Environmental Management System Manual

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Written By:	Chuck Barnes	Revision Number: 6
Approved By:	Robert L. Greene P.E.	Date:9/6/2010
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PURPOSE AND APPLICABILITY

This Environmental Management System (EMS) manual is the top-level environmental planning and compliance document for Hopewell Cogeneration Facility. The EMS manual is maintained by the Technical Support Supervisor. Other Hopewell Cogeneration Facility planning documents have been organized within the framework of the EMS manual, and are part of the overall Hopewell Cogeneration Facility] Environmental Management System.

The EMS Manual describes the core elements of the EMS. The purpose of the EMS Manual is to define the basic components of EMS, provide a framework for their implementation, and to provide direction to the relevant documentation (such as plans, SOPs, and guidance). It is not the purpose of this EMS Manual to fully document all of the environmental controls in the EMS.

The EMS Standard is a continuous feedback management model. Key elements of the standard are:

- Environmental Policy
- Planning
- Implementation and Operation
- Checking and Corrective Action
- Management Review
- Continual Improvement

This EMS manual is to be used as a basis for self-determination and self-declaration of general conformance with the company environmental policy.

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Acronyms

Acronym	Definition
ACC	American Chemistry Council
ACM	Asbestos-Containing Material
ANSI	American National Standards Institute
API	American Petroleum Institute
AST	Aboveground Storage Tank
BMP	Best Management Practice
CAA	Clean Air Act
CED	Commission for Environmental Cooperation
CEM	Continuous Emissions Monitoring
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CERES	Coalition for Environmentally Responsible Economies
CFC	Chlorofluorocarbons
CFR	Code of Federal Regulations
CMA	Chemical Manufactures Association
CT	Combustion Turbine
CWA	Clean Water Act
DEQ	Department of Environmental Quality
DFE	Designed For the Environment
DOT	Department of Transportation
EHS	Environmental Health & Safety
EMF	Electromotive Force
EMS	Environmental Management System
EPA	Environmental Protection Agency
EPCRA	Emergency Planning and Community Right-to-Know Act
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
GT	Gas Turbine
HAZMAT	Hazardous Material

Acronym	Definition
HCF	Hopewell Cogeneration Facility
HM	Hazardous Material
HMTA	Hazardous Material Transport Act
HS	Hazardous Substance
HW	Hazardous Waste
ICC	International Chamber of Commerce
IH	Industrial Hygiene
ISO	The International Organization for Standardization
ITI	Industrial Technology Institute
MEP	Manufacturing Extension Partnership
MSDS	Material Safety Data Sheet
NPDES	National Pollutant Discharge Elimination System
ODS	Ozone Depleting Substances
OSHA	Occupational Safety and Health Administration
P2	Pollution Prevention
PCB	Polychlorinated Biphenyl
PPE	Personal Protective Equipment
QMS	Quality Management System
RCRA	Resource Conservation and Recovery Act
RQ	Reportable Quantity for a Release for TRI Reporting
SBA	Small Business Administration
SARA	Superfund Amendment & Reauthorization Act of 1986
SEGNA	Suez Energy Generation NA
SIC	Standard Industrial Classification
SOP	Standard Operating Procedure
SPCC	Spill Prevention, Control, and Countermeasures
SPSG	Special Process Steam Generator (Auxiliary Boiler)
ST	Steam Turbine
TAG	Technical Advisory Group
TC	Technical Committee
TQM	Total Quality Management
TSCA	Toxic Substance Control Act
UST	Underground Storage Tank
VOC	Volatile Organic Compounds
VPDES	Virginia Pollutant Discharge Elimination System

SECTION 1 – INTRODUCTION

This Environmental Management System (EMS) Manual was prepared by the Hopewell Cogeneration Facility (HCF) Technical Support Supervisor. This EMS manual is based on January 2004 ISO training and associated documents, as well as the results of prior environmental compliance evaluations and internal appraisals. The EMS Manual will be used as a basis for self-determination and self-declaration of conformance with the company environmental policy.

This EMS manual is to be used as a basis for self-determination and self-declaration of general conformance with the company environmental policy.

Application: Why is Hopewell Cogeneration Facility investing in EMS?

1. Competitive Advantage: An EMS is increasingly being adopted as an internationally accepted approach to environment management and protection. The likelihood is that companies in industry sectors that create significant environmental impacts, and that operate in the international arena will eventually be required to have an EMS based on the ISO 14001 Standard. Industry sectors that are currently facing increased customer requirements for EMS include chemical and utilities. These include HCF's steam host Aqualon Chemical Company and Dominion Power HCF's host utility.

2. Improved Compliance: It has been found by many industries the importance of having a strong EMS in order to be sure that they stay in compliance with Federal, State, and Local environmental regulations. This is especially important when failure to comply could subject the owner/operator to substantial personal liability, as well as jeopardize the survival of the business. A strong compliance assurance system as evidenced by an EMS can go a long way towards establishing the company's "due diligence".

This improves the company's position with respect to negotiating regulatory settlements, and in defending itself in court.

3. Cost Savings: The reason that many companies are interested in EMS is that they recognize that they have opportunities for reducing waste in their operations. Putting an EMS in place gives them the management structures (programs, plans, communication, training, procedures and practices) necessary to actually realize the savings, and to track them over time.

4. Improve Communications: A hidden benefit found by many industries is the degree to which their overall operations improved simply by the fact that they involved their employees in the EMS. This also can pay side dividends in terms of employee job satisfaction, increased retention, and improved labor relations.

1.1 Hopewell Cogeneration Facility OPERATIONS
Reference: HCF A-18 Process Flow Diagram

Hopewell Cogeneration Facility is a 356 MW cogenerator that sells electrical power through a power purchase agreement with Dominion Virginia Power, and steam to Aqualon Chemical Company, a division of Hercules Inc. In support of these operations, the plant has two 180 Kpph auxiliary boilers to supply steam when the Gas Turbines are not in operation. The plant has black start capability from two 1.5 MW diesels. The plant has its own water treatment plant which is an ion exchange capable of 1600 GPM maximum delivery of both trains in tandem operation. The plant can run on Natural Gas or #2 Diesel Fuel. To feed the three Gas Turbines there are three 1.25 Million Gallon Fuel tank on site. The near 6 aches also house a five cell cooling tower, a NPDES outfall area, a two bay fuel unloading area, and skids for water/steam analysis and CEM equipment. The exhausts from the Gas Turbines are filtered through heat recovery steam generators (HRSG) or waste heat boiler. The resulting steam is expanded through a Steam Turbine to produce electrical power, and part of the steam is extracted for use in NOx control and to supply the steam host. Water is provided by the local water company, Virginia American Water. Discharges are to the James River, which is about one mile away. These discharges, except for sanitary waste which goes to the Hopewell Regional Waste Water Treatment Center, are all through permitted outfalls.

Environmentally, the plant is on the edge of Hopewell with most all of the other industry of the area. There are wet lands to the East, and Bald Eagles in the area. There are a number of historical sites on the opposite side of town. The Town itself sets on the James River some 30 miles south of Richmond. The Town is bounded on the West by the Appomattox River, yet the town is not in a flood plane. Despite the heavy concentration of industry the area is not in a non-attainment area. The Plant is under NOx SIP but not under Acid Rain. The plant stores two major chemicals, Sulfuric Acid and Caustic, both are diked and contained within a building. There are no gases on site that are above TRI RQ reporting limits, except if one of the large air conditioning unit looses all of its charge. The large amount of fuel and oil on site are a potential hazard if not managed properly. The plant has and continues to take measures to eliminate the possibility of a release.

1.2 ENVIRONMENTAL PROGRAMS ORGANIZATION

Reference: ANSIISO 14001-2004 4.1

The Environmental Officer is the Plant Manager. The Technical Support Supervisor is the Designated Representative and acts as the EMS Manager to supported the Plant Manager. The EMS Manager is responsible for the preparation, implementation, management, and maintenance of the EMS. Additionally, through awareness training, Hopewell Cogeneration Facility emphasizes with personnel that environmental compliance is the responsibility of all employees.

1.3 ROLES AND RESPONSIBILITIES

Reference: ANSIISO 14001-2004 4.4.1

Environmental stewardship and compliance are the responsibility of all employees and cannot be accomplished without everyone's effort. The following personnel will have specific environmental management responsibilities under the EMS:

1.3.1 Vice-President/Project Director

The Project Director is responsible for establishing the overall direction of the environmental program. This is done in consultation with the President of Suez Energy Generation NA (SEGNA) and SEGNA environmental staff regarding environmental policies and procedures.

1.3.2 Plant Manager

The Plant Manager is the Environmental Officer for the plant and has the authority to make environmental decisions and to certify compliance with facility permits. The Plant Manager is the liaison between the plant and SEGNA. Through the budget process the Plant Manager makes sure there is budgetary support for the environmental objectives. The Plant Manager also schedules plant meetings were environmental topics and objective progress can be discussed. The Plant Manager assigns the responsible person and supports that assignment with moral and budgeting.

1.3.3 Technical Support Supervisor

The Technical Support Supervisor (TSS) is the designated "responsible person" for environmental programs and is responsible for ensuring that all required environmental permits are applied for and maintained, and that pollution is prevented or minimized. Along with the Plant Manager the TSS is the chairman of the Environmental Committee. The TSS is primarily responsible for monitoring technical and regulatory developments, environmental planning and permitting, auditing environmental programs and compliance, developing training programs, and monitoring overall EMS compliance.

The TSS reports to both the Environmental Officer (Plant Manager) and next level upward (Vice President-Project Director) with respect to EMS implementation and compliance.

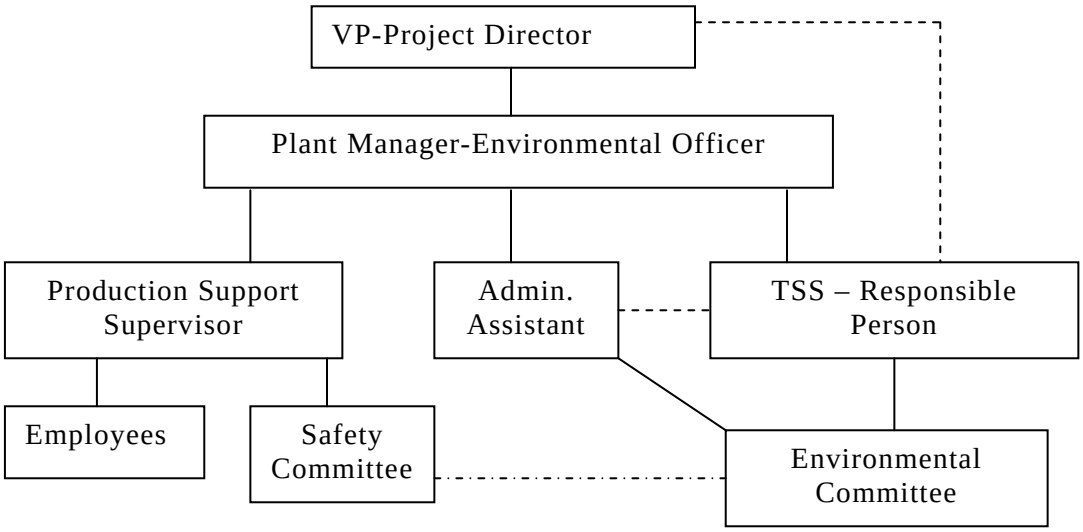
1.3.4 Environmental Committee
Reference: HCF Procedure E-16 Environmental Committee

The Environmental Committee is comprised of a Senior I&C Technician, Senior Electrician, Administrative Assistant, and two shift personnel. Both the Safety Committee and the Environmental Committee support each other in training and other common areas.

1.3.5 Employees

The employees have the responsibility to carry out the day-to-day environmental management activities through their operation and maintenance duties. Every employee is responsible for cooperating with all aspects of the environmental program – including compliance with all rules, regulations and procedures.

Environmental Program Reporting Hierarchy



Primary Jobs/Job titles: the names of each of these positions can be found in Appendix 1

Project Director:
Plant Manager is the Environmental Officer:
TSS is the Responsible Person
Administrative Assistant is on the Environmental Committee
Senior I&C Technician is on the Environmental Committee
Senior Electrician is on the Environmental Committee
Production Support Supervisor

SECTION 2 – SCOPE OF ENVIRONMENTAL MANAGEMENT SYSTEM

This manual defines the principal requirements of the Hopewell Cogeneration Facility EMS. Its purpose is to briefly describe the elements of the implemented environmental systems that demonstrate compliance with regulatory requirements and to list appropriate references.

2.1 THE HOPEWELL COGENERATION FACILITY EMS MANUAL

The EMS Manual for Hopewell Cogeneration Facility provides guidance for environmental management in order to ensure that all areas of operations comply with planned arrangements. The manual is reviewed at least annually to ensure the adequacy of its contents and to promote continual improvement.

The Technical Support Supervisor has responsibility as the EMS Manual Coordinator. He is responsible for all revisions to the manual and for managing internal and external distribution, as necessary. At all times, a hard copy will be retained by the Technical Support Supervisor. Other employees will be able to view the manual upon request, although distribution may be limited to ensure only the most current revision is in use (see Section 4.3.6 for further discussion on Document Control).

The EMS Manual describes the core elements of the EMS and their interrelationships. It is not the purpose of the EMS Manual to fully document all of the environmental controls in the EMS. The purpose of the EMS Manual is to describe briefly the basic components of the EMS, provide a framework for implementation, and to provide direction to the relevant documentation (such as plans, SOPs, and guidance).

2.2 Elements of EMS Manual
Reference: ANSIISO 14001-2004 4.1
Reference: HCF A-14 Company Environmental Policy

The creation and implementation of the Hopewell Cogeneration Facility EMS is required by the parent corporation, Suez Energy Generation NA. The EMS is a self-correcting

system that will help ensure that Hopewell Cogeneration Facility is in compliance with environmental regulations at all times. The EMS contains five elements.

1. **Policy.** The development of an Environmental Policy. This should be consistent with the corporate environmental policy, but may be modified to address local or regional issues.

2. **Planning.** The planning step consists of identifying regulatory and other requirements; identifying processes, resources, and significant impacts; identifying pollution prevention opportunities; developing objectives and targets; and creating a planning, programming, and budgeting system.

3. **Implementation.** The implementation of the structure, responsibilities, and programs; and training. Creating the EMS documentation (including recordkeeping); communicating the EMS to personnel; and implementing emergency preparedness and response procedures.

4. **Documentation.** The documentation will consist of plant parameters updated at least quarterly. Targets and Objectives updated quarterly. All training will be documented within the EMS system, and all procedures will be available in the system as well as binders.

5. **Checking and Correction.** The checking and corrective action step includes monitoring and measuring (internal assessments), problem and cause identification, corrective and preventative action implementation, and an EMS Review.

6. **Management Review.** In the management review step, upper management will review the EMS, including the results of internal assessments. Modifications to the EMS will be made, as necessary, to ensure compliance. Taking into account the results of checking and corrective action, the management review is designed to ensure continual improvement of the EMS.

SECTION 3 – DEFINITIONS

The EMS Standard defines a number of terms that are useful for effective implementation of the standard and for communication concerning the standard. The definitions are provided below.

Environmental Aspect – An element of an organization's activities, products, or services that can interact with the environment.

Environmental Impact - Any change to the environment, whether adverse or beneficial, wholly or partially resulting from an organization's activities, products, or services.

Environmental Management System - That part of the overall management system which includes organizational structure, planning activities, responsibilities, practices, procedures, processes and resources for developing, implementing, achieving, reviewing and maintaining the environmental policy.

Environmental Objective – An overall environmental goal arising from an organization's environmental policy. Objectives should be quantifiable where practicable.

Environmental Target - A detailed performance requirement that is quantified where practicable and that arises from the environmental objectives. Targets must be set and then met for the objectives to be achieved.

Interested Party – An individual or group concerned with or affected by the environmental performance of an organization. These can include regulators, local residents, facility personnel, customers, environmental groups, and the general public.

Significant Environmental Aspect - An environmental aspect that has or could have a significant environmental impact.

Discrepancy – A deficiency that would not result in a Notice of Violation or other enforcement action under EPA regulations. Discrepancies are normally a result of poor management practices.

External Assessment – A systematic, documented, objective, and periodic review of the installation's environmental management system that may include compliance reviews of selected program areas, conducted by designated persons from outside the organization. Corporate audit procedures define the frequency of audits that may be conducted by a SEGNA or a non-SEGNA (e.g. - contractor or regulator) individual.

Finding - A deficiency that could result in a Notice of Violation (NOV) or other enforcement action under EPA or state regulations or facility permits. Findings are normally a result of non-compliance with applicable orders, directives, or regulatory/permit requirements.

Internal Assessment – A systematic, documented, objective, and comprehensive environmental compliance review of installation processes, facilities, and practices conducted by Trigen personnel or their designees.

Non-conformance – An EMS failure (such as the inability to prevent a release) or a shortcoming (such as missing a procedure or Audit discrepancy).

Process Hazard Analyses - Used to identify and assess potential impacts associated with unplanned releases of hazardous materials. Methodology in common use due to OSHA Process Safety Management regulations. Typically employs team approach to identify and rank hazards.

Process Mapping - Used to identify material introduced into a process and the resulting emissions from the process and where these emissions are sent.

SECTION 4 – ENVIRONMENTAL MANAGEMENT SYSTEM REQUIREMENTS
Reference: ANSIISO 14001-2004 Sec. 4

The Environmental Management System requirements provide a detailed series of sequential actions that, when taken, result in the successful implementation of the EMS. The EMS requirements are described in six sections as follows:

Section	Section Title
4.1	General Requirements
4.2	Environmental Policy
4.3	Planning
4.4	Implementation and Operation
4.5	Checking and Corrective Action
4.6	Management Review

SECTION 4.1 – GENERAL REQUIRMENTS
Reference: ANSIISO 14001-2004 4.1

Hopewell Cogeneration Facility must establish, document, implement, maintain and continually improve the Environmental Management System. This will be done by:

- Reviewing Checklist and Procedures annually and documenting it in the Revision/review section.
- Audits and the annual Management Review will reflect progress, and all will be documented in the Non-Compliance Register.

- Training and good communications coupled with success with Targets and Objectives will keep up interest.

SECTION 4.2 – ENVIRONMENTAL POLICY
Reference: ANSIISO 14001-2004 4.2
Reference: HCF A-14 Environmental Policy

Environmental protection and compliance are the responsibility of all Hopewell Cogeneration Facility personnel. The Corporation policy can be found in Appendix 2.

SECTION 4.3 – PLANNING
Reference: ANSIISO 14001-2004 4.3

Planning the EMS includes four principal sub-requirements:
1. Environmental Aspects and Impacts
2. Internal Performance Criteria
3. Legal and Other Requirements
4. Objectives and Targets
5. Environmental Compliance Areas

4.3.1 ENVIRONMENTAL ASPECTS
Reference: ANSIISO 14001-2004 4.3.1
Reference: HCF A-13 Environmental Aspects and Impacts

Hopewell Cogeneration Facility identifies environmental aspects of facility processes and activities that could significantly impact the environment, in order to establish best management practices (BMP), and set environmental objectives. Forms are used to record environmental aspects and impacts (See Appendix 3). Potential environmental impacts are assessed for severity and frequency. The Aspects and impacts will be reviewed/reevaluated every year to insure proper direction of the program.

When evaluating/reevaluating/reviewing aspects and Impacts HCF procedure A-13 will be used. For significant aspects and Impacts, the minimum score for significant will be adjusted to retain from 10 to 15% of the total number of aspects.

4.3.2 INTERNAL PERFORMANCE CRITERIA
Reference: HCF A-19 Air Management Program
Reference: HCF A-20 Water Management Program

Reference: HCF A-21 Waste Management Program
Reference: HCF A-22 Chemical Management Program
Reference: HCF A-23 Oil Management Program
Reference: Suez Health, Environmental, and Safety Report

Because Hopewell Cogeneration Facility operates in a heavily regulated environment, the existing externally driven criteria are deemed adequate to evaluate environmental performance. Internal performance criteria may be developed to measure non-regulated values (e.g. - efficiency) on an as-needed basis. Alstom efficiency system has been installed and is in the process of being commissioned. Once in place this will set the standard for efficiency. Areas of performance which are tracked are as follows:

AREA OF PERFORMANCE	SUBSTANCE TRACKED	WHAT SYSTEM TRACKS THE SUBSTANCE
AIR EMISSIONS	NOX AND OMEGA	CEM'S AND PLANT CONTROL SYSTEM
WATER CONSERVATION	WATER USE	GALLONS PER CAPACITY OF THE PLANT

In addition to the parameters such as waste management will be monitored to see if there is an impact. These parameters will be recycling, total waste generated, and any suggestions to reduce waste. There is an annual report "Suez Health, Environmental, and Safety Report" that looks at all of these performance indicators at the corporate level.

4.3.3 LEGAL AND OTHER REQUIREMENTS
Reference: ANSIISO 14001-2004 4.3.2

The environmental legal and regulatory framework under which Hopewell Cogeneration Facility operates is comprised principally of the USEPA and Virginia DEQ environmental regulations and internal guidance, plans, and instructions. This also takes into account Hopewell city regulations, and contracts with Dominion Virginia Power and Aqualon Chemical Company. Due to the large amount of fuel on site, the Department of Energy and State Fuel tax authorities have legal implications. These Legal requirements will be reviewed every year during the management review or as permits are renewed and as regulations are changed.
Principal Regulations and Guidance Include:

- Report of Legal and Other Requirements (Appendix 6)

Operating requirements are also contained in facility-specific permits and plans, which are described in Section 5. In addition updates and related news letters are used to maintain the legal requirements:

Name of Material	Material received from	Period	Related legal area
Compliance Focus	J.J. Keller	Monthly	All Areas
Aegis New bulletins	Aegis Environmental	As Required	All Environmental Areas
Trinity New Bulletins	Trinity Environmental	As Required	All Environmental Areas
Hazardous Waste Guide	J.J. Keller	Quarterly	Waste Management
Local Environmental Managers meeting	Meeting of all environmental Managers in Hopewell	Monthly	All Environmental Areas
Local LEPC	All Safety and Environmental Managers in Hopewell	Monthly	All Areas
Environmental Conference Calls	All Environmental Managers in the Gas Plants for Suez	At least every other Month	All Environmental Areas
Virginia DEQ Information	DEQ E3 Program	As items are come up	All Environmental Areas

4.3.4 ENVIRONMENTAL OBJECTIVES, TARGETS, AND PROGRAMS

Reference: ANSIISO 14001-2004 4.3.3
Reference: HCF A-07 Environmental Objectives and Targets

Hopewell Cogeneration Facility will formalize its environmental objectives and targets on a yearly basis and maintain documentation of the set objectives and targets in the EMS Computer Program and will be available in the Environmental and Safety Office.

4.3.4.1 Environmental Objectives

The Hopewell Cogeneration Facility environmental policy, described in Section 4.2, was reviewed to develop the following company objectives:

- Meet all environmental standards set in our certificates, permits, corporate objectives, or applicable regulations and wherever possible, we will strive to exceed those applicable standards.

- Implement programs and procedures to ensure compliance, conduct periodic audits to measure our success, address findings expeditiously and identify opportunities for continual improvement.

- Promote environmental awareness and maintain open communications with the community and employees concerning the environmental impact of our facility.

- Effectively communicate the intent of this policy to all employees, customers, visitors, regulators, community and suppliers through Company wide education and training Programs.

- Set objectives and consistently meet targets to prevent pollution and enhance positive impacts on the environment.

- Strive to reduce the environmental impact of our operations in accordance with the concept of sustainable development.

- Maintain a zero tolerance for environmental impairment in all we say and do. Our environmental outlook is global and our actions local.

4.3.4.2 Environmental Targets

Environmental targets are set by Hopewell Cogeneration Facility on an annual basis, or more frequently if needed, to achieve the environmental objectives described above. Those targets affected by changes in environmental objectives or changes in facility operations are also revised as needed. New targets are created as changes in facility operations or conditions mandate the creation of new environmental objectives or the modification of existing objectives. Certain targets, once met, may no longer be appropriate for achieving existing objectives and therefore can be eliminated.

Environmental targets are documented in the EMS Computer Program and in individual plans and instructions. A summary of current targets and status is included in Appendix 7. Status is updated at least quarterly.

4.3.4.3 Achieved Targets

Environmental targets that are met are considered to be accomplishments of the EMS. A written summary of achieved targets will be created by the Technical Support Supervisor for documentation and information dispersal purposes. This documentation will be maintained in the EMS Computer Program and with the EMS Manual in the Environmental and Safety Office. A summary of accomplishments will be maintained in Appendix 7 of this document, and this summary will be updated at least annually.

4.3.5 Environmental Compliance Areas

Reference: ANSIISO 14001-2004 4.4.2
Reference: HCF A-19 Air Management Program
Reference: HCF A-20 Water Management Program
Reference: HCF A-21 Waste Management Program
Reference: HCF A-22 Chemical Management Program
Reference: HCF A-23 Oil Management Program
Reference: HCF A-25 Health and Hygiene Program

Environmental Compliance Management is structured to parallel the ISO 14001 requirements. The responsibility for oversight of compliance for Hopewell Cogeneration Facility rests with the Environmental Officer, who is the Plant Manager, and strongly supported by the Technical Support Supervisor. The environmental compliance areas monitored by the company are listed below:

Environmental Quality Assessment	Noise
Air Emissions	Pesticides
Water	Universal Waste
Wastewater	EMF
Hazardous Materials (HM)	Spill Prevention and Response Planning
Hazardous Waste (HW)	MACT
Solid Waste	Pollution Prevention
Indoor Air Quality	
Above-Ground Storage (AST) of Petroleum Product	

4.3.5.1 Environmental Quality Assessment

Environmental assessments are conducted annually. In accordance with SEGNA corporate policy (SAP-010), those assessments are conducted by non-SEGNA personnel every other year. Each assessment results in a report prepared as a summary of environmental compliance. Findings and recommendations concerning non-conformance that result from an environmental quality assessment are addressed and tracked until closed. In addition other assessment that are made through the STOP Program, self environmental assessment, and during the monthly Safety Checks. Any discrepancies are recorded on STOP cards or the assessment forms. These forms are filed and are routed through the environmental Representative. These discrepancies are noted on the non-conformance Register as they are reported.

4.3.5.2 Air Emissions

Hopewell Cogeneration Facility is a Title V plant. It has a number of areas that are point sources:

- Three ABB GT11NM Gas Turbines, each with it's own stack combined into one silo. Each of these turbines is subject to restrictions dealing with NOx, SO2, CO, VOC, PM10, PM2.5, HAPS, and specified TRI chemicals. The major control is with steam injection.
- Two B&W Auxiliary Boilers are rated at 180 Kpph with flue gas recirc for emissions control. Like the gas turbines the restrictions are the same, except Opacity is added to the list.
- Two black start Diesels are also covered on the air permit.
- The three fuel tanks are covered for VOC only. But it covers both stationary emissions as well as filling emissions.

4.3.5.3 Water

The City of Hopewell and all it's industries are supplied with water from an independent water source, Virginia American Water. The company supplies two types of water, one at drinking standards with all the chemical additives including fluoride for good teeth etc. A second water supply of Virginia American is called industrial water, which is used by the industries in the area. The water is filtered to drinking quality, but does not have chemicals such as fluoride or other chemical additives that benefit human use only. Hopewell Cogeneration Facility uses both of these types of water. Drink for personnel, eyewash stations, and anywhere that a person could get a drink from. The industrial water is used for the water treatment plant, cooling, and fire fighting.

4.3.5.4 Wastewater

The Hopewell Cogeneration Facility wastewater system has Stormwater and three other outfalls. One is from the cooling tower. The second is from the oil/water separator and the water treatment building. The third is the combination of the two previous outfalls. The permit requires testing for Phosphorus, Chlorine, TSS, Oil & Grease, Acute & Chronic, testing. Stormwater is a collection from the grounds roadways and parking lots. There is a form dealing with visual attributes of the storm sample. The Stormwater is checked for iron once a year, copper and zinc each quarter. If the visual checks fail, the plant must find where the pollution is coming from and have a plan to stop/reduce to an acceptable level.

4.3.5.5 Hazardous Materials

Hazardous Material (HM) awareness training is conducted annually. All of the feed/boiler water treatment chemicals (i.e. amines, oxygen scavenger, and polymers) utilized by steam and hot water production are FDA-approved for direct contact with food. The Hazardous Materials-of-Trade carried on maintenance vehicles and contained in consumer-sized packaging, cumulatively weigh less than 1,000 lbs. As such, no company vehicle requires DOT placarding and no driver CDL license with a HAZMAT endorsement is required. Hazardous material awareness training emphasizes prevention of spills, leaks, and hazard communication through use of a chemical's Material Safety Data Sheet (MSDS). For reporting purposes, SARA Title III Tier II report is required to be submitted by the plant. This covers only the fuel and large bulk chemicals such as Acid and Caustic. Areas requiring an RMP such as cooling tower Chlorine and SCR Ammonia are not required in this plant. There are no SCR's at this time, and the chlorine used is in the liquid form and used in small quantities.

4.3.5.6 Hazardous Waste

All Hopewell Cogeneration Facility operation is considered small quantity hazardous waste (HW) generators as defined by Virginia (i.e., <220 lbs. generated or stored at any one time). As a result, operations are not subject to the more prescriptive storage, training, and reporting requirements. The type of hazardous waste generated includes small quantities of mercury-containing light bulbs and mercury-filled gages from plant operations. Non-mercury substitutes are being evaluated for replacement use. All spent mercury items are properly managed for recycling and disposal. In addition, operations also routinely generate small quantities of other universal wastes, such as, spent sealed lead acid batteries and lamps. Universal waste training is conducted on an annual basis.

4.3.5.7 Solid Waste

Facility operations generate dumpster waste typically comprised of nonhazardous industrial and commercial solid waste. Metal waste is recycled. The recycling of other nonhazardous waste has reviewed but has been determined to be cost prohibitive due to the limited amount of material discarded by operations. This determination may be re-evaluated in the future.

4.3.5.8 Indoor Air Quality

Hopewell Cogeneration Facility has conducted surveys in a number of areas dealing with indoor air quality. Radon gas has been addressed and does not appear to be a hazard. Silica is used in sand blasting and has to be reviewed periodically. Mold is a new issue, but does not appear to be a hazard at this time. However, mold is continually kept in mind as additional check list appear in various environmental and safety articles.

4.3.5.9 Above-Ground Storage of Petroleum Product

The Hopewell Cogeneration Facility is permitted by the Virginia Department of Environmental Quality (DEQ) to maintain an above-ground storage tank (AST) for #2 fuel oil. The ICP plan for HCF has been updated pursuant to the July 2002 SPCC amendments. The ICP covers not only the three 1.25 million gallon tanks, but the Black Start Diesel Tank, the lube oil storage of the Gas and Steam Turbines and all transformer oil. Plant production typically generates <750 gallons/yr of used lubricating oils. The material is transported by a licensed used oil transporter for recycling.

4.3.5.10 Noise

Hearing Conservation awareness training is conducted annually in accordance with the Hopewell Cogeneration Facility Safety Manual. Plant noise level surveys are conducted as necessary, or when change in equipment operations requires revision to determine the time-weighted average noise level. Hearing protection caution signs are currently

posted in plant areas based upon individual noise level effects recorded during peak energy demand periods.

4.3.5.11 Pesticides

The Federal Insecticide, Fungicide, Rodencide Act (FIFRA) provides the basis for regulation, sale, distribution and use of pesticides in the U.S. Pesticides are particularly harmful to the environment because of their toxic effects upon organisms, especially aquatic organisms, even in small quantities. The term "pesticides" refers to chemical substances used to kill “pests” and includes insecticides, rodenticides, fungicides, and herbicides. Facilities that use pesticides on their premises must comply with the requirements outlined by EPA on each pesticide container label. All pesticide applicators that advertise or publicly hold themselves out to be in the business of applying pesticides within the state for compensation need to be licensed. Hopewell Cogeneration Facility uses only state-licensed pesticide applicators on company property.

4.3.5.12 Non-Polychlorinated Biphenyl (PCB) Containing Equipment

The Hopewell Cogeneration Facility owns 11 non-PCB mineral oil-filled power transformers. The transformers consist of: five (5) 230 KVA units; three (3) 13.8 KVA unit; and three (3) 4.16 KVA units. There is one (1) non-PCB 5 KVA Transformer that belongs to Dominion Virginia Power that is on site. All the transformers are included in the site ICP Plan.

4.3.5.13 Electro Magnetic Force (EMF)

The effects of EMF are not know completely, but the government has issued guidelines as to what is expected to be a mean average exposure limit. These guidelines have been used at the completion of construction of the plant, and again during a survey conducted in early 2004. At the present time there are no areas that present a hazard during normal operations and operations experienced over the past 15 years of operation. To ensure personnel safety it is believed that an EMF survey should be conducted about every 10 years or unless there is a major change in the plant configuration.

4.3.5.14 Spill Prevention and Response Planning

The ICP Plans associated Hopewell Cogeneration Facility has been updated in accordance with the July 2002 SPCC amendments. The ICP plan is intended to document those measures taken to prevent incidental oil spills and to prevent oil discharges from entering navigable waters. The SPCC Plan outline responsibilities, procedures and resources for responding to and cleaning up spills. The ICP Plan must be reviewed every 5 years, or more frequently, if a technical change is made to the Plan.

4.3.5.15 Pollution Prevention (P2)

It is the policy of Hopewell Cogeneration Facility to use a management approach that emphasizes pollution prevention as the alternative of *"first choice"* in achieving compliance with environmental requirements. The pollution prevention hierarchy for developing environmental solutions is (in order of preference):

1. *Prevent pollution at the source.*
2. *Reuse or recycle pollutants that cannot be eliminated.*
3. *Treat pollutants that cannot be eliminated or recycled.*
4. *Dispose or release pollutants into the environment only as a last recourse.*

4.3.5.16 Refractory Ceramic Fibers (RCF)

RCF has been identified it two areas of the plant, after a complete survey. The plant has procedures and an Asbestos and RCF plan. This plan is contained in this document under Tab 16 of the appendixes.

4.3.5.17 Other Pollutants

Hopewell Cogeneration Facility was built in 1989. It is not the newest plant, but was built late enough that it does no have many hazard materials, such as PCB's, Asbestos, and the like. This limits this section to the areas listed above.

SECTION 4.4 – IMPLEMENTATION AND OPERATION
Reference: ANSIISO 14001-2004 4.4

4.4.1 RESOURCES, ROLES, RESPONSIBILITY AND AUTHORTY
Reference: ANSIISO 14001-2004 4.4.1

The EMS organizational structure of Hopewell Cogeneration Facility is presented in Section 1.3. The overall coordination of the Hopewell Cogeneration Facility EMS is the responsibility of the Environmental Officer, the Plant Manager. The Environmental Officer has the following roles and authority:

1) to ensure that the EMS requirements are established and implemented.
2) to report on the performance of the EMS to top management for review and as a basis for improvement of the EMS.
3) to conduct annual internal assessments to determine environmental compliance with facility registrations, permits, licenses, approvals, and authorizations.

The Technical Support Supervisor (TSS) as the Management Representative is responsible for supporting the Environmental Officer in fulfilling his responsibilities. Employees are also required to adhere to procedures and policies established under the Environmental Management System Manual. The TSS makes sure that everything is working and being recorded at the operator level. The TSS updates the EMS program and makes sure it is up to date. The TSS checks on the progress of the Objectives and Targets and updates the EMS program. The TSS forwards all reports and makes sure the proper data is in the EMS program. The TSS works directly with the Federal, State, and Local authorities to make sure all environmental areas of the plant are in compliance. The TSS is responsible for all permits and permit renewals, either by submitting the permit renewals or having an outside contractor do the work.

4.4.2 RESOURCES

Sufficient resources must be made available to implement the Environmental Management System. Hopewell Cogeneration Facility human resources described in Section 1.3 are expected to be adequate, though these can be supplemented on an as-needed basis with support from the corporate office, other facilities, or consultants.

Physical and financial resources will be evaluated on an ongoing basis as necessary to achieve the company's stated environmental objectives.

Informational resources include Federal and state agency websites, subscriptions to services such as J. J. Keller, periodic corporate teleconferences, and corporate informational websites such as the Suez "Infinet" Intranet and EnergyPORT.

The MP2 system is a compliance reminder tool used by Hopewell Cogeneration Facility to ensure compliance. While primarily a tool for scheduling periodic maintenance, MP2 is also useful for scheduling monitoring tasks, permit renewals, and other periodic requirements that can be scheduled in advance. A matrix showing environmental-related MP2 tasks is included in Appendix 8.

4.4.3 TRAINING, AWARENESS AND COMPETENCE

Reference: ANSIISO 14001-2004 4.4.2
Reference: HCF T-04 EMS Training

The responsibility for EMS education and training at Hopewell Cogeneration Facility is the responsibility of the Technical Support Supervisor, the Environmental and Safety Committee. Through annual refresher training, personnel shall be familiarized with the EMS and its key elements. See Appendix 9, the Training Matrix.

4.4.4 COMMUNICATIONS

Reference: ANSIISO 14001-2004 4.4.3
Reference: HCF A-26 Interim Operating Guideline Procedure
Reference: HCF A-29 Communications Procedure
Reference: HCF S-18 Incident Reports – Accident Investigation

Internal communications at Hopewell Cogeneration Facility follow the organizational structure outlined in Section 1.3 of the EMS Manual. External communication by Hopewell Cogeneration Facility will conform to the public right-to-know to be fully informed with accurate and timely information, consistent with the company requirements for security and personal safety.

Both internal and external communications are described in the Communications Procedure in Appendix 10.

For Emergency Communications the plant has an Emergency Action Binder in the Control Room, which outlines what to do in case of a disaster. The plant has an emergency radio that is in contact with the other plants, surrounding schools, housing complexes, Fire, and Police Departments. This is the Hopewell Emergency Notification System (HENS). As noted in section 4.3.3 (Training) all personnel are introduced to the HENS radio. In the EMS Program as well as the Plant intranet and the MSDS Program; there are links to what to do and who to notify in case of an emergency.

For Oil or Chemical spills there are very specific instructions on how and who is to be notified. This is contained in the EMS Program, Plant Intranet, MSDS Program, and the Emergency Binder.

4.4.5 DOCUMENTATION
Reference: ANSIISO 14001-2004 4.4.4

The Environmental Management System is documented in the EMS Manual, which is maintained in both electronic and hard copy. The EMS Manual describes the core elements of the EMS. It is not the purpose of the EMS Manual to fully document all of the environmental controls in the EMS. The purpose of the EMS Manual is to describe briefly the basic components of the EMS and to provide direction, where appropriate, to the relevant documentation (such as plans, SOPs, and instructions).

EMS documentation is managed similarly to other environmental records, as described in Section 4.4.3.

4.4.6 CONTROL OF DOCUMENTS
Reference: ANSIISO 14001-2004 4.4.5
Reference: HCF A-28 Document Control Procedures

Environmental documents are maintained in a central location in the Environmental and Safety Office. Records are accessible to all personnel. Electronic copies of many documents are also available through the Hopewell Cogeneration Facility computer system, or through the Technical Support Supervisor. Environmental documents are periodically reviewed, revised whenever deemed necessary, and approved by authorized personnel following each revision. Copies of environmental documents needed at locations other than headquarters are maintained at those locations. Upon revision of environmental documents, obsolete versions are removed and replaced with current versions. Documents, other than environmental documents, that contain procedures with environmental aspects are maintained at designated locations within those Departments.

Document control also involves the need to maintain current versions of permits and plans, and to submit renewal applications in a timely fashion. A list of applicable documents is included in Section 5, including expiration dates. These dates are entered in the MP2 system to ensure timely submittals.

Environmental Records Management is further described in Section 4.5.3.

4.4.7 OPERATIONAL CONTROL
Reference: ANSIISO 14001-2004 4.4.6

Those operations and activities conducted Hopewell Cogeneration Facility that are associated with significant environmental impacts have been identified, and are closely monitored. Specific guidelines, plans, and instructions have been developed, as necessary, for each of these operations and activities. Each Department conducts these operations and activities in such a manner as to ensure that they are carried out under specified conditions. This will be accomplished by the following actions:

A. Establishing and maintaining documented SOPs, when necessary, to cover situations where incidents or non-conformances could lead to deviations from the Environmental Policy, Environmental Objectives, and Environmental Targets.

B. Stipulating operating criteria in the procedures.

A listing of operational procedures and controls associated with significant environmental impacts is included in Appendix 11.

4.4.8 REPORTING

Performance reporting will be as follows:

The results of the annual EMS management review described in Section 5 will also be reported directly to the Plant Manager, SEGNA environmental Staff, and the Project Director.

Action item status will be updated quarterly by the TSS, and the results communicated directly to SEGNA Environmental Staff, and the Project Director. Additionally, these status reports will be posted in a visible location for access by all employees.

4.4.9 EMERGENCY PREPAREDNESS AND RESPONSE

Reference: ANSIISO 14001-2004 4.4.7
Reference: HCF Emergency Evacuation Manual
Reference: HCF A-22 Chemical Management Program
Reference: HCF A-23 Oil Management Program

4.4.9.1 Release/Spill Response
Reference: HCF Emergency Evacuation Manual

Unplanned releases or spills of hazardous materials and hazardous substances (HM/HS) have the potential to threaten the health and safety of employees and the surrounding community. In addition, such releases or spills can pose a threat to the environment. All personnel must be familiar with potential hazards and the proper response actions to be taken in the event of a HM/HS release emergency. The ICP Plan has been developed to adequately establish procedures, organization, and resources to effectively respond to Oil or Hazardous Substance (OHS) Releases caused by operations. These plans are kept in the Emergency Action Binder in the control Room.

The Environmental Officer serves as the Incident Commander (IC) and is responsible for all OHS releases caused by Hopewell Cogeneration Facility operations. The Production Support Supervisor or Technical Support Supervisor shall serve as On-Scene Commander for directing and coordinating spill response and cleanup actions. In the event of a major spill, coordination will be required with the Fire Department, the Coast Guard, the Virginia Department of Environmental Quality, Virginia Emergency Response, Nearby Industrial Response Teams, and environmental cleanup contractor(s).

4.4.9.2 Disaster Preparedness

Disasters can occur with little or no warning and result in the destruction of facilities, significant environmental impacts, interruption of services, and the need for treatment of casualties under abnormal conditions. The site Safety Representative is responsible for being prepared to meet emergencies and carry out measures to be taken before, during, and after a disaster in order to care for any sick and injured employee, mitigate environmental impacts, reduce the probability of damage, and minimize the effects on recovery measures.

All actions and responses are covered in the Emergency Action Binder kept in the control room. These actions are also covered in the EMS Database Program under Emergencies.

SECTION 4.5 – CHECKING
Reference: ANSIISO 14001-2004 4.5

4.5.1 MONITORING AND MEASUREMENT
Reference: ANSIISO 14001-2004 4.5.1
Reference: HCF A-30 Monitoring and Measuring

As necessary, Hopewell Cogeneration Facility monitors and measures those activities that could have a significant impact on the environment. Monitoring of the environment is accomplished by CEM System, wastewater sampling, etc. Procedures for monitoring these impacts are described in the Environmental Monitoring Procedures included as Appendix 12.

Monitoring of the EMS program is done through audits, the day to day items are monitored by the MP2 system, and Checklist. The old checklist are retained in the "Document Update and Tracking" Notebook. In most cases there is a second person/checklist that will catch any oversight by the primary person.

4.5.2 EVALUATION OF COMPLIANCE
Reference: ANSIISO 14001-2004 4.5.2
Reference: HCF E-01 Annual Air Certification
Reference: HCF E-25 Annual Water Certification

Hopewell Cogeneration Facility maintains records of audits and other state visits. All non-compliances are noted in the Non-Compliance Register. Notice of Violation (NOV) would also be listed in the register. In this case the lack of documentation indicates compliance. The annual air and water certifications list in detail problems from the previous year.

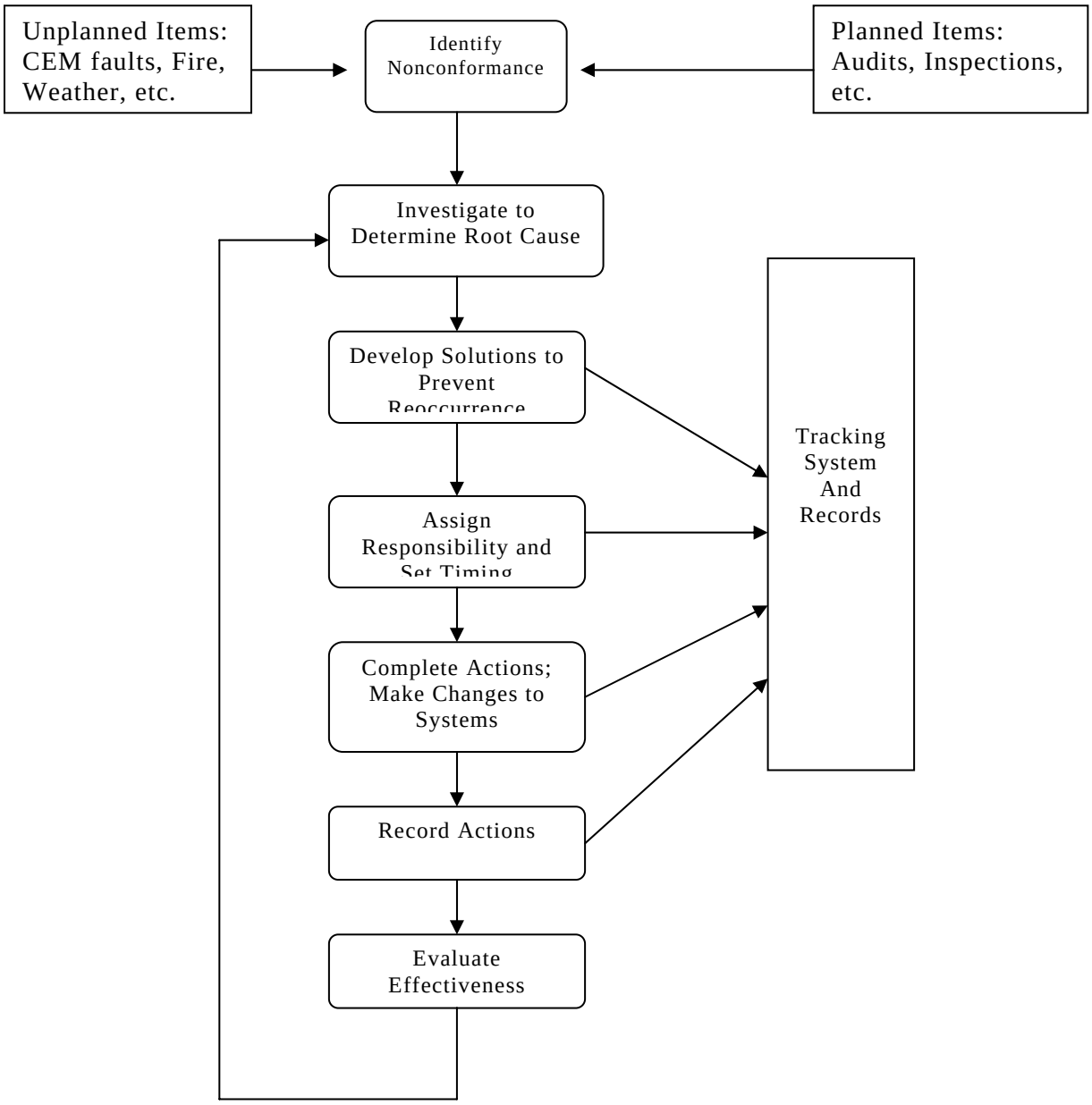
4.5.3 NONCONFORMITY, CORRECTIVE ACTION AND PREVENTATIVE ACTION
Reference: ANSIISO 14001-2004 4.5.3

Hopewell Cogeneration Facility has established measures for dealing with the issue of non-conformance with the EMS and for taking corrective and preventative actions. These measures include the following elements:

- Identifying non-conformances with the EMS (discrepancies and findings).
- Taking corrective actions for handling the non-conformance in order to mitigate potential environmental effects.
- Investigating of the cause of the non-conformance (the Root Cause).
- Taking preventative actions for ensuring that the non-conformance is not repeated.
- Documenting the non-conformance, corrective actions, and preventative actions.
- Revise SOPs, instructions, plans, and any other documents, if warranted.
- Update the EMS to reflect any significant changes, if warranted.

The identification of non-conformances (discrepancies and findings) can be made during routine inspections or following environmental compliance evaluations. Compliance evaluations are a means of monitoring, achieving, and maintaining compliance with the EMS and environmental regulations. The Project Director will conduct periodic facility inspections, review findings and non-conformance, ensure that corrective action is taken, and track until closed.

A current register of non-conformances, with associated corrective and preventive action, is included as Appendix 13. This document is updated monthly by the Technical Support Supervisor and Safety Representatives. Diagram of the Non-Conformance/compliance actions:


Unplanned Items: CEM faults, Fire, Weather, etc.
Identify Nonconformance
Planned Items: Audits, Inspections, etc.
Investigate to Determine Root Cause
Develop Solutions to Prevent Reoccurrence
Assign Responsibility and Set Timing
Complete Actions; Make Changes to Systems
Record Actions
Evaluate Effectiveness
Tracking System And Records

4.5.4 CONTROL OF RECORDS
Reference: ANSIISO 14001-2004 4.5.4

Records are maintained in all areas of environmental responsibility to demonstrate compliance with regulations and effective operations. Each area (Safety and Environmental) establishes and maintains documentation for the identification, maintenance, and handling of all records pertinent to their area.

The Technical Support Supervisor retains copies of all environmental compliance evaluations. Additionally, documents regarding cradle-to-grave hazardous and potentially hazardous materials are maintained by the Technical Support Supervisor. All environmental records are legible, identifiable and traceable to the activity, product, or service involved. The records are stored and maintained in such a way that they are readily retrievable and protected against damage, deterioration, and loss.

The retention times for each record are established in accordance with both regulatory minimum requirements and Suez Energy Generation NA policy. Environmental records generated as a requirement of regulations have retention times set at least the minimum time specified by the regulation. Records that are deemed useful for protecting future liability have commensurately longer retention times than those specified by regulation. The determination of retention times is made by the Environmental Officer, the Plant Manager.

A document index, with associated retention times, is included in the Environmental Records Management Procedure in as Appendix 14.

4.5.5 INTERNAL AUDIT
Reference: ANSIISO 14001-2004 4.5.5
Reference: HCF A-22 Chemical Management Program
Reference: HCF A-23 Oil Management Program

The EMS requires continuous attention. To accomplish this, an annual EMS quality assessment will be conducted annually by a qualified SEGNA employee. An external quality assessment of the EMS may also designate persons from outside the SEGNA organization to conduct the assessment. The results of an EMS audit shall be documented and submitted to top management for review. Audit protocols should be attached or described in detail in the audit report.

SECTION 4.6 – MANAGEMENT REVIEW
Reference: ANSIISO 14001-2004 4.6

As part of the annual environmental quality assessment, Hopewell Cogeneration Facility performs an EMS Management Review. The management review will determine what needs to be done to improve the overall Environmental Program. This review is an important step in continual improvement of the EMS. Based on the EMS review, the Environmental Policy, Environmental Objectives, and other elements of the EMS shall be reevaluated. Where appropriate, changes shall be made. Changes in policy and/or objectives provide a basis for establishing new environmental targets, modifying existing targets, or eliminating certain targets as needed. Results of the annual EMS quality assessment will be considered in the EMS Management Review process.

The Management Review will consist of the Technical Support Supervisor setting up the meeting with as many environmental committee members and the Plant Manager. This will be more like a presentation by the TSS and committee members of the past years performance to the Plant Manager (the Environmental Coordinator). It will also look forward to next year as to what objectives and targets are needed and who will be assigned to them. This will be incorporated into the business plan and the budget. Management Reviews will be maintained for at least one year until the next review held will compare progress from one year to the next.

The results of the review will be incorporated into the EMS program. The management review will be retained in the EMS files. The review section will be a separate section, but kept with the general EMS files. They will be noted by year and any changes will be noted into the non-conformance log. The management review will include the following at a minimum:

- Results of the Environmental Audit as it reflects on the EMS program
- Results of the EMS Audit
- Communications from external interested parties and any complaints
- Objectives and targets from the past year
- Corrective and preventative actions from the past year's non-conformance log
- Follow up action items from previous Management review
- Changes in legal requirements and their effect on the EMS program and the plant
- Recommendations for Improvement
    - Is the program
        - Sutable
        - Adquate
        - Effective

- Are there any policy or procedure changes needed.

SECTION 5 – REFERENCE DOCUMENTS

In addition to the applicable legal requirements described in section 4.3.3, Hopewell Cogeneration Facility is subject to numerous environmental permits and plans. These documents are listed below. The terms and conditions of these documents form the basis for many of the operations procedures referenced in Section 4.4.4. Document control procedures are in Appendix 15.

General Documents:

Permit #	Media	Effective Date	Expiration Date	Limit Areas
VA0079502	Water	7/1/04	6/30/09	Temperature PH Phosphorus Requires Acute & Chronic Flow Chromium Zinc Chlorine TSS Oil & Grease Copper Iron
PRO50967	Air	3/1/01	3/1/06	NOx, SO2, CO, PM10, PM2.5 Opacity, Lead, Mercury, Dioxins, VOC, HAPS, Fuel oil movement, Fuel Oil Combusted, Natural Gas Combusted, Linearity and RATA Testing
POTW H-14	Sewage	12/1/05	12/1/10	Requires flow estimate records
VAR000000711	Hazardous Waste	4/11/95	N/A	N/A

6.0 Circulation List:

1. **HCF Computer (Control Copy)**
2. **Technical Support Supervisor (Master Copy Uncontrolled)**
3. **SEGNA Office (Environmental Office, Uncontrolled electronic)**

7.0 List of Review/Revisions

This manual should be revised/updated at least every 5 years. The manual will have the appendixes updated as those appendixes are updated or reviewed and replaced with the latest copies.

Revision Number	Date of Revision	Reason for the Revision
0	12/12/2003	Original Document
1	7/30/2004	Use the Baltimore template
2	12/28/2004	EMS Plant Review By SEGNA
3	7/13/2005	Update ISO 14001 from 1996 to 2004
4	9/6/2005	2005 EMS Audit and Company Name Change
5	10/8/2006	2006 ISO 14001 Audit
update	8/3/2008	Updated all Tabs
6	9/6/2010	Added RCF and updated all Tabs