1. Purpose

The purpose of this document is to establish procedures for waste separation, storage, handling, quantity control, inspection, shipment to offsite disposal and for final disposal, as well as all records and responsibilities for solid wastes generated on-site.

2. Scope

This procedure covers non-hazardous and hazardous waste management for all onsite operating and administrative areas.

3. Responsible Parties

Environmental Coordinator – Planning of offsite waste disposal according to waste generation. Performing waste inspections weekly (as part of the Environmental Compliance Audit). Completing forms.

Plant, Operations and Maintenance Managers – Guarantee the effectiveness of onsite waste separation and at the waste storage area. Submit completed forms to the Environmental Coordinator.

O&M Crews – Daily inspection of waste bins; transportation of bins to storage areas; weighing wastes, completing Form O-EF 014.A and submitting it to the Operations Manager.

4. Forms Used

- Waste Generation Form, O-EF 014.A
- Overall Waste Storage Form, O-EF 014.B
- Offsite Waste Disposal Form, O-EF 014.C
- Operation Environmental Compliance Audit - Solid Waste, O-EF 018.D

5. References

- Environmental Compliance Audit, O-EP 018
- CONAMA 06/88
- CONAMA 09/93
- NBR 10.004/87 ABNT
- NBR 1183/88 ABNT
- NBR 12.235/92 ABNT

6. Definitions

Solid wastes are classified (NBR 10.004, ABNT) into three categories:

Class I Hazardous Waste – Wastes that present risks to human health and to the environment, requiring special treatment and final disposal, based upon their characteristics of inflammability, corrosivity, reactivity and pathogenicity.

Class II Non-Inert Waste – Wastes that do not present dangers to health or to the environment but which still have properties such as combustibility, biodegradability or solubility in water.

Class III Inert Waste – Wastes that are submitted to leaching / solubility tests and that do not present concentrations of elements higher than admissible limits.

7. Procedure

<u>Non-Hazardous Wastes</u>

Administrative (office) wastes, restroom wastes, and organic matter and wastes from the cafeteria are collected and removed from site by the Macaé Municipal Garbage Company.

<u>Hazardous Wastes – Oily Residues</u>

Designated waste bins/tanks are provided onsite for oily residues – spent lubricating oil, sludges from oil and water separation and others. These containers will be identified with a label indicating

"Oily Residues". For oil contaminated solid wastes there will also be appropriately labeled bins for the containment of the following wastes:

- gloves
- plastic
- cardboard
- paper
- filters
- rags
- metal
- plastic hoses
- PPE
- foam, etc.

Waste bins are to be kept covered with a lid at all times.

All employees are responsible for the disposal of wastes in the appropriate waste bin.

Waste bins are removed at least once a week from different locations and transferred to the onsite hazardous waste storage area. these waste bins are then emptied and returned to their locations.

Water content in the oily waste bins requires prompt action by operators, draining the container into the wastewater treatment facility.

Other Hazardous Wastes

Designated waste bins with labels are provided for the following hazardous wastes:

- Aerosols
- Chemicals
- Fluorescent lamps
- Resins
- Batteries

These wastes must be transferred to the hazardous wastes storage area as soon as they are generated.

Handling Hazardous Wastes

Operators are responsible for:

- Performing daily inspections of hazardous onsite waste bins in order to identify appropriate waste segregation and waste quantity;
- Transportation of the bins to the hazardous waste storage area;
- Weighing wastes before storage and completion of Form O-EF 014.A;
- Submitting Form O-EF 014.A to the Environmental Coordinator.

The Environmental Coordinator is responsible for:

- Planning offsite waste disposal according to waste generation (Form O-EF 014.A and Form O-EF 014.B);
- Filling out Form O-EF 014.C for offsite waste disposal;
- Performing weekly inspections of onsite waste management as part of the Environmental Compliance Audit (Form O-EF 018.D).

The hazardous waste storage area will have restricted access in order to prevent accidents or mishandling of wastes in the area. Access to the area and the handling of hazardous wastes is allowed only by qualified and fully trained employees, authorized by the HSE Supervisor.

The Environmental Coordinator is responsible for keeping updated lists of all employees authorized to handle hazardous wastes on-site.

Personal Protective Equipment (PPE) is mandatory in this area and must be worn at all times.

Final Disposal

The Environmental Coordinator is responsible for the management of wastes from the hazardous

waste accumulation area to the offsite disposal area.

According to the amount of wastes recorded in Form O-EF 014.B, the Environmental Coordinator will contact the company(ies) responsible for the shipment, treatment (or recycling, if applicable) and disposal of such wastes, as well as the schedule for waste removal from the site.

Form O-EF 014.C is to be completed by the Environmental Coordinator following every shipment of waste to the offsite disposal area, specifying the authorized shipper, treatment of waste (or recycling, if applicable) and the offsite facility used for disposal. The Environmental Coordinator must oversee the company(ies) responsible for the shipment, treatment and disposal of wastes. Importantly, written communications and/or certification attesting to the receipt of the wastes, including the date and quantity, type of treatment (if applicable) and the disposal location of such wastes, must be provided.

8. Location

Within the boundaries of the Plant and management of outsourced contractors ensuring adequate shipment, treatment and disposal, when applicable.

9. Frequency

Continuous.

10. Records of Revision

Revision Date	Description	Sections Affected

Type of Waste:

- Oily Residues ☐
- Used lubricating oils ☐
- Aerosols ☐
- Chemicals ☐
- Fluorescent lamps ☐
- Resins ☐
- Batteries ☐
- Others ☐

Weight:

Date:

Responsible:

Remarks:

Type of Waste:

- Oily Residues ☐
- Used lubricating oils ☐
- Aerosols ☐
- Chemicals ☐
- Fluorescent lamps ☐
- Resins ☐
- Batteries ☐
- Others ☐

Weight:

Date:

Responsible:

Remarks:

Type of Waste:

- Oily Residues ☐
- Used lubricating oils ☐
- Aerosols ☐
- Chemicals ☐
- Fluorescent lamps ☐
- Resins ☐
- Batteries ☐
- Others ☐

Weight:

Date:

Responsible:

Remarks:

DEVELOPED BY	REVIEWED BY	APPROVED BY

Type of Waste:

Date	Weight
Total:	

Type of Waste:

Date	Weight
Total:	

DEVELOPED BY	REVIEWED BY	APPROVED BY

Date:
Person Responsible:
Type of Waste: **Amount:**
Shipper: **Route:** **Person Responsible:** **Confirmation Received?** ☐ **YES** ☐ **NO** **If YES:** ☐ **via fax** ☐ **via certificate** ☐ **via e-mail**
Final Facility: **Treatment, if applicable:** **Person Responsible:** **Confirmation Received?** ☐ **YES** ☐ **NO** **If YES:** ☐ **via fax** ☐ **via certificate** ☐ **via e-mail**

DEVELOPED BY	REVIEWED BY	APPROVED BY

1. Purpose

Whenever the Power Plant undergoes relevant changes in its layout or in its processes, utilities or auxiliary systems, this procedure should be implemented. It has been developed for the re-evaluation of potential environmental impacts and risks, in order to implement preventive and corrective measures, as necessary, and revise the EMMP where pertinent.

2. Responsible Parties

- The Environmental Coordinator
- The Health and Safety Supervisor
- The Plant Manager

3. Forms Used

- Identification of Potential Impacts, O-EF 015.A
- Classification of Potential Impacts, O-EF 015.B

4. References

- ISO 14001:96
- Preventive and Corrective Actions, O-EP 019

5. Definitions

Situation of Impact:

- Normal Situation – all situations related to routine activities.
- Anomalous Situation – all situations related to programmed non-routine activities.
- Emergency Situation – all non-programmed situations.

Type of Impact:

- Direct - when it is caused by an action of the project;
- Indirect - when it is a consequence of another impact on the project;

Location of Impact:

- Local - spatial scope restricted;
- Disperse - when it occurs in a disseminated manner in space.

Reversibility of Impact:

- Reversible - when the environment can be restored;
- Irreversible - when the environment cannot be restored by intervention.

Nature of Impact

- Positive – when it results in an improvement in environmental quality;
- Negative – when it results in damage to or deterioration of environmental quality.

Duration of the Impact

- Temporary – when it occurs in clearly defined periods;
- Permanent – when it occurs in undetermined periods of time, which can be longer than the project's life.

Significance of Impact

- High – when the potential impact has a disperse effect, and with irreversible environmental degradation;
- Moderate – when the potential impact has a disperse effect, but is reversible with control and mitigatory measures, or when the potential impact has a local effect, but is irreversible.
- Low - when the potential impact has a local effect and is reversible with control and mitigatory measures;
- Negligible – when the potential impact cannot be measured.

Impact Significance Matrix

		REVERSIBILITY	
		reversible	irreversible
LOCATION	Local	**LOW**	**MODERATE**
	Disperse	**MODERATE**	**HIGH**

Frequency of the Impact

- High – when the effect occurs during normal situations;
- Moderate – when the effect occurs during anomalous situations;
- Low – when the effect occurs during emergency situations;
- Negligible – when the occurrence of the effect is almost not possible.

Conclusive Index - is the index obtained from crossing the results of the MATRIX OF IMPORTANCE OF THE IMPACTS, Significance X Frequency

- I – High risk of an impact occurring, high importance.
- II – Moderate risk of an impact occurring, moderate importance.
- III – Low risk of an impact occurring, low importance.
- IV – Negligible risk of an impact occurring, very low importance

Key – Conclusive Index

I	II	III	IV

Example of Matrix of Importance of the Impacts

		FREQUENCY			
		negligible	low	moderate	High
SIGNIFICANCE	high				
	moderate				
	low				
	negligible				

DEVELOPED BY	REVIEWED BY	APPROVED BY

6. Procedure

The Environmental Coordinator / HSE Supervisor are responsible for analyzing potential impacts and risks originating from changes in processes, in operating procedures or equipment. In the event that startups and shutdowns and programmed maintenance involve relevant impacts not analyzed to date, these should also be subject to the same analysis.

The Environmental Coordinator / HSE Supervisor are also responsible for performing an inspection of the plant at least once a year, with the purpose of re-evaluating all potential impacts and risks.

During the inspection, Form O-EF 015.A will be completed as follows:

- Identify the Operational Unit.
- Identify whether the approach areas are applicable or not.
- When the approach area is applicable, evaluate whether the aspects and potential impacts are applicable or not.
- When aspects/potential impacts are applicable, list them on Form O-EF 015.B.
- Proceed with classification of the Potential Impact, according to the previous definitions, and measure the Conclusive Index (CI).
- When the Conclusive Index found is I, II or III, it is mandatory to open a Preventive Action Request (PAR), Form O-EF 019.B. Maintenance of equipment and quality controls must be considered.
- When the Conclusive Index found is IV, no measures need to be taken.

When CI = I, a new inspection will be performed the following week in order to review the Conclusive Index.

7. Records

The Environmental Coordinator is responsible for keeping all records mentioned in this procedure.

8. Record of Revision

Revision date	Description	Sections Affected

Operation Unit:	Date:
Person Responsible:	

Change causing need for impact re-evaluation	*Environmental Aspect*	*Potential Impact*	*A*	*N/A*
	Sanitary Effluents	Indicate parameters that may be altered in receptor body or underground waters		
	Industrial Liquid Effluents	Indicate parameters that may be altered in receptor body or underground waters		
	Solid wastes	Describe quantity and types of new solid wastes that are generated		
	Atmospheric Emissions	Indicate parameters that may be altered and air quality impact modeling results		
	Noise	Indicate new ambient noise conditions and simulated fence-line results		
	Other	Describe expected impact		

CLASSIFICATION OF POTENTIAL IMPACTS

Key:

Situation:

- N – Normal
- A – Anomalous
- E – Emergency

Location

- L – Local
- D – Dispersed

Reversibility

- R – Reversible
- I – Irreversible

Significance

- Ne - Negligible
- Lo – Low
- Mo – Moderate
- Hi - High

Impact Significance Matrix

		REVERSIBILITY	
		reversible	irreversible
LOCATION	Local	**LOW**	**MODERATE**
	Dispersed	**MODERATE**	**HIGH**

Frequency

- Ne - Negligible
- Lo – Low
- Mo – Moderate
- Hi - High

Matrix of Importance of the Impacts

		FREQUENCY			
		negligible	low	moderate	High
SIGNIFICANCE	high				
	moderate				
	low				
	negligible				

Conclusive Index:

I	II	III	IV

Environmental Aspects	Potential Impact	Classification					
		Situation	Location	Reversibility	Significance	Frequency	Conclusive Index

DEVELOPED BY	REVIEWED BY	APPROVED BY