

# Task Creation & Standardization: The Next Level of Al Support for EHS Professionals November 14, 2022





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# Task Creation & Standardization: The Next Level of AI Support for EHS Professionals

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November 14, 2022



**Linsey DeBell**Directing Consultant



### **AGENDA**

EHS Workflow and where AI/NLP fits

Current use of AI/NLP

Task creation with AI/NLP

A&D



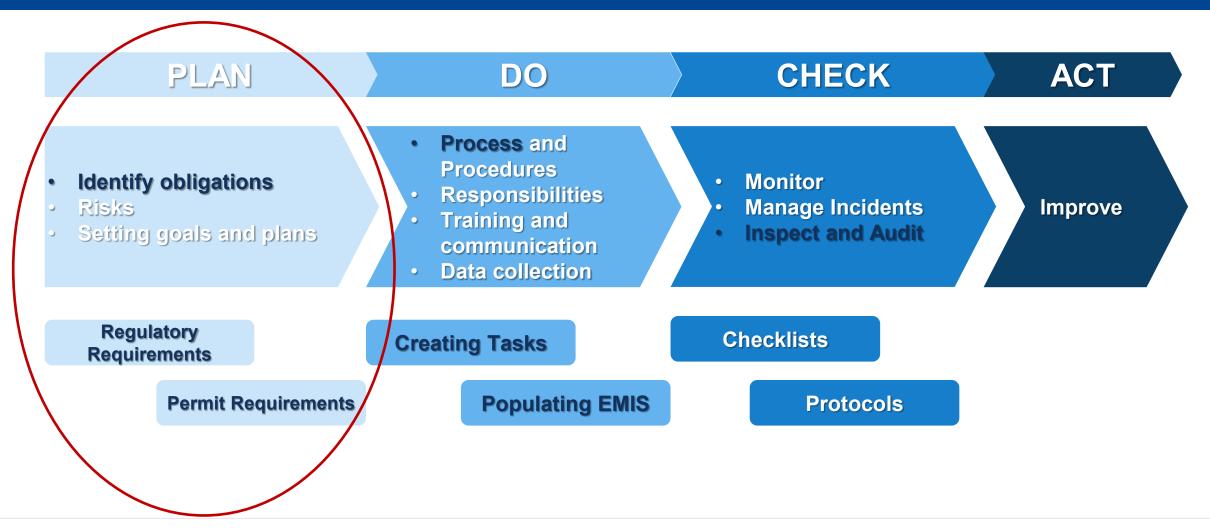


# The EHS Workflow

**CHECK ACT** PLAN DO **Process and Procedures** Monitor Identify obligations Responsibilities **Manage Incidents** Risks **Improve Training and Inspect and Audit** Setting goals and plans communication **Data collection** 



### The EHS Workflow





# **Barriers & Solutions**

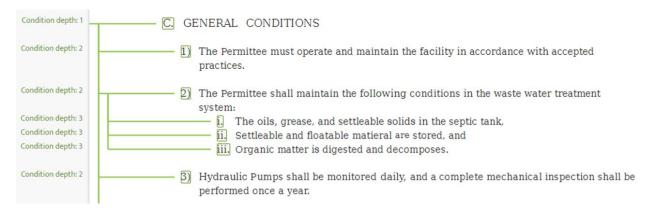
What challenges have you faced helping clients developing tools to manage regulatory requirements?



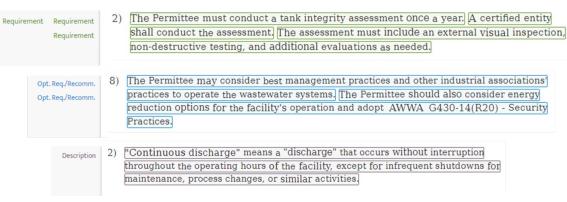


# AI/NLP & Requirements

### Document Understanding



### Text Classification





# **AI/NLP & Requirements**

### Entity Extraction

Reference Parameter Value Unit

4) The characteristic of the discharge shall meet the effluent limitations presented in the table below in accordance with 40 CFR §122.45. Besides these values, chlorine shall not exceed 17 µg/L at any given time.

Equipment Frequency Frequency

3) Hydraulic Pumps shall be monitored daily, and a complete mechanical inspection shall be performed once a year.

Table Values Legend

Number or term representing a limit value, size, capacity, etc.

Unit

Unit Unit of measure related to a value

Parameter

Measurable characteristic or product

Time period or interval for sampling or monitoring

Sample Type

Method or technique used for sampling or monitoring

Type of Measure

Description of a measurement

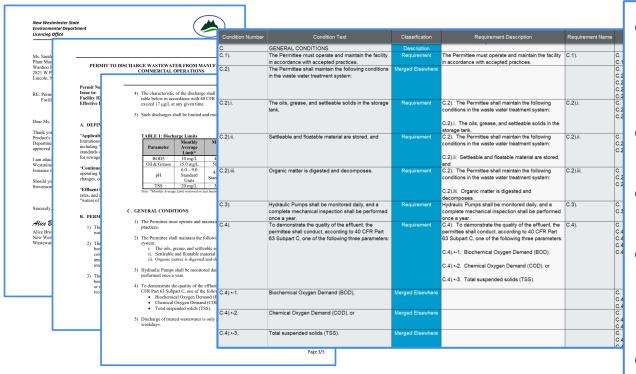
TABLE 1: Discharge Limits

TIBLE 1. Disoliting Emilion				
	Monthly	Maximum	Frequency	Sample Type
Parameter	Average	Limit		
	Limit*			
BOD5	10 mg/L	45 mg/L	Monthly	Grab
Oil & Grease	15.0 mg/L	50.0 mg/L	Monthly	Grab
pH	6.0 - 9.0 Standard Units	4.0 - 11.0 Standard Units	Monthly	Grab
TSS	20 mg/L	30 mg/L	Monthly	Grab

Note: \*Monthly Average Limit reviewed on last business day of the month.



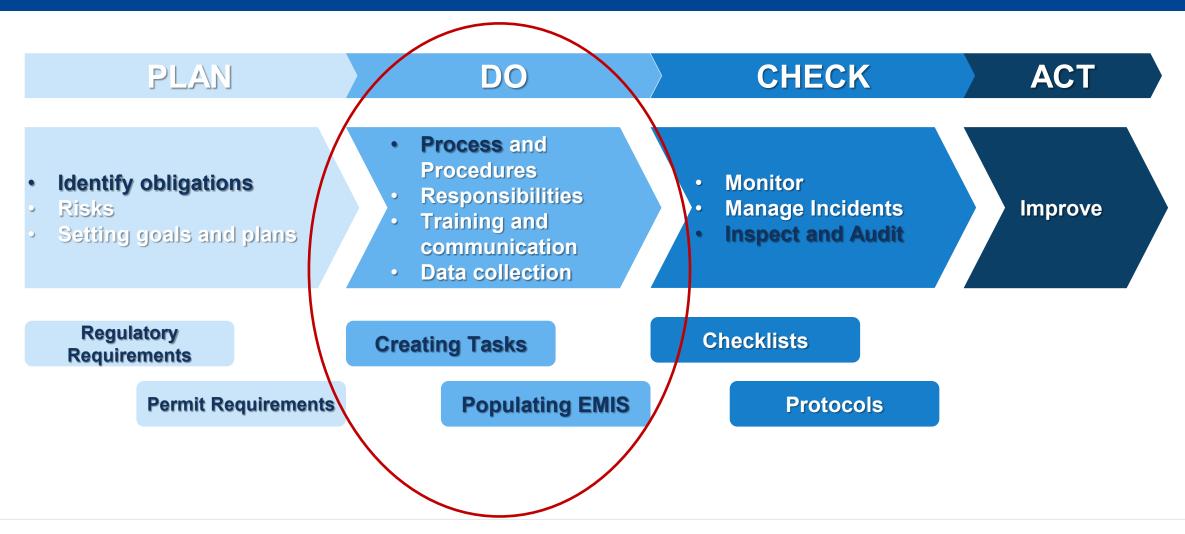
# AI/NLP & Requirements



- Compliance Management
   System
- Compliance Calendar
- SharePoint
- Environmental Information Management System
- EHS Management Software



# The EHS Workflow





### Question #1

How do you staff the process of extracting compliance requirements from permits and regulations and creating tasks?

- ☐ Internal resources
- Consultants
- ☐ Internal resources + Consultants
- ☐ I don't do this process

### Question #2

If you're creating tasks to manage your regulatory compliance:
How much time/effort do you invest in identifying your compliance requirements vs converting them into plain language tasks?

- □ Extracting and organizing the requirements is the largest effort; creating tasks is very simple and fast.
- Extracting and organizing the requirements takes about the same time and effort to create tasks.
- □ Extracting and organizing the requirements is easy, the biggest challenge is creating tasks.





### Semantic Parsing & Summarization

2.3 The person responsible for conducting qualitative opacity assessment shall be knowledgeable about the effects on visibility of emissions caused by background contract, ambient lighting, observer position relative to lighting and wind, and the presence of uncombined water in the plume. The permittee shall keep records of each equivalent assessment, which shall include the time and the date of the assessment, a description of the emission from which any unusual emission emanated, the steps taken to correct any abnormal emission and the name of the person conducting the assessment.

Conduct qualitative opacity assessments by a knowledgeable person

Keep records of the qualitative opacity assessments

Include in the qualitative opacity assessments the required information



• Deconstructing every requirement :





### The requirement:



### The requirement:



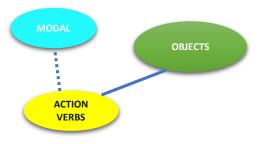


### The requirement:



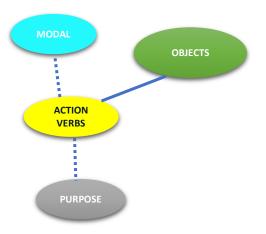


### The requirement:



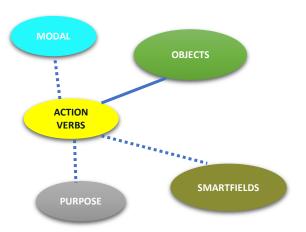


### The requirement:





### The requirement:





### The requirement:





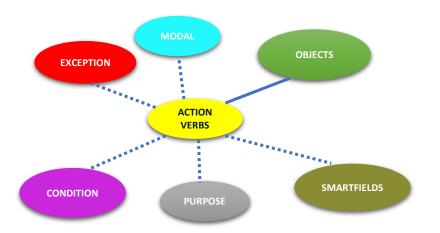
### The requirement:





### The requirement:

"If your boiler or process heater has a heat input capacity of 10 million Btu per hour or greater, you must conduct an annual tune-up of the boiler and process heater to demonstrate continuous compliance as specified in paragraphs (a)(10)(i) through (vi) of this section."

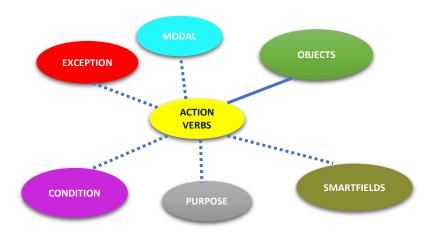


The Task: conduct an annual tune-up



### The requirement:

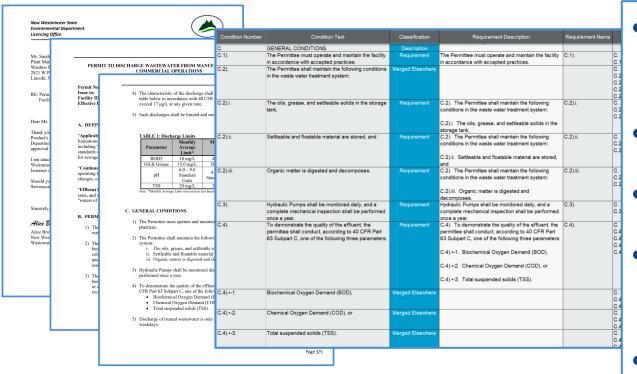
"If your boiler or process heater has a heat input capacity of 10 million Btu per hour or greater, you must conduct an annual tune-up of the boiler and process heater to demonstrate continuous compliance as specified in paragraphs (a)(10)(i) through (vi) of this section."



The Task: Conduct an annual tune-up of the boiler and process heater



# AI/NLP & Tasks



- Compliance Management
   System
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# NLP Standardizing Tasks

From the easy...

Every month = once a month = every 30 days = **monthly** 



# NLP Standardizing Tasks

### To the challenging...

**1910.28(b) (1) (i)** Except as provided elsewhere in this section, the employer must ensure that each employee on a walking-working surface with an unprotected side or edge that is 4 feet (1.2 m) or more above a lower level is protected from falling.

- **12.07 (1)** Subject to subsection (2), an employer must provide or put in place a fall-protection system if work is to be performed
- (a) from a structure or on a vehicle at a height of 3 m or more;
- (b) from a ladder at a height of 3 m or more if, because of the nature of the work, the person performing it is unable to use at least one hand to hold onto the ladder; or (c) at a height of less than 3 m if the surface onto which the person might fall would present a greater risk of injury than a solid, flat surface.
- **139. (1)** An employer and a supervisor, must ensure that a worker is protected from falling if a worker may fall,
- (a) at a temporary or permanent work area, a vertical distance of 3 metres or more,
- (d) at a permanent work area, a vertical distance of more than 1.2 metres and less than 3 metres.

Provide a fall-protection system to ensure that employees are protected from falling when needed.



# Question #3

What process do you use to create and manage your permit and regulatory requirements?

- ☐ Create one task per permit requirement
- ☐ Create one task per permit requirement, then standardize/merge tasks that will be completed together
- Match permit requirements with a standardized task template and fill in the site-specific details





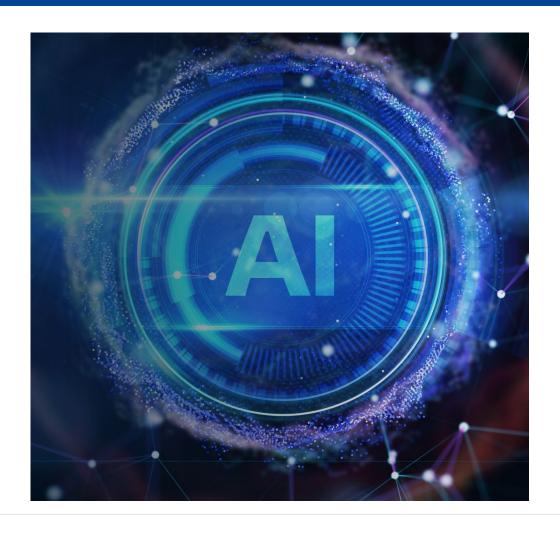
# Question #4

Once the AI platform is capable of transforming long and complex regulatory requirements into tasks with clear action statements and minimal jargon:

- ☐ You will be more attracted to work with AI to help in your compliance workflow.
- ☐ You don't trust AI as a technical solution yet.



# The future of NLP Supporting EHS





# Thank you

If you'd like to learn more, please contact us!





Email us:

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Visit our websites:

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# **Upcoming Conferences**



IMPACT22 | Sustainability Impact Series

December 1, 2022



IMPACT 23 | Sustainability Impact Series

January 25, 2023



TECH23 | EHS & ESG Tech Week March 14 – March 16, 2023











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  - LinkedIn: <a href="https://www.linkedin.com/company/naem">https://www.linkedin.com/company/naem</a>





A recording will be available in 3-4 days.

You will receive an email once it's posted to our site.

Have a safe & healthy day!