Epsilon Systems:
Where Our Innovations
Become Your Solutions

Presented to NSRP – Workforce & Compliance Panel Meeting
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EPSILON
SYSTEMS ®

Epsilon Systems – A Trusted Partner

- **Diverse Professional and Technical Services Company**
  - Founded in 1998
  - Consistent Organic Growth
  - Targeted Technology Acquisitions
- **Nearly 1,200 Skilled Professionals**
  - Scientists/Engineers
  - Technical Specialists
  - Skilled Craftsmen

Infrastructure and Technical Solutions

Training Development Capabilities: Solutions Across the Entire Learning and Development Spectrum – a results-driven team of professionals creating complete training solutions using the latest technologies including simulation and virtual reality.

Software Solutions – We employ the latest tools and techniques to effectively manage the entire software development life cycle.

EPSILON ™
SYSTEMS

A 100% Employee-Owned Company

Environment, Health, & Safety (EHS) Compliance Software

- EHS*desk* Application
  - Over 20 years as a software solution initially in Windows and now deployed as web-based
  - Leveraged by 10,000+ users in 400+ locations worldwide in English, French, Polish, Hebrew, and Chinese
  - Accessible via mobile devices
  - EHS*desk* is a commercial SaaS product
- EHS*desk* Clients
  - Lockheed Martin (Sikorsky/RMS)
  - Raytheon Technologies (Pratt & Whitney, Collins Aerospace)
  - Sanofi Pasteur
  - National Steel and Shipbuilding Company (NASSCO)

EHSdesk™
The Power of Information for Compliance

Environment, Health, & Safety (EHS) Compliance Dilemma

- **PROBLEM:** Timeliness of Repairs to maintain a Ready Fleet and get the Ships out to Sea faster troubles the industry along with difficulties in maintaining a properly trained workforce. EH&S Departments are hard pressed to respond to the emerging complexities of the operations of the yard and workforce issues all while meeting the difficult demands of staying compliant with diverse EPA/OSHA, State, and Local requirements.

<center>You Can't Measure What You Don't Manage!</center>

- **NEED:** Innovation and Efficiencies are needed to manage multifaceted EH&S data to grow from:
  - Disparate point solutions (Excel, MSAccess, Sharepoint, Other Software) with potentially no one left that understands it OR
  - Web solutions that are too generic – too expensive – not responsive enough to change - and don't 'fit'

National Shipbuilding Research Program (NSRP) Proposal

- **IDEA:** Adjust EHS*desk* compliance software where needed to better serve the Shipbuilding Industry both with enhancements and improved standardized content. Partner with NSRP and Member companies to craft **Maritime EHS*desk***.

- **PREMISE:** The EHS*desk* design and mature production use at large facilities for 20+ years is aimed at the Aerospace Manufacturing industry. As a modern SaaS portal, it is **affordable, integrated "one-stop shopping", and easily implemented** to meet the mission of NSRP to *"research, develop, mature, and implement industry-relevant shipbuilding and sustainment technologies and processes, improving efficiency across the U.S. shipyard industrial base and meeting future demand"*:

  - Aerospace and Shipbuilding requirements in the EH&S realm align thus making EHS*desk* as it stands a good fit. Focused customization will enhance it further (see Paintman/Fuelburn example next slides)

  - EHS*desk* is pre-filled with best in class drop down/checklist content based on decades of use across a broad spectrum. **Shipyard subject matter experts** could be enlisted to adjust the configurable contents suitable for Maritime needs. (see Paintman example next slides)

EHS*desk* Shipbuilding Pilot – Lessons Learned – Examples

- **PILOT:** The Painting/Coating/Spraying Emissions Mgt. (Paintman) and Waste Tracking applications were implemented at a large Shipyard in San Diego. Lessons were learned with upgrades applied that can **benefit other Shipyards.**

(A) Other clients had high volume of Usage but a concise list of paints/coatings. The Shipyard had high volume of activity with a limited list on a routine basis however they also had a LONG list of occasionally needed additional paints/coatings such that the pick list for Painters/Operators became unmanageable.

(B) Some companies deal in hours/minutes computing against hourly limits where thinner factors in and Start/Stop Quantity of Paint is needed which requires a more difficult level of precision by operators entering data

Add Painting/Coating Usage - Multiple Quantity

Complete the fields below to add new Painting/Coating Usage events.

- **CREATIVE SOLUTIONS:**

(A) *Setup pages are upgraded to ♥ the most used "favorite" Paints/Coatings. Add page defaults to show "favorites" but can easily show the full list with a click of a button. The list is also sortable by Name or ID as some Operators are more familiar with one or the other.*

(B) *Simplified version of the Add page was created to eliminate Time/Thinner/Start/Stop Qty while also speeding up input recording 2 application methods at once. ADMIN pages available to mass recompute waste QTY based on %.*

EHS*desk* Shipbuilding Pilot − Lessons Learned − Examples

C Drop down list content provided for some lists was not perfect for Maritime needs.

D Due to the nature of some work by contractors, software access is not always provided (for business reasons and/or potentially poor Internet access). Paint Logs are managed in Excel and then sent to EHS for input into the database.

- **CREATIVE SOLUTIONS:**

C *The Painting/Coating Category value for a Paint Material was rebranded Marine Coating Category and loaded with more applicable content.*

D *An Excel Import template was created with a mass upload Import link for EHS to allow them to quickly upload the contractor data saving LOTS of typing time.*

EHS*desk* Shipbuilding Pilot – Lessons Learned – Examples

E Fuel based Emissions can be tied to set Pollutants like NOx or can be tracked by chemical constituent (aka CAS Number).

Edit Fuel Burning Usage with Emissions

Complete the fields below to update a Fuel Burning Equipment Usage record. Emissions will recalculate upon save.

Fuel Burning Usage Details: 8706   VOID

Equipment Id/Name:	PTO-921303 Crane 14
Location:	NAS
*Usage Date:	01/31/2024
*Fuel:	Diesel Fuel #2
*Run Time (Hours):	23.80
Product Model:	Any

Usage Person: Mag

*Activity: Routine Operations

*Quantity Used: 561.1000 Gallons

Product No.:

Emissions Details

Usage Date	Pollutant	Emission in Lbs.
01/31/2024	11104-93-1 Oxides of Nitrogen	9.42087
01/31/2024	9901 Diesel Particulate	0.23005

Fuelburn Lbs. Emitted by Fuel Type/Quarter

Renewable Diesel
Diesel Fuel #2

Quarter	Diesel Fuel	Renew Diesel	Total
1	288	3,613	3,901
2	36	3,620	3,656
3	197	3,940	4,137
4	531	3,094	3,625
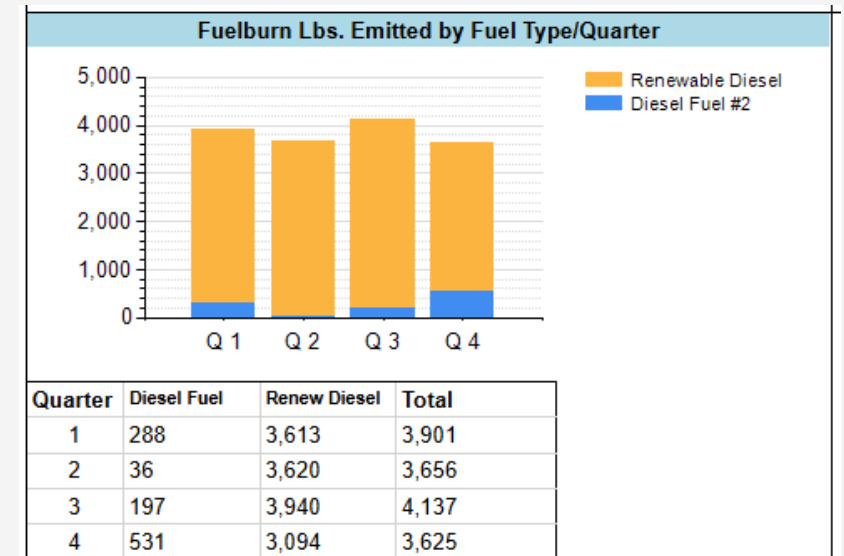
▪ CREATIVE SOLUTIONS:

E *The Fuelburn Emissions module was modified in the same ways as the Paintman module to allow for either standard pollutants or chemical specific pollutants on equipment pollutant setup pages, reports (including 12 month rolling), and dashboards. Automatic default of standard pollutants can be overridden by client preference.*

EHS*desk* Shipbuilding Pilot − Lessons Learned − Examples

F Emissions from Adhesive application need to be tracked in a similar manner to Painting/Coating usage. Adhesive materials are similar in nature to Paints and Coatings from a material/safety data sheet standpoint.

- CREATIVE SOLUTIONS:

F *Material Type/Usage Activity drop down content of Paint vs. Adhesive utilized to distinguish the 2 different applications. NEW Add Adhesive Usage page created filtering in only applicable Equipment / materials. Search page/reports can pull both sets of data or one or the other.*

Home Page – More Changes to Pursue?

- CREATIVE SOLUTIONS – a sampling but possibilities are endless:
  - **Risk Assessment (JHA) -** *strong need in the industry – Processes, Hazards and Controls lists to be tweaked. Does the scoring algorithm need to account for Shipbuilding?*
  - **Confined Space –** *Hazards and Controls lists to be tweaked and the pre-filled Permit with assessment data format standardized for marine needs.*
  - **EHS Mgt. of Change–** *how many yards have an electronic workflow for conditions and approvals solution? Crafting of the perfect checklist of questions to ask requestor of change needed along with standardized list of pre-during-post change conditions.*
  - **Lock Out/Tag Out** *– apply variances to model for a shop floor machinery environment to account for Shipbuilding*
  - **PIV** *– are there mechanisms in place for detailing the list of vehicles as well as PIV type driving authorizations?*
  - **Audit/Inspection** *– prior Quality use for walk around Foreign Object (FOD) inspections – apply to keeping systems clean initiatives?*
  - **Safety/Health modules** *– assess and meet variances with Maritime OSHA requirements relative to OSHA requirements*

EHS*desk* Safety Modules

Safety

- **Lock Out/Tag Out (LOTO)** provides a mechanism to document the process to *systematically control Hazardous Energy* sources for a piece of equipment (Energy Control Procedure: ECP)

- **Machine Guard (MG)** documents equipment-specific machine guard Assessment and Inventory information

- **Confined Space (CS)** provides a way to *determine* if an area within a facility is a confined space as a result of limited access, special inspection, cleaning or Permitting requirements

- **Ergonomics (ERGO)** provides a common location where Shop and Office ergonomic *practices* and information can be assessed, managed, shared, and *incorporated directly into Business Processes and Culture*.

- **Personal Protective Equipment (PPE)** provides a *method to Document* PPE needed when operating the equipment along with a printed PPE posting report (aka "PPE Dude")

- **Operator Preventive Maintenance (Op PM)** Documents *machine-specific* Preventive Maintenance (PM) inventory/instructions with pictures

- **Powered Industrial Vehicles (PIV)** documents PIV inventory and PIV driving permits for authorized personnel

EHS*desk* Management Systems Modules

Mgt. Systems

- **EHS Management of Change (EMOC)** provides a way to *ensure* that *Facility Modifications*, Chemical changes, Equipment moves or Procurement, and Process Modifications are *reviewed* for EHS and facilities impacts

- **Risk Assessment (RA)** provides a mechanism for identifying, prioritizing, and *Controlling Risks* to worker safety and the environment. RA *identifies* process hazards, steps, risks, and control measures. Optional IH Qualitative assessment is available

- **Action Tracker (ACT)** *Maintains* the various *Action Items* involved with managing EHS or Quality *requirements* for an organization

- **Incident Tracker (ITA)** *Tracks and Maintains* medical (injuries, illnesses), other (near hits, unsafe acts), and environmental (spills, releases) incidents.

- **Corrective Action Request (CAR)** offers a sy*stematic process* for tracking the tasks necessary to *Perform* corrective action investigations, identify root causes, and *Implement* corrective action plans in a timely manner

- **Audit & Inspection Management (AIM)** establishes a standardized format for all audits/inspections for internal (optionally with checklist), external, and supplier audits. Findings are tracked as CARs

EHS*desk* Environment Modules

Environment

- **Waste Tracker (WST)** application provides a characterization methodology to detail the types of waste/scrap metal associated with operational processes. WST provides the capability to track wastes (hazardous, non-hazardous, universal, etc.) from point of generation (POG) to final disposition (shipment for disposal, treatment, reuse, or recycling)

- **Equipment Characterization (EC)** application provides a mechanism to document the processes, waste characterizations, and materials related to a piece of equipment or group of equipment

- **Material Tracker (MAT)** application manages material/chemical usage for regulatory reporting. MAT accepts file imports or manual entries of materials purchased and applies a conversion factor to produce purchase data acceptable for chemical reporting. MAT also acts as the centralized repository for master material data(materials, safety data sheet [SDS] properties, chemical constituents, chemicals, etc.) for the rest of EHSdesk

- **Regulation Manager (REG)** application maintains and tracks regulatory records (e.g., permits and licenses). Expiration and renewal dates automatically create action items in the Action Tracker (ACT) application providing automatic e-mail notifications

EHS*desk* Environment Modules…continued

Environment

- **Air Emissions (AIR)** module is the overall umbrella for applications related to Air Emissions to help drive regulatory/permit compliance. AIR applications are integrated throughout with the master Equipment and Materials lists
  - **Painting/Coating** application provides an emissions collection and reporting system for paint/coating/thinner and adhesive usage at booths or other processes. Permit Limits are factored in with exceedance notifications/rules
  - **Fuelburning** application provides an emissions collection and reporting system for natural gas, diesel, and other fuels used at boilers or other fuel burning equipment. Permit Limits are factored in with exceedance notifications/rules
  - **Stacks** application maintains an inventory of air emissions sources (stacks, vents, fugitive, etc.). Stacks can be related to Equipment and Control Systems
- **Water** application maintains an inventory of discharge sources such as drains and discharge points as well as detailed information on the wastewater discharge flow from equipment
- **Sample Management (SAMPLE)** provides a mechanism for identifying sampling locations related to other objects within EHS*desk* (e.g., discharge point). Analytical results can be detailed through manual input or data file upload from laboratories

EHS*desk* Demonstration

Questions?
Thank You

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