London Borough of Hounslow

**Mogden Sewage Treatment Works**

**TW Site Inspection**

| | |
|---|---|
| **Date of inspection:** 21st September 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>**<br><br>**Tank 1A** – Tank empty and flushed clean -- approximately 10% of tank covered by grit – requires further flushing Hoppers 2 & 3 drained down to bottom level Hopper 1 approximately 50% full of effluent water.<br><br>**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.<br><br>**Tank 2A** – Tank empty and flushed clean - approximately 5% of tank covered by grit – requires further flushing - Hoppers 2 & 3 drained down to bottom level Hopper 1 approximately 40% full of effluent water.<br><br>**Tank 2B** – Tank empty and flushed clean - approximately 15% of tank covered by grit – requires further flushing - Hoppers 1, 2 & 3 full of effluent water.<br><br>**Tank 3A** – Tank empty and flushed clean. Hoppers 1 & 3 drained down to bottom level. Hopper 2 approximately 40% full of effluent water.<br><br>**Tank 3B** – Tank empty and flushed clean - approximately 10% of tank | |

| | |
|---|---|
| covered by grit – requires further flushing - Hoppers 1 & 2 full of effluent water. Hopper 3 drained down to bottom.<br><br>**Tanks 4A, 4B, 5A & 5B** which are covered and odour controlled were all full - unable to gauge condition as lighting system still not working.<br><br>**Tank 6A** – Tank empty and flushed clean - Hoppers 1, 2 & 3 drained down to bottom level.<br><br>**Tank 6B** – Tank empty and flushed clean. Hoppers 1 & 3 drained down to bottom level. Hopper 2 approximately 40% full of effluent water.<br><br>**Tank 7A** – Tank empty and flushed clean – approximately 5% of tank covered by grit – requires further flushing – Hoppers 1, 2 & 3 drained down to bottom level although refilling partially due to issue with faulty subterranean non-return valve allowing back-filling of hoppers – requires repair/replacement.<br><br>**Tank 7B** – Tank empty and flushed clean – approximately 10% of tank covered by grit – requires further flushing - Hoppers 1, 2 & 3 drained down to bottom level although refilling partially due to issue with faulty subterranean non-return valve allowing back-filling of hoppers – requires repair/replacement.<br><br>**Tank 8A** – Tank empty and flushed clean. Hoppers 1, 2 & 3 drained down to bottom level although partially refilling due to issue with faulty subterranean non-return valve allowing back-filling of hoppers – requires repair/replacement.<br><br>**Tank 8B** – – Tank empty and flushed clean – approximately 10% of tank covered by grit – requires further flushing - Hoppers 1, 2 & 3 drained down to bottom level although refilling partially due to issue with faulty subterranean non-return valve allowing back-filling of hoppers – requires repair/replacement.<br><br>**Feed Channel** - The level of effluent in both feed channels was low –- approximately 15% - almost bottomed out in places – some grit and sludge - no local odour. | |

**Odour Monitors**

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

| | | | |
|---|---|---|---|
| Monitor 1 | 0.005 | ppm | 15:11 |
| Monitor 2 | 0.009 | ppm | 15:11 |
| Monitor 3 | 0.000 | ppm | 15:11 |
| Monitor 4 | 0.005 | ppm | 15:11 |
| Monitor 5 | 0.004 | ppm | 15:11 |
| Monitor 6 | 0.007 | ppm | 15:11 |
| Monitor 7 | 0.005 | ppm | 15:11 |
| Monitor 8 | 0.006 | ppm | 15:11 |
| Monitor 9 | 0.007 | ppm | 15:11 |
| Monitor 10 | 0.006 | ppm | 15:11 |
| Monitor 11 | 0.006 | ppm | 15:11 |
| Monitor 12 | 0.004 | ppm | 15:11 |
| Monitor 13 | 0.004 | ppm | 15:11 |
| Wind Speed | 11 | mph | |
| Wind Direction | 199° | SW | |

System offline in office at time of inspection so unable to review current trace data – no odours noticeable on site throughout inspection.

**Complaints**

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

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

**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 14TH September 2017**

**AM** – Warm with Sun and heavy cloud.
All OMU's in use.
**Observations:** "Monitor No.3 spiking on and off throughout shift:
06:35-06:50 max 0.023 PPM
07:37-08:35 max 0.031 PPM
09:22-09:35 < 15 mins duration
10:22-10:35 < 15 mins duration
12:05-12:22 max > 0.045 PPM
14:07-14:20 < 15 mins duration
14:35-14:50 max > 0.045 PPM."
**Actions: "**Checked area around West sided PST's 21-25 & OCU 11 has issues**."**
**PM** – Cold with Sun and heavy cloud.
All OMU's in use.
**Observations:**
"Monitor 3 one spike peak @ 0.046 PPM duration 18:51-19:06.
Monitor 8 one spike peak @ 0.017 PPM duration 23:21-00:16."
**Actions:** "Odour Monitor 8 displaying sensor cool down alarm for the duration of the spike. No odour detected. OCU 11 chemical dosing issues."

**Friday 15th September 2017**
**AM** – Warm with Sun and heavy cloud.
All OMU's in use.
**Observations: "**Odour monitor No.2 spiking 10:04-10:17 <15 mins duration. Max 0.024 PPM."
**Actions**: None noted.
**PM** – None noted.
All OMU's in use.
**Observations:** "Odour monitor 2 spikes twice. East inlet works checked."
**Actions:** "Inlet works was checked and small odour from skips found. Area around skips cleaned."

| | |
|---|---|
| **Saturday 16th September 2017**<br>**AM** – None noted.<br>All OMU's in use.<br>**Observations:** "No odour spikes. No odour problems."<br>**Actions:** None noted.<br>**PM** – Cool with heavy cloud and rain.<br>All OMU's in use.<br>**Observations:** "No odour spikes."<br>**Actions:** None noted.<br><br>**Sunday 17th September 2017**<br>**AM** – Cool with heavy cloud and rain.<br>All OMU's in use.<br>**Observations:** "No odour issues."<br>**Actions:** None noted.<br>**PM** – Cool with heavy cloud and rain.<br>All OMU's in use.<br>**Observations:** "No odour spikes. No odour problems."<br>**Actions:** None noted.<br><br>**Monday 18th September 2017**<br>**AM** – Warm with Sun and heavy cloud.<br>OMU - All OMU's in use.<br>**Observations:** ""No odour spikes. No odour issues."<br>**Actions:** None noted.<br>**PM** – Cool with heavy cloud and rain.<br>All OMU's in use.<br>**Observations:** "Monitor 5 – one spike peaked @ 0.019 PPM 20:56-21:41."<br>**Actions:** "Area around monitor 5 investigated. No odour detected. Light rain whilst monitor in alarm."<br><br>**Tuesday 19th September 2017**<br>**AM** – Warm with cloud and partial Sun.<br>All OMU's in use.<br>**Observations:** "OM 3 0.016 PPM 15:23-15:34 (11 mins). No odour | |

| | |
|---|---|
| source found. No other issues."<br>**Actions:** None noted.<br>**PM** – Cool with heavy cloud and partial sun.<br>All OMU's in use.<br>**Observations:** "Monitor No.2 spike around 19:50 <15 mins duration (max 0.017 ppm)."<br>**Actions:** None noted.<br><br>**Wednesday 20th September 2017**<br>**AM** – Cool with cloud and partial Sun.<br>All OMU's in use<br>**Observations:** "No odour spikes. No issues. Small sludge spillage by new centrifuge near Digester Area."<br>**Actions:** None noted.<br>**PM** – Cool with cloud and partial Sun.<br>All OMU's in use.<br>**Observations:** "Monitor No.2 spiked at 20:50 for almost an hour (max 0.019 ppm), Area checked and skip juice hosed down."<br>**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** | | | | | |
| 15/09/17 | 0 | 1054 | 0 | 1054 | 1896 | 2950(TW figure 3950) |
| 18/09/17 | 0 | 0 | 0 | 0 | 4896 | 4896 |
| 20/09/17 | 0 | 1236 | 0 | 1236 | 2081 | 3317 |

The sludge stock levels for the West side circular primary settlement tank 1 were **compliant** with the OMP trigger level (500$m^3$) for all dates on 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.

**Sludge Screening House**

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

**Imported Sludge**

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

**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.<br><br>**Digester 5** - in use – seal level approx. 2ft below coping stones – seal weak and bubbling.<br><br>**Digester 6** - in use – seal level approx. 3ft below coping stones – seal weak and bubbling.<br><br>**Digester 7** - in use – seal level approx. 4ft below coping stones – seal weak and bubbling – Bell high – requires draw down of bio-gas.<br><br>**Digester 8** - in use – seal level approx. 4ft below coping stones – seal weak and bubbling – Bell high – requires draw down of bio-gas.<br><br>**Digester 9** - in use – seal level approx. 3ft below coping stones – seal weal and bubbling.<br><br>**Digester 10** - in use – seal level approx. 3ft below coping stones – seal weak and bubbling – evidence of dry spill requiring clean-up.<br><br>**Digester 11** - in use – seal level approx. 2ft below coping stones – seal weak and bubbling.<br><br>**Digester 12** - in use – seal level approx. 2ft below coping stones – seal weak and bubbling.<br><br>**Digester 13** - out of use – empty and clean – contractor on site undertaking maintenance.<br><br>**Digester 14** - in use – seal level approx. 1ft below coping stones – good seal.<br><br>**Digester 15** - in use – seal level approx. 2ft below coping stones – good seal – evidence of dry spill requiring clean-up.<br><br>**Digester 16** - out of use – empty and clean – contractor on site undertaking maintenance.<br><br>**Digester 17** - in use – seal level approx. 3ft below coping stones – | |

| | |
|---|---|
| good seal.<br><br>**Digester 18** - in use – seal level approx. 2ft below coping stones – good seal.<br><br>**Digester 19** - out of use – empty and clean – contractor on site undertaking maintenance.<br><br>**Digester 20** - in use – seal level approx. 3ft below coping stones – good seal.<br><br>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.<br><br>3x full, 2x partially filled & 5 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**<br><br>**Final Settlement Tanks East Side of Works**<br><br>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. Tank 77 currently out of use. Tank 75 surface completely covered in sludge – noticeable local odour – requires jetting/over-pumping. Tank 71 surface thick with algae.<br><br>**East Side Screen House**<br><br>All doors closed. Roller-shutter door showing significant corrosion resulting is large gaps – requires replacement.<br><br>**Other Skips**<br><br>3x full small grit skip on North/East of site by grit house – covered with | |

| | |
|---|---|
| "heavy duty" yellow tarpaulin - ongoing maintenance to plant in this area requiring over-pumping<br>1x large open general waste skip at rear of screen house.<br>On the West side there were no skips.<br><br>**Pasteurisation Plant**<br><br>The pasteurisation plant is in service and fully operational.<br><br>**Section 106 agreement**<br><br>There have been no breaches of the s106 agreement in the last week.<br><br>**West side primary settlement tanks (PST)**<br><br>Rectangular PSTs – no issues<br>Circular PST 9 out of use and undergoing maintenance. Circular PST's 10, 11 & 12 all in use.<br><br>**West Side Aeration Lanes (Old)**<br><br>Battery C aeration feed channel approximately 75% obstructed – requires jetting.<br><br>**New Works (West Side)**<br><br>Feed Channel for Aeration Lanes 20 - 25 approximately 80% obstructed – requires jetting.<br><br>Majority of tanks have significantly reduced "fluffy" coverage across surface – noticeable "churn" – dried crust remaining on caps of all retaining walls – Sprinklers in use – although efficiency greatly reduced due to algae/bind-weed. Large quantity of physical detritus in some areas of tank still bypassing screener. Additionally quantity of thick sludge accumulating in some chambers – noticeable local odour – | |

requires jetting/over-pumping.

**Odour Control Unit (OCU) performance monitoring – (18/09/17)**

| Plant | Reading (ppm) | Action Level (ppm) | Compliant |
|---|---|---|---|
| Main pumping station inlet | 0.005<br>0.005<br>0.005 | Unknown | Unknown |
| Main pumping station outlet | 0.000<br>0.000<br>0.000 | 0.2 | Yes |
| East OCU | 0.000<br>0.000<br>0.000 | 0.05 | Yes |
| West inlet OCU | 0.000<br>0.000<br>0.000 | 0.05 | Yes |
| Sludge reception inlet | No data | Unknown | Unknown |
| Sludge reception outlet | 0.000<br>0.000<br>0.000 | 0.8 | Yes |
| Thickening plant inlet | No data | Unknown | Unknown |
| Thickening plant outlet | 0.000<br>0.000<br>0.000 | 0.6 | Yes |
| Transfer PS inlet | No data provided | Unknown | Unknown |
| Transfer PS outlet | 0.000<br>0.000<br>0.000 | 0.6 | Yes |
| New West inlet (OCU 11) | 0.006<br>0.006<br>0.006 | 0.5 | Yes |
| OCU 12 (Pasteurisation Plant) | 0.000<br>0.000<br>0.000 | 0.5 | Yes |