



WATER DEVELOPMENT DEPARTMENT



MINISTRY OF AGRICULTURE, RURAL
DEVELOPMENT AND ENVIRONMENT

KYPEROUNTA SEWAGE TREATMENT PLANT

ANGELA LARCOU-YIANNACOU

SANITARY ENGINEER

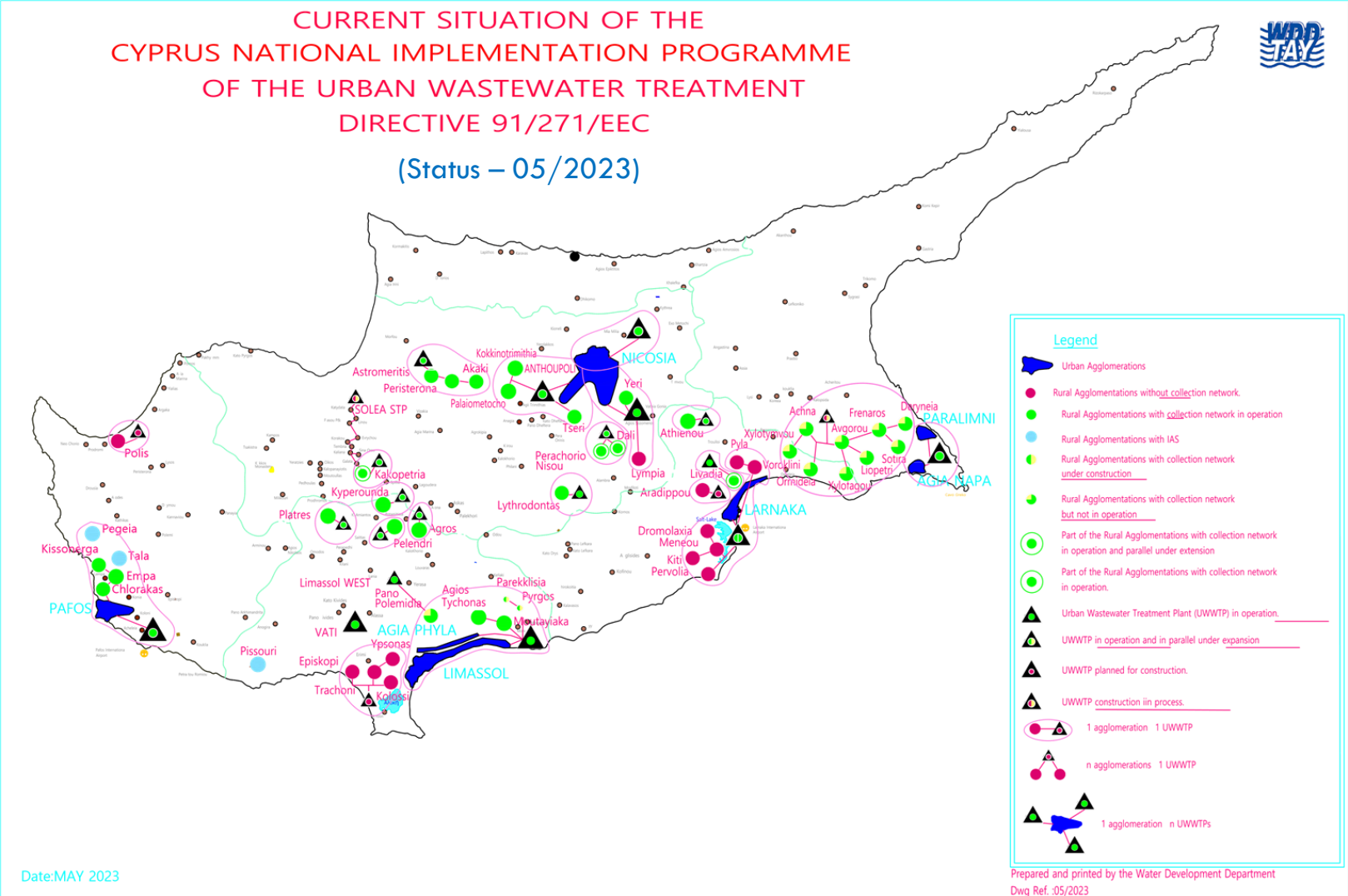
DIVISION OF WASTERWATER AND REUSE

WATER DEVELOPMENT DEPARTMENT

GENERAL INFORMATION

- Kyperounta Village is located in Limassol District area, about 45km far from Limassol city, in an altitude of 1140m.
- The population of Kyperounta is about 1500 habitants.
- Kyperounta is one of the 57 agglomeration that was included in the implementation programme of the Directive 91/271/EEC for the wastewater treatment

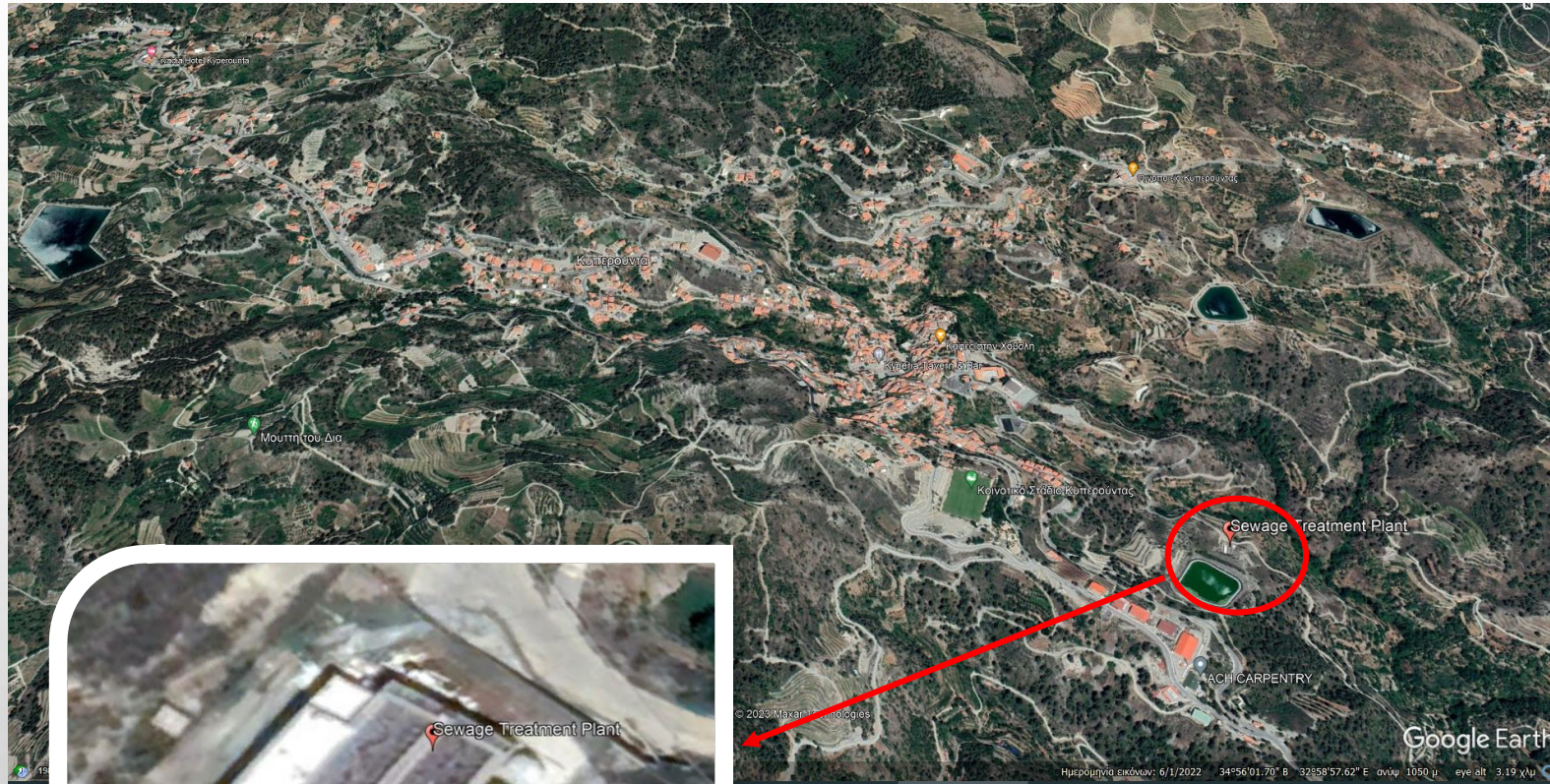
CYPRUS NATIONAL IMPLEMENTATION PROGRAMME OF THE URBAN WASTEWATER TREATMENT DIRECTIVE 91/271/EEC



KYPEROUNTA SEWERAGE SYSTEM

- The collection network and the sewage treatment plant were constructed by Water Development Department.
- The collection network covers approximately 25 km
- The Sewage Treatment Plant was built in 2002 and was commissioned in 2003.
- The capacity of the Sewage Treatment Plant is 300m³/d.
- The Sewerage Board of Kyperounta is responsible for the operation and maintenance of the Sewerage System.

SEWAGE TREATMENT PLANT LOCATION



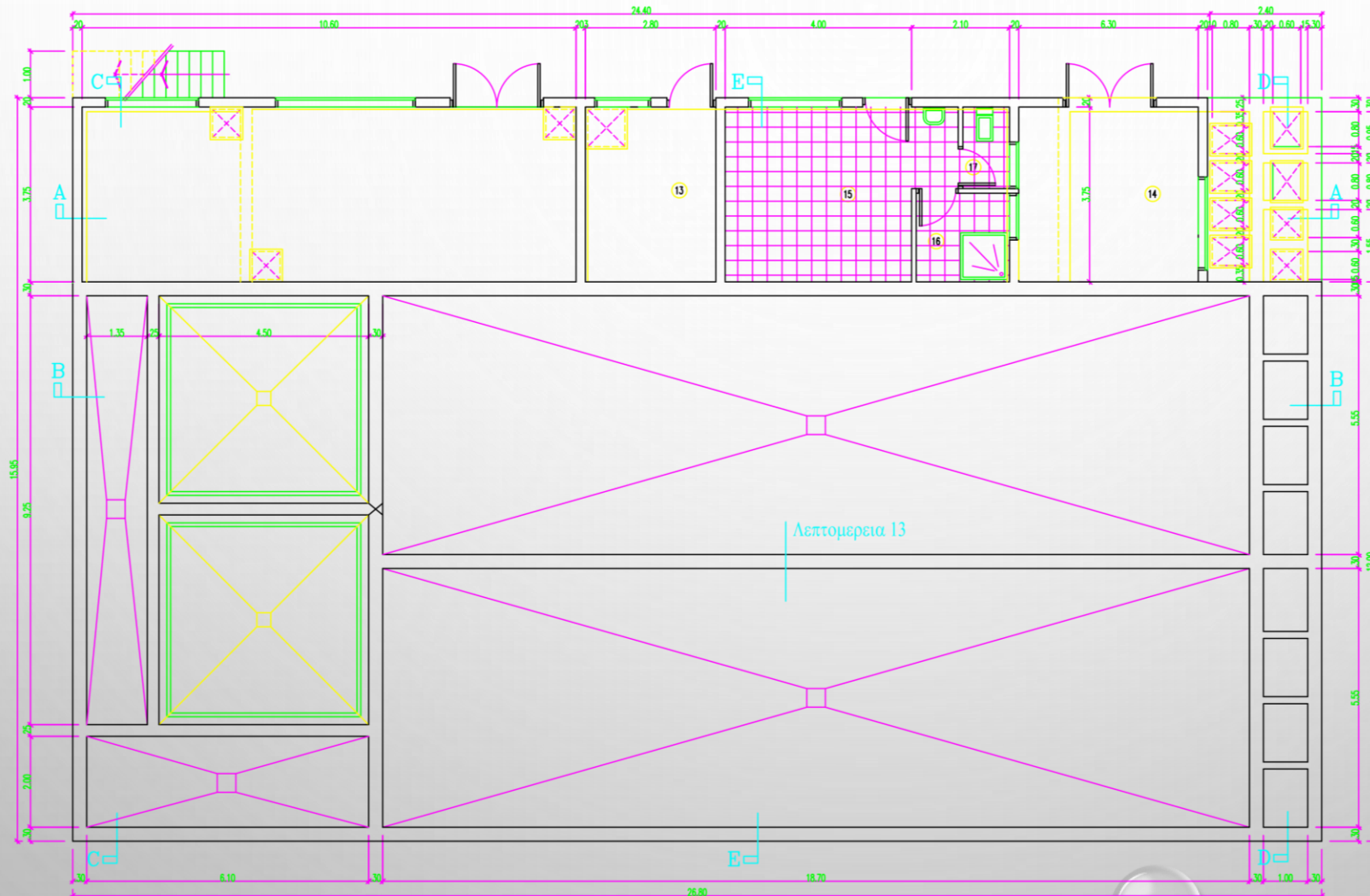
KYPEROUNTA SEWAGE TREATMENT PLANT

- The Sewage Treatment Plant is located in the southern part of Kyperounta Community.
- The process is activated sludge
- The treated water is pumped in an irrigation pond which is used for the irrigation of green areas, according to the discharged permit and the code of good agriculture practice.



SEWAGE TREATMENT PLANT DRAWINGS (2)

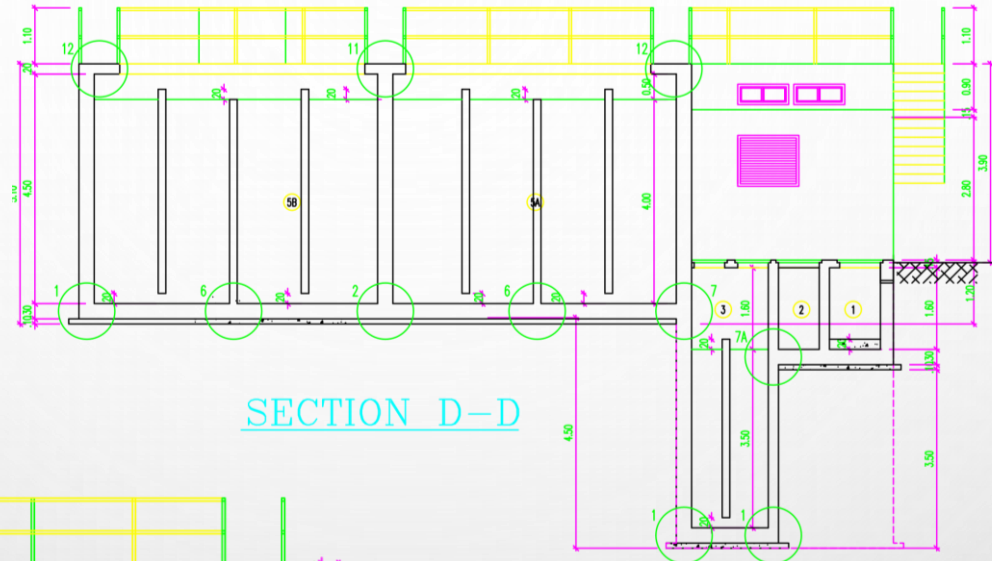
ROOF PLAN



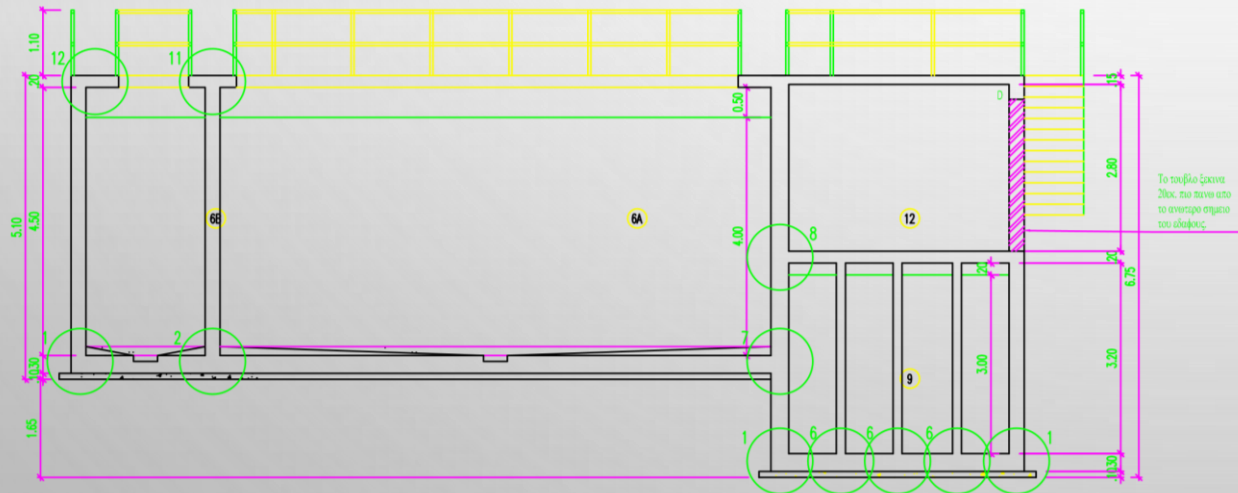
- | | |
|----|------------------------|
| ① | DELIVERY MANHOLE |
| ② | SCREEN MANHOLE |
| ③ | PUMPING STATION |
| ④ | GREASE TRAP |
| ⑤A | SELECTOR TANK |
| ⑤B | SELECTOR TANK |
| ⑥A | AERATION TANK |
| ⑥B | AERATION TANK |
| ⑦A | SETTLEMENT TANK |
| ⑦B | SETTLEMENT TANK |
| ⑧A | SLUDGE HOLDING TANK |
| ⑧B | SLUDGE HOLDING TANK |
| ⑨ | CHLORINATION TANK |
| ⑩ | BALANCE TANK |
| ⑪ | IRRIGATION TANK |
| ⑫ | MACHINERY ROOM |
| ⑬ | CHEMICAL SOLUTION ROOM |
| ⑭ | GENERATOR'S ROOM |
| ⑮ | OFFICE |
| ⑯ | SHOWER |
| ⑰ | W.C. |

SEWAGE TREATMENT PLANT DRAWINGS (3)

SECTIONS



SECTION D-D



SECTION C-C

- | | |
|----|------------------------|
| ① | DELIVERY MANHOLE |
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SEWAGE TREATMENT PLANT & PUMPING STATION DESIGN DATA (2011)

STP Design Data (2011)

Population Equivalent	3000 persons maximum 1500 persons minimum
Average Flow	300 m ³ /day or 12.5 m ³ /hr
Minimum Flow	150 m ³ /day or 6.2 m ³ /hr
BOD Loading	210 kg/d based on 70 g/h/d maximum 105 kg/d based on 70 g/h/d minimum
Peak Flow	37.5 m ³ /hr
Peak Flow	3 x Dry Weather Flow
BOD Concentration	700mg/l

Pumping Station – Volumetric Loading Design Data (2011)

Average Flow	180 m ³ /day or 7.5 m ³ /hr
Peak Flow	22.5 m ³ /hr
Static Head	36 m (between pumping and delivery point)
Size of Pumping Main	100mm diameter
Length of Pumping main	400m
Elevation of inlet pipe	1, 8 m below G.L.

SEWAGE TREATMENT PLANT & PUMPING STATION DESIGN DATA (2018)

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ACTIVITIES INCLUDED IN THE 2018 CONTRACT FOR O&M (FOR 7 YEARS) TO IMPROVE AND UPGRADE THE CONDITION OF THE PUMPING STATION AND STP

1.	<i>Supply and installation of a system for the collection of sewage from the Hospital of Kyperounta and sewage from houses of the community that are not connected to the sewerage system and automatic pumping of this sewage during the morning hours at the STP.</i>
2.	<i>Supply and installation of an inverter in the pumps of the pumping station within the community for energy saving.</i>
3.	<i>Supply and installation of an inverter in the Air Blowers of the STP for energy saving.</i>
4.	<i>Gradual replacement of major equipment (Filter Pumps Stream 1&2, Air Blowers etc.)</i>
5.	<i>Supply and installation of a standby pump for the central pumping station within the community.</i>
6.	<i>Supply and installation of an automatic chlorination system.</i>
7.	Calibration of existing inlet and treated wastewater flow meters.
8.	Insulation of the roof of the pumping station and the engine room of the STP.
9.	Supply of signs for chemicals and other precautions for the chemical storage area and the exterior of the station based on health and safety rules.
10.	Other works to maintain the building infrastructure (i.e. painting, roof insulations) and to comply with health and safety regulations (i.e. safety precautions, signs etc.)

ANALYSIS OF UNTREATED WASTEWATER (YEAR 2022)

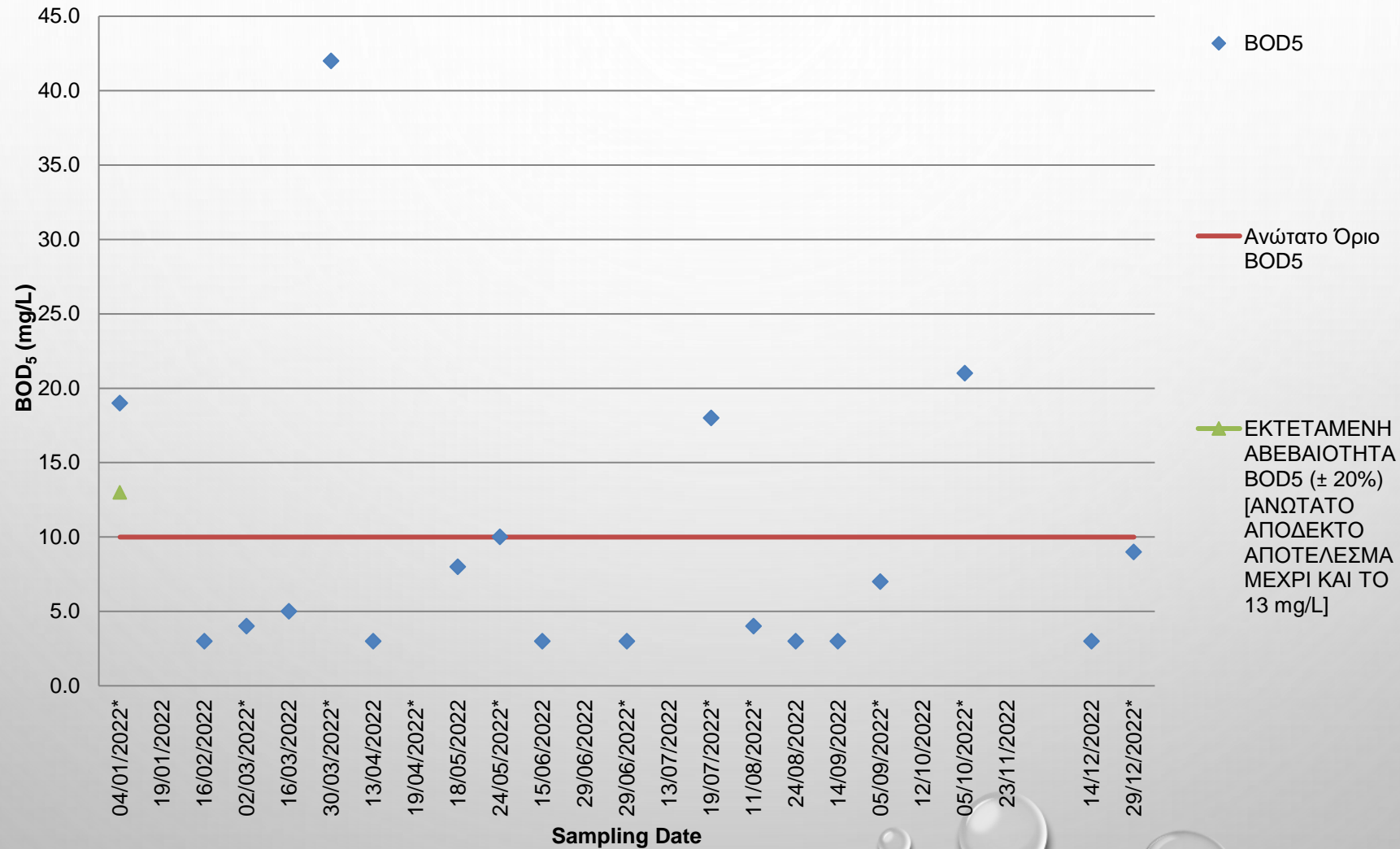
SAMPLING DATE		PARAMETER							
		BOD ₅	COD	TSS	Electrical Conductivity	TN	TP	FOG	pH
		mg/L	mg/L	mg/L	μS/cm	mg/L	mg/L	mg/L	-
JANUARY	04/01/2022*	190	243	142	960				7,8
FEBRUARY									
MARCH	02/03/2022*	170	211	74	811				7,9
	30/03/2022*	220	289	72	849				7,9
APRIL	13/04/2022	120	225	51					
MAY	24/05/2022*	160	233	78	951				
JUNE	29/06/2022*	1006	1258	340	1963				
JULY	13/07/2022	380	689	158					
	19/07/2022*	375	480	387					
AUGUST	11/08/2022*	416	522	274	1262				
SEPTEMBER	05/09/2022*	382	570	233		91,5			
OCTOBER	05/10/2022*	279	484	260	1372				
NOVEMBER	07/11/2022*	639	873	420		103		93	
DECEMBER	14/12/2022	470	830	251	6749	1029	60	41	7,1
	29/12/2022*	100	138	74	1071				
Min		100	138	51	811	92	60	41	7
Max		1006	1258	420	6749	1029	60	93	8
Mean		351	503	201	1776	408	60	67	8
Number of Samples		14	14	14	9	3	1	2	4

ANALYSIS OF TREATED WASTEWATER - YEAR 2022

Παράμετρος	Ημερομηνία δειγμάτων	BOD5	Ανώτατο Όριο BOD ₅	COD	Ανώτατο Όριο COD	SS	Ανώτατο Όριο SS	Ηλεκτρική Αγωγιμότητα	Ανώτατο Όριο Ηλεκτρικής Αγωγιμότητας	TN	Ανώτατο Όριο Αζωτο	TP	Ανώτατο Όριο TP	FOG	Ανώτατο Όριο Λίπη και Έλαια	Ολικό Υπολειμματικό Χλώριο	Ανώτατο Όριο Ολικό Υπολειμματικό Χλώριο	pH	Ανώτατο Όριο pH
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	μS/cm	μS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L		
ΙΑΝΟΥΑΡΙΟΣ	04/01/2022*	19,0	10	31	70	9	10	679	2500		15,00		10,00	0,4	5	0,69	0,5 - 1,0	7,80	6,5 - 8,5
	19/01/2022		10		70		10		2500		15,00		10,00		5		0,5 - 1,0		6,5 - 8,5
ΦΕΒΡΟΥΑΡΙΟΣ	16/02/2022	3	10	10	70	7	10	760	2500	22	15,00	5,7	10,00	1,6	5	1	0,5 - 1,0	8,00	6,5 - 8,5
ΜΑΡΤΙΟΣ	02/03/2022*	4,0	10	15	70	9	10	925	2500		15,00		10,00	0,15	5	0,73	0,5 - 1,0	8,10	6,5 - 8,5
	16/03/2022	5,0	10	21	70	7	10	670	2500		15,00		10,00	4,7	5	0,60	0,5 - 1,0	7,80	6,5 - 8,5
	30/03/2022*	42,0	10	86	70	9	10	836	2500		15,00		10,00	0,15	5	0,73	0,5 - 1,0	8,00	6,5 - 8,5
ΑΠΡΙΛΙΟΣ	13/04/2022	3,0	10	14	70	7,0	10	740	2500		15,00		10,00	1,6	5	0,01	0,5 - 1,0	7,80	6,5 - 8,5
	19/04/2022*		10		70		10	***	2500		15,00		10,00		5		0,5 - 1,0	***	6,5 - 8,5
ΜΑΪΟΣ	18/05/2022	8,0	10	22	70	7	10	900	2500		15,00		10,00	1,60	5	0,01	0,5 - 1,0	7,70	6,5 - 8,5
	24/05/2022*	10,0	10	19	70	9	10	839	2500		15,00		10,00	0,40	5	0,68	0,5 - 1,0	7,80	6,5 - 8,5
ΙΟΥΝΙΟΣ	15/06/2022	3,0	10	10	70	7	10	770	2500		15,00		10,00	4,70	5	0,01	0,5 - 1,0	7,80	6,5 - 8,5
	29/06/2022		10		70		10		2500		15,00		10,00		5		0,5 - 1,0		6,5 - 8,5
	29/06/2022*	3,0	10	15	70	9	10	825	2500		15,00		10,00	0,15	5	0,69	0,5 - 1,0	7,80	6,5 - 8,5
ΙΟΥΛΙΟΣ	13/07/2022		10		70		10		2500		15,00		10,00		5		0,5 - 1,0		6,5 - 8,5
	19/07/2022*	18,0	10	36	70	15	10	2331	2500		15,00		10,00	0,15	5	0,69	0,5 - 1,0	7,80	6,5 - 8,5
ΑΥΓΟΥΣΤΟΣ	11/08/2022*	4	10	0	70	0	10	1063	2500		15,00		10,00	0,4	5		0,5 - 1,0		6,5 - 8,5
	24/08/2022	3,0	10	28	70	7	10	940	2500		15,00		10,00	1,60	5	0,30	0,5 - 1,0	8,30	6,5 - 8,5
ΣΕΠΤΕΜΒΡΙΟΣ	14/09/2022	3,0	10	35	70	7	10	1010	2500		15,00		10,00	5	5	0,50	0,5 - 1,0	8,10	6,5 - 8,5
	05/09/2022*	7,0	10	25	70	6	10		2500	68,5	15,00		10,00		5		0,5 - 1,0		6,5 - 8,5
ΟΚΤΩΒΡΙΟΣ	12/10/2022		10	16	70	7	10	1000	2500		15,00		10,00	1,60	5	2,80	0,5 - 1,0	7,80	6,5 - 8,5
	05/10/2022*	21	10	42	70	9	10	1536	2500		15,00		10,00	0	5		0,5 - 1,0		6,5 - 8,5
ΝΟΕΜΒΡΙΟΣ	23/11/2022		10		70		10	υπερχλ.	2500		15,00		10,00	4,7	5	70,00	0,5 - 1,0	υπερχλ.	6,5 - 8,5
			10		70		10		2500		15,00		10,00		5		0,5 - 1,0		6,5 - 8,5
ΔΕΚΕΜΒΡΙΟΣ	14/12/2022	3	10	17	70	7	10	960	2500	29	15,00	6,9	10,00	1,6	5	0,01	0,5 - 1,0	8,1	6,5 - 8,5
	29/12/2022*	9	10	21	70	10	10	990	2500		15,00		10,00	0,2	5		0,5 - 1,0		6,5 - 8,5
Ελάχιστη Ετήσια Τιμή		3,0		0,0		0,0		670		22		6		0		0,01		7,70	
Μέγιστη Ετήσια Τιμή		42,0		86,0		15,0		2331		69		7		5		70		8,30	
Μέση Ετήσια Τιμή		9,3		24,4		7,8		987		40		6		2		4,97		7,91	

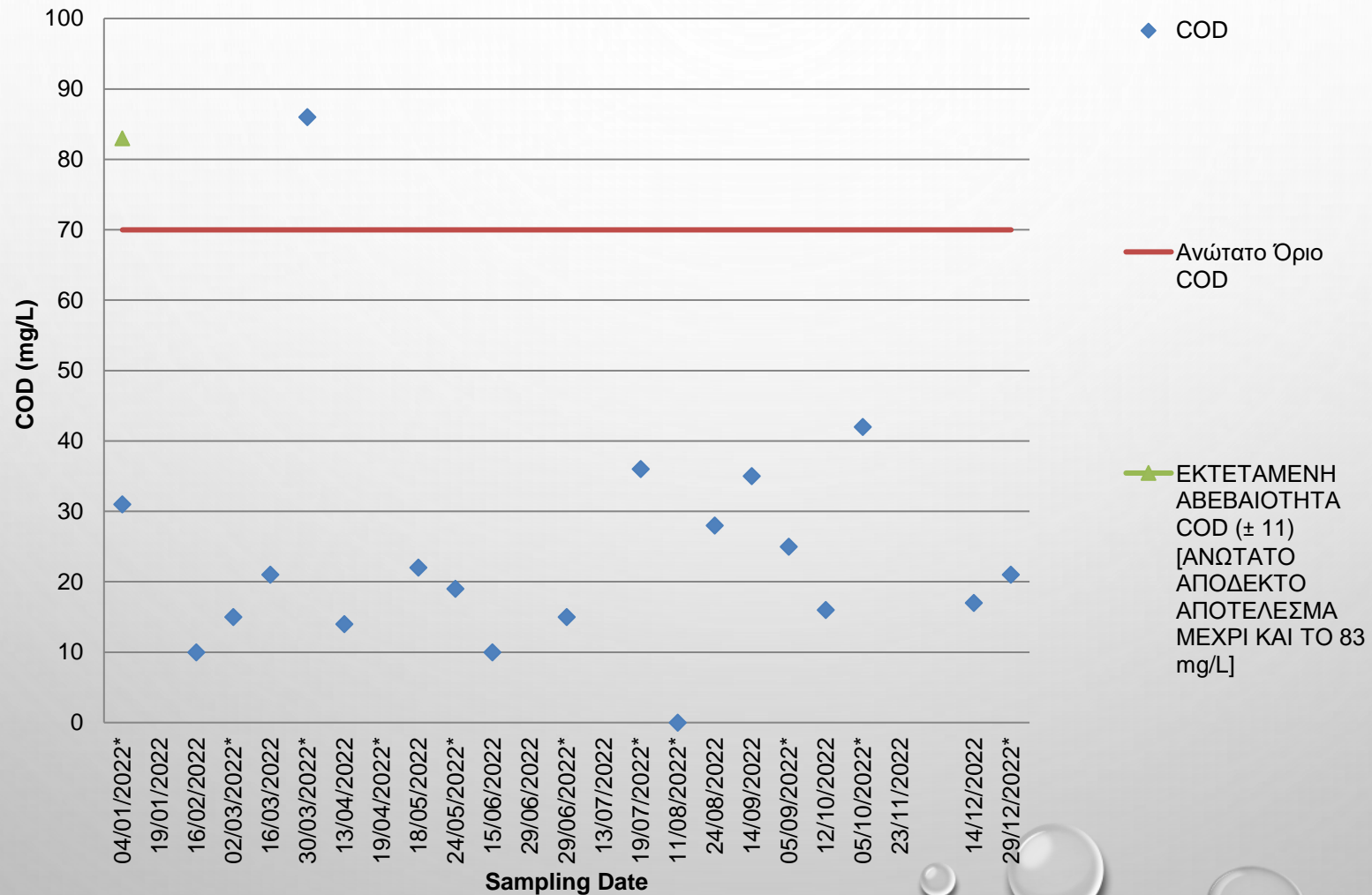
ANALYSIS OF TREATED WASTEWATER - YEAR 2022 (BOD)

KYPEROUNTA - 2022 DATA



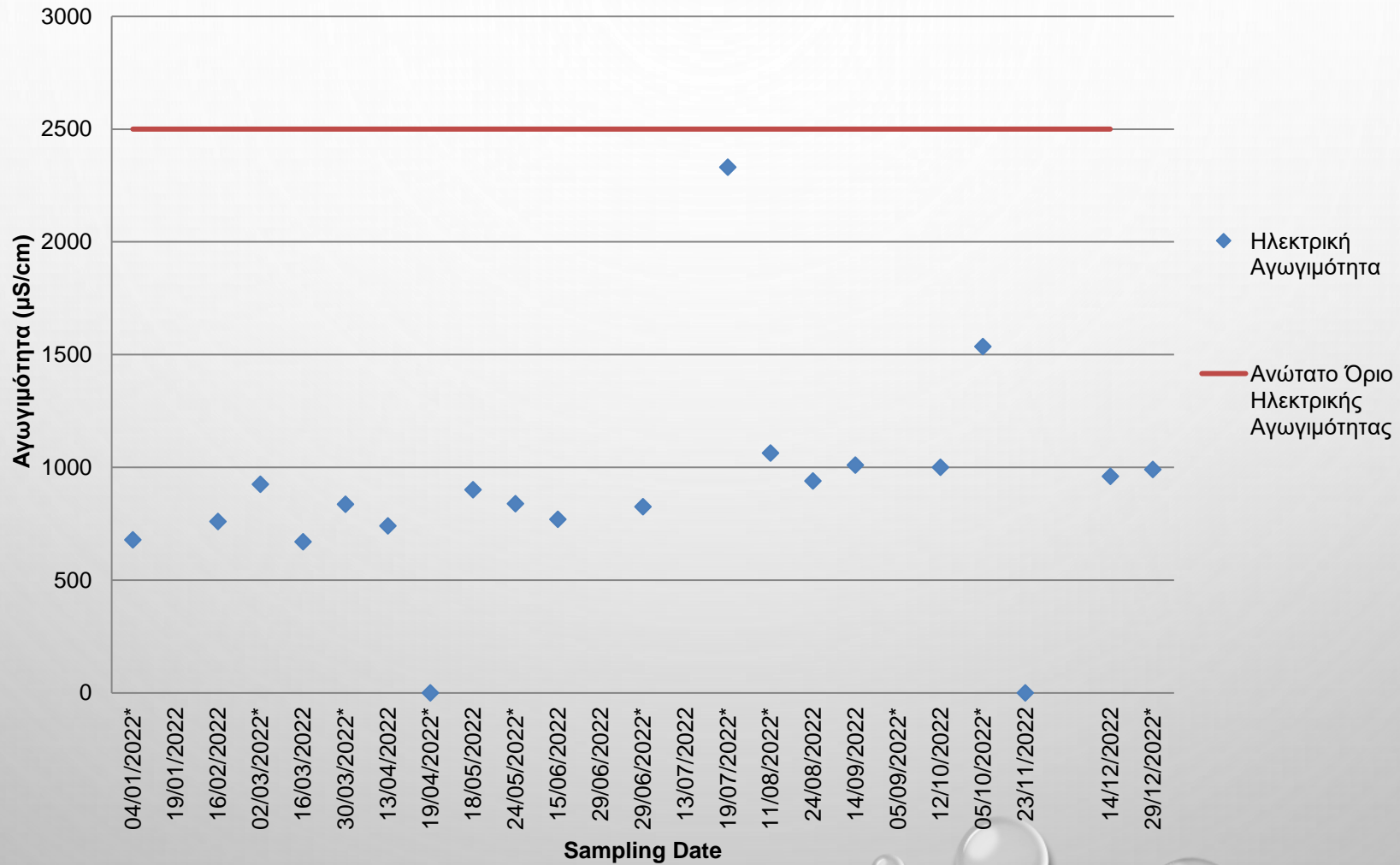
ANALYSIS OF TREATED WASTEWATER - YEAR 2022 (COD)

KYPEROUNTA - 2022 DATA



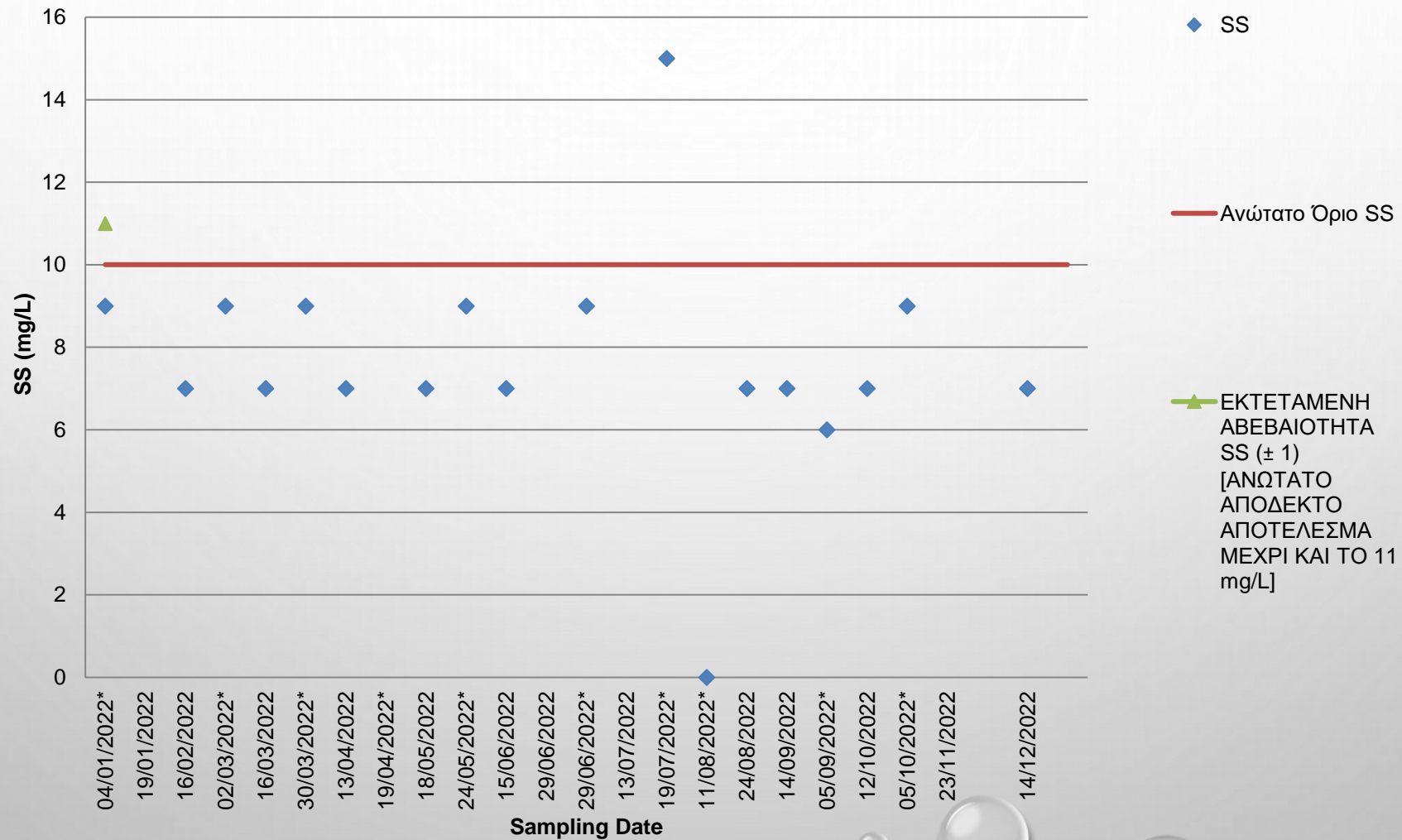
ANALYSIS OF TREATED WASTEWATER - YEAR 2022 (EC)

KYPEROUNTA - 2022 DATA



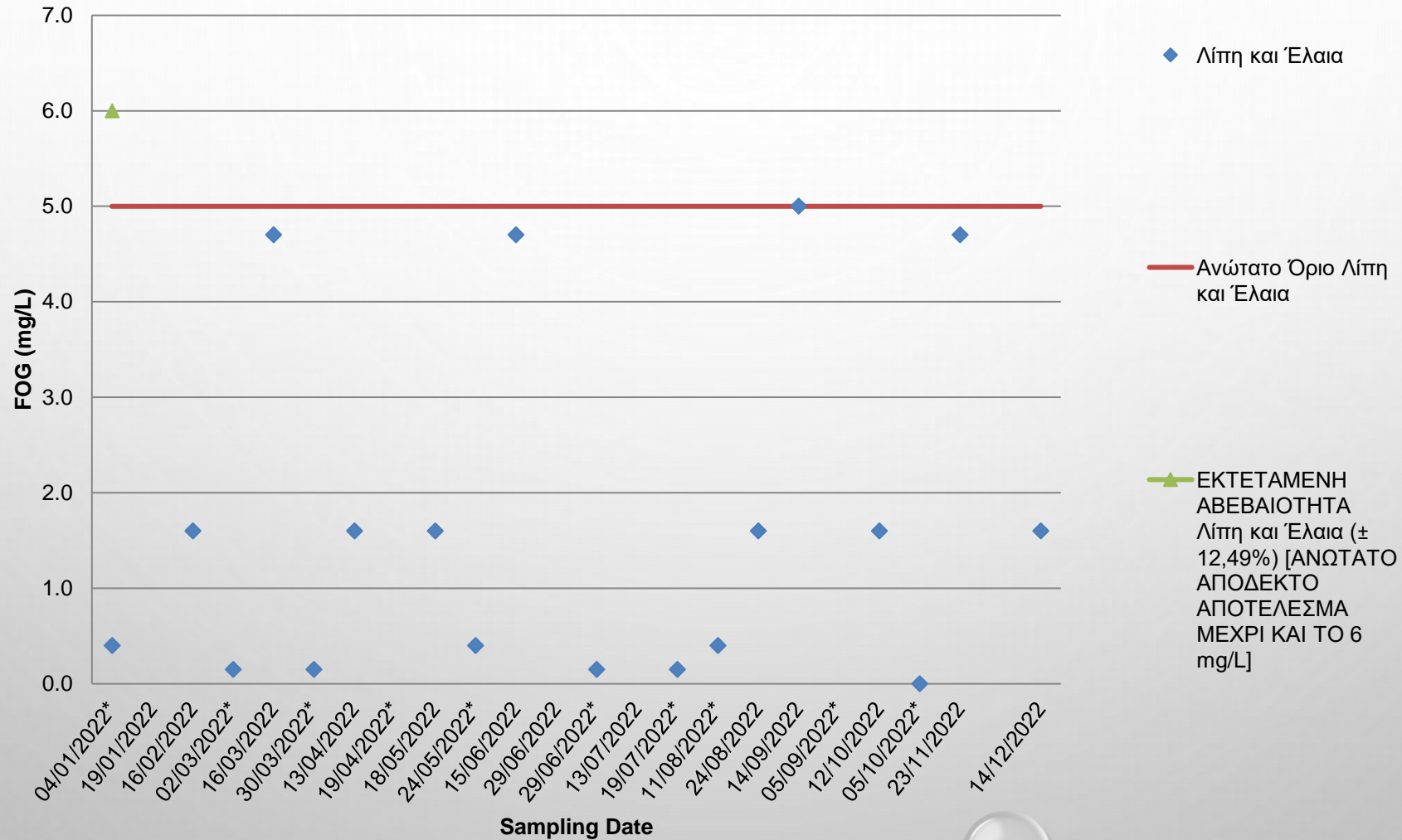
ANALYSIS OF TREATED WASTEWATER - YEAR 2022 (SS)

KYPEROUNTA - 2022 DATA



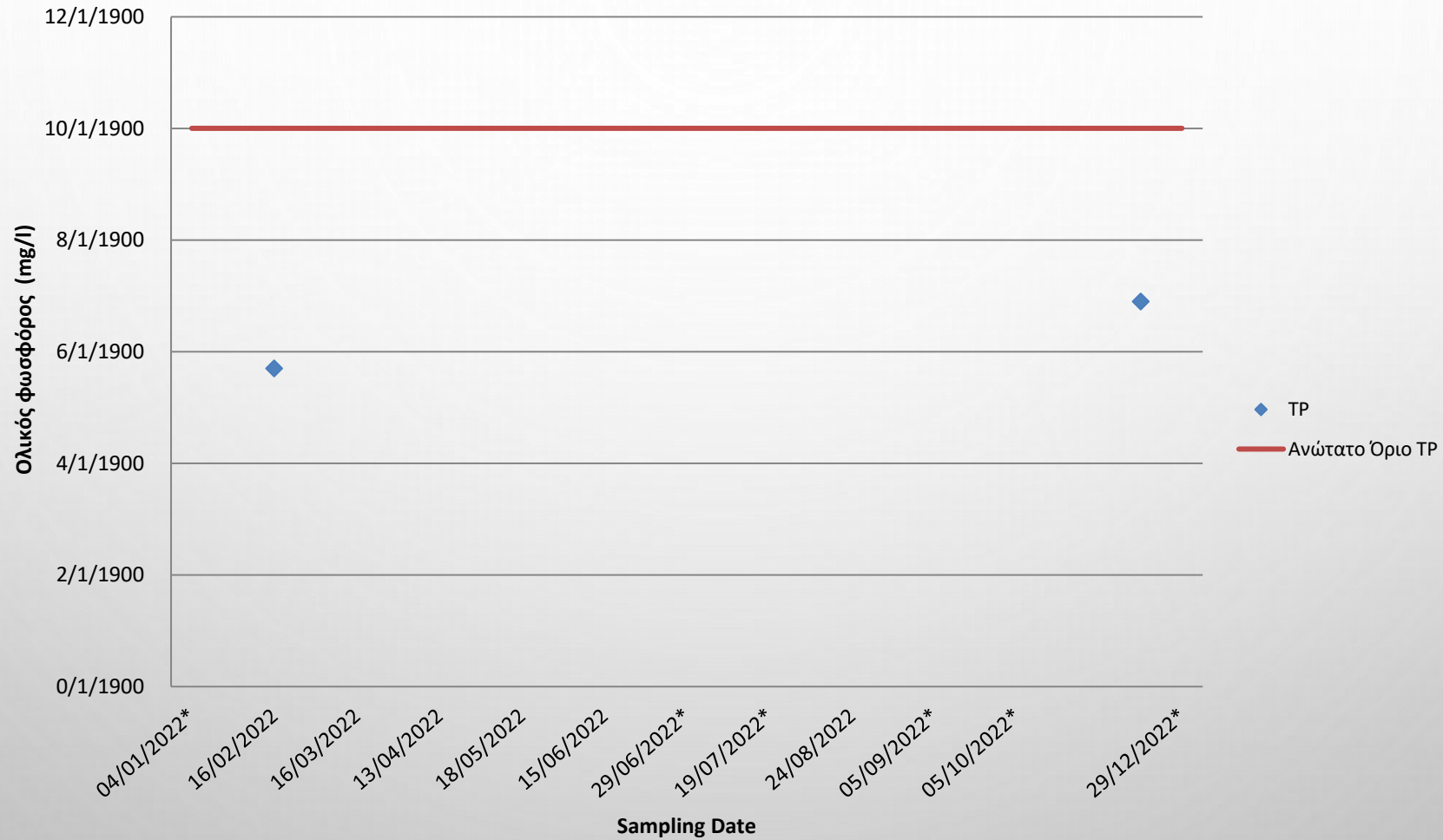
ANALYSIS OF TREATED WASTEWATER - YEAR 2022 (FOG)

KYPEROUNTA - 2022 DATA



ANALYSIS OF TREATED WASTEWATER - YEAR 2022 (TP)

KYPEROUNTA - 2022 DATA





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**THANK YOU
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