ENVIRONMENTAL MANAGEMENT SYSTEM MANUAL

MIAMI-DADE TRANSIT
MAY 20, 2010

Amanuel Worku, P.E.
Akbar Sharifi, P.E.

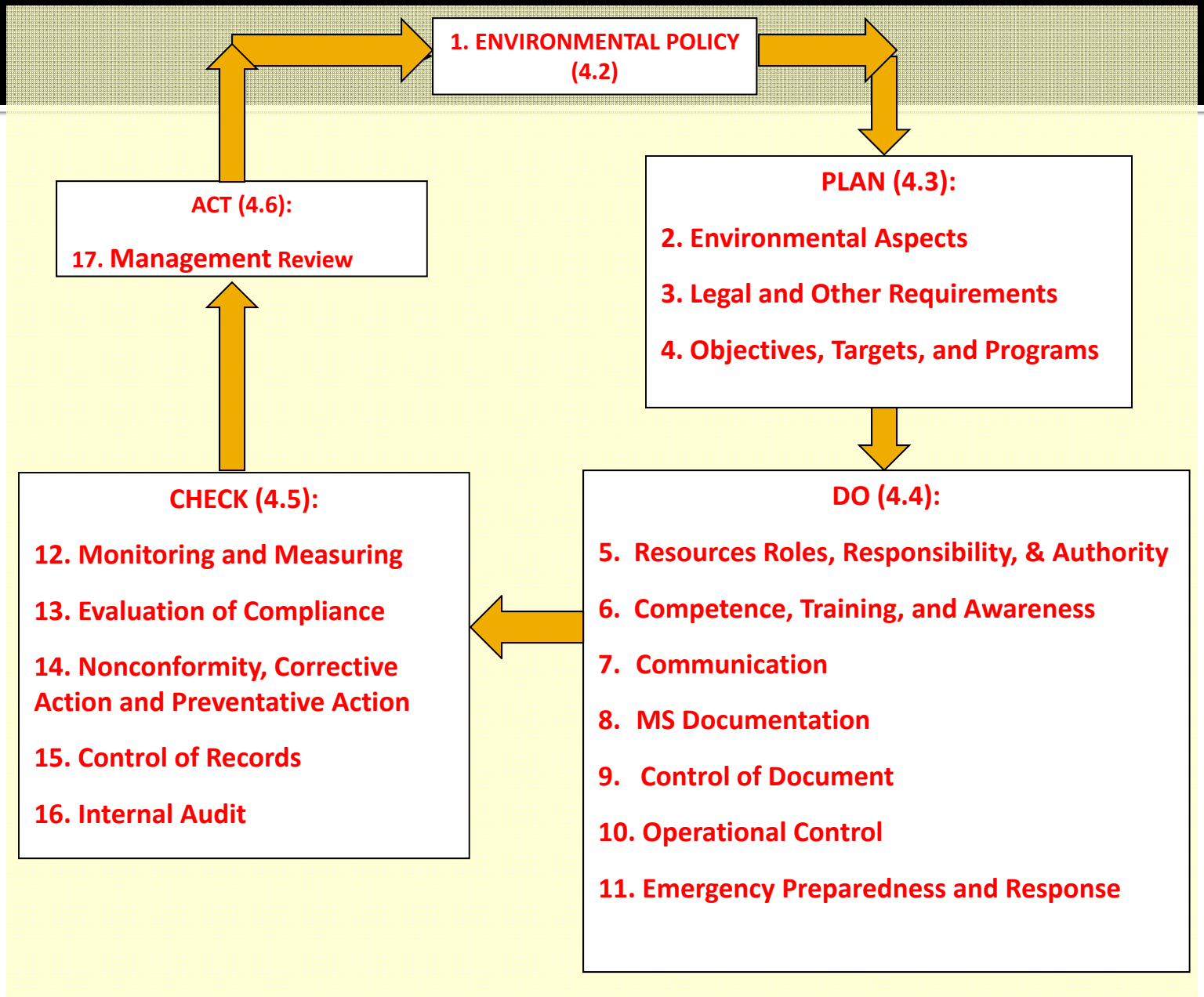
MDT Environmental Management System – Scope and Purpose

- Describes how MDT operates & maintains a reputation for environmental excellence.
- Roadmap to improve and protect the environment and the health and safety of its employees, customers and the general public.

EMS Manual – Principles

- **Principle 1 – Commitment and Policy**
  - Define policy and ensure commitment to its EMS.
- **Principle 2 – Planning**
  - Plan to fulfill its environmental policy.
- **Principle 3 – Implementation and Operation**
  - Develop the capabilities and support mechanisms to achieve policy, objective and targets
- **Principle 4 – Measurement and Evaluation**
  - Measure, monitor and evaluate its environmental performance.
- **Principle 5 – Review and Implementation**
  - Review and continually improve its environmental management system with the objective of improving its overall performance.

ISO 14001 Continuous Improvement Cycle



1. MDT Environmental Policy

MDT's Environmental Policy includes:

- **Exceeding compliance** with all applicable environmental regulations through best management practices;
- **Establishing waste minimization and pollution prevention programs** to prevent or reduce impacts to the environment;
- **Establishing management system and control** for environmental compliance assurance and risk/liability management;
- **Streamlining operations and management system** by periodically evaluating achievement of targeted environmental objectives; and,
- **Providing continuous training, and communicate** environmental policies and program to employees.

2. Environmental Aspects and Impacts

MDT has identified the following "**environmental aspects**", which are MDT's activities, products, and services that can interact with the environment:

- Aerosol Cans
- Fluorescent Tube and Ballast
- Used Oil
- Fresh Oil
- Chlorofluorocarbons (i.e., coolant/freon)
- Battery servicing
- Used Tires
- Industrial Wastewater (i.e., Oil/Water Separator)
- Shop Rags and Cotton Gloves
- Used Batteries
- Shop and Office Recyclables

Environmental Aspects and Impacts – Significant Impacts

MDT has identified the following "**significant environmental aspects**" that can cause "**significant impact**" to the environment**:**

- **Aerosol Cans**
- **Fluorescent Tube and Ballast**
- **Used Oil**
- **Fresh Oil**

These were selected after MDT evaluated the environmental and business significance of each impact identified by entering a value from 1 to 5 for each category specified – 5 representing the highest level of impact and 1 the lowest.

Environmental Aspects and Impacts – Significant Impacts (Cont.)

Environmental concerns such as:

- Scale of impact;
- Severity of impact;
- Probability of occurrence; and
- Duration of impact.

Business concerns such as:

- Potential regulatory exposure;
- Ease of changing the impact;
- Effect on public image;
- Minimal change on process; and
- Concerns of interested parties.

3. Legal Requirements

- Central to the successful operation of an EMS is the **identification** of legal and other requirements.

Environmental Laws

- Federal, State & Local
  - (RCRA, EPCRA, State Water Control Law)

Environmental Regulations

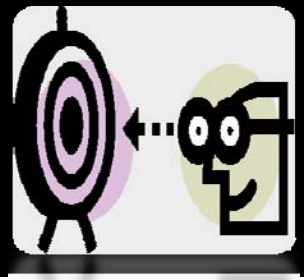
- Federal, State & Local
  - (40 CFR, state regulations, pretreatment requirements)

Legal Requirements (Cont.)

- Legislation, including statutes and regulations;
- Decrees and directives;
- Permits, licenses or other forms of authorization;
- Orders issued by regulatory agencies;
- Judgments of courts; and
- Treaties, conventions and protocols.

- **Federal:** Spill Prevention Control & Countermeasures Rule (40 CFR 112)
- **State:** Solid & Hazardous Waste Regulations; Underground & Above Ground Petroleum Storage Tank Regulations

4. Objectives and Targets



The definition of an environmental Objective is:

- The overall environmental goal, which is consistent with the environmental policy, that an organization sets itself to achieve.

The definition of an environmental Target is:

- The detailed performance requirement, applicable to the organization or parts thereof, that arises from the environmental objectives and needs to be set and met in order to achieve those objectives.

MDT's Objectives and Targets

MDT's objectives and targets reflect the Environmental Policy of the organization, and is **measurable, realistic, and attainable**. Some of the objectives include:

Operational Activities

- Reduce waste generation by 5% at the end of 2010 – Identify and track;
  - Paper and cardboard
  - Tires
  - Waste oil
  - Rags/Gloves
  - Aerosol cans
  - Light bulbs

Management or Administrative Activities

- Prevent and/or eliminate any spill – Train 100% of employees.

Visual of Objectives & Targets Considerations:

Let's look at an example of Objectives & Targets with Environmental Programs

- Aspect – Aerosol Cans
- Activity – Proper management
- (i.e., use and disposal) of aerosol cans
- **Objective** – Reduce quantity of waste generated
- **Target** – Implement an Aerosol Compliant System and tight control with strict standard operating procedures by December 31, 2009.

The Environmental Program (or action plan) is:

1. **Establish a baseline** for the total number of aerosol cans reported during 2009/2010.
2. **Implement a program** for aerosol can management on a one to one exchange basis – No issue of new aerosol cans without an even exchange of a punctured can unless authorized in writing from a Supervisor.
3. **Conduct awareness training** for affected employees relating to reduction of aerosol cans.
4. **Evaluate the work instructions** or SOPs relating to this Environmental Program.
5. **Generate a quarterly report** for tracking the aerosol can use and distribute to maintenance managers.
6. **Generate semi-annual progress report** to summarize this Environmental Program for the management review meeting.

The Environmental Program(or action plan) is:

Miami-Dade Transit

MDT Internal Document No.	Person responsible	Prepared by	Reviewed by	Approved by
08.04.00	Valerie Gary/ Freeman Wright	Freeman Wright		

WI 4.4.6-5.1 AEROSOL CANS MANAGEMENT

1 **Purpose**
- 1.1 To identify procedures for the issue, collection and disposal of Aerosol Cans.

2 **Scope**
- 2.1 This procedure is responsive to the Miami Dade Transit (MDT) Metro Mover Facility Storeroom goal to minimize impacts to the environment from operating practices and waste disposal.
- 2.2 This procedure applies to disposal of Aerosol Cans.
- 2.3 This procedure covers operations at the MDT Metro Mover Facility.

3 **Responsibility**
- 3.1 Storeroom personnel are responsible for the collection and disposal of all aerosol cans.
- 3.2 Storeroom supervisor is responsible for weekly inspection of storage areas to verify compliance with these requirements.
- 3.3 Environmental Procurement is responsible for contracting for proper disposal of Aerosol Cans.

4 **Procedure**
- 4.1 Aerosol cans are to be issued from the storeroom on a one to one exchange basis. There will be no issue of these items without an even exchange of a punctured can unless authorized in writing from a supervisor.
- 4.2 The storeroom personnel are responsible for insuring that aerosol cans are properly disposed within the designated drums outside the storeroom by the maintenance employee.
- 4.3 The storeroom personnel will seal filled drums of punctured cans and label with a "non-hazardous" waste label and arrange for pickup by the contracted vendor.

Aerosol Can Crushing and Waste Collection Area

Final date: 12/31/2009 Date of issue: 12/31/2009 Effective until date: 12/31/2010

Work Instructions/ Standard Operating Procedures

Environmental Programs Direct Action

Finally, the action plans must assign:

- Personnel responsible
- Dates
- Approval of management

Monitoring & Measurement of Objectives & Targets

- Build monitoring & measurement into the objectives & targets with:
  - Tracking Progress
  - Record keeping
  - Work Instructions (SOPs)

Auditing Questions for Objectives & Targets

- Are the objectives and targets specific?
- Are they measurable?
- What is the process for changing target dates?
- How is progress toward the objectives and targets tracked and communicated to upper management?
- Do the individuals with assigned responsibilities for the Objectives & Targets know what they are responsible for? (Verify through interviews)

5. Roles and Responsibilities

MDT's environmental team will ensure the establishment, implementation, and maintenance of the EMS. Team members include:

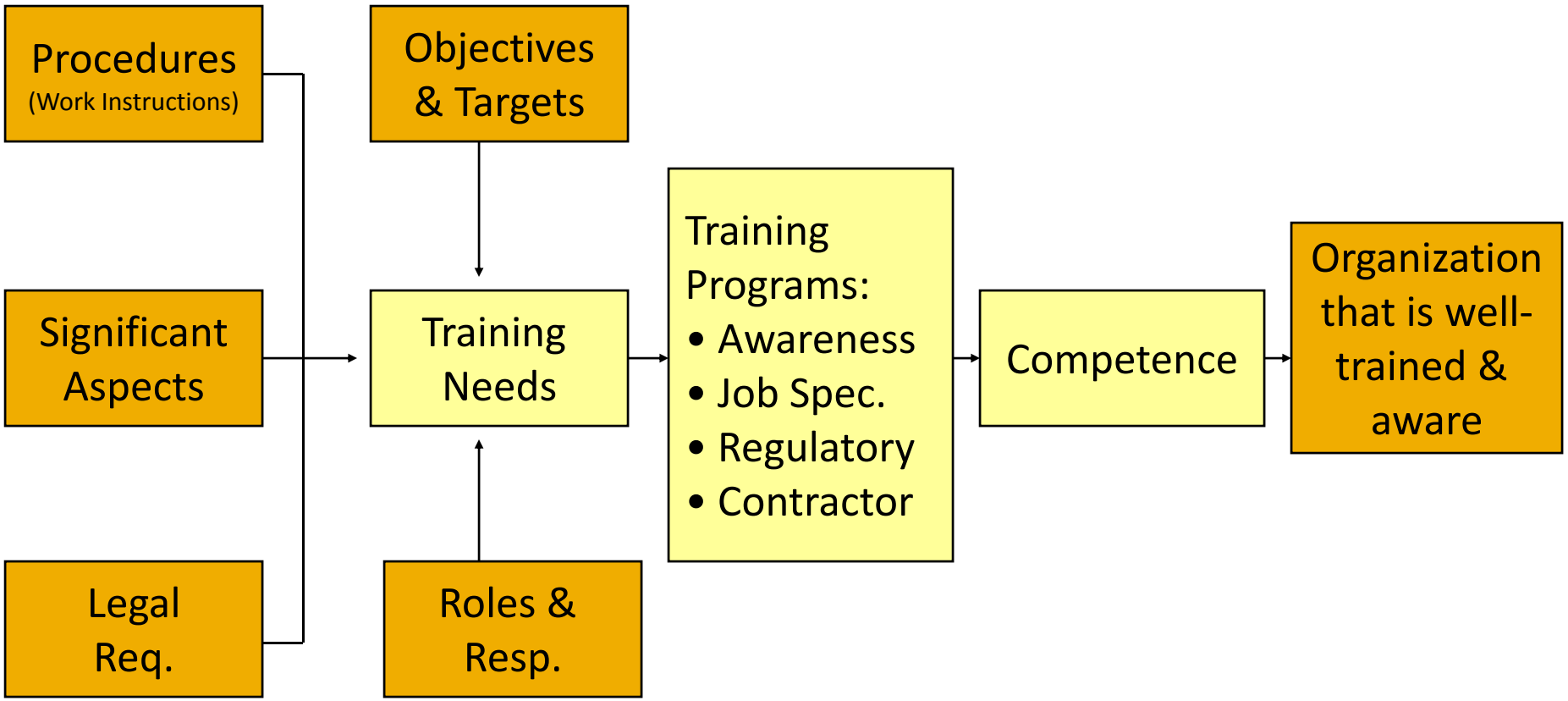
- Director – **Mr. Harpal Kapoor**
- Manager of Materials – **Mr. Freeman Wright**
- Manager of Training – **Ms. Vivian Urchdorf**
- Manager of Environmental Protection – **Mr. Akbar Sharifi, P.E.**
- Facilities Maintenance Manager – **Mr. Steve Chayt & Mr. Mario Rodriguez**
- Supervisors – **Mr. Steve Alvarez**
- Employees
- Internal Auditors / Audit Team – **Mr. Akbar Sharifi, P.E. & Mr. Adien Toledo**
- Environmental Team - **Mr. Akbar Sharifi, P.E. and Adien Toledo**
- Public Safety Officer – **Mr. Eric Muntan**
- Manager of Construction - **Mr. Surinder Sahota**
- Manager of Contract Procurement – **Mr. Fred Shields**
- EMS Team Members **– A. Sharifi, F. Wright, S. Chayt, M. Rodriguez, S. Alvarez, S. Amores, and A. Worku**

6. Competence, Training and Awareness

- This element of the ISO 14001 Standard requires that procedures are in place to train personnel to be aware of and capable of accomplishing their assigned roles and responsibilities within the EMS.

- Employees whose work may directly affect environmental performance should be trained and competent in completing their assigned tasks.
  - Operational Control – Work Instructions

What drives training requirements?



Four general types of training

1. General EMS Awareness Training
2. Job-specific EMS Training
3. Emergency & Regulatory-Required Training
4. Contractor EMS Training

Job-Specific EMS Training

- Should include the following items associated with specific job tasks:
  - Significant Environmental Aspects
  - Objectives & Targets
  - Roles & Responsibilities
  - Operational Control work instructions (and potential consequences of departure)
  - Emergency Preparedness and Response requirements

General EMS Awareness

Should include:

- The Environmental Policy's commitment
  - to continual improvement
  - to prevention of pollution
  - to compliance with laws and regulations
- Significant Environmental Aspects
- Discussion of the programs, practices and procedures
- Identification of key personnel and departments involved with the EMS

Emergency & Regulatory-Required and Contractor EMS Training

Emergency & Regulatory-Required Training

- This type of training applies to all employees whose have duties required by federal, state or local laws regulations.

Contractor EMS Training

- You should consider contractors working at your site and have them provide evidence that they have the knowledge, skills, and training to work in an environmentally responsible manner.

A Training Needs Matrix

Training Type	Admin.	Facility	Maint.	Timing	Records
Awareness Training					
Policy, Objective & Targets, etc.	✓	✓	✓	New Employee orientation	Signature on packet
Job Specific Training					
Disposal of Used Oil		✓	✓	Prior to assuming job responsibilities & periodically	Training sign-in sheets
Regulatory Training					
Waste Management		✓	✓	Prior to assuming job responsibilities & annual update	Documented Statement of training required

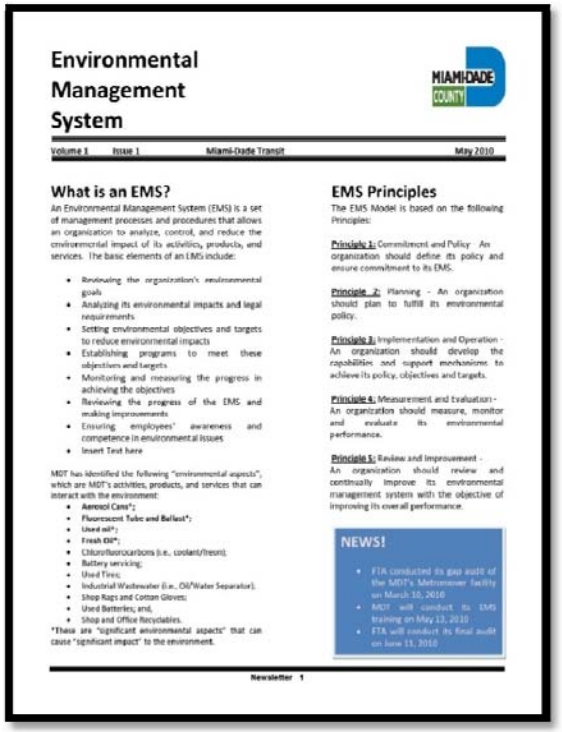
Trainers

Type of Training	Person Typically Responsible	Location of Training
Awareness	EMS team leader, HR or Training Dept., Environmental Manager	New hire orientation or seminar
Operational or Job-specific	Supervisor or Operations Manager	Informal or on-the-job
Regulatory-required	Environmental Manager or contracted training company	Classroom or seminar

7. Communications

Two types of EMS Communication

- *Internal* - ensures everyone within your organization is informed of the EMS and relevant environmental issues. These include:
  - Senior Management,
  - Division Managers,
  - Supervisors,
  - Line personnel,
  - Crew members,
  - Shop floor staff,
  - All employees,
  - Persons working for or on behalf of the organization



Environmental Management System

MIAMI-DADE COUNTY

Volume 1 Issue 1 Miami-Dade Transit May 2010

What is an EMS?

An Environmental Management System (EMS) is a set of management processes and procedures that allows an organization to analyze, control, and reduce the environmental impact of its activities, products, and services. The basic elements of an EMS include:

- Reviewing the organization's environmental goals
- Analyzing its environmental impacts and legal requirements
- Setting environmental objectives and targets to reduce environmental impacts
- Establishing programs to meet these objectives and targets
- Monitoring and measuring the progress in achieving the objectives
- Reviewing the progress of the EMS and making improvements
- Ensuring employees' awareness and competence in environmental issues
- Insert Text here

MDT has identified the following "environmental aspects", which are MDT's activities, products, and services that can interact with the environment:

- **Aerosol Cans*;**
- **Fluorescent Tubes and Ballast*;**
- **Used oil*;**
- **Fresh Oil*;**
- Chlorofluorocarbons (i.e., coolant/freon);
- Battery servicing;
- Used Tires;
- Industrial Wastewater (i.e., Oil/Water Separator);
- Shop Rags and Cotton Gloves;
- Used Batteries; and,
- Shop and Office Recyclables.

*These are "significant environmental aspects" that can cause "significant impact" to the environment.

EMS Principles

The EMS Model is based on the following Principles:

Principle 1: Commitment and Policy - An organization should define its policy and ensure commitment to its EMS.

Principle 2: Planning - An organization should plan to fulfill its environmental policy.

Principle 3: Implementation and Operation - An organization should develop the capabilities and support mechanisms to achieve its policy, objectives and targets.

Principle 4: Measurement and Evaluation - An organization should measure, monitor and evaluate its environmental performance.

Principle 5: Review and Improvement - An organization should review and continually improve its environmental management system with the objective of improving its overall performance.

NEWS!

- FTA conducted its gap audit of the MDT's Metrorunner facility on March 10, 2010
- MDT will conduct its EMS training on May 12, 2010
- FTA will conduct its final audit on June 11, 2010

Newsletter 1

External Communication

- *External* - ensures communication is received from interested parties (concerned citizens) and is handled according to established procedures. These include:

- Neighbors / Citizens / Community groups
- Customers
- Contractors/Suppliers
- Tenants
- Local Interest Groups
- Local officials
- Regulatory agencies
- Emergency responders
- Insurance companies
- Bond companies
- Media

What might MDT communicate and Methods?

Internally

- Environmental Policy
- Significant Aspects
- Objectives & Targets
- Work Instructions
- Roles and Responsibilities
- EMS Progress
- EMS Success Stories

Externally

- Environmental Policy
- Summary of Objectives & Targets
- Requirements to Suppliers & Contractors
- Annual Reports
- Environmental Initiatives
- EMS Success Stories

Methods

- **Website**
- **Newsletters**
- **Open Houses**
- **Events (Earth Day)**
- **Traditional Media**
- **Public Workshops**
- **Citizen's Advisory Committees**

8. EMS Documentation

The EMS documentation includes:

a) The **environmental policy, objectives and targets**;

b) Description of the **scope** of the EMS;

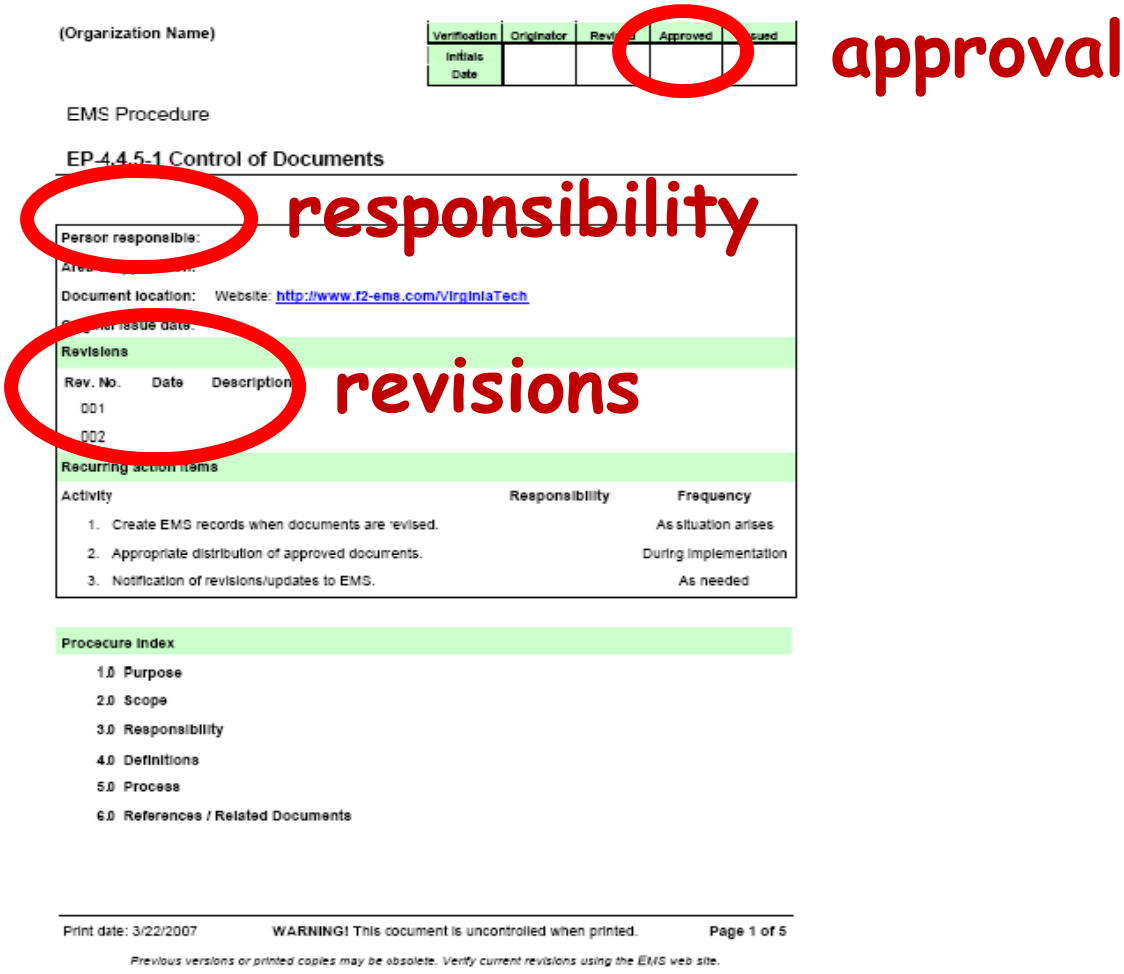
c) Description of the main elements of the EMS and their interaction, and reference to related documents;

d) Documents, including records, required by this standard; and

e) Documents, including records, determined by the organization to be necessary to ensure the effective planning, operation and control of processes that relate to its significant environmental aspects.

9. Control of Documents

a) approve documents for adequacy prior to issue



(Orgarization Name)

Verification	Originator	Revised	Approved	Issued
Initials				
Date				

approval

EMS Procedure

EP-4.4.5-1 Control of Documents

responsibility

Persor responsible:

Document location: Website: http://www.f2-ems.com/VirginiaTech

Revisions

revisions

Rev. No.	Date	Description
001		
002		

Recurring action items

Activity	Responsibility	Frequency
1. Create EMS records when documents are revised.		As situation arises
2. Appropriate distribution of approved documents.		During implementation
3. Notification of revisions/updates to EMS.		As needed

Procedure Index

1.0 Purpose
2.0 Scope
3.0 Responsibility
4.0 Definitions
5.0 Process
6.0 References / Related Documents

Type of Documents

- Procedures
- EMS Documentation (supporting work product)
- Work Instructions
- Forms and Records

10. Operational Control

- What is Operational Control?
  - To satisfy the commitments of MDT's environmental policy, you need to **control operations** and activities that are associated with **significant aspects**.
  - Determining which operations should be controlled is a critical step in designing an effective EMS.

Operational Control Work Instructions are:

- A sequence of steps to execute a routine task;
- A specified way to perform an activity; or
- A process that specifies how to perform operations & activities associated with significant environmental aspects.

Miami-Dade Transit

MIAMI-DADE COUNTY

EMS Document

Verification	Originator	Revised	Approved	Issued
Initials	Akbar Sharifi, PE	Akbar Sharifi, PE		
Date	06/24/2009	01/29/2010		

ED-4.4.6-5 Operational Control, Work Instruction (WI) Tracking

	Aspect	WI – Number & Name	Description/Comments	Person Responsible	Status	Target Date	Training Needs
1	Aerosol Cans	WI-4.4.6-5.1 Aerosol Cans Management	Proper management of recycling and/or disposal of aerosol cans. *(Impact - air, soil, surface water and groundwater pollutant if punctured or ruptured due to extreme temperature).*	**Steve Alvarez/ Freeman Wright**	Recycling material implemented by purchasing can puncturing equipment	11/30/2009	Yes
2	Fluorescent Tube and Ballast	WI-4.4.6-5.2 Fluorescent Light Bulbs Management	Proper management of recycling and/or disposal of light bulbs *(Impact - soil, groundwater pollution associated with landfill).*	**Steve Alvarez/ Freeman Wright**	Recycling material implemented by purchasing bulb crushing equipment	11/30/2009	Yes
3	Used Oil	WI-4.4.6-5.3 Used Oil Management	Proper management of used oil in the maintenance shop by filling, storing, and removing used oils from the 200-gallon tank/parts washer tank *(Impact - soil and groundwater pollution from spills from loading /unloading & catastrophic failure of the tank).*	**Steve Alvarez**	Implemented Program	12/31/2009	Yes
4	Fresh Oil	WI-4.4.6-5.4 Fresh Oil Management	Proper management of motor oil storage and pollution prevention associated with filling, storing, and removing oils from 55-gallon drums *(Impact - air, soil, surface water and groundwater pollutant if discharged)*	**Steve Alvarez**	Implemented Program	12/31/2009	Yes
5	Chlorofluorocarbons (CFCs) Management – (i.e.,Refrigerant/Coolant/ Freon	WI-4.4.6-5.5 CFCs Management	Proper management through servicing, and documenting all CFC's that are removed from a refrigeration unit for recharging or disposal *(Impact – air pollution)*	**Steve Alvarez/ Freeman Wright**	Implemented Program	12/31/2009	Yes

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Date	06/24/2009	01/29/2010		

ED-4.4.6-5 Operational Control, Work Instruction (WI) Tracking

6	Used Tires	WI-4.4.6-5.6 Used Tires Management	Disposal and/or recycling of used tires in the maintenance shop (*Impact - water, soil and groundwater pollutant*).	**Steve Alvarez/ Freeman Wright**	Implemented Program	12/31/2009	Yes
7	Industrial Wastewater (i.e., Oil/Water Separator)	WI-4.4.6-5.7 Industrial Wastewater Management	Proper management of industrial wastewater (i.e., oil/water separator) and pollution prevention. (*Impact – 1. Soil and groundwater pollution from discharge associated with OWS (catastrophic failure of the OWS).* *2. Pollution from discharge from OWS to sanitary sewer system exceeding discharge guidelines.*	**Steve Alvarez/ Steve Chayt**	Implemented Program	12/31/2009	Yes
8	Shop Rags and Cotton Gloves	WI-4.4.6-5.8 Used Shop Rags and Cotton Gloves Management	Proper recycling and/or disposal methods used shop rags and gloves (*Impact - air, soil, surface water and groundwater pollution associated with landfill*)	**Steve Alvarez/ Freeman Wright**	Implemented Program	12/31/2009	Yes
9	Used Batteries	WI-4.4.6-5.9 Used Batteries Management	Proper recycling and/or disposal methods for used shop batteries (*Impact - air, soil, surface water and groundwater pollution associated with landfill*)	**Steve Alvarez/ Freeman Wright**	Implemented Program	12/31/2009	Yes
10	Shop and Office Recyclables	WI-4.4.6-5.10 Recyclables Management	Proper recycling of shop and office recyclables (i.e., card boards, papers, etc.) by designated containers in shop and office areas, and documenting recycling activities (*Impact - soil, groundwater pollution associated with landfill*)	**Steve Alvarez**	Implemented Program	12/31/2009	Yes

Work Instructions/SOPs

Miami-Dade Transit

MDT Internal Document No.	Person responsible	Prepared by	Reviewed by	Approved by
05.04.00	Valerie Cheryl Freeman Wright	Freeman Wright		

WI 4.4.6-5.1 AEROSOL CANS MANAGEMENT

1 **Purpose**
- 1.1 To identify procedures for the issue, collection and disposal of Aerosol Cans.

2 **Scope**
- 2.1 This procedure is responsive to the Miami-Dade Transit (MDT) Metro Mover Facility Storeroom goal to minimize impacts to the environment from operating practices and waste disposal.
- 2.2 This procedure applies to disposal of Aerosol Cans
- 2.3 This procedure covers operations at the MDT Metro Mover Facility.

3 **Responsibility**
- 3.1 Storeroom personnel are responsible for the collection and disposal of all aerosol cans.
- 3.2 Storeroom supervisor is responsible for weekly inspection of storage areas to verify compliance with these requirements.
- 3.3 Environmental Procurement is responsible for contracting for proper disposal of Aerosol Cans.

4 **Procedure**
- 4.1 Aerosol cans are to be issued from the storeroom on a one to one exchange basis. There will be no issue of these items without an even exchange of a punctured can unless authorized in writing from a supervisor.
- 4.2 The storeroom personnel are responsible for insuring that aerosol cans are properly disposed within the designated drums outside the storeroom by the maintenance employee.
- 4.3 The storeroom personnel will seal filled drums of punctured cans and label with a "non-hazardous" waste label and arrange for pickup by the contracted vendor.

Aerosol Can Crushing and Waste Collection Area

11. Emergency Preparedness and Response

- The organization must have **procedures** to manage emergency situations and prevent or lessen associated environmental impacts

  For things that <u>can</u> have an **impact on the environment,** the organization must:

  - **Identify potential** emergencies and accidents;
  - Know **how to respond** to them; and
  - **Prevent or mitigate** adverse environmental impacts.

Miami-Dade Transit

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EMS Document

Verification	Originator	Revised	Approved	Issued
Initials	Akbar Sharifi, P.E.	Akbar Sharifi, P.E.		
Date	06/24/2009	02/10/2010		

ED-4.4.7-2 Emergency Preparedness Plan Review

Document Name:	Metromover Facility Emergency and Accident Plan Review	**Facility/Department:**	Maintenance
Document No:	1		
Review start Date:	06/24/2009	**Personnel participating in the review:**	EMS Team Members
Date Fully Completed:	On Going		

1.0 Identify Potential Emergency and Potential Accidents that can have an impact on the environment and how to respond to them.

Operation, Activity or Equipment	Potential Accident or Emergency Situation	Environmental Impacts	Potential Prevention and Mitigation Measures
Fresh / Used Oil Transfer	Fuel release	Impact to adjacent drains and underlying soil and personnel in the area.	Secondary containment, routine inspections, integrity tests, maintain spill kit close by, training refueling personnel, not refueling in the rain, annual spill response drill, and Best Management Practices.
Hazardous Material Handling	Fire and subsequent release	Substantial release to the air, soil and surface water in addition to impacts to emergency responders and adjacent communities.	Proper storage and labeling, adhere to EPCRA requirements, coordinated fire response drills with Fire Department, annual fire extinguisher/response training, and Best Management Practices.
Oil/Water Separator	Fuel/Oil release	Substantial release to the air, soil and surface water in addition to impacts to emergency responders and adjacent communities.	Secondary containment, routine inspections, integrity tests, maintain spill kit close by, training refueling personnel, annual spill response drill, and Best Management Practices.

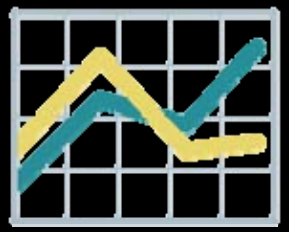
Verification	Originator	Revised	Approved	Issued
Initials	Akbar Sharifi, P.E.	Akbar Sharifi, P.E.		
Date	06/24/2009	02/10/2010		

ED-4.4.7-2 Emergency Preparedness Plan Review

2.0 Identify existing emergency preparedness plans

Plan Name	Location of Plan	Date of Plan	Person Responsible for the Plan
Spill Prevention, Control and Countermeasures Plan	Miami-Dade Transit (MDT) Main Office and Maintenance Facilities	07/01/2009	Mr. Akbar Sharifi, P.E.
Hurricane Manual	Miami-Dade Transit (MDT) Main Office and Maintenance Facilities	05/19/2009	Office of Safety and Security
System Safety Plan	Miami-Dade Transit (MDT) Main Office and Maintenance Facilities	04/2003 (Revision #9)	Mr. Steve Alvarez

12. Monitoring and Measurement



Procedures to include the documenting of information to monitor performance, applicable operational controls, and conformity with the organization's environmental objectives and targets.

- Verifies conformance with Operational Controls (SOPs, Work Instructions)
- Tracks progress towards Environmental Objectives & Targets
- Reviews management of Significant Aspects
- Evaluates calibration and maintenance of monitoring equipment
- Evaluates regulatory compliance

Why you need effective Monitoring & Measurement, and what are the Methods?

The results of Monitoring & Measurement activities will be used to identify areas of the EMS which are:

- Performing well;
- Need corrective action (i.e., “non-conformance”); and,
- Can be improved (i.e., “observations”).

There are two main approaches:

- Direct Measurement (a.k.a. “quantitative”)
- Indirect Measurement (a.k.a “qualitative”)

Direct/Quantitative & Indirect/Qualitative Measurement

Direct/Quantitative Measurement

- Number of inspections
- Pounds of waste (solid, non-hazardous, emissions)
- Numbers of employees trained
- Concentration of pollutant

Indirect/Qualitative Measurement

- Reducing the risk of spills during the transfer of used or fresh oil depends on the operator correctly following the precautions in the work instruction.
- The EMS may be evaluated during an audit by interviewing employees to determine their awareness level of regulatory requirements.

Miami-Dade Transit

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Initials	Akbar Sharifi, P.E.	Akbar Sharifi, P.E.		
Date	10/21/2009	02/10/2010		

ED-4.5.1-2 Monitoring & Measurement of Objectives, Targets & Programs

Summary					
Aspect	**Objective**	**Target**	**Performance Indicator**	**Projected Complete Date**	**Progress Status Corrective Action**
1. Aerosol Cans	1.Reduce waste generation 2.Document handling and recycling of waste	1.Establish process control to reduce waste by 5% 2. Implement Standard Operating Procedures (SOPs).	Receipts and Benchmarking	September 30, 2009	Purchased and installed aerosol can crusher equipment.
2. Fluorescent Tube and Ballast	1.Reduce waste generation 2.Document handling and recycling of waste	1.Establish process control to reduce waste by 5% 2. Implement Standard Operating Procedures (SOPs).	Receipts and Benchmarking	September 30, 2009	Purchased and installed fluorescent lamps can crusher equipment (i.e., E-Lampniator).
3. Used Oil (i.e., filling, storing, transferring and removal of used oil from the 200-gallon aboveground storage tank)	-Reduce and/or prevent any oil spill -Document handling and recycling of used oil	1.Update Spill Prevention, Control & Countermeasure (SPCC) Plan 2.Implement Standard Operating Procedures (SOPs) for Used Oil Management 3.Provide training to facility personnel	Monitor/document any spill events	1.August 31, 2009 2.August 31, 2009 **3. April 15, 2010**	1.Completed the SPCC Plan 2. Completed SOPs for Used Oil Management 3. Training material in the process of being prepared and will be completed by 04/15/2010.

Verification	Originator	Revised	Approved	Issued
Initials	Akbar Sharifi, P.E.	Akbar Sharifi, P.E.		
Date	10/21/2009	02/10/2010		

ED-4.5.1-2 Monitoring & Measurement of Objectives, Targets & Programs

Summary					
Aspect	**Objective**	**Target**	**Performance Indicator**	**Projected Complete Date**	**Progress Status Corrective Action**
4. Fresh Oil	-Reduce and/or prevent any oil spill -Document handling and recycling of used oil	1.Update Spill Prevention, Control & Countermeasure (SPCC) Plan 2.Implement Standard Operating Procedures (SOPs) for Fresh Oil Management 3.Provide training to facility personnel	1.Monitor/document any spill events 2.Documented records of inspections and testing	1.August 31, 2009 2.August 31, 2009 **3. April 15, 2010**	1.Completed the SPCC Plan 2. Secondarily contained berm has been set up for the 55-gallon drums 3. Completed SOPs for Fresh Oil Management 4. Training material in the process of being prepared and will be completed by **04/15/2010.**
5.Chlorofluorocarbons (CFCs) Management (i.e., refrigerant, coolant or freon)	Reduce CFC emission into the air	Train technicians to properly manage, service, and document all CFC's that are removed from a refrigeration unit for recharging or equipment disposal	Training records	April 15, 2010	1. Training material in the process of being prepared and will be completed by **04/15/2010.**
6. Used Tires	1.Reduce waste generation 2.Document handling and recycling of waste	1.Establish process control to reduce waste by 5% 2. Implement Standard Operating Procedures (SOPs).	Receipts and Benchmarking	December 31, 2009	Implemented SOPs and established recycling methods

Verification	Originator	Revised	Approved	Issued
Initials	Akbar Sharifi, P.E.	Akbar Sharifi, P.E.		
Date	10/21/2009	02/10/2010		

ED-4.5.1-2 Monitoring & Measurement of Objectives, Targets & Programs

Summary					
Aspect	**Objective**	**Target**	**Performance Indicator**	**Projected Complete Date**	**Progress Status Corrective Action**
7. Industrial Wastewater Treatment (i.e., Oil/Water Separator)	Reduce and/or prevent industrial wastewater discharges	1. Establish baseline for facility industrial wastewater discharge system. 2. Complete evaluation of effectiveness existing system. 3. Document and implement operational controls. 4.Document Best Management Practices (BMPs)	Monitor/document any discharges	September 30, 2009	1. Established baseline document. 2. Completed evaluation of effectiveness of existing system. 3. Documented and implemented operational controls. 4. Documented BMPs as part of the Spill Prevention, Control and Countermeasure (SPCC) plan.
8. Used Rags and Cotton Gloves	Properly dispose of contaminated rags and absorbents	Eliminate disposal of contaminated rags and absorbent pads in the landfill	Number of drums picked up by contractors and invoice records	December 31, 2009	Implemented used rag recycling program.
9. Used Batteries	Reduce amount of batteries used	Reduce usage by 5%	Monitor the amount of batteries used and train employees	December 31, 2009	Battery recycling program has started and recycling container has been set up in front of the stock room.
10. Office and Shop Recycling	Recycle plastic, aluminum, cardboard, paper, scrap metal, printer & copier cartridges	Provide recycling bins and containers in offices and shop areas	Receipts, recycling vendor sign-in sheets, and employee training	December 31, 2009	Recycling bins for paper and cardboard have been set up in front of the manager's office

Verification	Originator	Revised	Approved	Issued
Initials	Akbar Sharifi, P.E.	Akbar Sharifi, P.E.		
Date	10/21/2009	02/10/2010		

ED-4.5.1-2 Monitoring & Measurement of Objectives, Targets & Programs

Summary					
Aspect	**Objective**	**Target**	**Performance Indicator**	**Projected Complete Date**	**Progress Status Corrective Action**
11.Facility Electricity Reduction	To reduce the amount of electricity used at the Maintenance Shop and Mover Stations	Install new lighting fixtures in shop & office areas that are 25% to 30% more efficient. In addition, reduce overall electricity 5% by 2014 and 20% by 2025	Electrical Bills, train employees, facility assessment	December 31, 2010	Some lighting being updated, facility assessment has not been done.

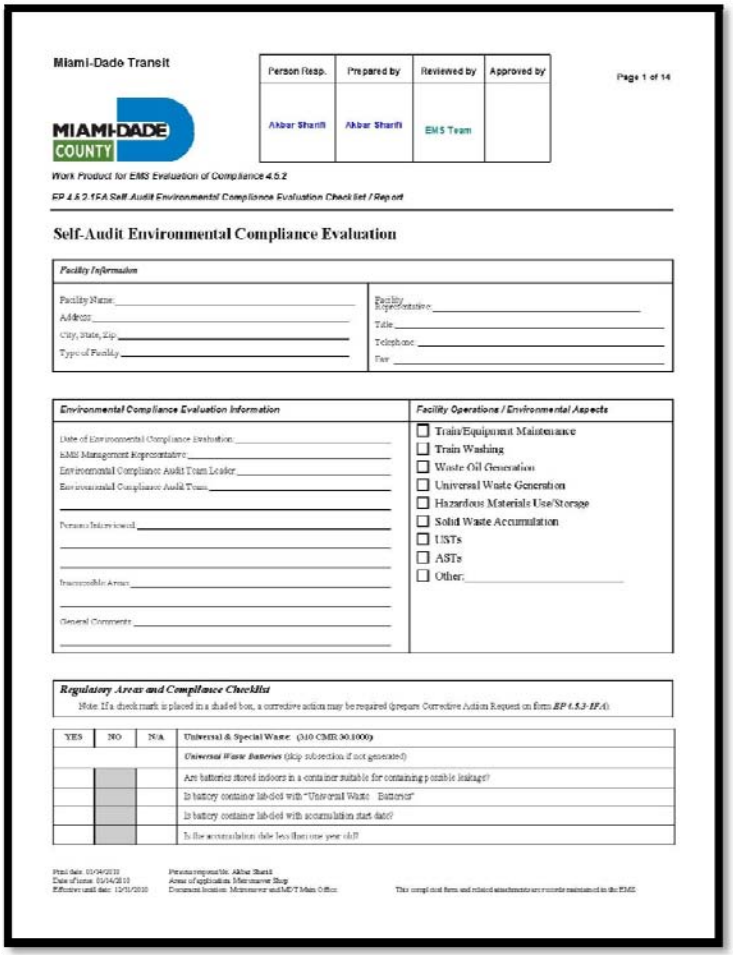
Benchmarking - comparing the business processes and performance metrics

EMS Performance Tracking for Senior Management Reporting - Demonstrates Continual Improvement *(select 3 to 6 relevant items and continue to improve)*	
1.0	**Number of significant aspects in the EMS:** *4*
2.0	**Number of objectives and targets met:** *10*
3.0	**Number of EMS Team meetings:** *14*
4.0	**Percentage of employees completing EMS training:** *N/A*
5.0	**Estimated cost savings associated with EMS:**
6.0	**Number of complaints from community and/or number of responses to complaints:** *N/A*
7.0	**Number of pollution prevention ideas generated by employees:** *N/A*

13. Evaluation of Compliance

- Ensure that compliance with relevant environmental legislation and regulations is being evaluated on a periodic basis.
- No more than 12 months will elapse between evaluations.
- All documentations pertaining to Environmental Compliance Evaluation will conform to the documentation and record requirements of the EMS (i.e., Control of Documents and Control of Records)

Self-Audit Environmental Compliance Evaluation Checklist



Miami-Dade Transit

Person Resp.	Prepared by	Reviewed by	Approved by
Akbar Sharifi	Akbar Sharifi	EMS Team	

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MIAMI-DADE COUNTY

Work Product for EMS Evaluation of Compliance 4.5.2

EP 4.5.2.1FA Self-Audit Environmental Compliance Evaluation Checklist / Report

Self-Audit Environmental Compliance Evaluation

Facility Information

Facility Name: _____ Facility Representative: _____

Address: _____ Title: _____

City, State, Zip: _____ Telephone: _____

Type of Facility: _____ Fax: _____

Environmental Compliance Evaluation Information	***Facility Operations / Environmental Aspects***
Date of Environmental Compliance Evaluation: _____	☐ Train/Equipment Maintenance
EMS Management Representative: _____	☐ Train Washing
Environmental Compliance Audit Team Leader: _____	☐ Waste Oil Generation
Environmental Compliance Audit Team: _____	☐ Universal Waste Generation
_____	☐ Hazardous Materials Use/Storage
Person Interviewed: _____	☐ Solid Waste Accumulation
_____	☐ USTs
_____	☐ ASTs
Inaccessible Areas: _____	☐ Other: _____
_____	
General Comments: _____	
_____	

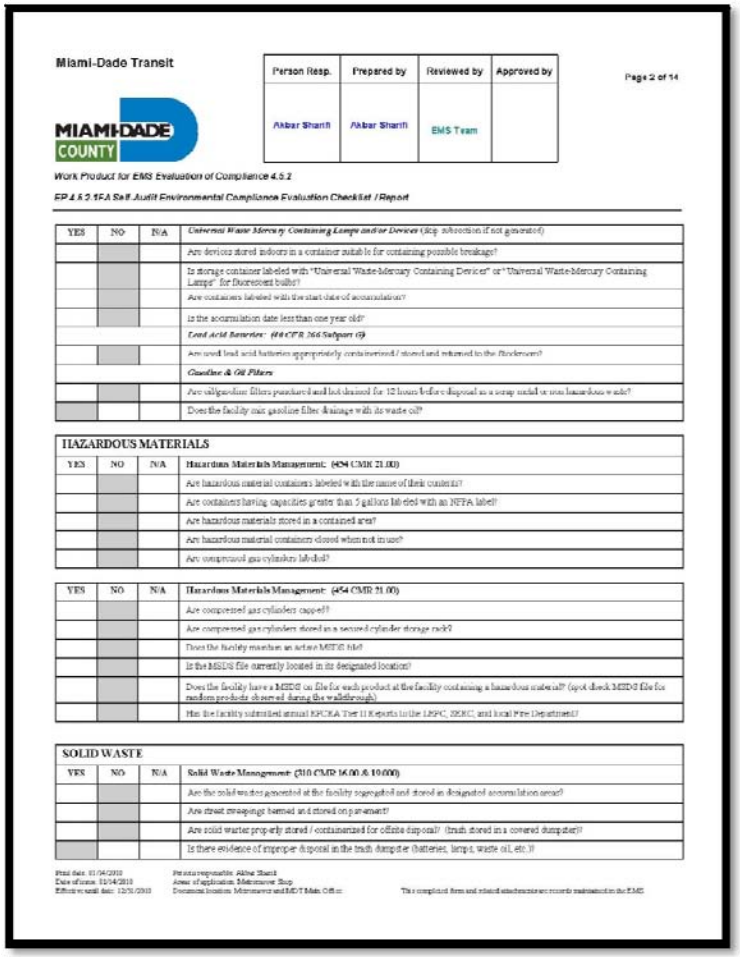
Regulatory Areas and Compliance Checklist

Note: If a check mark is placed in a shaded box, a corrective action may be required (prepare Corrective Action Request on form *EP 4.5.3-1FA*)

YES	NO	N/A	**Universal & Special Waste: (310 CMR 30.1000)**
			Universal Waste Batteries (skip subsection if not generated)
			Are batteries stored indoors in a container suitable for containing possible leakage?
			Is battery container labeled with "Universal Waste – Batteries"
			Is battery container labeled with accumulation start date?
			Is the accumulation date less than one year old?

Print date: 01/04/2010 Person responsible: Akbar Sharifi
Date of issue: 01/04/2010 Areas of application: Maintenance Shop
Effective until date: 12/31/2010 Document location: Maintenance and MDT Main Office

This completed form and related attachments are records maintained in the EMS.



Miami-Dade Transit

Person Resp.	Prepared by	Reviewed by	Approved by
Akbar Sharifi	Akbar Sharifi	EMS Team	

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MIAMI-DADE COUNTY

Work Product for EMS Evaluation of Compliance 4.5.2

EP 4.5.2.1FA Self-Audit Environmental Compliance Evaluation Checklist / Report

YES	NO	N/A	***Universal Waste Mercury Containing Lamps and/or Devices*** (skip subsection if not generated)
			Are devices stored indoors in a container suitable for containing possible breakage?
			Is storage container labeled with "Universal Waste-Mercury Containing Devices" or "Universal Waste-Mercury Containing Lamps" for fluorescent bulbs?
			Are containers labeled with the start date of accumulation?
			Is the accumulation date less than one year old?
			Lead Acid Batteries: (40 CFR 266 Subpart G)
			Are used lead acid batteries appropriately containerized / stored and returned to the Storekeeper?
			Gasoline & Oil Filters
			Are tailgate oil filters punched and left drained for 12 hours before disposal as a scrap metal or non hazardous waste?
			Does the facility mix gasoline filter drainage with its waste oil?

HAZARDOUS MATERIALS			
YES	NO	N/A	**Hazardous Materials Management: (454 CMR 21.00)**
			Are hazardous material containers labeled with the name of their contents?
			Are containers having capacities greater than 5 gallons labeled with an NFPA label?
			Are hazardous materials stored in a contained area?
			Are hazardous material containers closed when not in use?
			Are compressed gas cylinders labeled?

YES	NO	N/A	**Hazardous Materials Management: (454 CMR 21.00)**
			Are compressed gas cylinders capped?
			Are compressed gas cylinders stored in a secured cylinder storage rack?
			Does the facility maintain an active MSDS file?
			Is the MSDS file currently located in its designated location?
			Does the facility have a MSDS on file for each product at the facility containing a hazardous material? (spot check MSDS file for random products observed during the walkthrough)
			Has the facility submitted annual EPCRA Tier II Reports to the LEPC, SERC, and local Fire Department?

SOLID WASTE			
YES	NO	N/A	**Solid Waste Management: (310 CMR 16.00 & 19.000)**
			Are the solid wastes generated at the facility segregated and stored as designated accumulation areas?
			Are street sweepings burned and stored on premises?
			Are solid wastes properly stored / containerized for offsite disposal? (trash stored in a covered dumpster)?
			Is there evidence of improper disposal in the trash dumpster (batteries, lamps, waste oil, etc.)?

Print date: 01/04/2010 Person responsible: Akbar Sharifi
Date of issue: 01/04/2010 Areas of application: Maintenance Shop
Effective until date: 12/31/2010 Document location: Maintenance and MDT Main Office

This completed form and related attachments are records maintained in the EMS.

14. Nonconformity, Corrective Action and Preventive Action

- A **nonconformance** is any **deficiency** or **failure** to fulfill a specified requirement.
- A process that:
  - **Defines** roles, responsibilities and authorities;
  - **Investigates** nonconformities;
  - **Mitigates** the impact of nonconformities; and
  - **Records** the results.

Nonconformity, Corrective & Preventive Action is linked to all elements in the EMS

- By finding nonconformance with your own procedures.
- Your corrective and preventive actions may involve changes to procedures and work instructions.

Major and Minor Nonconformance

- A **major nonconformance** is a serious deficiency that adversely affects the EMS.
- A **minor nonconformance** is an isolated deficiency that does not affect the performance of the EMS as a whole.

Major Nonconformance examples:

- **Absence** of a required procedure or SOP;
- Failure to **implement** established procedures; and
- Failure to take **corrective action** when a nonconformance is observed.

Major Nonconformance occur through one of the following

- Regulatory nonconformance;
- An incident/accident;
- Nonconformance with internal objectives & targets;
- Insufficient documentation to evaluate conformance with the EMS; or
- Nonconformance with procedures and SOPs.

Minor Nonconformance examples:

- **Failure by a few** isolated individuals (out of many) to follow an established procedure or SOP.
- **One time occurrence** where the agreed corrective action was not resolved within a designated time frame.

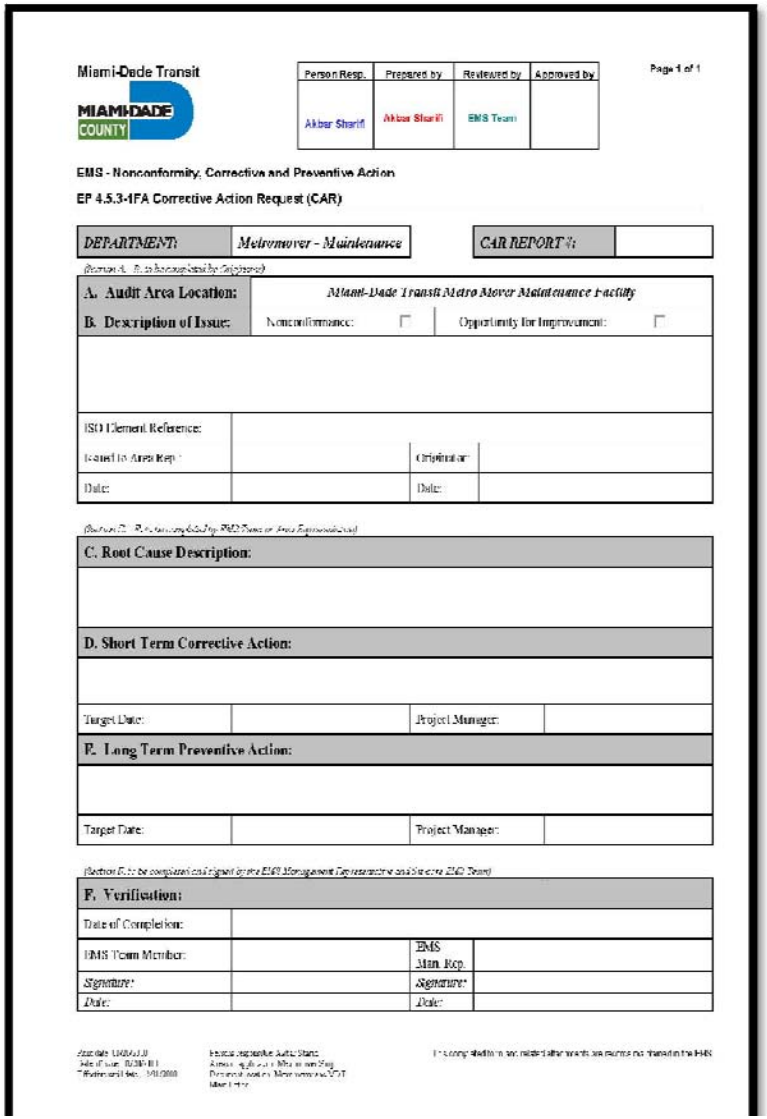
Example of Nonconformity, Corrective & Preventive Action

The finding is: ***Inadequate Work Instructions*** *(or SOPs)*

Nearby storm drain in used oil unloading area not temporarily sealed prior to product unloading

Outcome or Potential Outcome	Major release to the environment
Typical Methods of Discovery	-Accident or near miss occurs -Routine inspection -Formal procedure audit
Corrective Action	-Place a berm or other method of control at the drain entrance
Preventive Action	-Revise work instruction to include blockage of the drain. -Conduct on-the-job retraining that includes protecting the drain during product unloading.

Corrective Action Request Form



Miami-Dade Transit

MIAMI-DADE COUNTY

Person Resp.	Prepared by	Reviewed by	Approved by
Akbar Sharifi	Akbar Sharifi	EMS Team	

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EMS - Nonconformity, Corrective and Preventive Action

EP 4.5.3-1FA Corrective Action Request (CAR)

DEPARTMENT:	*Metromover - Maintenance*	*CAR REPORT #:*	

(Section A, B, to be completed by Auditor(s))

A. Audit Area Location:	*Miami-Dade Transit Metro Mover Maintenance Facility*	
B. Description of Issue:	Nonconformance: ☐	Opportunity for Improvement: ☐
ISO Element Reference:		
Issued to Area Rep.:		Originator:
Date:		Date:

(Section C, D, to be completed by EMS Team or Area Representative)

C. Root Cause Description:			
D. Short Term Corrective Action:			
Target Date:		Project Manager:	
E. Long Term Preventive Action:			
Target Date:		Project Manager:	

(Section F, to be completed and signed by the EMS Management Representative and Site core EMS Team)

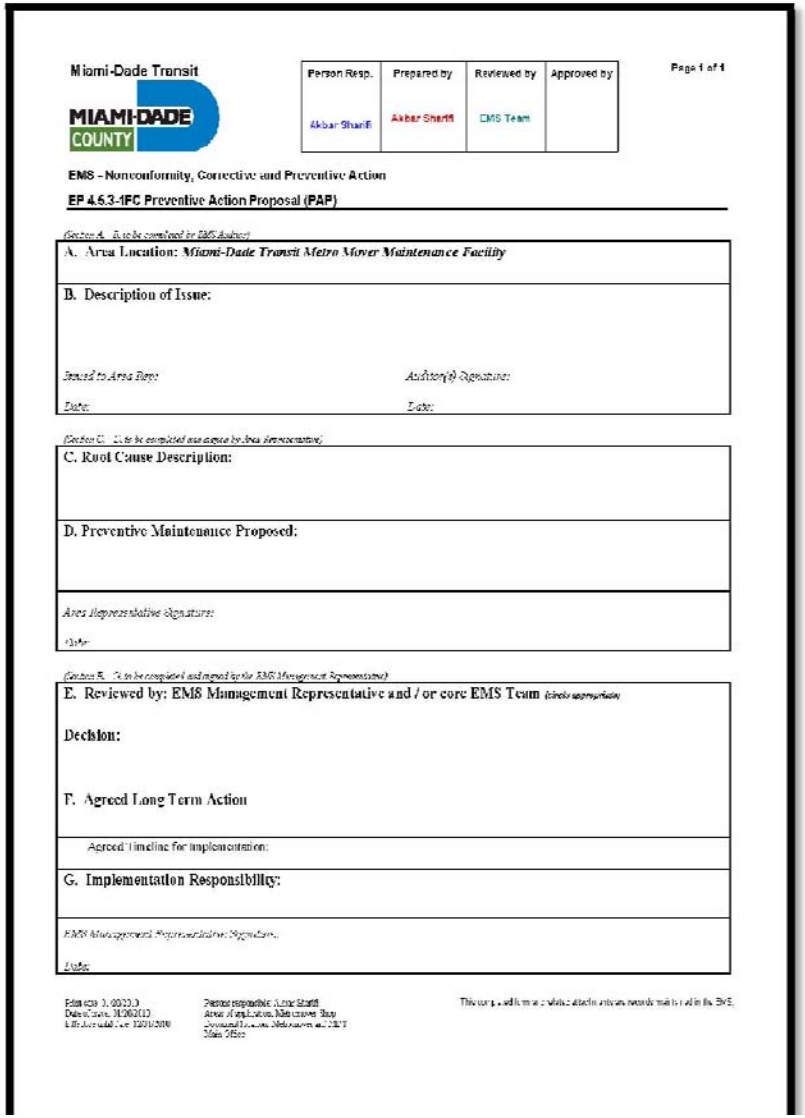
F. Verification:			
Date of Completion:			
EMS Team Member:		EMS Man. Rep.	
Signature:		*Signature:*	
Date:		*Date:*	

Issue date: 12/03/13
Date of last revision: 12/03/13
Effective date: 12/03/2013

Person responsible: Akbar Sharifi
Area of application: Metromover - Maintenance and DTT Main Office

If corrective action requires changes to procedures, forms or manuals, these must be updated in the EMS.

Preventive Action Proposal Form



Miami-Dade Transit

MIAMI-DADE COUNTY

Person Resp.	Prepared by	Reviewed by	Approved by
Akbar Sharifi	Akbar Sharifi	EMS Team	

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EMS - Nonconformity, Corrective and Preventive Action

EP 4.5.3-1FC Preventive Action Proposal (PAP)

(Section A, B, to be completed by EMS Auditor)

A. Area Location: ***Miami-Dade Transit Metro Mover Maintenance Facility***

B. Description of Issue:

Issued to Area Rep: *Auditor(s) Signature:*

Date: *Date:*

(Section C, D, to be completed and signed by Area Representative)

C. Root Cause Description:

D. Preventive Maintenance Proposed:

Area Representative Signature:

Date:

(Section E, F, to be completed and signed by the EMS Management Representative)

E. Reviewed by: EMS Management Representative and / or core EMS Team *(circle appropriate)*

Decision:

F. Agreed Long Term Action

Agreed Timeline for implementation:

G. Implementation Responsibility:

EMS Management Representative Signature:

Date:

Effective Date: 12/03/13
Date of Issue: 12/03/13
Effective Date: 12/03/2013

Person responsible: Akbar Sharifi
Area of application: Metromover - Maintenance and DTT Main Office

This form is used to initiate preventive actions and records maintained in the EMS.

Corrective Action Log / Report

Miami-Dade Transit

MIAMI-DADE COUNTY

Person Resp.	Prepared by	Reviewed by	Approved by
Akbar Sharifi	Akbar Sharifi	EMS Team	

EMS – Nonconformity, Corrective and Preventive Action

EP 4.6.3-1FB Corrective Action Log / Report

Auditor(s):

Date of Audit:

CAR or PAP	CAR or PAP Report No.	Location of Issue	Description of Issue	Responsible Representative Issued to	Follow-up Date(s)

16. Control of Records

What are EMS Records:

- Records are designed to capture **historical** environmental information.
- Records are the history or the objective evidence that a task or activity was performed as part of the EMS.

Difference between records, documents and forms:

- A record *records* the outcome or result of an activity or task.
- A document provides guidance on how to conduct a task or activity.
- Forms are tools which, when blank or empty, are used to gather and collect information.

After the form is completed with the required information, it becomes a record!

Example listing of EMS Records

- Incident reports
- Complaints and responses
- Internal and external communication
- Contractor and supplier information
- Inspection/maintenance/calibration data
- Process information
- Product information
- Training records
- Audit results (regulatory compliance and EMS)
- Records of significant aspects & impacts
- Information on applicable environmental laws and other requirements
- Emergency preparedness and response
- Management reviews
- Regulatory permit monitoring reports
- Regulatory submittals (reports and updates)
- Regulatory compliance records (hazardous waste manifests & inspections records)
- Meeting minutes (dated with attendees, etc.)

Records can be divided into two categories:

EMS **performance** records

- The completion of tasks that are required by the EMS.
- For example:
  - Training;
  - Audit;
  - Management review;
  - Monitoring; and
  - Compliance and inspection reports, etc.

EMS **design** records

- Regarding the decisions made during the design of the EMS.
- For example:
  - List of aspects;
  - Meeting minutes;
  - Signed or approved procedures;
  - Revised procedures; and
  - Other written records of the evaluation process

Miami-Dade Transit

MIAMI-DADE COUNTY

EMS - Control of Records

Person Resp.	Prepared by	Reviewed by	Approved by
Akbar Sharifi	Akbar Sharifi	EMS Team	

EP 4.5.5.4-1FA Control of Records Matrix

Date: 01/21/2010

Revision Number and Date: Revision #1, 02/10/2010

EMS Section	Records	Responsibility	Location	Type of Record	Review Period	Retention Time	Last Updated	Comments
4.3.1 Environmental Aspects	Evaluation of aspects and impacts	A. Sharifi	MDT's Main Office	Paper	Annually	Permanent	02/10/2010	
4.3.2 Legal and Other Requirements	1. Industrial Waste Permit Fee	A. Sharifi	MDT's Main Office and Maintenance Manager's Office	Paper	Annually	Ongoing	02/10/2010	
	2. Legal and Other Requirements Matrix	A. Sharifi	MDT's Main Office and Maintenance Manager's Office	Paper	Annually	Ongoing	02/10/2010	
	3. MSDS Books	F. Wright	Materials Manager's Office	Paper	Annually	Ongoing	02/10/2010	
	4. Fire Extinguisher Inspection Log	S. Chayt	Maintenance Manager's Office	Paper	Annually	Ongoing	02/10/2010	
4.3.3 Objectives, Targets and Programs	1. Purchase of Hazardous Materials	F. Wright	Materials Manager's Office	Paper	Annually	Ongoing	02/10/2010	
	2.Paper and Cardboard Management	A. Sharifi	MDT's Main Office and Maintenance Manager's Office	Paper	Annually	Ongoing	02/10/2010	
	3. Aerosol Cans Management	F. Wright	Materials Manager's Office	Paper	Annually	Ongoing	02/10/2010	
	4. Light Bulbs/Ballast Management	F. Wright	Materials Manager's Office	Paper	Annually	Ongoing	02/10/2010	
	5. Work Instruction (WI) Standard Operating Procedures (SOPs)	S. Alvarez and F. Wright	Maintenance Manager's Office	Paper	Annually	Ongoing	02/10/2010	

17. Internal Audit

Periodic audits are conducted to determine if the EMS is properly:

- Implemented;
- Maintained; and
- Functioning correctly.

Difference between EMS Assessment and Audit

EMS Assessment:

- Identifies deficiencies during the initial development and implementation phase.
- Contains a gap analysis with recommended actions to meet the ISO 14001 EMS requirements.

EMS Audit

- Focuses on whether the system is effective and conforms to the standards the organization has adopted.
- Asks the question, “Is the organization following its specified management system?”

Types of EMS Audits

- **1st Party** – internal audit (**yourselves**)
- **2nd Party** – external audit (**consultant**)
- **3rd Party** – independent external audit (**assessor**)

Responsibilities associated with audits

- EMS Management Representative
  - Manage the Auditing program
- Managers of the audited department
  - Corrective action
- Internal EMS auditors
  - Conduct an effective audit
- Senior Management
  - Review results

MDT Internal EMS Audit Checklist

EMS Internal Audit
EP 4.5.5-1FB Internal EMS Audit Checklist / Report

EMS Audit Team:	Department Audited: Date of Audit:

Criteria	Audit Question	Required Evidence	Audit Observations	C	N
General Requirements					
4.1	1) Has the scope been documented to define the fence line to which the EMS applies?	Verify that activities, products and services are addressed within the scope.			
Environmental Policy					
4.2	1) Has top management defined the Environmental Policy?	View the Environmental Policy and verify it is signed by top mgt.			
4.2	2) Is the Environmental Policy appropriate to the nature scale, and environmental impacts of its activities, products, or services?	Verify that the Environmental Policy includes a description of the appropriate activities, products and services.			
4.2	3) Does the Environmental Policy include a commitment to continual improvement & pollution prevention?	Confirm that the Environmental Policy includes a written commitment to continual improvement and prevention of pollution.			
4.2	4) Does the Environmental Policy include a commitment to comply with appropriate environmental laws & other requirements?	Confirm that the Environmental Policy includes a written commitment to meeting or exceeding all appropriate legal and other requirements.			
4.2	5) Does the Environmental Policy provide a framework of setting & reviewing environmental objectives & targets?	Confirm that the facility objectives are identified. (e.g., reduce energy, reduce waste.)			
4.2	6) Is the Environmental Policy documented, implemented, maintained and communicated to all employees? How are temporary or part time employees covered? Do employees know how their job relates to the Environmental Policy?	Confirm that the Environmental Policy is given to employees and that the employees are given Environmental Policy awareness training			

18. Management Review

MDT's management is setup to **review the results of internal audits and progress reporting on objectives, targets and programs** established as part the Environmental Management System (EMS).

The MDT's management team responsibilities include:

- Schedule and organize management review meetings regularly (Quarterly).
- Provide meeting agenda and sign-in sheet.
- Address questions and requests raised during the review meetings.
- Prepare, submit and maintain meeting minutes.

Goals of Management Review

- Are environmental risks being managed effectively?
- Are we complying with environmental regulations and will we continue to do so?
- Are we achieving improvements in environmental performance?

Questions?