

Reference year 2024

# ENVIRONMENTAL BULLETIN OF ZAKINTHOS “DIONISIOS SOLOMOS” AIRPORT (ZTH)



Issue Year: 2025

Fraport Regional Airports of Greece A.S.A.

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# 1. INTRODUCTION

## 1.1 Location

"Dionisios Solomos" airport of Zakynthos (ZTH) is located at the area Ampelokipoi, at 6 km from the capital of Zakynthos and at 1 km from Laganas area. The airport occupies an area of approximately 210 acres (850,000 s.m.).

## 1.2 Administration

The Airport administratively belongs to the Municipality of Zakynthos that consists of Zakynthos Island and the small remote islands Strofades that are to the south of the island, in the Region of Ionian Islands.

## 1.3 Environmental licensing

### Approved Environmental Terms

E.T. Decision Reference number	43392/96/17.02.1997
	127597/02.07.2010
	175512/15.10.2014
E.T. Amendment Decision Reference Number	36893/24.11.2017
	77331/5227/25.07.2022
	34978/2444/02.04.2024
Other	101558/7150/20.09.2024

## 1.4 Airport Basic Data

Airport name IATA / ICAO	ZTH / LGZA
Airport location – Airport Reference Point (ARP)	Latitude: 37° 45' 03" N Longitude: 20° 53' 03" E
Altitude	5m
Number of runways	1
Operation hours (summer)	05:00 – 22:00
Operation hours (winter)	Monday / Sunday 13:00 – 17:00 Wednesday 10:00 – 18:00 Tuesday / Thursday 11:00 – 17:00 Friday 10:00 – 19:00 Saturday Closed



Runways	Length/Width	Code			
Runway	2,228m x 45m	16/34			
Full length of parallel taxiway	N/A				
Number of taxiways	3				
Apron capacity	A	B	C	D	E
	-	-	4	3	-



Terminal	
Total area (m <sup>2</sup> )	25.348



Other buildings and service/storage areas	
RFF Station (m <sup>2</sup> )	1.144



Employees	High season (31.08.2024)	Low season (30.11.2024)
Fraport Greece (FG) employees	36	27
Employees of other companies	468	203



Parking Areas	
Car parking spaces	194
Bus parking spaces	26
Taxi parking spaces	42

## 1.5 Airport facilities

### 1.5.1 Fuel Handlers

<i>Number of fuel handler companies</i>			
<i>Number of fuel handler companies operating at the Airport</i>			
			3
<i>Installations inside the airport</i>	<i>EKO</i>	<i>GISSCO</i>	<i>HAFCO</i>
<i>Environmental Management System (EMS)</i>	YES	YES	YES

### 1.5.2 Ground Handlers

<i>Number of ground handler companies</i>			
<i>Number of ground handler companies operating at the Airport</i>			
			3
<i>Installations inside the airport</i>	<i>SKYSERV</i>	<i>SWISSPORT</i>	<i>GOLDAIR</i>
<i>Environmental Management System (EMS)</i>	YES	YES	YES

## 2. TRAFFIC DATA STATISTICS

### 2.1 Annual Traffic Data

#### Annual Traffic Data for the year 2024



Overall Annual Air Traffic Movements<sup>1</sup>  
**15.127**



Annual passenger traffic  
**2.223.011**



Annual cargo transferred (tn)  
**1**

Percent of increase or decrease in relation to the previous year



**4,0%**



**6,8%**



**-74%**

<sup>1</sup> Military and training flights not included.

#### Aircraft types

##### Prevailing aircraft types for domestic flights

Aircraft type	No. of flights
AT76	996
AT45	484
A20N	144
A320	100
AT46	96
AT75	28
C550	23
EC35	23
EC45	16
BE9L	14
Other	156

##### Prevailing aircraft types for international flights

Aircraft type	No. of flights
B738	6.500
A320	2.974
A21N	892
A321	836
A20N	626
A319	292
B739	204
B752	170
B734	80
B737	78
Other	395

### 2.2 High season traffic data

#### High season traffic data (June-September)

Highest traffic month	August
Air traffic movements during the month with highest traffic	3.195
Air traffic movements daily average number during the month with highest traffic	103

### 2.3 Low season traffic data

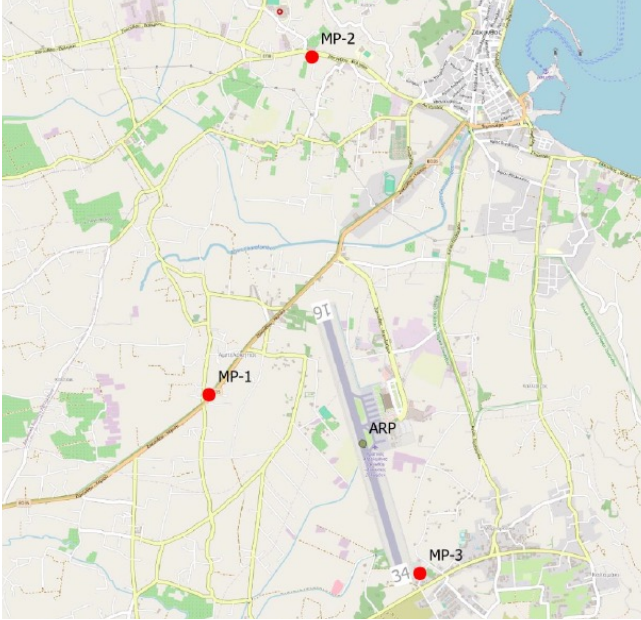
#### Low season traffic data (October-May)

Lowest traffic month	February
Air traffic movements during the month with lowest traffic	102
Air traffic movements daily average number during the month with lowest traffic	4

# 3. AIRCRAFT NOISE

## 3.1 Noise measurements during the reference year

### Noise Monitoring Stations



### Summary of measurement results

Noise levels are monitored according to the airport's monitoring program and new approved environmental terms.

No exceedance of noise indicators levels  $L_{den}=70$  dB(A) and  $L_{night}=60$  dB(A) was observed.

Have noise measurements at the airport's surrounding area been performed during the reference year? **YES**

Measurement points coordinates	Measurement points description
Position 1: 37° 45' 18" N 20° 52' 09" E	Ampelokipoi area, to the west of the runway. Affected by all flights in both directions.
Position 2: 37° 46' 51" N 20° 52' 45" E	Gaitani area, to the north of the runway. Affected by departures from runway 34 and arrivals on runway 16.
Position 3: 37° 44' 20" N 20° 53' 23" E	Laganas area, to the south of the runway. Affected by arrivals on runway 34 and departures from runway 16.
Measurement period	30.08.2024 – 31.08.2024
Noise indicators	$L_{den}$ $L_{night}$

Noise complaints: 0

### 3.2 Noise levels calculation based on noise simulation software

*Aircraft noise levels calculation based on noise simulation software*

*NO*

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#### Summary of results

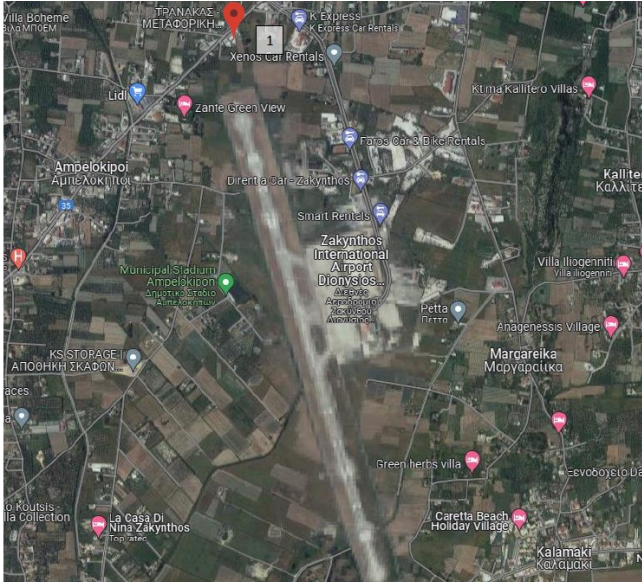
Noise levels are monitored according to the airport's monitoring program and approved environmental terms.

In 2024 noise modeling was not foreseen.

# 4. AIR QUALITY

## 4.1 Air quality measurements during the reference year

### Air Quality Monitoring Network



Have air quality measurements at the airport's surrounding area been performed during the reference year? **YES**

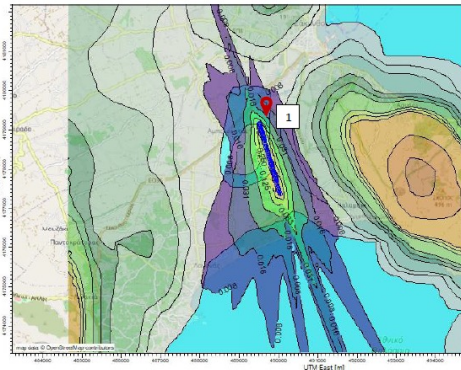
**Summary of results**  
 Air quality is monitored according to the airport's monitoring program and new approved environmental terms.  
 No exceedance of the air quality limits was observed.

Measurement points	Measurement points description
Point 1	At a distance of approximately 650m from the north part of the runway, at Ampelokipoi area.
Measurement period	15.03.2024 – 30.03.2024 28.06.2024 – 12.07.2024 12.09.2024 – 26.09.2024 22.11.2024 – 06.12.2024
Pollutants measured	NO <sub>x</sub> , SO <sub>2</sub> , CO, O <sub>3</sub> , C <sub>6</sub> H <sub>6</sub> , PM <sub>10</sub> & PM <sub>2.5</sub>

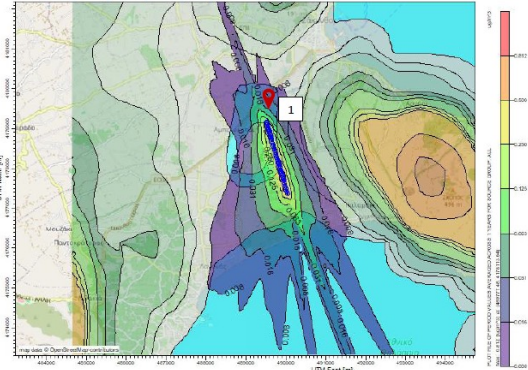
## 4.2 Air pollutants emission and dispersion modelling

Calculation of air pollutants concentrations based on an emission and dispersion modelling software	YES
Software used	Aviation Environmental Design Tool (AEDT) - US Federal Aviation Administration & US Environmental Protection Agency AERMOD
Pollutants concentrations and respective contours calculation	PM <sub>10</sub> , PM <sub>2.5</sub> , NO <sub>x</sub> , SO <sub>x</sub> , C <sub>6</sub> H <sub>6</sub> , CO

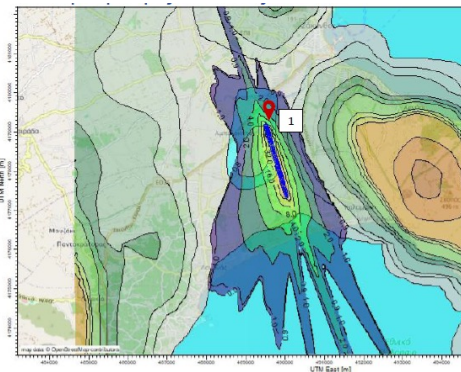
PM<sub>10</sub>



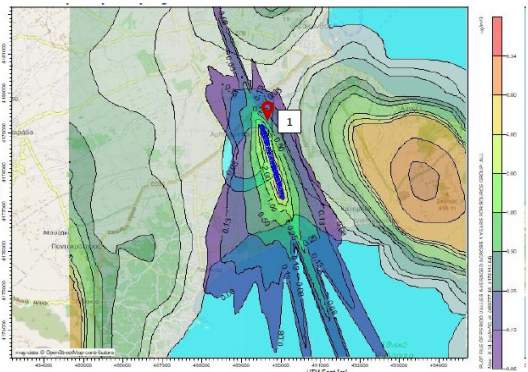
PM<sub>2.5</sub>



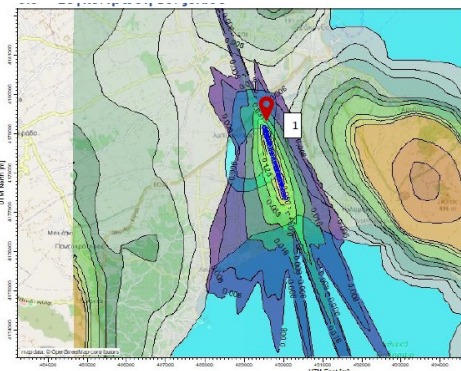
NO<sub>x</sub>



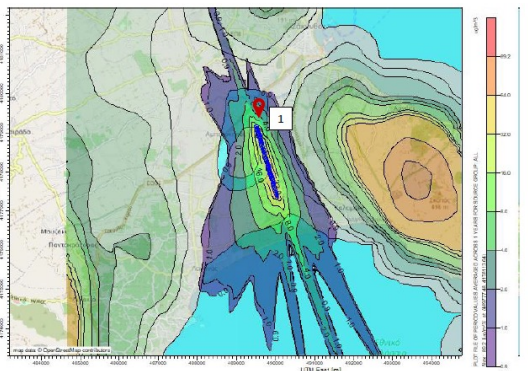
SO<sub>x</sub>



Benzene (C<sub>6</sub>H<sub>6</sub>)



CO



CO<sub>2</sub>

**Summary of results**

Air quality is monitored according to the airport's monitoring program and new approved environmental terms.

No exceedance of the air quality limits was observed.

## 5. WASTE MANAGEMENT

<i>Waste</i>	<i>Collection</i>	<i>Management/Disposal</i>
<i>Recyclables (paper, plastic, metals, glass)</i>	<i>Separate collection by appropriately licensed private company</i>	<i>Disposal at material recovery facility for recycling</i>
<i>Residues (Mixed Waste) and Bulky Waste</i>	<i>Collection by appropriately licensed private company</i>	<i>Disposal in landfill</i>

### Notes:

1. Regarding the different categories of the MSW (recyclables, mixed waste, bulky waste), the Airport Users handle their waste together with Fraport Greece A (central management).

2. Regarding the "alternative management" waste categories (Waste lubricant oil WLO, WEEE, etc.):

i. Waste Lubricant Oil (WLO): Collection and management by authorized collector "CYTOP S.A."

ii. Waste Electrical & Electronic Equipment (WEEE): Collection and management by alternative management system "Appliances Recycling S.A."

iii. Accumulators: Collection and management by alternative management system "Re-Battery S.A."

iv. Small batteries: Collection and management by alternative management system "AFIS S.A."

v. Used tires: Collection and management by alternative management system "ECOELASTIKA S.A."

3. The total quantities of the hazardous waste further to the above-mentioned and produced at the airport, are managed by licensed private companies which have a contract with Fraport Greece A, after a Tender process according to the provisions of the legislation in force.

4. In the year 2024, Fraport Greece A in ZTH managed a total of 45,01 tons of Hazardous waste (ZTH FG A 43,75 tn, third parties 1,26 tn).

5. The total quantities of the produced waste by category resulting from all activities of the airport, the collectors and final recipients, are recorded by Fraport Greece A and submitted in the Electronic Waste Registry of the Ministry for Environment and Energy via the Annual Waste Producer Report according to the provisions of the legislation in force.

## 6. ECOSYSTEM AROUND THE AIRPORT

### 6.1 Flora – Fauna



#### Flora

Are there protected zones of vegetation/habitats in the broader airport area?

YES

(if YES) Short description: Zakynthos Airport "Dionisios Solomos" is close to the Natura 2000 site:

- GR2210002 Kolpos Lagana Zakynthou (Akr. Geraki - Keri) Kai Nisides Marathonisi Kai Pelouzo (Area: 6.977,66 ha), an important shore for the reproduction of the loggerhead turtle *Caretta caretta*.



#### Fauna

Are there protected species of fauna/birds in the broader airport area?

YES

(if YES) Short description:

Zakynthos Airport "Dionisios Solomos" is near to the:

- Important Bird Area GR086 Zakynthos island (Area: 33.927,83 ha)
- Important Marine Mammal Area Ionian Archipelago (Area: 960.600 ha) where the species *Delphinus delphis* and *Monachus monachus* are recorded
- Important Marine Mammals Area Hellenic Trench (Area: 5.660.000 ha) where the species *Physeter microcephalus* and *Ziphius cavirostris* are recorded

The protected bird species (listed under Annex I of Directive 2009/147/EC) that have been observed at Zakynthos broader airport area since April 2017 are presented below:

Black-winged stilt (*Himantopus himantopus*), Booted eagle (*Aquila pennata*), Common crane (*Grus grus*), Common tern (*Sterna hirundo*), Eurasian kingfisher (*Alcedo atthis*), Eurasian nightjar (*Caprimulgus europaeus*), Eurasian sparrowhawk (*Accipiter nisus*), European shag (*Phalacrocorax aristotelis*), Flamingo (*Phoenicopterus roseus*), Glossy ibis (*Plegadis falcinellus*), Golden plover (*Pluvialis apricaria*), Great egret (*Casmerodius albus*), Greater short-toed lark (*Calandrella brachydactyla*), Hen harrier (*Circus cyaneus*), Lesser kestrel (*Falco naumanni*), Little egret (*Egretta garzetta*), Marsh harrier (*Circus aeruginosus*), Masked shrike (*Lanius nubicus*), Mediterranean gull (*Larus melanocephalus*), Montagu's harrier (*Circus pygargus*), Pallid harrier (*Circus macrourus*), Peregrine falcon (*Falco peregrinus*), Purple heron (*Ardea purpurea*), Red-backed shrike (*Lanius collurio*), Red-footed falcon (*Falco vespertinus*), Ruff (*Philomachus pugnax*), Short-toed snake eagle (*Circaetus gallicus*), Squacco heron (*Ardeola ralloides*), Tawny pipit (*Anthus campestris*), White stork (*Ciconia ciconia*), Wood sandpiper (*Tringa glareola*), Woodlark (*Lullula arborea*).

## 7. WILDLIFE HAZARD MANAGEMENT

### Wildlife strikes and wildlife hazard management measures

Wildlife species that suffered a strike	Strikes (%)
Small passerines	70%
Birds of prey, Owls	30%
Gulls	4%

### Wildlife strike risk mitigation measures

The presence and behavior of wildlife species at Zakynthos airport is monitored in regular intervals, daily, from dawn to dusk. Some of the wildlife control methods applied at Zakynthos airport are: distress calls (bioacoustics), digital sounds, anti-bird laser, etc. Preventive long-term actions that are mainly related to habitat management measures (e.g. grass cutting, water body management) are also taken to further reduce the presence of hazardous wildlife species constituting a risk to flight safety. In addition, a NOTAM is published and regularly updated.

## 8. CULTURAL HERITAGE

*Have new cultural heritage properties been discovered during the reporting period?*

**NO**

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## 9. RESOURCES CONSUMPTION



### 9.1 Energy consumption

#### Energy consumption (monthly electric energy consumption, in Kwh)

Total annual electric energy consumption (in Kwh)	2.636.665,10*
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\*Third parties' consumption is excluded.



### 9.4 Fuel consumption for generator

#### Fuel consumption

Total annual consumption (lt)	1.029,68
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### 9.5 Water consumption

#### Water consumption

Total annual consumption (m <sup>3</sup> )	17.678,06*
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\*From the total quantity, annual consumption, the last two months of the year are absent as the bills from DEYAZ were not available.



### 9.2 Fuel consumption

#### Fuel consumption

Number of FG vehicles at the airport	10	
Total annual fuel consumption	Diesel (lt)	16.513,99
	Unleaded gasoline (lt)	6.251,04



### 9.3 Heating oil or natural gas consumption

#### Heating oil or natural gas consumption

Total annual heating oil consumption (lt)	17.197,00
Total annual heating natural gas consumption (m <sup>3</sup> )	N/A

## 10. GREENHOUSE GAS EMISSIONS & CARBON FOOTPRINT

Greenhouse gas emissions that were included in the carbon footprint calculation are the CO<sub>2</sub>, CH<sub>4</sub> & N<sub>2</sub>O emissions included in scope 1 & 2 of the GHG protocol:

- Scope 1: Direct GHG emissions that occur from sources that are owned and/or controlled by the airport,
- Scope 2: Indirect GHG emissions from the generation of purchased electricity, steam, heat or cooling consumed by the airport.

Source Flows	Total CO <sub>2</sub> e Emissions (t) 2024	
	Location based	Market based
Direct emissions from heating fuel (scope 1)	45,4	45,4
Direct emissions from fuel used for fleet vehicles (scope 1)	58,8	58,8
Direct emissions from refrigerants (scope 1)	0,0	0,0
Direct emissions from fuel used for generators (scope 1)	2,7	2,7
Indirect emissions from electricity consumption (scope 2)	1.320	964,3
<b>Total (t)</b>	<b>1.426,9</b>	<b>1.071,2</b>
<b>Kg CO<sub>2</sub>e /passenger</b>	<b>0,64</b>	<b>0,48</b>

### Notes

Fraport Greece A is committed to the monitoring, management and reduction of its airports carbon footprint.

In order for this target to be achieved:

- Direct and indirect carbon emissions from all the emission sources in the airports' boundaries are calculated and reported, based on the GHG Protocol (scope 1 & 2)
- The airport is certified according to ACA (Airport Carbon Accreditation), Level-1.

# 11. HUMAN CONSUMPTION WATER MONITORING PROGRAM

## Human consumption water quality

Water supply (public water network or airport's boreholes)	Municipal Water & Sewage Company (DEYA) of Zakynthos
Is sampling of the airport's water network performed?	YES
(if YES) Sampling frequency	Quarterly

## Summary of results

The results of the chemical analyses show that the water supplied from the DEYA of Zakynthos is not potable due to the existence of high concentrations of Sodium and Chlorine (brackish water). Airport users are informed. The other results of the microbiological and chemical analyses show that the parameters analysed as regards the airport's water network are within the legislative limits defined by the Ministerial Δ1(δ)/ΓΠ οικ. 27829/2023 (GG 3525/B` 25.5.2023) regarding the quality of human consumption water.

## 12. RAINWATER

### RAINWATER (collection, treatment disposal and recipient)

Area	Collection/treatment/disposal	[YES/ NO]
Apron and manoeuvring area	Collected in drainage ditches leading to the sea	YES
Other runoffs (runway etc.)	Collected in drainage ditches leading to the sea	YES
Treatment of rainwater by oil-separator		NO*

\*According to the approved environmental terms of Zakynthos Airport six designed sand collectors were constructed in order for rainwater to be discharged to the natural recipient free of sediment pollutants.

### Rainwater quality

Is sampling of the airport's rainwater performed?	YES
(if YES) Sampling frequency	Yearly and Half year

Parameters analyzed: pH, conductivity, TSS, DO, NO<sub>3</sub>, NO<sub>2</sub>, Oil & grease, BOD, COD, Total Petroleum Hydrocarbons (TPH), PAHs, BTEX, Heavy metals, Detergents

### Summary of results

Surface rainwater quality is monitored according to the airport's monitoring program. Due to the absence of designated recipients and relevant national quality limits for surface rainwater, the Environmental Health & Safety Guidelines of the International Finance Corporation (IFC) are adopted. Surface rainwater monitoring for 2024, was performed and quality of the water is in accordance with the IFC guidelines. However, the presence of hydrocarbons (C<sub>10</sub>-C<sub>40</sub>) (mg/l) is recorded at a sampling point, and the monitoring of the phenomenon will continue.

# 13. GROUNDWATER AND/OR SOIL AND/OR SOIL GAS MONITORING



## Groundwater and/or soil and/or soil gas quality

Is sampling of the airport's groundwater and/or soil and/or soil gas performed?	YES
(if YES) Sampling frequency	Annual
Parameters analyzed: TPH, BTEX, MTBE (groundwater) & volatile hydrocarbons, aliphatic, aromatic and chlorinated (soil gas)	

## Summary of results

### Groundwater monitoring within airport boundary - Fraport Greece

Groundwater quality is monitored according to the airport's monitoring program from boreholes managed by Fraport Greece. Groundwater monitoring for 2024 was performed. The results show no exceedances. However, the presence of hydrocarbons (C10-C40 mg/l) was observed, and the monitoring of the phenomenon will continue.

### Groundwater and/or soil and/or soil gas monitoring at fuel farms – Fuel Handlers

According to the approved environmental terms, monitoring of groundwater and air from the Fuel Handlers was performed by EKO (2024), and HAFCO (2024). Results are satisfactory with no recorded exceedances.

# 14. SEWAGE TREATMENT AND DISPOSAL



## Sewage

Sewage network to the municipal wastewater treatment plant (WWTP)	YES
Autonomous airport's wastewater treatment plant (WWTP)	NO

## Blue water

Collection and disposal: Collection in watertight tank and disposal to the municipal sewage network.
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## Waste water treatment plant description (where applicable)

Description of characteristics and condition of the airport's WWTP including possible problems. Type and frequency of the effluent quality measurements.

Degree of treatment of airport's WWTP	N/A
Treatment method	N/A
Disposal of treated wastewater	N/A
Sludge disposal	N/A
Sampling frequency of WWTP effluent	N/A
Parameters analyzed	N/A
Summary of quality of WWTP effluent	N/A

Contact

[environmental@fraport-greece.com](mailto:environmental@fraport-greece.com)