

# EMS REPORT

**BAHAMAS ELECTRICITY CORPORATION**  
**ENVIRONMENTAL MANAGEMENT SYSTEM**

**FINAL REPORT**



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# ENVIRONMENTAL MANAGEMENT SYSTEM

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# ENVIRONMENTAL MANAGEMENT SYSTEM

## EXECUTIVE SUMMARY

The document outlines Bahamas Electricity Corporations (BEC) Initial Environmental Management System (EMS), with the major aim being to demonstrate compliance with the Corporate Environmental Policy.

Within this system, we have identified a number of procedures and for each procedure, we have outlined the necessary environmental management instruction required to implement that procedure.

The procedures with this EMS have been divided into the following categories:

- Operational activities
- Non-operational activities
- External activities

In addition, environmental management instructions are also presented for an annual review. We have also included Terms of Reference for an external audit in order to verify BEC's Environmental Performance against targets.

# BAHAMAS ELECTRICITY CORPORATION

## ENVIRONMENTAL MANAGEMENT INSTRUCTION

### OP4: FUEL DELIVERY AND STORAGE RECORDS

#### Fuel Delivery and Storage Records

Records will be kept detailing quantities of fuel, quality analysis (including occasional independent checks), date of delivery and storage tank used for all fuel deliveries.

#### Areas of Application

Fuel delivery and storage records will be kept at all operational sites as a first stage of the fuel inventory. The record will be as per the attached pro-forma and will be signed off both by a site-representative of BEC and the fuel supplier. Random heavy fuel oil samples will also be taken for analysis for calorific value, sulphur, ash, asphaltenes and compatibility. Five samples will be taken each year for New Providence and at least one sample per year for each Family Island.

#### Responsibility

It will be the Fuel and Performance manager's responsibility to ensure that the records are properly kept and each fuel analysis copied to the Safety and Environment Manager. The Environment Protection Office will inspect the site records on a regular basis, annually for New Providence and every 3 years on the Family Islands.

The Fuel and Performance Manager will be responsible for ensuring the fuel samples are taken of the "as delivered" fuel, and sent away for analysis. The results will be copied to the Environmental Protection Office.

*samples for HGLs Kjustre ac*

## FUEL DELIVERY RECORDS

DATE	:	
LOCATION	:	
FUEL TYPE	:	TONS
QUANTITY DELIVERED	:	
QUANTITY VERIFIED	:	Y/N
SUPPLIER	:	
QUALITY CERTIFICATE SUPPLIED	:	Y/N
COPY SENT TO S&E MANAGER	:	Y/N
FUEL WITHIN SPECIFICATION	:	Y/N
SPILLAGES	:	Y/N
IF YES THEN STATE APPROXIMATE QUANTITIES	:	US GALLONS
STORAGE TANK USED	:	

Signed  
Site Engineer:

Site Manager:

Date:

Fuel Supplier:

*not fuel found in N. Providence*

# BAHAMAS ELECTRICITY CORPORATION

## ENVIRONMENTAL MANAGEMENT INSTRUCTION

### OP5: FUEL INVENTORY

#### Fuel Inventory

The fuel inventory will be designed to ensure that the total fuel delivered, transferred to day tanks and burnt in the electricity generating units balances to check that no fuel has been "lost" through leakages. This will properly document fuel usage and create an audit trail.

#### Area of Application

A Fuel Inventory will apply to all stations burning fuel but will be more complex for the plant on New Providence where it is anticipated that the following will be recorded by meters placed at the appropriate points:

- (1) Quantity of fuel delivered to bulk storage (both HFO and ADO).
- (2) Quantity of HFO fuel sent to Clifton Pier day tank.
- (3) Quantity of HFO consumed in Clifton Pier engines (accounting for HFO treatment)
- (4) Quantity of ADO consumed in Clifton Pier PS and incinerator
- (5) Quantity of ADO sent to Blue Hills PS
- (6) Quantity of ADO received at Blue Hills PS
- (7) Quantity of ADO consumed at Blue Hills PS
- (8) Tank level indication at both sites
- (9) Records of meter maintenance and calibration checks.

By using the above data, a mass balance of fuel delivered and consumed will be established and enable BEC to monitor for any loss on a weekly basis. For the Family Islands stations where there are generally no underground pipelines the quantity of fuel delivered and consumed in each station will be recorded and logged on a monthly basis.

#### Responsibility

The Station Manager and the Fuels and Performance Manager will be responsible for ensuring that the fuel delivered balances with the fuel consumed and the reports copied to the Environmental Protection Office and the Fuels and Performance Manager. Any disparities will be immediately documented and an action plan developed by the Fuels and Performance Manager to rectify any problem identified.



## **Frequency of Reporting**

The Manager, Fuels and Purchasing, will produce an annual report which will be copied to the Environment Protection Office.

## OP6: GENERAL WASTE DISPOSAL

## WASTE SHIPMENT AND DISPOSAL NOTE

Note Number	:	Site/Operator/Number
Waste Type (general office, general construction, general metal, others)	:	
Quantity (tons)	:	
Container Type	:	
Date collected	:	
Date taken off-site	:	
Transport Operator	:	
Disposal Site	:	
Quantity Received at Landfill (tons)	:	
BEC Authorisation		

**BAHAMAS ELECTRICITY CORPORATION**  
**ENVIRONMENTAL MANAGEMENT INSTRUCTION**  
**OP7: WASTE OIL PRODUCTION RECORDS**

used

### **Waste Oil**

Waste oil is any oil product, fuel, lubricating or transformer, which is no longer required and is likely to have been contaminated during normal use. Different oils will require different disposal methods and/or treatment/recycling. Records will be made of waste oil quantities produced and the disposal route expected to be used.

### **Areas of Application**

There are three distinct areas where waste oil production records are required. These are:

- (a) Fuel oil sludge from HFO treatment
- (b) Lubricating oil
- (c) Transformer oil.

HFO sludge is only produced at Clifton Pier PS and is incinerated. Lubricating oil is collected, stored in drums on site and some incinerated at Clifton Pier PS. Transformer oil is collected, stored and some is recycled where possible and is covered in another procedure. On New Providence the option for incineration is more readily available through the incinerator at Clifton Pier PS.

For each type of waste oil, records should be made as per the attached proforma which shows the type, quantity and origin of the waste oil. This will also record the expected disposal route or storage location for the waste oil.

### **Responsibility**

It will be the responsibility of the Site Manager to ensure that the waste oil production and disposal/storage records are maintained up to date. The Safety and Environment Manager will ensure that the records are checked on a regular basis.

### **Frequency**

Storage records will be reviewed on a monthly basis to ensure that the storage drums have maintained their integrity and that all drums are clearly labelled and logged. The records will be checked by the Environment Protection Office on a six monthly basis on New Providence and ever 2-3 years on the Family Islands.

# **BAHAMAS ELECTRICITY CORPORATION**

## **ENVIRONMENTAL MANAGEMENT INSTRUCTION**

### **OP11: SITE HOUSEKEEPING**

#### **Site Housekeeping**

This refers to general site tidiness and waste control as well as the general site appearance. It is not clearly defined but is a subjective area. However, good site housekeeping can be used as an indicator of environmental and safety awareness.

#### **Areas of Application**

All sites run by BEC both operational, decommissioned and administrative should have good housekeeping which can only be monitored by an independent party. The Environmental Protection Office will, therefore, carry out a site housekeeping audit including the use of photographic evidence on a regular basis, e.g. every time a site is visited. The report, including any recommended remedial work, will be sent to the Manager responsible for the site.

#### **Responsibilities**

The Manager responsible for the site will also be responsible for good site housekeeping and implementing any agreed recommendations made during site visits by the Environmental Protection Office.

#### **Frequency of Environmental Protection Office Site Visits**

##### **New Providence:**

At least twice each year, CPPS & BHPS will have a formal site housekeeping audit. Big Pond and Soldier Road will be once each year.

##### **Family Islands:**

Each site to be audited at least every two years.

# BAHAMAS ELECTRICITY CORPORATION

## ENVIRONMENTAL MANAGEMENT INSTRUCTION

### OP14: GENERAL WASTE OIL DISPOSAL PROCEDURES

#### Waste Oil Disposal

Any waste oil produced by BEC is likely to be disposed of by incineration or recycling and requires a procedure to log the method used.

#### Areas of Application

Waste oil disposal will apply to all waste oil logged under procedure "Waste Oil Production Records" which will have a unique identity. This procedure will record the fate of each drum of waste oil and whether it is incinerated, recycled ~~(or disposed of to landfill)~~. These data will be recorded by the Site Manager of Distribution Manager and copied to the Environment Protection Office who will be required to ensure disposal procedures are adhered to.

#### Responsibility

It will be the responsibility of the Site Manager to ensure that waste oil disposal sheets are correctly completed by an engineer and that these are copied to the Environment Protection Office.

#### Frequency

The log sheets should be completed as and when individual drums of waste oil are disposed of. For Clifton Pier the volume of HFO sludge incinerated will be recorded on a weekly basis. The Safety and Environment Manager will ensure log sheets are completed and are consistent with the waste oil production sheets on a monthly basis.

# WASTE OIL DISPOSAL LOG SHEET

Waste Oil Number:

Oil Type and Quantity:

Location:

Date of Disposal:

Disposal Method:

Transport used  
(including Company):

Verified:

Copy: Safety and Environment Manager

# BAHAMAS ELECTRICITY CORPORATION

## ENVIRONMENTAL MANAGEMENT INSTRUCTION

### OP15: CONTROL OF CHEMICALS

#### Chemicals

This system relates to the control of chemicals on site. The procurement of chemicals with minimum environmental impact is covered by Instruction "Procurement Guidelines".

#### Area of Application

The main area where chemicals must be controlled is on operational sites, particularly where significant quantities of water treatment chemicals are used. However, it also applies to cleaning fluids used in office buildings which can also have some environmental impact. Each Site Manager will ensure that the following are carried out to minimise the risk of any safety and environmental problem:

- ensure all chemicals are properly labelled and that a hazard data sheet is available and hazard warning sign displayed
- have a designated labelled storage area appropriate to the chemical and quantity kept, i.e. hard standing
- provide all personnel who handle the chemical with proper training and safety equipment if necessary
- record the data and quantity of each chemical delivered to site and where it has been stored and give it a serial number
- record the date when each chemical and container is first used
- provide a contingency plan for clean-up in the event of a spillage
- provide a proper disposal route where required (this may be dilution in the cooling water outfall).

These data should be kept in a chemicals log book with responsibility for maintaining it up to date at all times with the individual using the chemical.



## **Responsibility**

The Site Manager will be responsible for ensuring that staff record the appropriate information in respect of chemicals. The Environment Protection Office will audit the log system on an annual basis in New Providence and every two to three years in the Family Islands.

**BAHAMAS ELECTRICITY CORPORATION**  
**ENVIRONMENTAL MANAGEMENT INSTRUCTION**  
**OP16: ENVIRONMENTAL INCIDENT REPORTING**

**Environmental Incident**

An environmental incident is a non-routine plant operation which results in a release to the environment (air, water and land) of a potentially harmful substance.

**Areas of Application**

This instruction applies to all operational sites on New Providence and the Family Islands. The incident log will be maintained for a minimum of 20 years. Typical examples which will probably require an incidental report are:

- Emissions exceeding design or normal levels
- Fuel spillage
- Oil spillage, eg. lubricant or transformer oil
- Chemicals spillage
- Excessive smoke emissions/particulate fallout
- Noise nuisance
- Pipeline leakage
- Water contamination.

**Responsibility**

It will be the responsibility of the Site Manager to delegate responsibility for recording all environmental incidents, probably to the shift charge engineer. Each incident report will be signed off by both the site manager and subsequently the Safety and Environment Manager within 3 days of the incident occurring. The latter will decide whether there will be any need to review any other procedures as a result of the incident.

## ENVIRONMENTAL INCIDENT REPORT

Location:

Date/time:

Nature of Incident:

Substances Released:

Duration of incident:

Quantity of substances released:

Remedial action taken:

Further action required:

Remedial Action Completion Date:

Similar Occurrences in last 2 years:

Signed off:

Responsible Engineer

Site Manager

Safety and Environment Manager