



MACAE MERCHANT POWER PLANT

ENVIRONMENTAL MANAGEMENT AND MONITORING PLAN

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Foreword

The El Paso Environmental Management and Monitoring Plan (EMMP) establishes a framework for the identification and implementation of environmental protection, mitigation, monitoring and institutional measures to be taken during the operation of the Macae Merchant Power Plant located in the Rio de Janeiro State, Brazil.

The implementation of this EMMP is designed to eliminate adverse environmental and social impacts, offsetting or reducing them to acceptable levels. This EMMP also identifies monitoring objectives and specifies the type of monitoring measures, including the parameters to be measured and methods to be used, sampling locations, measurement frequency, detection limits, and definitions of thresholds that will signal the need for corrective actions.

Monitoring and reporting procedures that ensure compliance with Brazilian environmental legislation and the requirements of the International Finance Corporation (IFC) are also covered in this EMMP.

To support the timely and effective implementation of environmental project components, this EMMP provides specific descriptions of the institutional arrangements, listing the personnel responsible for documentation control and continuous improvement.

For mitigation, monitoring and training, this EMMP provides an implementation schedule for measures that must be carried out and integrated into the projects overall planning, design, budget, and implementation.

Executive Summary

THE CORPORATION

El Paso Corporation is North America's leading provider of natural gas services. The company has core business in natural gas production, gathering and processing, and transmission, as well as liquefied natural gas transport and receiving, petroleum logistics, power generation, and merchant energy services. El Paso Corporation, rich in assets and fully integrated across the natural gas value chain, is committed to developing new supplies and technologies to deliver energy to communities around the world.

El Paso Corporation is committed to conducting business in a manner that protects the environment, the health and safety of our employees, customers, contractors and the public. This philosophy is integrated into all of our business activities and enables us to design and operate facilities using the best practices necessary to protect human health and the environment.

El Paso is committed to ensuring that every project is constructed and operated in accordance with the applicable environmental laws and regulations, as well as the environmental requirements of the financing institutions involved.

THE PLANT

The Macaé Merchant Power Plant is an 895 MW power plant fired by natural gas under the responsibility of El Paso Rio Claro Ltda, which is a member of the El Paso Energy

International Group. The plant is located in the rural area of the Macaé Municipality, Rio de Janeiro State (see Figure I.1).

THE EMMP

The objective of this Environmental Management and Monitoring Plan (EMMP) is to provide consistent information and guidance for implementing the management and monitoring measures established in the permitting process and help achieve environmental policy goals. It is also intended to meet the following requirements:

- define the framework for daily environmental activities.
- comply with legislation, World Bank and International Finance Corporation (IFC) requirements.
- be aligned with owner policies and standards.
- help establish a more objective basis for insurance.
- be a user-friendly guide.
- create mechanisms to ensure environmental compliance and allow for continuous improvement in environmental performance.

The purpose of this EMMP is thus to help ensure continuous improvement of environmental performance, reducing negative impacts and enhancing positive effects during the operation of the plant.

The Macaé Merchant Power Plant will follow the federal, state and municipal legislation and applicable international

standards for the following aspects: Air Emissions, Air Quality, Water/Wastewater, Solid Wastes, Noise, and Storage of Hazardous Materials. Additionally, it will foster sustainable development, community rights and the protection of environmental resources, both directly and through its contractors.

The mitigation issues identified are thus systematically addressed in this Environmental Management and Monitoring Plan (EMMP), ensuring a high level of environmental performance while minimizing adverse impacts.

This EMMP is thus part of an organized approach to improve environmental performance. It will help integrate responsibilities and practices into an overall environmental management system. An effective EMMP is concerned with both the immediate outcome and the long-term impacts of the project. It also provides a means of simplifying the work of operators and contracted third parties so as to foster improved environmental performance. The EMMP ensures that particular tools can be used properly to implement environmental strategies.

As part of the El Paso Environmental Management System (EMS), this EMMP unifies the various elements of environmental management and monitoring responsibilities, preparing the ground for the full implementation of the El Paso EMS worldwide. It provides an integrating and systematic approach to environmental management and monitoring responsibilities,

including regulatory standards, organizational responsibilities, training requirements, monitoring, auditing and reporting procedures.

THE PROCEDURES

The procedures prepared for this EMMP are:

DOCUMENTATION

- Formatting Environmental Procedures and Forms (O-EP 001)

This procedure defines the format to be used in creating Macaé Merchant Power Plant environmental procedures and forms.

- Environmental Document Control and Revision (O-EP 002)

This procedure defines the mechanism for controlling and revising EMS documents. The purpose of this procedure is to ensure that personnel requiring access to environmental management system documents have the latest versions.

- Environmental Records (O-EP 003)

This procedure describes the management of environmental records at the Macaé Merchant Power Plant.

COMMUNICATIONS

- Incident Communication Procedure (O-EP 004)

This procedure provides a formal written document that complies with the reporting

requirements of all Federal, State and Local regulatory agencies for leaks and/or spills of toxic and non-toxic industrial products into the environment, in order to assure adequate and effective emergency procedures are implemented.

- Internal Communications (O-EP 005)

This procedure establishes a process for internal communications among the Macaé Merchant Power Plant employees, contractors and equity partners.

- Outreach to Stakeholders (O-EP 006)

This procedure is intended to establish a process for environmental communication between Macaé Merchant Power Plant and Stakeholders, such as regulatory authorities and the public/local community groups.

- Management of Inquiries from Stakeholders (O-EP 007)

This procedure is intended to establish a process to manage environmental inquiries coming from Stakeholders such as regulatory authorities and local community groups.

TRAINING

- Training Administration (O-EP 008)

This procedure strives to ascertain that all employees are properly trained, ensuring that all specific training needs are identified and fulfilled, through a system providing initial, periodic and refresher training for employees, contractors, and other personnel working at or

visiting the Macaé Merchant Power Plant facilities.

MONITORING

- Atmospheric Emissions Monitoring (O-EP 009)

This procedure is intended to establish a monitoring process for atmospheric emissions through the Continuous Emissions Monitoring System (CEMS), checking compliance with the emission standards established by CONAMA through Resolution 08/90 and the FEEMA requirements.

- Air Quality Monitoring (O-EP 010)

This procedure is intended to establish air quality monitoring in the region of the Macaé Merchant Power Plant through an automatic continuous station in order to check compliance with the air quality standards established by CONAMA through Resolution 03/90 and the FEEMA requirements.

- Liquid Effluents Monitoring (O-EP 011)

This procedure is intended to check the compliance of the effluents discharged by the Macaé Merchant Power Plant with the effluent discharge standards established by CONAMA through Resolution No. 20/86 and FEEMA NT-202.

- Monitoring the Quality of the Macaé River (O-EP 012)

This procedure is intended to verify the compliance of the quality of the Macaé River before and after the discharge of effluents from the Macaé Merchant Power Plant with the water quality standard established by CONAMA through Resolution 20/86 CLASS 2 and FEEMA requirements.

- Noise Monitoring (O-EP 013)

This procedure is intended to check the conformity of plant operation noise emissions with the criteria of the technical standards NBR – 10151/152 and CONAMA Resolution 01/90.

- Waste Management (O-EP 014)

The purpose of this document is to establish procedures for the separation, storage, handling, responsibilities, control of waste quantity, waste inspection, records, shipment for offsite disposal and final disposal for hazardous wastes generated onsite.

CONTINUOUS IMPROVEMENT

- Calibration and Quality Assurance Audit / CEMS (O-EP 015)

This procedure is used to ensure correct calibration of the equipment and evaluate the effectiveness of quality control (QC) and quality assurance (QA) procedures regarding the data produced by the continuous emission monitoring system (CEMS), checking compliance with the emission standards on a continuous basis, as specified in the applicable regulation.

- Environmental Management and Monitoring Plan Audit (O-EP 016)

This procedure defines the mechanism for planning and implementing environmental management audits and/or inspections at the Macaé Merchant Power Plant.

- Environmental Compliance Audit (O-EP 017)

This procedure defines the mechanism for planning and implementing environmental regulatory compliance audits, including requests for Preventive and Corrective Actions.

This procedure also involves the identification and investigation of non-conformities, as well as proposing the applicable preventive and corrective actions, following the procedures and forms of O-EP 019.

External Inspection Management (O-EP 018)

This procedure defines how to proceed during external inspections/audits.

- Preventive and Corrective Actions (O-EP 019)

This procedure defines the responsibilities and processes for proposing preventive and corrective actions deemed necessary as a result of non-conformities noted through other procedures, particularly those dealing with monitoring, inspections and audits.

- Contractor Management (O-EP 020)

This procedure provides guidelines for appropriate contractor selection and management.

- Change Management (O-EP 021)

This procedure deals with changes in plant processes, layouts and scales of operations. It comprises procedures for reviewing potential environmental impacts and risks, as well as revising the core elements of the environmental management and monitoring plan, implementing new measures as necessary.

- Environmental Performance Evaluation (C-EP 022)

This procedure is intended to establish a process assessing the effectiveness of the EMMP and its associated Risk Management Program (RMP) and Emergency Response Plan (ERP) as a whole. It is an internal management tool designed to provide reliable and verifiable information on an ongoing basis to determine whether the environmental performance of the Macaé Merchant Power Plant is meeting the established targets. This procedure helps identify areas for improvement and provides current evaluations of its performance as well as indicating performance trends.

Glossary of Acronyms

CAR – Corrective Action Request

CD – Calibration Drift (CEMS related measurement)

CEMS – Continuous Emission Monitoring System

CGA – Cylinder gas audit (CEMS related audit)

CONAMA – Brazilian Federal Council for Environmental Protection

DAHS – Data Acquisition and handling System (CEMS)

EMCP – Environmental Control and Management Plan (“Projeto Básico Ambiental – PBA”)

EIA – Environmental Impact Assessment

EMMP – Environmental Management and Monitoring Plan

EMS – Environmental Management System

EPC – Engineering Procurement and Construction Contractor

ERP – Emergency Response Plan.

FEEMA –Rio de Janeiro State Environmental Agency

GE – General Electric Corporation

HSE – Health and Safety Engineering

IBAMA – Brazilian Federal Environmental Authority

IFC – International Finance Corporation

INMETRO – Brazilian Institute for Metrology and Certification

MMMP - Macaé Merchant Power Plant

NBR – Standards issued by ABNT – Brazilian Technical Standards Association

NR – Brazilian Labor Ministry Regulatory Ordinances

PAR – Preventive Action Request

PS – Performance specification (CEMS related concept)

QA – Quality assurance

QC – Quality control

RA – Relative Accuracy (CEMS related concept)

RATA – Relative Accuracy Test Audit (CEMS related audit)

RM – Reference Method (USEPA)

RMP – Risk Management Program

SISNAMA – National Environmental System

WB – World Bank

USEPA – US Environmental Protection Agency
