



REGISTRATION NUMBER TO THE EMAS REGISTER  
**EL000012**

	NAME	OCCUPATION
AUTHOR	Dr. – Ing Niki Siouta	Sustainable Department AKTOR S.A.
REVIEW	Ioannis Bournazos	Board of Directors Member AKTOR S.A.
APPROVAL	Dimitrios Koutras	Chairman of the Board of Directors of AKTOR S.A.

## **CONTENTS**

- 1. INTRODUCTION**
- 2. INFORMATION ABOUT AKTOR S.A.**
- 3. WORKSITE AND OTHER ACTIVITY AREAS**
- 4. ENVIRONMENTAL POLICY**
- 5. ENVIRONMENTAL MANAGEMENT SYSTEM**
- 6. ENVIRONMENTAL ASPECTS AND IMPACTS**
- 7. ENVIRONMENTAL OBJECTIVES AND TARGETS**
- 8. ENVIRONMENTAL PERFORMANCE**
  - 8.1 Consolidated performance data**
  - 8.2 Detailed management data per type of waste**
  - 8.3 Sludge management**
  - 8.4 Management of other types of waste**
  - 8.5 Excavation products– raw material management**
  - 8.6 Construction equipment of projects**
  - 8.7 Energy saving**
  - 8.8 Waste producer statement**
- 9. ENVIRONMENT AND CORPORATE SOCIAL RESPONSIBILITY**
- 10. ENVIRONMENTAL CORPORATE AWARDS**
- 11. MEASURES AND ACTIONS AGAINST ACT OF VIOLATION**
- 12. VALIDATION OF ENVIRONMENTAL STATEMENT**
- 13. DECLARATION OF ENVIRONMENTAL VERIFIER**
- 14. INFORMATIONS ON REGISTRATION**

## **1. INTRODUCTION**

AKTOR has developed and implements an Environmental Management System (EMS) according to the guidelines of *the European Regulation «Eco Management and Audit Scheme» EMAS III / EC 1221 / 2009*. The said EMS is under annual audits by an independent Certification Body.

Under the requirements of EMAS III and verification of EMS from the independent Certification Body, the nonce Environmental Statement is drawn up to provide environmental information on AKTOR to all interested parties.

The nonce Environmental Statement includes the period January 2014 – December 2014.

Data included in this Environmental Statement regard the environmental policy, the environmental impacts and performance, as well as the results based on the environmental objectives and targets set by the company.

## **2. INFORMATION ABOUT AKTOR S.A.**

AKTOR is a leading construction company in Greece. AKTOR possesses dynamic management, employs a large number of qualified engineers and other specialized personnel that constitute the most significant asset on which AKTOR bases its development course.

AKTOR constructs the most significant and modern infrastructure and development projects as well as private works in Greece, while it is also activated in the rest of Europe and in the Middle East.

The construction sectors in which AKTOR is activated are:

Roads and technical infrastructure projects, Tunnels, Hydraulic projects, Building and Industrial projects, Port projects, Electromechanical installation projects, Energy projects and power generation plants, B.O.T. Projects (co-financed projects), Environmental and landscape rehabilitation projects, Building Maintenance projects, etc.

### 3. WORKSITE AND OTHER ACTIVITY AREAS

Worksites, where AKTOR performs construction activities, are listed in Tables 1A, 1B below, whereas there is the equipment department wherefrom equipment is forwarded to the projects and is regularly maintained as well as the headquarters of the company and ELLAKTOR Group. Moreover, Table 1A, 1B includes the current phase of every project – worksite, the name of the construction company – joint venture executing the project, the JMD of the Approved Environmental Conditions (if required by law) and the building or other permit, if required.

TABLE 1: CONSTRUCTION SITES AND AREAS OF ACTIVITY 2014				
PROJECT – CONSTR. SITE	Contractor / Joint Venture	Joint Ministerial Decree -JMD	Contract / Permit of project	Phase of project
AKTOR – Headquarters	HELLAKTOR GROUP	Private Building Project	Building Permit 16/2002	Operation of office
EQUIPMENT DPT AKTOR (LOCATION MAGOULA ATTICA)	AKTOR S.A	Dec. of West Attica Pref. Division of Devel./Dpt of Enviro. 4150/21.07.10	Decision. 4604 / Φ14 ΜΑΓ.2842 / 07.09.2010	Works under progress
PSYTALLIA WWTP – Psytallia waste water treatment plant	J/V: AKTOR S.A –ATHINA S.A – N.K. GOLIPOULOS	140774/11.06.2009	Operation Permit by EYDAP	Works under progress
THESSALONIKI METRO – KALAMARIA DIRECTION	AKTOR S.A	JMD: 203064 / 06.09.2011	Contract of Public Project	Commencement of works August 2013
DOMOKOS TUNNELS KM Pos 14+000 to KM Pos 25+000	AKTOR S.A	JMD: 140939/04.02.2005	Contract of Public Project	Partial suspension of works
Construction sites falling under the activities of Hellas Gold	AKTOR S.A	JMD: 201745/ 26.07.2011	Construction Works Private Agreement	Works under progress
Vertical Axis of EGNATIA ODOΣ Siatista-Krystalloghι, Section Koromilia - Krystalloghι	J/V: AKTOR S.A – J&P AVAX S.A - TERNA S.A	JMD: 198356/13.04.2011	Contract of Public Project	Works under progress
Maliakos – Klidi / Omolιο (Tunnel T2) and Skotina (Tunnel T3) Construction Sites	J/V OLYMPIA: HOCHTIEF S.A – AKTOR S.A.	JMD: 85884/05.08.2002, 132055/20.08.2003, 201977/01.08.2011, 85879/05.08.2002, 18548/15.12.1995, 108595/07.10.1998 134584/22.08.2003, 86029/09.08.2002 195832/01.02.2012 Decision 141512/23.02.2005	Building Permit: L.3605/2007 O.J. 190A/08.08.2007	Commencement of works Jan. 2014
Korinth – Patra motorway (upgrading existing road to motorway)	APION KLEOS con.: AKTOR S.A., J&P AVAX S.A, HOCHTIEF, VINCI, ATHINA	JMD: 104892/16-06-2006 172996/03.06.2014,	Building Permit: L.3621 O.J. 279A/ 20.12.2007	Commencement of works Jan 2014
Rail way Korinth – Patra: New double truck railway line, Rododafni – Psathopyrgos part	AKTOR S.A., J&P AVAX S.A & INTRAKAT conv.	108589/04.07.2000, 197813/01.04.2011, 123301/17.02.2004, 172461/05.05.2014, 147400/19.08.2005, 172013/05.06.2014, 174287/05.08/2014	Contract of Public Project ERGOSE 579/21.06.2013	Commencement of works July 2013

To better comprehend the project execution procedure it is necessary to present a brief report and general information related with the procedure of project awarding, construction and environmental management of projects.

#### General project information

AKTOR, as mentioned hereinabove, is a societe anonyme engaged in the execution of projects of any nature (road, building and port projects, airports, energy projects, E/M installation and concession projects, etc).

Construction activity is administered by the headquarters whereas projects are executed by the organized worksites of each project.

The personnel employed at the headquarters of AKTOR is composed of administration employees as well as the key personnel staffing and servicing the projects - worksites (legal, financial - accounting, internal audit, procurement, environmental management observance systems / quality / H&S etc. departments).

For the contest or the manifestation of interest for a project, Greek or foreign companies form consortiums - J/V's, which are nominated contractors for the execution of the project each time; they are the so called 'constructors or construction companies'.

For the execution – construction of the projects, a joint venture agreement is usually drawn up, wherein the contracting parties participate in the execution of parts of the said projects.

Management responsibility for the execution of the project each time is assumed by the project manager or the site manager, who also is the project manager or the site manager of the joint venture of every project and the of the companies that participate in the joint venture.

At the construction sites, depending on the project, its category, its particularities, its requirements and the general conditions thereat, there is a special personnel staffing the project i.e. project manager, worksite manager, site engineers, surveyors, designers, geologists, environmentalists, financial, procurement and accounting department, attorneys, secretariat, etc., who contribute to the project execution.

AKTOR participates in the construction of large-scale to small-scale projects, having this way a presence in various projects such as projects of both the public and private sector, concession projects etc. executing these projects in whole or in part.

Each project presents its own particularities in terms of both the object and the contracting scheme, which determines the administration of the project and thus the responsibilities thereof. Construction of different sections of the project are assigned to the companies based on the project itself, the composition of the construction joint venture, the other requirements of the contractor and the construction time schedule.

Consequently, in a project executed by a joint venture, liability is jointly assumed by the joint venture and severally by each member of the same to the proportion of the section undertaken by every partner of the construction J/V.

### *Environmental management*

With regard to the environmental management, AKTOR has developed and certified an Environmental Management System which is implemented to the sites of the projects, regardless of the joint venture which executes the project each time.

AKTOR implements its environmental management system to its worksites as well as to the worksites it is involved in as a member of a joint venture, namely at the section of the project of its jurisdiction and not at the entire project, in the case of a J/V.

Environmental management is described in details in the EMP through environmental management procedures and guidelines (cf. chapter 5).

Management of works at the worksites and at the offices of AKTOR is based on the environmental management guidelines and in combination with the guideline documents, management of wastes of any nature and excavation products is recorded (with parallel observance of the respective legislation).

Recording results are annually presented in the Environmental Statement (cf. chapter 8), provided all data and information are validated by the environmental verifier based on evidence such as official documentation provided by accredited state waste management agents.

#### **4. ENVIRONMENTAL POLICY**

Respect and protection of environment are part of the broader philosophy of AKTOR's business policy, representing the fundamental principles on which the long term, development planning of the company is based.

Focusing at the protection of environment the management of AKTOR is committed to:

- **the compliance with all current national and European legislative and other regulatory requirements,**
- **the continuous improvement of the environmental performance and contribution to the sustainable development and**
- **the prevention of pollution with the application of constantly friendlier environmental technologies and construction methods.**

The targets of the Environmental Policy are:

- **minimization of waste** through recycling, reuse and control of generated waste,
- **minimization of noise, vibrations and other nuisances** through integrated planning of project implementation, in order to decrease the general impacts on society, traffic, public networks, protected areas, etc.,
- **protection of archaeological sites and monuments of our cultural heritage,**
- **rehabilitation of green sites and landscape of the projects in general** through environmental programs according to the approved environmental studies and environmental conditions of the project each time,
- **rational management of raw materials** for the construction of projects and wise use of natural resources in general, such as energy, water etc.,
- **aesthetic upgrading and harmonic integration** of the construction sites in the immediate and wider environment wherein the projects of AKTOR are executed,
- **safety of employees** and assurance of those conditions that contribute to the balanced approach of problems due to the interaction between the working field and the broader environment, and
- **enhancement of the environmental awareness** of the employees, through continuous educational and training courses.

## 5. ENVIRONMENTAL MANAGEMENT SYSTEM

Environmental Management System (EMS) of AKTOR constitutes an integrated system for the overall and proper management of environmental issues mostly regarding the construction activity of the company. The construction activity in general and the parameters that may have an impact on the environment are analyzed and approached through the EMS, while preventive measures and actions are defined and taken. EMS implemented by AKTOR consists of three dossiers, besides the present Environmental Statement. The said dossiers are:

**DOSSIER I: Environmental Management (EMD - 01)** regards the general EMAS requirements, the Environmental Policy and the targets, the structure and organization of the company, the responsibilities and duties of the responsible personnel and, finally, the environmental issues of the construction activity and operation of buildings.

**DOSSIER II:** This dossier (EMPD - 02) regards the Environmental Management Procedures - EMP (Table 2), wherein the required EMAS procedures are included.

TABLE 2: ENVIRONMENTAL MANAGEMENT PROCEDURES	
EMP	PROCEDURE – DOCUMENTS
EMP – 01	Tracking down of environmental aspects
	Documents: EMP - 01.1 Identification of aspect / EMP - 01.2 Evaluation of aspects
EMP – 02	Legislative and other regulatory requirements
	Documents: EMP - 02.1 Legislative compliance
EMP – 03	Training, awareness and competence
	Documents: EMP - 03.1 Annual training programme / ΔΠΔ - 03.2 Training status
EMP – 04	Contact
	Documents: EMP - 04.1 Recording of demands / EMP - 04.2 Minutes of Consultation / EMP - 04.3 Notification of information to DSD / EMP - 04.4 Forwarding document / EMP - 04.5 Demand Form
EMP – 05	Document control
	Documents: EMP - 05.1 List of current documents / EMP - 05.2 Distribution of documents
EMP – 06	Emergencies
	Documents: EMP - 06.1 Emergency planning EMP - 06.2 Emergency analysis
EMP – 07	Monitoring and measurement
EMP – 08	Non compliances – corrective and preventive actions
	Documents: EMP - 08.1 Recording of non-compliances – corrective actions
EMP – 09	EMP Files
EMP – 10	EMP Inspections
	Documents: EMP - 10.1 Inspection programme / EMP - 10.2 Inspection report

**DOSSIER III:** This dossier (EMPD – 03) includes the Environmental Management Procedures EMP (Table 3), regarding the implementation of environmental procedures at the construction sites and offices.

<b>TABLE 3: ENVIRONMENTAL MANAGEMENT PROCEDURES</b>	
<b>EMP</b>	<b>PROCEDURE – DOCUMENTS</b>
<b>EMP – 01</b>	<b>Floorplanning and set-up of construction site</b>
	<b>Documents:</b> EMD – 01.1 Assignment of Environmental Eng. duties EMD – 01.2 Notification of project information
<b>EMP – 02</b>	<b>Air pollution</b>
	<b>Documents:</b> EMD – 02.1 Recording of air pollution sources EMD – 02.2 Emission control table
<b>EMP – 03</b>	<b>Water pollution</b>
	<b>Documents:</b> EMD – 03.1 Recording of water pollution / EMD – 03.2 Monitoring of liquid waste / EMD – 03.3 Indicative layout of settling tanks / EMD – 03.4 Indicative layout of fuel tanks
<b>EMP – 04</b>	<b>Landscape Management</b>
	<b>Documents:</b> EMD – 04.1 Recording of project green zones EMD – 04.2 Annual report of landscape management
<b>EMP – 05</b>	<b>Solid waste</b>
	<b>Documents:</b> EMD – 05.1 Recording of solid waste / EMD – 05.2 Annual summary table of solid waste / EMP – 05.3 Vehicle recycling
<b>EMP – 06</b>	<b>Used Oils, Batteries and Tyres</b>
	<b>Documents:</b> EMD – 06.1 Recording of waste / EMD – 06.2 Indicative mineral oil / battery disposal area / EMD – 06.3 Indicative motor oil changing platform
<b>EMP – 07</b>	<b>Noise</b>
<b>EMP – 08</b>	<b>Special and hazardous waste</b>
<b>EMP – 09</b>	<b>Nuisances</b>
	<b>Documents:</b> EMD – 09.1 Recording of nuisances
<b>EMP – 10</b>	<b>Occupational and Environmental Management</b>
	<b>Documents:</b> EMD – 10.1 Recording of environmental management
<b>EMP – 11</b>	<b>Raw material – excavation – demolition products</b>
	<b>Documents:</b> EMD – 11.1 Recording of raw materials, excavation and demolition products
<b>EMP – 12</b>	<b>Liabilities of subcontractors vis-à-vis AKTOR</b>
	<b>Documents:</b> EMD – 12.1 Contractual obligations of subcontractors

Legislation currently in force as well as the management method of the waste each time is mentioned in the directive. In addition, there are ancillary documents for the monitoring, recording and management of each waste.

This way, comprehensive legislative compliance with regard to the legislation in force is provided.

The EMS implemented by the personnel of AKTOR is based, as mentioned precedingly, on the EMAS guidelines; aims at observing the Environmental Policy during construction activity with the belief that the implementation of this System upgrades AKTOR's status, ensures the



implementation of the Policy, while achieves continuous improvement of the environmental performance to the benefit of the environment and the society in general.

The EMS that AKTOR implements is based on the specific Structure and Organization of the company, as well as on established procedures for control, monitoring, measuring and recording the environmental impacts to the immediate and broader environment in which the projects that the company undertakes are implemented.

In this framework, the Top Management of the company has developed the Department of Sustainable Development (DSD) having as object the environment and the corporate social responsibility.

The Department of Sustainable Development is staffed with experienced and competent personnel on environmental issues, entrusted with specific duties while the communication with the Top Management, the other Departments and the construction sites of AKTOR is represented in the general organizational chart of the company. These responsibilities and duties are elaborated in detail in the EMP as well as in each directive / procedure separately.

Furthermore, in the EMP of AKTOR there is a standard organizational chart that applies to the construction sites and to other activities of the company. In this standard organizational chart the key personnel engaged in the construction sites, their position in the company hierarchy and the way of communication with the head of the project, are defined.

The project manager or the site manager of each project, in direct cooperation with Department of Sustainable Development of the company, has the full responsibility for the promotion and implementation of the Environmental Policy and the EMP of AKTOR at all levels of the project.

In this respect, the engineer responsible of the environmental issues at the construction site, the chief engineers of the project and anyone else deemed necessary are duly authorized by the project or the site manager with specific tasks, bearing the responsibility for the implementation and the observance of the environmental regulations of the company.

At the same time, the current project or site manager provides full support to his top executives in the exercise of their duties.

However, the responsibility for the implementation of the Policy and the EMS in every level of the project and by all employees lies with the project manager or the site manager of the project each time.

A key element of the environmental management system is the learning opportunities and training of the human resources of the company on issues in regard to the protection of the environment and the enhancement of the environmental awareness of the employees.

It is a belief of the management that the success of the effort to implement such an environmental management system goes through with the awareness of the essential principles of protection and respect of the environment, resulting to the active personal contribution of each and every employee.

## **6. ENVIRONMENTAL ASPECTS AND IMPACTS**

**Environmental aspect** is as any element of activities or products or services of an organization that can interact with the environment.

**Environmental impact** is any change in the environment, whether adverse or beneficial, which results, wholly or partially, from the environmental aspects of an organization.

In AKTOR the environmental aspects from the entire construction activity have been identified and the relevant environmental impacts have been assessed in order, through evaluation of the significance of the respective environmental impacts, to determine the environmental objectives of the company.

The significant environmental aspects during construction or/and operation phase of the projects are the following:

- emissions to air
- releases to water
- pollution or / and soil contamination
- solid, special and hazardous waste
- excavation and demolition products
- waste generated by used oils, batteries and tyres of vehicles
- specific issues such as archaeological sites, cultural heritage, sensitive and/or protected areas
- local issues such as noise, vibrations, dust, visual nuisance, social nuisances, etc.

All aspects hereinabove are important for the entire construction activity of AKTOR, whereas for each project separately and depending on the construction or operation phase, the immediate and broader environment wherein the project in question is executed and completed, the special conditions, the legislative requirements, the environmental terms etc., accentuate the significance of the environmental impacts.

## 7. ENVIRONMENTAL OBJECTIVES AND TARGETS

The environmental objectives and targets in connection with the environmental aspects of the construction activity are as follows:

<b>TABLE 4: ENVIRONMENTAL TARGETS</b>	
<b>TARGETS</b>	<b>OBJECTIVES</b>
Minimization of dust and air pollution	Prevention and settlement of dust through drenching, covering of all the transported loads and frequent checks on machinery and vehicles of the Project as to their air emission levels
Minimization of water pollution	Collection and management of construction site liquid waste and prohibition of disposal of waste into water recipients
Minimization of soil and landscape degradation	Scheduled and integrated management of the following chain: "Landscape – excavation products – raw materials – disposal – land rehabilitation" in every project
Solid and other waste management	Prevention, minimization, recycling, reuse of materials
Special and hazardous waste management	Delivery to waste management service companies, approved by the state, for the disposal and management of hazardous waste and issuance of certificates on the management method
Management of used oils, used oil packaging, batteries and tyres. Electric and electronic equipment	Collection of used oils, motor oil packaging, depleted batteries and tyres and delivery for regeneration and recycling to the licensed, by the government, bodies – issuance of certificate. Collection of equipment and delivery for recycling to the accredited state agency – issuance of certificate.
Minimization of noise, vibrations, nuisances and protection of cultural heritage	Use of project machinery with "CE" certificate and labelling regarding noise, installation of noise barriers, observance of the vibration levels, respect for the society, aesthetic upgrading, harmonic integration of projects into the immediate and broader environment, and cooperation with archaeological authorities
Management of excavation and demolition products	Rational management of these products and reuse or integration into the construction
Management of energy and natural resources	Energy saving and preservation of natural resources

The following results or performances given in chapter 8 below have resulted through a collective effort to achieve the basic objectives and targets of AKTOR.

## 8. CORPORATE ENVIRONMENTAL PERFORMANCE

AKTOR keeps detailed and consolidated environmental performance data from the construction sites and the headquarters.

### 8.1 Consolidated performance data

Environmental performance for the years 2002 - 2014, is summarized as follows:

<b>TABLE 5: CONSOLIDATED DATA ON WASTE FOR YEARS 2002 - 2014</b>			
<b>ENV. PERFORMANCE 2002 – 2013</b>	<b>QUANTITY</b>	<b>UNIT</b>	<b>MANAGEMENT METHOD</b>
Paper	460.230	kg	Collection in special areas and delivery for recycling
Toner, ink cartridges	3.934	pcs	Collection in special areas and delivery for reuse
Used oils	795.240	kg	Collection in special areas and delivery for regeneration
Motor oil packaging	3.134	pcs	Collection in special areas and delivery for recycling
Batteries	125.022	kg	Collection in special areas and delivery for recycling
Electrical and electronic waste	53.050	kg	Collection in special areas and delivery for recycling
Old metals (Scrap)	6.620.899	kg	Collection in special areas and delivery for recycling
Tyres	5.700	pcs	Collection in special areas and delivery for recycling
End-of-life vehicles	55	pcs	Delivery for alternative management
Liquid - solid hazardous waste	68.159	kg	Delivery and ecological waste management by the supplier
Fluorescence lamps	7.222	kg	Collection and ecological management
Plastic	29.869	kg	Collection in special areas and delivery for recycling
Small batteries - AFIS	281	kg	Collection in special areas and delivery for recycling

Environmental performance of the “active” construction sites for the period January – December 2014, are as follows:

<b>TABE 6: CONSOLIDATED DATA 2014</b>			
<b>ENV. PERFORMANCE 2013</b>	<b>QUANTITY</b>	<b>UNIT</b>	<b>MANAGEMENT METHOD</b>
Paper	52.600	Kg	Collection in special areas and delivery for recycling
Toner, ink cartridges	376	pcs	Collection in special areas and delivery for reuse
Used oils	95.845	Kg	Collection in special areas and delivery for regeneration
Motor oil packaging	138	pcs	Collection in special areas and delivery for recycling
Batteries	9.922	Kg	Collection in special areas and delivery for recycling
Electrical and electronic waste	5.248	Kg	Collection in special areas and delivery for recycling
Old metals (scrap)	643.550	Kg	Collection in special areas and delivery for recycling
Tyres	92	pcs	Collection in special areas and delivery for recycling
Glass	22	kg	Delivery for alternative management
Liquid - solid hazardous waste	48.044	kg	Delivery and management of the liquid waste by the supplier
Fluorescence lamps	230	kg	Collection in special areas and delivery for recycling
Plastic	16.226	kg	Collection in special areas and delivery for recycling
Small batteries - AFIS	108	kg	Collection in special areas and delivery for recycling
Cultural heritage			Noise and vibration measurement, emission control, aesthetic fencing, nuisance minimization
Areas of outstanding natural beauty			Nuisance minimization, avoidance of landscape – nature degradation, etc.
Traffic regulations			Scheduling of regulations, prompt notification of the public, appropriate signage, contact with interested parties, etc

For the above quantifiable environmental performance, AKTOR keeps all the environmental management certificates issued from officially licensed waste management and recycling agencies.

Complete data of waste generated from construction sites and other areas of corporate activity are contained in Table herein below:

TABLE 7: DETAILED ENVIRONMENTAL DATA 2014																	
Construction Sites / Site	Paper (kg)	Metals (kg)	Oil pack (pcs.)	Oils (kg)	Batteries (kg)	Toner (pcs)	Electr. Waste (kg)	Vehicles (pcs)	Plastic (kg)	Lamps (kg)	Tyres (tyres)	Filter (kg)	Haz. Waste (kg)	AFIS (kg)	Excav. Pr. (m3)	Demol. Pr.	Other
HEADQUARTERS	22.500	175				130	3.426		600					59			22(1)
MAGOULA /EQUIPMENT DPT	1.000	331.995	169	33.840	5.405	63	1.253			28		1.920	72		90		
PSYTTALIA		45.460		13.620	1.390	165	780	1	14.740	182			102	18			4(2)
OMOLIO /MALIAKOS - KLIDI	100	43.960		6.880	376					20	92			31			
SKOTINA /MALIAKOS - KLIDI		21.340		800								430	1.280			3.050	
KALAMARIA METRO							570										
HELLAS GOLD		25.260		4.400											819.020		
KRYSTALLOPIGHI		62.480		3.830													
MOTORWAY AND RAILWAY PART KORINTH-PATRA	28.400	112.880	138	28.610	2.131		250		790				44.240		73.784	2.750	
DOMOKOS TUNNELS	600			12.200	620	18			96						611.191		
<b>TOTAL</b>	<b>52.600</b>	<b>643.550</b>	<b>307</b>	<b>104.180</b>	<b>9.922</b>	<b>376</b>	<b>5.248</b>	<b>1</b>	<b>16.226</b>	<b>230</b>	<b>92</b>	<b>2.350</b>	<b>45.694</b>	<b>108</b>	<b>1.504.085</b>	<b>5.800</b>	<b>-</b>

(1) Glass  
(2) Medical waste

### RECYCLING AND ENVIRONMENTAL BENEFITS

According to international estimation (source: [www.ecorec.gr](http://www.ecorec.gr)) benefits resulting from waste management are as follows:

- Recycling 1 tn of paper saves 17 trees and 48.380 liters of water.  
AKTOR since the implementation of the Environmental Management Plan (EMP) and the initiation of recycling actions (2002) has recycled 460.230 kg of paper and therefore has protected – saved more than 7.824 trees, has saved about 22.266 tn of water due to paper recycling.
- Recycling of 1 kg of scrap metals saves 4 kg of chemicals and 14 KWh of electricity.  
AKTOR based on the recycling of 6.620.899 kg scrap metals has saved 26.483.596 kg of chemicals and 92.692.586 kWh of electricity in total from 2002 to date.

## 8.2 Detailed management data per type of waste

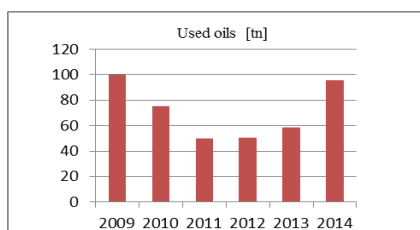
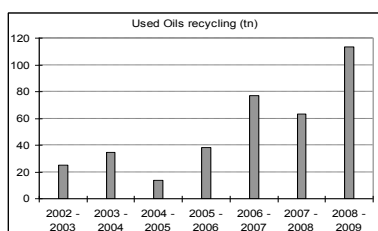
More specifically, results of the overall environmental performance of the company for the management period January – December 2014 are presented further down and are commented accordingly.

### USED OILS

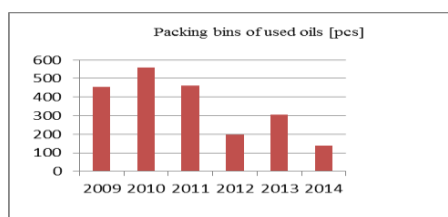
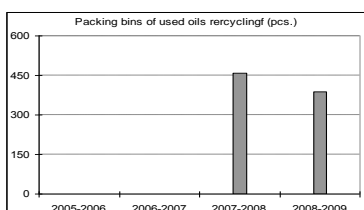
Used oils are kept as special waste in sealed barrels that are stored and secured in confinement sites within the construction sites or in special collection tanks that are constructed for this purpose. The greatest quantity of used oils is usually generated at the Mechanical Equipment Maintenance Center of AKTOR in Magoula, Attica, where the handling of the company equipment is made.

In the following charts we can observe that the performance in oil regeneration follows the fluctuation of the construction activity.

All quantities of used oils are collected by the officially licensed body “Elliniki Technologia Perivallontos S.A.”.



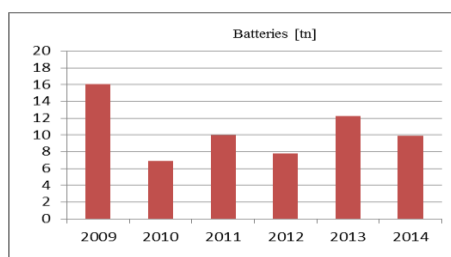
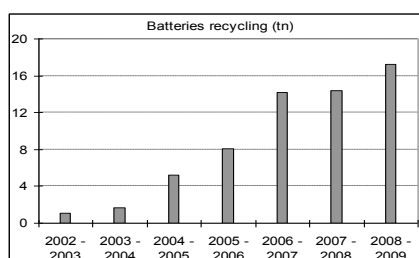
### OIL PACKAGING WASTE



### BATTERIES

Old batteries of vehicles and project machinery at the construction sites and the Mechanical Equipment Maintenance Center of AKTOR are collected and placed in special bins of the official recycling agency “ΣΥΔΕΣΥ”. This way any leakages and environmental pollution are prevented.

In the following graph we observe that performance in battery recycling is constantly improving, after the engagement of a formal management body.

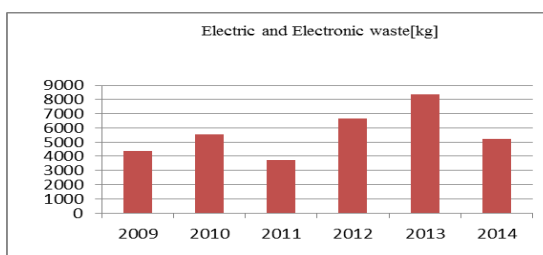
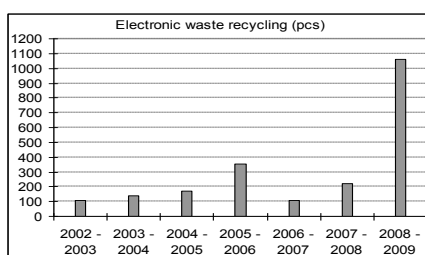


### *ELECTRICAL AND ELECTRONIC WASTE*

Over the period 2005-2006 a program for the renewal of electronic equipment was launched, resulting in large quantities of electronic waste that were sent for recycling. In the chart of electrical and electronic waste a decrease in the quantities sent for recycling in 2006 – 2007 is observed, due to the preceding recycling.

Over the period 2007 – 2009 recycling rate has doubled. The reason is the renewal of the equipment with the relocation of the company to its new headquarters building, and the fact that a large number of infrastructure projects were completed sending the old equipment for recycling. In 2013 further renewal of the electronic equipment and systems was done, so the old was recycled.

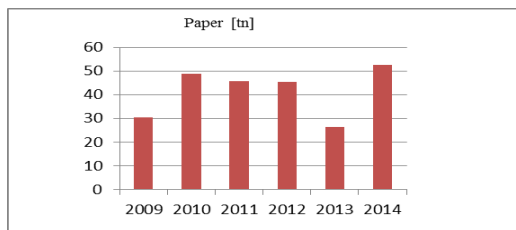
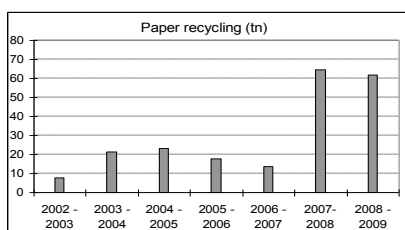
Recycling of the equipment is performed in cooperation with the officially licensed agency “Electrocycle S.A.” with the parallel issuance of a recycling certificate to AKTOR.



### *PAPER*

The huge increase in the quantities of paper recycling, over the years 2007-2008, is attributed to the installation of the company in the new offices, which was accompanied by the destruction of files, and in the launching of the execution of new concession projects and the parallel elaboration of studies for these projects.

Paper recycling program is implemented in cooperation with the licensed company “GREENYCLE”.



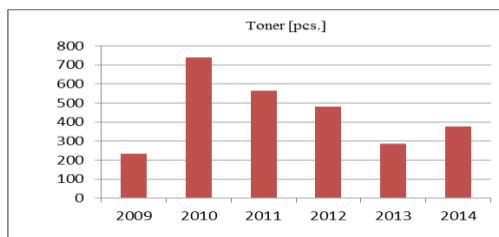
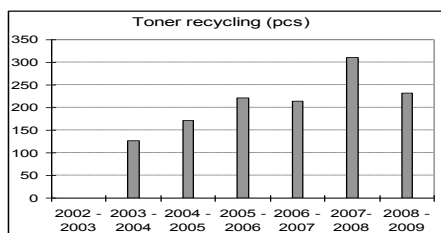
### *TONER, INK CARTRIDGES*

As shown in the following chart, the environmental performance in ink and toner cartridges generally follows an improving trend. These wastes are mainly produced from the operation of electrical and electronic equipment primarily at the headquarters of the company, which is maintained and repaired by specific personnel that have fully understood the environmental requirements of the company.

Recycling rate of these materials, especially at the registered office of AKTOR is very high and has now almost reached 100%.



Recycling program is implemented in cooperation with the licensed company “GREENCYCLE”.

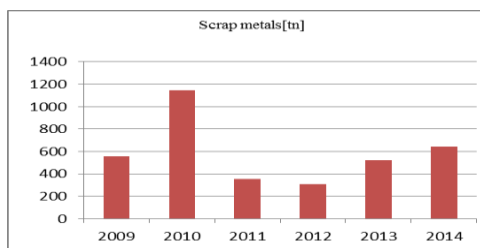
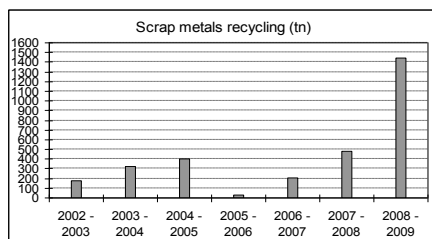


## SCRAP METALS

Over the period 2002-2004 the company implemented an integrated program of equipment renewal that resulted in an increasing rate of scrap metal recycling. Besides the aforesaid, steel that is produced from the construction sites and results as scrap metal is also included in the quantities.

Quantities of old scrap metals are sent by the construction sites directly to the steel factories, while invoices – shipping bills are kept at the accounting records of the construction sites.

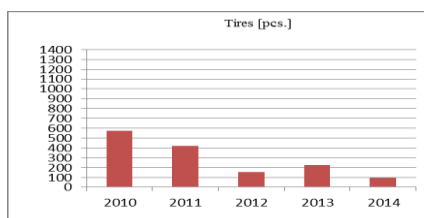
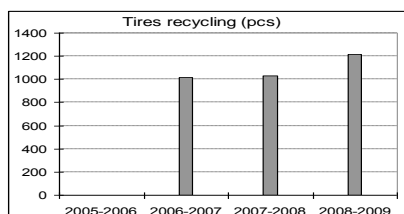
Steel is not characterized as a dangerous waste; however, recycling procedure provides an economic benefit recorded at construction sites along with records of quantities.



## TYRES

Although the company is recycling waste of any nature, rubber recycling hit a legislative obstacle, given that no official agency existed for the alternative management of used tyres for vehicles.

With the launching of operation of the tyre management agency ECOELASTIKA, AKTOR signed a cooperation contract and over the period 2006-2013 has sent the tyre volumes presented in charts below.

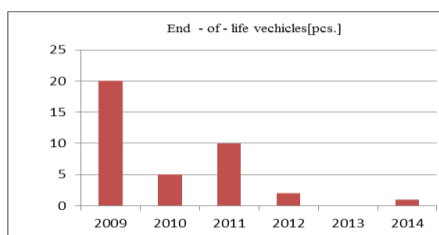
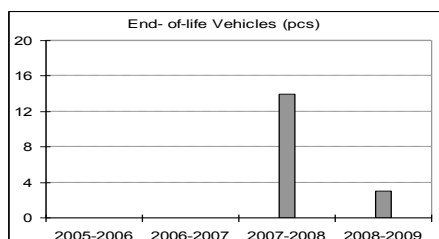


Decrease in numbers since 2009 is due to the financial recession, which resulted to a slowdown in the growth of the construction industry.

### END-OF-LIFE VEHICLES

End-of-life vehicles are those old cars and light trucks whose owners have decided to not use anymore and desire to permanently turn in their license plates. Over the period 2007-2010, 42 vehicles were sent to the Alternative Vehicle Treatment of Greece (EDOE), which destroys – recycles vehicles since 2004.

AKTOR principally possesses vehicles over 3.5 tn of mixed fleet, that due to the above mentioned limitation by EDOE, are send for recycling as scrap metal.

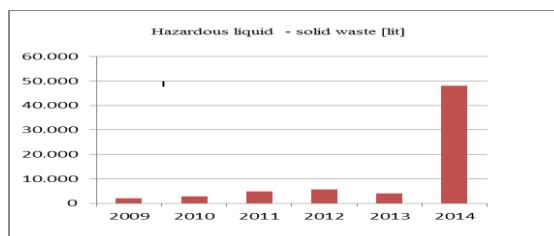
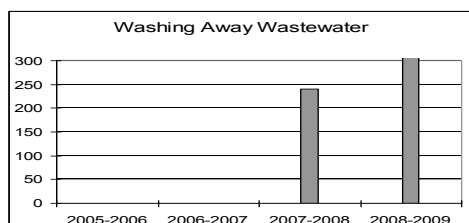


### HAZARDOUS LIQUID & SOLID WASTE

During the performance of repair and maintenance works of equipment parts, a special technology of washing (SPW) with proper liquids is being used.

AKTOR has a contract with a company that collects washing away wastes and manages them appropriately. Liquid waste is added to hazardous waste. The large increase is attributed to the neutralization of hazardous waste generated from construction sites.

There is also other solid hazardous waste e.g. oakum, oil filters, etc. which is collected and send for recycling or neutralisation. Amounts of various hazardous wastes are shown in the following charts.

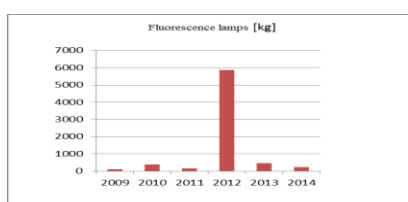


### FLUORESCENCE LAMPS

AKTOR promotes the use of energy-efficient fluorescent light bulbs at the construction sites and at the projects whose maintenance and operation has undertaken. AKTOR also contributes to light bulb recycling, collecting them in special containers provided by the official management agency (ELECTROCYCLE) at the local collection points.

This effort is consistent with the enhancement of the environmental conscience and awareness of the employees.

The significant increase presented over the year 2012, however, is attributed to the general maintenance of the head offices of AKTOR.

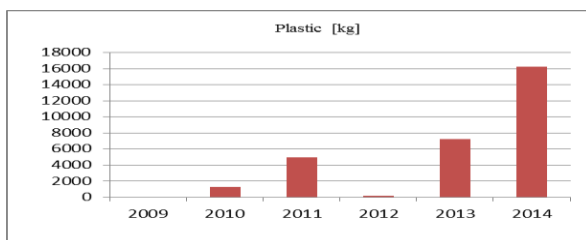


Awareness on one hand about the fact that light bulbs consist of components aggravating for the environmental (mercury, fluorescent powder) and on the other hand knowledge that are made of valuable recyclable materials (glass, metals), give a significant reason for recycling.

### *PLASTIC*

The effort for plastic recycling keeps pace with the enhancement of the environmental consciousness and awareness of the employees.

Recycling at the head offices is performed in cooperation with the licensed company "GREENCYCLE".



## **8.3 Sludge management**

### *DESCRIPTION OF SLUDGE GENERATION AND MANAGEMENT*

Wastewater treatment in the Psyttalia Wastewater Treatment Plant (Psyttalia WWTP) provides a treated effluent that results from two sources:

- primary treatment of wastewater in sedimentation tanks
- surplus activated sludge of the biological reactors.

In the first case, sludge generated in the sedimentation tanks is gravity-thickened in three primary sludge pre-thickening tanks.

In the second case, surplus activated sludge is thickened in fourteen belt thickeners.

After thickened primary sludge and surplus activated sludge are mixed together, they are pumped into anaerobic digestion (8 sludge digestion tanks).

After leaving digesters, digested sludge is pumped directly into the decanters. This particular plant is equipped with six centrifugal decanters.

After sedimentation and decanting, sludge enters the thermal drying line. The sludge drying unit consists of four lines equipped with rotating drums.

Dewatered sludge after being mixed together with recycled dry sludge acquires a final solid content up to 65% and enters the combustion chamber. The heat energy required for the drying process is generated in a combustion chamber fired by natural gas, biogas.

Exhaust air and dry product is conveyed to the drum dryers; four convective thermal "triple pass" drum dryers with an evaporation capacity of 8.625 kg/h each.

Dewatered sludge has now a granular form with less than 8% moisture content and no more than 1% of dust in it. Grain size ranges from 1 to 5mm. Once dry sludge exits the separation system

(screens) is cooled down to 40-50°C and is pneumatically transported in four sludge silos of 1.000 m<sup>3</sup> total capacity.

Each silo is equipped with discharge hoppers for sludge discharging on trucks and transportation of the same to the final disposal area.

#### *COLLECTION – TRANSPORTATION OF DRY SLUDGE*

AKTOR, has since 2007 entered into contracts with the Owner of the Project (EYDAP S.A.), and collects on a daily basis quantities of the dry sludge from the drying units and transports the same, as alternative fuel, to the cement factory of Vassiliko, in Limassol of Cyprus, whereas a certain quantity has been exported to energy production facilities in Germany.

AKTOR, disposing the necessary know-how as well as all the legal and required by law permits, effects the intra-border transportation of the dry sludge by means of appropriate cargo ships which transport the product the utilization destination.

Quantities managed by AKTOR, are shown in Table 8 below:

<b>TABLE 8: QUANTITIES OF SLUDGE</b>	
<b>YEAR</b>	<b>ΠΟΣΟΤΗΤΑ (tn)</b>
2007	2.384,77
2008	9.762,39
2009	14.677,35
2010	18.225,00
2011	20.000,00
2012	20.281,48
2013	20.457,29
2014	34.694,08

#### **8.4 Management of other types of waste**

In AKTOR various wastes generated from the construction activity, i.e. construction waste, are collected in especially designated areas within the construction sites or in the department of equipment, wherefrom they are removed and sent for management and final disposal, depending on the type of waste and the respective legislation. This way:

Sludge foaming originating from the Psyttalia Wastewater Treatment Plant (Psyttalia WWTP) and is mentioned in Table 9, is sent for neutralization to AVG Germany.

Hazardous waste of the construction sites are collected at regular, non-annual, intervals, and are for management in special and duly licensed agencies abroad. Two shipments have been effected so far, in 2003 and in 2009.

Residues from plastics and electrical wiring of the construction sites are sent for recycling.

In Table 9 below quantities of wastes are recorded.

<b>TABLE 9: MANAGEMENT OF SLUDGE FOAMING AND OTHER TYPE OF WASTE</b>						
<b>TYPE OF WASTE</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>
SLUDGE FOAMING [kg]	9.940	27.090	8.490	8.960	9.970	10.460
HAZARDOUS CONSTR. WASTE [kg]	24.400	-	-	-	-	-
CABLES [kg]	-	800	-	-	-	-
PLASTIC [kg]	-	1.260	4,973	210	400	16.130

## 8.5 Excavation products – raw materials management

Excavation and demolition products are recorded to the purpose of rendering this information to the interested authorities. In Table 7 of chapter 8, section 8.1, quantities of excavation products are recorded per project – construction site for every year.

These products, according to studies and the EIA of each project, fall under environmental or study requirements and disposal destinations. Usually, in the event that the products are judged as appropriate, are reused in the same or other projects.

Reuse means integration in the project under the form of construction material, e.g. concrete, asphalt mixtures or under the form of raw materials, e.g. road paving materials, debris in rail projects, backfill materials, etc.

In various projects, depending on the requirements, surface excavation materials are kept as planting soil used for landscaping purposes, i.e. creation of green zones and vegetation, once the project is completed.

Redundant products are deposited to especially designated areas or to old quarries of the area of each project.

Information on both excavation products and other uses are recorded at the construction sites whereas final performance of the management or the disposal of these products is recorded upon completion and acceptance of the project.

The overall quantities of the excavation products are shown in Table below.

<b>TABLE 10: MANAGEMENT OF EXCAVATION PRODUCTS</b>						
<b>TYPE OF WASTE</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>
EXCAVATION PRODUCTS [m3]	1.508.000	909.980	> 700.000	> 2.880.297	>68.927	1.504.085
DEMOLITION PRODUCTS [m3]	1.700	6.710			2.455	5.800
REEF BACKFILL PRODUCTS [m3]				62.071	590.723	-

## 8.6 Construction equipment of projects

Under the framework of environmental and engineering provision, AKTOR proceeds to actions aiming at constantly improving existing conditions in terms of the overall portable project equipment.

AKTOR's equipment consists of a vehicle fleet which are used by the project and office personnel and a PM (Project's Machinery) fleet which belong to the construction sites for the execution of the projects.

This equipment, upon operation – use consumes mineral fuels and produces CO2 emissions, which further aggravate the greenhouse effect. Consequently, control and reduction of fuels may lead to fuel saving and therefore to energy saving on one hand and to CO2 reduction on the other hand.

AKTOR's actions to reduce fuel consumption and emission are heading in two directions, namely to the control of the personnel vehicles and the control of the PM.

Replacement of the vehicle fleet with modern technology vehicles oriented to smaller nominal fuel consumption rates and less CO<sub>2</sub> emissions begun since 2010.

The selection of the new vehicles was based on the reduced emission production and fuel consumption.

During the period 2013-2014, further new technology vehicles with benzene or diesel consumption were replaced.

Nowadays, the percentage of environmentally friendly motor vehicles servicing the needs of both the personnel and the projects has reached 97%.

The outcome of this action is the reduction in fuel consumption compared to motor vehicles with bigger nominal fuel consumption and emission rates.

## CORPORATE EQUIPMENT

AKTOR continues renewing its construction mechanical equipment, focusing in particular on its environmentally friendly orientation, which derives from the wider strategy of the company.

The overall mechanical equipment for the construction of AKTOR's projects is shown in Table below.

<b>TABLE 11: CORPORATE EQUIPMENT 2014</b>			
<b>TYPE OF EQUIPMENT</b>	<b>QUANTITY</b>	<b>QUANTITY*</b>	<b>REMARKS</b>
Project machinery	739	49	PM
Trucks	277	20	2-axle, 3-axle trucks, tractors, water tankers
Mixers – blenders	58	-	
Generators	157	23	
Air compressors	77	7	Air compressors, tractor & portable
Light vehicles	419	91	Small trucks 4*2, 4*4, VAN, small vans for the transport of staff, two-wheel motor vehicles
Other equipment	583	107	Tower cranes, bridge cranes, hydraulic hammers, gunite power driven screw conveyors, tunnel formwork, shotcrete pumps, floating equipment, stone processing plans, jet fans and tunnel pumps, locomotives
<b>Total</b>	<b>2.330</b>	<b>297</b>	
Vehicles under leasing status	280	-	Staff vehicles

\* New equipment / acquisition 2014

## 8.7 Energy performance

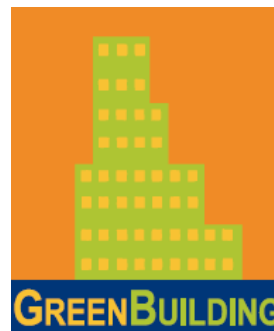
### 8.7.1 GREENBUILDING

According to surveys conducted by the European Commission, the building sector is recognized as the field for making significant improvement in energy performance.

Building sector is responsible for 40% of total EU energy consumption, according to the same surveys.

For these reasons came into effect in 2006, the European GreenBuilding voluntary program through the Green Paper on Energy Efficiency.

GreenBuilding programme sets an action plan aiming at improving energy efficiency of buildings.



The ultimate goal of the programme is to enhance, promote and implement energy technologies oriented to "green" applications in conjunction with economic efficiency. In addition, organizations that undertake to implement the GreenBuilding requirements are provided with informational support, public recognition and prominence to set an example for the wider adoption of energy-saving measures.

AKTOR, under the prism of promoting sustainable development, has implemented the GreenBuilding programme requirements to the new offices of the Group from the construction phase.

These actions contribute to energy saving in buildings and result in the classification of AKTOR in the category of GreenBuilding Partner.

#### *ENERGY IDENTITY OF AKTOR – ELLAKTOR COMPLEX*

ACTIONS	ENERGY SAVING
High performance water-cooled chillers	113.795 KWh/year
Artificial lighting – using T5 lamps and electronic ballasts	276.805 KWh/year
Inverter controller for pumps	8.136 KWh/year
Underground garage ventilation – system for measuring and controlling air quality, according to pollution levels	44.932 KWh/year
BMS controlling the operation of HVAC, façade shading, etc.	387.000 KWh/year
Passive systems: Atrium 200m <sup>2</sup> , automatically controlled shading system, Low E Glass, Low U-values, etc.	150.000 KWh/year
<b>ENERGY SAVING: 980,669 KWh/year</b>	

The building of AKTOR is regularly maintained, inspected or/ and improved to ensure energy saving. Monitoring and recording of performance results in actual improvement in energy saving and in total primary energy.

Data proving such energy saving over the past 6 years are presented in table 12 below.

TABLE 12: ENERGY CONSUMPTION OF HEADQUARTERS						
TYPE OF ENERGY	2009	2010	2011	2012	2013	2014
Heating (electrical energy) [kwhe]	63.386	12.022	16.550	29.794	20.257	31.870
Heating (heat energy) [kwhth]	52.035	608.989	666.259	645.953	593.161	652.875
Cooling [kwhe]	453.043	364.550	313.646	388.222	457.711	397.495
Electric energy [kwhe]	3.255.840	2.755.185	2.498.354	2.418.877	2.711.936	3.151.044
Total primary energy consumption [kwh]	9.991.124	8.629.474	7.702.819	7.665.136	8.487.433	9.823.546

TABLE 13: WATER CONSUMPTION OF HEADQUARTERS	2009	2010	2011	2012	2013	2014
Total water consumption [m <sup>3</sup> ]	14.700	11.965	11.190	12.579	14.766	12.889

#### *8.7.2 CONSUMPTIONS OF WATER - POWER – AIR EMISSIONS AT CONSTRUCTION SITES*

AKTOR keeps all data concerning the consumption quantities of water, electricity, petrol, diesel fuel and heating fuel. Results are shown in table below.

**TABLE 14: CONSTRUCTION SITE ENERGY CONSUMPTION DATA 2014**

Construction Site	Water (m <sup>3</sup> )	Heating oil (lit)	Diesel fuel (lit)	Energy (kWh)	Petrol (lit)
MAGOULA/Equip. Dpt.	663	2.390	38.530	198.210	2.879
PSYTTALIA*	-	-	-	-	-
OMOLIO -/Maliakos -Klidi	17.527	-	966.043	776.000	92.375
SKOTINA/ Maliakos -Klidi	600	5.547	300.960	42.186	27.700
HELLAS GOLD	7.330	-	958.801	1.651.500	28.108
KRYSTALLOPIGHI	31.100	-	1.669.940	412.150	27.090
ROAD AXLE Korinth-Patra	806	-	6.718.553	2.703.877	81.313
Domokos TUNNELS	6.151	-	1.431.431	5.333.798	36.031
<b>TOTAL</b>	<b>64.177</b>	<b>7.937</b>	<b>12.084.258</b>	<b>11.117.721</b>	<b>295.566</b>

\* source of data: EYDAP S.A.

Total emissions resulting from the construction activity of AKTOR in Greece, taking into consideration the methodology and date described by '2006 IPCC Guidelines for National Greenhouse Gas Inventories, Chapter 3: Mobile Combustion'.

More specifically, for the assessment of the emitted quantities from the use of diesel fuel in the project machinery, the suggested equation from the manual was selected:

EQUATION 3.3.1

$$Emissions = \sum_j (Fuel_j * EF_j)$$

where,

Emissions = Emissions (kg)

Fuel<sub>j</sub> = fuel consumed (TJ)

EF<sub>j</sub> = emission factor (kg/TJ)

j = Fuel type

Emission factors EF<sub>j</sub> are described in table 3.3.1, page 3.36 of the same manual as follows:

DEFAULT EMISSION FACTORS FOR OFF-ROAD MOBILE SOURCES AND MACHINERY									
	CO <sub>2</sub>			CH <sub>4</sub>			N <sub>2</sub> O		
Offroad Source	Default (kg/TJ)	Lower	Upper	Default (kg/TJ)	Lower	Upper	Default (kg/TJ)	Lower	Upper
<b>DIESEL</b>									
Industry	74.100	72.600	74.800	4,15	1,67	10,4	28,6	14,3	85,8

For the calculations and the conversions of units, the net calorific value (NCV) of diesel from table 1.2 of the manual of volume 2, the value **43 TJ/Gg** as well as its specific weight **0.83kg/lt** (15°C) are taken into account.

Air emissions are defined on an annual basis as follows:

AIR EMISSIONS	Tones [t] 2012	Tones [t] 2013	Tones [t] 2014
CO <sub>2</sub>	4.64E+03	9.48E+03	3.20E+04
CH <sub>4</sub>	2.60E-01	5.31E-01	1.79E+00
N <sub>2</sub> O	1.79E+00	3.66E+00	1.23+01



Determination of SO<sub>2</sub> from low sulphur diesel combustion is achieved based on the respective factor of table A1 (Fuel data) of annex I, of the **Clean Energy Investment Guide of the MINISTRY OF DEVELOPMENT**:

FactorSO <sub>2</sub> (g/Kg Fuel)		Tones [t] 2012	Tones [t] 2013	Tones [t] 2014
SO <sub>2</sub>	0,7	1.02E+00	2.08E+00	7.03E+00

In addition, document *2006 IPCC Guidelines for National Greenhouse Gas Inventories, Chapter 3: Mobile Combustion* describes the equation and the factors for the determination of air emissions generated from the use of gasoline.

EQUATION 3.2.3

$$Emissions = \sum_{\alpha} (Fuel_{\alpha} * EF_{\alpha})$$

*Emissions* = emission in kg

*EF<sub>α</sub>* = emission factor (kg/TJ)

*Fuel<sub>α</sub>* = fuel consumed, (TJ) (as represented by fuel sold)

*α* = fuel type a (e.g., diesel, gasoline, natural gas, LPG)

The respective factors for CO<sub>2</sub> are described in par. 3.2.1.2, table 3.2.1 as follows:

ROAD TRANSPORT DEFAULT CO <sub>2</sub> EMISSION FACTORS AND UNCERTAINTY RANGES			
Fuel Type	Default (kg/TJ)	Lower	Upper
Motor Gasoline	<b>69,300</b>	67,500	73,000

For CH<sub>4</sub> and N<sub>2</sub>O

ROAD TRANSPORT DEFAULT N <sub>2</sub> O AND CH <sub>4</sub> EMISSION FACTORS AND UNCERTAINTY RANGES						
Fuel Type / Representative vehicle category	CH <sub>4</sub> (kg/TJ)			N <sub>2</sub> O (kg/TJ)		
	Default (kg/TJ)	Lower	Upper	Default (kg/TJ)	Lower	Upper
Motor Gasoline	<b>33</b>	9.6	110	<b>3.2</b>	0.96	11

For the calculations and the conversions of units, the net calorific value (NCV) of gasoline from table 1.2 of manual of volume 2, the value **44.3 TJ/Gg** as well as its specific weight **0.75kg/lt** (15°C) are taken into account.

Consequently, air emissions for 2014 are determined as follows:

AIR EMISSIONS	Tones [t] 2012	Tones [t] 2013	Tones [t] 2014
CO <sub>2</sub>	3.47E+02	5,83 E+02	6.81E+02
CH <sub>4</sub>	1.65E-01	2,78 E-01	3.24E-01
N <sub>2</sub> O	1.60E-02	2,69 E-02	3.14E-02

Total emissions 2014 of the above gases in tones are:

AIR EMISSIONS	Tones
CO <sub>2</sub>	3.27E+04
CH <sub>4</sub>	2.12E+00
N <sub>2</sub> O	1.24E+01
SO <sub>2</sub>	7.03E+00

The emission factor was used for the calculation of the indirect CO<sub>2</sub> emissions due to electricity consumption. The emission factor was calculated from the verified amounts of carbon dioxide emissions of all generating units belonging to the interconnected system of Greece and the energy generated in MWh from these units.

For Greece, the emission factor for 2013 is 1.31 kg CO<sub>2</sub> per kWh. The Environmental Statement is about 2013 but the emission factor for 2014 has not yet been calculated, due to the fact that verified emissions of carbon dioxide will be registered in the corresponding registry of the European Union on 31/3/2015.

For the consumed electricity of 20.941.267 kWh at the construction sites of AKTOR S.A. and the headquarters, indirect CO<sub>2</sub> emission are: 27.433 E+03 t.

Calculations of air emissions CO, NO<sub>x</sub>, HC and PM (particles) were sourced from the bibliographic data of 'EMEP/EEA emission inventory guidebook 2009, updated May 2012, ANNEX I, Table 9.12'.

Consequently, factors selected are as follows:

AIR EMISSIONS	Emission factors (diesel Heavy Duty Vehicle) (g/kg fuel)	Emission factors (gasoline) (g/kg fuel)
CO	8.49	69.4
NO <sub>x</sub>	35.6	6.99
HC	2.8	10.53
PM	1.24	0.03

Total annual emissions based on the quantities of fuel consumed were determined for the year 2014 as follows:

ANNUAL EMISSIONS	Tones (diesel) 2012	Tones (diesel) 2013	Tones (diesel) 2014	Tones (gasoline) 2012	Tones (gasoline) 2013	Tones (gasoline) 2014	TOTAL (Tones) 2012	TOTAL (Tones) 2013	TOTAL (Tones) 2014
CO	12.36	25.25	85.23	7.85	13.18	15.38	20.21	38.43	100.61
NO <sub>x</sub>	51.81	105.87	357.39	0.79	1.33	1.55	52.6	107.20	358.94
HC	4.07	8.33	28.11	1.19	2.00	2.33	5.26	10.33	30.44
PM	1.80	3.69	12.45	0.0033	0.0057	0.0066	1.8033	3.6932	12.45

## BIBLIOGRAPHY/REFERENCES

- 2006 IPCC Guidelines for National Greenhouse Gas Inventories
  - <http://www.ipcc-nggip.iges.or.jp/public/2006gl/vol2.html>
- EMEP/EEA air pollutant emission inventory guidebook — 2009
  - <http://www.eea.europa.eu/publications/emep-eea-emission-inventory-guidebook-2009>
- Clean energy investment guide, MINISTRY OF DEVELOPMENT
  - <http://www.cres.gr/kape/ypan/odigos.pdf>
- <http://www.ghgprotocol.org/calculation-tools>.

### **8.7.3 EDUCATION AND TRAINING OF PERSONNEL**

Despite the decline in the construction activity, it is important to ascertain a boost in the interest of the personnel in the protection of the environment. This is mainly achieved through the continuous effort to inform and train the employees in all the chain of command of the company.

Intra-corporate training seminars are organized for the personnel working at the construction sites whereas all internal audits are accompanied by briefing and training of the site engineers on issues and developments in regard to the protection of the environment.

### **8.7.5 ENVIRONMENTAL PERFORMANCE AND LEGISLATIVE PROVISIONS**

The environmental impacts from the construction activity are directly dependent on the type of project and the construction methods.

Thus, a port project for instance, could have significant impacts on the sea environment, while a building project, which is executed within the urban environment, mainly induces social nuisances from the operation of the construction site.

Approved environmental terms exist for the construction of every project, which are issued according to the legislation in force each time aiming at the protection of the immediate and broader environment, wherein the project is executed.

Consequently, observance of environmental conditions upon the execution of works equals with legislative compliance and leads to the environmental performance, quantified or not, of every project. Moreover, compliance with legislative requirements and compliance with legislation in force each time are a commitment for the Management of AKTOR and a key element of its environmental policy.

AKTOR disposes a special intra-corporate web page on the environmental legislation in respect of construction and other activities of the company. The said web page is accessible by the personnel, the construction sites, the affiliated companies of AKTOR, ELLAKTOR Group and its subsidiaries.

## **8.8 Waste producer statement**

In the environmental statement, paragraph 8.2, the final waste collector for each waste separately is mentioned whereas the documented management quantities are verified by the environmental verifier who is controlled by ESYD as to the accuracy of his verification.

Besides the aforementioned, AKTOR, during the first bimester of every year, submits to Ministry for the Environment, Energy and Climate Change (YPEKA) and to the local districts of the projects, a *WASTE PRODUCER ANNUAL REPORT, pursuant to the law "section (c) par. 4 of ARTICLE 11 of the no. 13588/725 JMD"*, on the quantities of wastes managed by each construction site.

This report contains all the information on the waste removed, the details of the management agencies, the code of each waste, etc.

## **9. ENVIRONMENT AND CORPORATE SOCIAL RESPONSIBILITY**

AKTOR has carried out significant programmes that brought benefits to the environment and the society in general as part of its wider Framework for Corporate Social Responsibility.

Actions that have been implemented are:

- Protection of the environment with the implementation, certification and continuous improvement of the Environmental Management System according to EMAS and ISO 14001:2009.
- Protection of the employees with the implementation, certification and continuous improvement of the Occupational Health and Safety Management System according to OHSAS 18001.
- Sponsorship of the organization of scientific conferences of the Technical Chamber of Greece (TEE).
- Donation of computers to financially weak organizations.
- Financial assistance of sporting activities and promotion of sports. Donations to municipalities and communities at the areas where projects are executed, i.e. road concreting, asphalt paving, landscaping of squares, etc.
- Support of the public authorities with provision of equipment and personnel in emergencies, such as fires, flooding, snow, etc.

AKTOR is a member of the UN Global Compact (GC), local Network, for Corporate Social Responsibility and contributes with the elaboration of Sustainability Reports, jointly with ELLAKTOR group, according to the principles of GRI (Global Reporting Initiative) G3.

**The ten basic principles of UN Global Compact, which AKTOR embraces, are as follows:**

- ✓ Support and respect the protection of internationally proclaimed human rights.
- ✓ Not being complicit in human rights abuses.
- ✓ Uphold the freedom of association and the effective recognition of the right to collective bargaining.
- ✓ Elimination of all forms of forced and compulsory labour.
- ✓ Effective abolition of child labour.
- ✓ The elimination of discrimination in respect of employment and occupation.
- ✓ Support a precautionary approach to environmental challenges.
- ✓ Undertake initiatives to promote greater environmental responsibility.
- ✓ Encourage the development and diffusion of environmentally friendly technologies.
- ✓ Work against corruption in all its forms, including extortion and bribery.

## **10. AKTOR ENVIRONMENTAL AWARD**

AKTOR in 2009 participated in the third (as in the previous two) Greek Competition Award for the Environment, held in Greece in line with the European Business Awards for the Environment organized in all Member States of the European Union.

Under the 2009 contest, AKTOR presented an Integrated Sustainable Development Strategy and won the First Prize for the environmental management by the company in the sector of construction, maintaining the advantages of environmentally friendly businesses of Greece in construction industry. AKTOR aims with all the above at the transition from the present stage to “sustainable construction”, an activity beneficial to the environment, the society and the economic prosperity.

## **11. MEASURES AND ACTIONS AGAINST ACT OF VIOLATION**

AKTOR faces any violations occurred at its construction sites independently of the joint venture executing the project, contributing thus to the immediate restraint of the impacts to the environment.

Following the outstanding violations and document electronically dated 06.05.2014 from the Ministry of Environment, the following responses are incorporated and listed, which are sent electronically to the Office of EMAS of the ministry YPEKA.

### *Environmental Violation α.π. 484/05.03.2011*

As aforementioned in previous environmental statements, this violation concerns MOREAS J/V, composed by the companies AKTOR, INTRAKAT and J&P AVAX.

MOREAS J/V has undertaken the design and the construction of the Project “Korinthos – Tripoli – Kalamata Motorway and Lefktro – Sparti Branch”, as this is described in the Concession Contract and its annexes. It has, therefore, undertaken the license provision, the operation and the management of the associated projects, such as these of the Kokkinovrachos Quarry.

During 2013 the project was manufactured at low rates due to the general conditions of construction in Greece. So the quarry has been on a degraded mode because of the various problems of the project.

After the document no. 484 / 05.03.2011, on 06.10.2014 a visit - inspection in the quarry of JV MOREAS was made by AKTOR and a comparative documentation in terms of AKTOR was drafted. After request it was send to the service of YPEKA- Department international Activities and EU Affairs (November 2012 - Annex I).

Regarding the document no. 484/05.03.2011, the conditions are as follows:

### *1<sup>st</sup> Violation: Partial asphalt paving of access road*

The access road to the quarry, including Ano Amphia bypass, is still paved with asphalt, in a very good condition.

Therefor no violation exists.

### *Violation 2.1: Non provided use / 12-meter zone*

The exploitation area of the quarry is still well-fenced and a 12-meter zone is observed. The 12-zone has not been changed.

Therefor no violation exists.

### *Violation 2.2: Non provided use / 57-meter vertical slope*

After the letter of the service dated on 06.05.2014, on 16.06.2014 AKTOR S.A. made a visit to the area Kokkinobraho and it was ascertained that the quarry is not in use. Almost all of the equipment has been removed, while based on the information received from the JV MOREAS who owns the quarry, it is planned to re-use the quarry as soon as the construction of the project restarts.

Within the framework of the information provided by AKTOR to the service, a document letter has been sent on 16.06.2014, stating that:

*"During 2013 the quarry has been on a downgraded operation because of the various problems of the construction of the project.*

*The exploitation of two additional slopes has been progressed, which are coated with suitable planting soil (see. Annex I, red soil in the under new slopes), Additional, the exploitation of the center of the quarry has been progressed (exploitation in depth), based on the environmental permits.*

*In Annex I, it seems by the comparative pictures that not much change has been made in the image of the quarry, since November 2012 to June 2014, except to the above-mentioned slopes.*

*Any existing at the moment exhausted slopes, are of 6 meters, while the working slopes do not exceed 14 meters, which following the progress of the project and the continuance of the borrowed material reception will be modified into slopes of 6-7 meters.*

*There have been plantations of the exhausted steps, which have been destroyed by the entrance of the local goat herds in the quarry.*

*The JV MOREAS will replant the exhausted slopes during the next planting season, approximately in early November 2014. "*

However, until now the replanting of the slopes has not been started because the construction of the project has not been restarted because of administration reasons. When the construction of the project will restart the appropriate actions for the quarry will be done from MOREAS SA / JV MOREAS.

Based on the above, the procedure of operation and exploitation of the quarry is in progress and the final form of the quarry will occur after the completion of the project and the exhaustion of the volume of the materials having permission.

***Environmental Violation no. 4045/27.12.2011***

This violation concerned the deposit pit Kokkinogio in Loganikos of Sparta, of JV MOREAS SA. Following the letter and documentation attached, the rehabilitation of the site has been completed and there for no violation exists.

## **12. VALIDATION OF ENVIRONMENTAL STATEMENT**

After on-site audits, which have been conducted at both Headquarters and construction sites, representational of the sectors in which AKTOR is activated, and after having checked all relevant data and information, I verify that:

The Environmental Policy, the Environmental Program, the Environmental Management System, the Environmental Statement and the Environmental Performance of the company “AKTOR S.A.” having its headquarters at 25, Ermou Street, GR 14564, Kifisia, Athens, Greece, fulfils the requirements of the European Regulation (EC) 1221/2009 of the European Parliament and of the Council of November 25th 2009 for the voluntary participation by organisations in the Community Eco-Management and Audit Scheme (EMAS III).

AKTOR’s Environmental Management System according to EMAS is implemented at the Headquarters of the company and to the construction sectors: road, building, tunnel and piping, port, hydraulic, electromechanical and energy projects, self-financed projects and landscape rehabilitation projects.

The sites of construction or administrative activity are listed in Table 1, chapter 3.

### **13. DECLARATION OF ENVIRONMENTAL VERIFIER**

I, the Dr. Chem. Engineer Panagiotis Ahladas/TÜV HELLAS S.A., with Reg. number of environmental verifier EMAS 183-3 accredited or licensed for the scope: 1.61,7 (with exception 7.21), 8.1, 8.91, 10, 11, 12, 13, 14.1, 14.3, 16, 18.1, 19, 20, 21, 22, 23, 24 (with exception 24.46), 25, 26.2, 26.8, 27, 28 (with exception 28.29, 28.96 and 28.99), 31, 32.3, 33, 36, 37, 38, 39, 41, 42, 43, 45, 46, 47, 49.42, 49.5, 52, 53, 55, 56, 58, 59.2, 61, 62, 63.1, 64, 65.1, 66.2, 68, 69.1, 70, 71.1, 72, 77.32, 79, 80, 81, 82.3, 84.11, 84.11, 85, 86.23, 95, 96 with exception 96.09), declare that I verified the activities of AKTOR mentioned in this environmental statement registered under no. EL 000012, in the headquarters and active worksites mentioned in the nonce updated Environmental Statement meets all the requirements of Regulation (EC) No. 1221/2009 of the European Parliament and the Council of 25 November 2009, on the voluntary participation of organizations in a community eco-management and audit scheme (EMAS).

Signing this notice, I declare the following:

- the verification and validation has been carried out in full compliance with the requirements of Regulation (EC) No. 1221/2009,
- the outcome of the verification and validation confirms that there is no evidence of non-compliance with applicable legal requirement related to the environment,
- the data and information contained in this environmental statement of the organization reflect a reliable, credible, and correct image of all the organizations/ sites/ activities within the scope mentioned in the environmental statement.

Athens: 02.02.2015

Dr. Chem. Engineer Panagiotis Ahladas  
TÜV HELLAS S.A.  
282, Mesoghion Ave  
GR 15562, Holargos



## 14. INFORMATION ON REGISTRATION

(information to be provided when applicable)

<b>1. ORGANIZATION</b>	
Name	AKTOR S.A.
Address	25, Ermou Str
Town	N. KIFISSIA - ATHENS
Postal code	GER 145 64
Country / Land / Region / Autonomous Community	GREECE
Contact person	Dr. – Ing. Niki Siouta
Telephone	+30 210-8184444
FAX	+30 210-8184956
E-mail	nsiouta@aktor.gr
Website	www.aktor.gr
Public access to the environmental statement or the updated environmental statement	-
a) printed form	-
b) electronic form	NAI
Registration number	EL 000012
Registration date	27.06.2005
Suspension date of registration	-
Deletion date of registration	-
Date of the next environmental statement	-
Date of the next updated environmental statement	JAN. 2016
Request for derogation pursuant to Article 7	NONE
YES - NO	41, 42, 43
NACE Code of activities	AKTOR: 1.694, J/V: 971
Number of Employees	€900 million
Turnover or annual balance sheet	
<b>2. SITE</b>	Headquarters and active worksites
Name	
Address	
Postal code	
Town	
Country / Land / Region / Autonomous Community	
Contact person	
Telephone	
FAX	
E-mail	
Website	
a) printed form	
b) electronic form	

Registration number	
Registration date	
Suspension date of registration	
Deletion date of registration	
Date of the next environmental statement	
Date of the next updated environmental statement	
Request for derogation pursuant to Article 7	NONE
YES - NO	
NACE Code of activities	
Number of Employees	
<b>3. ENVIRONMENTAL VERIFIER</b>	
Name of environmental verifier	Dr. Chem. Engineer Panagiotis Ahladas TÜV HELLAS S.A.
Address	282, Mesoghion Ave
Town	Holargos
Postal code	15341
Country / Land / Region / Autonomous Community	Greece
Telephone	+30 210 6540195
FAX	+30 2106528025
E-mail	www.tuvhellas.gr
Registration number of accreditation or licensing	183-5
Scope of accreditation or licensing (Code NACE)	1.61,7 (with exception 7.21), 8.1, 8.91, 10, 11, 12, 13, 14.1, 14.3, 16, 18.1, 19, 20, 21, 22, 23, 24 (with exception 24.46), 25, 26.2, 26.8, 27, 28 (with exception 28.29, 28.96 and 28.99), 31, 32,3, 33, 36, 37, 38, 39, 41, 42, 43, 45, 46, 47, 49.42, 49.5, 52, 53, 55, 56, 58, 59.2, 61, 62, 63.1, 64, 65.1, 66.2, 68, 69.1, 70, 71.1, 72, 77.32, 79, 80, 81, 82.3, 84.11, 84.11, 85, 86.23, 95, 96 with exception 96.09)
Accreditation or Licensing Body	Hellenic Accreditation System S.A. (ESYD)
ATHENS 22.01.2014	Dr. – Ing. Niki Siouta
Signature of the representative of the organization	