London Borough of Hounslow

Mogden Sewage Treatment Works

TW Site Inspection

Date of inspection: 19th October 2017	
Attendees: Mr Steven Maunders (London Borough of Hounslow) and Mr Dimitrios Kalmantis (Thames Water)	
LB Hounslow Observation	**Thames Water Action / Response**
<u>Storm Water Storage Tanks (SWST)</u> **Tank 1A** – Tank empty and flushed clean -- approximately 5% of tank covered by grit – requires further flushing Hoppers 1, 2 & 3 drained down to bottom level. **Tank 1B** – Tank empty and flushed clean - approximately 5% of tank covered by grit – requires further flushing - Hoppers 1, 2 & 3 drained down to bottom level. **Tank 2A** – Tank empty and flushed clean - Hoppers 1, 2 & 3 drained down to bottom level. **Tank 2B** – Tank empty and flushed clean - approximately 15% of tank covered by grit – requires further flushing - Hoppers 1, 2 & 3 drained down to bottom level. **Tank 3A** – Tank empty and flushed clean - Hoppers 1, 2 & 3 drained down to bottom level. **Tank 3B** – Tank empty and flushed clean - approximately 25% of tank covered by grit – requires further flushing – Hoppers 1, 2 & 3 drained	

down to bottom level. **Tanks 4A, 4B, 5A & 5B** which are covered and odour controlled were all empty - unable to gauge condition as lighting system still not working. **Tank 6A** – Tank empty and flushed clean - approximately 5% of tank covered by grit – requires further flushing - Hoppers 1, 2 & 3 drained down to bottom level. **Tank 6B** – Tank empty and flushed clean – Hoppers 1, 2 & 3 drained down to bottom level. **Tank 7A** – Tank empty and flushed clean – Hoppers 1, 2 & 3 drained down to bottom level. **Tank 7B** – Tank empty and flushed clean – approximately 15% of tank covered by grit – requires further flushing - Hoppers 1, 2 & 3 drained down to bottom level. **Tank 8A** – Tank empty and flushed clean - approximately 5% of tank covered by grit – requires further flushing - Hoppers 1, 2 & 3 drained down to 25% from bottom level – issue with faulty subterranean non-return valve allowing back-filling of hoppers – requires repair/replacement. **Tank 8B** – Tank empty and flushed clean – approximately 30% of tank covered by grit – requires further flushing – Hoppers 1, 2 & 3 drained down to 25% from bottom level – issue with faulty subterranean non-return valve allowing back-filling of hoppers – requires repair/replacement. **Feed Channel** - The level of effluent in both feed channels was low – approximately 5% - almost bottomed out in places – some grit and sludge - no local odour.	
<u>Odour Monitors</u>	

The odour readouts (H_2S) for all of the monitors, which were providing data at time of inspection:

Monitor 1	0.000	ppm	10:04
Monitor 2	0.003	ppm	09:55
Monitor 3	-0.000	ppm	10:46
Monitor 4	0.000	ppm	10:47
Monitor 5	0.000	ppm	10:39
Monitor 6	0.004	ppm	10:39
Monitor 7	0.003	ppm	10:43
Monitor 8	0.003	ppm	10:45
Monitor 9	0.005	ppm	10:44
Monitor 10	0.000	ppm	10:45
Monitor 11	-0.000	ppm	10:45
Monitor 12	0.003	ppm	10:45
Monitor 13	0.000	ppm	10:45
Wind Speed	0	mph	
Wind Direction	62°		

Sludge Screening House

Shutter doors closed at time of inspection – no local odours.

Imported Sludge

Ten imports of 35m^3 daily for preceding seven days.

Complaints

The Council directly received no complaints by telephone in the preceding week.

The Council directly received two complaints by email in the preceding week.

On 12th October 2017 a resident of Malting Way emailed at 04:50 to advise: **"**There was a nasty odour this morning on my way to work on Malting Way, Isleworth around 0430". The odour log for AM shift detailed a number of spikes (detailed further in Odour Log below) for times after that when complaint received – earliest 06:53-07:05 OMU2 @0.015ppm. The historic odour monitoring trends for OMU5 showed a spike at 04:45 peaking @ 0.026ppm and continuing intermittently for following twenty minutes. **On 16th October 2017** a resident of Malting Way emailed at 12:50 to advise: "Just opened my windows to air my flat and odour from Mogden is coming into my flat on Malting Way. Any idea what is causing this nuisance?" The odour log for PM shift detailed: "Monitor No.2 spiking towards end of shift (05:34) max 0.034ppm. Area checked and hosed down." The historic odour monitoring trends for OMU2 located nearest to the complainant showed OMU2 flat-lining at 0.014ppm for time indicated and preceding hours – identified as error with OMU. **The Council received no complaints by email from MRAG.** ***Thames Water controller advised that they had received no direct complaints in the preceding week.*** **Odour Log (Thames) - Photocopies of log entries taken** **Thursday 12th October 2017** **AM** – Cool. All OMU's in use. **Observations:** "OM 1-5 = OM2 = 0.015ppm @ 06:53-07:05 OM5 = 0.017ppm @ 07:35-07:48 OM5 = 0.015ppm @ 09:05-09:18	

OM3 = 0.026ppm @ 12:40-12:53
OM3 = 0.017ppm @ 15:10-15:23
OM 6-13 = No spikes".
Actions: None noted.
PM – Cool.
All OMU's in use.
Observations: None noted.
Actions: None noted**.**

Friday 13th October 2017
AM – Cool with Sun and partial cloud.
All OMU's in use.
Observations: None noted.
Actions: None noted.
PM – Cool with Sun and heavy cloud.
All OMU's in use.
Observations: "Monitor No.3 spiked at 24:40 (ish) but <15 mins duration (max 0.035ppm). Monitor No.2 spiking on and off from 04:00-06:00 all spikes less than 15 mins duration max 0.023ppm."
Actions: None noted.

Saturday 14th October 2017
AM – Cool.
OMU 3 out - All other OMU's in use.
Observations:
"OM 1-5 =
Mon 2 = 0.016ppm @ 06:09-06:36
Mon 2 = 0.035ppm @ 06:54-07:21
Mon 2 = 0.025ppm @ 07:39-07:51
Mon 2 = 0.023ppm @ 08:09-08:51
OM5 = 0.024ppm @ 15:04-15:16
OM 6-13 = No spikes".
Actions: None noted.
PM – Cool with Sun and partial cloud.
All OMU's in use.
Observations: "Monitor No.2 spiking on & off between 20:25 – 00:34 maximum reading during this period 0.030ppm but <15 mins duration. Monitors Nos. (sic.) 9 & 10 spiked: 19:38 – 9 / 20:20 – 10 both < 15

mins duration, Flare stack had failed. Monitor 11 spiked 03:50 <15 mins". **Actions:** Checked East Inlet, No signs of odour – hosed area down anyway. Drained down "condensate pot" (sic.) on Flare stack & reset burnt down to 26m & gas compressor issues 0.016ppm. **Sunday 15th October 2017** **AM** – Cool with Sun and partial cloud. All OMU's in use. **Observations:** "OM 1-5 = Mon 2 = 0.023ppm @ 07:07-08:37 (max spike = 0.06) Mon 2 = 0.054ppm @ 08:52-09:22 Mon 2 = 0.033ppm @ 09:40-10:22 OM 6-13 = No spikes". **Actions:** None noted. **PM** – Cool with Sun and heavy cloud. All OMU's in use. **Observations:** "Monitor No.2 spiking on & off during shift maximum 0.029ppm but < 15 mins. Monitor No.3 spiked at 01:00 <15 mins duration max 0.018ppm. Monitor No.10 spiked 3 times – 2<15 mins duration. Third spike at 00:34 until 01:32 (0.020ppm) then at 01:49 – 02:30max 0.040ppm. **Actions:** None noted. **Monday 16th October 2017** **AM** – Warm with Sun and heavy cloud. OMU - All OMU's in use. **Observations:** ""O/M 9 spiked from 05:50 to 05:59 to max 0.049ppm. O/M 9 spike to 0.020 06:05 to 06:14." **Actions:** "Digester domes high with gas compressor problem – dome brought down by Flare stack". **PM** – Cool with Sun and heavy cloud. All OMU's in use. **Observations:** "Monitor No.2 spiking towards end of shift (05:34) max 0.034ppm". **Actions:** "Area checked and hosed down".	

Tuesday 17th October 2017 **AM** – Warm with partial Sun, cloud and rain. All OMU's in use. **Observations:** "No odour issues on site. Nothing to report. **Actions:** None noted. **PM** – Cool with Sun and partial cloud. All OMU's in use. **Observations:** "OM 1-5 = no spikes OM 6-13 = Mon 10 = 0.019ppm @ 20:20-20:33 Mon 9 = 0.015ppm @ 22:23-22:35 **Actions:** None noted. **Wednesday 18th October 2017** **AM** – Warm with partial Sun, cloud and rain. All OMU's in use. **Observations:** "Nothing to report on Trends." **Actions:** None noted. **PM** – Cool with partial Sun, cloud and rain. All OMU's in use. **Observations:** "OM 1-5 = OM2 = 0.015ppm @ 01:51-02:01 OM 6-13 = no issues". **Actions:** None noted.	

Sludge Dip Records

Date	West PSTs 1	West PSTs 2	West PSTs 3	West Total	East PSTs	Grand Total
	All units in m^3					
OMP limit	**500**					
13/10/17	***3249**	0	0	3249	2090	5339
16/10/17	**958**	0	0	958	2081	3039
/10/17	**1163**	0	0	1163	1264	2427

***The sludge stock levels for the West side circular primary settlement tank 1 were not compliant with the OMP trigger level (500m^3) on any of the dates for which data has been provided**.
There are no limits for the East side primary settlement tanks as these are covered and odour controlled. Thames is required by the terms of the abatement notice agreed in 2005 to notify LBH on the next working day of any such exceedance and notify LBH within three working days of any appropriate remedial measure taken within three days.

Explanation to the high levels of sludge in the PSTs: TW advised that the sludge readings are not true readings for sludge in the West Side PSTs 1. Thames Water advised that there is clean water being pumped to the head of the circular PSTs (West Side) and into circular PST 9. The force of this water entering PST 9 is causing the thin layer of sludge within the tank to be blown up and mixed throughout the tank (mixing blanket). When the tanks are dipped for sludge they are encountering it at a much higher level due to this mixing. Thames Water has to record when they encounter sludge as part of their procedures and this is why they believe they consider they have the false higher readings. Another reason why they believe these are false positives is due to the flow out of the PST. If the levels of sludge present in the tank are correct they would expect to see flows at 40l/s however they have flows of 60l/s with current levels. Thames Water advised they would have flow like this with lower levels of sludge in the tank and therefore they do not believe it is an issue and would also not be an odour issues.

Digesters **Digesters 1-4** – Out of use (permanent) – noticeable quantity of water accumulated to the brim of these tanks which is thick with algae – requires draining. **Digester 5** - in use – seal level approx. 2ft below coping stones – seal weak and bubbling vigorously – ongoing spill from tank spitting requiring clean-up. **Digester 6** - in use – seal level approx. 2ft below coping stones – good seal – Bell height high – requires draw down of biogas. **Digester 7** - in use – seal level approx. 3ft below coping stones – seal weak and bubbling – Bell height high – requires draw down of biogas. **Digester 8** - in use – seal level approx. 2ft below coping stones – seal weak and bubbling vigorously – ongoing spill from tank spitting requiring clean-up. – Bell height high – requires draw down of biogas. **Digester 9** - in use – seal level approx. 1ft below coping stones – seal weak and bubbling. – Bell height high – requires draw down of biogas. **Digester 10** - in use – seal level approx. 4ft below coping stones – seal weak and bubbling. – Bell height high – requires draw down of biogas. **Digester 11** - in use – seal level approx. 3ft below coping stones – seal weak and bubbling. **Digester 12** - in use – seal level approx. 4ft below coping stones – seal weak and bubbling. **Digester 13** - out of use – empty and clean – contractor on site undertaking maintenance. **Digester 14** - in use – seal level approx. 2ft below coping stones – good seal.	

Digester 15 - in use – seal level approx. 1ft below coping stones – seal weak and bubbling vigorously – ongoing spill from tank spitting requiring clean-up. – Bell height high – requires draw down of biogas. **Digester 16** - out of use – empty and clean – contractor on site undertaking maintenance. **Digester 17** - in use – seal level approx. 5ft below coping stones – good seal. **Digester 18** - in use – seal level approx. 4ft below coping stones – good seal. **Digester 19** - out of use – empty and clean – contractor on site undertaking maintenance. **Digester 20** - in use – seal level approx. 5ft below coping stones – good seal. There was evidence of anti-foaming agent in use and TW advised that this is applied daily to all of the digesters that are operational. 2x full, 5x partially filled & 3x empty tanks of anti-foaming agent seen positioned throughout area. Installation of "auto-dosing" for anti-foam agent to all digesters operational – currently using 2-3 tanks weekly.	
GENERAL **Final Settlement Tanks East Side of Works** The 8 circular tanks previously used as PSTs are now being used as final tanks (71-78) all are back in service following maintenance works to scrapers. Tanks 71 & 77 surface thick with algae. **East Side Screen House** All doors closed. Roller-shutter door showing significant corrosion	

resulting is large gaps – requires replacement. **Skips** 1x small open skip containing rag immediately outside Screen House – covered with yellow tarpaulin. 3x full small grit skips on North/East of site by grit house – covered with "heavy duty" yellow tarpaulin. Ongoing maintenance to this plant requiring over-pumping of grit. 1x large open skip – empty and uncovered located on Service Road by FST's 71-78 – a mattress has been left alongside skip – arranged for removal whilst on site. 1x general waste skip (covered) on Service Road between FST's 1-40. On the West side there was one large enclosed skip awaiting change over. **Pasteurisation Plant** The pasteurisation plant is in service and fully operational. **West side primary settlement tanks (PST)** Rectangular PSTs – no issues Circular PST's 9, 10, 11 & 12 all in use. **West Side Aeration Lanes (Old)** Battery C aeration feed channel approximately 50% obstructed – requires jetting. **New Works (West Side)** Feed Channel for Aeration Lanes 20 - 25 approximately 75% obstructed – requires jetting. Approximately 60% of tanks have "fluffy" coverage across surface –	

worsened since previous inspection. Large quantity of physical detritus in tank that has bypassed screener.

Odour Control Unit (OCU) performance monitoring – (16/10/17)

Plant	Reading (ppm)	Action Level (ppm)	Compliant
Main pumping station inlet	0.176 0.155 0.146	Unknown	Unknown
Main pumping station outlet	0.003 0.000 0.000	0.2	Yes
East OCU	0.000 0.000 0.000	0.05	Yes
West inlet OCU	0.000 0.000 0.000	0.05	Yes
Sludge reception inlet	No Data	Unknown	Unknown
Sludge reception outlet	0,000 0,000 0.000	0.8	Yes
Thickening plant inlet	No data	Unknown	Unknown
Thickening plant outlet	0.000 0.000 0.000	0.6	Yes
Transfer PS inlet	No Data	Unknown	Unknown
Transfer PS outlet	0.004 0.003 0.000	0.6	Yes
New West inlet (OCU 11)	0.000 0.000 0.000	0.5	Yes
OCU 12 (Pasteurisation Plant)	0.0003 0.0002 0.0003	0.5	Yes