



Environmental Management Systems (EMS)

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Powering Business Worldwide

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Biography: Chadwick Cardott

- University of Illinois Urbana Champaign
 - B.A. Communications
- Columbia Southern University
 - M.S. Occupational Health & Safety (Environmental Management Concentration)
- Previously employed with EnviroNET, Inc.
 - Environmental Compliance Specialist
- Currently employed at Eaton Aerospace, Mission Systems Division
 - EHS Analyst (Environmental Focus)



Facility

- Located in Davenport, IA
- Manufacture aerospace components
 - Tanks & Pods
 - Hose & Drouge
 - Fuel inerting systems
 - Fabrication Department
 - Releases & restraints
 - Dive regulators
- ~800 employees currently
- ~500 typically on-site
- Hourly production labor is unionized
- Team consists of
 - EHS Manager
 - 3 EHS Analysts
 - EHS Coordinator



Background

- Previously Cobham Mission Systems
- Purchased by Eaton in 2021
- Currently undergoing 3-year integration period
 - All functions working to align with Eaton standard work practices
 - HR, Finance, Operations, IT, etc.
 - Adopting documents

COBHAM



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Organizational Considerations

- Benefits of a large corporation:
 - Internal expertise
 - Funding for facility EHS improvements
 - Funding for consultant experts (as part of integration activities)
 - Internal networking with other facilities
- Smaller companies may not have the resources or personnel to effectively manage EHS programs
- Environmental Management Systems goal:
 - Help streamline management of environmental programs
 - Help to reduce time needed
 - Help to ensure the quality and compliance of environmental programs at a site

Environmental Management System (EMS)

MESH

- Management of Environment, Safety, Security, Health
- Eaton-proprietary system
- Internally audited

Compliance Calendar

- EHS Department system
- Currently an excel file
- Plans to evolve into an automated system

Work Order System (HIPPO)

- Maintenance department system
- Tracks work orders
- Automatically triggers periodic requirements

MESH

Committing to what matters

Sustainability 2030

At Eaton, sustainability is at the core of our mission – to improve the quality of life and the environment. The following outlines our long-term strategy to ensure a healthy planet that supports all our stakeholders – including employees, customers, shareholders, suppliers and our communities.

2030 Goals

Doing business right and transparency

- Disclose our performance using rigorous and credible global standards
- Address key societal issues
- Operate with integrity

Operational footprint

- Focus on mitigating climate change and optimizing use of resources

Customer solutions

- Help our customers achieve their sustainability goals
- Accelerate the development of solutions for near- and long-term impact

Employee development and engagement

- Utilize the ingenuity of our employees in solving sustainability challenges
- Improve the communities in which we live and work

To get there, we aim to...

Doing business right and transparency



Achieve class-leading safety performance: 0.25 Total Recordable Case Rate and 0.15 Days Away Case Rate



Report our ESG material issues in alignment with Sustainability Accounting Standards Board (SASB) and Taskforce on Climate Related Financial Disclosures (TCFD) requirements



Share our minority and gender pay equity assurance results and ensure no human rights violations from our key suppliers

Operational footprint



Reduce carbon emissions from our operations 50%



Achieve carbon neutral operations



Certify 100% of our manufacturing sites as zero waste-to-landfill



Certify 10% of our manufacturing sites as zero water discharge

Customer solutions



Provide world-leading intelligent power management solutions and reduce Scope 3 emissions from our solutions and throughout our value chain 15%

Employee development and engagement



Achieve and maintain employee engagement scores of 80% or higher



Commit to 12 hours of training and development per employee per year



Clock 250,000 hours of employee volunteer time annually

MESH Elements

Category 1: General requirements +

Category 2: Air emissions +

Category 3: Water +

Category 4: Waste +

Category 5: Chemical +

Category 6: Hazardous materials +

Category 7: Safety +

Category 8: Process safety +

Category 9: Emergency preparedness +

Category 10: Occupational health +

MESH Champions

- Each EHS Analyst in charge of applicable elements
- In progress: assign others in the facility to become MESH “Champions”
- Champions are in charge of day-to-day items and compliance with the MESH element.
- This helps to spread ownership of EHS related topic throughout the facility
- Builds a strong EHS culture in the organization
 - Forklift example

MESH

- Above & beyond regulatory requirements
- Meets ISO 14001 (EMS), ISO 4500 (H&S) certifications
- Assessments
 - Self-assess annually
 - Corporate assessment every 3 years
 - If we meet the MESH requirements, we meet ISO requirements
- Scorecard excel file of Yes/No/NA questions
 - Updated by ENHESA, reviewed by legal dept.



MESH Assessment Question Examples

3.1	Wastewater Discharge Permit / License	2.4	The facility follows the requirements stipulated in its NPDES permit, including requirements with respect to sampling, monitoring, recordkeeping, and reporting.	View Guide Note	EPA Administered Permit Programs: The National Pollutant Discharge Elimination System (40 CFR Part 122); 40 CFR 122.41 Wastewater Construction and Operation Permits (IAC Chapter 567.64) IAC 567.64.1	*NPDES Permit for wastewater discharges	US + IA (Identical) USO000021 IAX USO12808	YES	Yes, see SWPPP located in SwiftChill SE-SP-70
4.1	Waste Management	Waste Management 14	Whenever there are changes to the site's operation, processes or equipment, and whenever new waste streams are generated or existing waste streams are modified or eliminated, is an evaluation performed to determine the effects on the site's waste inventory, waste characterization and waste management requirements, as well as all requirements of MESH (including this Waste Management Section and MESH 1.0 – General Requirements/ Planning/ Management of Change)?	View Guide Note	MESH		4.1 MESH14	NO	To be updated during Theresa's functional project to update our MOC process in alignment with MESH standards. Scheduled for Q3 2023.
4.1	Waste Disposal Operations	1.12	If the facility disposes of stabilized grit, bar screenings and grease skimmings, it ensures that such wastes do not contain any free liquids and have been stabilized prior to disposal at the landfill in order to destroy any pathogenic organisms.	View Guide Note	Special Waste Authorizations (IAC 567.109) IAC 567.109.11		IA USO13476	NA	Not Applicable

Scorecard Summary Page

	IN COMPLIANCE		NON COMPLIANCE		Not Applicable	Still to be completed		NON COMPLIANCE	
	%	Count	%	Count		Number of MESH Findings	Number of Regulatory Findings		
 1 General Environment	82%	96	18%	21	137	0%	0		
 2 Air	78%	67	22%	19	1009	0%	0		
 3 Water	75%	39	25%	13	61	0%	0		
 4 Waste	99%	80	1%	1	106	0%	0		
 5 Chemicals	95%	35	5%	2	56	0%	0		
 6 Hazardous Materials	88%	30	12%	4	12	0%	0		
 7 Safety	65%	11	35%	6	121	0%	0		
 8 Technical Safety	70%	273	30%	118	170	0%	0		
 9 Emergency Preparedness	93%	66	7%	5	51	0%	0		
 10 Occupational Health	96%	53	4%	2	354	0%	0		
TOTAL	80%	750	20%	191	2077	0%	0		
TOTAL MESH	80%	750	20%	191	2077	0%	0		

Compliance Calendar



Compliance Calendar

- Excel spreadsheet
- Used within EHS Dept. only
- Items identified over time, added to calendar
- New items added if compliance gaps are identified or if new internal requirement is generated

EHS Compliance Requirements

2023

Please update assigned activities cell colors: "green" if complete, "yellow" if in progress, "gray" if N/A or "red" if incomplete.

Task	Reason/Driver	Owner	Contractor (if applicable)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Site Environmental Metrics (complete spreadsheet)	Site	C. Cardott				X			X			X			X
Environmental Permit Expiration Check	Site	C. Cardott							X						
Conduct Annual Spill Drill	Site	C. Cardott											X		
Environmental Operational Review (EOR)	Site	C. Cardott							X						
Submit Scope 1 Data to Corporate	Corporate	C. Cardott		X											
Storage Inspections (weekly)	Legal	S. Sebillie / C. Cardott		X	X	X	X	X	X	X	X	X	X	X	X
Monthly Waste Inventory & Pickup	Legal	S. Sebillie / C. Cardott		X	X	X	X	X	X	X	X	X	X	X	X
Biennial Report (even years)	Legal	C. Cardott			X										
Submit RCRA Notification of Waste Activity (IDNR Fee)	Legal	C. Cardott				X									
Complete RCRA Annual Training- Maint. & mat. Handlers	Legal	C. Cardott										X			
Audit Universal Waste Battery Containers	Legal	C. Cardott		X						X					
Review Waste Profiles, renew lab analysis if required	Legal	C. Cardott		X											
POTW Flow Report	Permit	C. Cardott		X	X	X	X	X	X	X	X	X	X	X	X
Calibrate Flow Meter	Permit	C. Cardott/ Tech Services	GPM		X										
POTW Monthly Report to City	Permit	C. Cardott		X	X	X	X	X	X	X	X	X	X	X	X
TTO Sample and Report to City	Permit	C. Cardott					X							X	
Renew POTW Permit - expires 5/1/25	Permit	C. Cardott			X										
Renew Stormwater Permit - expires 10/1/22	Permit	C. Cardott										X			
Annual SWPPP Inspection (internal)	SE-SP-70	C. Cardott						X							
Submit Tier 2	EPCRA	C. Cardott			X										
TRI (review to check if we need to file, due July 1)	EPCRA	C. Cardott							X						
SPCC Annual Tank Inspection	SE-SP-72; SE-F-72.0.1	C. Cardott							X						
SPCC Monthly Inspection	SE-SP-72; SE-F-72.0.2	S. Sebillie / C. Cardott		X	X	X	X	X	X	X	X	X	X	X	X
SPCC Secondary Containment Inspection	SE-SP-72; SE-F-72.0.4	S. Sebillie / C. Cardott		X	X	X	X	X	X	X	X	X	X	X	X
Davenport Hazardous Materials Permit - expires 5/31	Legal	C. Cardott						X							
AAR Paint Usage Records	Permit	C. Cardott		X	X	X	X	X	X	X	X	X	X	X	X
HAP Emission Records	Permit	C. Cardott		X	X	X	X	X	X	X	X	X	X	X	X
NESHAP 6H: Training for Paint Booth Operators	Permit	C. Cardott													
NESHAP 6H: Annual Notification of Compliance Status	Permit	C. Cardott		X											
DNR Emission Questionnaire (every 3 years, due May 15 2025- Minor Source Emission Inventory)	Legal	C. Cardott						X							
Renew DOT HazMat Permit (PHMSA Portal) - expires 6/30 annually	Legal	C. Cardott						X							
Renew DOT Emergency Contact Contract (ChemTel) - annual	Legal	C. Cardott	ChemTel											X	



HIPPO Work Orders



Login to Hippo CMMS

User Id

Enter your User ID

Password

Enter your Password

Remember Me

SECURE LOGIN



- 3 types of users
 - Work order requester
 - Admin
 - Maintenance team
- Assign equipment numbers
 - Physical labelling of equipment aligns with number (ex. 09-150)
 - Can assign recurring PM schedules to equipment numbers
- Environmental applications include emergency generator maintenance, wastewater flume checks, hydraulic fluid checks, cleaning out grease trap, etc.

EMS In Practice



EMS in Practice

- **Never miss a deadline!**
(hopefully)
- Oil & Grease example
 - Wastewater O&G was elevated
 - Tracked work orders: we were pumping out grease trap every 2 months
 - Increased w/o frequency to monthly
 - Provided documentation to City of Davenport as corrective action



EMS Considerations

- Excel tools can be adopted by facilities of all sizes (and budgets)
- Get creative with your systems, build systems that work for you
- Do not be limited by your predecessor: existing tools may not be perfect for your application
- Automated tools like ENHESA scorecard, or HIPPO work order system may be not feasible for all facilities
- Common thread of these systems is to: **document, document, document**

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