area



Photo 3. Polymer Storage Area



Photo 4. Gravity Belt Thickener



Photo 5. MCC Room




Photo 6. Thickened Sludge Storage Tank 3

Appendix B. EPR Compliance Assessment Report



YorkshireWater

 Environment Agency		EPR Compliance Assessment Report		Report ID: KP3036LW/0520038	
This form will report compliance with your permit as determined by an Environment Agency officer					
Site	Lemonroyd Sludge Treatment Facility - EPR/KP3036LW		Permit Ref	KP3036LW	
Operator/ Permit holder	YORKSHIRE WATER SERVICES LIMITED				
Date	17/09/2024		Time in	11:45	Out 12:20
What parts of the permit were assessed	Permitted area				
Assessment	Site Inspection	EPR Activity:	Installation	X	Waste Op
Recipient's name/position	David Shaw				
Officer's name	Penny Johnston		Date issued	19/09/2024	

Section 1 - Compliance Assessment Summary					
<p>This is based on the requirements of the permit under the Environmental Permitting Regulations (EPR). A detailed explanation and any action you may need to take are given in the "Detailed Assessment of Compliance" (section 3). This summary details where we believe any non-compliance with the permit has occurred, the relevant condition and how the non-compliance has been categorised using our Compliance Classification Scheme (CCS). CCS scores can be consolidated or suspended, where appropriate, to reflect the impact of some non-compliances more accurately. For more details of our CCS scheme, contact your local office.</p>					
Permit Conditions and Compliance Summary			Condition(s) breached		
a) Permitted activities	1. Specified by permit	A			
b) Infrastructure	1. Engineering for prevention & control of pollution	A			
	2. Closure & decommissioning	N			
	3. Site drainage engineering (clean & foul)	A			
	4. Containment of stored materials	A			
	5. Plant and equipment	N			
c) General management	1. Staff competency/ training	A			
	2. Management system & operating procedures	N			
	3. Materials acceptance	N			
	4. Storage handling, labelling, segregation	A			
d) Incident management	1. Site security	A			
	2. Accident, emergency & incident planning	N			
e) Emissions	1. Air	N			
	2. Land & Groundwater	N			
	3. Surface water	N			
	4. Sewer	N			
	5. Waste	N			
f) Amenity	1. Odour	A			
	2. Noise	A			
	3. Dust/fibres/particulates & litter	A			
	4. Pests, birds & scavengers	A			
	5. Deposits on road	A			
g) Monitoring and records, maintenance and reporting	1. Monitoring of emissions & environment	N			
	2. Records of activity, site diary, journal & events	N			
	3. Maintenance records	N			
	4. Reporting & notification	A			
h) Resource efficiency	1. Efficient use of raw materials	N			
	2. Energy	N			
<p>KEY: C1, C2, C3, C4 = CCS breach category (*suspended scores are marked with an asterisk), A = Assessed (no evidence of non-compliance), N = Not assessed, NA = Not Applicable, O = Ongoing non-compliance – not scored MSA, MSB, TCM = Management System condition A, Management System Condition B and Technically Competent Manager condition which are environmental permit conditions from Part 3 of schedule9 EPR (see notes in Section 5/6).</p>					
Number of breaches recorded		0	Total compliance score (see section 5 for scoring scheme)		0
If the Total No Breaches is greater than zero, then please see Section 3 for details of our proposed enforcement response					

Section 2 – Compliance Assessment Report Detail

This section contains a report of our findings and will usually include information on:

- the part(s) of the permit that were assessed (e.g. maintenance, training, combustion plant, etc)
- where the type of assessment was 'Data Review' details of the report/results triggering the assessment
- any non-compliances identified
- any non-compliances with directly applicable legislation
- details of any multiple non-compliances
- information on the compliance score accrued inc. details of suspended or consolidated scores.
- details of advice given
- any other areas of concern
- all actions requested
- any examples of good practice.
- a reference to photos taken

This report should be clear, comprehensive, unambiguous and normally completed within 14 days of an assessment.

Introduction

This was a pre-arranged visit carried out by Penny Johnston and accompanied by David Shaw, Senior Compliance Analyst at Yorkshire Water. Thank you for your time taken to carry out the visit with me.

Site visit

After signing in at the site office we walked down to the sludge treatment area.

In previous years odour has been an issue at this site but no odour was detected today outside the boundary of the site. An odour control unit is in place in the tank area and the building. There were no issues with noise, mud, pests, or litter

The sludge is stored in a tank with a mixer which then feeds into the building where dewatering takes place on a belt press. Polymer is added to thicken the sludge. Sludge is then stored in tanks again before being loaded via a vacuum pump into tankers and transported usually to Knostrop AD plant in Leeds.

There is a programme of regular testing in place for the integrity of the tanks.

Drainage from this part of the site is taken back to the head of the works and fed back in through the treatment system. The whole of the permitted area is concreted and the concrete is in good repair. Drainage from this part of the site is directed back to the head of the works.

The site was well run.

Permit

Under the current permit sludges should be sent for disposal. The permit is not required for sludges going for recovery such as anaerobic digestion. YW are looking to surrender this permit.

The permit would be suitable for a low risk surrender as the area where the permitted activity is carried out is fully concreted with a sealed drainage system.

Section 3- Enforcement Response

Only one of the boxes below should be ticked

You must take immediate action to rectify any non-compliance and prevent repetition.

Non-compliance with your permit conditions constitutes an offence* and can result in criminal prosecutions and/or suspension or revocation of a permit. Please read the detailed assessment in Section 2 and the steps you need to take in Section 4 below.

*Non-compliance with MSA, MSB & TCM do not constitute an offence but can result in the service of a compliance, suspension and/or revocation notice.

Other than the provision of advice and guidance, at present we do not intend to take further enforcement action in respect of the non-compliance identified above. This does not preclude us from taking enforcement action if further relevant information comes to light or advice isn't followed.

In respect of the above non-compliance you have been issued with a warning. At present we do not intend to take further enforcement action. This does not preclude us from taking additional enforcement action if further relevant information comes to light or offences continue.

We will now consider what enforcement action is appropriate and notify you, referencing this form.

Section 4- Action(s)

Where non-compliance has been detected and an enforcement response has been selected above, this section summarises the steps you need to take to return to compliance and also provides timescales for this to be done.

Criteria Ref.	CCS Category	Action Required / Advised	Due Date
---------------	--------------	---------------------------	----------

See Section 1 above			

Section 5 - Compliance notes for the Operator

To ensure you correct actual or potential non-compliance we may

- advise on corrective actions verbally or in writing
- require you to take specific actions in writing
- issue a notice
- require you to review your procedures or management system
- change some of the conditions of your permit
- decide to undertake a full review of your permit

Any breach of a permit condition is an offence* and we may take legal action against you.

● We will normally provide advice and guidance to assist you to come back into compliance either after an offence is committed or where we consider that an offence is likely to be committed. This is without prejudice to any other enforcement response that we consider may be required.

● Enforcement action can include the issue of a formal caution, prosecution, the service of a notice and or suspension or revocation of the permit.

● A civil sanction Enforcement Undertaking (EU) offer may also be available to you as an alternative enforcement response for this/these offence(s).

See our Enforcement and Civil Sanctions guidance for further information

A breach of permit condition **MSA, **MSB** & **TCM** is not an offence but may result in the service of a notice requiring compliance and/or suspension or revocation of the permit.*

This report does not relieve the site operator of the responsibility to

- ensure you comply with the conditions of the permit at all times and prevent pollution of the environment
- ensure you comply with other legislative provisions which may apply.

Non-compliance scores and categories

CCS category	Description	Score
C1	A non-compliance which could have a major environmental effect	60
C2	A non-compliance which could have a significant environmental effect	31
C3	A non-compliance which could have a minor environmental effect	4
C4	A non-compliance which has no potential environmental effect	0.1

Operational Risk Appraisal (Opra) - Compliance assessment findings may affect your Opra score and/or your charges. This score influences the resource we use to assess permit compliance.

MSA, MSB & TCM are conditions inserted into certain permits by Schedule 9 Part 3 EPR

MSA requires operators to manage and operate in accordance with a written management system that identifies and minimises risks of pollution.

MSB requires that the management system must be reviewed, kept up-to-date and a written record kept of this.

TCM requires the submission of technical competence information.

Section 6 – General Information

Data protection notice

The information on this form will be processed by the Environment Agency to fulfill its regulatory and monitoring functions and to maintain the relevant public register(s). The Environment Agency may also use and/or disclose it in connection with:

- offering/providing you with its literature/services relating to environmental matters
- consulting with the public, public bodies and other organisations (e.g. Health and Safety Executive, local authorities) on environmental issues
- carrying out statistical analysis, research and development on environmental issues
- providing public register information to enquirers
- investigating possible breaches of environmental law and taking any resulting action
- preventing breaches of environmental law
- assessing customer service satisfaction and improving its service
- Freedom of Information Act/Environmental Information Regulations request.

The Environment Agency may pass it on to its agents/representatives to do these things on its behalf. You should ensure that any persons named on this form are informed of the contents of this data protection notice.

Disclosure of information

The Environment Agency will provide a copy of this report to the public register(s). However, if you consider that any information contained in this report should not be released to the public register(s) on the grounds of commercial confidentiality, you must write to your local area office within 28 days of receipt of this form indicating which information it concerns and why it should not be released, giving your reasons in full.

Customer charter

What can I do if I disagree with this compliance assessment report?

A permit holder can challenge any part of the CAR form by writing to the Environment Agency office local to the site within 28 days of receipt. If the issue cannot be resolved by the local office, a permit holder may request an appeal of the regulatory decision by emailing enquiries@environment-agency.gov.uk within 14 days of receipt of the outcome.

If you are still dissatisfied, you can make a complaint to the Ombudsman. For advice on how to complain to the Parliamentary and Health Service Ombudsman phone their helpline on 0345 015 4033.

Appendix C. Lemonroyd WwTW IC2 Report

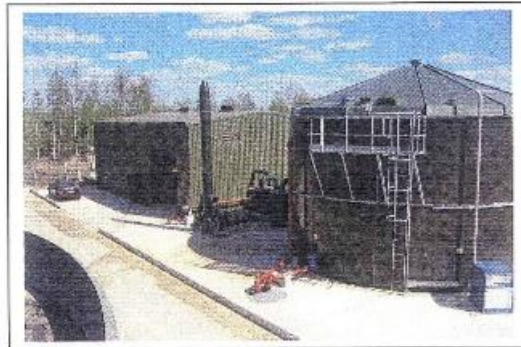




LEMONROYD WwTW FFD SCHEME

IPPC PERMIT No KP3036LW – TABLE S1.3
IMPROVEMENT PROGRAMME REQUIREMENTS

REFERENCE IC2 REPORT FOR APPROVAL



Prepared for:
Yorkshire Water Services Ltd

Date:
24th April 2007

Document Number: 4/M4092/X0050/A2

Yorkshire Water Reference: A8291

Prepared by:
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ETM Doc No. 4/M4092/X0050/A2

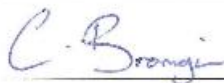
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Client Ref: A8291
Date: 24 April 2007

Customer Yorkshire Water Services Ltd
Project no. M4092
Project name Lemonroyd STW FFD Scheme
Report title IPPC Report Reference IC2
Customer reference A8291
ETM doc reference 4/M4092/X0050
Date 24 April 2007
Revision no. A2

Author Chris Branigan BEng (Hons) CEng MICE


Signed



Position Senior Civil Engineer

Checked by Steve Cooper BSc (Hons) MSc CEng MICE MCIWEM DMS

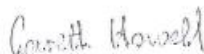
Signed



Position Lead Engineer

Approved by Gareth Howell

Signed



Position Project Engineer

AMENDMENT RECORD

Issue	Date	Details of Changes	Checked	Approved
A1	13/04/07	Issued to YWS for comments	SJC	GH
A2	24/04/07	Approved	SJC	GH

Note: Changes to the text in the latest version are denoted by a solid black vertical line in the margin.

This report has been prepared by ETM4 within the terms of the Contract ETM4 has with the client.

This report is confidential to the client and we accept no responsibility of whatsoever nature to third parties to whom this report, or any part thereof, is made known. Any such party relies on the report at their own risk.

ETM Doc No. 4/M4092/X0050/A2

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Client Ref: A8291
Date: 24 April 2007

Reference IC 2

The following underground pipes, pumps and sumps for the conveyance of sewage sludge/liquors have been installed at Lemonroyd STW as part of the A8291 contract and are covered by Permit No. KP3036LW:

IC2.1.1. Thickened Sludge Pumping Main

A 16m long section of pipeline used for the conveyance of thickened sludge is installed beneath the access road adjacent to the new sludge building. The sludge is produced by the belt thickener, and is periodically pumped into the most easterly of the existing sludge holding tanks.

A banded pipe system, comprising a 125 OD HPPE main located centrally within a 300mm nominal bore ductile iron pipe, has been provided beneath the road. The annulus between the HPPE pipe and the ductile iron sleeve is exposed in inspection chambers situated at either side of the buried section, thus allowing any leakage from the HPPE pipe to be easily detected.

The HPPE pipes are manufactured in accordance with the Water Industry Specification, which states that *'PE100 shall have an MRS of 10MPa at 50 years at 20°C, full RCP resistance and greater than 1000h long term crack resistance'* (i.e. minimum asset life of 50 years); the pre-cast concrete chamber units, with the associated concrete backing, should have an asset life in the order of 60 years (i.e. typical design life for civil structures)

The HPPE pipe has a maximum working pressure of 10 bar, which is well in excess of the maximum 3 bar pressure that can be produced by the pumps attached to the belt thickener. A burst resulting from excessive internal pressure (the buried pipeline does not contain any line valves that can be inadvertently closed against full head) is therefore extremely unlikely. Adequate anchorage against longitudinal contraction has been provided; hence, as the pipeline is continuously welded by electro-fusion, there is virtually no scope for joint seepage to occur.

The completed pipeline, including pipes, joints and restraints, has been pressure (proof) tested at a pressure higher than working pressure to prove its integrity.

All pipe materials and welds have been tested in accordance with ETM site quality procedures (see IC1 Construction Quality Assurance Report). Joints between the HPPE pipe and adjacent above-ground ductile iron pipework have been formed by means of proprietary stub-flange connections.

Polyethylene has an extremely high resistance to chemical corrosion, and it is not anticipated that the composition of the thickened sludge will cause any adverse effects to the longevity of the pipe. No aggressive ground conditions were identified by the site investigation works, and hence external corrosion of the pipe is not considered to be a problem.

Similarly, none of the HPPE pipework is exposed to the atmosphere. Weakening of the pipe walls as a result of exposure to UV light or frost action is therefore not an issue.

All other sections of pipework associated with the thickened sludge system have been installed above ground.

IC 2.1.2 Return Liquors Main (gravity section)

A 56m length of buried pipework has been used to transfer return liquors by gravity from the belt thickener to the dedicated return liquors pumping station. The pipeline is primarily formed by a continuously welded (electro-fusion) 160 OD MDPE (PE80) SDR 17 pipe, installed in a trench with granular bed and surround. Immediately adjacent to the upstream and downstream connection points the MDPE pipe has been replaced by short lengths of 150mm nominal bore flanged ductile iron; a concrete bed and surround has been provided where the pipework is routed beneath the foundations of the sludge thickening building.

The actual working pressure of the pipeline is 0.35 bar, and this is well within the allowable 8 bar maximum working pressure of a MDPE pipe.

The completed pipeline, including pipes, joints and restraints, has been pressure (proof) tested at a pressure higher than working pressure to prove its integrity.

All pipe materials and welds have been tested in accordance with ETM site quality procedures (see IC1 Construction Quality Assurance Report). Joints between the HPPE pipe and adjacent ductile iron pipework have been formed by means of proprietary stub-flange connections.

Polyethylene has an extremely high resistance to chemical corrosion, and it is not anticipated that the composition of the return liquors will cause any adverse effects to the longevity of the pipe. No aggressive ground conditions were identified by the site investigation works, and hence external corrosion of the pipe is not considered to be a problem.

Similarly, none of the MDPE pipework is exposed to the atmosphere. Weakening of the pipe walls as a result of exposure to UV light or frost action is therefore not an issue.

Manufacturer's information indicates that MDPE pipes operating under these conditions should have an asset life of at least 50 years.

A banded pipe has not been provided, as this is deemed unnecessary in view of the diluted nature of the return liquor and the low working pressures.

IC 2.1.3 Return Liquors Main (pumped section)

This 93m long buried pipeline conveys a pumped flow of return liquors from the pumping station to the existing primary distribution chamber. It primarily consists of a continuously welded 160 OD HPPE (PE100) SDR 17 pipe, installed in a trench with granular bed and surround. Immediately adjacent to the discharge point, site conditions have necessitated the installation of the pipeline at shallow cover; over this short length the HPPE has been replaced by 150mm nominal bore ductile iron, installed in trenches with mass concrete bed and surround.

The polyethylene pipes are manufactured in accordance with the Water Industry Specification, which states that *'PE100 shall have an MRS of 10MPa at 50 years at 20°C, full RCP resistance and greater than 1000h long term crack resistance'* (i.e. minimum asset life of 50 years).

The maximum operating pressure that can be obtained by the pumping main is in the order of 1.5 bar during close valve situations. This is well below the allowable 10 bar maximum working pressure of the HPPE pipe and the 10 bar (nominal) rating of the ductile iron pipes

and pipe joints. Failure of the pipe due to internal pressurisation is therefore extremely unlikely. Adequate anchorage against longitudinal contraction has been provided; hence, as the pipeline is continuously welded by electro-fusion, there is virtually no scope for joint seepage to occur.

The completed pipeline, including pipes, joints and restraints, has been pressure (proof) tested at a pressure higher than working pressure to prove its integrity.

All pipe materials and welds have been tested in accordance with ETM site quality procedures (see IC1 Construction Quality Assurance Report). Joints between the HPPE pipe and adjacent ductile iron pipework have been formed by means of proprietary stub-flange connections.

Polyethylene has an extremely high resistance to chemical corrosion, and it is not anticipated that the composition of the return liquors will cause any adverse effects to the longevity of the pipe. No aggressive ground conditions were identified by the site investigation works, and hence external corrosion of the pipe is not considered to be a problem.

Similarly, none of the HPPE pipework is exposed to the atmosphere. Weakening of the pipe walls as a result of exposure to UV light or frost action is therefore not an issue.

A secondary contained pipe has not been provided, as this is considered unnecessary in view of the diluted nature of the return liquor and the relatively low working pressures.

All other sections of pipework associated with the return liquor system have been installed above ground.

IC 2.1.4 Return Liquors Main (pump sump)

The return liquors main (gravity section) conveys return liquors to the return liquors pumping station sump. Pumps in the sump are connected to the return liquors main (pumped section). The pumps lift the return liquors through the return liquors main (pumped section). The return liquors are discharged at the primary distribution chamber.

The return liquors pumping station sump comprises reinforced concrete pre-cast chamber rings embedded in an in-situ reinforced concrete base and waterproofing surround.

On completion the sump has been subjected to a water (drop) test to prove that it did not leak, as is normal for water retaining structures.

Materials and construction quality have been tested in accordance with ETM site quality procedures (see IC1 Construction Quality Assurance Report).

A secondary containment of the sump has not been provided, as this is considered unnecessary in view of the dilute nature of the return liquor and the relatively low working pressures.

IC2.2 Maintenance and Monitoring Proposals

This section to be revised/completed by YWS

The following maintenance/inspection regime is proposed:

Thickened Sludge Pumping Main

The annulus between the HPPE thickened sludge pumping main and the ductile iron sleeve beneath the road shall be inspected on a monthly basis. Any leakage observed shall be dealt with immediately; if required the HPPE pipe can be disconnected and removed to enable repairs/replacement to be undertaken.

Return Liquors Main (gravity section)

The pipeline shall be successfully water tested, as described in the Civil Engineering Specification for the Water Industry and incorporating Yorkshire Water's standard amendments. The maximum pipeline water pressure is 0.35 bar. The test pressure shall not exceed 0.55 bar.

The interval between successful tests shall not exceed 3 years.

Return Liquors Main (pumped section)

The pipeline shall be successfully pressure tested, as described in the Civil Engineering Specification for the Water Industry and incorporating Yorkshire Water's standard amendments. The maximum pipeline water pressure is 1.5 bar. The test pressure shall not exceed 2.25 bar.

The interval between successful tests shall not exceed 3 years.

Return Liquors Main (pump sump)

The pump test shall be successfully water level drop tested, as described in the Civil Engineering Specification for the Water Industry and incorporating Yorkshire Water's standard amendments. The water depth for the test shall be the normal maximum water level. The interval between successful tests shall not exceed 3 years.

IC2.2 Timescale for the Replacement of the Underground Pipes and Sumps

Pipework	Report Reference	Material	Asset Life
Thickened Sludge Pumping Main	IC2.1.1	HPPE	50 years
Return Liquors Main (gravity section)	IC2.1.2	MDPE	50 years
		Ductile iron	50 years
Return Liquors Main (pumped section)	IC2.1.3	HPPE	50 years
		Ductile iron	50 years
Return Liquors Main (pump sump)	IC2.1.4	Concrete	40 years

This section to be completed by YWS.

Appendix D. YWS IMS Level 4 Inspections

Company: Yorkshire Water
Location: YWS - LEMONROYD/STF
Date printed: 12 August 2024



Inspection ID
9283582

Location
YWS - LEMONROYD/STF

Business area

- Business unit**
Waste Water Service Delivery
Tier 2 Team
None selected
Tier 3 Team
None selected
Tier 4 Team
None selected

Tier 5 Team
None selected

Additional location information

Does this inspection involve a contractor?

Does this inspection involve a contractor?
Please select the contractor
Additional comments:

None selected
None selected

Inspection details

Date inspection carried out:
Time inspection carried out:

20 June 2024
10:28

Inspection Team

Inspection team - list those present during the inspection

Lead inspector:	David Shaw
Lead inspector - Employee number:	
Inspector:	None selected
Department / Site representatives:	None selected

Checklist

Level 4 - IMS Inspections - TCM

Question	Answer	Actions	Notes
Document/Record Control			
IPPC Documentations - on site and complete ?	4 - Company standard		
Process Controls - are records made of dry solids, volumes treated, polymer used ?	4 - Company standard		
Complaints/Incidents			
Odour - Odour control system in use, any complaints since last visit ?	4 - Company standard		
Odour management plan up to date and in use?	4 - Company standard		
Noise - any complaints since last visit ?	4 - Company standard		
Pest Control - any issues with flies, rats, birds ?	4 - Company standard		
Security - Perimeter fence and gates secure, any incidents ?	4 - Company standard		
Maintenance/House Keeping			
Engineering/ Maintenance - record breakdowns, repairs and maintenance ?	4 - Company standard		
Fuel/ Oil/ Chemical Storage - bunds empty and clean ?	4 - Company standard		
Tanks - note levels, no evidence of damage/ leaks ?	3 - Low risk		feed tank repairs now complete, further work raised for sht
Pipework and valves - no evidence of damage/ leaks ?	4 - Company standard		
Hardstanding - clean, any significant damage ?	4 - Company standard		
Drainage - no standing water, clear and clean ?	4 - Company standard		

Accident/Incident Reporting		
Accidents or Incidents - record basic details, has report already been raised ?	4 - Company standard	
Statutory Testing		
Lifting Equipment - any damage, tag in date	N/A - Not applicable	
Pressure Vessels - any damage, tag in date	N/A - Not applicable	
PAT - in date, equipment fit for use. MOC clean.	4 - Company standard	
Scaffold - in use, tag in date	N/A - Not applicable	
Fire/Gas alarm/Fire extinguisher - available & in date.	4 - Company standard	

Audit/Inspection statistics

Number of related tasks: 0
Score: 63 out of 80
Percentage score: 78.8%
Percentage complete: 100%

Audit/Inspection group statistics

Section	Score	% Score
Document/Record Control	8 out of 10	80%
Complaints/Incidents	20 out of 25	80%
Maintenance/House Keeping	23 out of 30	76.7%
Accident/Incident Reporting	4 out of 5	80%
Statutory Testing	8 out of 10	80%
Total scores	63 out of 80	78.8%

Summary of findings

Summary of findings / conclusion

Inspection recipients

Please select internal users to receive an email upon submission of this inspection
None selected
Please enter email address of external users to receive an email upon submission of this inspection, separated by a semicolon

Related actions

None

Related documents

None uploaded

Name			Job Title			Date		Signature	
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Appendix E. Correspondence between YW and EA on odour complaints

From: David SHAW <David.Shaw@yorkshirewater.co.uk>

Sent: 07 December 2022 14:01

To: Henry, Liz <liz.henry@environment-agency.gov.uk>

Subject: RE: Lemonroyds site visit

Thanks Liz,

Just had a quick look at tanker movements (emptying the sludge tanks for processing at our AD sites) and I can't see any correlation to the complaints so I think I can discount this. I'm on site tomorrow morning, I'll have a look at the sludge pipe movements we talked about and let you know if I can match these movements up to the time and date of complaints.

				YW emptying sludge tank into tanker	Comments
Noticed: 13/10/2022 09:35				13/10/2022 08:47	Reported before discharge
Noticed: 05/09/2022 10:38				05/09/2022 07:27	Reported before discharge
Noticed: 04/09/2022 11:30				No movement	
Noticed: 08/08/2022 04:30				No movement	
Noticed: 07/08/2022 14:43				No movement	

Noticed: 04/08/2022 10:52				No movement	
Noticed: 01/08/2022 16:00				01/08/2022 06:23	Reported before discharge
Noticed: 26/07/2022 08:00				No movement	
Noticed: 25/07/2022 16:59				25/07/2022 16:27	Reported before discharge
Noticed: 25/07/2022 13:00				25/07/2022 05:45	Reported before discharge

Thanks,

David Shaw

Senior Compliance Analyst

Waste Water Asset Planning | Temple Park – Leeds

Mobile : 07790615149

Email : shawd@yw.co.uk



From: Henry, Liz <liz.henry@environment-agency.gov.uk>
Sent: 07 December 2022 12:21
To: David SHAW <David.Shaw@yorkshirewater.co.uk>
Subject: RE: Lemonroyds site visit

Thank you David and apologies for the delayed response. I don't seem to have had much office time recently. Please see odour reports below. I'll aim to get your Compliance Assessment Report to you either today or tomorrow.

From the first of June to now (in descending order). All of these have been observed from the direction of the marina and they all describe the smell of sewage:-

Noticed: 13/10/2022 09:35
Noticed: 05/09/2022 10:38
Noticed: 04/09/2022 11:30
Noticed: 08/08/2022 04:30
Noticed: 07/08/2022 14:43
Noticed: 04/08/2022 10:52
Noticed: 01/08/2022 16:00
Noticed: 26/07/2022 08:00
Noticed: 25/07/2022 16:59
Noticed: 25/07/2022 13:00

Many thanks

Liz



From: David SHAW <David.Shaw@yorkshirewater.co.uk>
Sent: 30 November 2022 17:04
To: Henry, Liz <liz.henry@environment-agency.gov.uk>
Subject: RE: Lemonroyds site visit

Hi Liz,

Good to meet you on site on Friday. Please find attached the OMP for Lemonroyd. It's needs updating but the process hasn't changed.

I've been checking our records for when the OCU was last sampled by YW, and it was 2020. We think it has been sampled in the meantime by contract partners when checking media health but we don't have any records. It was removed accidentally from a YW OCU sampling list which included the old IPPC permit sites which we surrendered. I've checked the other similar sites (Neiley and Copley) and they are still on the list and sampled. I've added this back onto the schedule for Lemonroyd and we will get it sampled by the end of December and then every 6 months. I'll send you the results when I have them. We did check for H2S on sample port using my portable gas monitor on site and nothing was detected.

I've not been past the marina this week but plan to next week so if I detect anything obvious I'll let you know.

If you could send a few of the complaints through with times and dates then I'll check this against the tanker movements from site using our electronic records.

Best Regards,

David Shaw
Senior Compliance Analyst
Waste Water Asset Planning | Temple Park - Leeds
Mobile : 07790615149



Email : shawd@yw.co.uk



From: Henry, Liz <liz.henry@environment-agency.gov.uk>
Sent: 25 November 2022 09:54
To: David SHAW <David.Shaw@yorkshirewater.co.uk>
Subject: RE: Lemonroyds site visit

Brill, thank you David.

From: David SHAW <David.Shaw@yorkshirewater.co.uk>
Sent: 25 November 2022 09:53
To: Henry, Liz <liz.henry@environment-agency.gov.uk>
Subject: RE: Lemonroyds site visit

Hi Liz – we don't have one to lend you as they're personal and it messes up long term exposure limit readings etc if we hand them out, however you'll be with me and I'll have one so it will be fine. We'll be joined by Dave Baugh who looks after the site, he'll have one too.

Thanks,

David Shaw
Senior Compliance Analyst
Waste Water Asset Planning | Temple Park – Leeds
Mobile : 07790615149
Email : shawd@yw.co.uk





From: Henry, Liz <liz.henry@environment-agency.gov.uk>
Sent: 25 November 2022 09:43
To: David SHAW <David.Shaw@yorkshirewater.co.uk>
Subject: RE: Lemonroyds site visit

Hi David,

I'm afraid I don't currently have a gas alarm with me and won't be able to get to the office in time to pick one up for this afternoon. Will I be able to borrow one?

Many thanks,

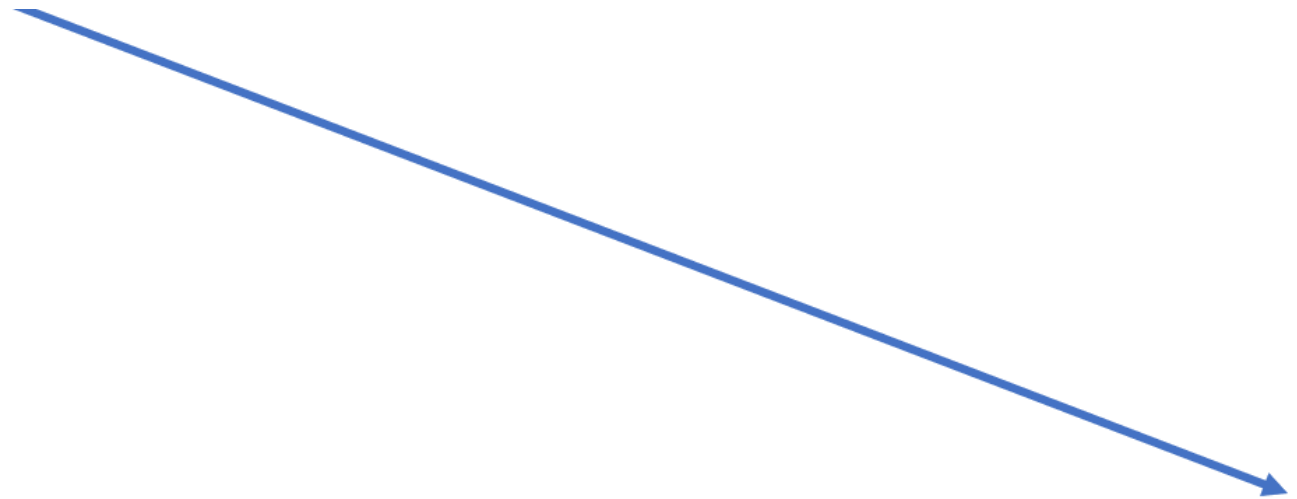
Liz

From: David SHAW <David.Shaw@yorkshirewater.co.uk>
Sent: 17 November 2022 15:08
To: Henry, Liz <liz.henry@environment-agency.gov.uk>
Subject: RE: Lemonroyds site visit

Hi Liz,

No problem, is 2pm okay? Postcode to use is; LS26 8AB. If you give me a ring when you get to the gate, I'll come and let you in. 07790 615149.





Site entrance;



Thanks,

David Shaw
Senior Compliance Analyst
Waste Water Asset Planning | Temple Park - Leeds



Mobile : 07790615149
Email : shawd@yw.co.uk



From: Henry, Liz <liz.henry@environment-agency.gov.uk>
Sent: 17 November 2022 11:33
To: David SHAW <David.Shaw@yorkshirewater.co.uk>
Subject: RE: Lemonroyds site visit

Hi David,

Apologies for the delayed response – I've been out on visits all week. I can do next Friday if that's OK? What time do you want me there and what is the best postcode to use? My colleague told me that he has previously struggled to find the site.

Many thanks,

Liz



From: David SHAW <David.Shaw@yorkshirewater.co.uk>
Sent: 14 November 2022 16:31
To: Henry, Liz <liz.henry@environment-agency.gov.uk>
Subject: RE: Lemonroyds site visit

Hi Liz,

Next Thursday or Friday would be better as I'm in meetings until 3pm this Thursday and it gets dark quickly now. Is that okay? I'm free all day both days at the moment. I'd like to understand the source and time of the reports better so I can check if it correlates to potentially odourous activities on site, particularly when a sludge tanker is drawing off from the sludge storage tanks. However, the times and date so far don't match with that activity but I'd like more data so we can rule it in or out. I thought it might be a network issue too but that's drawn a blank.

Thanks,

David Shaw
Senior Compliance Analyst
Waste Water Asset Planning | Temple Park – Leeds
Mobile : 07790615149
Email : shawd@yw.co.uk



From: Henry, Liz <liz.henry@environment-agency.gov.uk>
Sent: 14 November 2022 15:02
To: David SHAW <David.Shaw@yorkshirewater.co.uk>
Subject: Lemonroyds site visit

EXTERNAL SOURCE – THINK BEFORE YOU CLICK

Hi David,

Would you be free to meet me for a site visit this Thursday afternoon? Failing that, what time would work next week? Paula tells me you would like to go through recent odour reports on site.

Kind regards,

Liz Henry

Environment Officer

Leeds, Bradford and Craven

Environment Agency, Lateral, 8 City Walk, Leeds, LS11 9AT

Tel: 07795 237548



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