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1. Purpose

This procedure is intended to establish a process for assessing the effectiveness of the EMMP. This in-house management tool is designed to provide the management with reliable and verifiable information on an ongoing basis to determine whether the Macaé Merchant Power Plant's environmental performance is meeting the established targets, to help identify areas for improvement and to indicate performance trends.

2. Scope

The Environmental Performance Evaluation is assessed on three levels:

- Assessment of the Environmental Management and Monitoring Plan process.
- Assessment of environmental and health & safety compliance with legal standards.
- Assessment of environmental and health & safety performance indicators.

3. Forms Used

- Environmental Management and Monitoring Plan Audits Summary – O-EF 022.A
- Environmental Compliance Evaluation - O-EF 022.B
- Health and Safety Evaluation - O-EF 022.C
- Risk Evaluation - O-EF 022.D

4. Entities Responsible

- Environmental Coordinator and HSE Supervisor – perform Environmental Performance Evaluations once a year and send the report to the Plant manager and the Brazilian Environmental Manager.

5. Definitions

Environmental Performance: results of the managerial stewardship of all environmental and health & safety aspects of the activities of an organization.

Environmental Aspect: element of an organization's activities that may interact with the environment.

Health & safety aspect: all activities and processes related to worker's health and safety , including emergency response and risk management practices

Environmental Effect: any change to the environment, whether adverse or beneficial, resulting wholly or partially from an organization's activities, products or services.

Target: detailed performance requirement, quantified where practicable, applicable to the organization or parts thereof, that arises from the environmental policy objectives and that needs to be set and met in order to achieve those objectives.

Environmental Performance Indicator: specific expression that provides information about an organization's environmental performance.

6. References


- ISO 14031 and ISO 14032

7. Procedure

Environmental Management and Monitoring Plan Audits Summary

The Environmental Coordinator and the HSE Supervisor will gather data as stipulated in procedure O-EP 017 (Environmental Management and Monitoring Plan Audit), using the related Forms. Form O-EF 022.A must be completed, and then an evaluation is needed to

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determine whether each finding is acceptable or not. Where non-acceptable findings are identified, the Environmental Coordinator and the HSE Supervisor will open a PAR/CAR as appropriate, in accordance with O-EP 019 and Forms O-EF 019.A and B. The HSE Supervisor will forward all documents generated on a monthly basis to the Brazilian Environmental Manager.

Performance Evaluation:

The Environmental Coordinator is responsible for compiling the data from monitoring procedures O-EP 009 through 014 and 018, as well as their respective Forms and attached documents, specified in Forms O-EF 022.B through D. Where non-acceptable results are identified, the Environmental Coordinator or designee will generate a PAR/CAR, as appropriate, in compliance with O-EP 019 and Forms O-EF 019.A and B. The Environmental Coordinator will send all documents generated on a monthly basis to the Environmental Affairs Director.


8. Records

The HSE Supervisor and the Environmental Affairs Director are responsible for keeping records of all performance evaluations.

9. Records of Revision

Revision Date	Description	Sections Affected

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Objective: Continuous improvement of environmental performance

Performance Audit Summary

Date:

Target: Zero Not Acceptable Non-Compliances

Entity Responsible - Name/Function:

Element Number and Description		INDICATOR	
		N° of Non-Compliances	A, N, or X*
1.	Environmental and Health & Safety Policy Issues		
2.	Monitoring - Environmental Performance		
3.	Monitoring – Legal Requirements		
4.	Training, Awareness and Competence		
5.	Communications		
6.	Document Control		
7.	Environmental Control and Monitoring Equipment & Systems		
8.	Risk prevention, Emergency Preparedness and Response		
9.	Preventive and Corrective Actions		
10.	Management Review of EMMP		
TOTAL			

A = Acceptable: Interviews and other objective evidence indicate that the EMS meets all requirements in that section of the standard.

N = Not Acceptable: The Auditor has decided that, based on the number and type of non-compliances, the requirements of that section of the standard are not being met.

X = Not Audited

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Objective: Continuous improvement of environmental performance

Performance Monitoring: Atmospheric Emissions Monitoring (O-EP 009), Air Quality Monitoring (O-EP 010), Liquid Effluents Monitoring (O-EP 011), Monitoring the Quality of the Macaé River (O-EP 012), Noise Monitoring (O-EP 013), Waste Management (O-EP 014 and Forms), Environmental Compliance Audit Forms (O-EF 018.A through F)

Entity Responsible - Name/function:

Date:

Indicator	Target		Actual	Comment
Atmospheric Emissions	CO	Non-regulated		
	P.m.	80 mg/Nm ³		
	NO _x	125 mg/Nm ³		
	Smoke	0		
	Fugitive Dust	0		
Air Quality	PM ₁₀ - 24 hs	150 µg/m ³		
	P.m. - 24 hs	240 µg/m ³		
	CO			
	1 h	40 mg/m ³		
	8 h	10 mg/m ³		
	NO _x			
1 h	320 µg/m ³			
24 hs	150 µg/m ³			
	Odor	0		
Noise	Day	70 dB(A)		
	Night	60 dB(A)		
	Non-compliances during inspections	0		
Solid Wastes	% separated in appropriate recipients	100%		
	% unaccounted, no registration of disposal or disposed of at inappropriate site	0%		
	Non-compliances during inspections	0		

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ENVIRONMENTAL COMPLIANCE AND PERFORMANCE EVALUATION

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Indicator	Target	Actual	Comment
Liquid Effluents	pH	5-9	
	Temperature	40°C	
	Oil and grease	20 mg/l	
	DBO ₅ , 20°C	50 mg/l	
	DQO	250 mg/l	
	Non-compliances during inspections	0	
Macaé River Water Quality	pH	6-9	
	Temperature	Δ = 3°C	
	Oil and grease	Virtually absent	
	DBO ₅ , 20°C	< 5 mg/l	
	Fecal coliforms	1.000 mg/l (MPN/100ml)	
	Total coliforms	5.000 mg/l (MPN/100ml)	
	Turbidity	100 mg/l	
	Non-compliances during inspections	0	

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Objective: Continuous improvement of environmental performance

Period:

Performance Monitoring:

Date:

Entity Responsible - Name/function:

Significant Aspect	Indicator	Target	Actual	Comment
Health and Safety	Fatality (including subcontracted workers)	0		
	Injury with lost days, and absentee rates (including subcontracted workers)	0		
	Injury with no lost days (including subcontracted workers)	0		
	Investment per worker in illness and injury prevention	\$\$\$		
	Training performed during month	At least once every six months		

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Objective: Continuous improvement of environmental performance

Period:

Performance Monitoring:

Date:

Target: Ongoing

Entity Responsible - Name/function:

Significant Aspect	Indicator	Target	Actual	Comment
Risk Prevention and Emergency Response	Number of incidents occurred at the Plant	0		
	Number of accidents occurred at the Plant	0		
	Number of hazardous substance spills	0		
	Amount of hazardous substance spilled	0		
	Recovery of hazardous substance spilled	100%		
	Recovery of affected area	100%		
	Fires	0		
	Explosions	0		

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