

Environmental Bulletin of Thessaloniki “Makedonia” Airport (SKG)

Reference year 2018

Fraport Greece

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1. INTRODUCTION

Location

“Macedonia” airport of Thessaloniki (SKG) is located in the coastal area of Micra, to the south east, and at a distance of 16 Km from the centre of the city of Thessaloniki. It is 2 km away from the old National Road Thessaloniki - Chalkidiki, in the broader area that is known as “Livadi”. The airport occupies approximately 1408 acres (5,700 stremmas) and is surrounded to the north-east by the Anthemoundas stream, to the south - south east by the National Road Thessaloniki - Michaniona, to the west - south west by areas of rural and semi-urban use and finally to the north - north west by the sea.

Administration

The airport administratively belongs to the Municipality of Thermi of the Regional Unit of Thessaloniki and more specifically to the community of Neo Rysio of the Department of Thessaloniki.

Environmental licensing

Approved Environmental Terms	
E.T. Decision Reference number	105214/17.11.2000 E.T. Amendment Decision Reference number
	125887/08.05.2007
	204012/05.10.2011
	12763/10.03.2016
	9322/9.05.2018

1.1. Airport Basic Data

Airport Basic Data					
Airport name IATA / ICAO	SKG / LGTS				
Airport position – Airport Reference Point (ARP)	Latitude: 40° 31' 11" N Longitude: 22° 58' 15" E				
Altitude:	7m				
Number of runways	2 (1 in operation, and 1 under construction)				
Operation hours (high season)	0:01-24:00				
Runways	Length/Width			Code	
Runway	2,440 m x 50 m			10/28	
Runway	2,410 m x 60 m			16/34	
Full length of parallel taxiway	(ALPHA) 2,410 m, (FOXTROT) 2,440 m				
Number of taxiways	12				
Apron capacity	A	B	C	D	E
	-	-	21	-	3
Employees	High season			Low season	
Fraport Greece (FG) employees	65			64	
Employees of other companies	454			628	
Terminal					
➤ Total area (m ²)					26,527

Other buildings and service/storage areas	
➤ RFF (m ²)	1,056
Parking Areas	
Car parking spaces	2,000
Bus parking spaces	110
Taxi parking spaces	200

1.2. Airport Facilities

1.2.1. Fuel Handlers

Number of fuel handler companies			
Number of fuel handler companies operating at the Airport			3
Installations inside the airport	EKO	GISCO	HAFCO
Environmental Management System (EMS) (YES/NO)	YES	YES	YES

1.2.2. Ground Handlers

Ground Handlers			
Number of ground handler companies operating at the airport			3
Installations inside the airport	SKYSERV	SWISSPORT	GOLDAIR
Vehicles (total number)	45	46	247
Environmental Management System (EMS) (YES/NO)	YES	YES	YES

2. TRAFFIC DATA STATISTICS

2.1. Annual Traffic Data

Annual Traffic Data for the year 2018	
Overall Annual Air Traffic Movements ¹	55,307
Percent of increase or decrease in relation to the previous year	3.1%
Annual passenger traffic	6,689,193
Percent of increase or decrease in relation to the previous year	7.1%
Annual cargo transferred (tn)	5,439
Percent of increase or decrease in relation to the previous year	18.0%
Aircraft types	
Prevailing aircraft types for domestic flights	
Aircraft type	No. of flights
A320	8,675
B73H	2,119

¹ Military and training flights not included.

AT72	1,629
A319	1,499
DH8D	1,466
AT43	1,294
A32A	1,009
AT45	816
A321	739
E120	448
Other	2,070
Prevailing aircraft types for domestic flights	
Aircraft type	No. of flights
A320	10,105
B73H	9,064
A319	3,698
B738	2,250
A321	1,183
A32A	996
B733	452
AT45	378
B735	303
B463	272
Other	4,842

2.2. High season traffic data

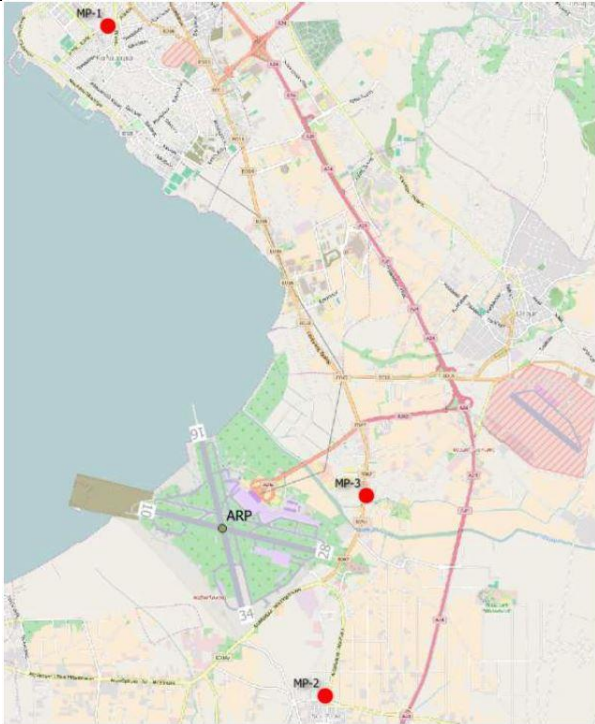
High season traffic data (June-September)	
Highest traffic month	August
Air traffic movements during the month with highest traffic	6,845
Air traffic movements daily average number during the month with highest traffic	221

2.3. Low season traffic data

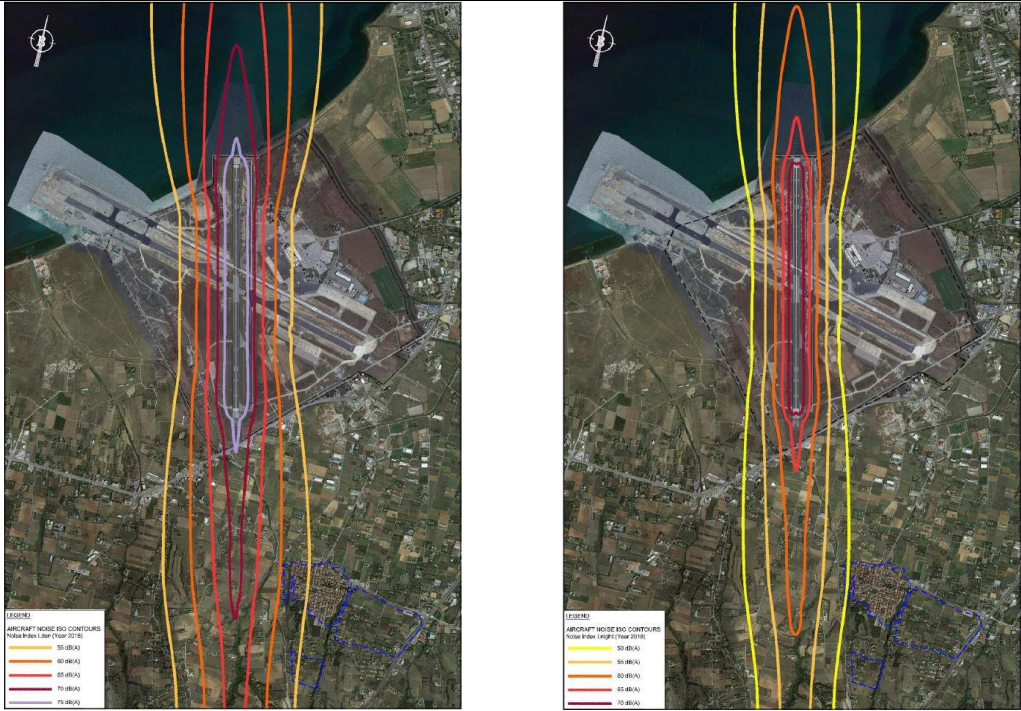
Low season traffic data (October-May)	
Lowest traffic month	February
Air traffic movements during the month with lowest traffic	2,484
Air traffic movements daily average number during the month with lowest traffic	89

3. AIRCRAFT NOISE

3.1. Noise measurements during the reference year

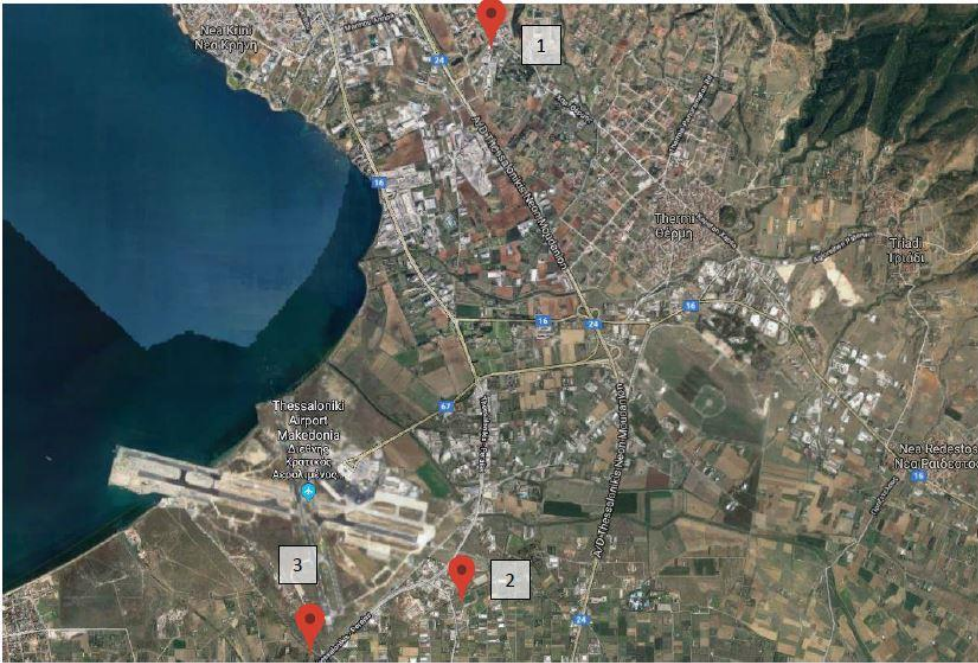
Have noise measurements at the airport's surrounding area been performed during the reference year? [YES/NO]		YES
Measurement points		
		
Measurement points coordinates	Measurement points description	
1) Position: 40° 35' 02" N 22° 57' 06" E	Kalamaria area, to the north of the runway on the roof of a public building	
2) Position: 40° 29' 54" N 22° 59' 17" E	Neo Rysio area, to the south-east of runway 16/34 on the roof of a public building	
3) Position: 40° 31' 26" N 22° 59' 42" E	On the roof of a school to the west of the runway	
Measurement period	16.07.2018 -17 07.2018	
Noise indicators	Lden, Lnight	
Summary of measurement results:		
Noise levels are monitored according to the airport's monitoring program. No exceedance of noise indicators levels Lden = 70 dB (A) and Lnight = 60 dB (A) was observed.		

3.2. Noise levels calculation based on noise simulation software

Aircraft noise levels calculation based on simulation software [YES/NO]		YES
Software used: IMMI Noise Prediction Software		
Noise indicators and respective contours calculation:		Lden, Lnight
		
Summary of results:		
<p>For the year 2018 no populations or buildings within residential areas were found to be exposed to noise levels higher than the limits Lden = 70 dB(A) and Lnight = 60 dB(A).</p>		

4. AIR QUALITY

4.1. Air quality measurements during the reference year

Have air quality measurements at the airport's surrounding area been performed during the reference year? [YES/NO]		YES
Measurement points		
		
Measurement points coordinates	Measurement points description	
1) Position: --° --' --" N --° --' --" E	At the parking area of the National Center of Research and Technological Development, at a distance of 5.5 km approximately.	
2) Position: --° --' --" N --° --' --" E	In the facility of the roofed stadium of Neo Rysio. The stadium is at a distance of 1 km from the end of runway 28.	
3) Position: --° --' --" N --° --' --" E	750 meters from the end of runway 34.	
Measurement period	24.07.2018 - 31 07.2018	
Pollutants measured: PM ₁₀ , PM _{2,5} , NO ₂ , SO ₂ , C ₆ H ₆ , O ₃		
Summary of measurement results:		
Air quality is monitored according to the airport's monitoring program. No exceedance of the air quality limits was observed.		

4.2. Air pollutants emission and dispersion modelling

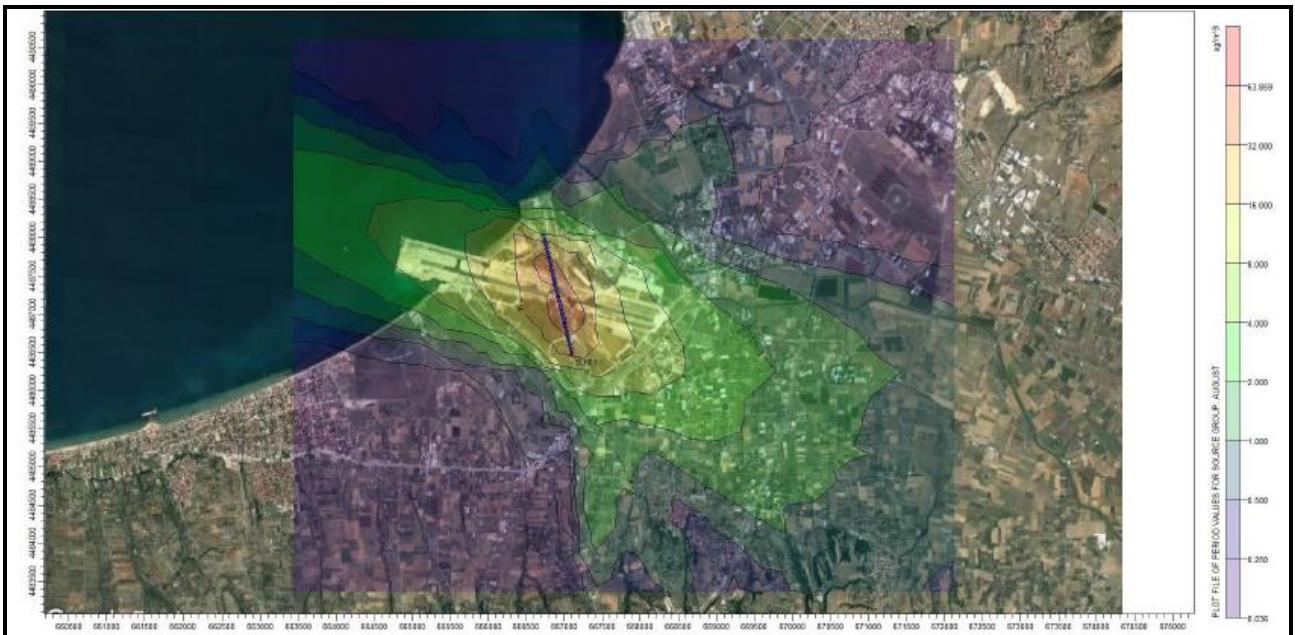
Calculation of air pollutants concentrations based on an emission and dispersion modelling software [YES/NO]	YES
Software used: Emissions and Dispersion Modeling System (EDMS) - US Federal Aviation Administration & US EPA AERMOD	
Pollutants concentrations and respective contours calculation: PM ₁₀ , NO _x , SO _x , C ₆ H ₆	



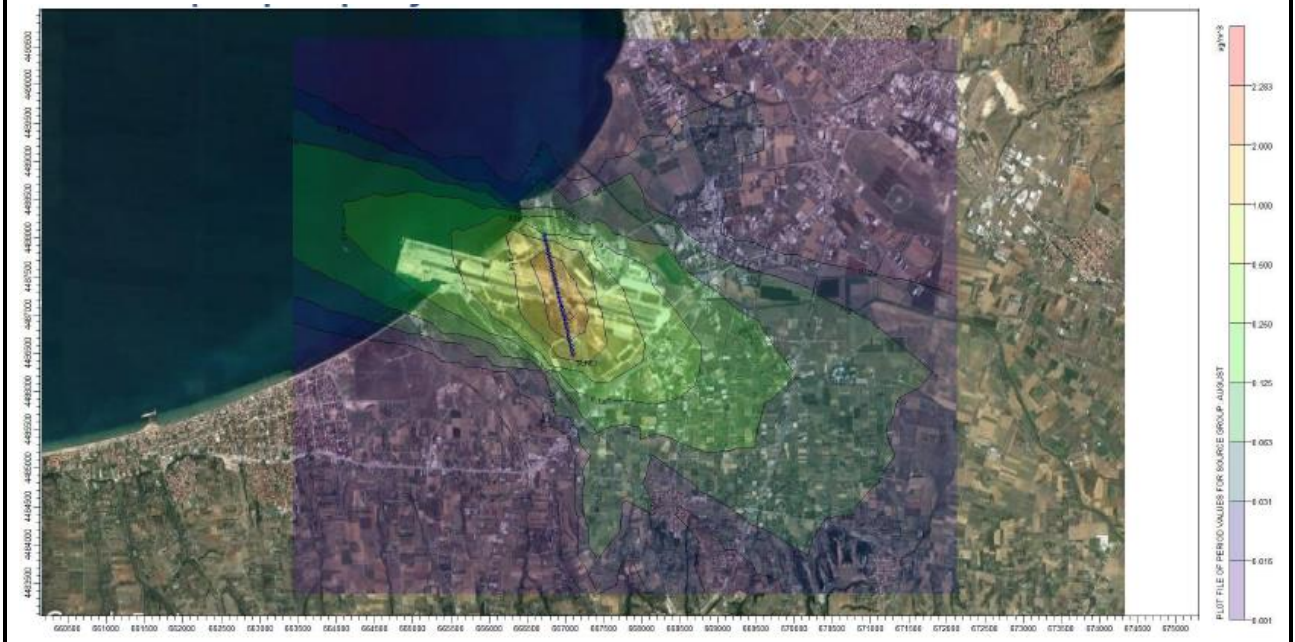
PM10



NOx



SOx



Benzene

Summary of results:

Air quality is monitored according to the airport’s monitoring program.
 No exceedance of the air quality limits was observed.
 It is noted that the simulation of the ozone cycle is a difficult procedure the results of which are greatly dependent from the meteorological conditions and solar radiation data used in the photochemical model. The simulation of the specific pollutant is not possible.

5. WASTE MANAGEMENT

Waste management		
Waste	Collection	Management/Disposal
Municipal solid waste	Collection and emptying of garbage bins by an FG contractor inside the airport	Collection and management by the Municipality of Thermi
Recyclables	Collection and emptying of garbage bins by an FG contractor inside the airport	Collection and management by the Municipality of Thermi
Used oils	Collection by licensed collector "Cytop S.A."	Collection and management by licensed collector "Cytop S.A."
Electric & electronic waste	Collection by alternative management system "Appliances recycling S.A."	Collection and management by alternative management system "Appliances recycling S.A."
Accumulators	Collection by alternative management system "Re-Battery S.A."	Collection and management by alternative management system "Re-Battery S.A."
Small batteries	Collection in special bins of the company AFIS S.A. inside the airport	Collection and management by alternative management system "AFIS S.A."
Used tires	Collection by alternative management system "ECOELASTIKA S.A."	Collection and management by alternative management system "ECOELASTIKA S.A."

Notes:
<ol style="list-style-type: none"> 1. Ground handlers and fuel handlers manage all the categories of waste they produce independently 2. The total quantities of the produced waste by category resulting from all activities of the airport are recorded by Fraport Greece A and submitted in the Electronic Waste Registry via the Annual Waste Producer Report as provided for by the applicable legislation.

6. ECOSYSTEM AROUND THE AIRPORT

6.1. Flora-Fauna

ECOSYSTEM AROUND THE AIRPORT	
Flora	
Are there protected zones of vegetation/habitats in the broader airport area? [YES/NO]	NO
(If YES) Short description:	
Fauna	
Are there protected zones of fauna/birds in the broader airport area? [YES/NO]	NO
(If YES) Short description:	

6.2. Ecologically fragile areas

The nearest protected area is the “Lagoon of Aggelochori” at a distance of approximately 12km from the airport.

7. WILDLIFE HAZARD MANAGEMENT

Wildlife hazard management	
Extent of the problem (bird species):	Birdstrikes
<i>Buteo buteo</i> (Buzzard)	1
<i>Falco tinnunculus</i> (Kestrel)	6
<i>Apus apus</i> (Swift)	1
Anatidae spp.	9
<i>Falco</i> spp.	1
<i>Laridae</i> spp.	1
Accipitridae spp. (Vultures)	2
<i>Circus aeruginosus</i> (Marsh harrier)	2
<i>Columba livia</i> (common pigeon)	12
Hirundinidae spp. (swallow)	5
<i>Larus michahellis</i> (Herring Gull)	3
<i>Larus michahellis</i> (Herring Gull), Anatidae spp.	1
Adopted measures :	
<p>The following reports have been submitted to the Department of Airports Operation of the Hellenic Civil Aviation Authority:</p> <ol style="list-style-type: none"> 1. “Wildlife hazard risk identification and management, Fraport Regional Airports of Greece A S.A., Reference period: 11 April-31 December 2017” 2. “Wildlife hazard risk identification and management, Fraport Regional Airports of Greece B S.A., Reference period: 11 April-31 December 2017” In these reports, information is included for the following: <ul style="list-style-type: none"> • Bird and other animal species management is done by FG in all airports with the exception of Aktion and Chania airports where wildlife hazard management belongs to the Hellenic Air Force • Birdstrikes or other species strikes on aircrafts data refer to the period between April 11-December 31 2017 • Birdstrikes or other species strikes on aircraft risk evaluation (strikes indicator is taken under account (birdstrikes number to the total ATMs) • Wildlife hazard management measures 	
Reference year summary results:	
<p>The number of strikes of birds or other animals to aircrafts cannot reduce the population of even endangered species, since only a limited number can be involved in a strike event (stochastic events). The loss of a limited number of animals cannot change the population status of the species.</p>	

8. CULTURAL HERITAGE

Have new cultural heritage properties been discovered during the reporting period? [YES/NO]			NO
<i>(if YES)</i> Details provided in the table below:			
Location	Date of discovery	Type of discovery	Additional protection measures taken

9. RESOURCES CONSUMPTION

9.1. Energy consumption

Energy consumption (monthly electric energy consumption, in Kwh)	
MONTH	Kwh
January	742,851
February	672,133
March	676,607
April	710,209
May	934,973
June	1,065,623
July	1,281,922
August	1,316,506
September	1,091,555
October	887,594
November	735,331
December	812,792
Total annual electric energy consumption (in Kwh)	10,928,096

9.2. Fuel consumption

Fuel consumption		
Number of FG vehicles at the airport	23	
Number of firefighting vehicles at the airport	5	
Total annual fuel consumption	Diesel (lt)	45,769.35
	Unleaded gasoline (lt)	639.71

9.3. Heating oil or natural gas consumption

Heating oil or natural gas consumption	
Total annual heating oil consumption (lt)	10,006
Total annual heating natural gas consumption (m ³)	222,149

9.4. Water consumption

Water consumption	
Period	Consumption [m ³]
Total annual consumption	*100,000 m ³

*Estimation

10. GREENHOUSE GAS EMISSIONS & CARBON FOOTPRINT

Greenhouse gas emissions that were included in the carbon footprint calculation are the CO₂ 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 ₂ EMISSIONS (t)
	2018
Direct emissions from heating fuel (scope 1)	574.4
Direct emissions from fuel used for fleet vehicles (scope 1)	96.1
Direct emissions from fuel used for firefighting vehicles (scope 1)	27.5
Direct emissions from fuel used for generators (scope 1)	22.0
Indirect emissions from electricity consumption (scope 2)	6,655.2
Total (t)	7,375.3
Kg CO₂ /passenger	0.83

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 ISO 14064 regarding greenhouse gas emission by an independent certification body
- The airport is planned to be certified according to ACA (Airport Carbon Accreditation)

11. HUMAN CONSUMPTION WATER MONITORING PROGRAM

Human consumption water quality	
Water supply (public water network or airport's boreholes)	Airport boreholes
Is sampling of the airport's water network performed? [YES/NO]	YES

(if YES) Sampling frequency:	Monthly
Summary of results: The 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 Decision Γ1 (δ)/ΓΠ οικ. 67322/ GG 3282 B/19-9-2017 regarding the quality of human consumption water.	

12. RAINWATER

RAINWATER (collection, treatment disposal and recipient)		[YES/NO]
Area	Collection/treatment/disposal	
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

13. GROUNDWATER MONITORING PROGRAM

Groundwater quality	
Is sampling of the airport's groundwater performed? [YES/NO]	YES
(if YES) Sampling frequency:	According to the frequency specified by the ETs.
Parameters analysed: pH, Conductivity, DO, TPH, BTEX, Heavy metals,	
Summary of results: Groundwater quality is monitored according to the airport's monitoring program. It is noted that the fuel handler companies monitor the quality of groundwater according to the Environmental terms and based on the data provided by them, no exceedances of the legislative limits occurred (Limits defined by the Ministerial Decision 1811 (G.G. 3322/30.12.2011) and the New Dutch List (2009)). . It is noted that EXXON MOBIL installation is under remediation.	

14. SEWAGE TREATMENT & DISPOSAL

Sewage	
Sewage network to the municipal waste water treatment plant (WWTP)	NO
Autonomous airport's waste water treatment plant (WWTP)	YES
Short description: The airport waste water is collected via an integrated sewage network and taken to the WWTP within the airport.	
Blue water	
Collection and disposal: Collection in a tank in the WWTP facility and disposal within the WWTP of the airport for further treatment.	

Waste water treatment plant description (where applicable)	
<i>Description of characteristics and condition of the airport's WWTP including possible problems. Type and frequency of the effluent quality measurements</i>	
Degree of treatment of airport's WWTP	Secondary treatment
Treatment method	Prolonged ventilation
Disposal of treated wastewater	Thermaikos gulf according to the terms of disposal permit no 30/4942οικ./1.10.2001 of the Prefectural Local Administration of Thessaloniki
Sludge disposal	Use in agriculture, based on decision ref. no 12/12177/27.10.2010 of the Prefectural Local Administration of Thessaloniki
Sampling frequency of WWTP effluent	Monthly based on the disposal permit
Parameters analysed	BOD, COD, SS, TN, TP, T. Coliforms, E.Coli, pH, Residual Cl ₂ , grease, oils
Summary of quality of WWTP effluent	The WWTP effluent observes the limits set out in the disposal permit no 30/4942οικ./1.10.2001 issued by the Prefectural Administration of Thessaloniki.