

140 days with illegal discharges of untreated sewage by United Utilities to Lake Windermere and feeder watercourses in 2024

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SUMMARY

2024 results

A joint study by WASP and Save Windermere has found that on 140 days, in 2024, United Utilities (UU) discharged untreated sewage illegally directly to Lake Windermere and indirectly to its feeder watercourses from 3 sewage works and 3 sewage pumping stations (Table 1)



Illegal spills	
Ambleside STW	3
Elterwater SPS	5
Glebe SPS	15
Grasmere STW	28
Hawkshead SPS	67
Near Sawrey STW	22
	140

TABLE 1: days with illegal discharges of untreated sewage to Lake Windermere and feeder watercourses

Yearly comparison across all 6 sites

	2021	2022	2023	2024
Total spill hours (from EIR requests)	5,940	6,727	7,096	6,327
Total spill days	373	436	464	462
Illegal spill days	109	104	110	140
% spill days illegal	29%	24%	24%	30%

- This is the highest recorded annual illegal sewage discharge to Lake Windermere.
- The longest illegal discharge of untreated sewage, from Hawkshead SPS, lasted 10 days.
- Glebe Road SPS illegally discharged 36 million litres of untreated sewage to Lake Windermere.

DATA SOURCES AND DEFINITIONS

Save Windermere submitted Environmental Information Regulation (EIR) requests to UU for data recording both **treated and untreated sewage** discharges in 2024, as well as **telemetry exchanges** between the sites and UU's control centre. Some of the requests were partially satisfied or refused and it was necessary to follow a rejected internal UU appeal with an appeal to the Information Commissioner's Office (ICO) to force UU to satisfy the data requests. WASP purchased **rainfall** data from www.visualcrossing.com.

A discharge of untreated sewage is “early” if the flow to full treatment (FFT) was not at, or above, the capacity of a sewage treatment works throughout or if the sewage passed forward (PFF) from a sewage pumping station was not above the rate specified in its Environment Agency permit.

SEWAGE DISCHARGE SOURCES

WASP has analysed the data acquired for 3 STWs (Ambleside, Grasmere and Near Sawrey) and 3 SPSs (Elterwater, Windermere-Glebe Road and Hawkshead) operated by UU. These are the only untreated sewage point sources in the Windermere catchment.

Ambleside STW

Ambleside STW serves a population equivalent of almost 5,000 and spills to the River Rothay which flows into Lake Windermere.

Elterwater SPS

Elterwater SPS discharges to the Great Langdale Beck which flows into Elterwater. Elterwater connects to Lake Windermere via the rivers Brathay. Elterwater SPS pumps untreated sewage to the Langdale STW which is a treat all flows site.

Glebe Road SPS, Windermere

Glebe Road SPS pumps untreated sewage to Windermere STW which is a “treat all” works without a permit to discharge untreated sewage. In 2024, a BBC Panorama programme revealed that Glebe Road SPS pumped more than 140 million litres of untreated sewage into Lake Windermere between 2021 and 2023 at times when it was not permitted and UU failed to report most of it¹.

Grasmere STW

Grasmere STW serves a small population and discharges to Grasmere Lake. The sewage treatment data for Grasmere STW provided was not labelled as final effluent (FE) or as flow to full treatment (FFT). However, an EPR Compliance Assessment Report (S/0743188) provided by the EA to Save Windermere includes a photograph of an MCERTS flow meter at Grasmere STW labelled as “Flow to Works”. Such a meter would provide an upper bound for flow to full treatment (FFT). If the treatment data provided corresponds to FFT then many EDM detected spills would be considered early. If the flow data is final effluent (FE) then allowance has to be made for the difference between FE and FFT. At small works this is of the order of 10%, so with an additional allowance of 8% meter error, the threshold might be 82%. However, WASP takes a “cautious” approach by identifying spills with a flow rate that could not be associated with FFT rates above works capacity.

¹ <https://www.bbc.co.uk/news/articles/cdrj70dynk1o>

Hawkshead SPS

Hawkshead STW does not have a storm discharge permit but the feeder Hawkshead SPS does. Hawkshead SPS's permit hasn't changed since 2011 and requires at least of 14 l/s to be passed on before excess can be diverted to, or overflow from, its storm tank to the Black Beck. Black Beck feeds Esthwaite Water from which Cunsey Beck flows for about 2 miles before entering Lake Windermere.

Near Sawrey STW

Near Sawrey STW serves a population equivalent of about 600. It discharges to the Cunsey Beck which flows for around two miles between Esthwaite Water and Lake Windermere. In the summer of 2022, Cunsey Beck suffered a serious pollution incident² that killed 200 fish (trout, salmon, pike), eels and white-clawed crayfish. The EA suspected that "100% of life within the river had been killed³.

² <https://cumbriacrack.com/2022/07/11/claims-untreated-sewage-killed-200-fish-in-lake-district-beck/>

³ <https://www.savewindermere.com/news/inquiry-into-the-failure-of-water-industry-regulation>

ANALYSIS

Ambleside STW

Figure 1 show the annual 2024 overview of sewage flow to treatment (FFT), event duration monitor detection of untreated sewage discharges from the storm tank (EDM SSO) and daily rainfall. In addition, **Unconsented Spill 1** represents telemetry data exchange between Ambleside STW and the UU central control which WASP assumes to reflect untreated sewage discharge. It is unclear why the term “unconsented” is used by UU.

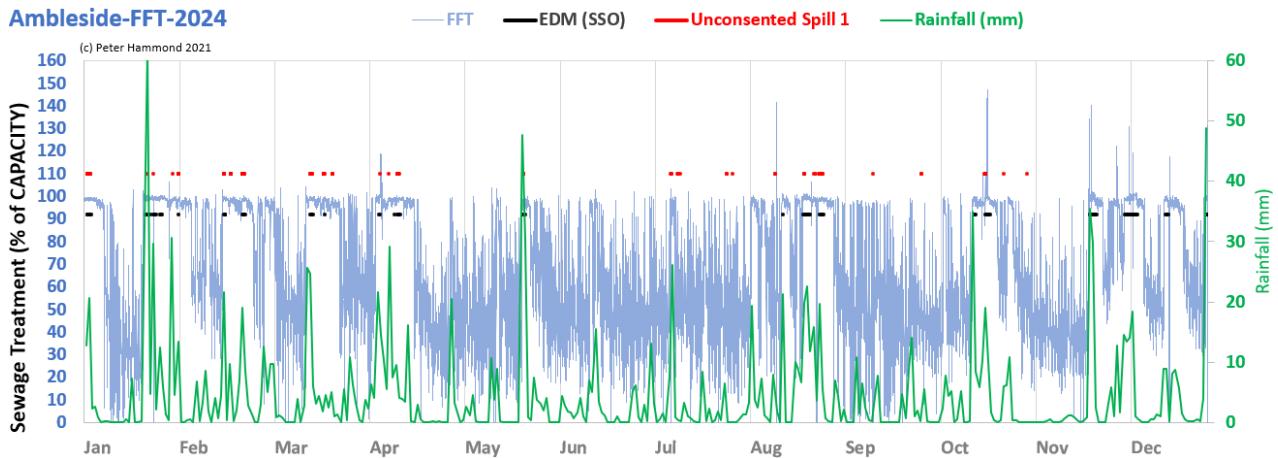


Figure 1: 2024 overview of **sewage treatment**, **untreated sewage discharge** and **rainfall** for Ambleside STW.

WASP identified 3 likely, illegal discharges of untreated sewage (Fig. 2): July 10, Aug 14 and Sept 13.

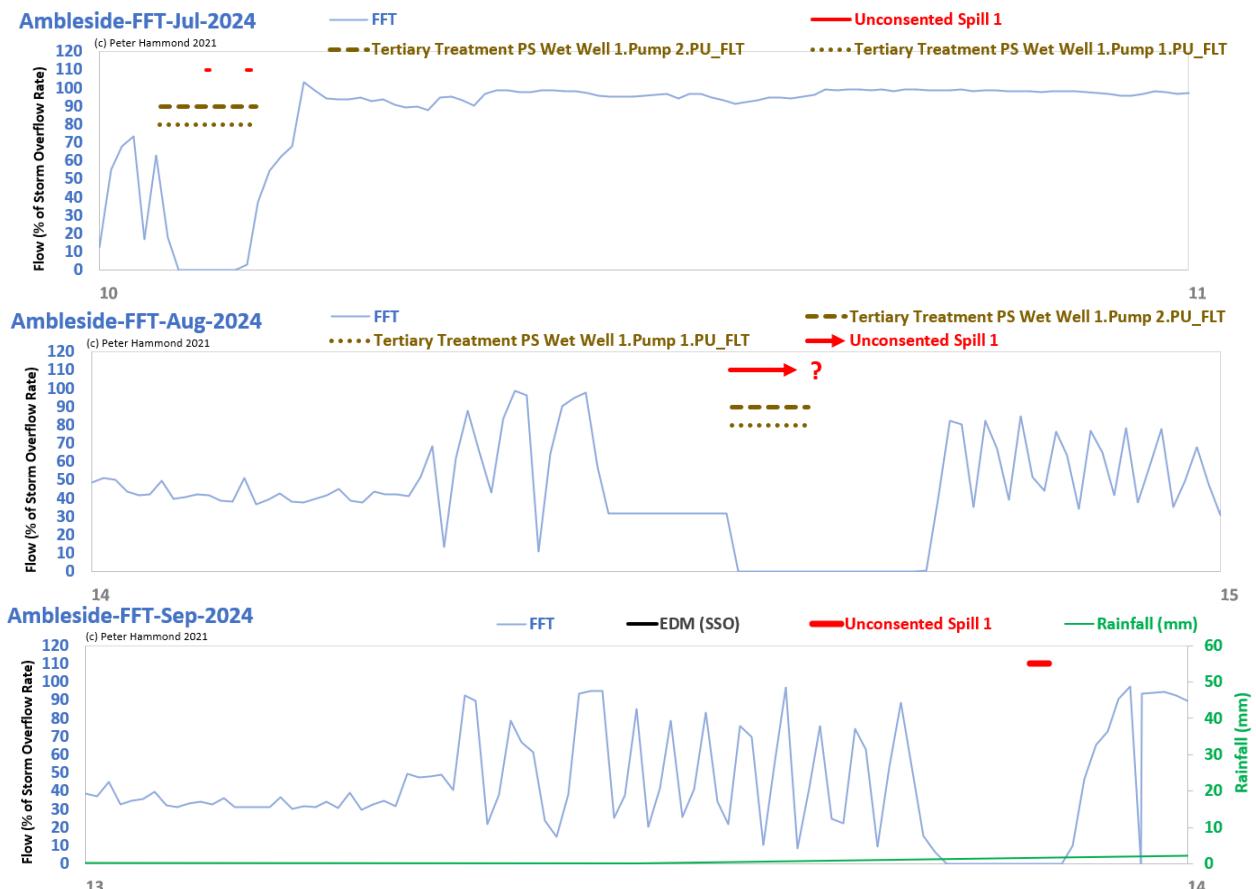


Figure 2: 3 days with gaps in flow to treatment and alarms indicating pump failure and/or spill alarm

The longest permitted, i.e., legal, discharge from Ambleside STW of untreated sewage occurred for more than 4 days between December 5th and December 9th (Fig. 3).

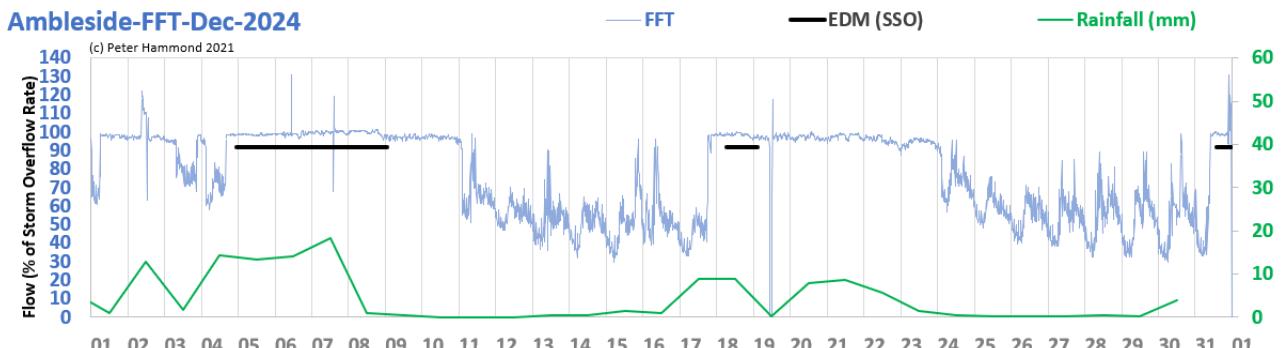


Figure 3: the longest legal discharge of untreated sewage at Ambleside STW was between Dec 4th and 9th

Elterwater SPS

The 2024 annual overview chart for Elterwater SPS is given in Fig. 4.

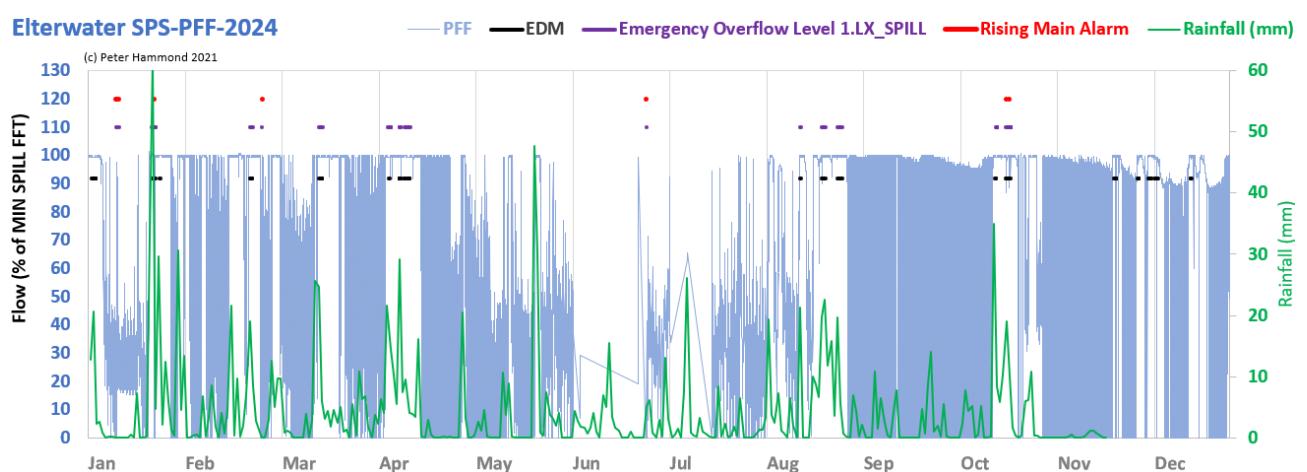


Figure 4: 2024 overview of sewage treatment, untreated sewage discharge and rainfall for Elterwater SPS.

Notice that there are significant periods of missing sewage treatment and event duration monitoring data in June and July 2024. During these gaps, it is impossible to detect discharges of untreated sewage and, if there were, whether or not they were compliant.

In addition to the sewage flow passed forward, rainfall and event duration monitoring data at Elterwater SPS, the overview chart includes periods where telemetry signals raised and lowered alarms called **Emergency Overflow Level 2.2 X_SPILL** and **Rising Main Alarm**. The former frequently coincides with the EDM detection of storm overflow discharge.

WASP found 5 days with illegal untreated sewage discharges: Jan 9-10, Jan 21-22, Feb 25 (Fig. 5).

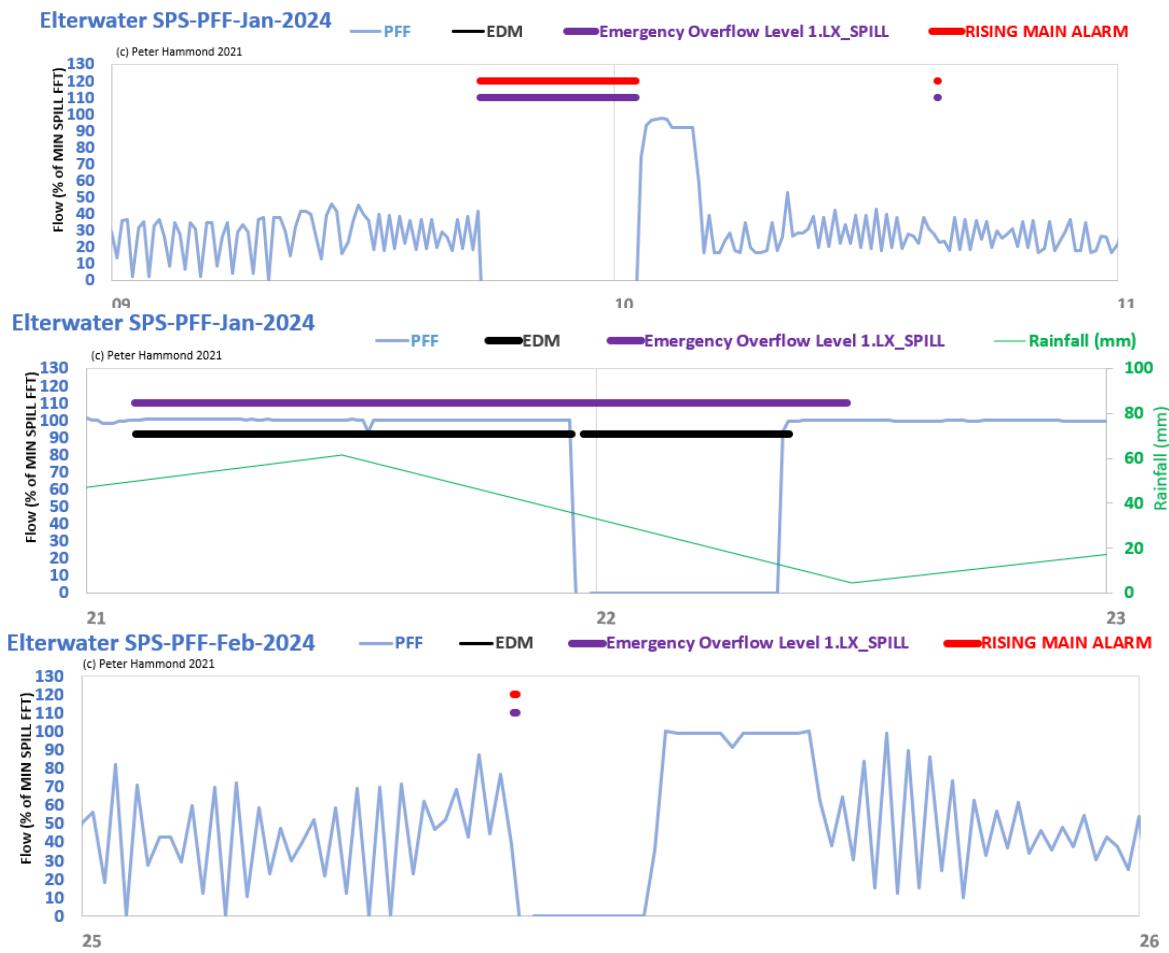


Figure 5: 5 days where there are gaps in untreated sewage passed forward and in addition alarms raised consistent with illegal discharges of untreated sewage (Jan 9-10, 21-22; Feb 25)

Glebe Road SPS, Windermere

Figure 7 shows the annual overview chart for Glebe Road SPS.

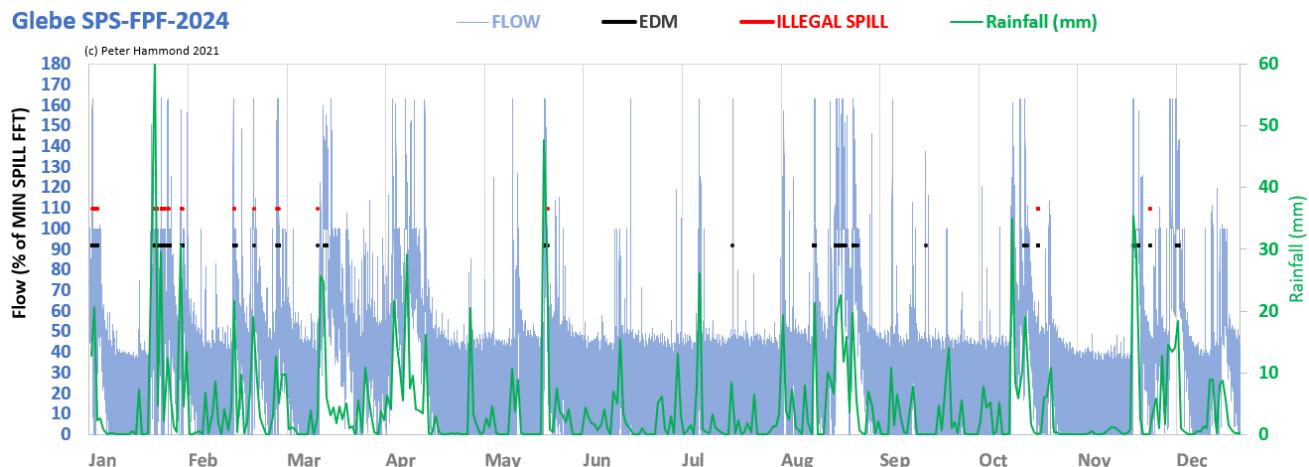


Figure 7: 2024 overview of sewage treatment, untreated sewage discharge and rainfall for Glebe Road SPS.

Figure 8 shows 15 days with a mix of short and long discharges of untreated sewage. Those parts of the discharges where the pass forward flow is below permit requirement (245 l/s) are illegal.

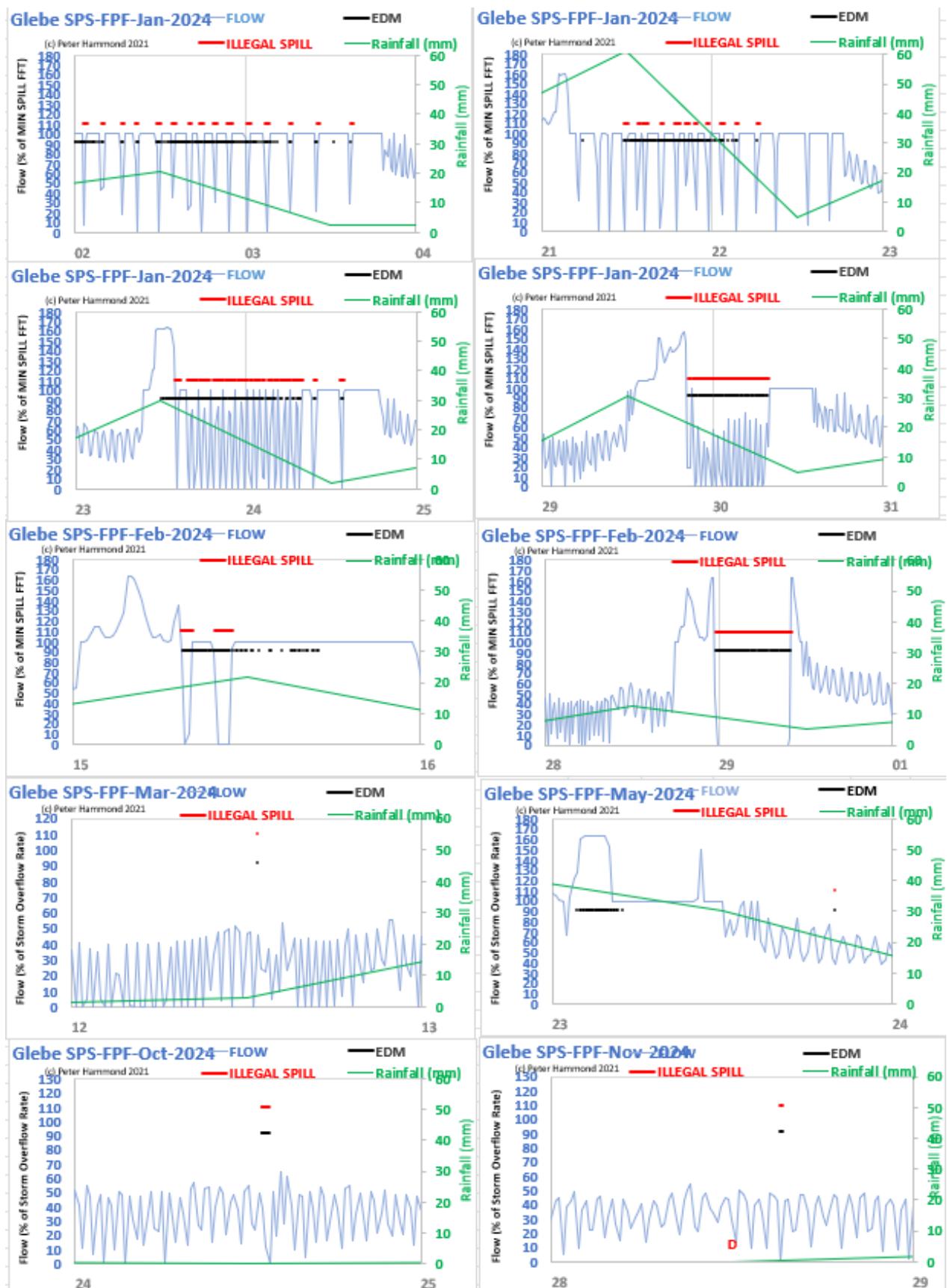


Figure 8: 15 days with illegal “early” discharges of untreated sewage directly to Lake Windermere

During the illegal spills, an estimated 36.1 million litres of untreated sewage were discharged directly into Lake Windermere from the Glebe Road SPS.

Grasmere STW

The 2024 annual overview chart for Grasmere SPS is given in **Fig. 4**.

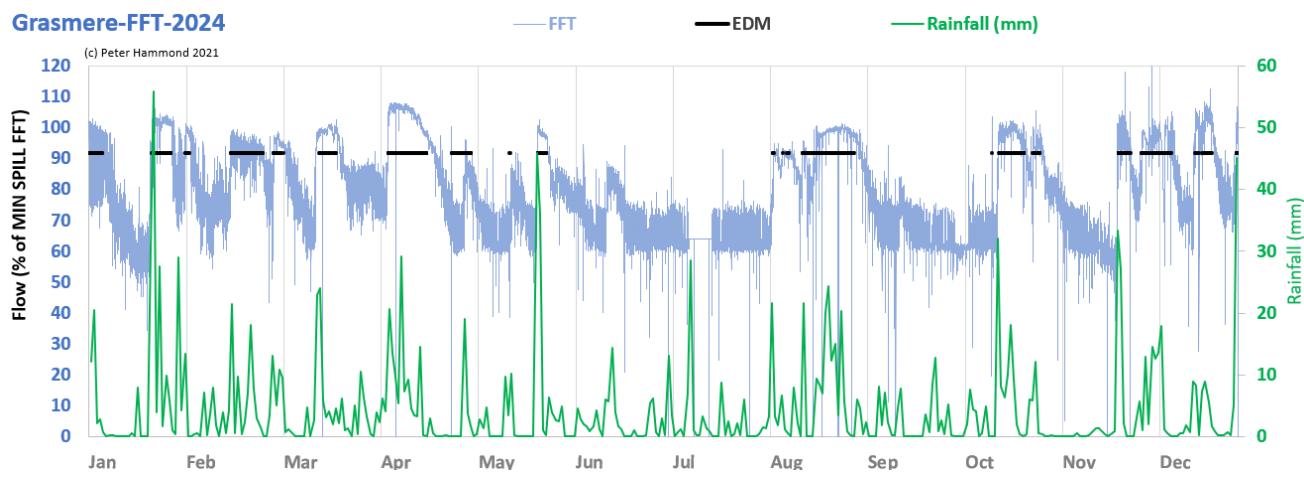


Figure 9: 2024 annual overview for Grasmere STW

WASP has identified 28 days with illegal “early” discharges of untreated sewage: 28 (**Figs 10 and 11**).

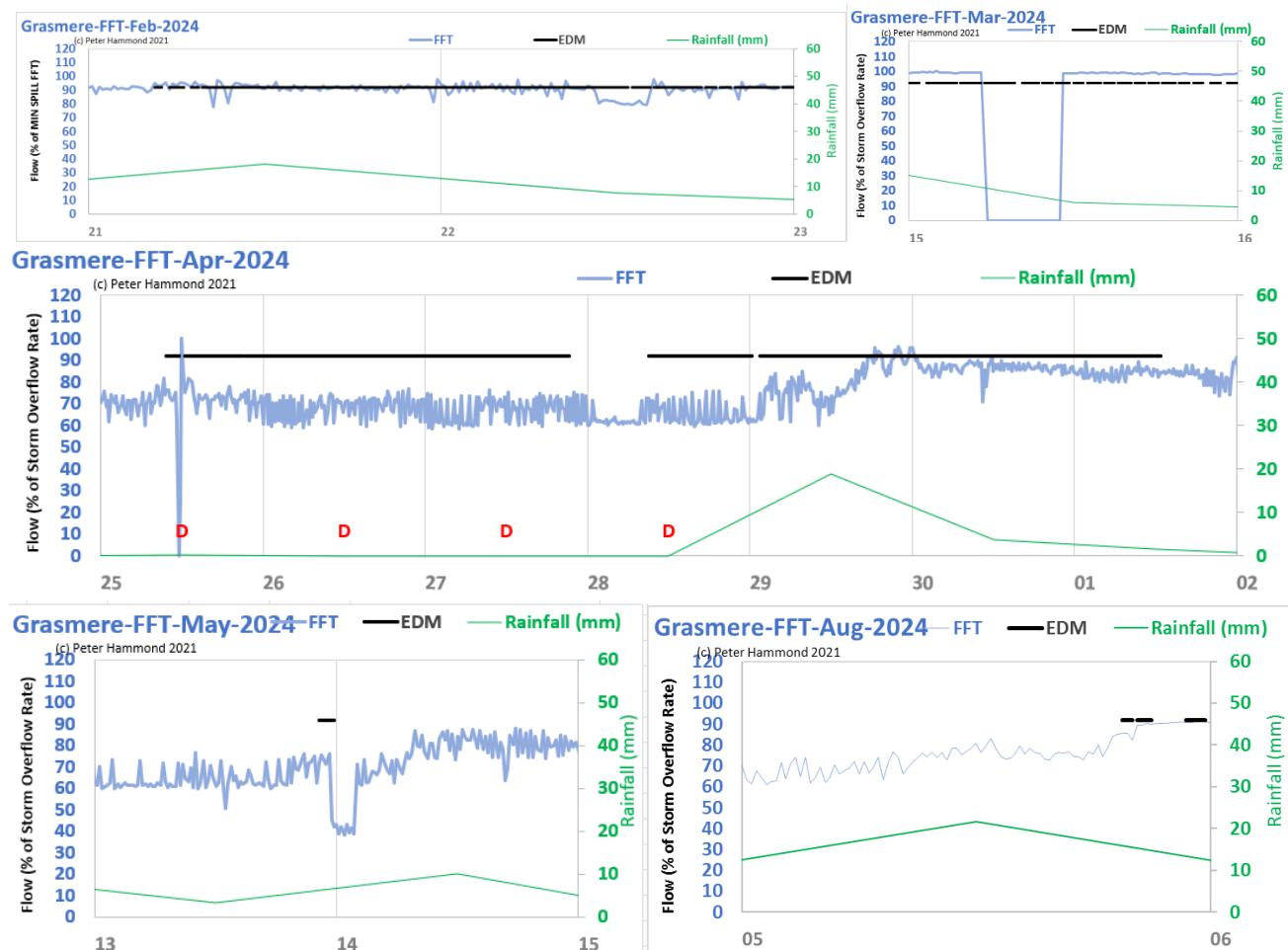


Figure 10: 12 days with illegal discharges of untreated sewage at Grasmere STW

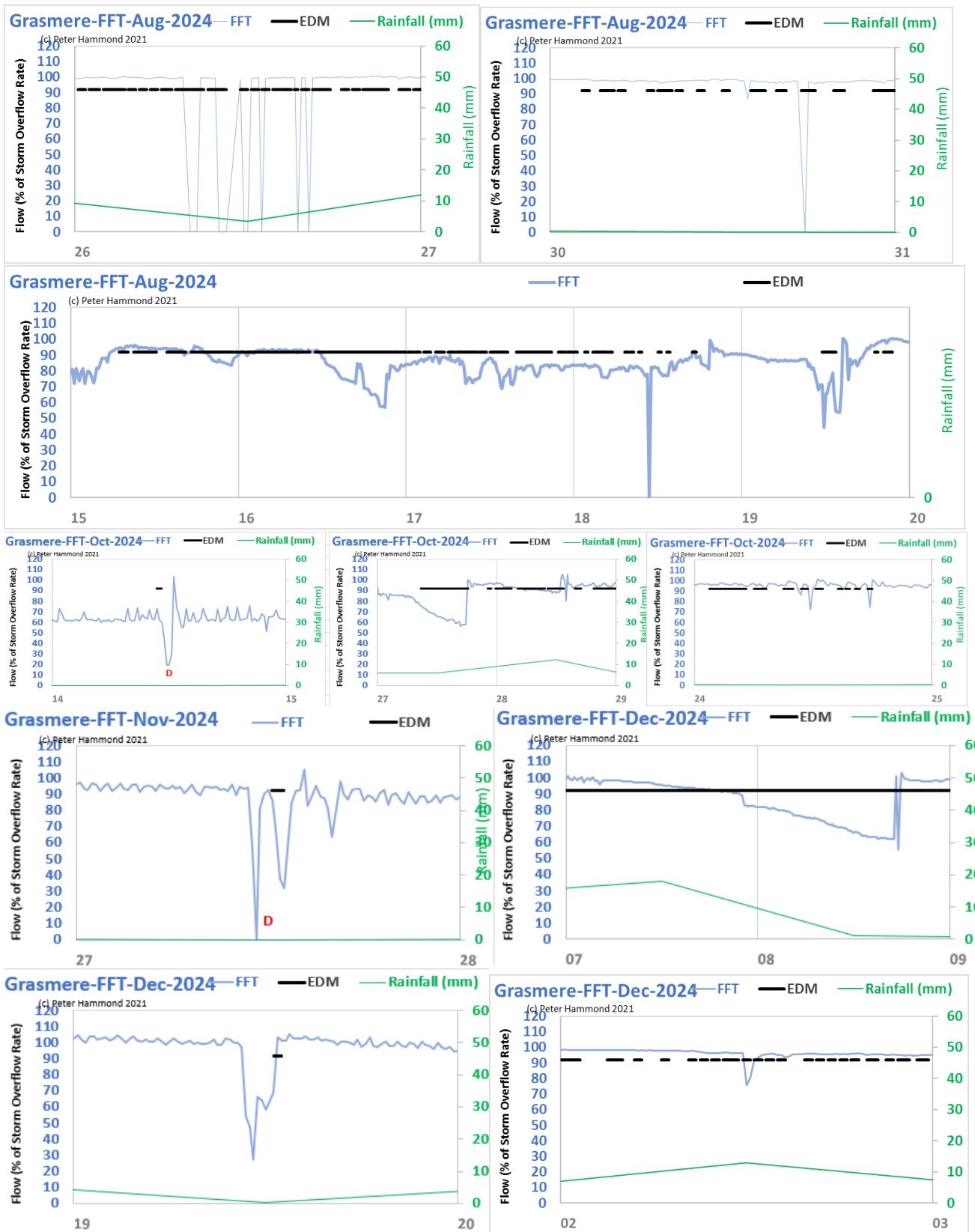


Figure 11: 16 days with illegal discharges of untreated sewage at Grasmere STW

Hawkshead SPS

The 2024 annual overview chart for Hawkshead SPS is given in **Fig. 12**.

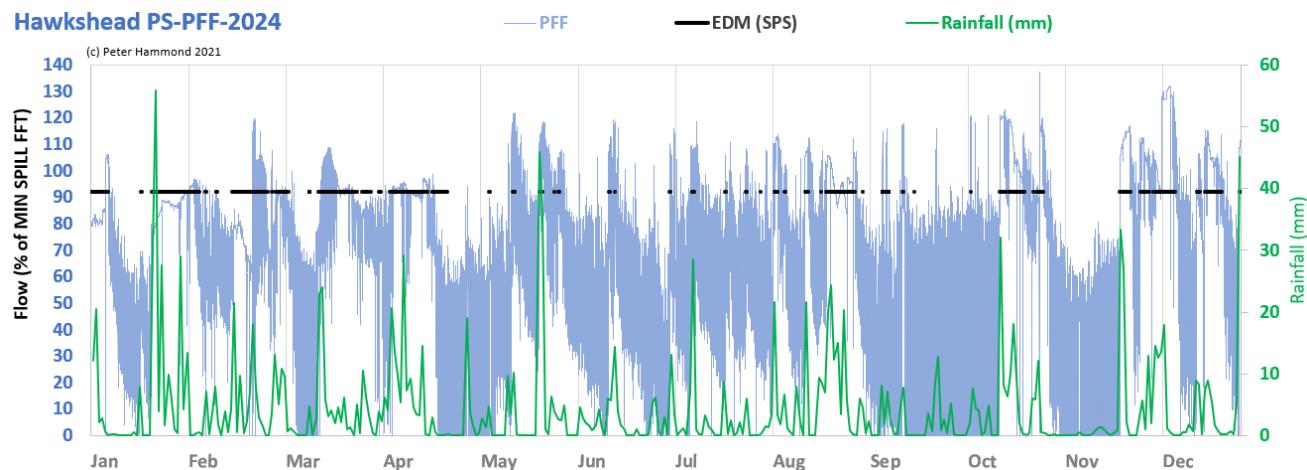


Figure 12: 2024 annual overview for Hawkshead STW

Hawkshead SPS does sometimes discharge untreated sewage within its permit conditions, as illustrated in **Fig. 13** for June and July.

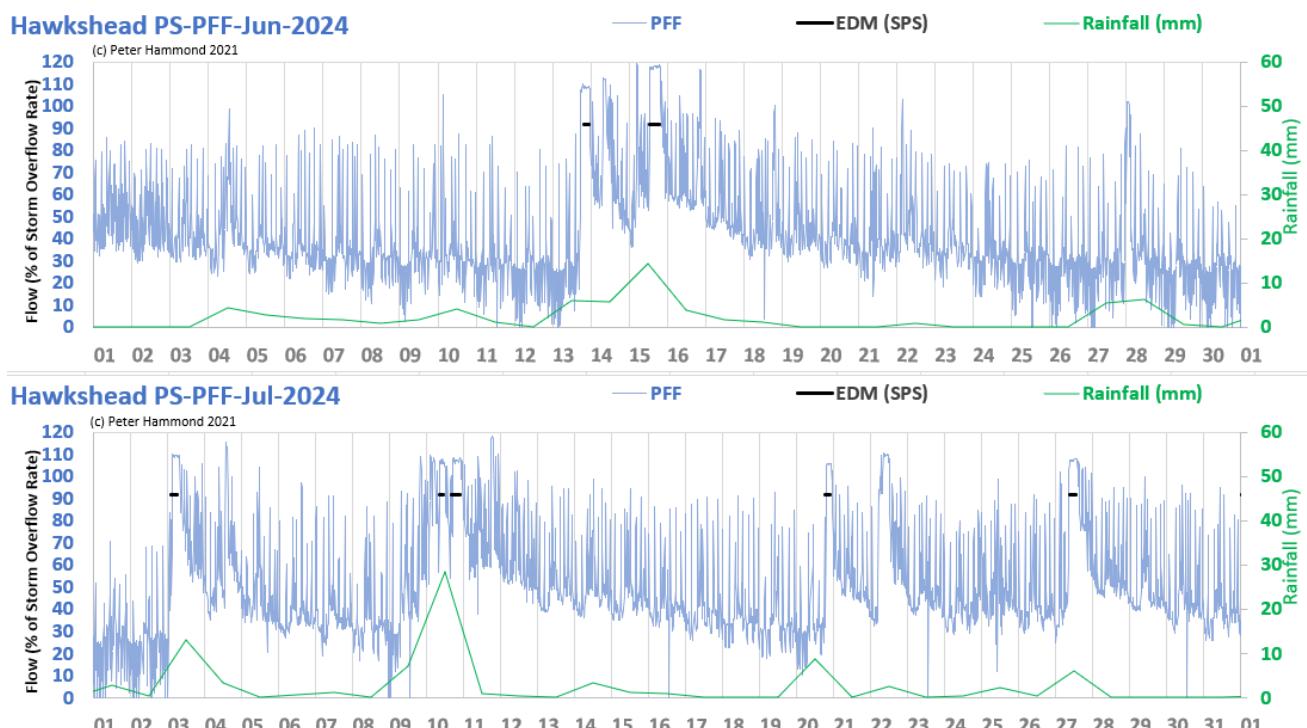
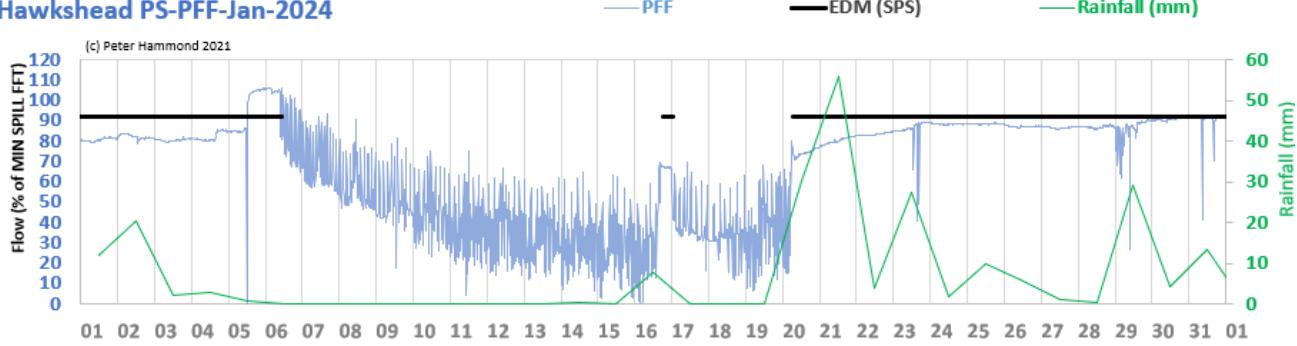


Figure 13: permitted discharges of untreated sewage at Hawkshead SPS in 2024

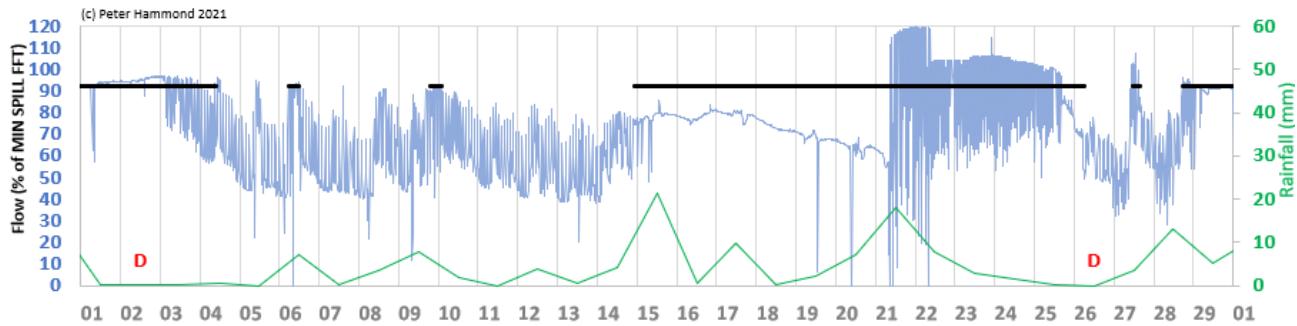
In contrast, in 2024, Hawkshead SPS made illegal discharges of untreated sewage on 67 days (**Figs 14 and 15**) :

January: 1-5, 16, 20-29; February: 1, 3, 5, 14-21, 25-26; March: 1-3, 10, 13, 18-19, 24-25, 27-29; April: 1, 2, 5, 15, 18-23; May: 6; August: 25, 27, 28, 30; September: 2, 8-10, 18; October: 28; December: 17-18, 24-25.

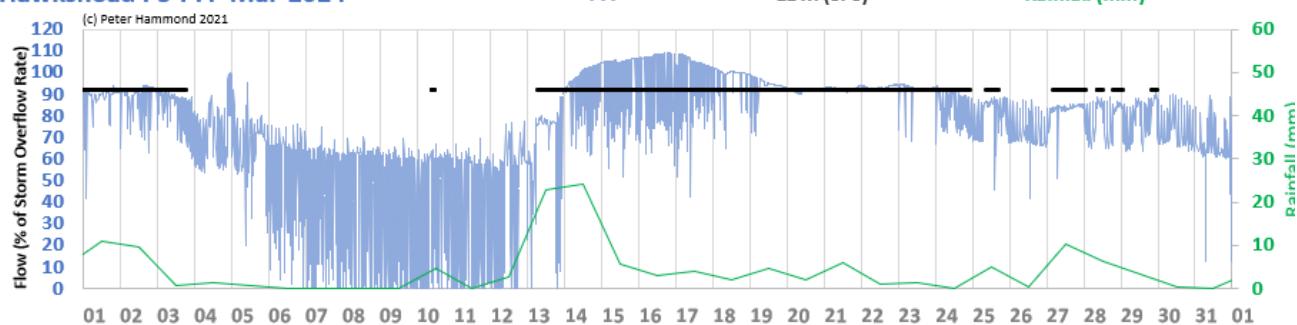
Hawkshead PS-PFF-Jan-2024



Hawkshead PS-PFF-Feb-2024



Hawkshead PS-PFF-Mar-2024



Hawkshead PS-PFF-Apr-2024

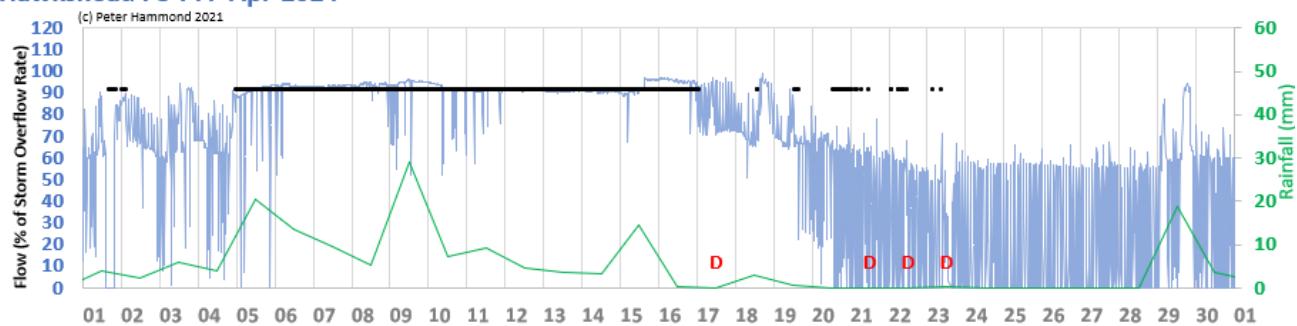


Figure 14: illegal discharges of untreated sewage from Hawkshead SPS

(Jan: 1-5, 16, 20-29; Feb: 1, 3, 5, 14-21, 25-26; Mar: 1-3, 10, 13, 18-19, 24-25, 27-29; Apr: 1, 2, 5, 15, 18-23)

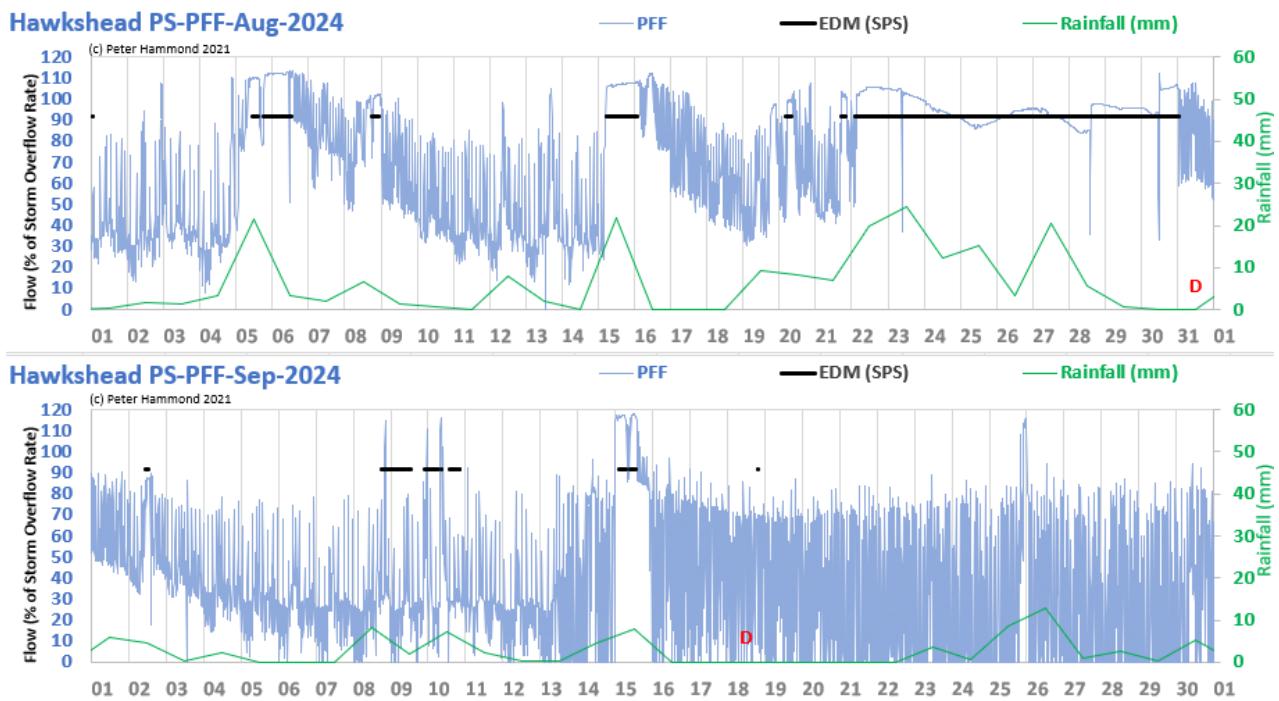


Figure 15: illegal discharges of untreated sewage from Hawkshead SPS
(May: 6; Aug: 25,27,28,30; Sep: 2, 8-10, 18; Oct: 28; Dec: 17-18, 24-25)

Near Sawrey STW

The 2024 annual overview chart for Near Sawrey STW is given in **Fig. 16**.

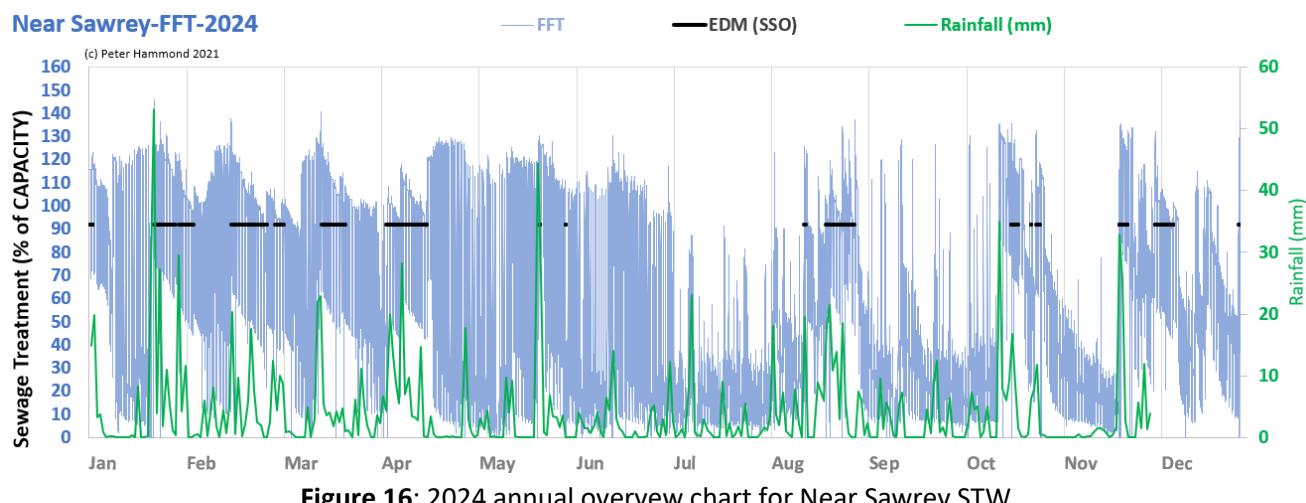


Figure 16: 2024 annual overview chart for Near Sawrey STW.

WASP identified 23 days in 2024 with illegal discharges of untreated sewage from Near Sawrey STW (**Figs 17 and 18**). The data suggest that not all likely untreated sewage discharges were detected by the Event Duration Mnitor on the storm tank.

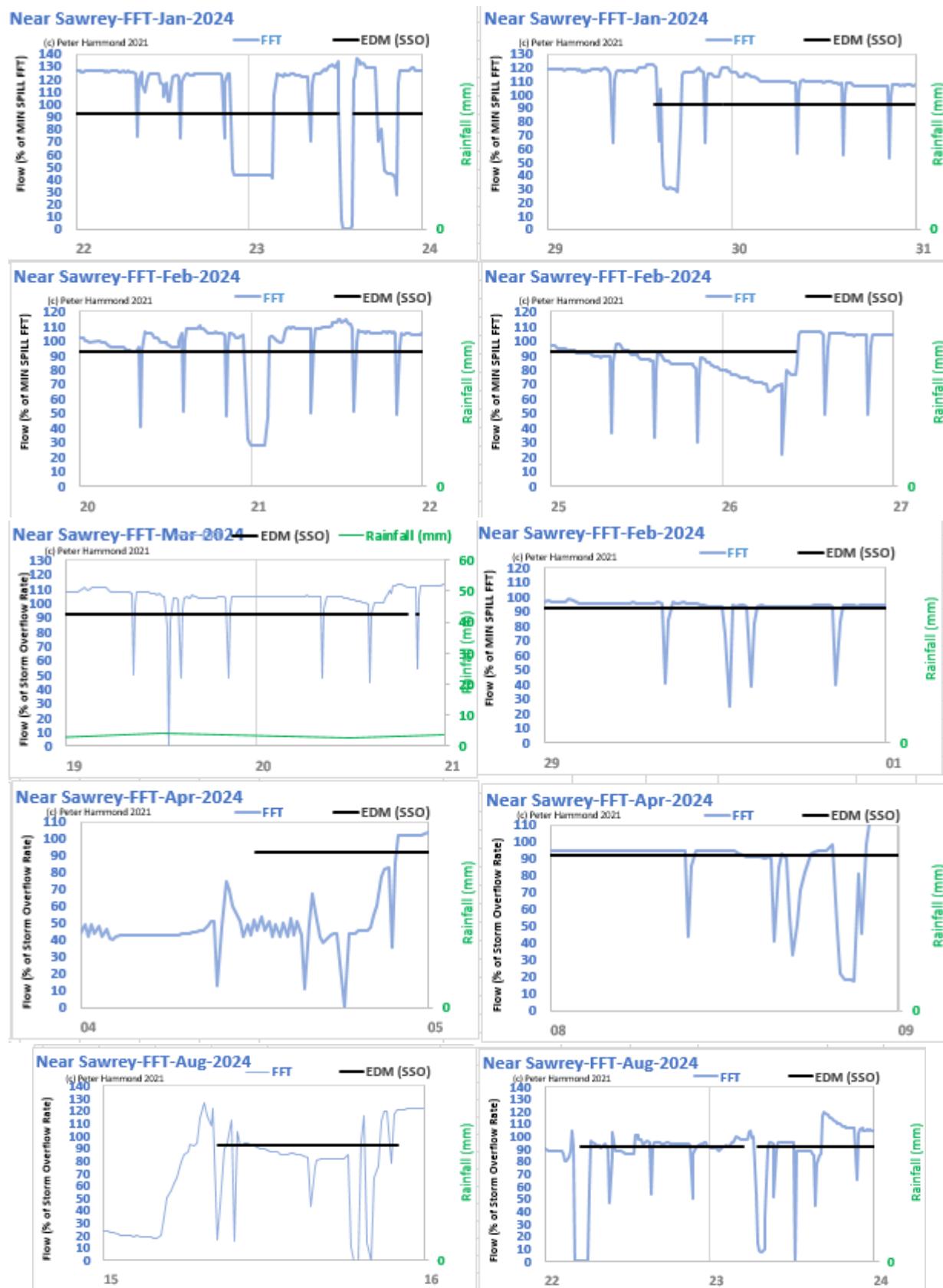


Figure 17: 16 days with illegal discharges of intreated sewage from Near Sawrey STW in 2024
 (Jan 22-23, 29-30; Feb 20-21, 25-26, 29; Mar 19-20; Apr 4,8; Aug 15,22,23)

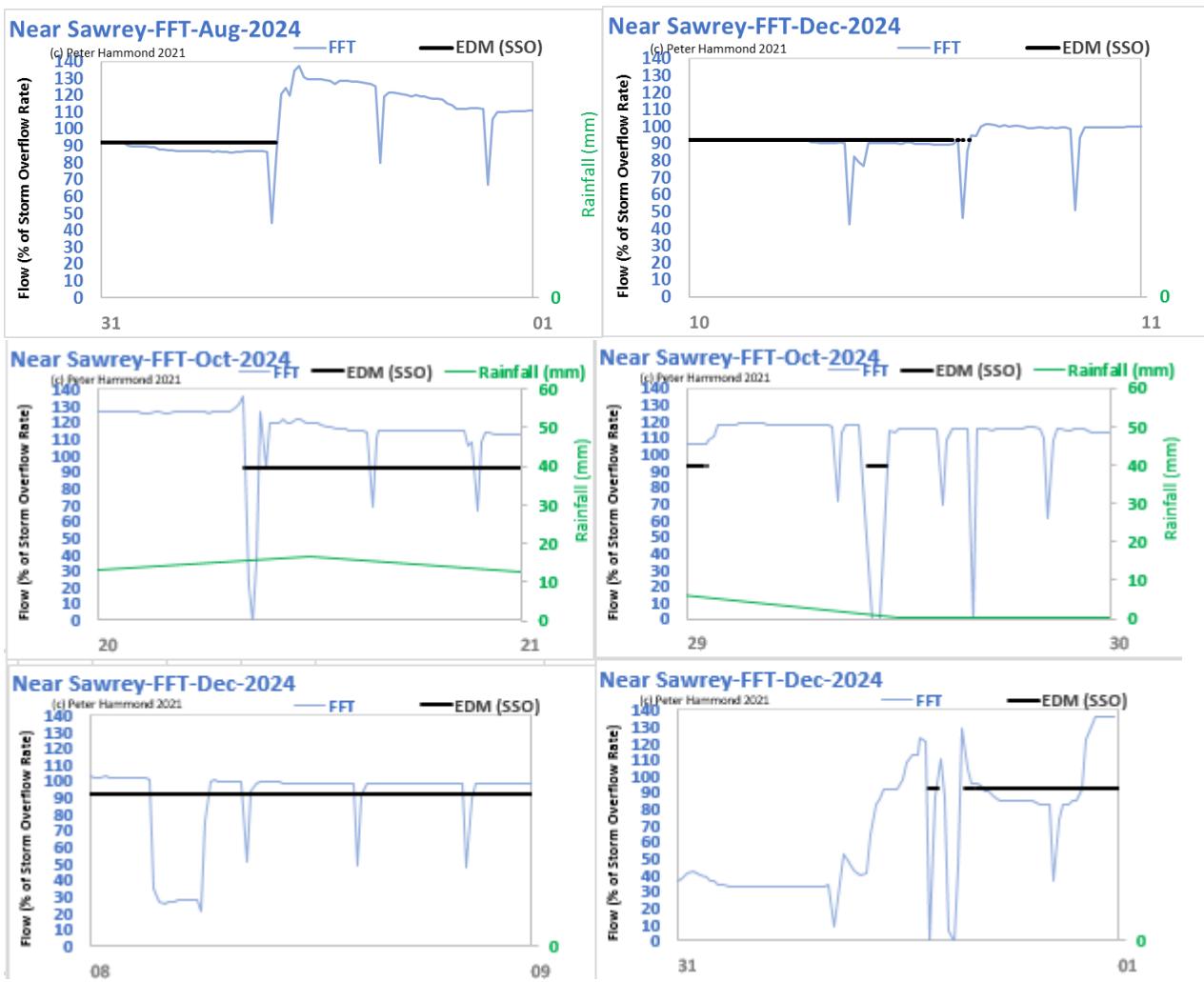


Figure 18: 6 days with illegal discharges of intreated sewage from Near Sawrey STW in 2024
(Aug 31; Oct 20,29; Dec 8,10,31)