Yorkshire Water Services Ltd Neiley Sludge Treatment Facility Surrender of Permit (No. KP3536LL) Surrender Site Condition Report

09/01/2025



# **Document Version**

Revision	Date	Description	Author	Checked	Reviewed	Approved
1	January 2025	Final	тк/ав	DS/AB	DS/AB	AB



# Contents

1	Int	rod	uction5
	1.1	Re	port context5
	1.2	Ba	ckground5
	1.3	Pei	rmit surrender requirements5
	1.4	Site	e Location
	I.5	Site	e operations7
2	Сс	ondi	tion at permit issue9
3	Pe	rmi	tted activities10
	3.1	Pei	rmitted activities10
	3.1	.1	Changes to permit10
	3.1	.2	Dangerous substances resulting from permitted activities
4	Su	mm	nary of application site conditions record13
	4.1	Ba	ckground13
	4.1	.1	Underground pipes and sumps13
	4.1	.2	Neiley STF odour management plan13
	4.1	.3	Site Closure Plan
5	Sit	e in	spection14
	5.1	E	A Site Inspections14
	5.2	2 As	set Inspections14



6	Ν	Monitoring and reporting14						
	6.1	Monitoring	4					
	6.2	Reporting1	5					
7	S	ummary of surrender site condition1	6					
	7.1	General1	6					
	7.2	Drainage and hardstanding1	6					
	7.3	Site buildings and infrastructure1	6					
	7.	.3.1 Sludge Thickening Building1	6					
	7.	.3.2 Polymer storage, and dosing1	6					
	7.	.3.3 Thickened sludge storage tank1	6					
	7.	.3.4 Odour Control Biofilter	17					
	7.	.3.5 Return liquors	17					
	7.	.3.6 Fuel Storage	17					
	7.4	Land condition	17					
	7.5	Pollution incidents and complaints	17					
	7.6	Remediation	17					
8	S	tatement of Site ConditionI	8					
A	ope	ndix A. Neiley STF photographs from 8 <sup>th</sup> July 2024						
A	ope	ndix B. EPR Compliance Assessment Report						
A	ope	ndix C. Asset Inspection Reports by Arup (2019)						



Appendix D. Asset Integrity Report by MGJV (2013)

Appendix E. YWS IMS Level 4 Inspections



# 1 Introduction

# 1.1 Report context

Neiley 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 KP3536LL for Neiley STF.

# 1.2 Background

The original permit application (EPR number KP3536LL) was determined in 2007. In September 2008, there was an administration variation (variation notice KP3536LL/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. A key point raised within the appeals was that a 5 yearly integrity testing was suitable for the PPC STF sites rather than the mixture of 1 year, 5 year, and 10 years as specified in the permits. The EA accepted 5 yearly testing in relation to a number of sites including Neiley STF. An extract from the email correspondence confirming this is included in Appendix.

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:

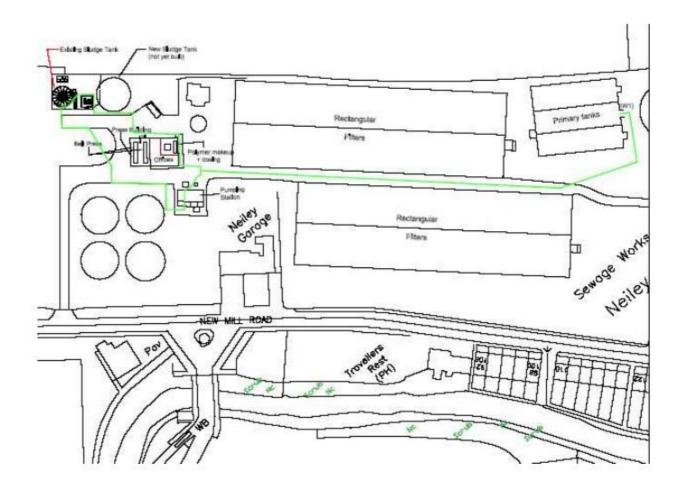
- RGN 9: Surrender;
- Neiley STF Environmental Permit (EPR/KP2425LL);
- Neiley STF Environmental Permit Variation Notice V002 (EPR/KP2425LL/V002); and,
- Neiley STF Environmental Permit Variation Notice V003 (EPR/KP2425LL/V003).

### 1.4 Site Location

The STF is located at Neiley Wastewater Treatment Work (WwTW), New Mill Road, Brockholes, Holmfirth, West Yorkshire, HD9 7AZ. Figure 1 displays the Neiley WwTW along with the Neiley STF. The WwtW is at NGR SE 14759 11602 and Neiley STF is at NGR SE 14696 11656.

Figure 1. Neiley Sludge Treatment Facility





### 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
- Centrifuges
- Conveyor screw



- Pipework
- Polymer mixing tank
- Polymer stock tank
- Polymer storage
- Portable water break tank
- Surface and foul water drainage
- Liquor pumping station

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. The material is temporarily stored in a rectangular skip before being transferred to another YW site for further treatment.

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 New Mill Dyke. 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 for Neiley STF was submitted 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 Neiley STF was determined in 2007 and the original permitted activities are displayed in Table 1.

Environmental Permit Number	Activity listed in Schedule 1 of the PPC Regulations	of specified	Limits of specified activity and waste types
KP3536LL	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) \$3.2, \$3.3, etc.

Table 1: Original Permitted Activities at the Neiley STF

### 3.1.1 Changes to permit

There was an administration variation in 2008 (KP3536LL V002) to amend and remove various conditions to add clarity to the permit.



There was a further permit variation in 2014 (KP3536LL 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.

Substances	Maximum	Environmental	Properties	
used, stored, and by- products	Volume Stored	Toxicity	Behaviour	Transport
Sewage Sludge (in skips)	Each skip held a maximum of 15 tonnes; usually 4 onsite	Toxic	Odourous material. May contain variety of heavy metals, pathogens, and organic pollutants	Leaks to soil and groundwater.
Return liquor	None – This is not stored but pumped straight to a return liquor wet well and	Low	May contain variety of heavy metals, pathogens,	Leaks to soil and groundwater.

Table 2. Neiley STF Potentially Polluting Substances.



	pumped back to the WwTW.		and organic pollutants.	
Polymer (Holding tank)	6.4m³	Not known	Remains in soil and groundwater.	Leaks to soil and groundwater.
Polymer (Mixing tank)	5.0m³			
Polymer (Bagged)	Each bag weight 1,050kg; Usually 2 bags on site at any one time			



# 4 Summary of application site conditions record

## 4.1 Background

In support of the Neiley STF permit, YWS developed:

- A site-specific Odour Management Plan; and,
- A Site Closure Plan.

### 4.1.1 Underground pipes and sumps

A risk assessment was submitted as part of the Neiley 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 Neiley STF odour management plan

The Neiley 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 has been developed for Neiley STF. However, the site will operate under T21 exemption and will not cease to operate after surrendering the permit.



# 5 Site inspection

### 5.1 EA Site Inspections

YW had arranged a site inspection with the EA for the permit surrender application on 11<sup>th</sup> 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 11<sup>th</sup> September 2024, as included in Appendix B.

### 5.2 Asset Inspections

Asset inspections have been conducted by YWS on the integrity of the assets (storage tanks, below and above ground pipes and sumps). The visual inspection of above ground assets did not reveal any significant defects.

Previous asset integrity inspections at the Neiley STF were carried out by Arup for YWS on 7<sup>th</sup> October 2019. The report comprises the results from the testing and inspection of assets according to the method of work report, is included in Appendix C.

On 15<sup>th</sup> January 2013, an asset integrity inspection was conducted at the Neiley STF by MGJV. It was a visual inspection of above ground assets, which did not reveal any significant defects. The report is included in Appendix D.

Between 1<sup>st</sup> to 3<sup>rd</sup> December 2008, an asset integrity inspection was conducted at Neiley STF by Arup. The assets were found to be in a satisfactory condition. The report forms part of the 2013 report that is included in Appendix D.

# 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 E.

## 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 Neiley STF was undertaken on 8<sup>th</sup> 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 39 years old. The building is split over two floors with the Thickened Sludge Storage under the building (Appendix A, Photo 6) and polymer dosing above the storage (Appendix A, Photo 2). There are some materials on the floor but it is reasonably tidy with no appearance of stain.

### 7.3.2 Polymer storage, and dosing

The Polymer Storage Area sits within the Sludge Thickening Building (Appendix A, Photo 3). It is in a satisfactory condition.

### 7.3.3 Thickened sludge storage tank



The thickened sludge storage tank appears to be in satisfactory condition (Appendix A, Photo 6).

### 7.3.4 Odour Control Biofilter

There is an odour control biofilter unit which appears to be in satisfactory condition (Appendix A, Photo 7).

#### 7.3.5 Return liquors

The return liquors coming from the process are pumped to the Liquors where they are returned to the head of WwTW for treatment.

#### 7.3.6 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 a complaint regarding odour from the WwTW. However, following a monitoring exercise, it has been determined that the source of odour is not from the YWS site.

There have been no pollution incidents from the STF activities.

### 7.6 Remediation

In 2019, remediation work on the short section of the return liquors rising main has been done. The pipe that goes below ground to cross the site access road was investigated and repaired in order to pass a pressure test to 3 bar.



# 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 and maintenance 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 sent 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. Neiley STF photographs from 8<sup>th</sup> July 2024

These photographs of Neiley STF were taken during the site visit on Monday 8<sup>th</sup> July 2024.



Photo 1. Sludge Thickening Building



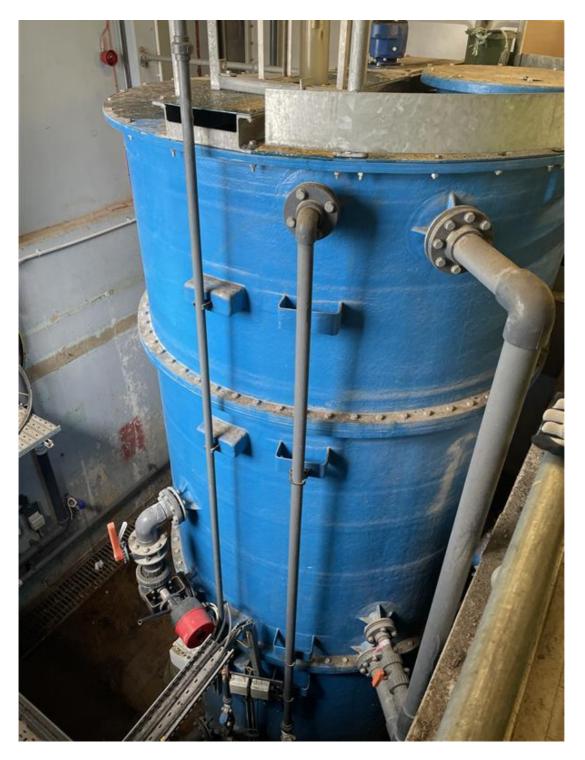


Photo 2. Polymer Mixing Area





Photo 3. Polymer Storage Area





Photo 4. Gravity Belt Thickener



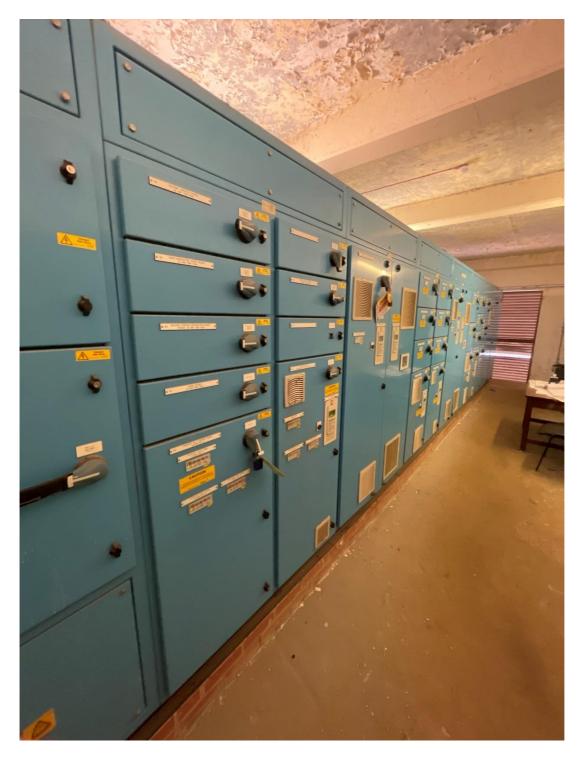


Photo 5. MCC Room





Photo 6. Thickened Sludge Storage



Appendix B. EPR Compliance Assessment Report



Environment Agency	Environment Agency EPR Compliance Assessment Report Report ID: KP3536LL/051875				753
This form will report comp	liance with your permit as determined by an Envi	ironn	ent Agen	icy officer	
Site	Neiley Sludge Treatment Facility EPR/KP3536LL	Pe	rmit Ref	KP3536LL	
Operator/ Permit holder	YORKSHIRE WATER SERVICES LIMITED				
Date	11/09/2024	Tir	ne in	13:55 Out	14:30
What parts of the permit were assessed	Permitted area	_			
Assessment	Site Inspection EPR Activity: Installation X	1	Naste Op	Water Disc	harge
Recipient's name/position	David Shaw				
Officer's name	Penny Johnston, David Shaw	Da	te issued	11/09/202	24
Section 1 - Compliance As	seconont Summary				
where we believe any non-co been categorised using our appropriate, to reflect the im local office.	I to take are given in the "Detailed Assessment of Con ompliance with the permit has occurred, the relevant of <u>Compliance Classification Scheme</u> (CCS). CCS scores pact of some non-compliances more accurately. For m	condi can t	tion and h	ow the non-complia dated or suspended ur CCS scheme, cont	ance has d, where tact your
Permit Conditions and Con	· · · ·			Condition(s) bre	ached
a) Permitted activities	1. Specified by permit	N			
b) Infrastructure	1.Engineering for prevention & control of pollution	N			
	2. Closure & decommissioning	A			
	3. Site drainage engineering (clean & foul)	N			
	4. Containment of stored materials	N A			
c) General management	5. Plant and equipment				
c) General management	1. Staff competency/ training 2. Management system & operating procedures	A			
	3. Materials acceptance	N			
	4. Storage handling, labelling, segregation	N			
d) Incident management	1. Site security	N			
	2. Accident, emergency & incident planning	Ν			
e) Emissions	1. Air	N			
	2. Land & Groundwater	Ν			
	3. Surface water	Ν			
	4. Sewer	Ν			
	5. Waste	N			
f) Amenity	1. Odour	N			
	2. Noise	N			
	3. Dust/fibres/particulates & litter	N	1		
	4. Pests, birds & scavengers 5. Deposits on road	N			
g) Monitoring and records,	1. Monitoring of emissions & environment	N			
maintenance and reporting	2. Records of activity, site diary, journal & events	N			
manitenance and reporting	3. Maintenance records	N			
	4. Reporting & notification	Α			
		N	1 -		
h) Resource efficiency	1. Efficient use of raw materials				
h) Resource efficiency	1. Efficient use of raw materials 2. Energy	N			
KEY: C1, C2, C3, C4 = CCS breach A = Assessed (no evidence of nor MSA, MSB, TCM = Management		going r			which are

ection 2 – Com	pliance Assessment Re	port 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.

This was a pre arranged visit to this site where I met with David Shaw the TCM and Senior Compliance Analyst with Yorkshire Water.

#### Site visit

The process of centrifuging the sewage sludge to remove water is no longer carried out at this site and the centrifuge has been decommissioned. Instead the sludge is thickened by adding a flocculent to it before it is transported to another YW site for anaerobic digestion. The flocculent is currently stored in the building where the centrifuge is housed. The area where the permitted activity takes place is fully concreted as is the area where the buildings are.

We discussed the fact that YW are currently considering surrendering the permit. The site should be suitable for a low risk surrender.

Thank you for your time taken to accompany me on the visit.

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-campliance 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 CCS Action Required / Advised Due Date Category Ref. See Section 1 above

CAR 2 V2.0

Page 2 of 3

#### 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 <b>no</b> 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.

CAR 2 V2.0

Page 3 of 3

# Appendix C. Asset Inspection Reports by Arup (2019)



Yorkshire Water Services Ltd Assessment of STF Compliance with IPPC Improvement Programme Neiley - Testing Results Report

Draft 1 | 7 October 2019

This report takes into account the particular instructions and requirements of our client. It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

Job number 264121

Ove Arup & Partners Ltd Admiral House Rose Wharf 78 East Street Leeds L89 8EE United Kingdom www.arup.com

# ARUP

### **Document verification**

# ARUP

Job title Document title		Assessment of STF Compliance with IPPC Improvement Programme Neiley - Testing Results Report			Job number 264121 File reference		
Revision	Date	Filename	Neiley - Testing H	Results - Draft 1 07-	10-19.docx		
Draft 1	07/10/19	Description	First draft				
			Prepared by	Checked by	Approved by		
		Name	Ian Farmery	Ian Farmery	Dom Ainger		
		Signature	branney	Entonney	DJAnger		
		Filename		$\sum $			
		Description		/ XI	>		
			Prepared by	Checked by	Approved by		
		Name	- ( S				
		Signature	$\lambda \gamma$	0,2			
		Filename					
		Description	$\langle \rangle \rangle$				
			Prepared by	Checked by	Approved by		
		Name					
		Signature	$\sim$				
		Filename					
		Description					
		Description	Prepared by	Checked by	Approved by		
		Description	Prepared by	Checked by	Approved by		
			Prepared by	Checked by	Approved by		

### Contents

			Page				
1	Backg	round	1				
2	Staten	Statement on report					
3	Testing procedure						
4	Testin	g summary	1				
5	Testin	g results	2				
	5.1	Unthickened sludge pipework to the dewatering plant	2				
	5.2	Sludge tank overflow pipework	3				
	5.3	Sludge drainage lines	3				
	5.4	Return liquor line from above ground pipework to return liquors wet well	3				
	5.5	Return liquors suction main from return liquor pumping station wet well to liquor return pumps	5				
	5.6	Return liquors rising main from liquor return pumping sta to liquor return point at PST distribution chamber	tion 5				
	5.7	Sludge cake skips	6				
	5.8	Sludge drainage lines	7				
	5.9	Polymer dosing equipment	7				
	5.10	Liquor return pumping station wet well	8				
6	Remed	lial Works	9				
7	Physic	al condition and statement on integrity of assets	9				
8	Conclu	isions	11				
		$\sim$					

#### Appendices

Appendix A Layout Drawings

#### Appendix B

Test Record Sheets

#### Appendix C

CCTV Survey Report

| Draft 1 | 7 October 2019

198000004121-000 ANUPIO-12 WATERIO-12-06 REPORTS/TESTING RESULTSINELEYWELEY - TESTING RESULTS - DRAFT 1 0T-10-18.DOCX

Assessment of STF Compliance with IPPC Improvement Programme Neiley - Testing Results Report

#### 1 Background

Arup has been appointed by Yorkshire Water Services Ltd (YWS), to carry out an assessment of integrity of assets (tanks, surface pipes, subsurface pipes and sumps) for three YWS Sludge Treatment Facilities (STF) that are under IPPC Permit.

The output of the project is to produce reports including:

- Statements on the physical condition of each asset
- Statements on the integrity of each asset
- Recommended inspection programme based on 1 and 2

This report has been produced for the Neiley Sludge Treatment Facility (STF). A drawing showing the assets and site layout is included in Appendix A.

This report comprises the results from the testing and inspection of assets and should be read in conjunction with the method of work report.

#### 2 Statement on report

The report has been prepared by Arup.

Arup is not able to provide a guarantee on the period that the integrity of assets will be maintained. An assessment of asset integrity based on asset records, specified design life, inspection and results of testing is provided in section 7.

The year of construction of assets provided in the report has been obtained from YWS' Electronic Data Management System (EDMS). The accuracy and completeness of these records has not been verified by Arup.

#### **3** Testing procedure

A generic testing methodology for all assets at the sites has been developed based on the Civil Engineering Specification for the Water Industry and the Yorkshire Water Engineering Specification. This has been used as a basis for testing the assets at Neiley STF. The testing of these assets took place in the period 21<sup>st</sup> August 2019 to 17<sup>th</sup> September 2019.

#### 4 Testing summary

The integrity testing at Neiley was undertaken in accordance with the generic testing methodology and site-specific method of work documents. The asset/item numbering system follows the method of work report for Neiley STF.

| Draft 1 | 7 October 2019 JS8800024121-002 AUUP-012 WATERO-12-06 REPORTSTESTING RESULTSNELEYNELEY - TESTING RESULTS - DRAFT 1 07-10-12.DOCX Page 1

Assessment of STF Compliance with IPPC Improvement Programme Nelley - Testing Results Report

#### 5 Testing results

# 5.1 Unthickened sludge pipework to the dewatering plant

Item No. 1 and 2 on drawing no. SK-N001. The pipework from the unthickened sludge tanks to the sludge dewatering feed pumps has not been tested as it is located before the start of the IPPC boundary.



Photos of newly refurbished pipework configuration at unthickened sludge tanks

**Item No. 3 on drawing no. SK-N001.** This pipework conveys sludge from the feed pumps to the dewatering equipment. The pipework complies with IPPC design principles as it has double containment, therefore the pipe was not tested.

Item No 4 on drawing no. SK-N001. This item is a continuation of item 3 from the point the pipe emerges above ground. The pipework is above ground and a visual inspection was carried out in accordance with the generic testing methodology whilst the equipment was operational. The pipe appears in good condition and no evidence of leakage was observed therefore the pipe passed inspection.



Photos of above ground unthickened sludge pipework to centrifuges with lagging removed

Draft 1 | 7 October 2019

Page 2

Assessment of STF Compliance with IPPC Improvement Programme Neiley - Testing Results Report

#### 5.2 Sludge tank overflow pipework

Item nos. 5 and 6 on drawing no. SK-N001. The pipework has not been tested as it is located before the start of the IPPC boundary. However, a general observation of the area revealed that there is no evidence of leakage from these two pipes.

#### 5.3 Sludge drainage lines

Item nos. 7 and 8 on drawing no. SK-N001. The pipework has not been tested as it is located before the start of the IPPC boundary.

**Item no. 9 on drawing no. SK-N001.** This section of pipe runs from the unthickened sludge storage tanks point B to the manhole at point C on the drawing. When in use the pipe allows unthickened sludge to be returned into the process via the return liquors wet well. The pipe is a non-pressure pipeline and was therefore inspected by means of a CCTV survey. The pipe passed this inspection as no Grade 3, 4 or 5 defects were recorded (no defects of any grade were recorded). A copy of the CCTV survey report can be found in appendix C (See survey sections 4, 5 and 6)

**Item no. 10 on drawing no. SK-N001**. This section of pipe runs from the manhole at point C to the manhole at point D on the drawing. When in use the pipe allows unthickened sludge to be returned into the process via the return liquors wet well. The pipe is a non-pressure pipeline and was therefore inspected by means of a CCTV survey. The pipe passed this inspection as no Grade 3, 4 or 5 defects were recorded (no defects of any grade were recorded). A copy of the CCTV survey report can be found in appendix C (See survey section 8).

# 5.4 Return liquor line from above ground pipework to return liquors wet well

Item no. 11 on drawing no. SK-N001. The pipework drains the liquors from the centrifuge to the external drainage system. The pipe is above ground and has therefore been tested by means of a visual inspection in accordance with the generic testing methodology during operation of the dewatering equipment. There was no evidence of leakage therefore the pipe passed the inspection.

| Draft 1 | 7 October 2019 J 08000024121-001 ARUPIO-12 WATERO 12-06 REPORTS/FESTING RESULTS/NELLEY/NELLEY - TESTING RESULTS - DRAFT 1 07-10-10.DOCX Page 3

Assessment of STF Compliance with IPPC Improvement Programme Nelley - Testing Results Report



Photo of above ground section of liquor drain from centrifuges

Item no. 12 on drawing no. SK-N001. The pipework drains the liquors from the centrifuge to the external drainage system at point D. The pipe is a below ground non-pressure pipeline and was therefore inspected by means of a CCTV survey. The pipe passed this inspection as no Grade 3, 4 or 5 defects were recorded (no defects of any grade were recorded). A copy of the CCTV survey report can be found in appendix C (See survey section 7).

Item no. 13 on drawing no. SK-N001 This pipework contains dewatered sludge liquors and unthickened sludges between the manhole at point D and the manhole at point J. The pipe is a below ground non-pressure pipeline and was therefore inspected by means of a CCTV survey. The pipe passed this inspection as no Grade 3, 4 or 5 defects were recorded.

Some encrustation was identified within the pipe, but this only reduces hydraulic capacity and does not adversely affect the integrity of the pipe. A bar was also found lodged in chamber J, but again this does not compromise the pipe's integrity.

A copy of the CCTV survey report can be found in Appendix C (See survey section 9).

Item no. 14 on drawing no. SK-N001 This pipework contains dewatered sludge liquors and unthickened sludges between the manhole at point J and the liquors return wet well. The pipe is a below ground non-pressure pipeline and was therefore inspected by means of a CCTV survey. The pipe passed this inspection as no Grade 3, 4 or 5 defects were recorded.

Some encrustation was identified within the pipe, but this only reduces hydraulic capacity and does not adversely affect the integrity of the pipe. A bar was also found lodged in chamber J, but again this does not compromise the pipe's integrity.

A copy of the CCTV survey report can be found in Appendix C (See survey sections 10 and 11).

| Draft 1 | 7 October 2019 Jaessonger Gi-Jaes Allamo iz WATERO IZ de REPORTSITESTING RESULTSRELEYNELEY - TESTING RESULTS - DRAFT 1 07-10-12 DOC

Assessment of STF Compliance with IPPC Improvement Programme Nelley - Testing Results Report

#### 5.5 Return liquors suction main from return liquor pumping station wet well to liquor return pumps

Item no. 15 on drawing no. SK-N001. The short section of pipe from the return liquors wet well to the return liquor pumps was visually inspected whilst the system was operational.

There was no evidence of any leakage therefore the pipe passed the test.



Photos of pipework from liquor return wet-well to liquor return pumps

### 5.6 Return liquors rising main from liquor return pumping station to liquor return point at PST distribution chamber

Item no. 16 on drawing no. SK-N001. This rising main is above ground within the pumping station dry well and exits the building structure above ground. The pipe goes underground to cross the site access road and then returns above ground running along the full length of the edge of the rectangular filters before passing underground before finally emerging at the primary tank distribution chamber. The above ground sections were tested by visual inspection and the below ground sections by pressure test in accordance with the generic testing methodology.

There was no evidence of any leakage on any of the above ground sections, therefore those sections of the pipe passed the test.

Pressure tests were undertaken in accordance with the generic testing methodology on the two below ground sections of the pipeline:

| Draft 1 | 7 October 2019 Jisessenger (2)-688, Allumo-12 WATERIO 12-06 REPORTS/TESTING RESULTENELLEY-NELLEY-TESTING RESULTS - DIANT 1 07-9-12 DOCT

Assessment of STF Compliance with IPPC Improvement Programme Nelley - Testing Results Report

Section 1 comprises the length close to the pumping station where the pipe crosses the site access road. The pipe was pressurised to 3 bar, but it proved impossible to maintain the pressure for any length of time, indicating that the integrity of the pipe is compromised by one or more leaks. The pipe is deemed to have failed the testing procedure. The pipe should be further investigated to confirm the location of the leak(s). Suitable repairs should then be undertaken before the pressure test is repeated to confirm the restored integrity of the pipe.

Section 2 comprises the length from the end of the rectangular filters to the primary tank distribution chamber. This section of the pipe passed the pressure test.



A copy of the test results records is included in appendix B

Photos of above ground sections of liquor return pipe including pressure test equipment for below ground sections (bottom right)

### 5.7 Sludge cake skips

Item no. 17 on drawing no. SK-N001. The sludge cake skips receive the dewatered sludge and are changed on a regular basis. The skips on site at the time of inspection were fit for purpose.

| Draft 1 | 7 October 2019 Jaessonger 12-308 ARUPIS-12 WATERS 12-06 REPORTSTESTING RESULTSHELEY HELEY - TESTING RESULTS - DRAFT 1 07-16-12 DOX

Assessment of STF Compliance with IPPC Improvement Programme Nelley - Testing Results Report



Photos of sludge cake skips on site at the time of inspections

#### 5.8 Sludge drainage lines

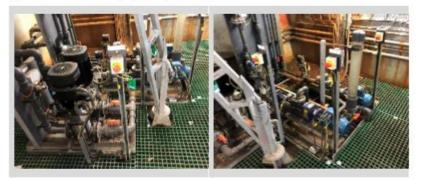
Item no. 18 on drawing no. SK-N001. This pipework comprises the drainage pipe the from sludge cake skips slab from point G and F to point C. The pipe is a non-pressure pipeline and was therefore inspected by means of a CCTV survey. The pipe passed this inspection as no Grade 3, 4 or 5 defects were recorded.

Some encrustation was identified within the pipe in survey section 2. This may reduce hydraulic capacity but does not adversely affect the integrity of the pipe.

A copy of the CCTV survey report can be found in Appendix C (See survey sections 1, 2 and 3).

# 5.9 Polymer dosing equipment

Item no. 19 on drawing no. SK-N001The polymer dosing equipment is located inside the centrifuge building and is sited in a bunded area for the containment of any leakage. The installation was tested as above ground pipework as described in the generic testing methodology. There was no sign of any leakage on the dosing system, therefore the equipment passed the test.



Photos of polymer dosing equipment in bunded area

Draft 1 | 7 October 2019

Assessment of STF Compliance with IPPC Improvement Programme Neiley - Testing Results Report



Photo of polmer tank

Photo of polymer dosing line

#### 5.10 Liquor return pumping station wet well

Item no. 20 on drawing no. SK-N001. The wet well was isolated and cleaned out in preparation for testing. The wet well was visually inspected with no obvious signs of leakage identified. The wet well was filled to the test level and left overnight to allow absorption to occur. A drop test was conducted the following day during which the water level within the wet well remained unchanged. The wet well passed the drop test.

A copy of the test record is included in appendix B.



Photos of liquor return wet-well

Draft 1 | 7 October 2019

Assessment of STF Compliance with IPPC Improvement Programme Nelley - Testing Results Report

#### 6 Remedial Works

The following remedial works are required:

• The short section of the return liquors rising main (Item No. 16) where the pipe goes below ground to cross the site access road, needs further investigation and repair, so that it can pass a pressure test to 3 bar.

### 7 Physical condition and statement on integrity of assets

The following table provides an assessment of asset integrity based on asset records, inspection and results of testing.

The design asset lives were obtained from the Yorkshire Water Engineering Specification as follows:

- Inter Process Pipe work (sewage) 60 years
- Operational Structures (concrete tanks) 60 years
- Operational Structures (metal tanks) 30 years
- Operational Structures (pumping stations) 60 years
- Process Plant E&M major items (P2 dosing plant) 20 years

Physical condition key:

- · Good serviceable with little or no sign of deterioration
- Satisfactory serviceable showing signs of deterioration
- Poor remedial works required

Item no.	Asset	Year constructed	Physical condition	Theoretical remaining asset life	Statement on integrity
1	Unthickened sludge pipeline from existing sludge tank to connection with new sludge tank pipework	2007			Asset removed from scope as the pipe is before the start of the IPPC boundary.
2	Unthickened sludge pipeline from new sludge tank to sludge feed pumps	2007			Asset removed from scope as the pipe is before the start of the IPPC boundary.
3	Unthickened sludge pipeline from feed pumps into centrifuge building	2007			Asset has double containment and complies with IPPC design philosophy.

| Draft 1 | 7 October 2019 J38800004121-003 ARUPIO 12 WATERO 12-06 REPORTSTESTING RESULTS RELEYING LEYING RESULTS - DRAFT 1 07-10-12.0002

#### Assessment of STF Compliance with IPPC Improvement Programme Neiley - Testing Results Report

Item no.	Asset	Year constructed	Physical condition	Theoretical remaining asset life	Statement on integrity
4	Unthickened sludge pipeline inside the centrifuge building	2007	Good	48 years	Asset integrity test passed. Asset to be retested in accordance with the Generic Testing Methodology return period.
5	Overflow from existing sludge tank to point A	2000			Asset removed from scope as the pipe is before the start of the IPPC boundary.
6	Overflow from new sludge tank to point H	2007			Asset removed from scope as the pipe is before the start of the IPPC boundary.
7	Sludge drain pipe from point A to point B	2000			Asset removed from scope as the pipe is before the start of the IPPC boundary.
8	Sludge drain pipe from point H to point B	2007			Asset removed from scope as the pipe is before the start of the IPPC boundary.
9	Sludge drain pipe from point B to point C	2000	Satisfactory	41 years	Asset integrity test passed. Asset to be retested in accordance with the Generic Testing Methodology return period.
10	Sludge drain pipe from point C to point D	1968	Satisfactory	9 years	Asset integrity test passed. Asset to be retested in accordance with the Generic Testing Methodology return period.
11	Liquors line inside the centrifuge building	2007	Good	48 years	Asset integrity test passed. Asset to be retested in accordance with the Generic Testing Methodology return period.
12	Liquors line from the centrifuge building to point D	2007	Good	48 years	Asset integrity test passed. Asset to be retested in accordance with the Generic Testing Methodology return period.
13	Sludge/liquors drain pipe from point D to point J	1968	Satisfactory	9 years	Asset integrity test passed. Asset to be retested in accordance with the Generic Testing Methodology return period.
14	Sludge/liquors drain pipe from point J to the pumping station wet well	1968	Satisfactory	9 years	Asset integrity test passed. Asset to be retested in accordance with the Generic Testing Methodology return period.
15	Liquors line from the pumping station wet well to the pumps	2000	Good	41 years	Asset integrity test passed. Asset to be retested in accordance with the Generic Testing Methodology return period.
16	Liquors line from the pumping station pumps to PST distribution chamber	2010	Poor	51	Requires remedial work and re- test.

| Draft 1 | 7 October 2019

J 280000264121-001 ARUPIO-12 WATERO-12-08 REPORTS/TESTING RESULTS/RELEY/NELEY - TESTING RESULTS - DRAFT 1 07-10-10.DOCX

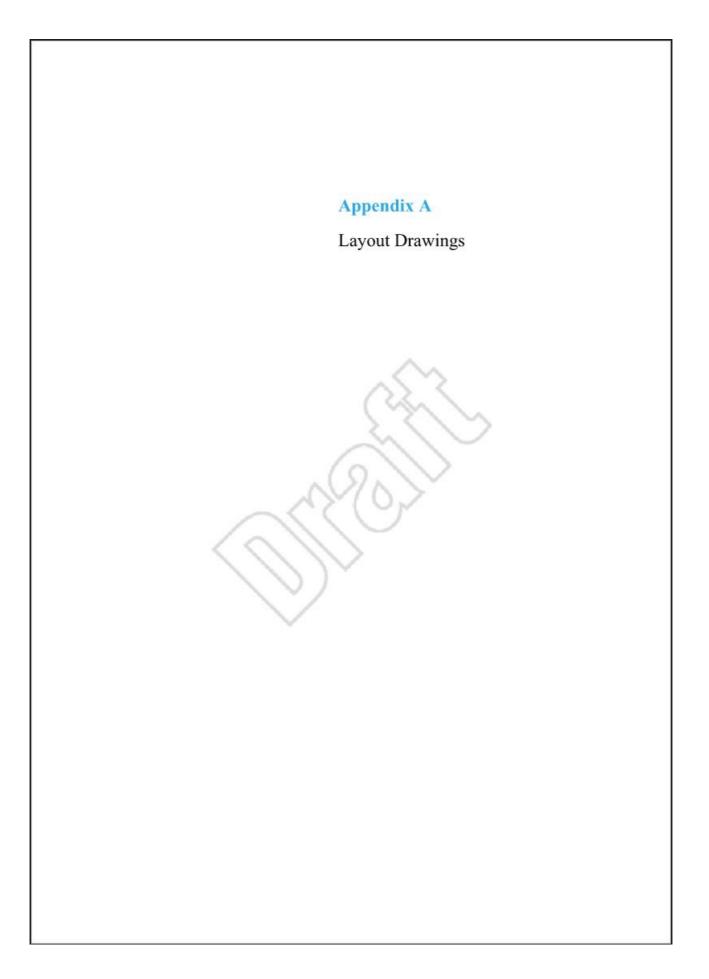
Assessment of STF Compliance with IPPC Improvement Programme Neiley - Testing Results Report

Item no.	Asset	Year constructed	Physical condition	Theoretical remaining asset life	Statement on integrity
17	Sludge cake skips	N/A	Good	N/A	Asset integrity test passed. Asset to be retested in accordance with the Generic Testing Methodology return period.
18	Drainage pipe from sludge cake skips slab: from point G and F to point C	1968	Satisfactory	9 years	Asset integrity test passed. Asset to be retested in accordance with the Generic Testing Methodology return period.
19	Polymer line from mixing tank to centrifuges	2007	Satisfactory	48 years	Asset integrity test passed. Asset to be retested in accordance with the Generic Testing Methodology return period.
20	Liquor return pumping station wet well	1968	Good	9 years	Asset integrity test passed. Asset to be retested in accordance with the Generic Testing Methodology return period.

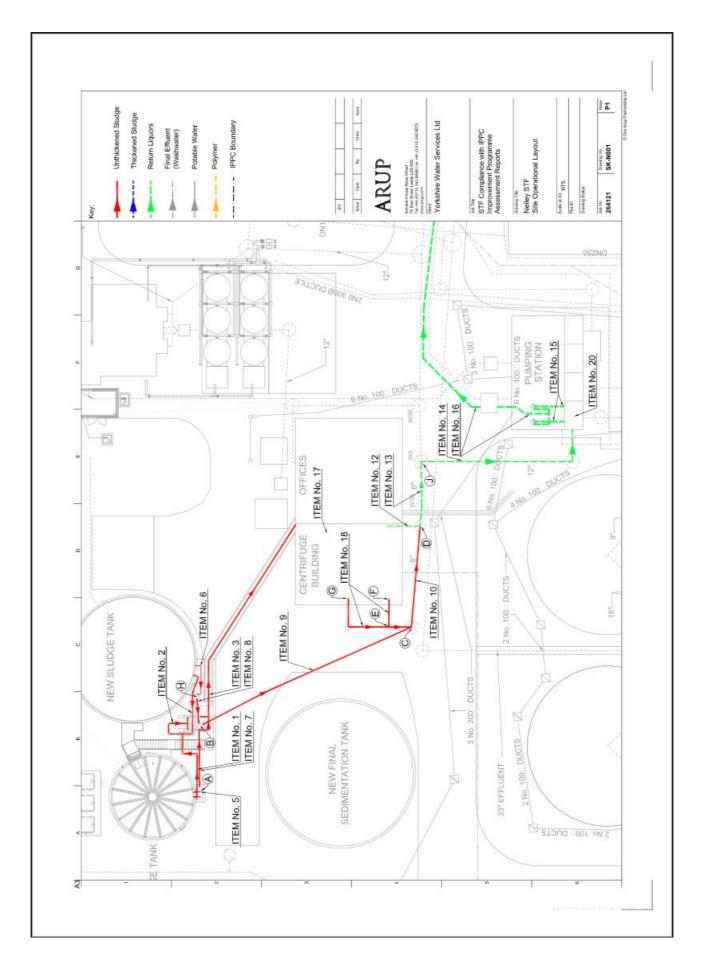
#### 8 Conclusions

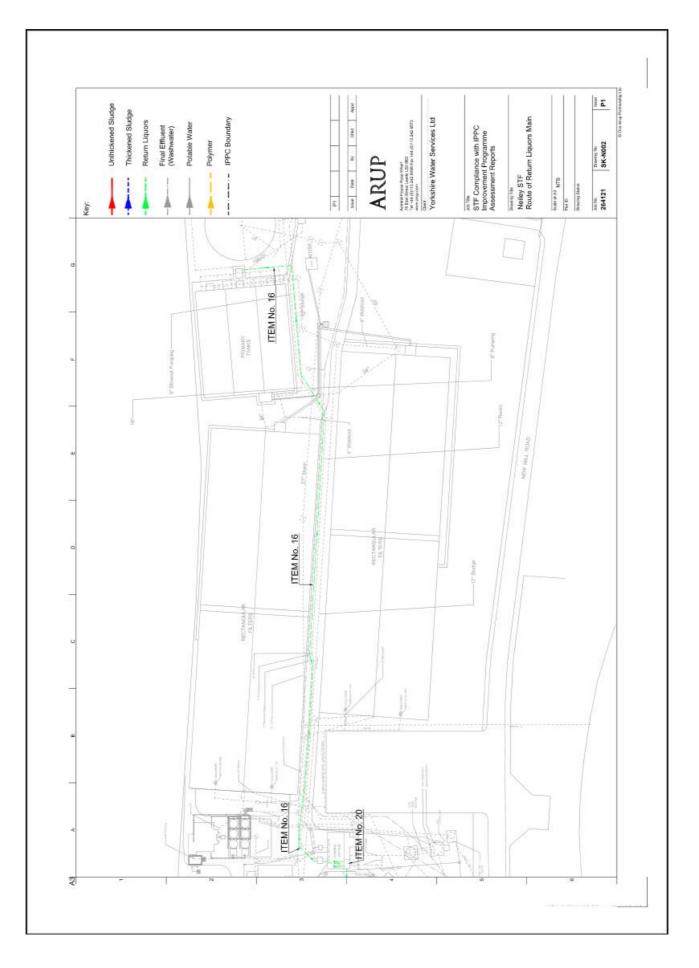
The majority of relevant assets have passed the integrity testing procedure and are in a good or satisfactory condition. However, the repairs identified in section 6 should be undertaken and the associated assets re-tested to ensure the integrity of all assets required to be tested under the IPPC permit.

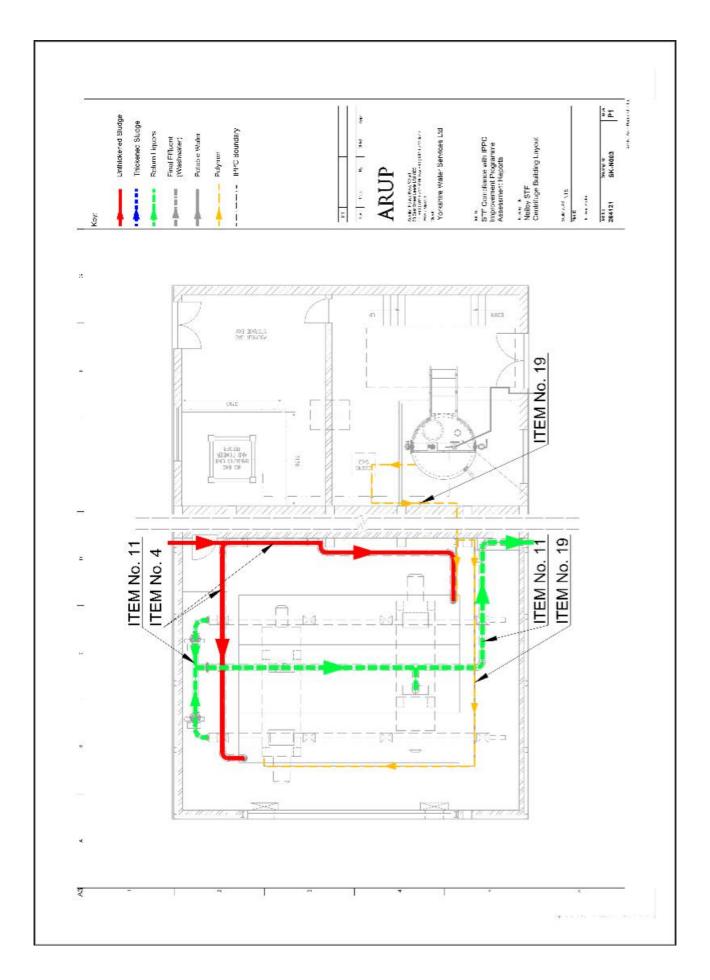
Further monitoring and testing to recommended return periods for testing of assets needs to be undertaken in accordance with the generic testing methodology developed by Arup.

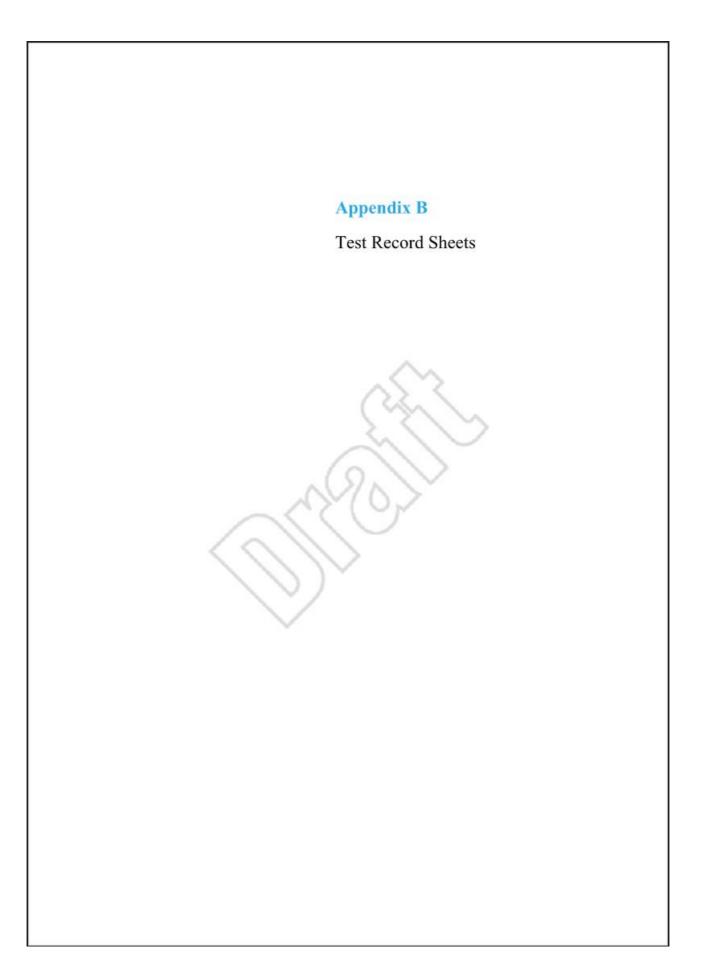


Yorkshire Water Services Ltd Assessment of STF Compilance with IPPC Improvement Programme Neiley - Testing Results Report
<u>A1</u>
Draft 1   7 October 2019 Page A1







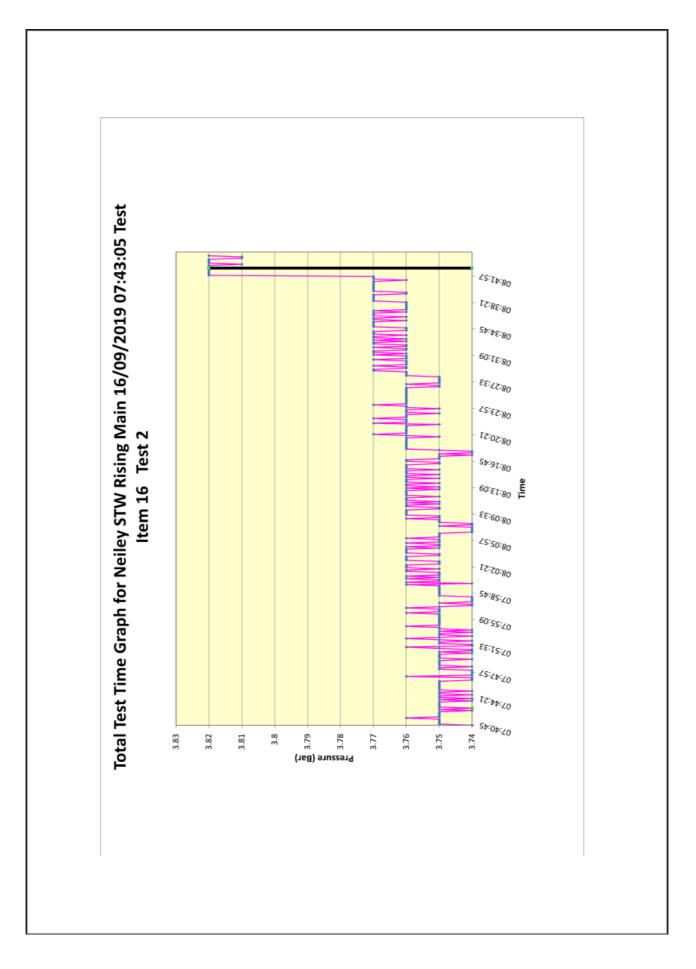


Yorkshire Water Services Ltd Assessment of STF Compliance with IPPC Improvement Programme Neiley - Testing Results Report
<u>B1</u>
Draft 1   7 October 2019 Page B1 Довоходана: нача илимо-га интерно-гарна нелоглялателяма невод также невод так в чимт 1 ко-го-годооск

Bus	iness	pakesh	i.	F	Area:				Check No.:	list				Sheet No.:		[ of [
	ntract:	1DOC TO STING		1.07	Contra	ct	LE	00			Loc	ation:		Neste	7	
Sec	tion:	16		-	Elemei	nt:	0/5 pmp striis		č~	Drawing Reference & Revision Number:		WCF	WC7072			
-	T		Vis	ual	Water		Air	1	Non Destructive		Piggod		Other			Equipment
		Starting Pressure			36-	2			l			1	١		-	Checked
	Test	Finishing				16re										
run		Time Lapsed			Smin	_					1					
be	Mate		UPVC HPDE		E	DI	_	Steel C		Concrete		Other		Trench width		
f pi			Spigot & Wek		Weld	ed			Table				01			
ls o	Joint Bedding		Socket Collar		Welded	1	Tyton	Flanged		-	Other		Comments			
Details of pipe			None Granular		Granular bed and surround		oncrete bed	Concrete bed and surround			Other		_	Bedding Thickness		
	Dedd	aing				_	Surroun			Sult	ound		know.			
	Rest	raints		_		-				t		-				
	ification ence	on	Nan	ne o	f test	Co	ommen	ts	Pass	Fai	l.	Name	Э	Signature	Э	Date
	sui			55-		N	DIESTIME			-	/	Brb	rok	P	R	
			- '	~ 7		ľ		~								
	-					ŀ				1		-		-		
			-			-			-	+		1.0	_			
on	nmen	ts								_	-			1	_	
Ba	rhale	e Appro	val	:					(	Client Approval:						
	ck hat ponsib	le for wo	rk:						(	Orga	nisa	ition:				
Bla	ck Hat	Signatur	e:			_										
Site	Mana	ager Nam	ie:	B	Ma	n	06	/	F	Print					-	
	Mana Mature		Û	1	1		Date:	12/	9/19 8	Sign				Date:		

us nit	iness :	Yorkshi	ire	Area:				Check No.:	list				Sheet No.:	Of
	tract:	IPPC		Contra No.:	act	LE002	0			Loca	ation:		Neiley S	sтw
Sec	tion:	Item 16	;	Eleme	nt:	By PS	т					ference & mber:	WC0702	
			Visual	Wat	er	Air	De	Non	Pig	ged		Other		Equipment Checked
		Starting Pressure		3.64	bar			.50 00070						Checked
	Test	Finishing Pressure		3.72	bar				$\top$					
F		Time Lapsed		1h	r				$\top$					
pipe run	Mater		UPVC	PVC HPDE		DI		Steel	Cond	crete		Other		Trench width
Ē	water	lai	Spigot & Welde		lad	X								
Details of	Joint		Spigot Socket			Welded	Tyton		Flan	ged	Other			Comments
tail				_					>					
De	Bedd	ing	None	Gran	ular	Granular bed and surround	Co	Concrete bed		orete and ound		Other		Bedding Thickness
												unknowr	1	
	Restr							-						-
	ificatio ence	n	Name	of test	Co	omments	6	Pass	Fail		Nam	e s	Signature	Date
IPP B5	С Арр					in. pressure > 3bar		Х			B Harrold		BZ	16/09/19
					$\uparrow$				$\top$					
					+				+					
			<u> </u>		+				+					
`~~	ment	10												
		ed press	ure test	data										
Ba	rhale	Appro	oval:						Clie	nt A	\ppi	oval:		
	k hat													
		le for wo							Orgai	nisati	ion:			
Blad	k Hat	Signatur	e:											
Site	Mana	ger Nam	ie: Br	ian Ha	rolo	ł			Print:					
	Mana nature:		32	(		Date:	16/09	9/19	Sign:				Date:	

T PRESS	G				Pressur	e-Testing.co
<u>H1</u>	DROSTATIC PRI	ESSURE TEST RI		ONE HOUR	TEST	
	S &	B Utilities Lto		02)		
Test Number: Start Date Time: Site: Section: GPS Coordinates: Map Link: Test Pressure:	UTI002 4054 16- 16/09/2019 07:43 Neiley STW Rising Main None Unavailable 3.74 bar		Customer'	s Job Ref:	Item 16 Test 2	!
Test carried out in acc March 2011 Clause 7.9					-	s
Start test period pre End test period pres Difference in pressu * Add static head of	ssure ire (start - end) =	Time 16/09/2019 07:43: 16/09/2019 08:43: loss (bar) nanifold level	<b>bar</b> 3.640 3.720 <b>-0.080</b>	<b>*bar</b> 0.100 0.100	<b>total bar</b> 3.740 3.820	<b>Temp</b> 12.0 13.0
Recorded measured	l volume of water a	added using Water	Loss met	hod b) =		0.015 ltrs
Row 1	Nom. Diam.(mr 250	n) Material DI	Class PN 16	Length (m) 31		Water Loss Total (Itrs) 0.04
The actual lost/adde		was less than the			ss grand total: s/addition.	0.035 ltrs
The test was, theref	ore, satisfactory.					
Date:	16/09/2019		N.D	Springer		
Note The following informa	aph			Ant Hire Solu	itions LLP	
One hour test time gr	ata	gger				
One hour test time gr Data logging reading: Customer supplied da Certificate of calibrati						
One hour test time gr Data logging readings Customer supplied da						



#### 08456 43 42 41

#### HYDROSTATIC PRESSURE TEST SUMMARY OF DATA ONE HOUR TEST (Constant Pressure)

S & D Ounties L	la						
Neiley STW							
Rising Main	Rising Main						
UTI002 4054 1	Test Date:	16/09/2019					
Material Di	<b>Class</b> PN 16	Length (m) 31					
Electrosteel							
3.740	3.740						
tive to lowest poi	nt of pipeline	e (m):	1.00				
1.50	16-09-19_#36	1					
	Neiley STW Rising Main UTI002 4054 1 Material DI Electrosteel 3.740 tive to lowest poi	Rising Main UTI002 4054 1 Test Date: Material Class DI PN 16 Electrosteel 3.740 tive to lowest point of pipeline UTI002_4054_16-09-19_#36 1.50	Neiley STW Rising Main UTI002 4054 1 Test Date: 16/09/2019 Material Class Length (m) DI PN 16 31 Electrosteel 3.740 tive to lowest point of pipeline (m): UTI002_4054_16-09-19_#361 1.50				

55

#### 08456 43 42 41

Downloaded Data for

Neiley STW Rising Main 16/09/2019 07:43:05 Test Item 16 Test 2

Date	Time	Temp	Bar	True Test Pressure	Flow L/20 secs	Replaced Bar	Comments	
16/09/2019	07:40:45	12.0	3.640	3.740	0.000			
16/09/2019	07:40:55	12.0	3.650	3,750	0.000			
16/09/2019	07:41:05	12.0	3.650	3.750	0.000			
16/09/2019	07:41:15	12.0	3.650	3.750	0.000			
16/09/2019	07:41:25	12.0	3.650	3.750	0.000			
16/09/2019	07:41:35	12.0	3.650	3.750	0.000			
16/09/2019	07:41:45	12.0	3.660	3.760	0.000			
16/09/2019	07:41:55	12.0	3.650	3.750	0.000			
16/09/2019	07:42:05	12.0	3.650	3,750	0.000			
16/09/2019	07:42:15	12.0	3.650	3.750	0.000			
16/09/2019	07:42:25	12.0	3.650	3.750	0.000			
16/09/2019	07:42:35	12.0	3.650	3.750	0.000			
16/09/2019	07:42:45	12.0	3.640	3.740	0.000			
16/09/2019	07:42:55	12.0	3.650	3.750	0.000			
16/09/2019	07:43:05	12.0	3.640	3.740	0.000		Start of test	
16/09/2019	07:43:15	12.0	3.650	3.750	0.000			
16/09/2019	07:43:25	12.0	3.650	3.750	0.000			
16/09/2019	07:43:35	12.0	3.650	3.750	0.000			
16/09/2019	07:43:45	12.0	3.650	3,750	0.000			
16/09/2019	07:43:55	12.1	3.650	3,750	0.000			
16/09/2019	07:44:05	12.1	3.640	3.740	0.000			
16/09/2019	07:44:15	12.1	3.650	3.750	0.000			
16/09/2019	07:44:25	12.1	3.640	3.740	0.000			
16/09/2019	07:44:35	12.1	3.650	3,750	0.000			
16/09/2019	07:44:45	12.1	3.650	3,750	0.000			
16/09/2019	07:44:55	12.1	3.640	3.740	0.000			
16/09/2019	07:45:05	12.1	3.650	3.750	0.000			
16/09/2019	07:45:15	12.1	3.650	3.750	0.000			
16/09/2019	07:45:25	12.1	3.640	3.740	0.000			
16/09/2019	07:45:35	12.1	3.650	3,750	0.000			
16/09/2019	07:45:45	12.1	3.650	3.750	0.000			
16/09/2019	07:45:55	12.1	3.650	3,750	0.000			
16/09/2019	07:46:05	12.1	3.650	3.750	0.000			
16/09/2019	07:46:15	12.1	3.650	3.750	0.000			
16/09/2019	07:46:25	12.1	3.650	3,750	0.000			
16/09/2019	07:46:35	12.1	3.650	3.750	0.000			
16/09/2019	07:46:45	12.1	3.650	3.750	0.000			
16/09/2019	07:46:55	12.1	3.640	3.740	0.000			
16/09/2019	07:47:05	12.1	3.640	3.740	0.000			
16/09/2019	07:47:15	12.1	3.640	3.740	0.000			
16/09/2019	07:47:25	12.1	3.660	3.760	0.000			
16/09/2019	07:47:35	12.1	3.640	3.740	0.000			
16/09/2019	07:47:45	12.1	3.640	3.740	0.000			
16/09/2019	07:47:55	12.2	3.640	3.740	0.000			
16/09/2019	07:48:05	12.2	3.640	3.740	0.000			
16/09/2019	07:48:15	12.2	3.640	3.740	0.000			
16/09/2019	07:48:25	12.2	3.650	3.750	0.000			
16/09/2019	07:48:35	12.2	3.650	3.750	0.000			
16/09/2019	07:48:45	12.2	3.640	3.740	0.000			
16/09/2019	07:48:55	12.2	3.650	3.750	0.000			
16/09/2019	07:49:05	12.2	3.650	3.750	0.000			
16/09/2019	07:49:15	12.2	3,650	3,750	0.000			
16/09/2019	07:49:25	12.2	3.650	3,750	0.000			
16/09/2019	07:49:35	12.2	3.650	3.750	0.000			
16/09/2019	07:49:45	12.2	3.640	3.740	0.000			
16/09/2019	07:49:55	12.2	3.650	3.750	0.000			
16/09/2019	07:50:05	12.2	3.650	3.750	0.000			
16/09/2019	07:50:15	12.2	3.650	3.750	0.000			
16/09/2019	07:50:25	12.2	3.650	3.750	0.000			
16/09/2019	07:50:35	12.2	3.640	3.740	0.000			
					4			

### 08456 43 42 41

16/09/2019	07:50:45	12.2	3.650	3.750	0.000
16/09/2019	07:50:55	12.2	3.640	3.740	0.000
16/09/2019	07:51:05	12.2	3.640	3.740	0.000
16/09/2019	07:51:15	12.2	3.650	3.750	0.000
16/09/2019	07:51:25	12.3	3.660	3.760	0.000
16/09/2019	07:51:35	12.3	3.640	3.740	0.000
16/09/2019	07:51:45	12.3 12.3	3.640	3.740	0.000
16/09/2019 16/09/2019	07:51:55 07:52:05	12.3	3.650 3.650	3.750 3.750	0.000
16/09/2019	07:52:05	12.3	3.640	3.750	0.000
16/09/2019	07:52:25	12.3	3.650	3.750	0.000
16/09/2019	07:52:35	12.3	3.660	3.760	0.000
16/09/2019	07:52:45	12.3	3.650	3.750	0.000
16/09/2019	07:52:55	12.3	3.640	3.740	0.000
16/09/2019	07:53:05	12.3	3.650	3.750	0.000
16/09/2019	07:53:15	12.3	3.650	3.750	0.000
16/09/2019	07:53:25	12.3	3.640	3.740	0.000
16/09/2019	07:53:35	12.3	3.650	3.750	0.000
16/09/2019	07:53:45	12.3	3.640	3.740	0.000
16/09/2019	07:53:55	12.3	3.650	3.750	0.000
16/09/2019 16/09/2019	07:54:05 07:54:15	12.3	3.650	3.750	0.000
16/09/2019	07:54:25	12.3 12.3	3.660 3.650	3.760 3.750	0.000
16/09/2019	07:54:35	12.3	3.650	3.750	0.000
16/09/2019	07:54:45	12.3	3.650	3.750	0.000
16/09/2019	07:54:55	12.3	3.650	3.750	0.000
16/09/2019	07:55:05	12.3	3.650	3.750	0.000
16/09/2019	07:55:15	12.3	3.650	3.750	0.000
16/09/2019	07:55:25	12.3	3.650	3,750	0.000
16/09/2019	07:55:35	12.3	3.650	3.750	0.000
16/09/2019	07:55:45	12.3	3.650	3.750	0.000
16/09/2019 16/09/2019	07:55:55	12.3	3.650	3.750	0.000
16/09/2019	07:56:05 07:56:15	12.3 12.3	3.660 3.650	3.760 3.750	0.000
16/09/2019	07:56:25	12.3	3.650	3.750	0.000
16/09/2019	07:56:35	12.4	3.650	3.750	0.000
16/09/2019	07:56:45	12.4	3.660	3.760	0.000
16/09/2019	07:56:55	12.4	3.650	3.750	0.000
16/09/2019	07:57:05	12.4	3.640	3.740	0.000
16/09/2019	07:57:15	12.4	3.640	3.740	0.000
16/09/2019	07:57:25	12.4	3.650	3.750	0.000
16/09/2019	07:57:35	12.4	3.640	3.740	0.000
16/09/2019 16/09/2019	07:57:45	12.4	3.640	3.740	0.000
16/09/2019	07:57:55 07:58:05	12.4 12.4	3.640 3.640	3.740 3.740	0.000
16/09/2019	07:58:15	12.4	3.640	3.740	0.000
16/09/2019	07:58:25	12.4	3.650	3.750	0.000
16/09/2019	07:58:35	12.4	3.650	3.750	0.000
16/09/2019	07:58:45	12.4	3.650	3,750	0.000
16/09/2019	07:58:55	12.4	3.650	3.750	0.000
16/09/2019	07:59:05	12.4	3.650	3.750	0.000
16/09/2019	07:59:15	12.4	3.650	3.750	0.000
16/09/2019	07:59:25	12.4	3.650	3.750	0.000
16/09/2019	07:59:35	12.4	3.650	3.750	0.000
16/09/2019	07:59:45	12.4	3.650	3.750	0.000
16/09/2019 16/09/2019	07:59:55	12.4	3.660 3.640	3.760	0.000
16/09/2019	08:00:05 08:00:15	12.4 12.4	3.660	3.740 3.760	0.000
16/09/2019	08:00:25	12.4	3.650	3.750	0.000
16/09/2019	08:00:35	12.4	3.650	3.750	0.000
16/09/2019	08:00:45	12.4	3.660	3.760	0.000
16/09/2019	08:00:55	12.5	3.650	3.750	0.000
16/09/2019	08:01:05	12.5	3.660	3.760	0.000
16/09/2019	08:01:15	12.5	3.650	3.750	0.000
16/09/2019	08:01:25	12.5	3.650	3.750	0.000
16/09/2019	08:01:35	12.5	3.650	3.750	0.000
16/09/2019	08:01:45	12.5	3.660	3.760	0.000

### 08456 43 42 41

16/09/2019	08:01:55	12.5	3.660	3.760	0.000
16/09/2019	08:02:05	12.5	3.650	3.750	0.000
16/09/2019	08:02:15	12.5	3.660	3.760	0.000
16/09/2019	08:02:25	12.5	3.660	3.760	0.000
16/09/2019	08:02:35	12.5	3.660	3.760	0.000
16/09/2019	08:02:45	12.5	3.650	3.750	0.000
16/09/2019	08:02:55	12.5	3.650	3.750	0.000
16/09/2019	08:03:05	12.5	3.650	3.750	0.000
16/09/2019 16/09/2019	08:03:15 08:03:25	12.5 12.5	3.660 3.660	3.760 3.760	0.000
16/09/2019	08:03:35	12.5	3.660	3.760	0.000
16/09/2019	08:03:45	12.5	3.660	3.760	0.000
16/09/2019	08:03:55	12.5	3.650	3.750	0.000
16/09/2019	08:04:05	12.5	3.650	3.750	0.000
16/09/2019	08:04:15	12.5	3.660	3.760	0.000
16/09/2019	08:04:25	12.5	3.660	3.760	0.000
16/09/2019	08:04:35	12.5	3.660	3.760	0.000
16/09/2019	08:04:45	12.5	3.660	3.760	0.000
16/09/2019	08:04:55	12.5	3.650	3.750	0.000
16/09/2019	08:05:05	12.5	3.660	3.760	0.000
16/09/2019	08:05:15	12.5	3.650	3.750	0.000
16/09/2019	08:05:25	12.6	3.650	3.750	0.000
16/09/2019	08:05:35	12.5	3.660	3.760	0.000
16/09/2019 16/09/2019	08:05:45 08:05:55	12.5 12.6	3.650 3.650	3.750 3.750	0.000
16/09/2019	08:06:05	12.6	3.650	3.750	0.000
16/09/2019	08:06:15	12.6	3.660	3.760	0.000
16/09/2019	08:06:25	12.6	3.650	3.750	0.000
16/09/2019	08:06:35	12.6	3.650	3,750	0.000
16/09/2019	08:06:45	12.6	3.650	3.750	0.000
16/09/2019	08:06:55	12.6	3.650	3.750	0.000
16/09/2019	08:07:05	12.6	3.640	3.740	0.000
16/09/2019	08:07:15	12.6	3.640	3.740	0.000
16/09/2019	08:07:25	12.6	3.640	3.740	0.000
16/09/2019	08:07:35	12.6	3.640	3.740	0.000
16/09/2019	08:07:45	12.6	3.640	3.740	0.000
16/09/2019	08:07:55	12.6	3.650	3.750	0.000
16/09/2019 16/09/2019	08:08:05	12.6 12.6	3.640	3.740	0.000
16/09/2019	08:08:15 08:08:25	12.6	3.640 3.650	3.740 3.750	0.000
16/09/2019	08:08:35	12.6	3.650	3.750	0.000
16/09/2019	08:08:45	12.6	3.650	3,750	0.000
16/09/2019	08:08:55	12.6	3.660	3.760	0.000
16/09/2019	08:09:05	12.6	3.650	3.750	0.000
16/09/2019	08:09:15	12.6	3.650	3.750	0.000
16/09/2019	08:09:25	12.6	3.660	3.760	0.000
16/09/2019	08:09:35	12.6	3.660	3.760	0.000
16/09/2019	08:09:45	12.6	3.660	3.760	0.000
16/09/2019	08:09:55	12.6	3.660	3.760	0.000
16/09/2019	08:10:05	12.6	3.660	3.760	0.000
16/09/2019 16/09/2019	08:10:15 08:10:25	12.6	3.650	3.750	0.000
16/09/2019	08:10:35	12.6 12.6	3.650 3.660	3.750 3.760	0.000
16/09/2019	08:10:45	12.6	3.660	3.760	0.000
16/09/2019	08:10:55	12.6	3.650	3.750	0.000
16/09/2019	08:11:05	12.7	3.660	3.760	0.000
16/09/2019	08:11:15	12.7	3.650	3.750	0.000
16/09/2019	08:11:25	12.7	3.660	3.760	0.000
16/09/2019	08:11:35	12.7	3.660	3.760	0.000
16/09/2019	08:11:45	12.7	3.660	3.760	0.000
16/09/2019	08:11:55	12.7	3.650	3.750	0.000
16/09/2019	08:12:05	12.7	3.660	3.760	0.000
16/09/2019	08:12:15	12.7	3.660	3.760	0.000
16/09/2019	08:12:25 08:12:35	12.7	3.660	3.760	0.000
16/09/2019 16/09/2019	08:12:35 08:12:45	12.7 12.7	3.660 3.660	3.760 3.760	0.000
16/09/2019	08:12:55	12.7	3.650	3.750	0.000
				5.100	5.000

00456	40	40	14
08456	43	42	41

16/09/2019	08:13:05	12.7	3.660	3.760	0.000
16/09/2019	08:13:15	12.7	3.650	3.750	0.000
16/09/2019	08:13:25	12.7	3.660	3.760	0.000
16/09/2019	08:13:35	12.7	3.660	3.760	0.000
16/09/2019	08:13:45	12.7	3.650	3.750	0.000
16/09/2019	08:13:55	12.7	3.660	3.760	0.000
16/09/2019	08:14:05	12.7	3.660 3.660	3.760 3.760	0.000
16/09/2019 16/09/2019	08:14:15 08:14:25	12.7 12.7	3.650	3.750	0.000
16/09/2019	08:14:35	12.7	3.660	3.760	0.000
16/09/2019	08:14:45	12.7	3.660	3.760	0.000
16/09/2019	08:14:55	12.8	3.650	3.750	0.000
16/09/2019	08:15:05	12.8	3.660	3.760	0.000
16/09/2019	08:15:15	12.8	3.660	3.760	0.000
16/09/2019	08:15:25	12.8	3.660	3.760	0.000
16/09/2019	08:15:35	12.8	3.650	3.750	0.000
16/09/2019	08:15:45	12.8	3.660	3.760	0.000
16/09/2019	08:15:55	12.8	3.660	3.760	0.000
16/09/2019	08:16:05	12.8	3.660	3.760	0.000
16/09/2019	08:16:15	12.8	3.660	3.760	0.000
16/09/2019	08:16:25	12.8	3.650	3.750	0.000
16/09/2019	08:16:35	12.8	3.650	3.750	0.000
16/09/2019	08:16:45	12.8	3.660	3.760	0.000
16/09/2019 16/09/2019	08:16:55 08:17:05	12.8	3.660	3.760	0.000
16/09/2019	08:17:05	12.8 12.8	3.650 3.650	3.750 3.750	0.000
16/09/2019	08:17:25	12.8	3.650	3.750	0.000
16/09/2019	08:17:35	12.8	3.640	3,740	0.000
16/09/2019	08:17:45	12.8	3.650	3,750	0.000
16/09/2019	08:17:55	12.8	3.640	3.740	0.000
16/09/2019	08:18:05	12.8	3.640	3.740	0.000
16/09/2019	08:18:15	12.8	3.650	3.750	0.000
16/09/2019	08:18:25	12.8	3.660	3.760	0.000
16/09/2019	08:18:35	12.8	3.660	3.760	0.000
16/09/2019	08:18:45	12.8	3.660	3.760	0.000
16/09/2019	08:18:55	12.8	3.660	3.760	0.000
16/09/2019	08:19:05	12.8	3.660	3.760	0.000
16/09/2019	08:19:15	12.8	3.660	3.760	0.000
16/09/2019 16/09/2019	08:19:25	12.8	3.660	3.760	0.000
16/09/2019	08:19:35 08:19:45	12.8 12.8	3.660 3.660	3.760 3.760	0.000
16/09/2019	08:19:55	12.8	3.660	3.760	0.000
16/09/2019	08:20:05	12.8	3.650	3.750	0.000
16/09/2019	08:20:15	12.8	3.660	3.760	0.000
16/09/2019	08:20:25	12.8	3.670	3.770	0.000
16/09/2019	08:20:35	12.8	3.660	3.760	0.000
16/09/2019	08:20:45	12.8	3.660	3.760	0.000
16/09/2019	08:20:55	12.8	3.660	3.760	0.000
16/09/2019	08:21:05	12.8	3.660	3,760	0.000
16/09/2019	08:21:15	12.8	3.660	3.760	0.000
16/09/2019	08:21:25	12.8	3.660	3.760	0.000
16/09/2019	08:21:35	12.8	3.660	3.760	0.000
16/09/2019	08:21:45	12.9	3.650	3.750	0.000
16/09/2019 16/09/2019	08:21:55 08:22:05	12.9 12.9	3.670 3.660	3.770 3.760	0.000
16/09/2019	08:22:15	12.9	3.660	3.760	0.000
16/09/2019	08:22:25	12.9	3.660	3.760	0.000
16/09/2019	08:22:35	12.9	3.670	3.770	0.000
16/09/2019	08:22:45	12.9	3.660	3.760	0.000
16/09/2019	08:22:55	12.9	3.660	3.760	0.000
16/09/2019	08:23:05	12.9	3.660	3.760	0.000
16/09/2019	08:23:15	12.9	3.650	3.750	0.000
16/09/2019	08:23:25	12.9	3.660	3.760	0.000
16/09/2019	08:23:35	12.9	3.660	3.760	0.000
16/09/2019	08:23:45	12.9	3.660	3.760	0.000
16/09/2019	08:23:55	12.9	3.650	3.750	0.000
16/09/2019	08:24:05	12.9	3.660	3.760	0.000

### 08456 43 42 41

16/09/2019	08:24:15	12.9	3.660	3.760	0.000
16/09/2019	08:24:25	12.9	3.670	3.770	0.000
16/09/2019	08:24:35	12.9	3.660	3.760	0.000
16/09/2019	08:24:45	12.9	3.660	3.760	0.000
16/09/2019	08:24:55	12.9	3.660	3.760	0.000
16/09/2019	08:25:05	12.9	3.660	3.760	0.000
16/09/2019	08:25:15	12.9	3.660	3.760	0.000
16/09/2019	08:25:25	12.9	3.660	3.760	0.000
16/09/2019 16/09/2019	08:25:35 08:25:45	12.9 12.9	3.660 3.660	3.760 3.760	0.000
16/09/2019	08:25:55	12.9	3.660	3.760	0.000
16/09/2019	08:26:05	12.9	3.660	3.760	0.000
16/09/2019	08:26:15	12.9	3.660	3.760	0.000
16/09/2019	08:26:25	12.9	3.660	3.760	0.000
16/09/2019	08:26:35	12.9	3.660	3,760	0.000
16/09/2019	08:26:45	12.9	3.660	3.760	0.000
16/09/2019	08:26:55	12.9	3.650	3.750	0.000
16/09/2019	08:27:05	12.9	3.650	3.750	0.000
16/09/2019	08:27:15	12.9	3.660	3.760	0.000
16/09/2019	08:27:25	12.9	3.650	3.750	0.000
16/09/2019	08:27:35	12.9	3.650	3.750	0.000
16/09/2019	08:27:45	12.9	3.650	3.750	0.000
16/09/2019	08:27:55	12.9	3.650	3.750	0.000
16/09/2019	08:28:05	12.9	3.650	3.750	0.000
16/09/2019 16/09/2019	08:28:15 08:28:25	12.9 12.9	3.650	3.750	0.000
16/09/2019	08:28:35	12.9	3.660 3.660	3.760 3.760	0.000
16/09/2019	08:28:45	12.9	3.660	3.760	0.000
16/09/2019	08:28:55	12.9	3.660	3,760	0.000
16/09/2019	08:29:05	12.9	3.670	3.770	0.000
16/09/2019	08:29:15	12.9	3.670	3.770	0.000
16/09/2019	08:29:25	12.9	3.660	3.760	0.000
16/09/2019	08:29:35	12.9	3.660	3.760	0.000
16/09/2019	08:29:45	12.9	3.670	3.770	0.000
16/09/2019	08:29:55	12.9	3.660	3.760	0.000
16/09/2019	08:30:05	12.9	3.660	3.760	0.000
16/09/2019	08:30:15	12.9	3.660	3,760	0.000
16/09/2019	08:30:25	12.9	3.660	3.760	0.000
16/09/2019	08:30:35	12.9	3.670	3.770	0.000
16/09/2019 16/09/2019	08:30:45 08:30:55	12.9 12.9	3.660 3.660	3.760 3.760	0.000
16/09/2019	08:31:05	12.9	3.660	3.760	0.000
16/09/2019	08:31:15	12.9	3.670	3.770	0.000
16/09/2019	08:31:25	12.9	3.660	3.760	0.000
16/09/2019	08:31:35	12.9	3.670	3.770	0.000
16/09/2019	08:31:45	12.9	3.670	3.770	0.000
16/09/2019	08:31:55	12.9	3.660	3.760	0.000
16/09/2019	08:32:05	12.9	3.660	3.760	0.000
16/09/2019	08:32:15	12.9	3.670	3,770	0.000
16/09/2019	08:32:25	12.9	3.660	3.760	0.000
16/09/2019	08:32:35	12.9	3.660	3.760	0.000
16/09/2019	08:32:45	12.9	3.670	3.770	0.000
16/09/2019	08:32:55 08:33:05	12.9 12.9	3.670 3.660	3.770 3.760	0.000
16/09/2019 16/09/2019	08:33:05	12.9	3.670	3.760	0.000
16/09/2019	08:33:25	13.0	3.660	3.760	0.000
16/09/2019	08:33:35	13.0	3.670	3.770	0.000
16/09/2019	08:33:45	13.0	3.670	3.770	0.000
16/09/2019	08:33:55	13.0	3.660	3.760	0.000
16/09/2019	08:34:05	13.0	3.670	3.770	0.000
16/09/2019	08:34:15	13.0	3.670	3.770	0.000
16/09/2019	08:34:25	13.0	3.670	3.770	0.000
16/09/2019	08:34:35	13.0	3.660	3.760	0.000
16/09/2019	08:34:45	13.0	3.660	3.760	0.000
16/09/2019	08:34:55	13.0	3.660	3.760	0.000
16/09/2019	08:35:05	13.0	3.670	3.770	0.000
16/09/2019	08:35:15	13.0	3.670	3.770	0.000

### 08456 43 42 41

16/09/2019	00.25.25	12.0	2 670	2 770	0.000		
16/09/2019	08:35:25 08:35:35	13.0 13.0	3.670 3.670	3.770 3.770	0.000		
16/09/2019	08:35:45	13.0	3.670	3.770	0.000		
16/09/2019	08:35:55	13.0	3.660	3.760	0.000		
16/09/2019	08:36:05	13.0	3.670	3.770	0.000		
16/09/2019	08:36:15	13.0	3.670	3.770	0.000		
16/09/2019	08:36:25	13.0	3.660	3.760	0.000		
16/09/2019	08:36:35	13.0	3.670	3.770	0.000		
16/09/2019	08:36:45	13.0	3.670	3.770	0.000		
16/09/2019	08:36:55	13.0	3.670	3.770	0.000		
16/09/2019	08:37:05	13.0	3.660	3.760	0.000		
16/09/2019	08:37:15	13.0	3.670	3.770	0.000		
16/09/2019	08:37:25	13.0	3.660	3.760	0.000		
16/09/2019	08:37:35	13.0	3.660	3.760	0.000		
16/09/2019	08:37:45	13.0	3.660	3,760	0.000		
16/09/2019	08:37:55	13.0	3.660	3.760	0.000		
16/09/2019	08:38:05	13.0	3.660	3.760	0.000		
16/09/2019	08:38:15	13.0	3.660	3.760	0.000		
16/09/2019	08:38:25	13.0	3.660	3.760	0.000		
16/09/2019	08:38:35	13.0	3.670	3.770	0.000		
16/09/2019	08:38:45	13.0	3.670	3.770	0.000		
16/09/2019	08:38:55	13.0	3.670	3.770	0.000		
16/09/2019	08:39:05	13.0	3.670	3.770	0.000		
16/09/2019	08:39:15	13.0	3.670	3.770	0.000		
16/09/2019	08:39:25	13.0	3.670	3.770	0.000		
16/09/2019	08:39:35	13.0	3.660	3.760	0.000		
16/09/2019	08:39:45	13.0	3.660	3.760	0.000		
16/09/2019	08:39:55	13.0	3.670	3.770	0.000		
16/09/2019	08:40:05	13.0	3.670	3,770	0.000		
16/09/2019	08:40:15	13.0	3.670	3.770	0.000		
16/09/2019	08:40:25	13.0	3.670	3.770	0.000		
16/09/2019	08:40:35	13.0	3.670	3.770	0.000		
16/09/2019	08:40:45 08:40:55	13.0	3.670	3.770 3.770	0.000		
16/09/2019 16/09/2019	08:40:55	13.0 13.0	3.670 3.670	3.770	0.000		
16/09/2019	08:41:05	13.0	3.670	3.770	0.000		
16/09/2019	08:41:25	13.0	3.660	3.760	0.000		
16/09/2019	08:41:35	13.0	3.670	3,770	0.000		
16/09/2019	08:41:45	13.0	3.670	3.770	0.000		
16/09/2019	08:41:55	13.0	3.670	3.770	0.000		
16/09/2019	08:42:05	13.0	3.720	3.820	0.015		
16/09/2019	08:42:15	13.0	3.720	3.820	0.000		
16/09/2019	08:42:25	13.0	3.720	3.820	0.000		
16/09/2019	08:42:35	13.0	3.720	3.820	0.000		
16/09/2019	08:42:45	13.0	3.720	3.820	0.000		
16/09/2019	08:42:55	13.0	3.720	3.820	0.000		
16/09/2019	08:43:05	13.0	3.720	3.820	0.000	End of test	
16/09/2019	08:43:15	13.0	3.720	3.820	0.000		
16/09/2019	08:43:25	13.0	3.720	3,820	0.000		
16/09/2019	08:43:35	13.0	3.710	3.810	0.000		
16/09/2019	08:43:45	13.0	3.720	3.820	0.000		
16/09/2019	08:43:55	13.0	3.720	3.820	0.000		
16/09/2019	08:44:05	13.0	3.720	3.820	0.000		
16/09/2019	08:44:15	13.0	3.720	3.820	0.000		
16/09/2019	08:44:25	13.0	3.710	3.810	0.000		
16/09/2019	08:44:35	13.0	3.710	3.810	0.000		
16/09/2019	08:44:45	13.0	3.720	3.820	0.000		

9

Wet Well Drop Test

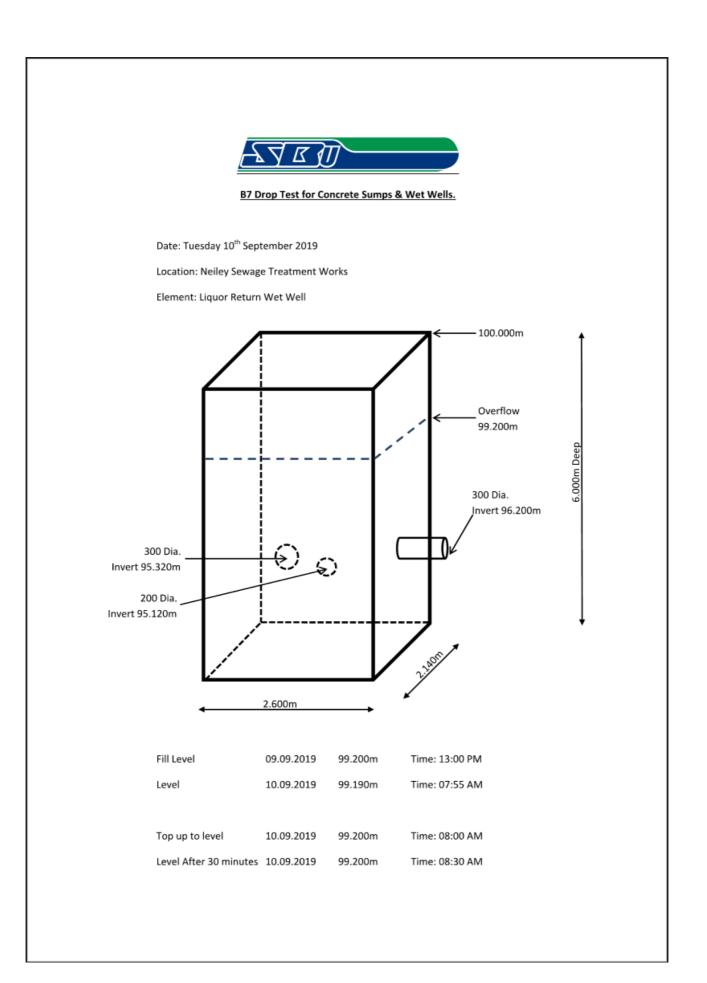
Safety Communication Quality Integrity TeamSolvit Caring Trust Pride

Business Unit	Yorkshire	Area:	 Checklist No.:	Sheet No.: ( of (
Contract:	IPPC Method Testing		Sec. Sec.	Contract No.: LE0020
Section: Nelley STW			Element: Item 20 Leg	www.s web-hell

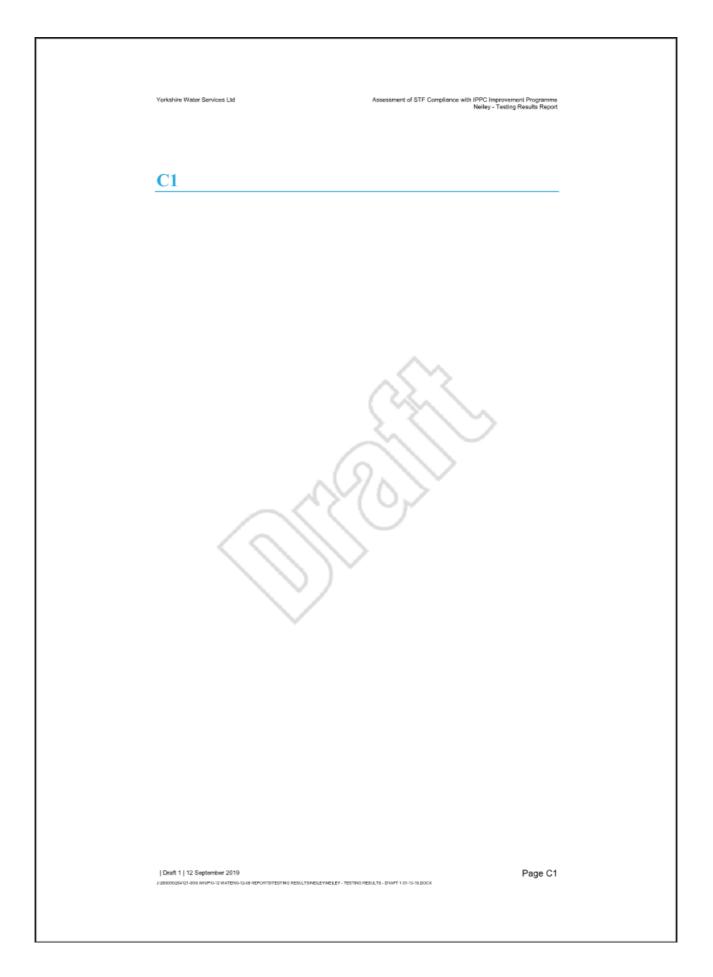
#### Result V/× Comments 1) Clean well. Take photos of all surfaces ~ Bund off inlets and outlets. Record size and loaction 3 2) ~ 1x 300 mm invent 26.2 - Legenors 28) 4 1 x 300mm inwest 95.32 - unknown 2b) -20) 1 5 200mm invest 95.12 unknown 0 20) overflow invent 99.20 Fill to 0.2m below coping level or to the level of overflow. Leave absorb for 7/7 1300-Bhrs 1 3) 99.20m Refill wet well 4) 0 Record start time 0900 -5) 99.20 Record level after 30min. Maximum change = 3mm 6) -

wer well L	leaned 4 fell	ed 9/9/19	
TESTER (0)	19/19		
Barhale Approval:		Client Approval:	
Black hat responsible for wor	k:	Oranitation	
Black Hat Signature:		Organisation:	
Site Manager Name:	BRIAN Hera	Print:	

CF322-52 Version 3









JET AIRE SERVICES

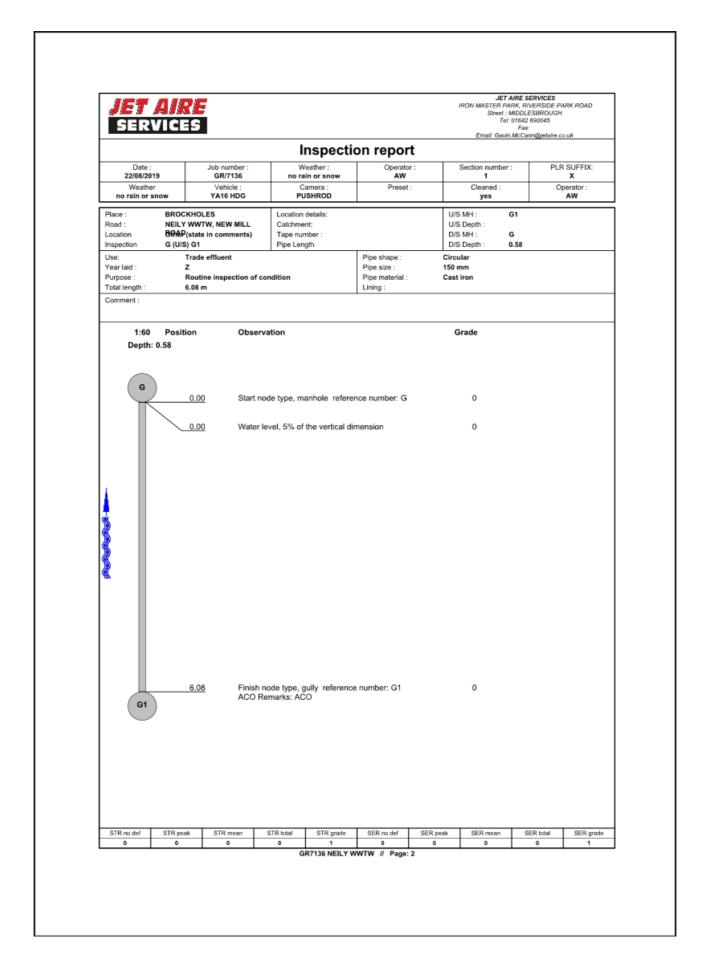
#### GR7136 NEILY WWTW

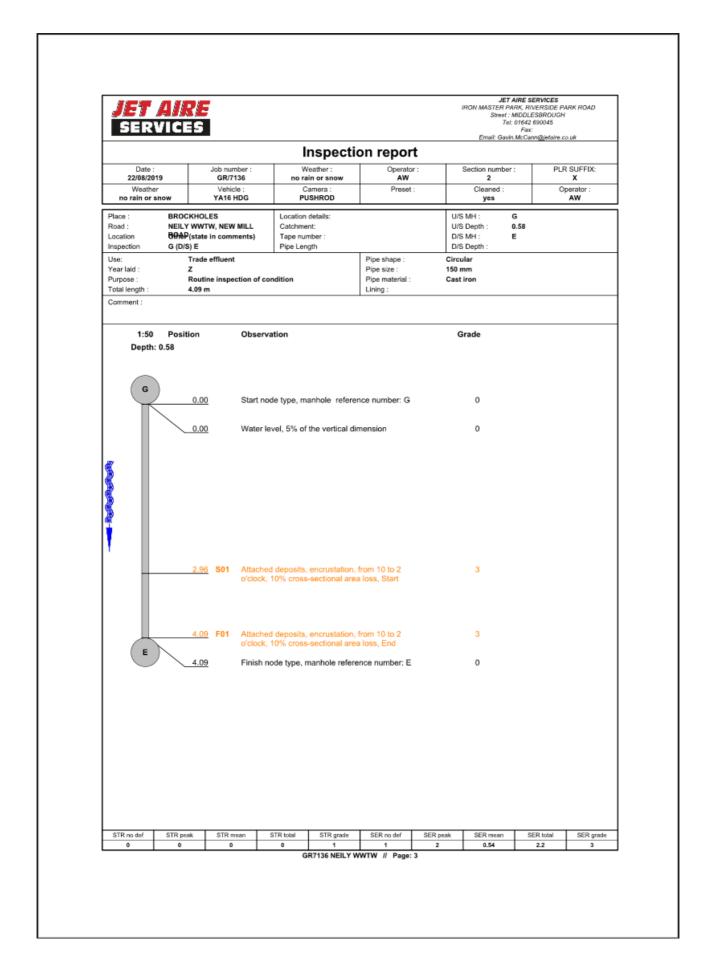


Jet Aire Services, Northways Court, Great North Road, Aberford, West Yorkshire Telephone: 0113 393 5500, Email: enquiries@jetaire.co.uk

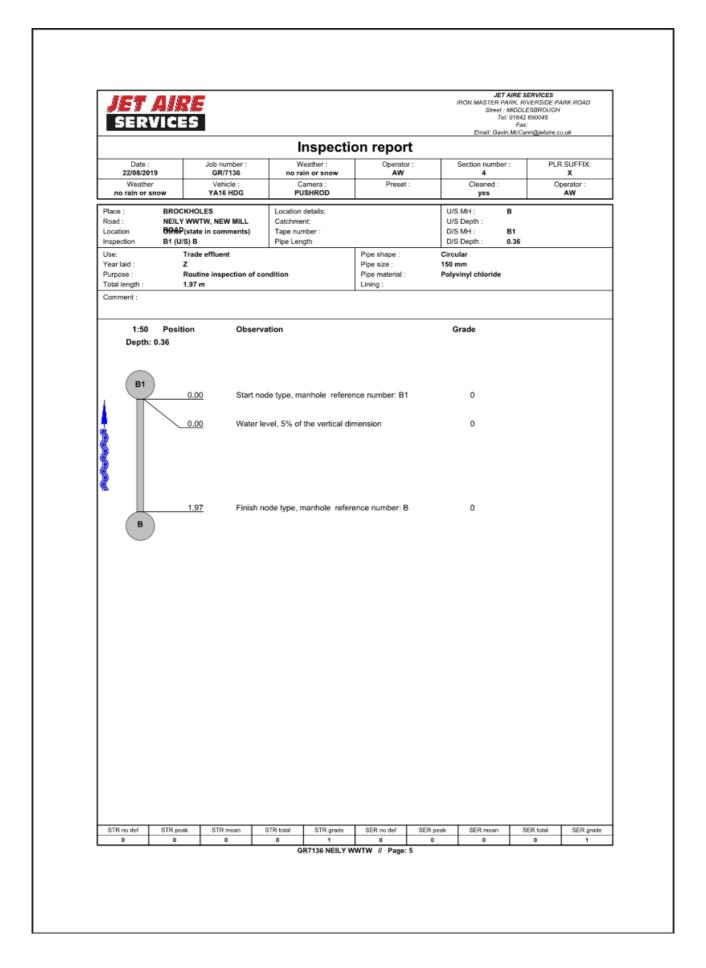
<b>JET AIRE</b> Services			IRON MASTER	IET AIRE SERVICES R PARK, RIVERSIDE PARK ROAD MIDDLESBROUGH Tal.: 01642 690045 Fax:
	Tat	ole of contents	Email: G	lavin.McCann@jetaire.co.uk
Project Name: GR7136 NEILY WWTW	Project number: GR/7136	Date: 30/08/2019	Contact:	
	0101100	000002010		
la su su d				
Inspection: 1				
Project Information Section: 1, G1				····· 1 ···· 2
Section: 2, G E				3
Section: 3, E 0				4
Section: 4, B E				5
Section: 5, B1				6
Section: 6, B2				
Section: 7, D1				
Section: 8, C [				9
Section: 9, D J				10
Section: 10, J				12
	PUMP STATION			

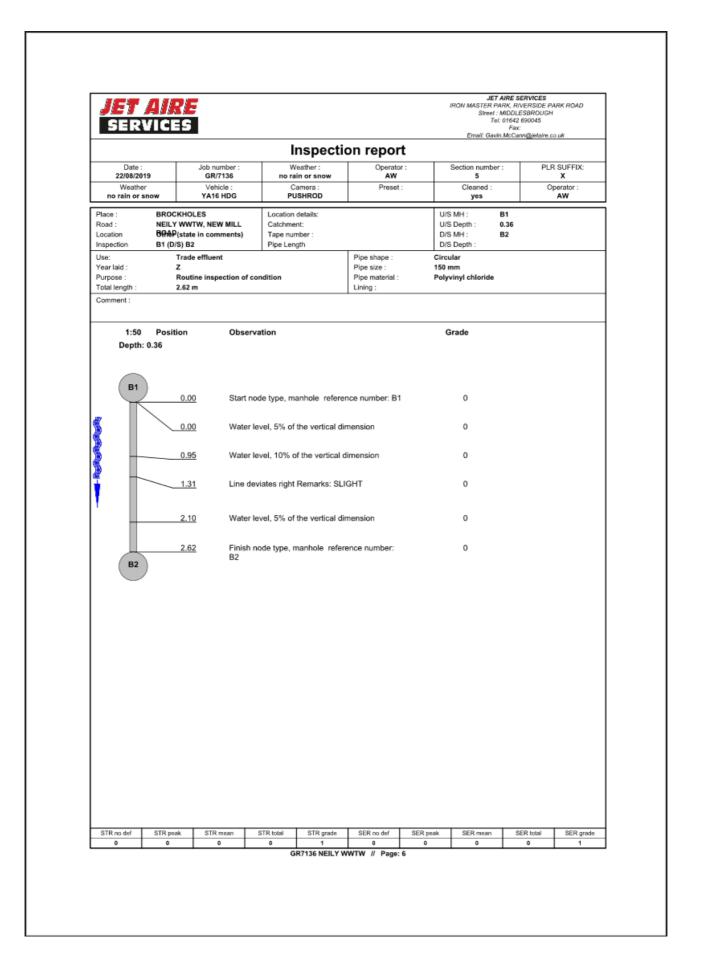
<b>JET AIRE</b> Services	JET AIRE SERVICES IRON MASTER PARK, RIVERSIDE PARK ROJ MDDLESBROUDS Tal: 01642 690045 Fax Email: Gavin McCannightaire.co.uk
	Project-information
Project name : GR7136 NEILY WWTW	Project Number : Contact : Date : GR/7136 22/08/2019
Client:	S & B UTILITIES LTD
Contact Name:	SCOTT DEVANEY
Department:	
Road:	MARKET FLAT LANE
Town:	KNARESBOROUGH
County:	NORTH YORKSHIRE
Telephone:	
Fax:	
Mobile:	
E-mail:	
Site:	NEILY WWTW
Contact Name:	SCOTT DEVANEY
Department:	
Road:	NEW MILL ROAD
Town:	BROCKHOLES
County:	WEST YORKSHIRE
Telephone:	
Fax:	
Mobile:	
E-mail:	
Contractor	JET AIRE SERVICES
Contact Name:	GAVIN MCCANN
Department:	
Road:	IRON MASTER PARK, RIVERSIDE PARK ROAD
Town:	MIDDLESBROUGH
County:	TEESSIDE
Telephone:	01642 690045
Fax:	
Mobile:	
E-mail:	Gavin.McCann@jetaire.co.uk

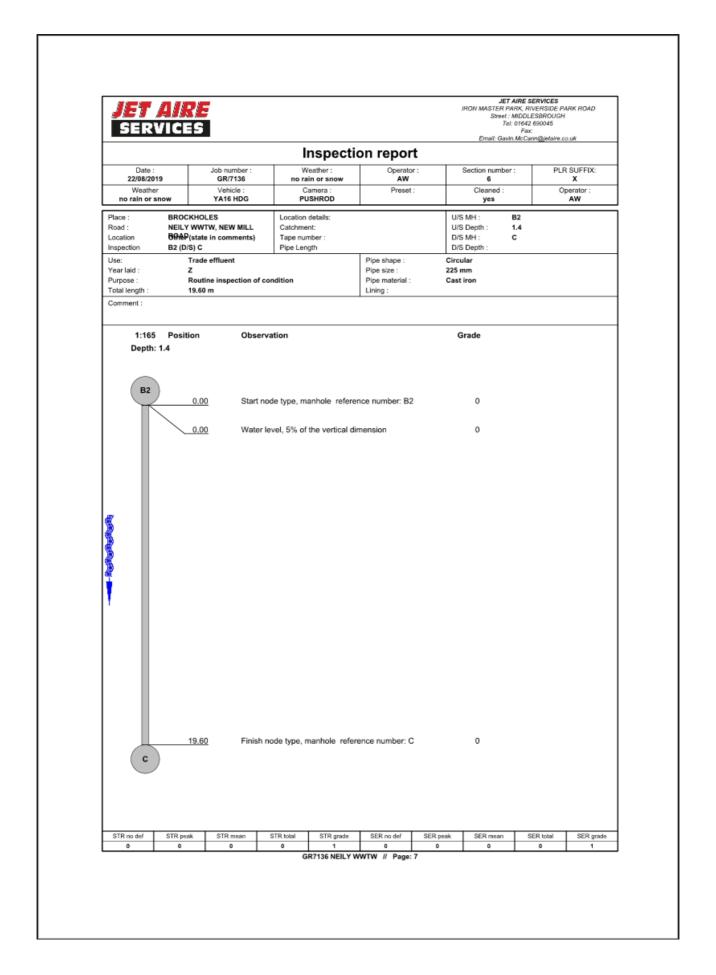


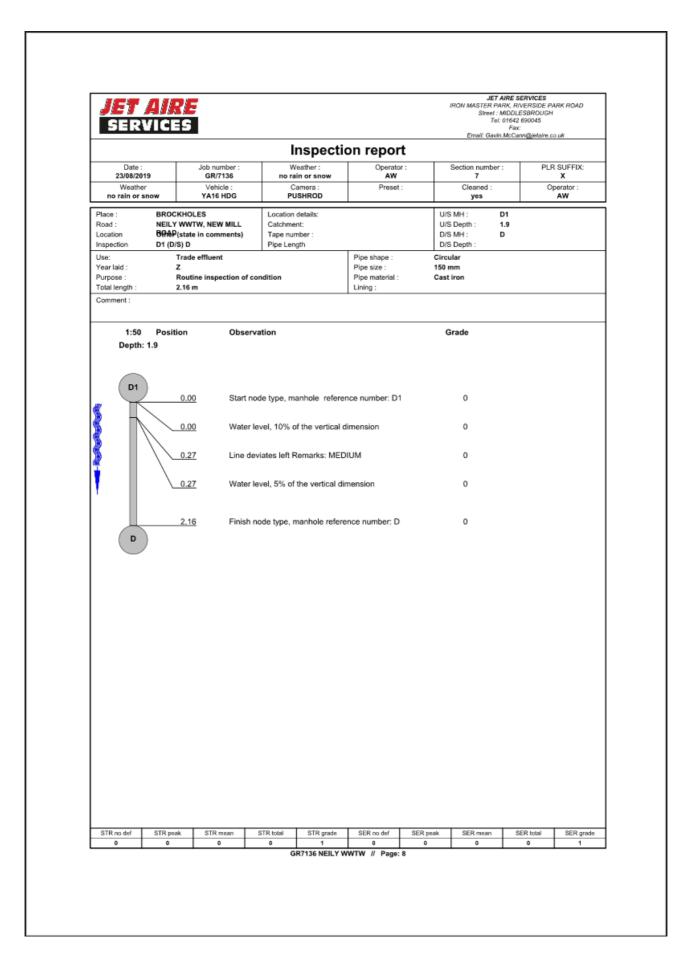


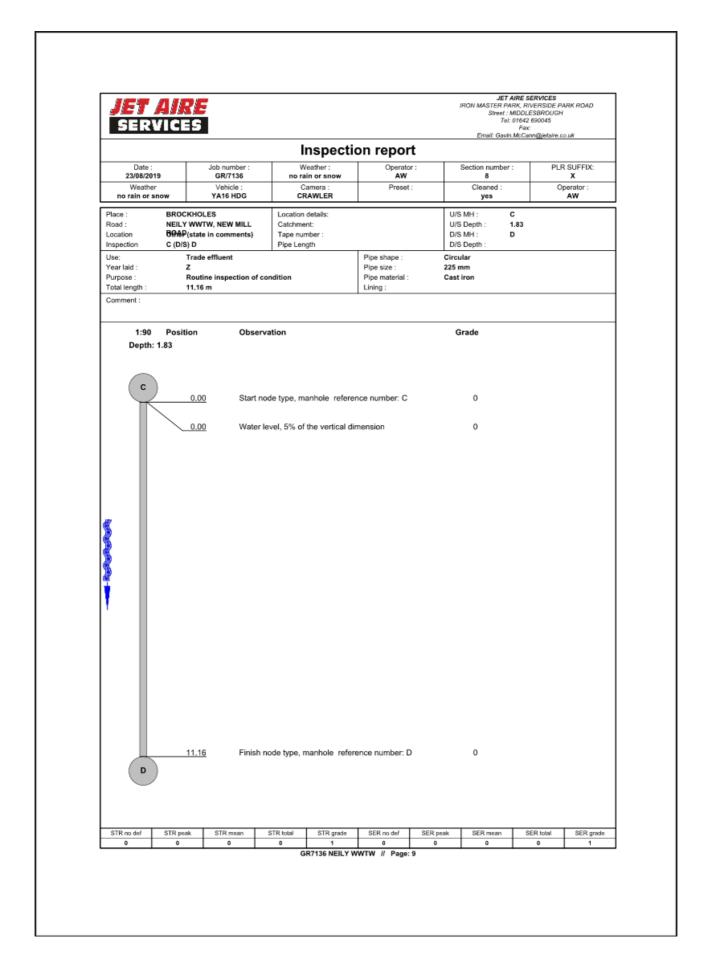
<b>JET A</b> Servi				JET AIRE S IRON MASTER PARK, RI Street : MIDDLI Tal: 01642 Fax	VERSIDE PARK ROAD ESBROUGH 890045
		Inspecti	on report	Email: Gavin.McCa	m@yetaire.co.uk
Date : 22/08/2019 Weather	Job number : GR/7136 Vehicle :	Weather : no rain or snow Camera :	Operator : AW Preset :	Section number : 3 Cleaned :	PLR SUFFIX: X Operator :
no rain or snow Place : B Road : N Location 6	ROCKHOLES ROCHOLES ROCHOLES ROCKHOLES ROCHOLES ROCHOLES ROCHOLES ROCHOLES ROCHOLES ROCHOLES ROCHOLES ROCHOLES ROCHOLES ROCHOLES ROCHOLES ROCHOLES ROCHOLES ROCHOLES ROCHOLES ROCHOLES ROCKHOLES ROCKHOLES ROCKHOLES ROCKHOLES ROCKHOLES ROCKHOLES ROCKHOLES ROCKHOLES ROCKHOLES ROCKHOLES ROCKHOLES ROCKHOLES ROCKHOLES ROCKHOLES ROCKHOLES ROCKHOLES ROCH	Location details: Catchment: Tape number : Pipe Length	116661.	U/S MH : E U/S Depth : D/S MH : C D/S Depth :	AW
Use: Year laid : Purpose : Total length : Comment :	Trade effluent Z Routine inspection of co 2.03 m		Pipe shape : Pipe size : Pipe material : Lining :	Circular 150 mm Cast iron	
1:50 P	osition Observa	ation		Grade	
c	0.89 Line dev	vel, 5% of the vertical di iates down Remarks: Sl	HARP	0 0	
STR no def ST 0	TR peak STR mean 3	STR total STR grade 0 1 0 0 1	0	SER peak SER mean S 0 0	ER total SER grade 0 1
		OR/136 NEILY V	WWTW // Page: 4		



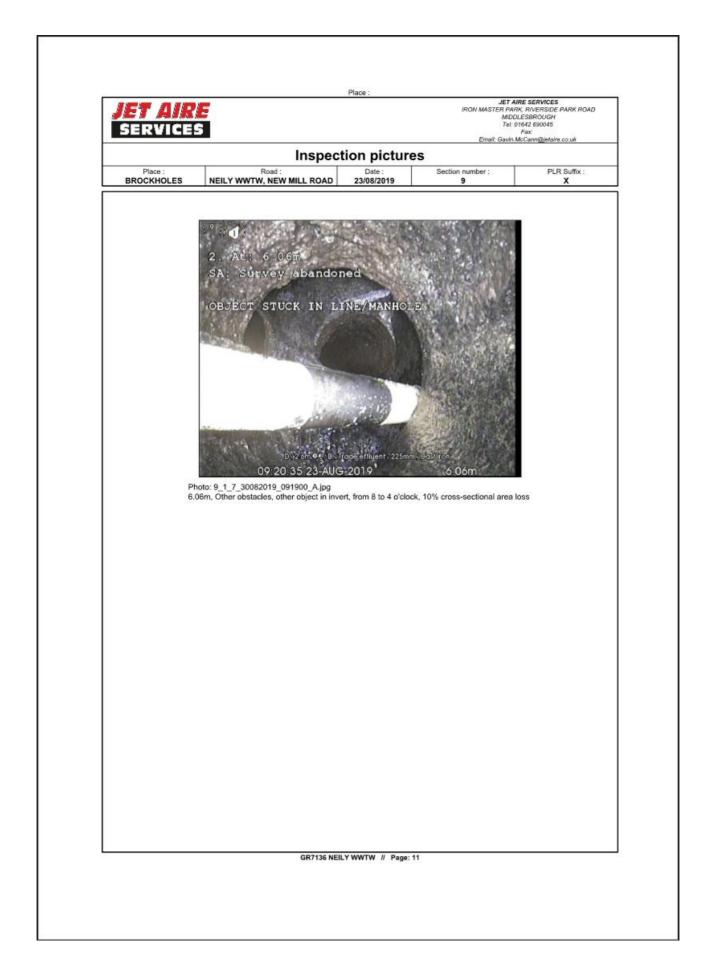


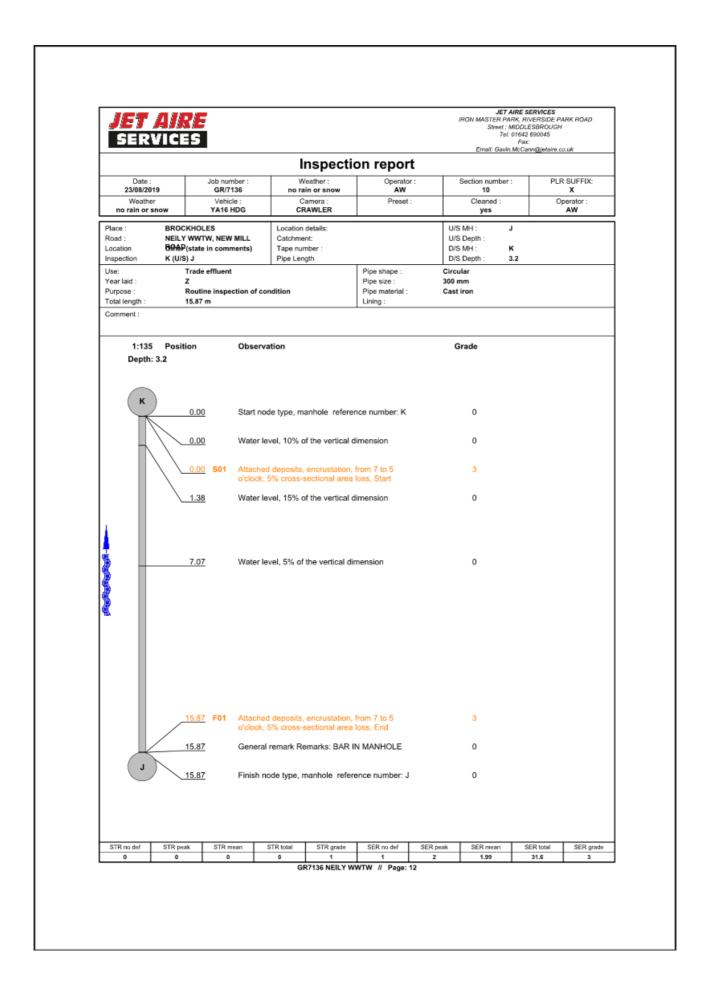


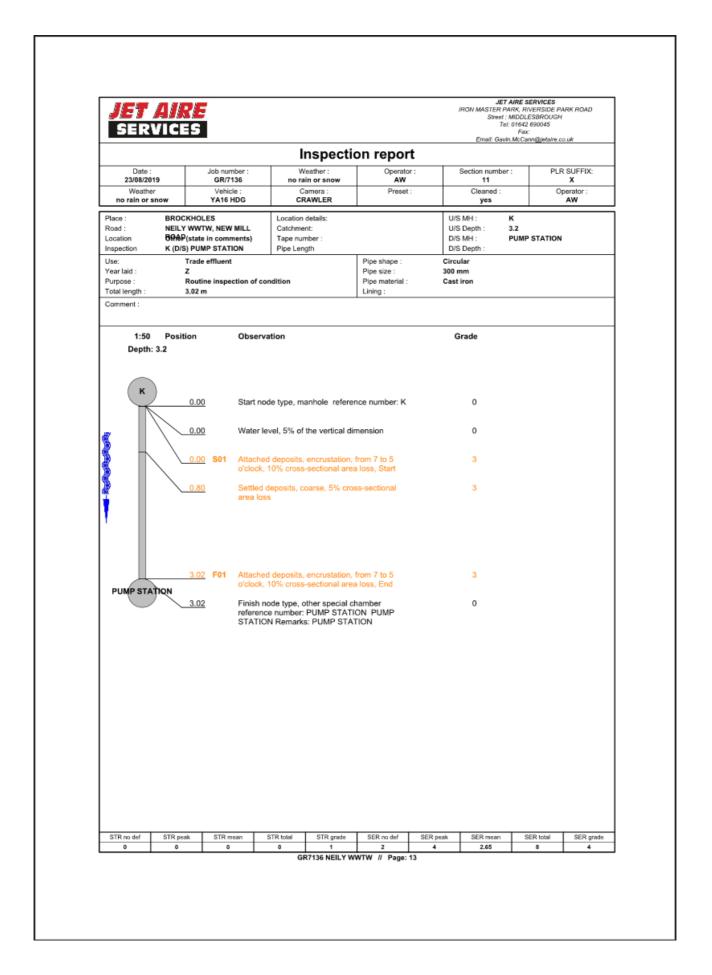




	AIRE /ICES					Tal: 0	K, RIVERSIDE PARI DDLESBROUGH 1642 690045 Fax:	K ROAD
			Inspec	tion repor	t		fcCann@jetaire.co.u	ĸ
Date : 23/08/201		mber : 7136	Weather : no rain or snow	Operato AW		Section number : 9		UFFIX:
Weather no rain or si	Veh	icle : HDG	Camera : CRAWLER	Preset	:	Cleaned : yes	Ope	rator : W
Place : Road : Location Inspection	BROCKHOLES NEILY WWTW, NE BRAP(state in con D (D/S) J	W MILL	Location details: Catchment: Tape number : Pipe Length		U/5	S MH : D S Depth : 2.0 S MH : J S Depth :		
Use: Year laid : Purpose : Total length : Comment :	Trade efflue Z Routine insp 6.06 m		ndition	Pipe shape : Pipe size : Pipe material : Lining :	Circ 225 Cast			
1:60 Depth:	Position 2.6	Observ	ation			Grade		
D	0.00	Start no	de type, manhole rei	erence number: D		0		
	0.00	Water le	evel, 5% of the vertica	I dimension		0	6.06 m	
	0.00 801	Attacher o'clock	d deposits, encrustati 10% cross-sectional	on, from 7 to 5 area loss, Start		3		
\$ •	1.45	Water le	evel, 10% of the vertic	al dimension		0		
	5.15	Water le	evel, 5% of the vertica	I dimension		0		
	<u>6.06</u> F01		d deposits, encrustati 10% cross-sectional			3		
Ŭ	6.06	4 o'cloci	bstacles, other object k, 10% cross-section	al area loss		5		
	6.06		s: BAR COMING FR ode type, manhole re			0		
STR no def	· ·	mean 0	STR total STR grad	ie SER no def 2	SER peak	SER mean	SER total	SER grade







Appendix D. Asset Integrity Report by MGJV (2013)





Form Ref: F C1 019 YW Rev A

Amp 5 IPPC Compliance testing and Inspection

Client:	Yorkshire Water	Batch/ Project No:	100252
Batch/ Project Name:	Compliance with Sludge Licencing – IPPC Investigations	Report Title:	Neiley STF, Compliance with IPPC, Asset Inspection Report
Client Ref:	Q0227	Doc Reference:	RE-100252-07-01
Date:	13th March 2013	Revision No:	1

Main Contributors	Role	Signature
M. Thorpe	Senior Engineer	ILI TUGURO.
		1

Checked by:	T. Kelly	Approved by:	A. Sang
Signed:	TThelly	Signed:	Assen .
Position:	CP Batch Design Manager	Position:	CP Stream Manager
Checked by:	N. Wright		
Signed:	N. Wight		
Position:	Principal Engineer		

Accepted by:	L. Stubbs	Accepted by:	Z. Cranmer
Signed:	Un they and	Signed:	AL AR
Position	YWS Solution Engineer	Position	YWS Project Manager

# AMENDMENT RECORD

issue	Date	Details of Changes	Checked	Approved
1				
2				
3				
4				



# TABLE OF CONTENTS

1	INTRODUCTION	
2 3 4 4.1	MGJV ASSET INSPECTION REPORT WEEKLY SITE INSPECTION AND REPORTING AS REQUIRED BY THE IPPC PERMIT TESTING AND INSPECTION AS REQUIRED BY THE IPPC PERMIT Testing Requirements	3 4
4.2	Site Operational Layout	4
4.3	IPPC Testing Requirements Table	6
5 6	TESTING AND REMEDIAL RECOMMENDATIONS WITHIN THE IPPC LIMIT	7
<b>7</b> 7.1	APPENDICES APPENDIX 1 – Sample of weekly site inspection records	
7.2	APPENDIX 2 –Ove Arup Testing Results Report April 2010	9



# 1 Introduction

Yorkshire Water Services (YWS) operate the Neiley Sludge Treatment Facility (STF) in accordance with the Integrated Pollution Prevention and Control (IPPC) permit number KP3536LL issued by the Environment Agency (EA) on the 16<sup>th</sup> March 2007.

The conditions of the IPPC permit state that the STF shall be operated in accordance with a management system, which identifies and minimises risks of pollution by regular inspection of above and below ground assets within the IPPC permit boundary. These inspections have been conducted by Morgan Sindall Grontmij Joint Venture (MGJV) for YW, in line with the generic testing methodology document W0001P3, issued by Ove Arup and Partners on the 4<sup>th</sup> November 2009

The content of this MGJV report has been produced in accordance with the procedures and recommended testing intervals set out in the Ove Arup document W0001P3. This report should be read in conjunction with the Ove Arup Testing Results Report, Appendix 2 and the conditions of the IPPC permit issued by the Environment Agency.

# 2 MGJV Asset Inspection Report

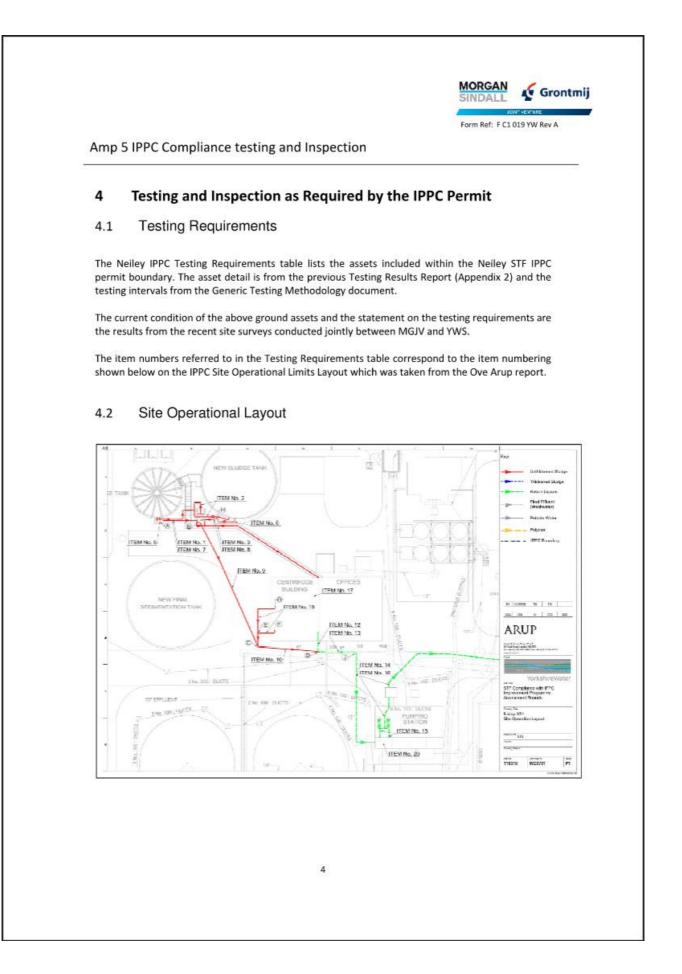
The Neiley STF was visited by MGJV on 15th January 2013. The integrity of the assets (Storage tanks, below and above ground pipes and sumps) assessed are those identified within the IPPC boundary limits shown on the site plan in section 4.1. YWS confirmed to the MGJV/YWS site visit that the IPPC boundary limits were correct and agreed with the EA. Only the assets within the IPPC boundary limits have been considered by this report.

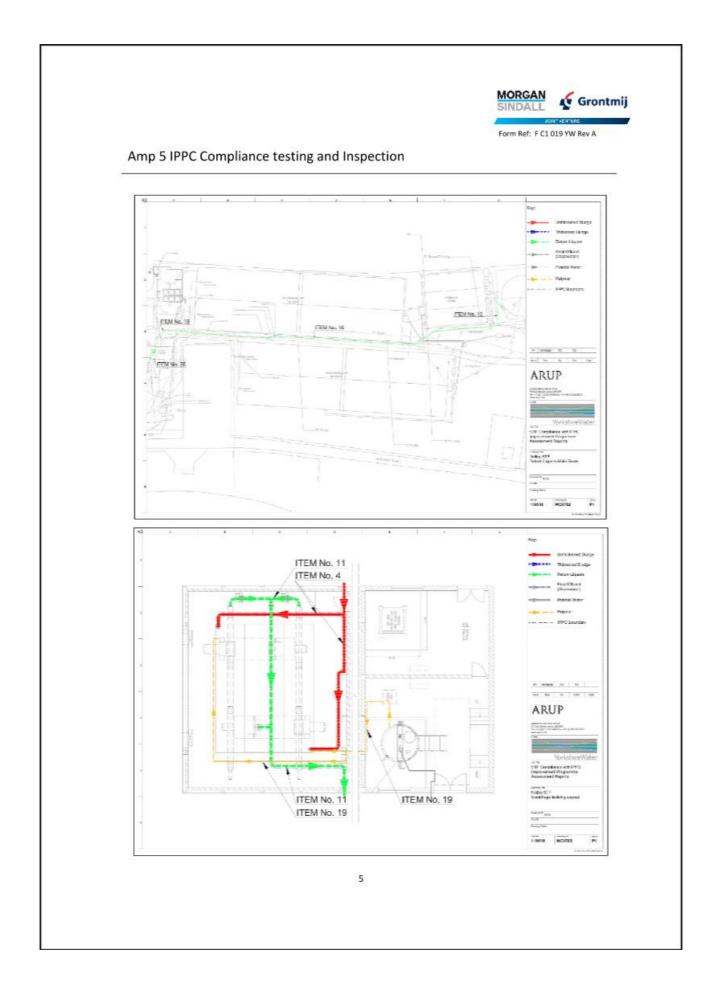
Previous tests at the Neiley STF were carried out by Ove Arup and Partners in December 2008.

MGJV has used the same asset/item numbering system as in these previous tests and has taken asset installation dates, life expectancy and condition at the time of these tests from the test report (Arup 2010). MGJV has accepted this information as a true record for the purposes of this report.

# 3 Weekly Site Inspection and Reporting as Required by the IPPC Permit

The site operator on a weekly basis visually inspects the above ground assets within the IPPC boundary and the results are recorded. Records are kept on site for inspection and were viewed during this site survey; a sample copy of the record is shown in Appendix 1.







# 4.3 IPPC Testing Requirements Table

# Neiley STF IPPC Testing Requirements

ltem No.	Description	Installe d	Asset life expiry	Testing interval (yrs.)		test 1 <sup>st</sup> to 3 <sup>rd</sup> er 2008 (Arup)	Date of next test	Current con inspection,	ndition, MGJV visual 15 <sup>th</sup> January 2013
			(Note 1)	(Note 2)	Result	Condition		Condition	Comment
1	Unthickened sludge pipeline from existing sludge tank to connection with new sludge tank pipework	2007	N/A	N/A	N/A	N/A	N/A	N/A	Asset removed from scope, before start of IPPC Boundary (Arup 2008)
2	Unthickened sludge pipeline from new sludge tank to sludge feed pumps	2007	N/A	N/A	N/A	N/A	N/A	N/A	Asset removed from scope, before start of IPPC Boundary (Arup 2008)
3	Unthickened sludge pipeline from sludge feed pumps into centrifuge building	2007	2067	10	N/A	N/A	November 2018	Good	Double contained pipe, above ground section lagged and trace heated, complies with IPPC design philosophy
4	Unthickened sludge pipeline inside the centrifuge building	2007	2067	10	Passed	Good	November 2018	Good	
5	Overflow from existing sludge tank to point A	2000	N/A	N/A	N/A		N/A	N/A	Asset removed from scope, before start of IPPC Boundary (Arup 2008)
6	Overflow from new sludge tank to point H	2007	N/A	N/A	N/A		N/A	N/A	Asset removed from scope, before start of IPPC Boundary (Arup 2008)
7	Sludge drain pipe from point A to point B	2000	N/A	N/A	N/A		N/A	N/A	Asset removed from scope, before start of IPPC Boundary (Arup 2008)
8	Sludge drain pipe from point H to point B	2007	N/A	N/A	N/A	Tested prior to takeover by YW (2007)	N/A	N/A	Asset removed from scope, before start of IPPC Boundary (Arup 2008)
9	Sludge drain pipe from point B to C	2000	2060	10	Passed	Satisfactory (Note 3)	March 2020	N/A	Below ground asset, not inspected
10	Sludge drain pipe from point B to C	1968	2028	10	Passed	Satisfactory (Note 3)	March 2020	N/A	Below ground asset, not inspected
11	Liquors line inside the centrifuge building	2007	2067	10	Passed	Good	November 2018	Good	Above ground stainless steel pipe within building
12	Liquors line from the centrifuge building to point D	2007	2067	10	Passed	Good	November 2018	Good	Above ground stainless steel pipe within building
13	Sludge/liquors drain pipe from point D to point J	1968	2028	10	Passed	Satisfactory (Note 3)	March 2020	N/A	Below ground asset, not inspected
14	Sludge/liquors drain pipe from point J to the pumping station wet well	1968	2028	10	Passed	Satisfactory (Note 3)	March 2020	N/A	Below ground asset, not inspected
15	Liquors line from the pumping station wet well to the pumps	2000	2067	10	Passed	Good	November 2018	Good	Within dry well



Form Ref: F C1 019 YW Rev A

Amp 5 IPPC Compliance testing and Inspection

ltem No.	Description	Installe d	Asset life expiry	Testing interval (yrs.)		test 1 <sup>st</sup> to 3 <sup>rd</sup> r 2008 (Arup)	Date of next test		ndition, MGJV visual 15 <sup>th</sup> January 2013
			(Note 1)	(Note 2)	Result	Condition		Condition	Comment
16	Liquors line from the pumping station pumps to the liquor return point at PST distribution chamber	2010	2070	10	Passed (Note 4)	Satisfactory, but with temporary installation	2020	Good	New pipe installed since last tests as part of IPPC improvement work
17	2 No sludge cake skips	N/A	N/A	N/A	Passed	Good	November 2018	Good	Concrete plinth drainage reported in good condition
18	Drainage pipe from sludge cake skips slab from point G and F to point C	1968	2028	10	Passed	Satisfactory (Note 3)	March 2010	N/A	Below ground asset, not inspected
19	Polymer line inside the centrifuge building from mixing tank to centrifuges	2007	2067	10	Passed	Good	November 2018	Good	25mm PVC pipe
20	Liquor return pumping station wet well	1968	2028	10	Passed	Good	November 2018	N/A	Below ground asset, not inspected
Note 2 Note 2 Note 3	2 Testing interval recomm	nended in			hodology,	Arup 2009			

Note 4 Re-tested by Arups in March 2010 after repairs, subsequently new pipe installed in 2010 by YW to BAT standard

#### 5 **Testing and Remedial Recommendations within the IPPC Limit**

All of the above ground assets within the IPPC boundary were visually inspected by the MGJV/YWS team during the site inspection visit of 15<sup>th</sup> January 2013.

All of the above ground assets inspected within the IPPC boundary remain in good operational condition and as such no further testing is required until the recommended re-test date indicated in the table in Section 4.3.

#### 6 Conclusions

The visual inspection of above ground assets did not reveal any significant defects.

Using the test result information provided in the Ove Arup report dated 22<sup>nd</sup> April 2010 and the methodology of the generic testing procedure, this report suggests no testing of assets within the IPPC boundary is required until the recommended re-testing date, which in the case of Neiley STF is November 2018.

YW has installed a new liquors return pipe (Item 16) in 2010 to BAT standard and this does not require re-testing until 2020. Furthermore, new concrete pads are currently under construction to improve drainage from the sludge cake skips.



# 7 Appendices

7.1 APPENDIX 1 - Sample of weekly site inspection records

<text><text><text></text></text></text>	Week Commencing:         7/1/13           Immendiation of synamic and point o	Week Commencing         7/1/13           Intel®         Intel®         Commencing         7/1/13           Intel®         Intel®         Commencing         7/1/13           Vectors content and ay some recomposition to each and a some comparison         5/2         Intel®         Commencing           Vocation         Some         5/2         Intel®         Commencing         Intel®           Vocation         Some         5/2         Intel®         Some         Intel®         I	Week Communiting     7/1/13       Immunities of additional and additional additionadditional additional additionadditional additionaddition	A	- 1000	2	
Week Commencing         7/1/13           Imm         Initial commencing         7/1/13           Imm         Initial commencing         Initial commencing         Initial commencing           Imm         Initial commencing         Initial commencing         Initial commencing         Initial commencing           Imm         Initial commencing         Initial commencing         Initial commencing         Initial commencing         Initial commencing           Imm         Initial commencing         Initial commen	Week Commencing:         7/1/13           Immendiation of synamic and point o	Week Commencing         7/1/13           Intel®         Intel®         Commencing         7/1/13           Intel®         Intel®         Commencing         7/1/13           Vectors content and ay some recomposition to each and a some comparison         5/2         Intel®         Commencing           Vocation         Some         5/2         Intel®         Commencing         Intel®           Vocation         Some         5/2         Intel®         Some         Intel®         I	Week Communiting     7/1/13       Immunities of additional and additional additionadditional additional additionadditional additionaddition	Carlot and the second s	1		
Week Commencing         7/1/13           Imm         Initial commencing         7/1/13           Imm         Initial commencing         Initial commencing         Initial commencing           Imm         Initial commencing         Initial commencing         Initial commencing         Initial commencing           Imm         Initial commencing         Initial commencing         Initial commencing         Initial commencing         Initial commencing           Imm         Initial commencing         Initial commen	Week Commencing:         7/1/13           Immendiation of synamic and point o	Week Commencing         7/1/13           Intel®         Intel®         Commencing         7/1/13           Intel®         Intel®         Commencing         7/1/13           Vectors content and ay some recomposition to each and a some comparison         5/2         Intel®         Commencing           Vocation         Some         5/2         Intel®         Commencing         Intel®           Vocation         Some         5/2         Intel®         Some         Intel®         I	Week Communiting     7/1/13       Immunities of additional and additional additionadditional additional additionadditional additionaddition				
Week Commencing         7/1/13           Imm         Initial commencing         7/1/13           Imm         Initial commencing         Initial commencing         Initial commencing           Imm         Initial commencing         Initial commencing         Initial commencing         Initial commencing           Imm         Initial commencing         Initial commencing         Initial commencing         Initial commencing         Initial commencing           Imm         Initial commencing         Initial commen	Week Commencing:         7/1/13           Immendiation of synamic and point o	Week Commencing         7/1/13           Intel®         Intel®         Commencing         7/1/13           Intel®         Intel®         Commencing         7/1/13           Vectors content and ay some recomposition to each and a some comparison         5/2         Intel®         Commencing           Vocation         Some         5/2         Intel®         Commencing         Intel®           Vocation         Some         5/2         Intel®         Some         Intel®         I	Week Communiting     7/1/13       Immunities of additional and additional additionadditional additional additionadditional additionaddition				-
Week Commencing         7/1/13           Imm         Initial commencing         7/1/13           Imm         Initial commencing         Initial commencing         Initial commencing           Imm         Initial commencing         Initial commencing         Initial commencing         Initial commencing           Imm         Initial commencing         Initial commencing         Initial commencing         Initial commencing         Initial commencing           Imm         Initial commencing         Initial commen	Week Commencing:         7/1/13           Immendiation of synamic and point o	Week Commencing         7/1/1-3           Image Company         Intel <sup>®</sup> Comments         Comments         Comments         Comments           Vectors         Comments         So         Comments         Comments         Comments           Vectors         Comments         So         Comments         Comments         Comments           Vectors         Non-         So         Comments         Comm	Week Communiting     7/1/13       Immunities of additional and additional additionadditional additional additionadditional additionaddition	AND THE REAL PROPERTY OF		No. PROTOCILI	CO. ITALIAN CO.
Item:         Index         Index <th< td=""><td>Name         Initial         <thinitial< th=""> <thinitial< th=""> <thinit< td=""><td>Item:         Initial         Contractings         Authors Tarked         Class Coll.           Process Collsyster are recorded polytical sciences traction polytical polytical sciences         50         51         51           Politic State of the science sciences traction polytical polytical sciences         50         51         51           Politic State of the science sciences         500         50         51         51           Politic State of the science sciences         500         50         51         51           Process Coll science sciences         500         50         51         51           Process Tarkets         500         50         51         51         51           Process Tarkets         500         50         51         51         51           Process Tarkets         500         50         51         51         51         51           Process Tarkets         500         50         51         <t< td=""><td>Intel         Intel         Contraction         Automatic         Contract Pattern           Processor Controls - and recourse intelling patients controls intelling patients controls intelling patients         50         Intelling patients         Intelling patients           Control of patients         50         Intelling patients         50         Intelling patients           Patients of patients         50         Intelling patients         50         Intelling patients           Patient of patients         50         Intelling patients         50         Intelling patients         Intelling patients</td><td>Facility: Nelley</td><td></td><td></td><td></td></t<></td></thinit<></thinitial<></thinitial<></td></th<>	Name         Initial         Initial <thinitial< th=""> <thinitial< th=""> <thinit< td=""><td>Item:         Initial         Contractings         Authors Tarked         Class Coll.           Process Collsyster are recorded polytical sciences traction polytical polytical sciences         50         51         51           Politic State of the science sciences traction polytical polytical sciences         50         51         51           Politic State of the science sciences         500         50         51         51           Politic State of the science sciences         500         50         51         51           Process Coll science sciences         500         50         51         51           Process Tarkets         500         50         51         51         51           Process Tarkets         500         50         51         51         51           Process Tarkets         500         50         51         51         51         51           Process Tarkets         500         50         51         <t< td=""><td>Intel         Intel         Contraction         Automatic         Contract Pattern           Processor Controls - and recourse intelling patients controls intelling patients controls intelling patients         50         Intelling patients         Intelling patients           Control of patients         50         Intelling patients         50         Intelling patients           Patients of patients         50         Intelling patients         50         Intelling patients           Patient of patients         50         Intelling patients         50         Intelling patients         Intelling patients</td><td>Facility: Nelley</td><td></td><td></td><td></td></t<></td></thinit<></thinitial<></thinitial<>	Item:         Initial         Contractings         Authors Tarked         Class Coll.           Process Collsyster are recorded polytical sciences traction polytical polytical sciences         50         51         51           Politic State of the science sciences traction polytical polytical sciences         50         51         51           Politic State of the science sciences         500         50         51         51           Politic State of the science sciences         500         50         51         51           Process Coll science sciences         500         50         51         51           Process Tarkets         500         50         51         51         51           Process Tarkets         500         50         51         51         51           Process Tarkets         500         50         51         51         51         51           Process Tarkets         500         50         51 <t< td=""><td>Intel         Intel         Contraction         Automatic         Contract Pattern           Processor Controls - and recourse intelling patients controls intelling patients controls intelling patients         50         Intelling patients         Intelling patients           Control of patients         50         Intelling patients         50         Intelling patients           Patients of patients         50         Intelling patients         50         Intelling patients           Patient of patients         50         Intelling patients         50         Intelling patients         Intelling patients</td><td>Facility: Nelley</td><td></td><td></td><td></td></t<>	Intel         Intel         Contraction         Automatic         Contract Pattern           Processor Controls - and recourse intelling patients controls intelling patients controls intelling patients         50         Intelling patients         Intelling patients           Control of patients         50         Intelling patients         50         Intelling patients           Patients of patients         50         Intelling patients         50         Intelling patients           Patient of patients         50         Intelling patients         50         Intelling patients	Facility: Nelley			
Presenta Constant of systems     resource State     resource	Thereins Controls are another	Tremento Costante et degramante recurrence Costante apologname Costante et degramante recurrence treated parter Costante costante apologname Costante Costa	Construction of the degree of the sectors of the sectors of the degree of the sectors of th				
location installe delay activity     location installe delay activity     Constraint installed     Constraint installed delay activity     Constraint installed     Constraint     Constraint installed	lecuros inde en en solution     lecuros inde en en solution     Catalar Tablan control     Catalar Tablances     Catalar Tablan	recurso institute delay software     Software Street Software     Software Software     Software Software     Software Software     Software Software     So	Accords Analysis adverses     Accords Analysis adverses     Accords Analysis adverses     Accords Analysis     Accords	Deeperson Constructs - and	lineal Comments	Artuna Takeu	Ciuse Cut
explore in core, and     Non       Noise::::::::::::::::::::::::::::::::::::	cyclemin in uses, anv     cyclemin in u	contraining and an and a second a	available     Non-       Acciss     may sumpliants       Acciss     may summarize       Acciss     may summarize <td>volumes toolod, polymer</td> <td>27</td> <td></td> <td></td>	volumes toolod, polymer	27		
Nota::::::::::::::::::::::::::::::::::::	Notice     and semplaints       Period Control - and lessee     Sol       and law, rate, law, law, law, law, law, law, law, law	Notas     any seamplaints       Perst Curitod - atty issues     any       with first, atty, income     any       bit atty is seamplaints     any       incord atty issues     any       incord attry issues     any       incord attry issues     any       incord attry issues     any       incord attry issues     any       incord attribution     attribution	Violan     Anny sumplanita       Pinci Control:     any language       Violan     any language       Violan     any language       Violan     any language       Provide Status     any language    <	Sdour Odeur control			-
Pend Curitod - any lossee with this, rost, store Goouthy Buildents Innon and gaths, testane rostenity Maintent Ranco and the store and the store rostenity Maintent Ranco and the store and the store and the store and the store and the store and the store and the store and the store and the store and the store and the store and the store and the store and the store	Pent Curintal - airs beave with their, rate, three Goounty Buildworks france and gates recurs. any incodent Programming and the second and any and maintenance and any angle and any angle angle and any angle angle and any angle an	Pent Curitod - any bases with flas, rate, since Constity Politotes Fance bind gates searce, any moderney Mannessmer and partice searce, any moderney Mannessmer and partice searce, any moderney Mannessmer and partice searce, any moderney Mannessmer bunds with and searce bunds with and searce bunds with any Searce Sol Thereson and any Searce Sol Thereson and any Searce Sol moderney Manness Mannessmer Heading Manness Mannessmer Heading Manness Mannessmer Heading Manness Mannessmer Heading Manness Heading Manness Mannessmer Heading Manness Mannessmer Heading Manness Mannessmer Heading Manness Mannessmer	Pend Control - any loave     SS       exth Res. rate     SS       Boold To the sector - any loave     SS       and gates research any     SS       and maintenance     SS       function of damage/ loads	combrance.	22		
Perin Curintot and Joseph Socie Society Societ	Pent Cluintot and any became soo Scouthy Fouldworks force and parts any soo Provide the soon and soon any soo Prove Cluberboursetter record for enable and stane Force Cluberboursetter record cluberboursetter Force Force	Pent Control - any losume extintes, rate, rate, lose providity - Realization Renner provide and the state - state for the state of the state for the state of the state for the state of the state providence of state angle - state providence of state - state - state - state - state - state providence of state - state	Period Control - and classime       edit Trans, rate, rates       Consulty, Feedback Rance       Consulty, Feedback Rance       Consulty, Feedback Rance       Projectors of Oresholdware, rangest       and participation of Consult Consults       Feedback Rance       Consulty, Feedback Rance       Consulty, Feedback Rance       Projectors of Oresholdware, rangest       Consulty, Feedback Rance       Consult, Feedback Rance       Consult, Feedback Rance       Consult, Feedback Rance       Consult, Consult, Consult, Rance       Consult, Rance, Consult, Rance       Consult, Consult, Rance       Consult, Rance, Rance       Consult, Consult, Rance       Consult, Consult, Rance       Consult, Rance, Rance       Consult, Consult, Rance       Consult, Rance       Consult, Rance       Consult, Rance       Consult, Rance       Consult, Rance	Woltin may pumplaints	55		
Indigense secure any     incoderse     incoderse secure any     incoderse     incoderse formation     incoderse formation     incoderse formation     incoderse formation     incoderse formation     incoderse formation     incoderse     incoderse formation     incoderse     inc			And gate, excert, and      And and excert, and      And and excert, and      And excert, and      And excert, and      And excert and	Pent Control - any Issues with thes, rate, birds			
Triptensing Watermanner  Triptensing Waterman	Triptensing Watermanner  Triptensing Waterman	Triptensing Watermanner  Triptensing Waterman	Engineering Materiality and Engineering Solutions Solutions (Solution Solution) (Solution Solution) (Solution)	and gates secure, any	and the second sec	-	
ecid Disektown, repare     end marken, repare     Eurol curl Chemisel Storage     Eurol curl Chemisel Storage     Eurol curl chemisel Storage     Eurol curl curl curl curl     Eurol curl     except and status     There and values no     except and values     for the value     for the value     for the value     for the value     for the values no     except and values no     except and values     for the value     for the value     for the value of the no     except and value     for the value of the no     except and value     except and value     except and value     for the value     for	ecid Disektown, repare     end marken, repare     Eurol curl Chemisel Storage     Eurol curl Chemisel Storage     Eurol curl chemisel Storage     Eurol curl curl curl curl     Eurol curl     except and status     There and values no     except and values     for the value     for the value     for the value     for the value     for the values no     except and values no     except and values     for the value     for the value     for the value of the no     except and value     for the value of the no     except and value     except and value     except and value     for the value     for	ecid Disektown, repare     end marken, repare     Eurol curl Chemisel Storage     Eurol curl Chemisel Storage     Eurol curl chemisel Storage     Eurol curl curl curl curl     Eurol curl     except and status     There and values no     except and values     for the value     for the value     for the value     for the value     for the values no     except and values no     except and values     for the value     for the value     for the value of the no     except and value     for the value of the no     except and value     except and value     except and value     for the value     for	veccrd breakdyown, respect     and manifermatics.     Every Cirl Concernant scorege     Every Cirl Concernant score		22		-
Fund of Chromosystem     50       Fund of Chromo	Form Corr Characterial Statenges     Endole worthy and staten     Tamos - node interest, into     rotytement statenges     So     Presenter at annages     So     Presenter at annages     So     Presenter at annages     So     Presenter	Form Corr Characterial Statenges     Endole worthy and staten     Tamos - node interest, into     rotytement statenges     So     Presenter at annages     So     Presenter at annages     So     Presenter at annages     So     Presenter     Presenter     So     Presenter     Pr	Func Cirl Connection Sciences     Func Cirl Connection Sciences     Func Cirl Connection Sciences     Func Cirl Circles Sciences     Func Circles Sciences     Connection of demographics Science     Connection of demographics     Func Circles     Connection Circles     Connection     Co	record breekdowns, repairs and maintenance	55		
Terror and values and solutions of terrors of the solutions of the solutio	Terror and you have the set of th	Terror and you have the set of th	Tensors - note hereth, 100 coverses of demago/ looks 50 Antensors and values - 100 auditobic of demago/ looks 50 Antensors - Doese A generative significant demago - 50 Antensors - Doese A generative Antensors - Doese A generative - Doese A genera	Family Citit Charmonal Scanage -			
contraction in diamage feels     contraction     contract	control of animage feature     control of animage	control of animage feature     control of animage	contract the set of the set		0.2		-
evidence of damager leaks     So     evidence of damager leaks     So     evidence of damager leaks     So     evidence     or search of an evidence     evi	evidence of damage leaks     So     evidence of damage leaks     So     evidence of damage leaks     evidence of the second second     evidence of the second second     evidence	evidence of damage leaks     So     evidence of damage leaks     So     evidence of damage leaks     evidence of the second second     evidence of the second second     evidence	evidence): of earnings/ leads      So     evidence(): of earnings/ leads     So     evidence(): of earlier(): any     evidence(): of earlier(): any     evidence(): of earlier(): any     for earlier(): of earlier(): any     evidence(): any	evidence of damage/ leaks	22	-	
equilibroit demose SO Draining - no benching mitter class and buy, any woods toeking depose teeding depose teed	equilibroit demose SO Draining - no benchron some cover not by any wood some tweeting depose treeding depose treeding depose treeding of the solution cover not by any wood so	equilibroit demose SO Draining - no benchron some cover not by any wood some tweeting depose treeding depose treeding depose treeding of the solution cover not by any wood so	auguntunot damager 300 Draffinger, frei Spanking mitter ohen and Susan Househand blog, myr vesse heeding disposal Aremonity of Timblenia - teren and sprintlenia -	widened of damage/ leaks	50		
Dialitado no baselleg senter viene end datal Househending – is the bila clean and bily, any vessel needing reference Accessents of Independer Accessents of Independer report wheody them reveal	Dialitado no baselleg senter viene end datal Househending – is the bila clean and bily, any vessel needing reference Accessents of Independer Accessents of Independer report wheody them reveal	Dialitado no baselleg senter viene end datal Househending – is the bila clean and bily, any vessel needing reference Accessents of Independer Accessents of Independer report wheody them reveal	Dialings' no standing water View and Stant Sign Insuesheeping - is the ultime clean and big, say wooke Reading disposed Accessed to Dialing - is record Begrood Accessed to Dialing - is record begrood record begrood Accessed to Dialing - is record begrood record begrood record begrood Sign - is record begrood record begrood record record begrood record begrood reco	Harmstanging - diaan, any significant demege	20		
Houseknepting - is the ultim clean and bidy, any weake Reducting disposal Accessents of Indicates Accessents of Indicates Accessents of Indicates Report already termin raised States Sta	Hussekweping - is the ultim class As bity, say waske heading disposal /contents as tradicity - record back details, nes report already termin raised	Hussekweping - is the ultim class As bity, say waske heading disposal /contents as tradicity - record back details, nes report already termin raised	Housekenning - is the ultimeters of the second seco	Drainings - no standing writter			-
Clean dod toy, any vessele needing disposed Accelerate of Indiana State Frequent black defails, team report attestop termin raised	Chain and My, any vessele newling deposes Amments of Indicens - record lakes details, ten motor attestity treen raised	Chain and My, any vessele neukling deposes Ammenta se tradicina se- record takes detratis, ten motor atressity treen raiseut	Acceleration and May, and yearship		22		
Accessions or Intellection - response based detailst. Inten motors altroactly therein raises	Accelerate of a product by a second s	Accelerate of a product by a second s	Accelerate of Endologies - Tregorie Baloro details. Ann minor altready them failured	ichian and tidy, any weste	55		-
Import aneady trian raised	Import aneady hear raised	Import aneady hear raised	Infort aneady trian raised	Accestents or Incidents			-
Commenta	Comments	Commenta	Cammenta	mport sheady teen racesd	50		-
				Comments	Annual and a second sec		
				12			1
				1,			

		MORGAN SINDALL Gront
A		Form Ref: F C1 019 YW Rev A
Amp	5 IPPC Compliance testing and Inspection	
7.2	APPENDIX 2 – Ove Arup Testing Results Rep	port April 2010
	9	

STF Compliance with IPPC Improvement Programme

Neiley STF Testing Results Reports

## STF Compliance with IPPC Improvement Programme

Neiley STF Testing Results Reports

April 2010

This report takes into account the particular instructions and requirements of our client. It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party

Job number 125547-00

Ove Arup & Partners Ltd Admiral House, Rose Wharf, 78 East Street, Leeds LS9 8EE Tel +44 (0)113 2428498 Fax +44 (0)113 2428573 www.arup.com

Job title		STF Complia	ance with IPPC Improven	ient Programme	Job number		
					125547-00		
Document	title	Neiley STF 1	Festing Results Reports		File reference		
Document	ref	125547-00-1	NE-R-01				
Revision	Date	Filename	0001Neiley Results R	eport Draft.doc			
Draft 1	29/06/09	Description	First draft				
			Prepared by	Checked by	Approved by		
		Name	Richard Whiteley	Peter Caldwell	Justin Abbott		
		Signature					
-	-						
Issue	03/07/09	Filename		eport Issue Version.doc			
		Description	General amendments	for issue version			
			Prepared by	Checked by	Approved by		
		Name	Richard Whiteley	Peter Caldwell	Justin Abbott		
		Signature					
Issue 2	28/04/10	Filename	0003Neiley Results Report Issue Version 2.doc				
		Description		npletion of remedial works			
			Prepared by	Checked by	Approved by		
		Name	Richard Whiteley	Peter Caldwell	Justin Abbott		
		Signature	Ethat	P. Caldwell	ANDA		
		Filename					
		Description					
			Prepared by	Checked by	Approved by		
		Name					
		Signature					
				Issue Document Ven	fication with Document		

STF Compliance with IPPC Improvement Programme Neiley STF Testing Results Reports

# Contents

			Page			
1	Background					
2	Statement on report					
3	Testing procedure					
4	Testing summary					
5	Testing Results					
	5.1	Unthickened sludge pipework to dewatering plant	2			
	5.2	Sludge tank overflow pipes	2			
	5.3	Sludge drainage lines	2			
	5.4	Return liquor line from above ground pipework to return liquors wet well	3			
	5.5 Return liquors suction main from return liquor pumping station wet well t return pumps.					
	5.6 Return liquors rising main from liquor return pumping station to liquor return poin at PST distribution chamber.					
	5.7	Sludge cake skips	4			
	5.8	Sludge drainage lines	5			
	5.9	Polymer dosing equipment	5			
	5.10	Liquor return pumping station wet well	5			
6	Remedial works					
7	Physical condition and statement on integrity of assets					
8	Conclusion and recommendation					

# Appendices

Appendix A Layout drawings Appendix B Testing Record Sheets Appendix C Initial CCTV Report Appendix D Remedial CCTV Report

J.1125000/125547-00/0 ARUP/0-12 WATER/0-12-8 REPORTS/RESULTS REPORTS/WEILEY/00/3/NEILEY RESULTS REPORT ISSUE VERSION 2. DOC 125547-00-NE-R-01

STF Compliance with IPPC Improvement Programme Neiley STF Testing Results Reports

#### 1 Background

Ove Arup and Partners Ltd (Arup) have been appointed by Yorkshire Water Services Ltd (YWS), to carry out an assessment of integrity of assets (tanks, surface pipes, subsurface pipes and sumps) for 12 YWS Sludge Treatment Facilities (STF) that are under IPPC Permit.

The output of the project is to produce reports identifying:

- 1. The physical condition of each asset
- 2. Statement on integrity of each asset
- 3. Recommended inspection programme based on 1 and 2

This report has been produced for the Neiley Sludge Treatment Facility, several drawings showing the assets and site layout are presented in Appendix A.

This report comprises the results from the testing of assets and should be read in conjunction with the method of work report.

### 2 Statement on report

The report has been prepared by Peter Caldwell BSc(Hons) CEng MICE MCIWEM.

Arup are not able to provide a guarantee on the duration of integrity of assets. An assessment of asset integrity based on asset records, specified design life, inspection and results of testing is provided in section 7.

The year of construction of assets provided in the report has been obtained from the Yorkshire Water Asset Data Base – Electronic Data Management System (EDMS). The accuracy and completeness of these records has not been verified by Arup.

# 3 Testing procedure

A generic testing methodology for all assets at the sites has been developed based on the Civil Engineering Specification for the Water Industry and the Yorkshire Water Engineering Specification. This has been used as a basis for testing the assets at Neiley STF. The testing of these assets took place over three days between the 1<sup>st</sup> and 3<sup>rd</sup> of December 2008. Repairs have been undertaken on assets that failed the testing regime in March 2010.

#### 4 Testing summary

The integrity testing at Neiley SFT was undertaken in accordance with the generic testing methodology document. The asset/item numbering system relates to the process sequence. This sequence also follows the method of work report for Neiley STF. The testing period for this site was three days, with further visits back to site to undertake remedial works on the liquors rising main and drainage pipes.

STF Compliance with IPPC Improvement Programme Nelley STF Testing Results Reports

### 5 Testing Results

#### 5.1 Unthickened sludge pipework to dewatering plant

Item No. 1 and 2 on drawing No. WC0701. The pipework from the unthickened sludge tanks to the sludge dewatering feed pumps has not been tested as it is located before the start of the IPPC boundary.

Item No. 3 on drawing WC0701. This pipework conveys sludge from the feed pumps to the dewatering equipment. The pipework complies with IPPC design principals as it has double containment. In addition the pipe is of recent construction (2007) and will have been tested prior to be taken over by YWS. Therefore the pipe was not tested.

Item No 4 on drawing WC0703. This item is a continuation of item 3 from the point the pipe emerges above ground. The pipework is above ground and a visual inspection was carried

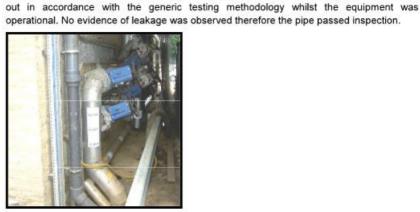


Photo showing unthickened sludge pipe item 4

#### 5.2 Sludge tank overflow pipes

**Item No 5 and 6 on drawing WC0701.** The pipework has not been tested as it is located before the start of the IPPC boundary. However a general observation of the area revealed that there is no evidence of leakage from these two pipes.

#### 5.3 Sludge drainage lines

Item No. 7 and 8 on drawing No. WC0701. The pipework has not been tested as it is located before the start of the IPPC boundary. In addition item 8 is of recent construction (2007) and will have been tested prior to being taken over by YWS.

Item No. 9 on drawing No. WC0701. This section of pipe runs from the unthickened sludge storage tanks point B to the manhole at point C on the drawing. When in use the pipe allows unthickened sludge to be returned into the process via the return liquors wet well. The pipe is a non-pressure pipeline and was therefore inspected by means of a CCTV survey. The first survey undertaken revealed two open joints and one displaced joint. Remedial works were undertaken to repair these defects in March 2010.

A second CCTV was undertaken following the remedial works. The pipe passed this inspection as no Grade 3, 4 or 5 defects were recorded.

A copy of the CCTV survey report can be found in appendix D.

J:11250001125547-00/0 ARUPI0-12 WATER/0-12-8 REPORTS/RESULTS Page 2 REPORTS/WEILEY/0003NEILEY RESULTS REPORT ISSUE VERSION 2 DOC 125547-00-NE-R-01

Item No. 10 on drawing No. WC0701. This section of pipe runs from the manhole at point C to the manhole at point D on the drawing. When in use the pipe allows unthickened sludge to be returned into the process via the return liquors wet well. The pipe is a non-pressure pipeline and was therefore inspected by means of a CCTV survey.

The first survey undertaken revealed significant encrustation on the internal surface of the pipe, which made it difficult to confirm the integrity of the pipe.

A second CCTV was undertaken following a thorough cleaning of the pipe using a flail. The pipe passed this inspection as no Grade 3, 4 or 5 defects were recorded.

A copy of the CCTV survey report can be found in appendix D.

# 5.4 Return liquor line from above ground pipework to return liquors wet well

Item No. 11 on drawing No. WC0703. The pipework drains the liquors from the centrifuge to the external drainage system. The pipe is above ground and has therefore been tested by means of a visual inspection in accordance with the generic testing methodology during operation of the dewatering equipment. There was no evidence of leakage therefore the pipe passed the inspection.



Photo showing liquor pipework leaving the building entering the drainage system

Item No. 12 on drawing No. WC0701. The pipework drains the liquors from the centrifuge to the external drainage system. The pipe is of recent construction (2007) and will have been tested as part of the construction process, therefore the pipe was not tested this time.

Item No. 13 and 14 on drawing No. WC0701. This pipework contains dewatered sludge liquors and unthickened sludges which return to the liquors wet well. The pipes are non-pressure pipes and were therefore tested by means of a CCTV survey. A copy of the report can be found in appendix C.

Item 13 runs from the manhole at point D to the manhole at point J. This pipe passed the inspection as only minor encrustation classed as service defects were recorded and no structural or construction defects were recorded.

Item 14 runs from the manhole at point J to the liquors return wet well. The pipe is a nonpressure pipeline and was therefore inspected by means of a CCTV survey.

The first survey undertaken revealed significant encrustation on the internal surface of the pipe, which made it difficult to confirm the integrity of the pipe.

A second CCTV was undertaken following a thorough cleaning of the pipe using a flail. The pipe passed this inspection as no Grade 3, 4 or 5 defects were recorded.

A copy of the CCTV survey report can be found in appendix D.

Jx125000/125547-00/0 ARUPI0-12 WATERIO-12-8 REPORTSIRESULTS Page 3 REPORTSWEILEY/0003NEILEY RESULTS REPORT ISSUE VERSION 2.DOC 125547-00-NE-R-01

STF Compliance with IPPC Improvement Programme Neiley STF Testing Results Reports

# 5.5 Return liquors suction main from return liquor pumping station wet well to liquor return pumps.

Item No. 15 on drawing No. WC0701. The short section of pipe from the return liquors wet well to the return liquor pumps was visually inspected whilst the system was operational. There was no evidence of any leakage therefore the pipe passed the test.

#### 5.6 Return liquors rising main from liquor return pumping station to liquor return point at PST distribution chamber.

Item No. 16 on drawing no. WC0701 and WC0702. The rising main could not be isolated at the upstream end where it enters the PST distribution chamber so a valve was fitted to the pipe to enable a pressure test to be undertaken. To do this a live installation had to take place by freezing the pipe and fitting the new valve.



Photo showing new valve installation at the upstream end of the rising main

As the pipe is a rising main a pressure test was undertaken on this pipe as described in the generic testing methodology. The pipe failed the pressure test. The results of the test are presented on sheet B2 in appendix B.

After pressurising the pipe to near 3 Bar there was a steady decrease in pressure and a residual pressure of 0.79Bar was reached after a period of 40 minutes.

At a later a date a re-test was attempted on this line by removing a section of pipe in the pumping well to eliminate any old valves that might not be sealing correctly. The test produced similar results to the first attempt.

The existing arrangements have now been replaced with an alternative above ground pipework installation. See section 6 for details.

#### 5.7 Sludge cake skips

Item No. 17 on drawing No. WC0701. The sludge cake skips receive the dewatered sludge, they are changed on a regular basis. The skips on site at the time of inspection were fit for purpose.

J/125000/125547-00/0 ARUP/9-12 WATERIO-12-8 REPORTS/RESULTS REPORTS/WEILEY/0003/NEILEY RESULTS REPORT ISSUE VERSION 2.DOC 125547-00-NE-R-01

STF Compliance with IPPC Improvement Programme Neiley STF Testing Results Reports

#### 5.8 Sludge drainage lines

Item No. 18 on drawing No. WC0701. The drainage pipework was tested as a nonpressure pipe as described in the generic testing methodology. The first survey revealed severe encrustation on the internal surface of the pipe, which meant that the CCTV camera could not travel further than one metre along the pipe.

A second CCTV was undertaken following a thorough cleaning of the pipe using a flail. The pipe passed this inspection as no Grade 3, 4 or 5 defects were recorded.

A copy of the CCTV survey report can be found in appendix D.

#### 5.9 Polymer dosing equipment

Item No 19 on drawing No. WC0703. The polymer dosing equipment is located inside the centrifuge building and is contained in a bunded area. The installation was tested as above ground pipework as described in the generic testing methodology. There was no sign of any leakage on the dosing system. The equipment passed the test.



Photos showing new polymer dosing equipment

#### 5.10 Liquor return pumping station wet well

Item No. 20 on drawing No. WC0701. The wet well was isolated and cleaned out in preparation for testing. The wet well was filled to the test level and left overnight to allow absorption to occur. A drop test was conducted during which only 1mm of water depth was lost, the results of the test are recorded on sheet B1 in appendix B. The wet well passed the drop test.



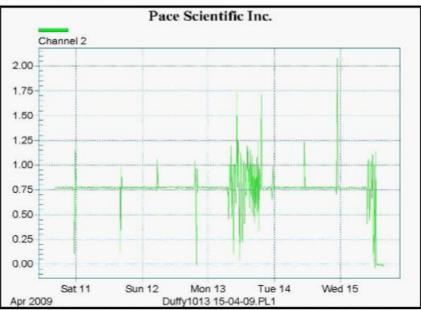
Photo showing drop test measurements being taken at the wet well

J/125000/125547-00/0 ARUP/0-12 WATER/0-12-8 REPORTS/RESULTS REPORTS/RELEV/00039/REILEY RESULTS REPORT ISSUE VERSION 2.DOC 125547-00-NE-R-01

STF Compliance with IPPC Improvement Programme Nelley STF Testing Results Reports

### 6 Remedial works

Item No 16 the return liquors rising main failed the first water pressure test at 3 bar. Following this failure the test pressure requirements were questioned as it was believed that the test pressure was too high compared with the working pressure of the pipe. In order to confirm the working pressure of the pipe a pressure recorder was installed for five days, the pressure recorded can be seen in the graph below.



Graph showing liquor return rising main pressures during the April 2009 operating period

The constant pressure reading of 0.75 bar is the residual pressure of the water in the pipe due to the hydrostatic head above the pumps. The troughs that appear on the graph show a vacuum effect when the pumps turn over for the first cycle. This trough is followed by a peak which is the surge of liquor travelling through the pipe. From this graph it has been determined that the working pressure is approximately 1.0 bar.

A second pressure test was then carried out on this pipe at a test pressure of 1.75 bar which exceeds the requirement of BS EN 805 to test pipes to 1.5 times the working pressure. This second pressure test also failed.

Due to the location of the pipe beneath the main site access road and the number of bends in existence, the most economic option is considered to be replacement of the pipeline. A temporary arrangement has been installed on site and is expected to be replaced by a permanent solution at the earliest opportunity.

The temporary solution comprises an above ground pipe and as such can be visually inspected. This pipe has been inspected after installation and no leakage was evident therefore the pipe passed the inspection.

It is recommended that this item be placed in the improvement programme as described in table 7 of section 3.3 of the generic testing methodology document, with a test return period of 1 year.

J:11250001125547-00/0 ARUPI0-12 WATER/0-12-8 REPORTS/RESULTS Page 6 REPORTS/WEILEY/0003NEILEY RESULTS REPORT ISSUE VERSION 2 DOC 125547-00-NE-R-01

STF Compliance with IPPC Improvement Programme Neiley STF Testing Results Reports



Photos showing replacement above ground pipework for the liquor rising main

J1125000125547-000 ARUPI0-12 WATERIO-12-8 REPORTS/RESULTS Page 7 REPORTS/RELEV/00039/RELEY RESULTS REPORT ISSUE VERSION 2.DOC 125447-00-R-R-01

STF Compliance with IPPC Improvement Programme Neiley STF Testing Results Reports

# 7 Physical condition and statement on integrity of assets

The following table provides an assessment of asset integrity based on asset records, inspection and results of testing.

The design asset lives were obtained from the Yorkshire Water Engineering Specification as follows:

Inter Process Pipe work (sewage) - 60 years

Operational Structures (concrete tanks) - 60 years

Operational Structures (metal tanks) - 30 years

Operational Structures (pumping stations) - 60 years

Process Plant E&M major items (P2 - dosing plant) - 20 years

Physical condition key:

Good - serviceable with little or no sign of deterioration

Satisfactory - serviceable showing signs of deterioration

Poor - remedial works required

ltem No.	Asset	Year constructed	Physical condition	Theoretical remaining asset life to asset replacement	Statement on Integrity
1	Unthickened sludge pipeline from existing sludge tank to connection with new sludge tank pipework	2007	N/A		Asset removed from scope as the pipe is before the start of the IPPC boundary.
2	Unthickened sludge pipeline from new sludge tank to sludge feed pumps	2007	N/A		Asset removed from scope as the pipe is before the start of the IPPC boundary.
3	Unthickened sludge pipeline from feed pumps into centrifuge building	2007	N/A		Asset has double containment and complies with IPPC design philosophy.
4	Unthickened sludge pipeline inside the centrifuge building	2007	Good	57 years	Asset integrity test passed. Asset to be retested in accordance with the Generic Testing Methodology return period.
5	Overflow from existing sludge tank to point A	2000	N/A		Asset removed from scope as the pipe is before the start of the IPPC boundary.

J/125000125547-000 ARUPIG-12 WATER/o-12-8 REPORTS/RESULTS Page 8 REPORTS/NEILE/V0003NEILEY RESULTS REPORT ISSUE VERSION 2.DOC 125547-00-R-R-01

STF Compliance with IPPC Improvement Programme Neiley STF Testing Results Reports

6	Overflow from new sludge tank	2007	N/A		Asset removed from scope as the pipe is before the start of
	to point H				the IPPC boundary.
7	Sludge drain pipe from point A to point B	2000	N/A		Asset removed from scope as the pipe is before the start of the IPPC boundary.
8	Sludge drain pipe from point H to point B	2007	N/A		Asset removed from scope as the pipe is before the start of the IPPC boundary.
9	Sludge drain pipe from point B to point C	2000	Satisfactory	50 years	Asset integrity test passed. Asset to be retested in accordance with the Generic Testing Methodology return period.
10	Sludge drain pipe from point C to point D	1968	Satisfactory	18 years	Asset integrity test passed. Asset to be retested in accordance with the Generic Testing Methodology return period.
11	Liquors line inside the centrifuge building	2007	Good	57 years	Asset integrity test passed. Asset to be retested in accordance with the Generic Testing Methodology return period.
12	Liquors line from the centrifuge building to point D	2007	Good	57 years	Asset integrity test not carried out due to recent construction and testing done at handover.
13	Sludge/liquors drain pipe from point D to point J	1968	Satisfactory	18 years	Asset integrity test passed. Asset to be retested in accordance with the Generic Testing Methodology return period.
14	Sludge/liquors drain pipe from point J to the pumping station wet well	1968	Satisfactory	18 years	Asset integrity test passed. Asset to be retested in accordance with the Generic Testing Methodology return period.
15	Liquors line from the pumping station wet well to the pumps	2000	Good	50 years	Asset integrity test passed. Asset to be retested in accordance with the Generic Testing Methodology return period.
16	Liquors line from the pumping station pumps to the liquor return point at PST distribution chamber	4968 2009	Satisfactory	Temporary installation in place. To be reviewed as part of the improvement programme.	Asset integrity test passed. Arrangement of alternative above ground pipework to be replaced at the earliest opportunity. A new rising main is required.
17	2 No. Sludge cake skips	N/A	Good	N/A	Asset integrity test passed. Asset to be retested in accordance with the Generic Testing Methodology return period.
18	Drainage pipe from sludge cake skips slab: from point G and F to point C	1968	Satisfactory	18 years	Asset integrity test passed. Asset to be retested in accordance with the Generic Testing Methodology return period.

J3125000125547-0010 ARUP10-12 WATERIO-12-8 REPORTSIRESULTS Page 9 REPORTSINELLEY 0003NELLEY RESULTS REPORT ISSUE VERSION 2.DOC 125547-00-NE-R-01

STF Compliance with IPPC Improvement Programme Neiley STF Testing Results Reports

19	Polymer line inside the centrifuge building from mixing tank to centrifuges	2007	Good	57 years	Asset integrity test passed. Asset to be retested in accordance with the Generic Testing Methodology return period.
20	Liquor return pumping station wet well	1968	Good	18 years	Asset integrity test passed. Asset to be retested in accordance with the Generic Testing Methodology return period.

J1125000125547-0010 ARUP10-12 WATERIO-12-8 REPORTSIRESULTS Page 10 REPORTSINELLEY 0003NELLEY RESULTS REPORT ISSUE VERSION 2.DOC 125547-00-NE-R-01

STF Compliance with IPPC Improvement Programme Neiley STF Testing Results Reports

## 8 Conclusion and recommendation

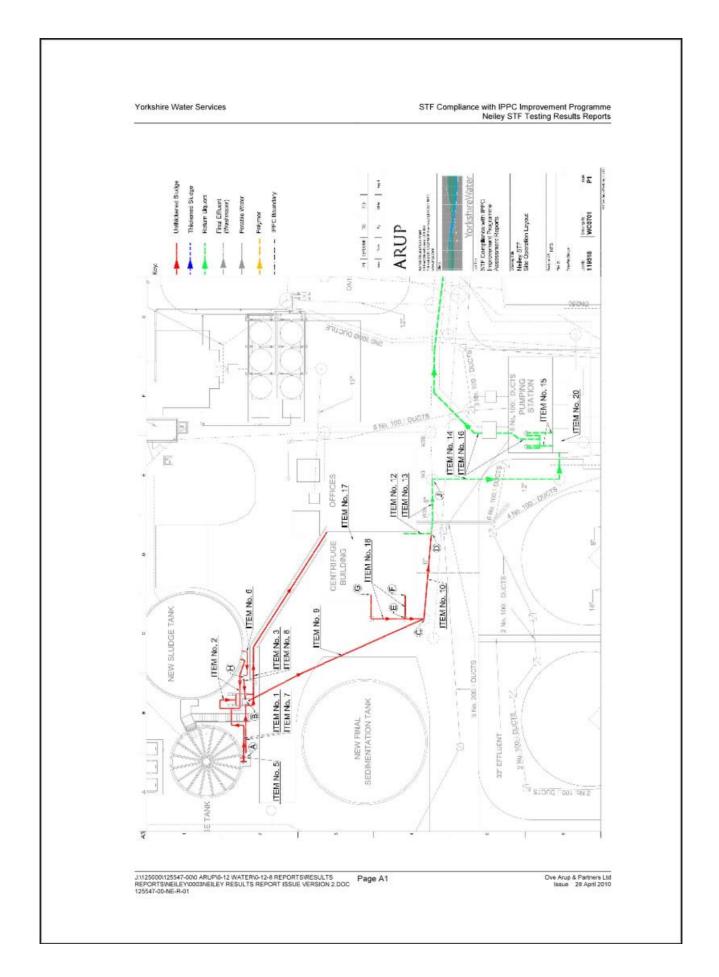
All assets have passed the integrity testing procedure and are in a good/satisfactory condition. Further monitoring and testing to recommended return periods for testing of assets needs to be undertaken in accordance with the generic testing methodology developed by Arup.

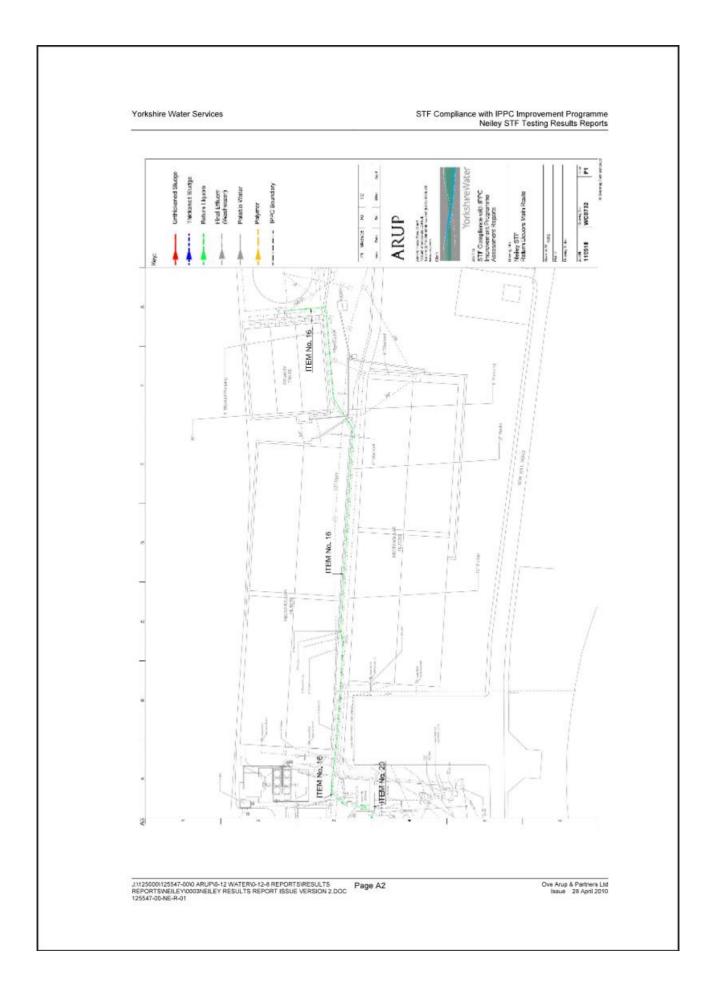
The temporary above ground pipework for the return liquor rising main (item 16) should be replaced at the earliest opportunity as discussed in section 6. It is recommended that this item be placed in the improvement programme as described in table 7 of section 3.3 of the generic testing methodology document, with a test return period of 1 year.

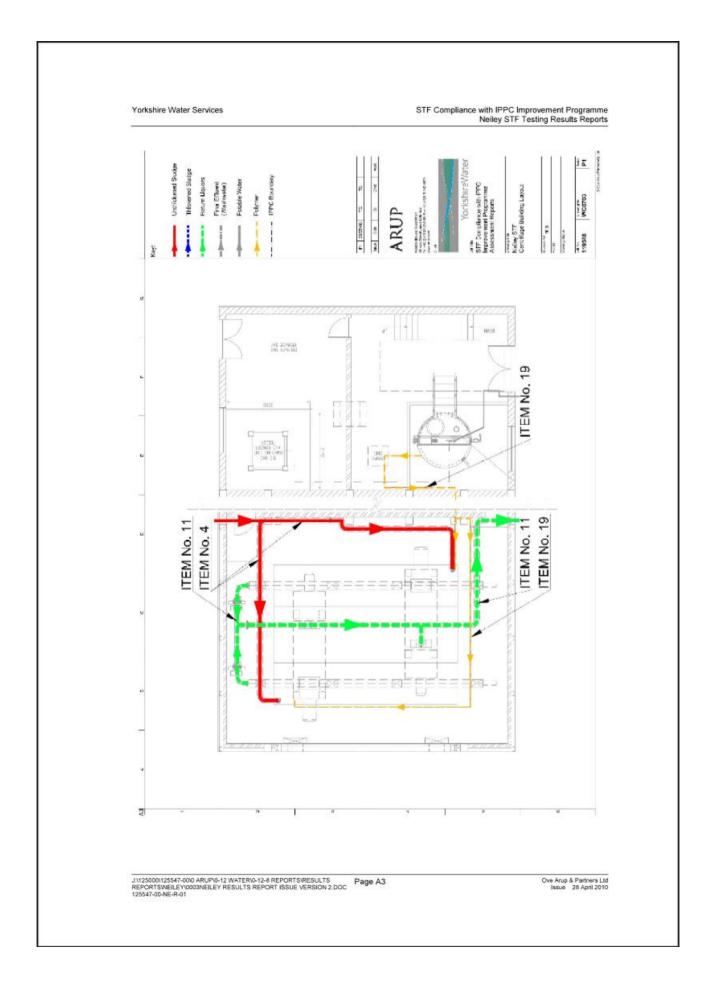
J/125000/125547-0000 ARUPI0-12 WATERIO-12-8 REPORTSIRESULTS Page 11 REPORTSINELLEYN003NELLEY RESULTS REPORT ISSUE VERSION 2.DOC 125647-00-R-R-01

Appendix A

Layout drawings







Appendix B Testing Record Sheets

STF Compliance with IPPC Improvement Programme Neiley STF Testing Results Reports

## **B1** Liquor return pumping station wet well

	esting		Contract No. 125547		Serial No.
SPECTION DETAILS	1000704	Yorkshire water cate	chment:		
awing reference:	WC0701	Huddersfield			
m number:	Item 20	Name of STW. Neil	ey		
escription:	Air / Drop / Pro	essure Test of:	Return liquor p	umping station wet we	11
ECKSHEET DETAILS	5				
AIR TEST					
Test specification:		Duration	mins	Allowable drop:	mm
All equipment availabl	le, checked (bungs/tubi	ing/'U' gauge/etc.) and i	nstalled ready for te	st? YES.	
Test details:	Date:	Start time	hrs	'U' gauge reading	mm
		Stop time	hrs	'U' gauge reading	mm
				Recorded drop	mm
Test Result:		Pass 🖸 Sign	n off at bottom	Fail	Rectify & retest
Test specification:		Duration 30 mins Calcul		Diam volume of added water	litres
	le, checked (bungs/tubi Date: 03/12/08		ated allowable max. d installed ready for 10.20 hrs 10.50 hrs	volume of added water	
All equipment availab	Date: 03/12/08	Calcul ing/manometer/etc.), an Start time Stop time	ated allowable max. d installed ready for 10.20 hrs 10.50 hrs	volume of added water test? YES: Water level Water level	litres  300 mm 301 mm
All equipment availab Test details: Test Result. 1mm dro PRESSURE TEST	Date: 03/12/08	Calcul ing/manometer/etc.), an Start time Stop time Pass 🕅 <b>Sig</b>	ated alkowable max d installed ready for 10.20 hrs 10.50 hrs n off at bottom	volume of added water test? YES: Water level Water level Volume of water added Fail	Ittres Id
All equipment availab Test details: Test Result. 1mm dro PRESSURE TEST Test specification:	Date: 03/12/08 p (3mm allowable)	Calcul ing/manometer/etc.), an Start time Stop time	ated alkowable max d installed ready for 10.20 hrs 10.50 hrs n off at bottom Pressure	volume of added water test? YES: Water level Water level Volume of water added	Ittres Id 300 mm 301 mm Ittres Rectify & retest Bore mm
All equipment availab Test details: Test Result: 1mm dro PRESSURE TEST Test specification: Calcul Permitemp thrust bloc	Date: 03/12/08 p (3mm allowable) ated allowable loss (procks, restraints and/or ba	Calcul ing/manometer/etc.), an Start time Stop time Pass X <b>Sig</b> Duration	ated allowable max dinstalled ready for 10.20 hrs 10.50 hrs n off at bottom Pressure ime of added water d as appropriate for	volume of added water test? YES: Water level Water level Volume of water added Fail bar Pipe le	Ittres Id 300 mm 301 mm Ittres Rectify & retest Bore mm
All equipment availab Test details: Test Result: 1mm dro PRESSURE TEST Test specification: Calcul Permitemp thrust bloc	Date: 03/12/08 p (3mm allowable) ated allowable loss (procks, restraints and/or ba	Calcut ing/manometer/etc.), an Start time Stop time Pass X Sign Duration essure loss or max. volu ackfill in place & checke	ated allowable max dinstalled ready for 10.20 hrs 10.50 hrs n off at bottom Pressure ime of added water d as appropriate for	volume of added water test? YES: Water level Water level Volume of water added Fail bar Pipe le bar Pipe le test pressure YES:	Ittres Ittres III Ittres IIII Ittres Rectify & retest Bore mm ngth m IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII
All equipment availab Test details: Test Result: 1mm dro PRESSURE TEST Test specification: Calcul Perm/temp thrust bloc All equipment availab	Date: 03/12/08 p (3mm allowable) ated allowable loss (pn cks, restraints and/or ba le, checked, calibrated	Calcul ing/manometer/etc.), an Start time Stop time Pass X Sign Duration essure loss or max. volu acktill in place & checke as required, and installe	ated allowable max dinstalled ready for 10.20 hrs 10.50 hrs n off at bottom Pressure ime of added water d as appropriate for	volume of added water test? YES: Water level Water level Volume of water added Fail bar Pipe le bar Pipe le test pressure YES: YES:	Ittres III 300 mm 301 mm Ittres Rectify & retest Bore mm ngth m
All equipment availab Test details: Test Result: 1mm dro PRESSURE TEST Test specification: Calcul Perm/temp thrust bloc All equipment availab	Date: 03/12/08 p (3mm allowable) ated allowable loss (pn cks, restraints and/or ba le, checked, calibrated Date.	Calcul ing/manometer/etc.), an Start time Stop time Pass X Sign Duration essure loss or max. volu ackfill in place & checko as required, and installe Start time Stop time	ated allowable max dinstalled ready for 10.20 hrs 10.50 hrs n off at bottom Pressure ume of added water d as appropriate for ed ready for test?	volume of added water test? YES: Water level Water level Volume of water added Fail bar Pipe le bar Pipe le test pressure YES: YES: Pressure reading	Ittres Id 300 mm 301 mm Ittres Rectify & retest Bore mm ngth m I Bar
All equipment availab Test details: Test Result: 1mm dro PRESSURE TEST Test specification: Calcul Perm/temp thrust bloc All equipment availab	Date: 03/12/08 p (3mm allowable) ated allowable loss (pn cks, restraints and/or ba le, checked, calibrated Date.	Calcul ing/manometer/etc.), an Start time Stop time Pass X Sign Duration essure loss or max. volu acktill in place & checke as required, and installe Start time Stop time sure drop or volume of	ated allowable max dinstalled ready for 10.20 hrs 10.50 hrs n off at bottom Pressure ume of added water d as appropriate for ed ready for test?	volume of added water test? YES: Water level Volume of water added Fail bar Pipe le bar Pipe le test pressure YES: YES: Pressure reading Pressure reading n to initial test pressure	Ittres
All equipment availab Test details: Test Result: 1mm dro PRESSURE TEST Test specification: Calcul Porm/temp thrust bloc All equipment availab Test details.	Date: 03/12/08 p (3mm allowable) ated allowable loss (pn cks, restraints and/or ba le, checked, calibrated Date.	Calcul ing/manometer/etc.), an Start time Stop time Pass X Sign Duration essure loss or max. volu acktill in place & checke as required, and installe Start time Stop time sure drop or volume of	ated allowable max dinstalled ready for 10.20 hrs 10.50 hrs n off at bottom Pressure ume of added water d as appropriate for ed ready for test? water added to retur n off at bottom	volume of added water test? YES: Water level Volume of water added Fail bar Pipe le bar Pipe le test pressure YES: YES: Pressure reading Pressure reading n to initial test pressure	Ittres Id 300 mm 301 mm Ittres Rectify & retest Bore mm ngth m Bar Bar Bar Bar

J/125000125547-0000 ARUPI0-12 WATERIO-12-8 REPORTSIRESULTS REPORTSINELLEYNO023NEILEY RESULTS REPORT ISSUE VERSION 2.DOC 125267-00-NE-R-01 Ove Arup & Partners Ltd Issue 28 April 2010

STF Compliance with IPPC Improvement Programme Nelley STF Testing Results Reports

## **B2** Return liquor rising main

	1000704	Yorkshir	e water catc	hment:		
rawing reference.	WC0701	Hudder				
am number:	Item 15		STW: Nelle	•		
escription:	Air / Drop / Pr	essure Test	of Retu	irn liquor rising n	nain to the PST distri	ibution chamber
HECKSHEET DETAILS	1.0					
AIR TEST						
Test specification:			Duration	mins	Allowable dro	op: mm
All equipment available, c	backed /burgethil	sina/11' asua	o/otc \ and in	etallari naadu far ti	est? YE	S: 🗆
An equiprisent available, c	moorica (oungeror	ang o goog	erete.) and in	Istancu reauy for a	-947 H	.э. Ц
Test details	Date:		Start time	hrs	"U" gauge readi	ng mm
			Stop time	hrs	"U" gauge readi	ng mm
					Recorded dr	rop mm
Test Result		Pass	Sign	off at bottom	Fail	Rectify & retest
Drop Test						1
Test specification:		Duratio	n mins	Depth	1	Diameter m
					volume of added wa	
All equipment available, c	hecked (bungs/tub	bing/manome	iter/etc.), and	installed ready fo	r test? YE	S: 🖾
Test details: D	late: 09/12/08		Start time	Hrs	Water le	vel mm
			Stop time	Hrs	Water le	vel mm
					Volume of water add	led litres
TestDresh					F-11	
Test Result		Pass	Sign	off at bottom	Fail	Rectify & retest
PRESSURE TEST						
Test specification:		Duratio	n 60 mins	Pressure	3 bar P	ipe Bore 200mm
	i allowable loss (p				provide a second se	pe length 250 m
Calculated	aliowable loss (p	IASSUIA 1032	or max. volu	the of added water	0.2	se length 200 m
Perm/temp thrustblocks, r	restraints and/or ba	ackfill in plac	e & checked	as appropriate for	test pressure YE	s 🛛
All equipment available, c	hecked, calibrated	as required,	and installe	d ready for test?	YE	is. 🛛
Test details: D	late 11/12/08		Start time	14.10 hrs	Pressure read	ing 2.97 bar
			Stop time	14.50 hrs	Pressure read	
	Pre	ssure drop o	and a second second		im to initial test pressu	and the second se
Test Result 2.18 bar loss	(max allowable 0.	2 Pass	🗌 Sign	off at bottom	Fail 🖾	Rectify & retest
			_			
bar)		1	Initials		Date	
bar)				1	1/12/08	

J/125000/125547-0000 ARUPI0-12 WATERIO-12-8 REPORTS/RESULTS REPORTS/NEILE/VO032NEILEY RESULTS REPORT ISSUE VERSION 2.DOC 125647-00-KE-R-01 Ove Arup & Partners Ltd Issue 28 April 2010

Appendix C Initial CCTV Report

STF Compliance with IPPC Improvement Programme Neiley STF Testing Results Reports

DELITAI	PETER DUFFY LTD WARCH WEST YOR HE 0000 010 010 010	CLD CSHIRE
	Project-information	
Project name:	Contact number Contact	Date: 03.12.2008
Client	PETER DUFFY LTD	
Contact:	CHRIS O'HORA	
Position:	SITE MANAGER	
Road	PARK VIEW	
Town	WAKEFIELD	
County	WEST YORKSHIRE	
Telephone:	01924 871100	
Fax:		
Mobile:	07985810043	
E-Mail:	C.OHORA@peterduffyltd.com	
Site	PDL3147	
Contact:		
Position:		
Road	NEILEY STW	
Town	HONLEY HD9	
County	WEST YORKSHIRE	
Telephone:		
Fax:		
Mobile:		
E-Mail:		
Contractor	PETER DUFFY LTD (DRAINS AID)	
Contact:	DAVE BELL	
Position:	CONTRACT MANAGER	
Road	PARK VIEW LOFTHOUSE GATE	
Town	WAKEFIELD	
County	WEST YORKSHIRE	
Telephone:	0800 018 0123	
Fax:	0113265488	
Mobile:	0113263488	
E-Mail:		
E-Mail:	d.bell@drains-aid.com	

J/125000/125547-00/0 ARUP/0-12 WATER/0-12-8 REPORTS/RESULTS REPORTS/WEILE/Y00039/EILEY RESULTS REPORT ISSUE VERSION 2.DOC 125647-00-NE-R-01 Ove Arup & Partners Ltd Issue 28 April 2010

Talana		PETER D	UFFY LTD	PETER DUFFY LT WAKEI	D (DRAINS AID)
Leve	TIFAId			WEST VOI Tel: 0800 018 0123	RKSHIRE
	oject name.	Defect Grade	Description		Date:
	oyacı manıya.	consectionity.	Condet		03.12.2008
<u>1:</u>	Occurances w	ithout damage: for example	, laterais, joints etc.		
	NO DEFECTS	WERE DETECTED.			
<u>2:</u>		I deficiencies or occurances ure of pipe: f.e. wide joints, rosions etc.			
	REHABILITA	TION CAN BE SCHEDULE	D LONG-TERM.		
<u>3:</u>	untorched inta laterals, minor	l deficiencies diminishing st ikes, cracks, minor drainage damages to pipe wall, indiv TION IS NECESSARY MED	obstructions such as idual root penetrations	calcide build ups s, corroded pipe	, protruding
<u>4:</u>	pipebursts, pip infiltration/exfl penetrations, : REHABILITA	I damages with nonsufficien be deformations, visually no tration, cavities in pipe-wall severe corrosion of pipe wal TION PROCEDURE IS URC NECESSITY FOR EMERC EXAMINED.	ticeable severe protruding, lat l etc.	terals severe roo	t.
<u>5:</u>		y or will shortly be imperment ructions. Pipe loses water or			
	DAMAGE, NE	TION IS URGENT AND SH CESSARY TEMPORARY S ON EMERGENCY LEVEL	SPOT REPAIR HAS T		FURTHER
		03 12 2008.m	db // page: 2		

forkshire Water Servic	es		ST	Compliance with IPP Neiley S	C Improvement Prog TF Testing Results I
		PETER D	UFFY LTD		
Diating	Nid			PETER DUFFY LT WAKET WEST YOR	IELD
First Aid For Al	Tour Drains	Inspecti	on report	Tel: 0830 018 0123	Fax: 0118265488
Date:	Job nr PDL3147	Weather: SLEET	Operator: R BROWN	section number.	PLR:
02.12.2008 Present.	Vehicle. WU51PFY	Camera 6 WHEEL 238	Presel.	1 Cleaned. NO	Grade.
Road: NEILEY S		Division		start MH: C	
Place: HONLEY		District:			POINT
Location. STW Purpose.	ASSET CONDITION	Tape No.: 01	Size/Shape.	Total length. 1.1 m CIRCULAR 150mm	
Use:	Other		Material: Lining:	Cast iron Pipe length:	
Catchment:			Calegory.		
Comment. Location details	RETURN LIQUOR:	5 LINE			
1:450 pt	osition code obs	ervation		grade	
		03_12_2008.m	ndb // page: 3		
1125000/125547-00/0 ARUP	0-12 WATER/0-12-8 REPC	RTS/RESULTS P	age C3		Ove Arup & Pa Issue 28

Proventional and intervention of the product of the		Aid						
The colleging of the c						1	WAKEFIELD	UD)
Date         Johne         Albrar         Weather ELEET         Operator B Brown         section sumbor         P1 R B           Persont         Velicitier         Camera         B Brown         2         B         X           Road:         NELLEY STW         Uvision:         Stat Mrt         C         emf Mill         B           Place:         HONLEY         Divisor:         Stat Mrt         C         emf Mill         B           Location:         STW         Divisor:         Stat Mrt         C         emf Mill         B           Purpose:         ASSET CONDITION         Strat/Shape:         CIRCULAR 158mm         Hasticitize i composite 1%pe longit:         Lining           Cation:         Cher         Lining         Calegory         C         Composite 1%pe longit:         Lining           Coation detaits:         Coation detaits:         Coation detaits:         0		For All Post Contine						10
02.12.2008         PDL3147         BLEFT         R BROWN         2         B         X           Present         Vehicle         Carateria         Present         Cleared         Gaade           Rood.         NELLEY STW         Division:         Start Met.         C         emf Mill         B           Present         ADMLEY         Dishid         emf Mill         B         emf Mill         B           Purpose:         ASSET CONDITION         Size/Shaper         Clicered         Clicered         emf Mill         B           Purpose:         ASSET CONDITION         Size/Shaper         Clicered         Clicered         Clicered         Disclicitseel composite Pige Hongth:           Use:         Other         Location details:         Clicered         Cli			inth and			confirm market		D
WUSTPPY         6 WHEEL 238         NO           Road:         NEILEY STW         Division:         Stat MH:         C           Place:         HONLEY         Division:         Stat MH:         C           Purpose:         ASSET CONDITION         Bits         Tidel weight:         B           Uhr:         Other         Stat MR:         CIRCULAR 150mm         Plasticisteel composite Pipe length:           Line:         Other         Line:         Category         Comment:         Company           Comment:         Location details:         Code observation         grade         Image           1:450         position         code         observation         grade           0         000         ST         Start of Survey         0           0:000         WL         Water level, 105 % height/diameter         0           0:000         WL         Water level, 105 % height/diameter         0           0:000         WL         Water level, 10 % he	02.12.2008	P	DL3147	8LEET	RBROWN	2	B	x
Place:     HONLEY     Diskid.     end Mill:     B       Location:     STW     Tops No.     01     Total length:     24.4 m       Purpose:     ASSET CONDITION     Stock/Shape:     CIRCULAR 150mm       Umit:     Other     Uming     Circular software       Catchment:     Commonti:     Location details:     Control of the software     Circular software       1:450     position     code     observation     grade       0     0.00     ST     Start of Survey     0       0.00     ST     Start of Survey     0       0.00     WL     Water kernark C	Present				Friddel.		64	82C
Location     STW     Type No.     01     Total length     24.4 m       Purpose:     ASSET CONDITION Use:     Starl Shape: Mittennit:     CIRCULAR 150mm       Cathment:     Other     Mittennit: Calegory     Plasticisteel composite Pipe length: Location details:       Comment:     Location details:       1:450     position     code     observation       0:00     ST     Start of Survey     0       0:00     MII     Mentode Remark. C     0       0:00     WIL     Water level, 05 % height/diameter     0       9:80     WIL     Water level, 10 % height/diameter     0       10:00     WIL     Water level, 10 % height/diameter     0       16:00     WL     Water level, 10 % height/diameter     0       22:40     JDI     Joint displaced Lange     2       23:10     OUM     Open joint medium     1       23:10     OUM     Open joint medium     1       23:10     OUM     Sever Material changes at this point, Reinforced plastic matrix     0       23:10     OUM     Open joint medium     1       23:01     VL     Water level, 05 % height/diameter     0       24:40     MH     Mathelic lenges at this point, Plastic/steel composite     0	in the second			Contract of the				
Unit     Other     Mitenal: Lining Calcipory     Plasticisteel composite Hipe length: Lining Calcipory       Comment:     Comment:       Location details:       1:450     position       c     0.00       ST     Start of Survey       0     0.00       0.00     ST       Start of Survey     0       0.00     WL       Value level, 05 % height/Gameter     0       0.00     WL       Value level, 05 % height/Gameter     0       0.00     WL       Value level, 10 % height/Gameter     0       16.00     WL       Water level, 10 % height/Gameter     0       16.00     WL       Water level, 10 % height/Gameter     0       16.00     WL       Water level, 10 % height/Gameter     0       22.40     MC       Sever Material changes at this point, Reinforced plastic matrix     0       23.10     CUM       23.10     CUM       23.10     CUM       23.00     WL       23.01     CUM       23.02     WL       23.03     WL       24.40     MH       Mother Remark: 8     0								
Uning Catchment:     Uning Category       Comment:     Location details:       1:450     position     code       0:00     ST     Start of Survey       0     0:00     ST       0:00     WI     Manhole: Romark C       0:00     WL     Water lavel, 05 % height/diameter       0:00     WL     Water lavel, 05 % height/diameter       0:00     WL     Water lavel, 05 % height/diameter       0:00     WL     Water lavel, 10 % height/diameter       0:00     WL     Sever Material changes at this point, Reinforced plastic matrix       0:00     WL     Sever Material changes at this point, Hastic/stael composite       0:00     WL     Water lavel, 05 % height/diameter       0:00     WL     Water lavel, 05 % height/diameter <td< td=""><td>Sector received</td><td></td><td>CONDITION</td><td></td><td></td><td></td><td></td><td></td></td<>	Sector received		CONDITION					
Comment:       Location details:         1:450       position       code       observation       grade         0       0.00       ST       Start of Survey       0         0       0.00       MII       Mantoke Remark C       0         0.00       WL       Water lavel, 05 % height/diameter       0         4.80       OUM       Open joint medium       1         9.80       WL       Water lavel, 10 % height/diameter       0         12.00       WL       Water lavel, 15 % height/diameter       0         15.00       WL       Water lavel, 10 % height/diameter       0         15.00       WL       Water lavel, 10 % height/diameter       0         22.40       JDL       Jeint displaced Large       2         8       22.40       MC       Sever Material changes at this point, Reinforced plastic matrix       0         23.10       OUM       Open joint medium       1       1         23.10       GUM       Open joint medium       1       2         23.10       GUM       Open joint medium       1       2         23.10       GUM       Open joint medium       1       2         23.10       MC       Sever Ma	and the second second	Other			Lining:	Plasocisteel compo	neute i nive neutyar.	
1:450     position     code     observation     grade       c     0.00     ST     Start of Survey     0       0     0.00     MEL     Manbole Remark C     0       0.00     WL     Water lavel, 05 % height/diameter     0       0.00     WL     Water lavel, 05 % height/diameter     0       0.80     WL     Water lavel, 05 % height/diameter     0       0.80     WL     Water lavel, 05 % height/diameter     0       12.00     WL     Water lavel, 05 % height/diameter     0       16.00     WL     Water lavel, 10 % height/diameter     0       22.40     JOL     Joint displaced Large     2       8     22.40     MC     Sever Material changes at this point, Reinforced plastic matrix     0       23.10     OJM     Open joint medium     1       23.10     OJM     Open joint medium     1       23.10     OJM     Open joint medium     1       23.10     VL     Water level, 05 % height/diameter     0       23.10     VL     Water level, 05 % height/diameter     0       23.50     WL     Water level, 05 % height/diameter     0       24.40     MH     Manbole Remark: B     0	a desta de la companya de la company				Caladory			
c     0.00     ST     Start of Survey     0       0.00     MII     Manhole Remark C     0       0.00     WL     Waler level, 05 % height/diameter     0       0.00     WL     Waler level, 10 % height/diameter     0       0.80     WI,     Water level, 10 % height/diameter     0       0.80     WI,     Water level, 10 % height/diameter     0       12.00     WL     Water level, 10 % height/diameter     0       16.00     WL     Water level, 10 % height/diameter     0       22.40     JOL     Joint displaced: Large     2       8     22.40     MC     Sever Material changes at this point, Reinforced plastic matrix     0       23.10     CUM     Open joint medium     1       23.10     CUM     Water level, 05 % height/diameter     0       23.50     WL     Water level, 05 % height/diameter     0       24.40     MH     Manhole Remark: B     0	Location details:							
0.00       MII       Manhole: Remark: C       0         0.00       WL       Waler level, 05 % height/diameter       0         0.00       WL       Upen joint medium       1         0.80       WI,       Water level, 10 % height/diameter       0         0.80       WI,       Water level, 55 % height/diameter       0         12.00       WL       Water level, 55 % height/diameter       0         16.00       WL       Water level, 10 % height/diameter       0         22.40       JOL       Joint displaced: Large       2         23.10       CUM       Server Material changes at this point, Reinforced plastic matrix       0         23.10       CUM       Open joint medium       1         23.10       CUM       Open joint medium       1         23.10       CUM       Kewer Material changes at this point, Reinforced plastic matrix       0         23.10       CUM       Open joint medium       1         23.10       WL       Water level, 05 % height/diameter       0         24.40       MH       Manhole Remark: B       0	1:450	position	code ob:	servation		grade		
		0.00 0.00 4.50 9.60 12.60 16.00 22.40 22.40 23.10 23.50 24.40	MBI Max WL Wa OJM Op WI Wa WL Wa JDL Jai MC Set OJM Op MC Set WL Wa MH Ma	nhole Remark C der lavet, 05 % height/diam en joint medium der lavet, 05 % height/diam iter lavet, 10 % height/diam der lavet, 10 % height/diam der lavet, 10 % height/diam et displaced. Lange wer Material changes at this en joint medium wer Material changes at this der levet, 05 % height/diam nhole Remark: B	ofer siter ofer point, Reinforced plastic point, Plastic/stael comp	0. 0 1 0 0 0 0 0 0 0 0 0 0 0 0		
03_12_2008.mdb // page:4				03_12_2008.	ndb // page:4			

PETER DUFFY LTD       PETER DUFFY LTD (DRAMA ADD) WE ST FUNCESHING: TO READ ADD) WE ST FUNCESHING: TO READ ADD ADD ADD ADD ADD ADD ADD ADD ADD
PETER DUFFY LTD (DRAINS AND) WARKETED WEST YORKSHIKE Tor CR00 318 0123, Fact B113065188         Date: Dat
Tor GROUPIR OUTS, Fact 6113065188       Inspection report       Date     Job re     Weather     Operator     section number     PIR       12.12.2008     PDL3147     Weather     Operator     Section number     PIR       Present     Wold1PPY     6 WHEEL 230     Present     Cleanand     Gender       No     Division:     start MH:     C     end MH:     D       Location:     STW     Division:     off     and MH:     D       Location:     STW     Tape No.:     01     Total ength:     12 m       Purpose:     ASSET CONDITION     Sizet/Shape.     CIRCULAR 150mm     Circouncent:       Use:     Other     Lining:     Catogory.     Comment:     Comment       I ocation dotails:     I     1450     position     code observation     grade       0.00     MH:     Matholic Remark C     0     0     0       0.00     VL     Water level, 00 % height/
Date         John me         Weather         Operator         section number         PLR           02.12.2008         PDL3147         SLEET         R BROWN         3         C         3           Present         Weither         Common         Present         Common
Present         Vehicle WU61PPY         Camera 6 WHEEL 230         Present         Cleaned NO         Gender           Road:         NEILEY STW Place:         Unission:         start MH:         C end MH:         D           Place:         HONLEY         Unission:         and MH:         D           Location:         STW         Tape No:         01         Total length:         12 m           Purpose:         ASSET CONDITION         Skert/Skepc:         CIRCULAR 150mm         Cast on Fipe length:           Use:         Other         Lining:         Cast on Fipe length:         Cast on Fipe length:           Comment:         Cast on details:         Cast on Fipe length:         Cast on Fipe length:         Cast on details:           1:450         position         code         observation         grade           C         0.00         M4         Mathies Romark C         0           0.00         Vit.         Wate level, 00 % height/dameter         0           1.00         EM         Encrustation mediant, from 12 to 12 or deck, 10% cross sectional         4
Road:     NEILEY STW     Division:     start MH:     C       Place:     HONLEY     District:     and MH:     D       Location:     STW     Tape No.:     01     Total length:     12 m       Purposic     ASSET CONDITION     Size/Shape:     CIRCULAR 150mm       Use:     Other     Material:     Cast iron Fipe length:       Lining:     Catogery:     Cast iron Fipe length:     Lining:       Comment     Isset     Catogery:     Cast iron Fipe length:       1:450     position     code observation     grade       0     0.00     ST     Start of Survey     0       0.00     Vit.     Water level, 00 % height/diameter     0       1.10     S1     EM     Encrustation mediant, from 12 to 12 or dock, 10% cross sectional     4
Location:     STW     Tape No.:     01     Total length:     12 m       Purponic     ASSET CONDITION     Size:/Stopic     CIRCULAR 150mm       Use:     Other     Material:     Cast iron Fipe length:       Lining:     Cast iron Fipe length:     Lining:       Catchment:     Catogory:     Cast iron Fipe length:       Incation details:     Incation details     grade
Purpose         ASSET CONDITION         Sure/Shape         CIRCULAR 190mm           Use:         Other         Material: Lining: Catchment         Cast iron Pipe length: Catogory:           Comment         Catogory:         Catogory:           1:450         position         code           0         ST         Start of Survey         0           0         Mathematic Remark C         0           0.00         VH         Water level, 00 % height/dameter         0           1.10         B1         EM         Encrustation medium, from 12 to 12 of cock, 10% ecces sectional         4
Catchment:     Catogory:       Commant     Industry       I cation date:     Industry       1:450     position       code     observation       grade       c     0.00       ST     Starl of Survey       0     0.00       MH     Manbola Remark: C       0     0.00       VL     Water level, 00 % height/dameter       1.10     B1       EM     Encrustation mediam, from 12 to 12 of code, 10% cross sectional
Comment         Iscation details           1:450         position         code         observation         grade           c         0.00         ST         Start of Survey         0           c         0.00         MH         Manhole Remark C         0           0.00         Vit.         Water level, 00 % height/diameter         0           1.10         B1         EM         Encrustation medium, from 12 to 12 of clock, 10% cross sectional         4
1:450     position     code     observation     grade       C     0.00     ST     Start of Survey     0       0     000     MH     Manhola Romark C     0       0.00     WL     Water level, 00 % height/dameter     0       1.10     B1     EM     Encrustation medium, from 12 to 12 of code, 10% cross sectional     4
C 0.00 ST Start of Survey 0 0.00 MH Manhole Remark: C 0 0.00 WL Water level, 00 % heepfoldameter 0 1.10 B1 EM Encrustation medium, from 12 to 12 of dock, 10% cross sectional 4
0.00         MH         Manhole Remark C         0           0.00         v/L         Water level, 00 % height/diameter         0           1.10         81         EM         Encrustation medians, from 12 to 12 of dock, 10% cross sectional         4
0.00 MH Manhole Remark: C 0     0.00 V4L Water level, 00 % height/diameter 0     1.10 81 EM Encrustation medium, from 12 to 12 or dock, 10% cross sectional 4
0.00         MH         Manhola Remark C         0           0.00         VL         Water level, 00 % height/diameter         0           1.10         B1         EM         Encrustation mediant, from 12 to 12 of dock, 10% cross-sectional         4
0.00 VVL Water level, 00 % height/charmeter 0     1.10 B1 EM Encrustation mediant, from 12 to 12 of dock, 10% cross-sectional 4
1.10 B1 EM Encrustation medium, from 12 to 12 of dock, 10% cross sectional 4
1.10 B1 EN Enclosation medium, non 12 to 12 0 clock, 10% closs second 4
area loss, Start 2.80 Ct EM Encruistation medium, from 12 to 12 of dock, 15% cross-sectional 4
D Arrow koss, Changed EM Encrustation medium, from 12 to 12 of clock, 15% cross sectional 4
12.00 Mil Manhole Remark D 0
12.00 FH Finish Survey 0
03_12_2008.mdb // page: 5

orkshire Water Servic	es		STF	Compliance with IPPC Im Neiley STF 1	provement Progra esting Results Re
		DETER	DUFFY LTD		
Draths	Aid	PETERS		PETER DUFFY LTD ( WAKEFIE WEST YORK	LD SHIRE
		Inspecti	on report	Tel. 0800 018 0123, Ka	C0113250485
Data: 02.12.2008	Job nr: PDL3147	Weather SLEET	Operator R BROWN	secton number	PLR: D X
Present	Vehicle WU51PFY	Carriesta 6 WHEEL 238	Presel	Cleaned NO	Grade
Road. NEILEY S		Division.		start MH. D	
Place: HONLEY Location: STW		District Tape No. 01		cred MH: J Total length: 7.4 m	
Purpose:	ASSET CONDITION	1400110	Size/Shape:	CIRCULAR 225mm	
Use:	Other		Material: Lining:	Cast iron Pipe length:	
Catchment Comment			Category		
Location details:					
1:450 p	osition code obs	ervation		grade	
	7.40 F1 EL End	rustetion light, trom 12 to 1 rustetion light, trom 12 to 1 shale Romanic J ah Sarvey		2 0	
		03_12_2008.4	ndb # page:6		

orkshire Wate	r Service	5					ST	F Comp	liance with Nei	IPPC Imp ley STF To	rovement P esting Resul
In	Arres					PETER DUF	EY LTD			WAKEFIEL	DRAINS AID) D
Telke I	Titz	Vasor Bratina							16.000	VEST YORKS 0 010 0123, I w	HIRE
Date	6	.ke	b m:	_	Unsp Weather		Operation		section nur	abor	PLR
02.12.20 Preser	800	PD Ve	L3147 hicle.	-	SLEET Carnera	la contra de la co	R BROWN Preset	-	5 Cleaner		J X Grade
Road:	NEILEY S		51PFY		6 WHEEL 3	238			NO art MH:	J	
Place.	HONLEY			- 12	listrict.			1.52	ad MI1.	WETWE	LL
Location: Purpose:	STW	ASSET CO		_	Tape No.	01 S	ize/Shape:		cultar length	17.5 m	
Uner		Other				N	lateriak ning		it iron Pipe k		
Catchment: Comment:						c	stegory.				
Location detail	ls:										
1-450	0 pr	noition	code	observ	ation				grade		
5											
0		0.00	ST	Shert of	Survey				0		
5 0	4	0.00			le Remark, J				0		
8	11	0.00	WL	Water I	evel, 10 % heig	ht/diameter			0		
<b>\$</b>	1	1.30 \$1	EM	Encrust area los	tation medium; ss, Start	from 52 to 12	to dock, 15% cm	osa-section	ai 4		
1											
		16.80 F1	EM	Encrus	tation medium, as, Finish	from 12 to 12	rordock, 15% cro	oss section	al 4		
-	0-	16.80	MH	Manho	e Remark: UNI				0		
	1-	17.50					UBLE TO PASS T				
	~		100								
·											
<u></u>					03_12	2_2008.mdb	// page: 7				

STF Compliance with IPPC Improvement Programme Neiley STF Testing Results Reports

> Appendix D Remedial CCTV Report

J/125000125547-0000 ARUPI0-12 WATERIO-12-8 REPORTS/RESULTS REPORTS/RESULTS REPORT ISSUE VERSION 2.DOC 12547-00-RE-01

Ove Arup & Partners Ltd Issue 3 July 2009

forkshire Water Services			th IPPC Improvement Pro- elley STF Testing Results
Second Second Second Second	PETER DUFFY LIMIT		DUFFY LIMITED (DRAINS AID)
10)Ennisaid		LC	VEST YORKSHIRE
	Project-inform		0600 160103 Fax: 0113 2365183
Project name: 10157789	Contract number:	Centact: CHRIS O'HORA	Date: 01/03/2010
Client	,		Undebio
	PETER DUFFY LI	MITED	
Contact:	CHRIS O'HORA		
Position:	SITE MANAGER		
Road	CONNAUGHT HO		W
Town	WAKEFIELD WF3		
County	WEST YORKSHIR	E	
Telephone:			
Fax:			
Mobile:	07985 810043		
E-Mail:	c.ohora@peterdu	ffyltd.com	
Site	10157789 (PDL31	47)	
Contact:	CHRIS O'HORA	,	
Position:	SITE MANAGER		
Road	NEILEY STW		
Town	HOLMFIRTH HD9		
County	WEST YORKSHIR	E	
Telephone:		-	
Fax:			
Mobile:	07985 810043		
E-Mail:	c.ohora@peterdu	fyltd.com	
Contractor	DETED DUEEV I		
Contact:	PETER DUFFY LI	ITED (DRAINS	(AD)
Position:	OPERATIONS MA	NAGER	
Road	PARK VIEW	NAGEN	
Town	LOFTHOUSE, WA		
County	WEST YORKSHIR		
Telephone:	0800 180123	-	
Fax:			
Mobile:	0113 2365183		
E-Mail:	d.bell@drains-aid		

J/125000125547-0000 ARUPI0-12 WATERV0-12-8 REPORTS/RESULTS REPORTS/WEILE/V0033/NEILEY RESULTS REPORT ISSUE VERSION 2.DOC 125547-00-NE-R-01 Ove Arup & Partners Ltd Issue 3 July 2009

orkshire Water Services		STF Compliance	with IPPC Improvement Progr Neiley STF Testing Results R
	PETER D	JFFY LIMITED	
DictinsAid	PETERO		TER DUFFY LIMITED (DRAINS AID) LOFTHOUSE, WAKEFIELD WEST YORKSHIRE
Piret Ald Par All Pour Deale	Defect Grac	e Description	Tel: 0600 180123, Fax: 0115 2365183
Project name: 10157789	Contract number: SCM	Contact: CHRIS O'HORA	Date: 01/03/2010
	Structural Defects Structural Defects		
Acceptal	ole Structural Condition		
2: Brick: Mir Pipe: Circ	or cracking, Surface mortar los sumfrential crack, Moderate join	s, Spalling slight, wear sligh t defects, Spalling slight, W	it oar slight
Minor co	llapse risk in short term but p	potential for further deterio	oration
Spalling n Pipe: Frai loss of lev	al mortorloss without other defe tedium. Wear medium stures with deformation up to 5' el. More severe joint defects. S e unlikely in near future but f	%, Longitudinal cracking or pailing medium, Wear med	mulilipe sracking, Minor ium
fractured, Pipe: Brol Multiple fr	al mortorloss with deformation Displaced/hanging brickwork, t ken, Deformation up to 10% an actures, Serious loss of level, s ie likely in foreseeable future	Small number of missing bri d broken,, Fractured with de pailing large, wear large	cks
Displaced Pipe: Alre missing, F	ady Collapsed, Missing invert, /hanging brickwork and deform ady collapsed, Deformation ov rractured with deformation over sed or collapse imminent !!!	ation over 10%, Extensive r er 10% and broken, Extensi	nissing bricks
	01_03_2010.r	ndb // page: 2	
	01_03_20101	ing a halo s	

0.52 JDM Joint displaced. Medium 00.00.00 (Struct)	orkshire Wate	er Services	3					STF	Complianc	e with IPPC Im Neiley STF 1	provemen esting Re	t Progran sults Rep
Procession       Difference of the section number:       Difference of the section number:       Number of the section number of the section number:       Number of the section number of the						PETER	DUFFYL	MITED				
Inspection report         Obtain to both N*       Weather       Conceptor         Present:       Validation       Validation       Validation         Present:       Validation       Validation       Validation       Validation         Present:       Validation       Validation       Validation       Validation         Present:       Validation       Validation       Validation       Validation         Present:       HOLMERTH       District:       grad Mit       XXXXX         Parpoon:       ASSET CONDITION       ShapeSize:       Circulut All Statum         Cathment:       WEBT       District:       Tape No:       Tape No:       District:         Cathment:       WEBT       Category:       Category:       Category:         Comment:       BEFORE LINING       Category:       Counter       photo       gradation         1:25       position       code observation       counter       photo       gradation         0:00       ST       Stat of Survey       00:00:00       (Mater)         0:00       WA       Mathematic XXX2       00:00:00       (Serve)         0:00       WA       Mathematic XXX2       00:00:00       (Serve)	(Dire)	TIFA	d						PE	LOFTHOUSE, WEST YOR	KSHIRE	
OT0323010         10157780         DRY         MARK SLINKI         1         XXXX         XXXXX           Presert:         Vehicle:         Presert:         Oraset:         Oraset: </th <th></th> <th></th> <th></th> <th></th> <th></th> <th>Inspec</th> <th>ction</th> <th>report</th> <th></th> <th>10.0000 100100.00</th> <th></th> <th></th>						Inspec	ction	report		10.0000 100100.00		
PROB_HWD         FLED ROD         YES           Read:         NBLEY STW         Division:         Start MP:::::XX02           Place:         HOLMFIRTH         District:         end MP:::::XX03           Location::         STW         Tape No:::         Total long::::::::::::::::::::::::::::::::::::	01/03/2	010	1015	7789		DRY			980		PL XX03	R: X
Place:     HOLMFIRTH Location:     District: Tape No:     end Mit:     X003 Total length:     2.07 m       Purpoor:     ASSET CONDITION Use:     ASSET CONDITION Westfat:     Shape/Size: CIRCULAR 150mm     CIRCULAR 150mm       Use:     RETURN LIQUORS     Shape/Size: Catchment:     CIRCULAR 150mm       Use:     RETURN LIQUORS     Shape/Size: Catchment:     CIRCULAR 150mm       Location details:     Comment:     BEFORE LINING       Location details:     Comment:     BEFORE LINING       1:25     poelfion     code observation     counter       Depth: 0.38     0.000     ST     Stant of Survey     00.00.00       Mit     Manhole Remark: X002     00.00.00     (Construction 000.00)       0.000     WL     Water level, 05 % height diameter     00.00.00     (Struction 000.00)       0.82     JDM     Joint displaced. Medium     C0.00.00     (Struction 000.00)	Preser	11:	Vet PF08	icle: HWD		Camera: FLEXI ROD		Preset:			Gra	de:
Use:         RETURN LIQUORS         Maintal: Lining: Catchment:         PLASTIC Pipe length: Lining: Category:           Comment:         WEST         Category:           Comment:         BEFORE LINING           Location details:            1:25         poeltion           code         observation           Depth: 0.38            VX02         0.00           Mill Manhole Remark: XX02         00 00:00           0.00         WL           Water level, 05 % height/diameter         00 00:00           0.82         JOM           0.82         JOM           0.82         JOM           0.82         JOM           0.82         JOM	Place:	HOLMFIRT				District:			end Mr	t XX03		
Location details:         1.25         position         code         observation         counter         photo         grade           Depth: 0.38         00:00:00         ST         Stat of Survey         00:00:00         (Mac)           0.00         Mil         Manhole Remark: 2002         00:00:00         (Constr           0.00         WL         Water level, 05 % height/diameter         00:00:00         (Serv)           0.82         JDM         Joint displaced. Medium         00:20:00         (Struct)           0.02         2.05         MH         Marthole Remark: 2003         (Constr	Use: Catchment:		RETURN LI WEST	QUORS			Mat	erial: IG:				
Depth: 0.38         00:00:00         (Mac)           0.00         ST         Start of Survey         00:00:00         (Mac)           0.00         MH         Manhole Remark: 2002         00:00:00         (Constr           0.00         WL         Water level, 05 % height/diameter         00:00:00         (Serv)           0.52         JDM         Joint displaced. Medium         00:00:00         (Struct)           0000         2.05         MH         Manhole Remark: 2003         (Constr	Location detail				_	ation					shate	mada
0.00         ST         Start of Survey         00:00:00         (Masch           0.00         Mili         Manhole Remark: 2002         00:00:00         (Correct           0.00         WL         Water level, 05 % height/diameter         00:00:00         (Serv)           0.82         JDM         Joint displaced. Medium         00:00:00         (Shud)           0.03         2.05         Mili         Manhole Remark: 2003         (Correct			luon	code	ouserv	ation				counter	priorio	grace
0.00         MH         Manhole Remark: 2002         00.00.00         (Curation of the second of	0	\			<b>C</b> io 4 - 4							
0.00         WL         Water level, 05 % height/diameter         00.00:00         (Serv)           0.52         JDM         Joint displaced. Medium         00.00:00         (Situd)           0.52         JDM         Joint displaced. Medium         00.00:00         (Situd)           0.52         JDM         Joint displaced. Medium         00.00:00         (Situd)	XX02	6										
2.05 MH Manthole Remark: XX03 (02:00:00 (Constr							ameter					(Serv) 0
(xx03			0.82	JDM ,	Joint de	splaced. Medium				63-50-90		(Shud) 1
	2003											(Constr) ( (Misc) 0
Structural Defects         Constructional Peatures           Service Defects         Miscellamous Peatures           01_03_2010.mdb         // page: 3		5				01_03_201	Misc	allaneous Features				

	es		STF C	ompliance with IPPC Im Neiley STF T	provement esting Res	Program ults Rep
		PETER	UFFY LIMITED			
Diethe	Aid	PETER D	DEPT CANTED	PETER DUFFY LIMIT LOFTHOUSE, V WEST YOR	VAKEFIELD	
	Party Location	Incode	ion report	WEST YOR Tel: 0800 180123, Fa	x: 0113 2365183	)
Date:	Job N?	Weather: DRY	Operator:	section number.	PU	R:
01/03/2010 Present:	10157789 Vehicle:	Camera:	MARK SLINN Preset:	2 Cleaned:	XX03 ( Grax	(B) X
	PF08 HWD	FLEXI ROD		YES		
Place: NEILEY Place: HOLMFI		Division:		start MH; XX02 (		
Place: HOLMFI Location: STW	HIH	District: Tape No.:		end MH: XX03 ( Total length: 2 m	B)	
Purpose:	ASSET CONDITION		Shape/Size:	CIRCULAR 150mm		
Use:	RETURN LIQUORS		Material: Lining:	PLASTIC Pipe length: Resin		
Catchment: Comment:	WEST		Category:			
Location details:	AFTER LINING					
	osition code ot	eservation		counter	photo	grade
Depth: 0.38						
XX02 (B1)	0.00 ST St	art of Survey		00:00:00		(Misc) 0
		anhole Romark: XX02		00:00:00		(Consir) 0
	0.00 WL W	ater level, 05 % height/diam	igtor	00.00:00		(Serv) 0
2						
ххоз (в)	2.00 MH Ma	inhole Remark: XX03 (B)		00:00:00		(Constr) 0
	2.00 FH Fit	lish Survey		00:00:00		(Misc) 0
1						
Bructural Delexts Service Delects			Constructional Fastures Miscellaneous Fastures			
		01_03_2010.4				

<section-header><section-header><section-header><section-header><section-header><complex-block></complex-block></section-header></section-header></section-header></section-header></section-header>		ces		STF C	Compliance with IPPC In Nelley STF	nprovement Program Testing Results Rep
Provide the set of the						
Inspection report           Date:         dots NY         Wester:         Deprisor         Deprisor <thdeprisor< th="">         Difference         Diference<!--</th--><th>Dethe</th><th>Aid</th><th>PETERL</th><th>UPPY LIMITED</th><th>LOFTHOUSE, V</th><th>N'AKEFIELD IKSHIRE</th></thdeprisor<>	Dethe	Aid	PETERL	UPPY LIMITED	LOFTHOUSE, V	N'AKEFIELD IKSHIRE
Date:         Job NY         Mesher:         Departure         Section number:         PLI:           Present:         Verside:         Date:         Departure         Present:         Operation:         PRAIN X           Present:         Verside:         Date:         Departure         Present:         Operation:         PRAIN X           Present:         Verside:         Date:         Date:         Verside:         Present:         Operation:			Inspect	ion report	140.0800.180123,74	8: 0113 2309163
Present:         Verdet:         Carried:			Weather:	Operator:		PLR:
Prod.         INFL.EY STW         Division:         Division:         and MH:         G           Propose:         ASSET CONDITION         Division:         Balandia:         Traditionality:         4.48 m           Purpose:         ASSET CONDITION         Balandia:         Direct:         Dire		Vehicle:			Cleaned:	the state of the s
Lotation:     BTW     Tape No.:     Total length:     6.48 m       Purpore:     ASSET CONDITION     Microsit:     DREQUEAT 150mm       Continent:     WEBT     Control     Control       Continent:     WEBT     Control     Control       T1:30     position     code     observation       T1:30     position     code     observation       Departs     0.00     Control     (Macro)       Departs     0.00     ST     Start of Survey     00.00.00     (Macro)       000000     GAS     Start of Survey     00.00.00     (Macro)       000000     GAS     Start of Survey     00.00.00     (Control )       000000     VL     Water Novel, 05 % Insignitioneter     00.00.00     (Control )       000000     Markate Reseat: CRAIN     00.00.00     (Control )	Road: NEILEY					
Papoe:     ASSET CONDITION     Description       Use:     RETURN LOUONS     DispoSure:     DispoSure:       Use:     RETURN LOUONS     Cargory:       Comment:     Compony:     Cargory:       Comment:     Compony:     Compony:       Deptit: 0.80     0000.00     (Mac) D       Deptit: 0.80     0000.00     (Mac) D       Optimize:     0000.00     ST       Start of Surey     0000.00     (Mac) D       Optimize:     Mace Remain: CPAN     0000.00       Optimize:     FH     Field Survey     0000.00	A complete the second second	RTH				
Use:         RETURN LOUORS         Minist: Ling: Categoy:         CAST IRON Pipe lengt:           Continent:         WEST         Categoy:         Categoy:           Continent:         Ling: Categoy:         Counter photo grade           130         position         code debanation         counter photo grade           Dept::         0.00         ST         Start of Survey         0000000         (Macq D           000         Mid< Marrido Remark 0		ASSET CONDITION		Shape/Size:	-	1
Convenent: Location details: 1:50 position code observation counter photo grade Depet: 0.80 0 0.00 KT Start of Survey 00:00:00 (Mec) 0 0.00 Met Mannak G 00:00:00 (Const) 0 0.00 WL Water level, 0.5% Inogetificianeter 00:00:00 (Servi 0 0:00:00 (Servi 0 0:00:	Use:	RETURN LIQUORS		Material: Lining:		
1:50     position     code     observation     counter     photo     grade       Depth: 0.50     00     ST     Start of Survey     0000000     (Mac) D       0     0.00     ST     Start of Survey     0000000     (Mac) D       0     0.00     ST     Start of Survey     0000000     (Mac) D       0     0.00     ST     Start of Survey     0000000     (Compt) D       0.00     0.00     VV.     Water level, 05 % height/diameter     0000000     (Servi D       0     0.00     Compt (0)     ST     Start of Survey     0000000     (Compt) D       0     0.00     End     Machine Remain CPRAN     0000000     (Compt) D       0     0.00     FH     Freich Survey     0000000     (Compt) D       Envice Detects     Constructional Results     Macellanceus     Envice Starts	and the second se	in set		Callegory:		
Deptit: 0.50         ST         Start of Survey         00:00:00         (Marc) 0           0         0.00         Afrid         Marciple Permark: G         00:00:00         (Comarc) 0           0.00         V.V.         Water level, 05% thogetitioneller         00:00:00         (Servi D           0         0.00         V.V.         Water level, 05% thogetitioneller         00:00:00         (Servi D           0         6.69         RH         Marciale Permark: CPAN         00:00:00         (Comarc) 0           0         6.69         RH         Marciale Permark: CPAN         00:00:00         (Comarc) 0           0         6.69         RH         Frieh Suvey         00:00:00         (Comarc) 0           Encide Dates         Constructional Fearms         00:00:00         (Comarc) 0		aaritian	abramatic -			- <u>1903</u> 50 - 55566-0
6.49 FH Finish Survey 00:00:00 (Misc) 0 Brouthand Defects Brances Br		0.00 MH	Vanhole Romark: G	NOILET	00-00-00	(Contair) 0
	DRAIN	and the second s				

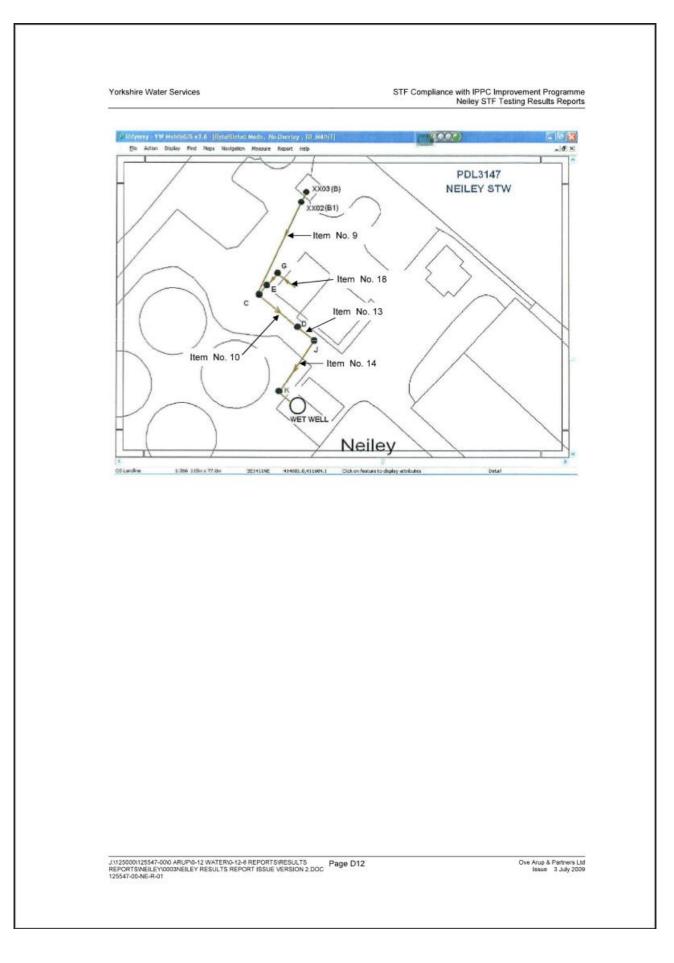
Yorkshire Water Servic	es			STF C	Compliance with IPPC Imp Neiley STF T		
le <mark>rethe</mark>	lid		PETER D	JFFY LIMITED	PETER DUFFY LIMITE LOFTHOUSE, W WEST YORK	(AKEFIELD (SHIRE	
			Inspect	on report	Tel: 0500 180123, Fae	0113 2309163	
Date: 01/03/2010	Job N* 1015778		Weather; DRY	Operator: MARK SLINN	section number.	PLF	٤
Present:	Vehidle	(c) = 1	Camera:	Preset:	4 Cleaned:	Grad	X in:
Roadt NEILEY:	PFOB HW	0	FLEXI ROD	1	YES		
Place: HOLMFI			Division: District:		start MH: G end MH: E		
Location: STW	22.3742		Tape No.:		Total length: 4.12 m		
Purpose:	ASSET CONDI			Shape/Size: Material:	CIRCULAR 150mm CAST IRON Pipe length:		
Use: Catchment:	RETURN LIQU WEST	DARS		Lining:	The most stranding		
Comment:				Category:			
Location details: 1:50 p	osition co	ie cha	ervation		counter	photo	grade
					counter	prioro	<b>Prece</b>
Depth: 0.60							
( a )	0.00 S		rt of Survey		00.00.00		(Misc) 0
	0.00 M		Hole Remark: G		00.00.00		(Constr) 0
	0.00 W	Wal	ler level, 05 % heightidiam	ster	00:00:00		(Serv) 0
	1.67 S1 E		rustation light, from 10 to 0 ter level, 25 % heightidiam	3 oʻdock, Start, Romanic F xlor	00.00.00 PHTCHY 00.00.00		(Serv) 2 (Serv) 0
	2.36 0	Gen	teral Observation, Remark:	TANKER JETTING	00:00:00		(Misc) 0
	2.42 W	L Wa	ter level, 05 % heightidiam	der .	00,000,00		(Serv) 0
E	4.12 F1 E	End	nuslation light, from 10 to 0	3 o'dock, Finish	60,00;00		(Servi 2
	4.12 54	i Man	dicite Restorik: E		00:00:00		(Constr) 0
Depth: 1.62							
Structural Defects				Constructional Features			
Service Delecte			01_03_2010.0	Miscellaneous Features ndb // page: 6			
J/125000/125547-00/0 ARUP		PEDOE		ge D7		Oue Aru	p & Partners

forkshire Water Ser	rvices		STF C	ompliance with IPPC Imp Nelley STF Te		
I a state of the	-	PETER	UPFY LIMITED	PETER DUFFY LIMITE LOFTHOUSE, W	O (DRAINS AI	D)
Le setti	Aid			WEST YORK Tel: 0600 160123, Fax:	SHIRE	
			tion report			
Date: 01/03/2010 Present:	Job N*: 10157789 Vehicle:	Weather: DRY Camora:	Operator: MARK SLINN Preset:	section number: 5	PLR: E Grade	x
	PF08 HWD	FLEXI ROD	Pieso.	Cicanod: YES	Grade	
1.200 X 1.200 X	EY STW MFIRTH	Division: District:		start MH: E end MH: C		
Location: STW		Tape No.:		Total length: 1.69 m		
Purpose: Use: Catchment:	ASSET CONDITION RETURN LIQUORS WEST		Shape/Size: Material: Lining: Category:	CIRCULAR 150mm CAST IRON Pipe length:		
Comment: Location details:					0.000	
1:25	position code of	bservation		counter	photo	grade
Depth: 1.62						
E	0.00 ST S	lart of Survey		00:00:00		(Misc) 0
		anhole Remark: E		00.00.00		Constr) (
		lator level, 05 % height/dian sociation light, from 10 to		00.00.00		(Serv) 0 (Serv) 2
Ĩ						
	1.69 P1 EL Er	nonustation light, from 10 to	03 o'clock, Finish	00:00:00		(Serv) 2
U.C.E.		anthole Flomark; C		00.00.00		Constr) (
Depth: 1.63	<u>1.89</u> PH Fi	nish Survey		00:00:00		(Misc) 0
Structural Delects Service Delects			Constructional Features Miscellaneous Features			
		01_03_2010	undb // page: 7			
125000/125547-00/0 AR	UPI0-12 WATERIO-12-8 REPO EILEY RESULTS REPORT IS		age D8		Ove Arup a Issue	& Partner

Yorkshire Water S	ervices			STF C	mpliance with IPPC Imp Neiley STF Te	rovement Pro sting Results	gram Rep
			PETER DU	FFY LIMITED			
Draft,	Aid				PETER DUFFY LIMITE LOFTHOUSE, W WEST YORK	SHIRE	)
			Inspecti	on report	Tel: 0600 180123, Fax	0113 2365165	
Date: 01/03/2010		lob Nº: 157789	Weather: DRY	Operator: MARK SLINN	section number: 6	PLR: C X	
Present:		/ehicle: 08 HWD	Camera: FLEXI ROD	Preset:	Cleaned: YES	Gracie:	
Road: NE	ILEY STW		Division:		start MH: C		
	LMFIRTH		District		end MH: D		
Location: ST Purpose:		ONDITION	Tape No.:	Shape/Size:	Total length: 11.42 m CIRCULAR 150mm		
Use: Catchment:	RETURN	LIQUORS		Material: Lining: Category:	CAST IRON Pipe length:		
Comment: Local on details:							
1:100	position	code obs	ervation		counter	photo	grade
Depth: 1.60	3						
C	0.00		rt of Survey		60:00:00	0	Aisc) O
	0.00		nhole Remark: C		00:00:00		onatr) i
	0.00		ter level, 05 % height/diamet		C0:00:00 PATCHY C0:00:00		Serv) 0
	7.65	DE Deb	ris, 05 % cross-sectional are	a 1065	20:30:00	15	ierv) 1
	11.39 F1	EL End	rustation light, from 07 to 05	o'deck, Finish	00:00:00	15	ierv) 2
K	11.40	MH Man	ihole Flomark: D		00:00:00	(C	ortatr) Ö
	11.42	FH Finis	sh Survey		00:00:00	(A	Asc) O
Structural Defects				Constructional Features			
Service Defects			01_03_2010.m	Miscellaneous Features db // page: 8			
J:\125000/125547-00/0 REPORTSWEILEY10002	ARUPI0-12 WATE	R/0-12-8 REPOR	RTS/RESULTS Pag	e D9		Ove Arup & F	Partner

rorks	hire Water Servi	ces			STF C	compliance with IPPC Imp Neiley STF Te	rovement Progra sting Results Re
				PETER DU	FFY LIMITED		
L	uettes	Aid				PETER DUFFY LIMITE LOFTHOUSE, W WEST YORK Tel: 0800 180123, Fax	AKEFIELD
				Inspectio	on report	11 000 100 100 100	
	Date: 01/03/2010	Job 1015	N*: 7789	Weather: DRY	Operator: MARK SLINN	section number: 7	PLR: J X
	Present:	Vehi PF08		Camera: ROVVER 225	Preset:	Cleaned: YES	Grade:
Pla Pla				Division: District:		ctart MH: J end MH: K	
Pur	0068:	ASSET CON		Tape No.:	Shape/Size: Material:	Total length: 16.4 m CIRCULAR 300mm CAST IRON Pipe length:	
_	chment:	RETURN LI	QUORS		Lining: Category:	CAST INON Pipelengin:	
	nment: ation details:						
	1:125	position	code obse	arvation		counter	photo grad
	Depth: 2.80						
	(	0.00	ST Start	t of Survey		00:00:00	(Misc
	H	0.00	MH Man	hole Remark: J		00:00:00	(Const
		0.00	WL Wate	er level, 05 % height/diamet	er	00:00:00	(Serv
No.							
8		8.35	WL Wate	ar level, 10 % height/diamet	er	00:00:00	(Serv
		10.75	WL Wate	ar level, 20 % height/diamet	er	00:00:00	(Serv
		12.34	WL Wate	ar level, 15 % height/diamet	or	00:00:00	(Serv
		14.16	WL Wate	er level, 10 % height/diamet	er	00:00:00	(Serv
		15.14		is, 05 % cross-sectional are		00:00:00	(Serv
		15.73		r lovel. 05 % height/diamet		00:00:00	(Serv
	K	16.40 F1		ustation light, from 09 to 03 note Remark: K	o clock, Pinish	00:00:00	(Serv.
	K	16.40		h Survey		00:00:00	(Misc)
	Depth: 3.20						
	tural Defects ce Defects				Constructional Peatures Miscellaneous Features		
				01_03_2010.m			
REPOR	00/125547-00/0 ARUI TSWEILEY0003NEI 00-NE-R-01	10-12 WATERW	-12-8 REPOR	TS\RESULTS Page	D10		Ove Arup & Partr Issue 3 Ju

Yorkshire Water Servi	ces		STF C	ompliance with If Neile			t Program sults Repo
		DETER D	UFIFY LIMITED				
In the fine	Aid	PETERDA	UPPT CIMITED	WE	DUSE, WA	KEFIELD	
		Inspect	ion report				
Date: 01/03/2010	Job Nº: 10157789	Weather: DRY	Operator: MARK SLINN	section number	e:	PU	
Present:	Vehicle: PF08 HWD	Camera: ROVVER 225	Preset	Cleaned: YES	+	Grad	X Se:
Foad: NEILEY		Division:	1	start MH:	ĸ		
Place: HOLMFI		District:		end MH:	WET WE	ш	
Location: STW		Tape No.:		Total length:	3.72 m		
Purpose:	ASSET CONDITION		Shape/Size: Material:	CIRCULAR 300mm CAST IRON Pipe le			
Use: Catchment:	RETURN LIQUORS WEST		Lining:	unor more ribele	ages.		
Comment:			Category:				
Location details:							
1:50 p	osition code ob	servation			ounter	photo	grade
Depth: 3.20							
	0.00 ST Sta	rt of Survey			00:00:0		(Misc) 0
K		nhole Ramark: K			0.02.00		(Constr) 0
		ler level, 05 % heightidiam	eter		00:00		(Sev) 0
	and the second states and second		H o'clock, Start, Remark: PJ		00:00:00		(50%) 2
¥							
WET WELL		oustation light, from 08 to 0		0	00:00		(Serv) 2
1		hole Remark: WET WELL			0.00.00		(Constr) 0
	<u>3.72</u> PH Fini				2.02.00		(Mac) 0
IBrucharal Dehech Service Dehecta		01_03_2010.m	Constructional Features Miscellaneous Poliures ndb // page: 10				
		RTSIRESULTS Pa					up & Partners



## Appendix E. YWS IMS Level 4 Inspections

0		YorkshireWater
Company: Yorkshire Water		
Location: YWS - NEILEY/STF		
Date printed: 01 August 2024		
Inspection ID		
9338070		
Location		
YWS - NEILEY/STF		
Business area		
Business unit		
None selected		
Tier 2 Team		
None selected		
Tier 3 Team		
None selected		
Tier 4 Team		
None selected		
	Level 4 - IMS Inspections - TCM	Page 1 of 7
	Level 4 - INO INSPECTIONS - LOW	Page 1 of 7



Tier 5 Team			
None selected			
Additional location info	formation		
-			
Does this inspecti	tion involve a contractor?		
December 1		None selected	
Does this inspection in		None selected	
Please select the cont Additional comments:		None selected	
Additional comments:	e		
Inspection details	5		
		Level 4 IMC Increasions TOM	D 2 -67
		Level 4 - IMS Inspections - TCM	Page 2 of 7



Date inspection carried out:	04 July 2024	
Time inspection carried out:	12:11	
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	Page 3 of 7



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 ?	4 - Company standard		
Pipework and valves - no evidence of damage/ leaks ?	4 - Company standard		
Hardstanding - clean, any significant damage ?	3 - Low risk		Action always raised for housekeeping and sludge spill clean, awaiting new hose to be approved and installed. Grounds maintenance is poor but should be addressed by the action



		being taken the backlog	by the company to clear of work.
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	4 - Company standard		
Pressure Vessels - any damage, tag in date	4 - Company standard		
PAT - in date, equipment fit for use. MCC clean.	4 - Company standard		
Scaffold - in use, tag in date	4 - Company standard		
Fire/Gas alarm/Fire exinguisher - available & in date.	4 - Company standard	F\E checked due 09/24	I in cent building - next
Audit/Inspection statistics			
Number of related tasks: 0			
Score: 75 out of 95			
Percentage score: 78.9%			
Percentage complete: 100%			
Audit/Inspection group statistics			
Section		Score	% Score
Document/Record Control		8 out of 10	80%
		20 out of 25	80%
Complaints/Incidents			
Complaints/Incidents Maintenance/House Keeping		23 out of 30	76.7%



Statutory Testing	20 out of 25	80%
Total scores	75 out of 95	78.9%
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		
Level 4 - IMS Inspections - TCM		Page 6 of 7



Related documents				
None uploaded				
		T		
Name	Job Title	Date	Signature	
	Level 4 - IMS Ins	spections - TCM		Page 7 of 7

