



**WASTEWATER STATIONS BASED ON CONSTRUCTED WETLANDS, POWERED BY SOLAR ENERGY, IN SEVERAL VILLAGES OF LUBRÍN, PROVINCE OF ALMERÍA (SPAIN).**

**Victor Olmedo, Optimia medio ambiente**

## CASE STUDIES.

**DERIVATED FROM THE SYSTEM DEVELOPED DURING 2007 IN CENTA, OPTIMIA HAS INSTALLED 2 WWT PLANTS IN DISTRICTS OF THE MUNICIPALITY OF LUBRÍN.**

✓ **EL POCICO: 105 PE.**

✓ **JAURO: 45 PE.**

**IN BOTH CASES, THE DESIGN WAS MADE TRYING TO FIX THE LACK OF TECHNICAL, HUMAN AND ECONOMIC RESOURCES IN THE SMALL MUNICIPALITIES.**

**THE FINAL SOLUTION WAS DIFERENT FOR EACH VILLAGE:**

**EL POCICO: DUAL-STAGE VERTICAL FLOW WETLAND.**

**JAURO: SINGLE STAGE VERTICAL FLOW WETLAND WITH RECIRCULATION.**



**EL POCICO, 105 PE.**

**CONDITIONS DESIGN:**

**PLOT AREA RESERVED POR WWT PLANT: 450 M<sup>2</sup>**

**NEW WWT PLANT ON TOP OF OLD WWT PLANT**

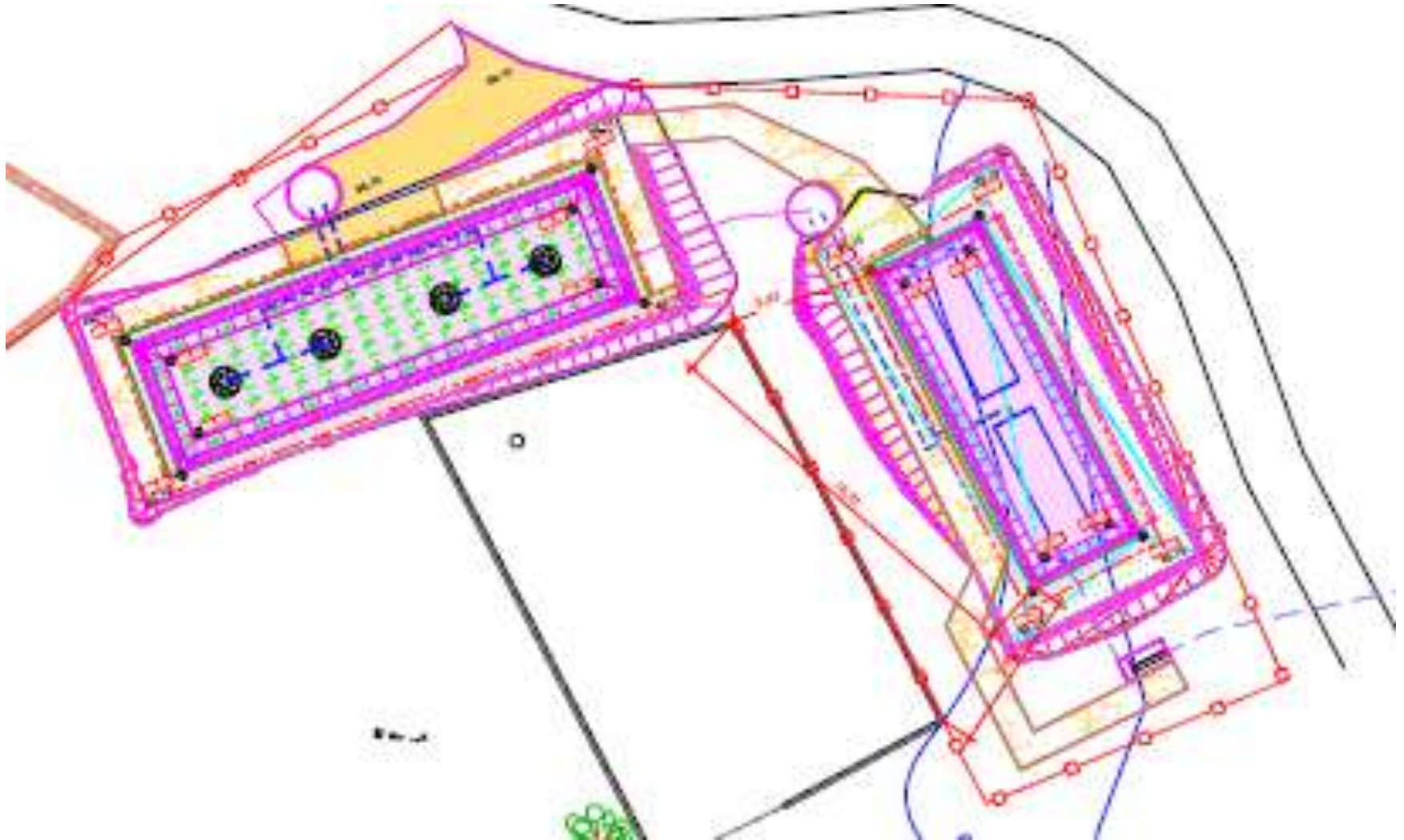
**NO ENERGY CLOSE TO THE PLACE**

**NO INFORMATION ABOUT QUANTITY AND QUALITY OF  
THE WATER TO CLEAN.**

**INTEGRATION INTO TE RURAL ENVIRONMENT IS AN  
IMPORTANT TECHNICAL REQUIREMET.**

## **WASTEWATER PLANT DESCRIPTION :**

- ✓ **SIMPLE GRID OF 20 mm THICK.**
- ✓ **ELECTRICAL PUMPS TO FEED BOTH FILTERS.**
- ✓ **PRIMARY STAGE VERTICAL FLOW WETLAND.**
- ✓ **SECONDARY STAGE VERTICAL FLOW WETLAND.**
- ✓ **SLUDGE CAPACITY IN THE SURFACE: 54 M<sup>3</sup>**
- ✓ **TOTAL SURFACE OCCUPIED: 440 M<sup>2</sup>**
- ✓ **TREATMENT CAPACITY: 105 PE.**







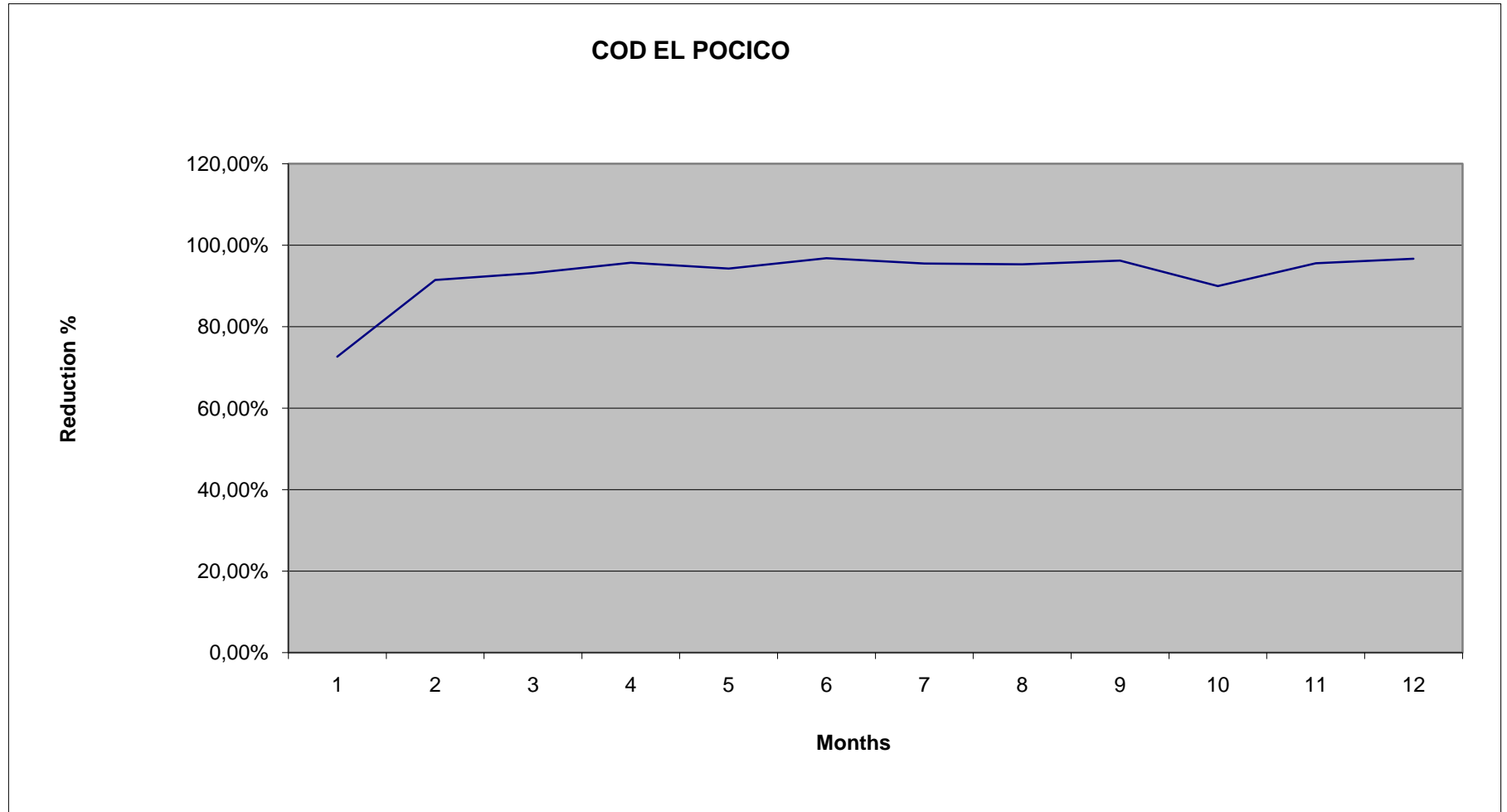


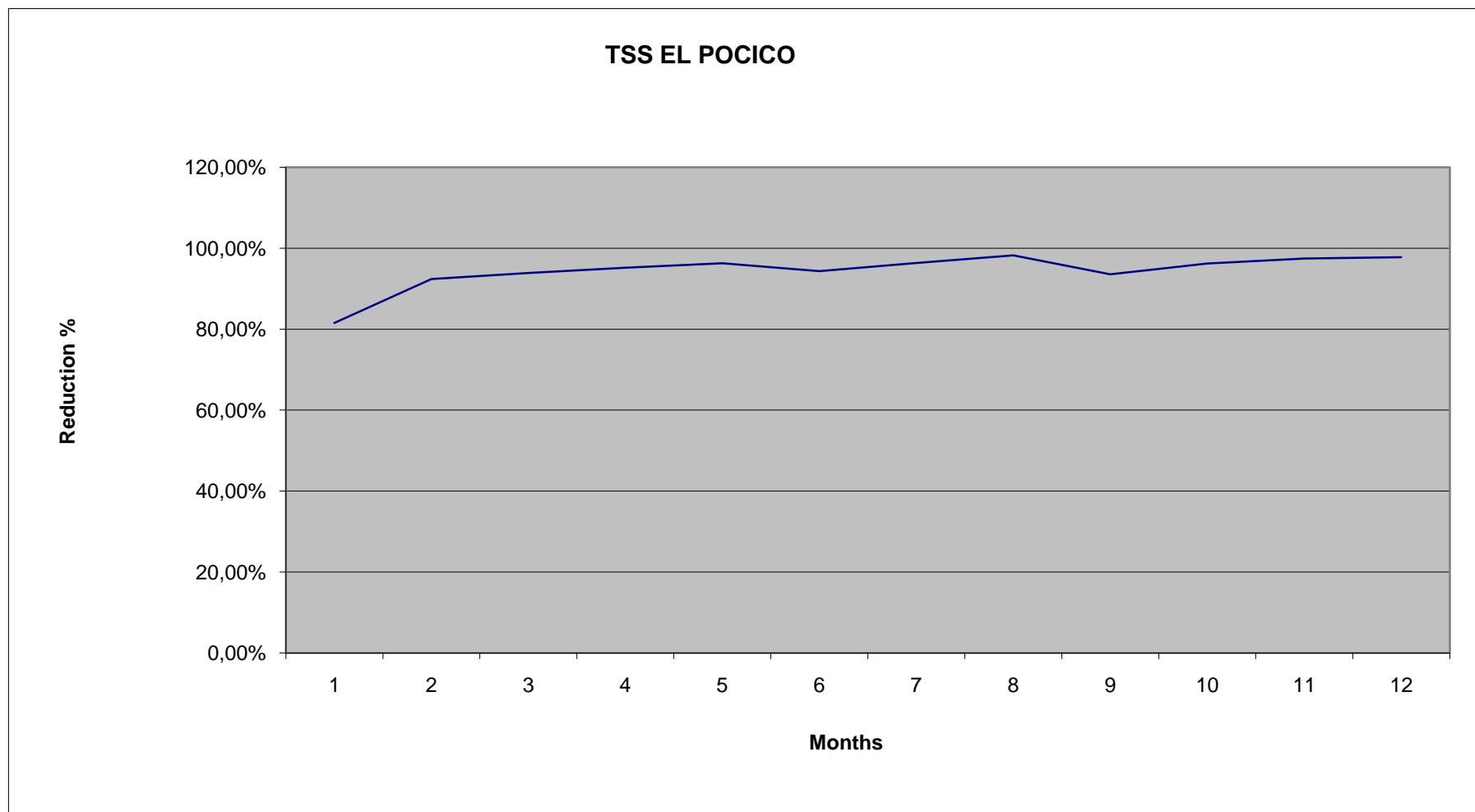
## EL POCICO, 105 P.E.

### Technical description

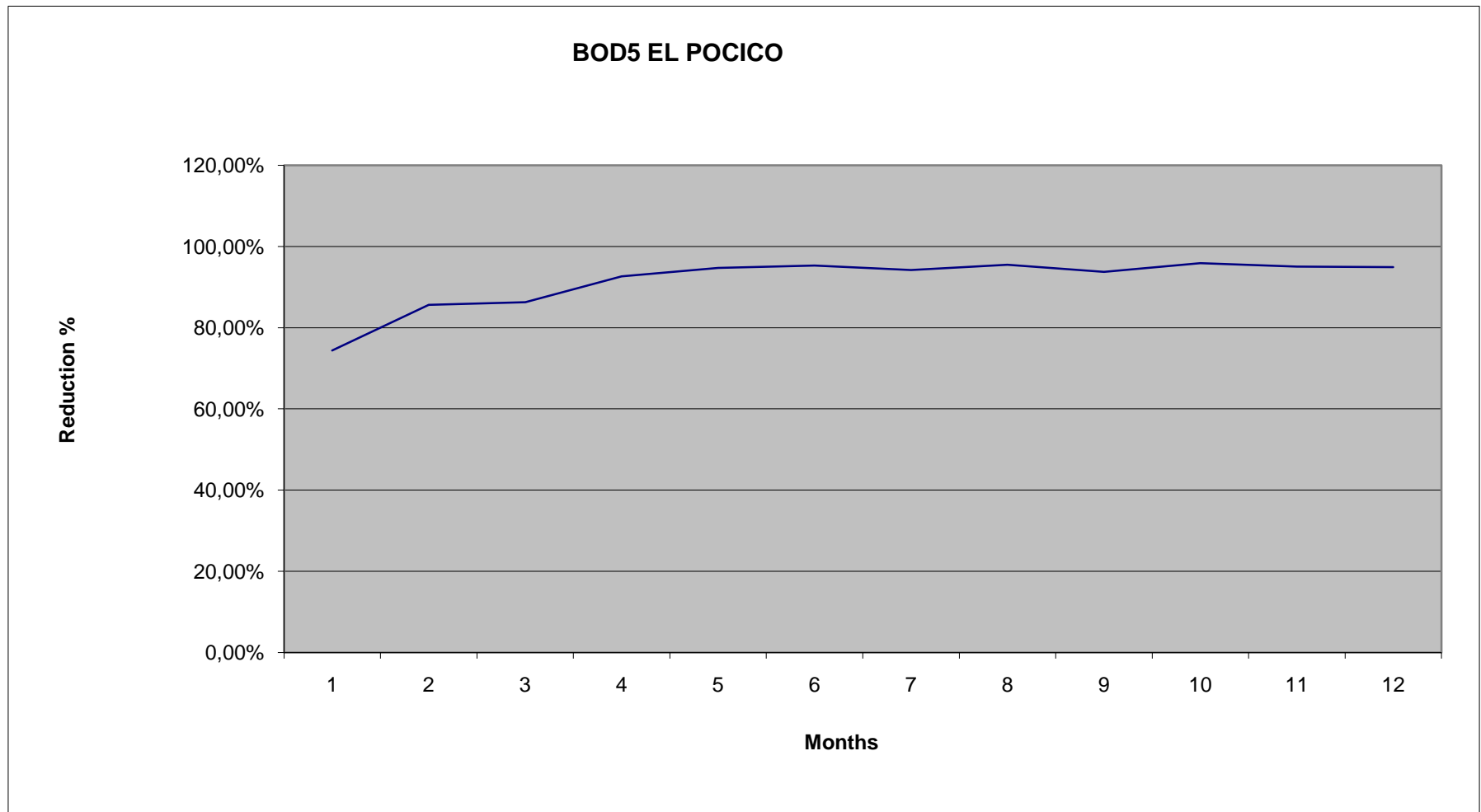
Treatment process		Energy system	
Population (p.e.)	105	Photovoltaic panels	Policristaline 195Wp
Surface 1 <sup>a</sup> stage	120 m <sup>2</sup>	Solar surface	1560 Wp
Surface 2 <sup>a</sup> stage	80 m <sup>2</sup>	Solar cover	Integrated
Daily flow	18,9 m <sup>3</sup>	Battery	2700 Ah
BOD5 in	310 mgO <sub>2</sub> /l	Autonomy	10 days
COD in	754 mgO <sub>2</sub> /l	Management	Microprocessor
SS in	264 mg/l	Voltage generated	24 Vdc
TKN in	52,31 mgN/l	Voltage produced	3 x 220 Vac
Pumps	Electric	Consumption	2274,45 Wh

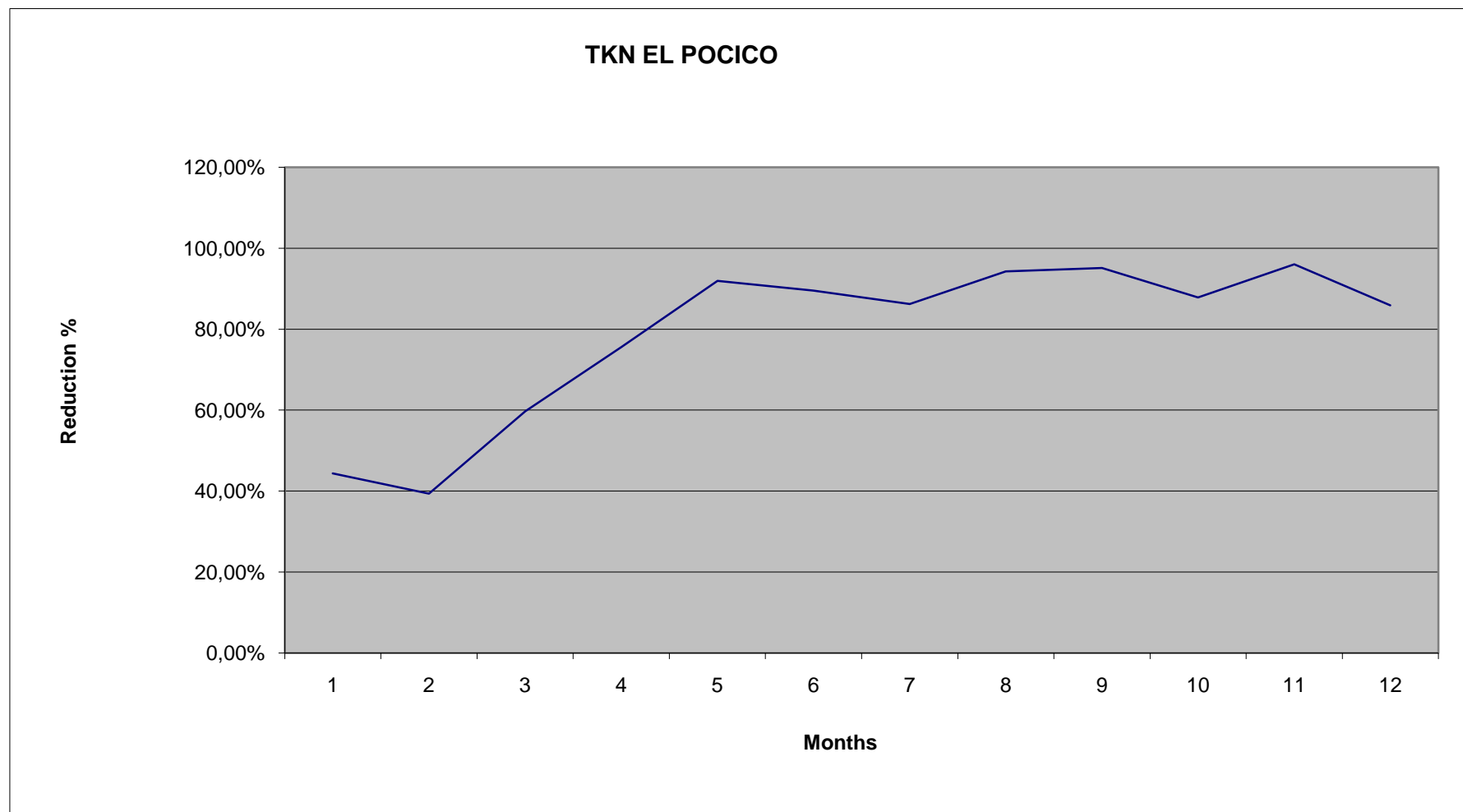
## EL POCICO, 105 PE.





## EL POCICO, 105 PE.







**JAURO, 45 PE.**

**CONDITIONS DESIGN:**

**PLOT AREA RESERVED POR WWT PLANT: 150 M<sup>2</sup>**

**NO ENERGY CLOSE TO THE PLACE**

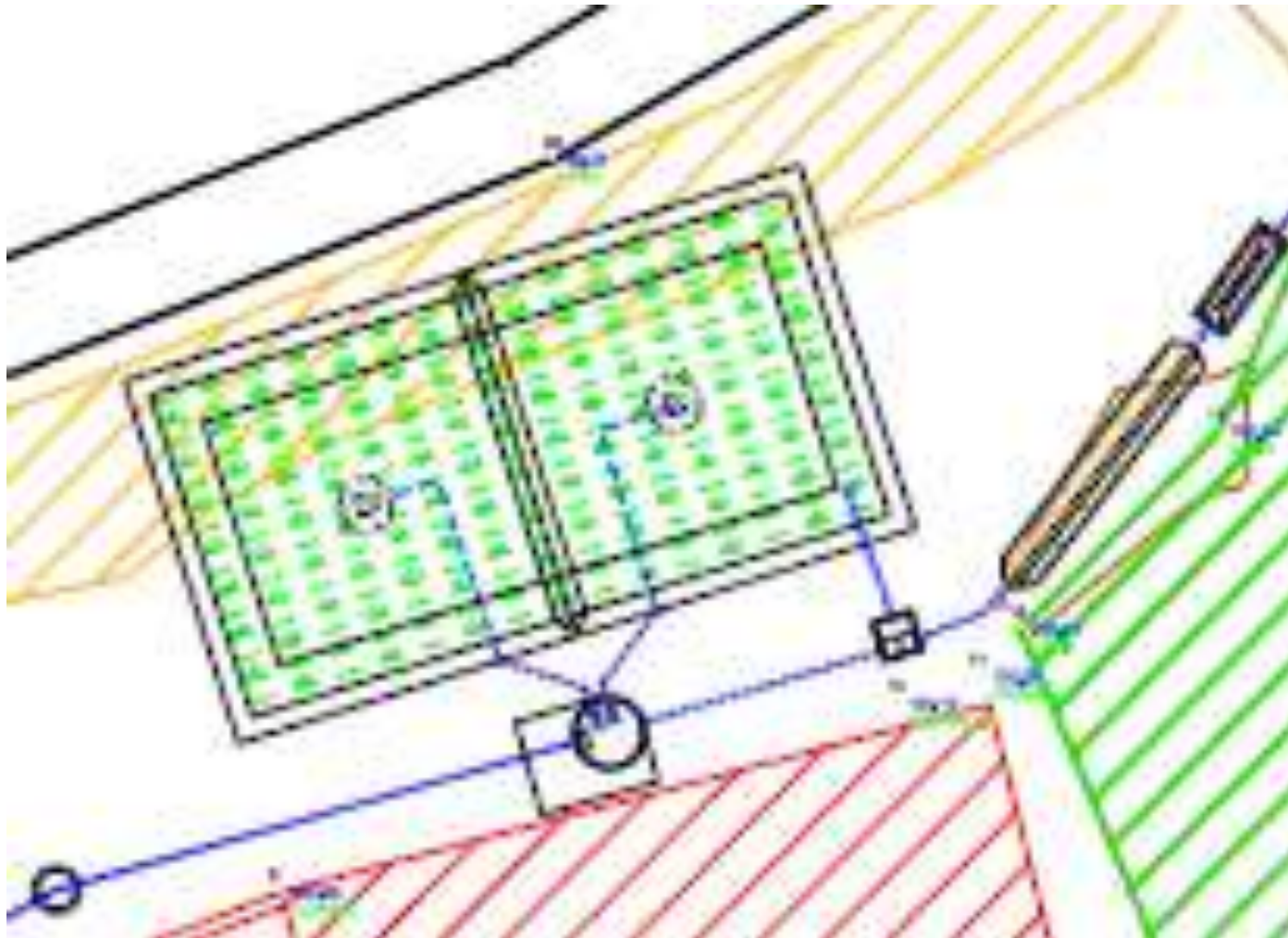
**NO INFORMATION ABOUT QUANTITY AND QUALITY OF  
THE WATER TO CLEAN.**

**INTEGRATION INTO TE RURAL ENVIRONMENT IS AN  
IMPORTANT TECHNICAL REQUIREMET.**

**JAURO, 55 PE.**

## **WASTEWATER PLANT DESCRIPTION :**

- ✓ **SIMPLE GRID OF 20 mm THICK.**
- ✓ **ELECTRICAL PUMPS TO FEED THE SINGLE FILTER.**
- ✓ **OVERSIZED PRIMARY STAGE VERTICAL FLOW WETLAND.**
- ✓ **SECONDARY STAGE HORIZONTAL FLOW WETLAND.**
- ✓ **RECIRCULATION SYSTEM IN FIRST STAGE**
- ✓ **SLUDGE CAPACITY IN THE SURFACE: 15,8 M<sup>3</sup>**
- ✓ **TOTAL SURFACE OCCUPIED: 103 M<sup>2</sup>**
- ✓ **TREATMENT CAPACITY: 45 PE.**





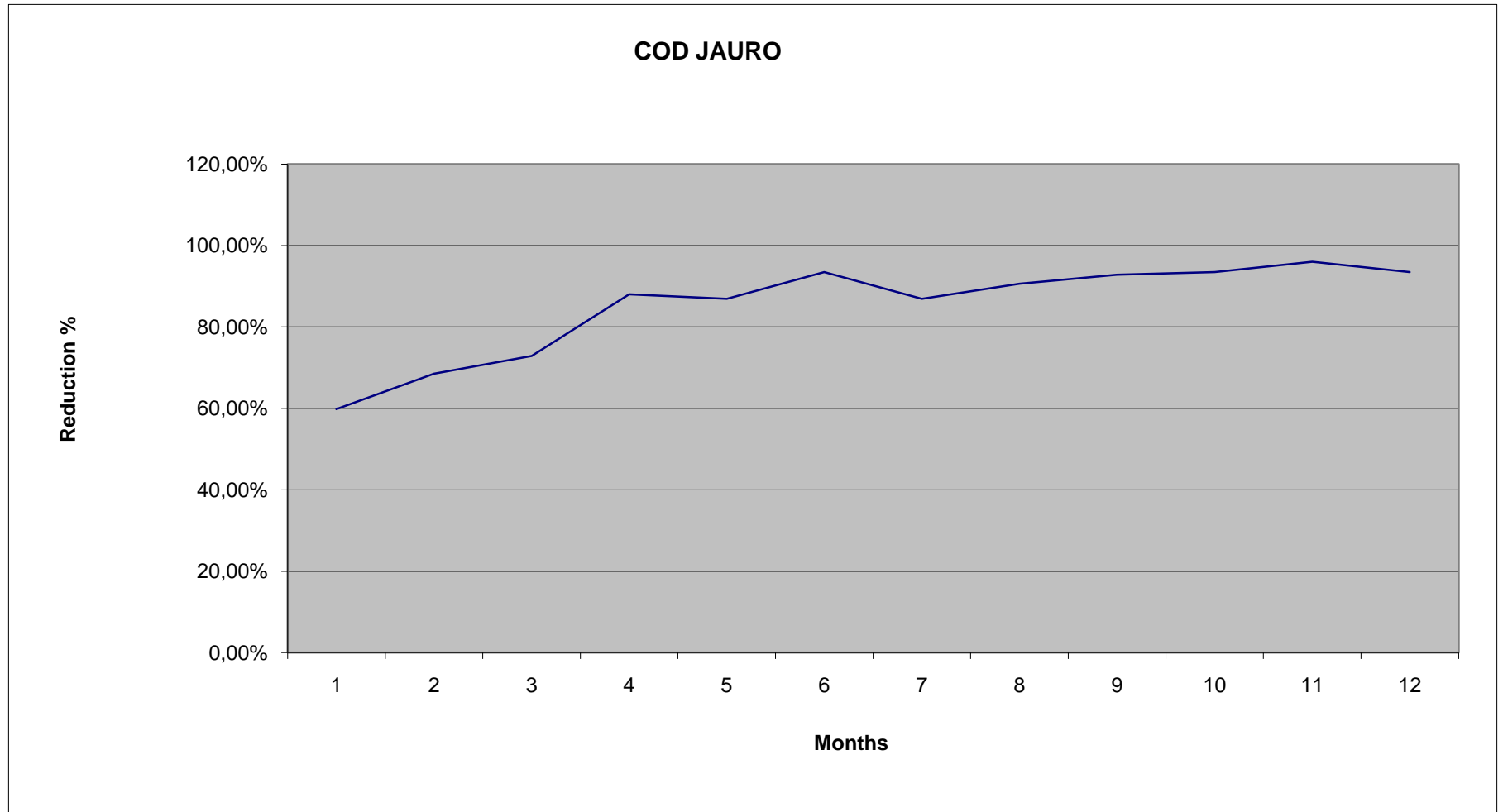




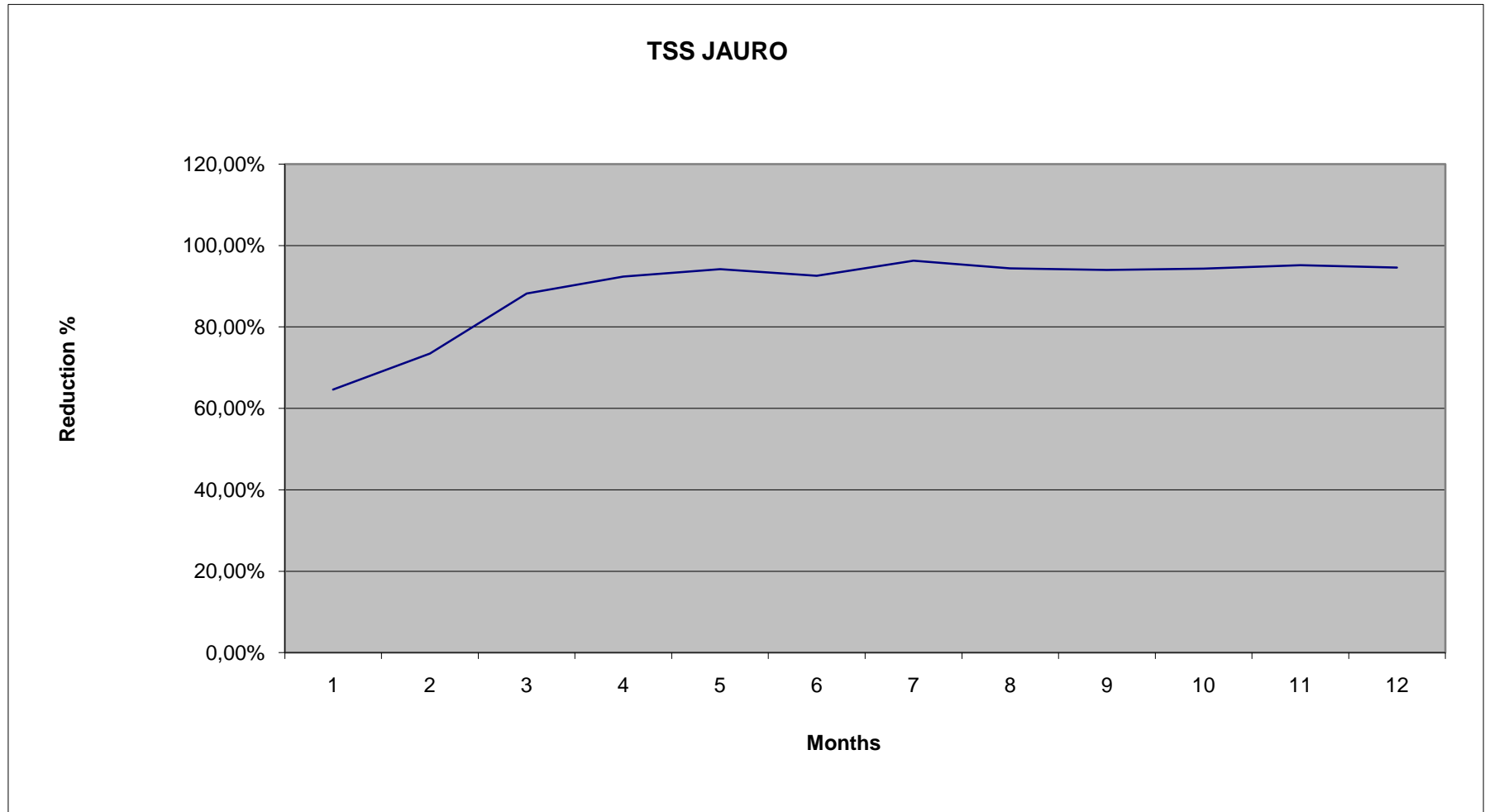
**JAURO, 45 PE.**  
**Technical description**

Treatment process		Energy system	
Population (p.e.)	45	Photovoltaic panels	Policristaline 195Wp
Surface 1 <sup>a</sup> stage	88 m <sup>2</sup>	Solar surface	780 Wp
Surface 2 <sup>a</sup> stage	15 m <sup>2</sup>	Solar cover	Integrated
Daily flow	8,1 m <sup>3</sup>	Battery	900 Ah
BOD5 in	185 mgO <sub>2</sub> /l	Autonomy	10 days
COD in	525 mgO <sub>2</sub> /l	Management	Microprocessor
SS in	158 mg/l	Voltage generated	24 Vdc
TKN in	47,52 mgN/l	Voltage produced	3 x 220 Vac
Pumps	Electric	Consumption	895,75 Wh

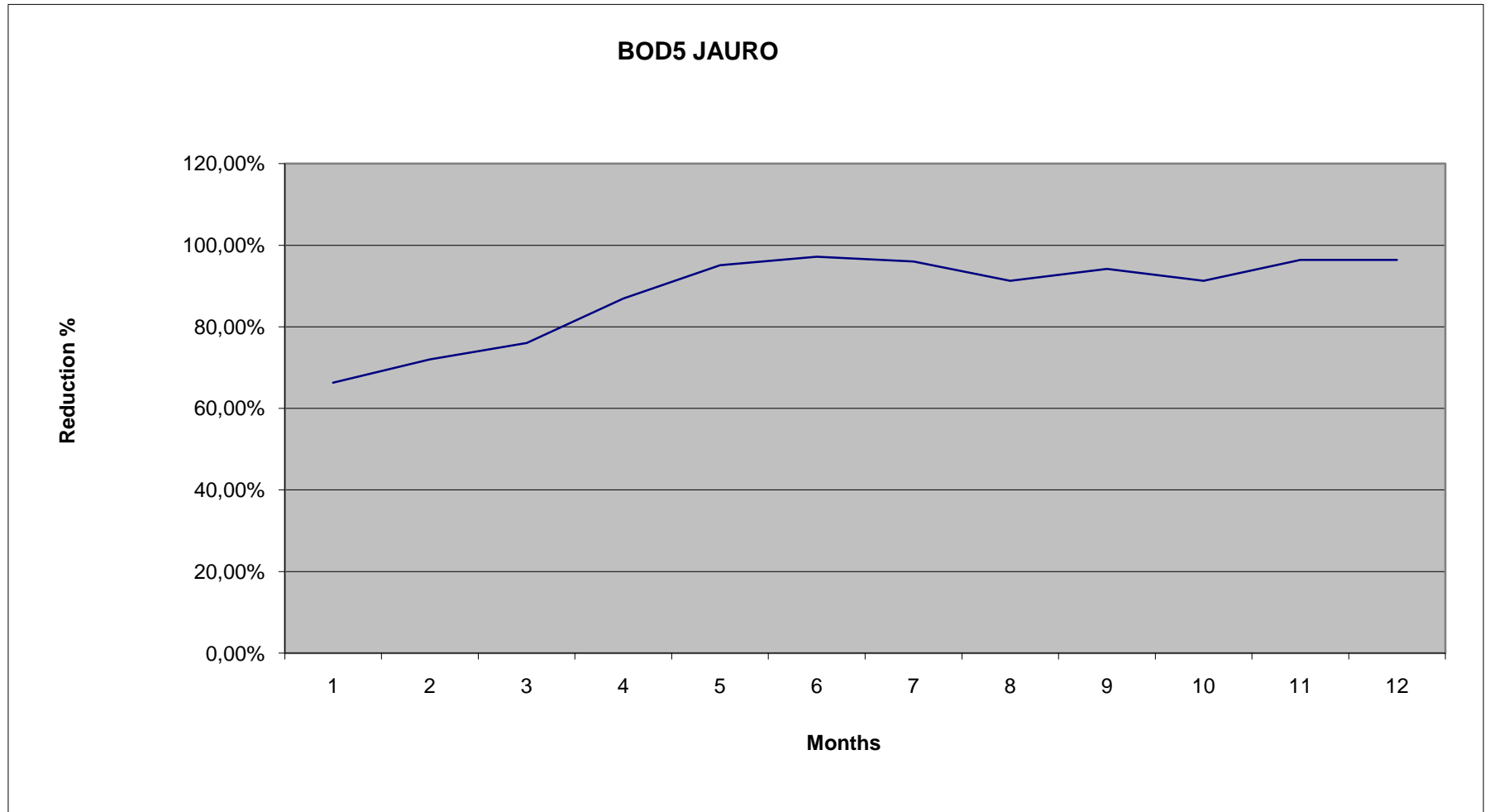
## JAURO, 45 PE.



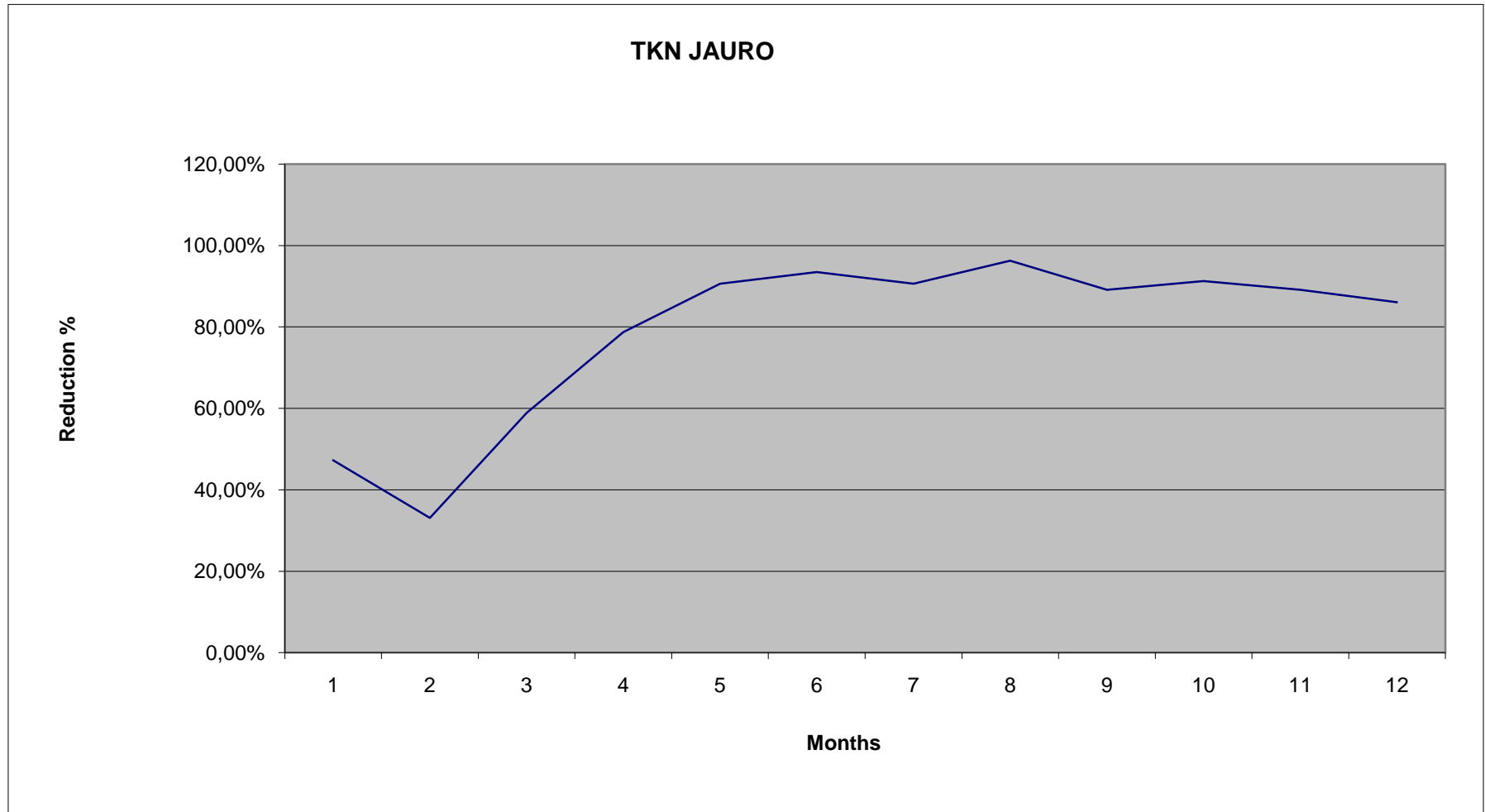
## JAURO, 45 PE.



## JAURO, 45 PE.



## JAURO, 45 PE.





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**THANK YOU FOR YOUR ATTENTION**

volmedo@optimia.es