11th Chemical Process Safety Sharing (CPSS)

The Pioneering Pathway- Transforming Safety in the Intelligent Industry

Dr. Haim Srur & Maor Shahar
haim.srur@go-arc.com

GOARC

Contents

- About GOARC
- Industry4.0 from steam to Data
- Industry4.0 Main challenges
- The future of Intelligent Industry
- GOARC's vision and technology

GOARC – enables the journey towards intelligent industry

Oil & Gas

Petrochemical

Utilities

Shipyards

Mining

Construction

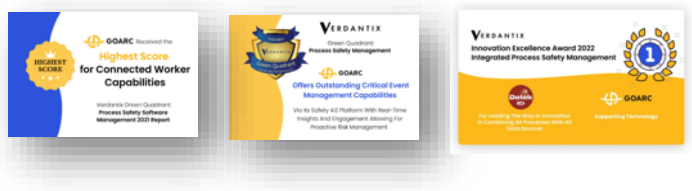
Facts and Stats

- 100 Global site implementation
- X0,000 Active users
- 19 Luanguages

Main Partners

AVEVA Capgemini DEKRA

Global Recognition



GOARC's Mission

To build the best AI connected worker platform connecting humans, machines and systems enabling the journey towards intelligent operations

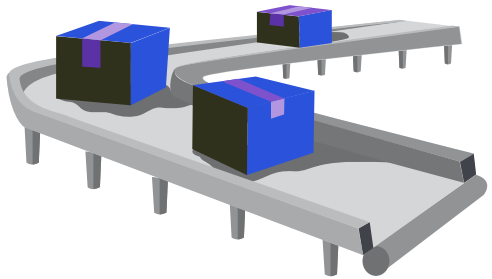
GOARC's Vision

GOARC

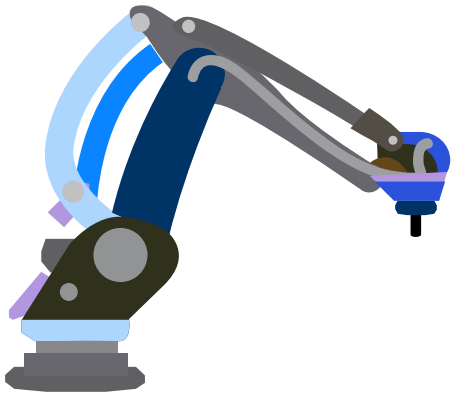
The 4 Industrial revolutions

1. First Industrial Revolution: steam power makes mechanical production possible **(Late 18th century)**

2. Second Industrial Revolution: electric energy makes mass production possible **(Beginning of the 20th century)**



3. Third Industrial Revolution: IT and computer technology allow for more manufacturing automation **(Beginning of the 1970s)**



4. Fourth Industrial Revolution: Internet of Things makes networked manufacturing possible. Connecting virtual and physical **(Since the 21st century)**

From **Steam** to **Data** as the main energy for scale

The industry 4.0 Wave

From **Digitalization** through automation to **Autonomous**

Data Driven

Domain 4.0

Digitalization

Connected Worker/factory

Automation

Autonomous Factory

Autonomy

Time

RAYONG 2300

Why we are not there already by NOW?

Digital transformation

<30% of digital transformation efforts succeed

1. Lack of clear strategy
2. Resistance to change
3. Failure to align digital strategy with business objectives
4. Collection of initiatives

Dark Data

The Paradox of Industry 4.0

80% of the data generated in the process industry remains unstructured and unanalyzed instead of adding business value

Brownfields factories

Data silos

Aging talent

Aging assets

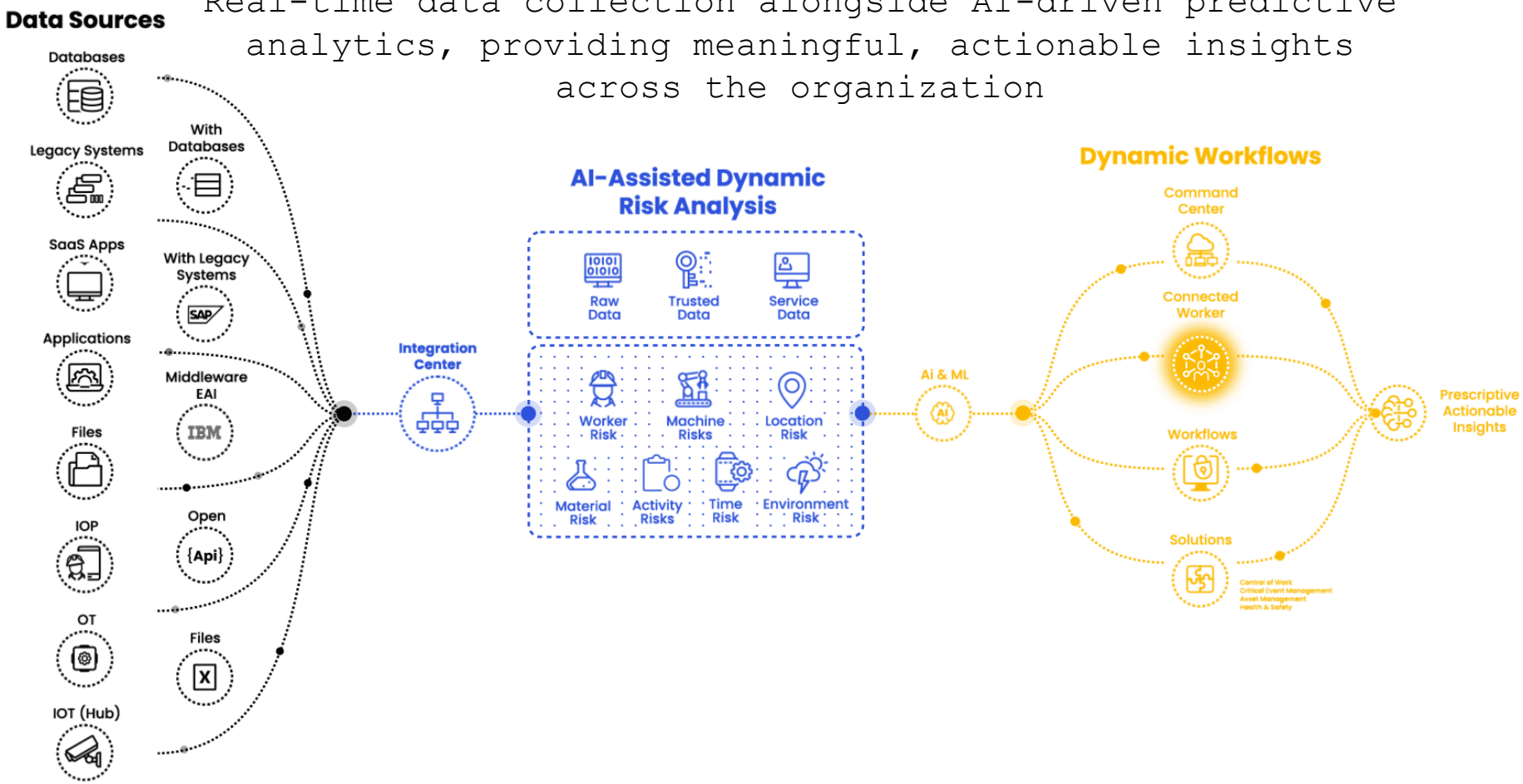
Partial automation

New look of the new assets of the Process Indus

White I

GOARC's Safety 4.0 Platform

Real-time data collection alongside AI-driven predictive analytics, providing meaningful, actionable insights across the organization



GOARC – Paving the Path to the Autonomous Factory

Data Driven

Safety 4.0®
platform – real-time intervention

Safety 4.0
Prevention

Safe connected platform

Connected Worker
Prescription

SMAR UNIT – CEREBROOM™

Autonomous Factory
Automation

Time

GOARC's Platform and Technologies

GOARC

Platform Architecture

Multi-tenant SaaS cloud first | Mobile first | Worker centric | AI embedded | Single data layer | Command Center

GOARC's 4.0 Platform

Command Center	Connected Worker	AI / ML

Control of Work		Critical Event Management		Asset Performance Management		Health & Safety		Environmental		
Permit To Work	Shift Management	Emergency Preparedness	Emergency Management	Operator Rounds	Asset Management	Incident Management	Hazard Management	Emission Management		
Lockout -Tagout						Audits	Human and Operational Performance	Air	Water	Waste
								Noise	Light	

Platform Architecture

Multi-tenant SaaS cloud first | Mobile first | Worker centric | AI embedded | Single data layer | Command Center

GOARC's 4.0 Platform

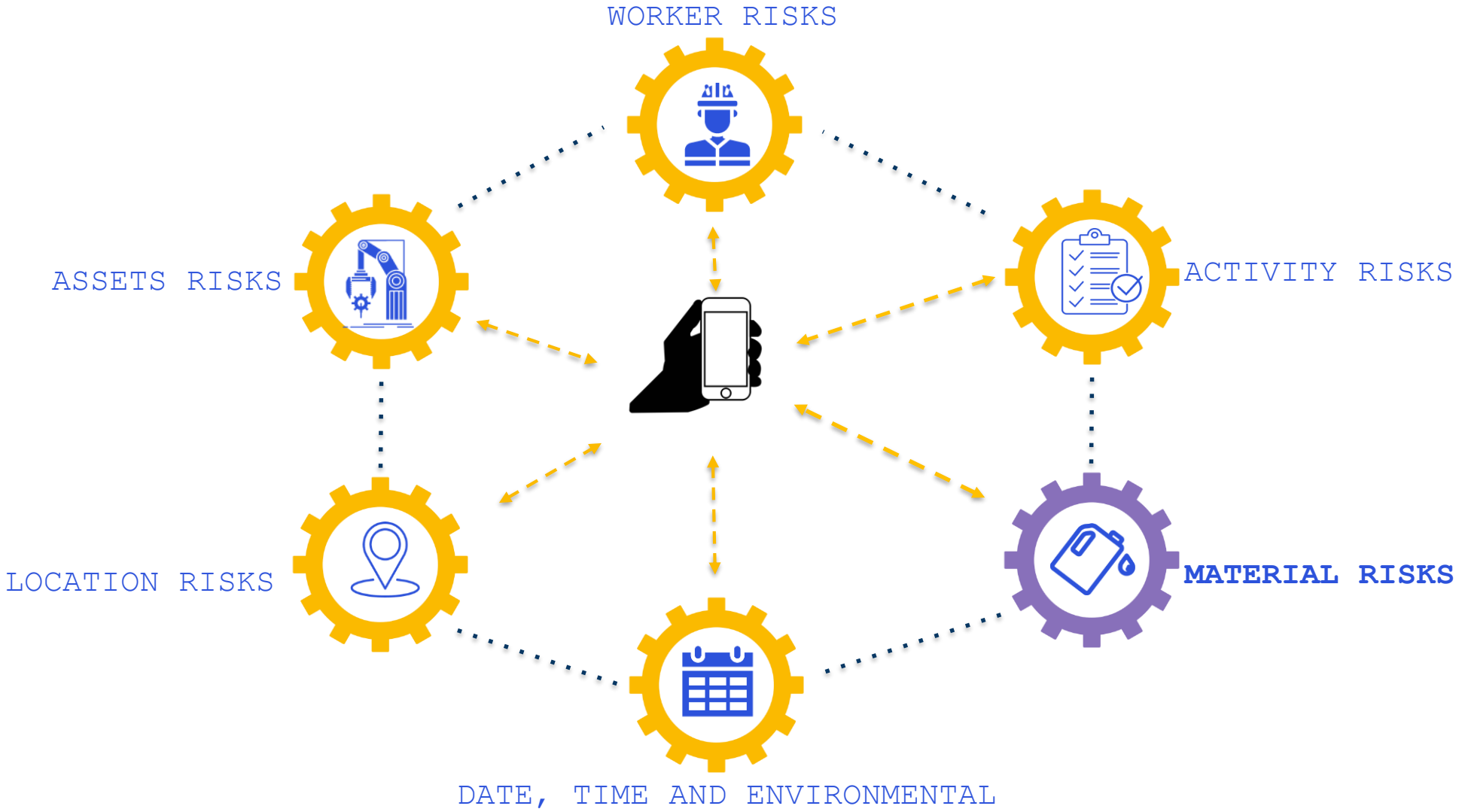
Command Center	Connected Worker	AI / ML

Control of Work		**Critical Event Management**		Asset Performance Management		Health & Safety		Environmental		
Permit To Work	Shift Management	Emergency Preparedness	Emergency Management	Operator Rounds	Asset Management	Incident Management	Hazard Management	Emission Management		
Lockout -Tagout						Audits	Human and Operational Performance	Air	Water	Waste
								Noise	Light	

3 protecting layers for **Safety** and **Efficiency**

6 Elements Risk Model

Note: Process is patent pending

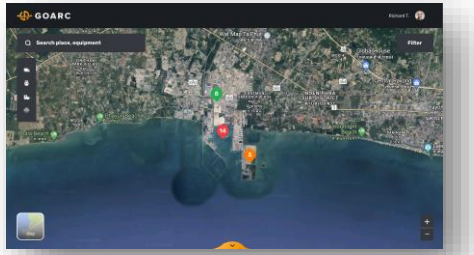


1 + 1 > 2

Emergency Center

Award-winning command & control crisis event management module

+



Materials Center

Command & control module for the safe transportation and storage of hazardous materials

THE EFFORT TO GATHER DAILY INFORMATION BECOMES THE STARTING POINT DURING AN EMERGENCY

Joint Forces

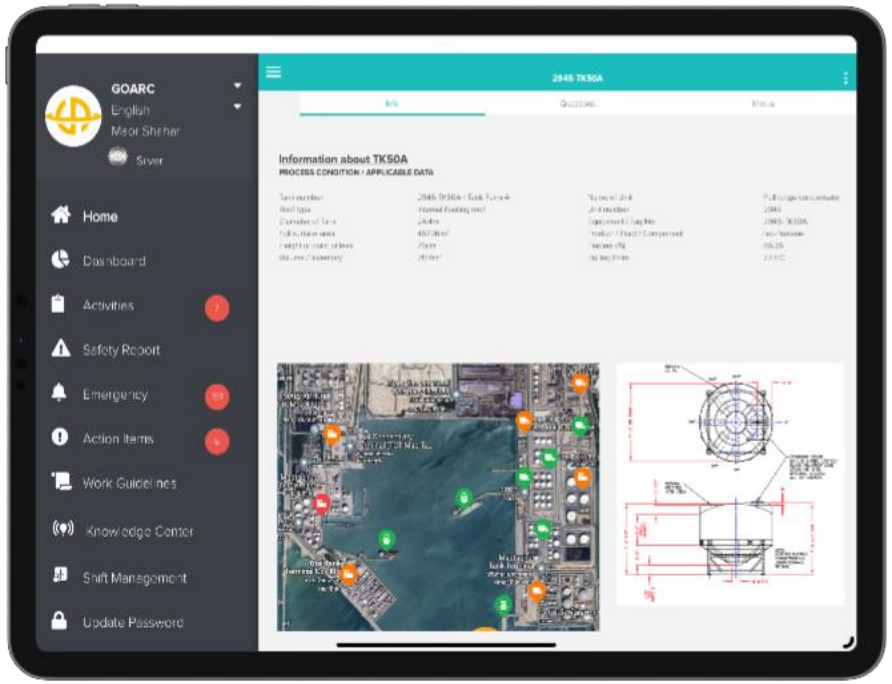
Increasing safety and efficiency in the transportation, storage and handling of hazardous materials in emergency situations

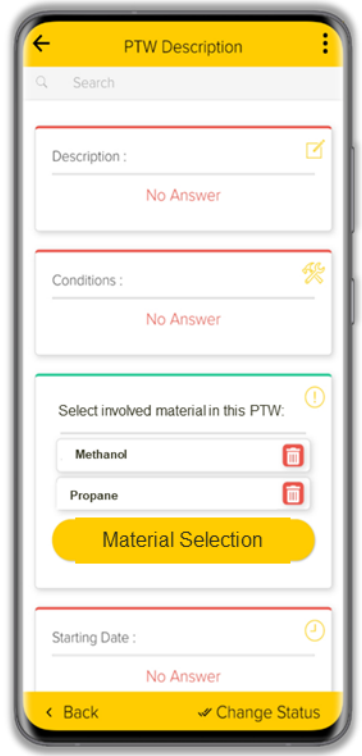
- **Fast and effective** handling of hazardous materials, in emergency situations and accidents.
- **Risk Management**: threat prevention and consequence mitigation reducing the likelihood of accidents and spills.
- **Emergency Management:** real-time data aggregation and companies' collaboration for hazardous material transportation.

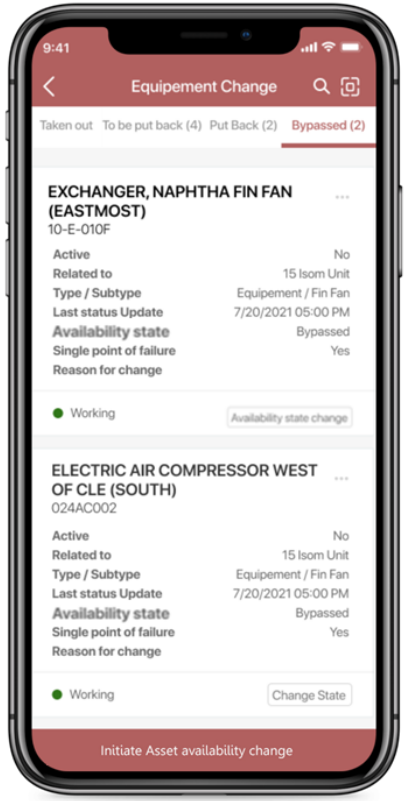
Asset & Materials Management (Field routines)

Collecting field data on materials

- PTW
- Rounds
- Pre-Incident Planning
- Audits
- Hazard Recognition
- Etc.

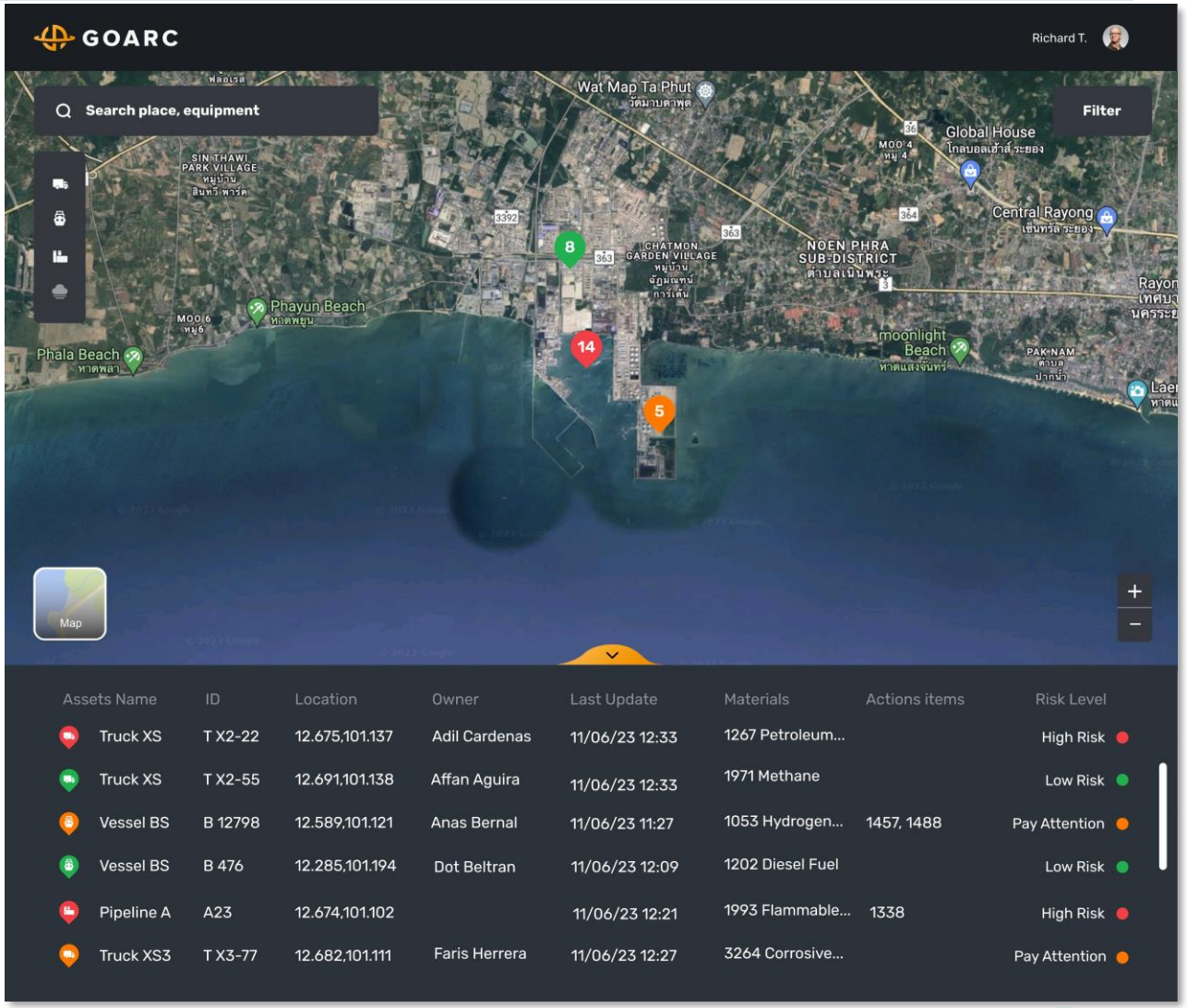






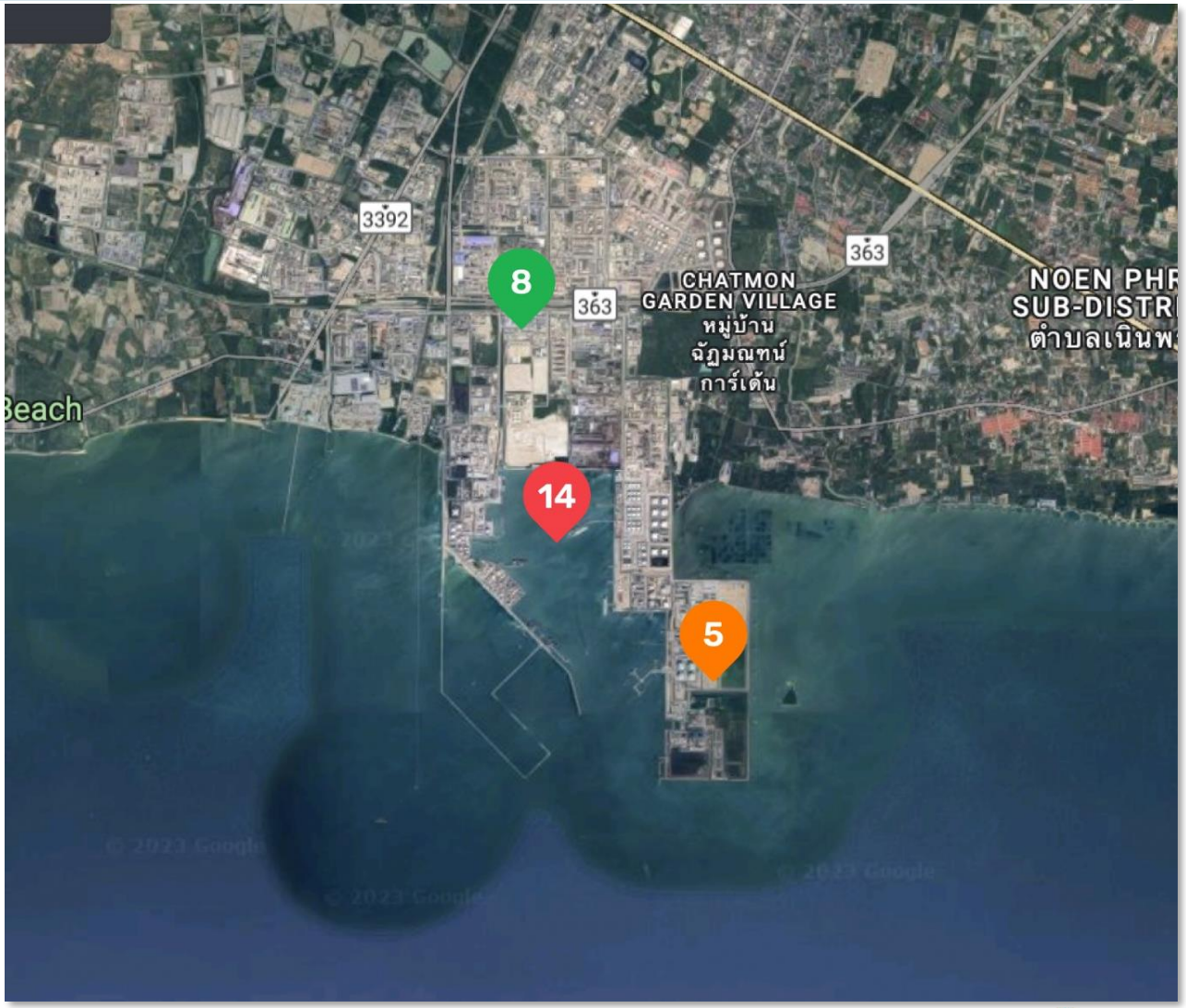
GOARC Materials Center

Real-time command & control visualization for the safe transportation and storage of hazardous materials



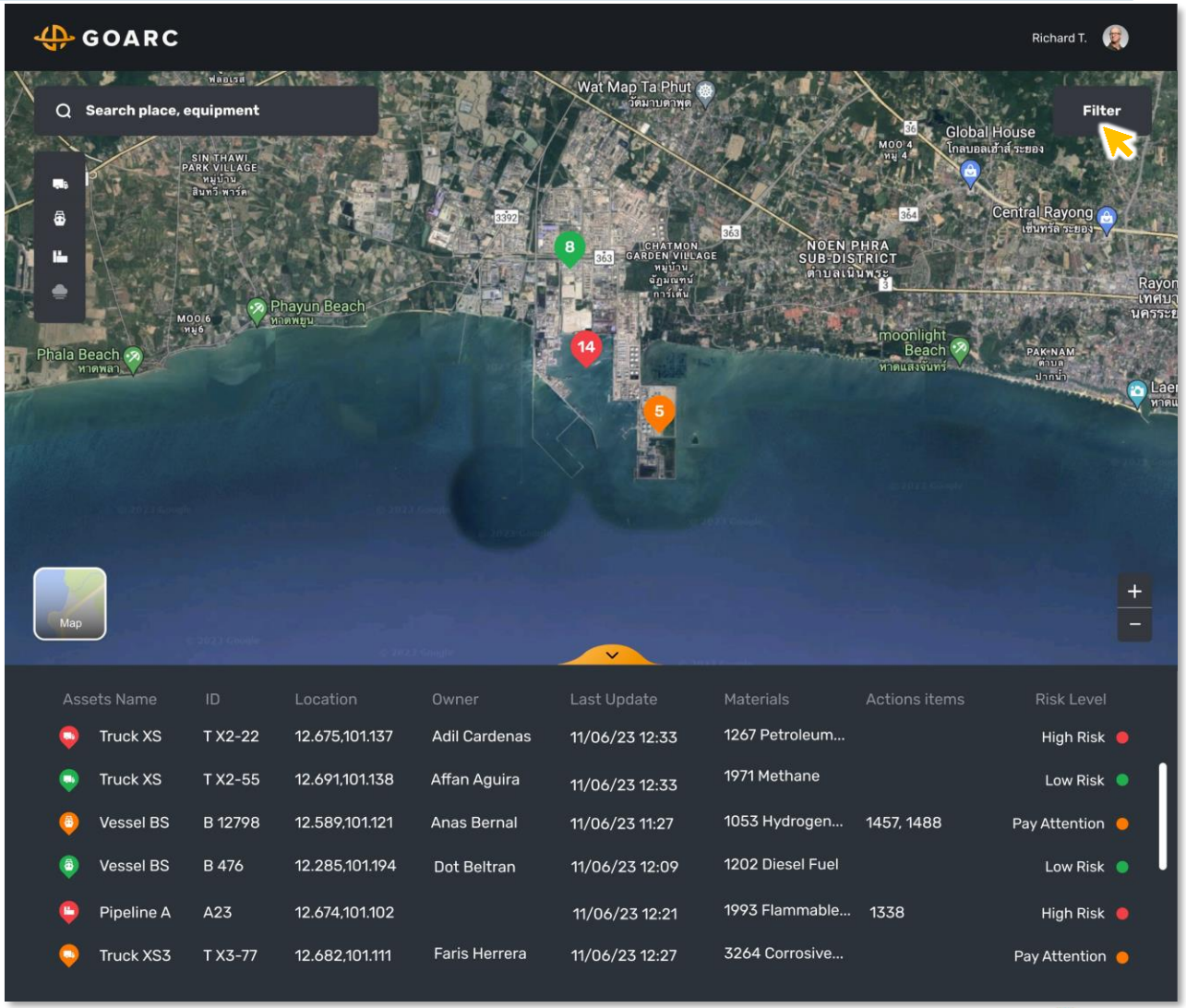
GOARC Materials Center

Focus on what really matters



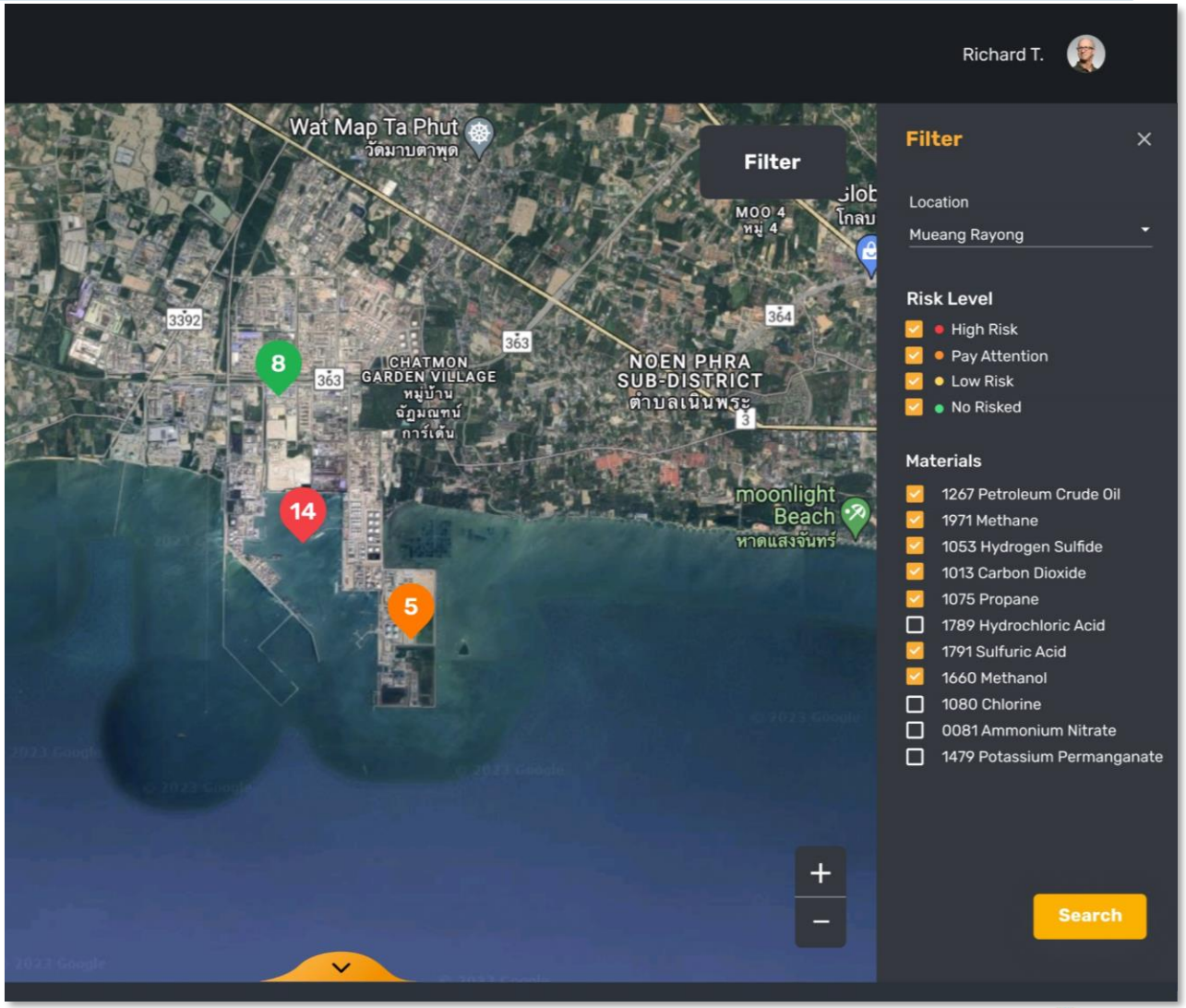
GOARC Materials Center

Finding fast what you are looking for using the side advanced filter panel



GOARC Materials Center

Finding fast what you are looking for using the side advanced filter panel



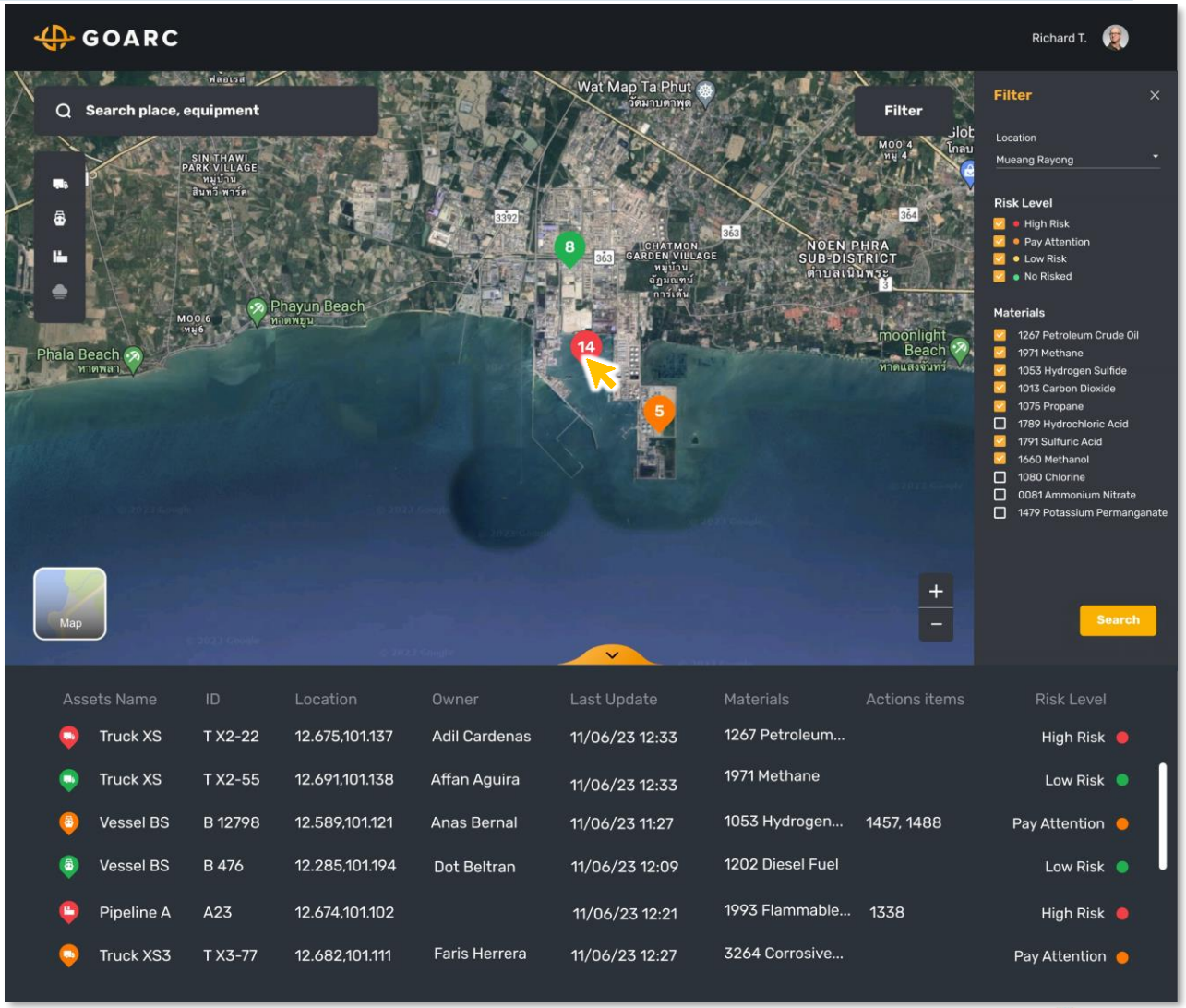
GOARC Materials Center

Remotely track and control each material

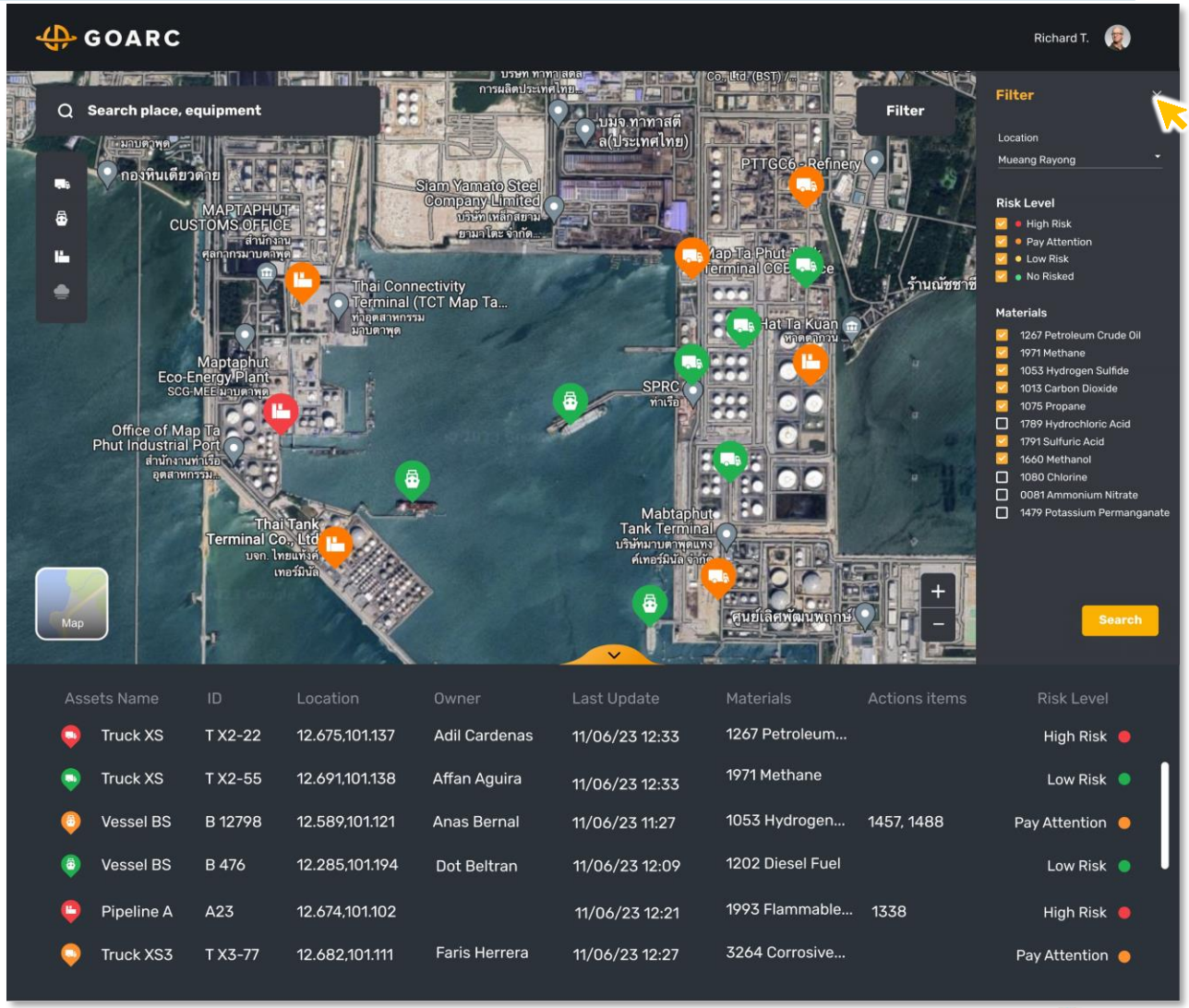
Assets Name	ID	Location	Owner	Last Update	Materials	Actions items	Risk Level
Truck XS	T X2-22	12.675,101.137	Adil Cardenas	11/06/23 12:33	1267 Petroleum...		High Risk
Truck XS	T X2-55	12.691,101.138	Affan Aguira	11/06/23 12:33	1971 Methane		Low Risk
Vessel BS	B 12798	12.589,101.121	Anas Bernal	11/06/23 11:27	1053 Hydrogen...	1457, 1488	Pay Attention
Vessel BS	B 476	12.285,101.194	Dot Beltran	11/06/23 12:09	1202 Diesel Fuel		Low Risk
Pipeline A	A23	12.674,101.102		11/06/23 12:21	1993 Flammable...	1338	High Risk
Truck XS3	T X3-77	12.682,101.111	Faris Herrera	11/06/23 12:27	3264 Corrosive...		Pay Attention

GOARC Materials Center

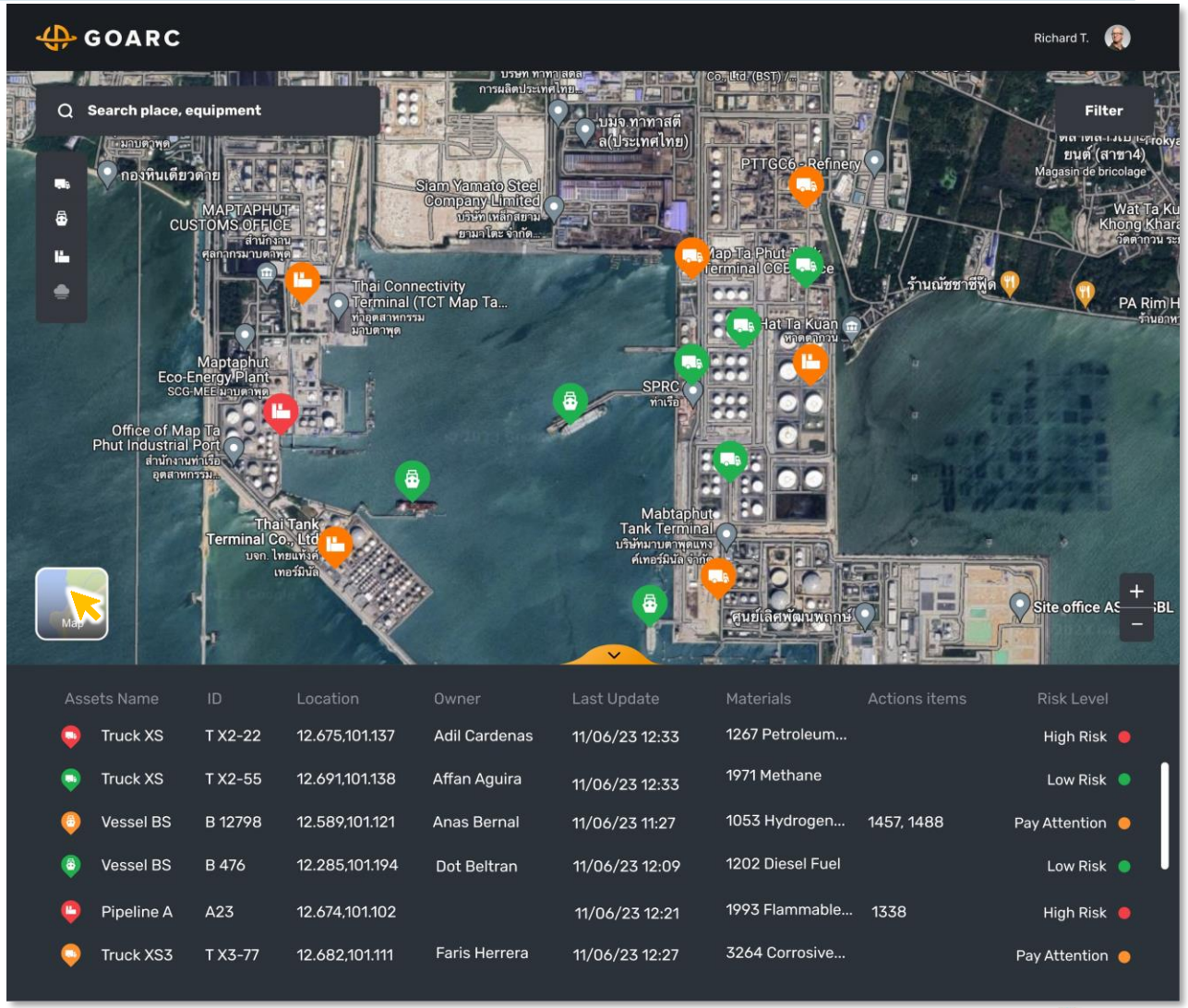
Zoom in from anywhere in the world for better understanding of the field situation



GOARC Materials Center



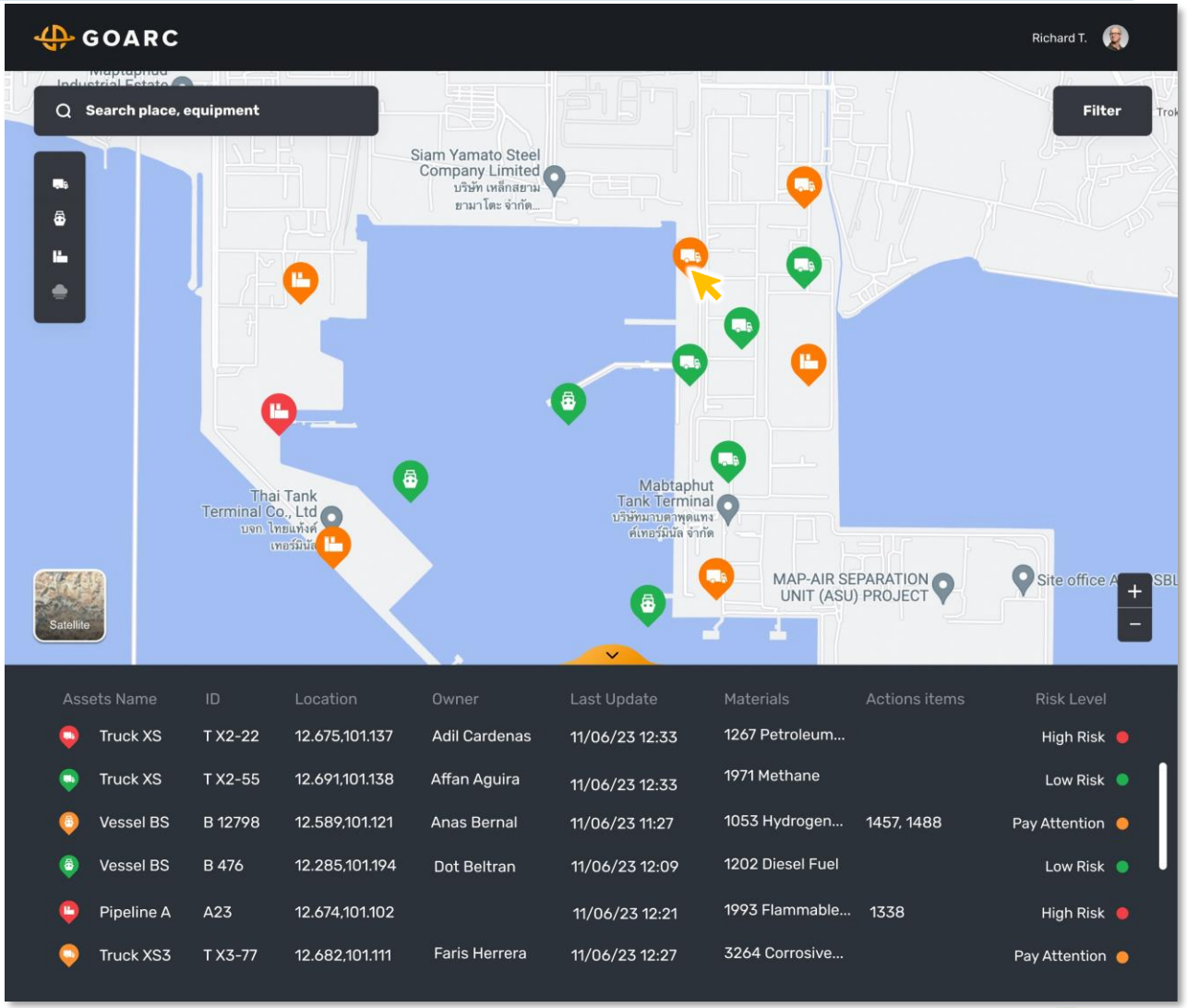
GOARC Materials Center



GOARC Materials Center

Have a full GIS control:

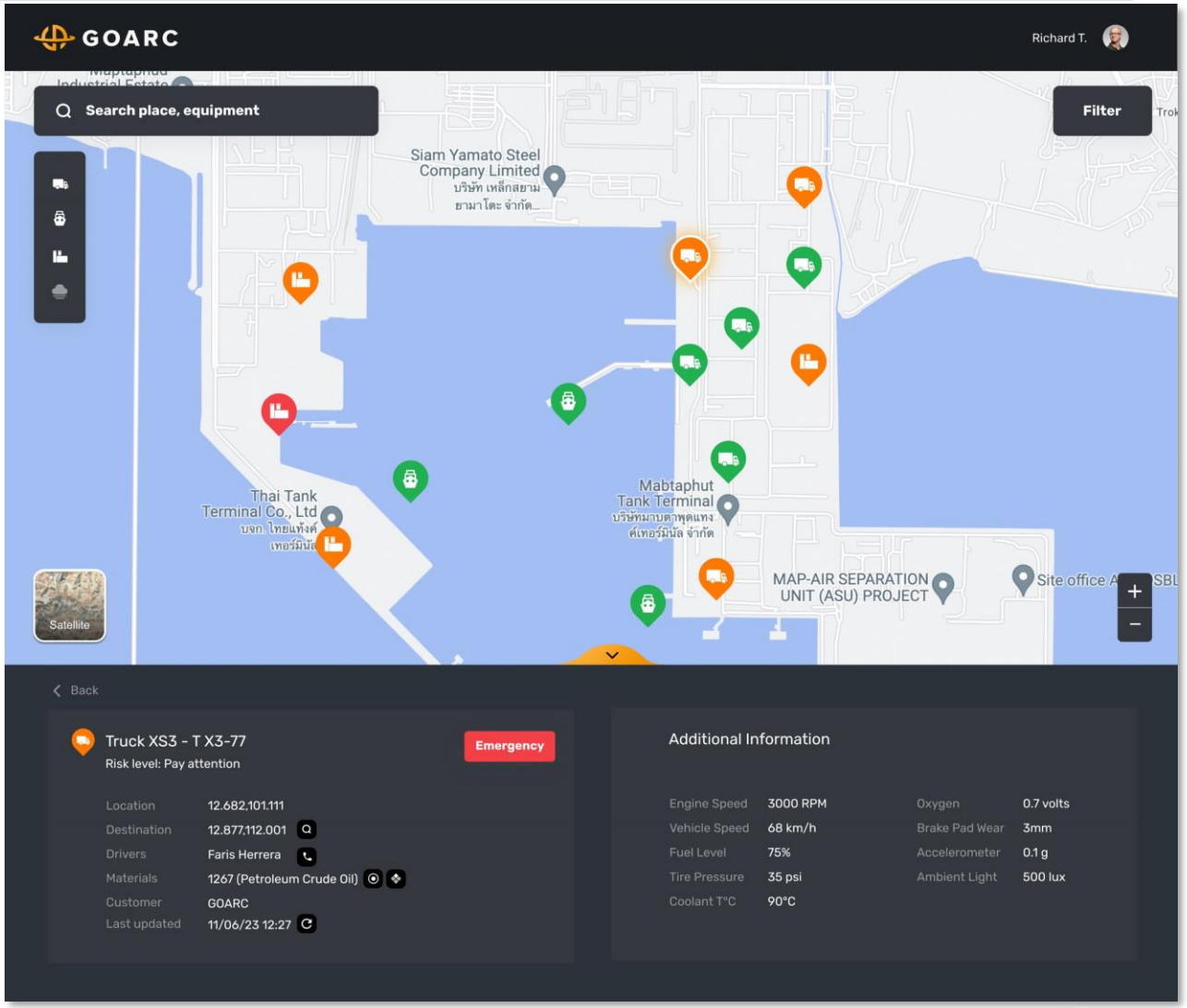
- **Satellite**
- **Map**
- **POIs**
- **Blueprints**
- **Drawings**
- **3D/VR (Matterport)**
- **Custom layers**



GOARC Materials Center

Truck details:

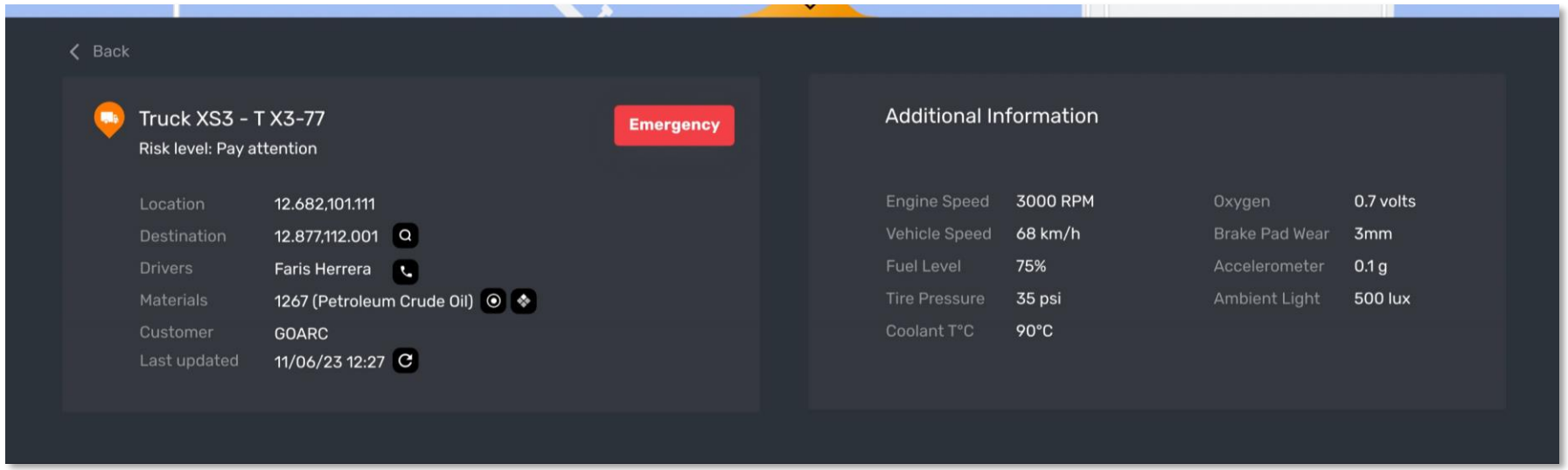
- **Integrations with POD, IoT sensors, MSDS and more**



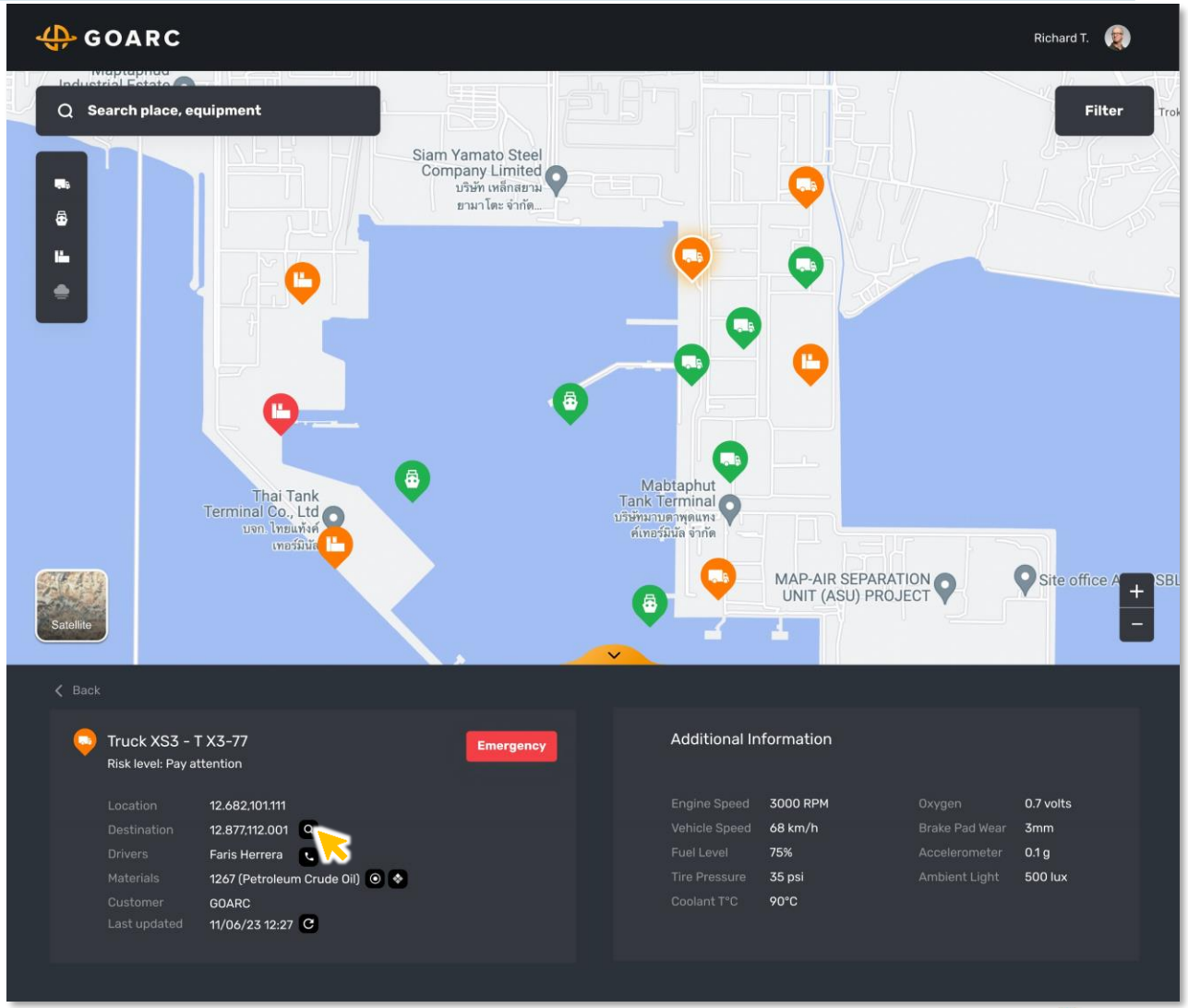
GOARC Materials Center

Truck details:

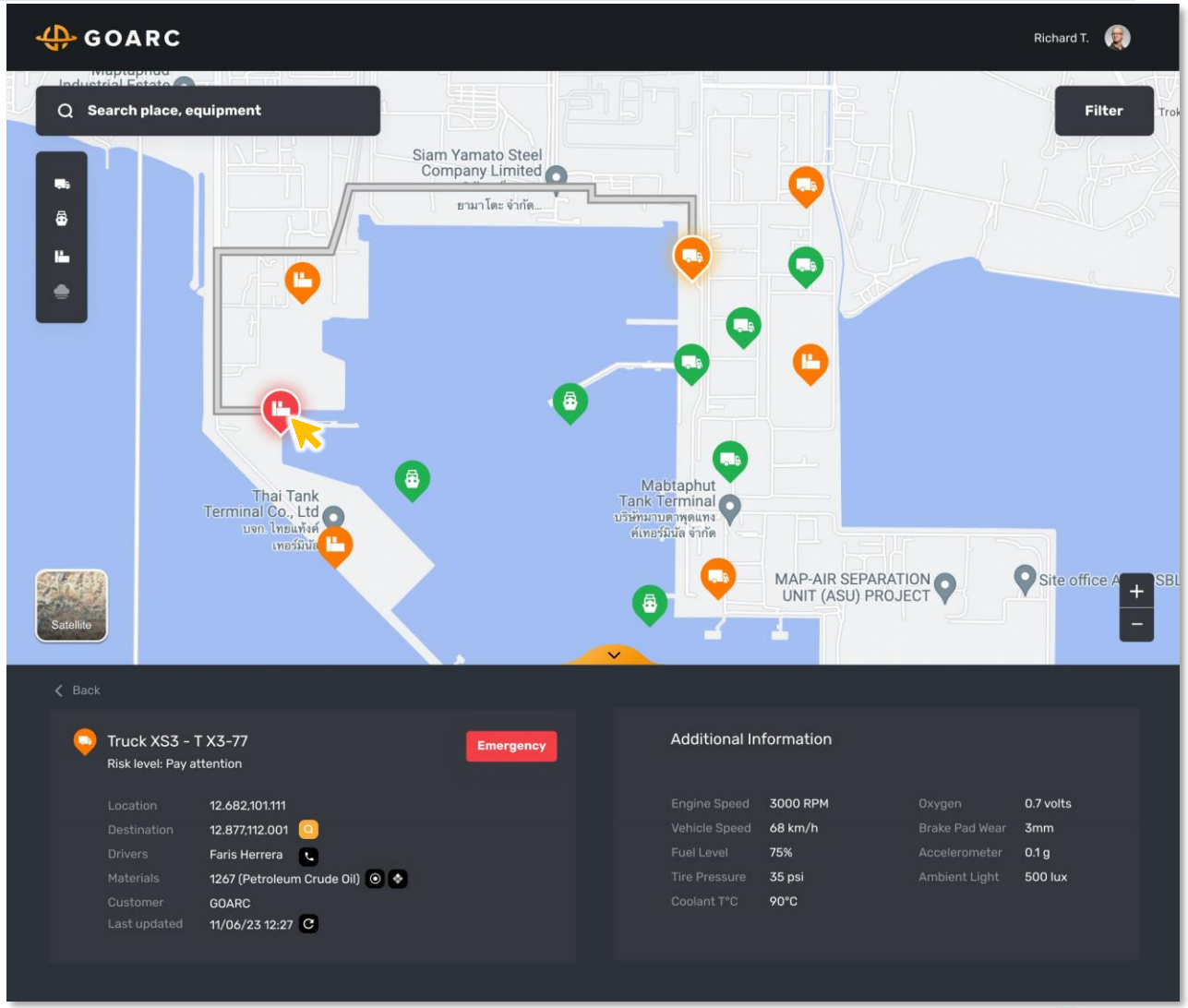
- **Integrations with POD, IoT sensors, MSDS and more**



GOARC Materials Center



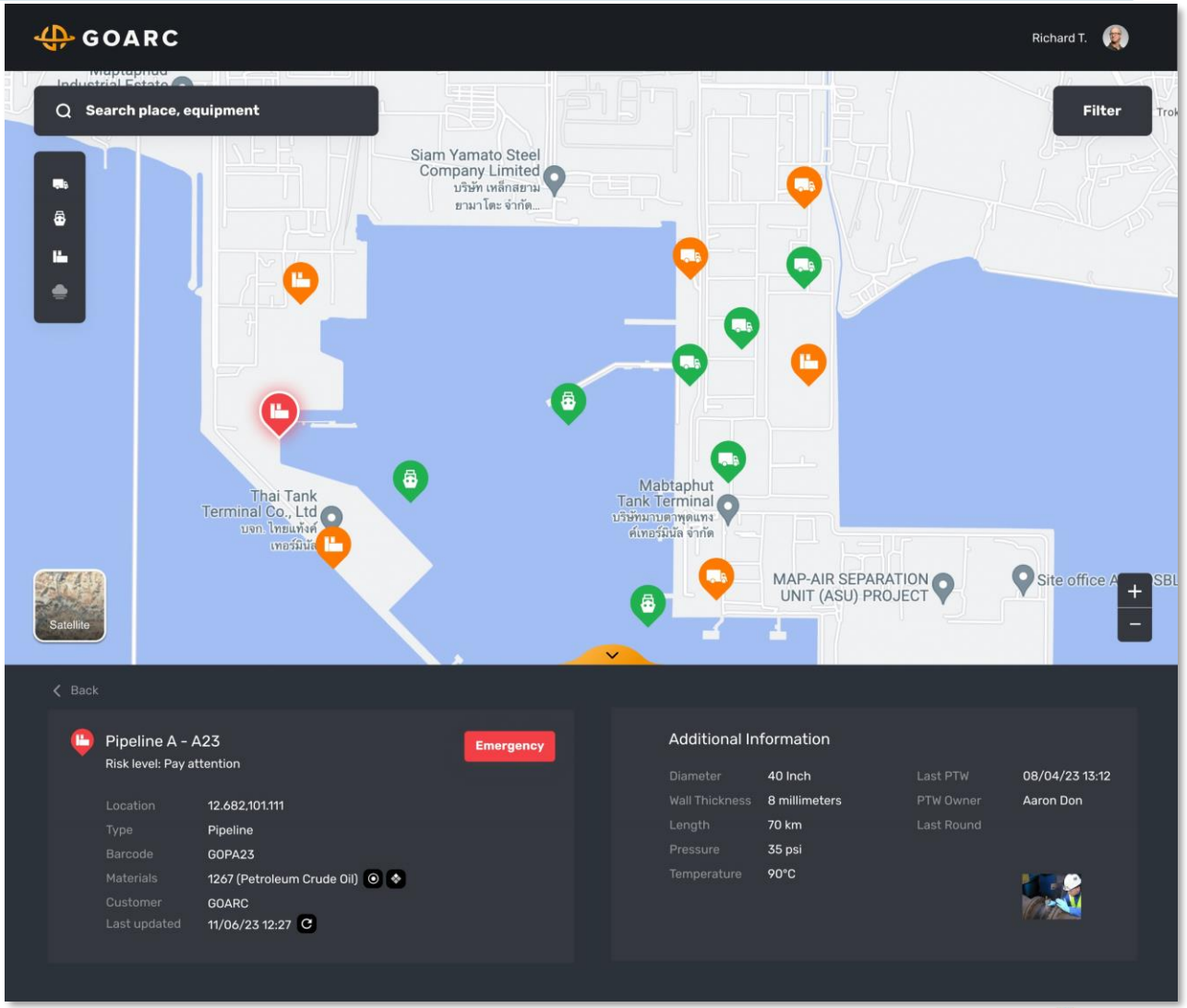
GOARC Materials Center



GOARC Materials Center

Site details:

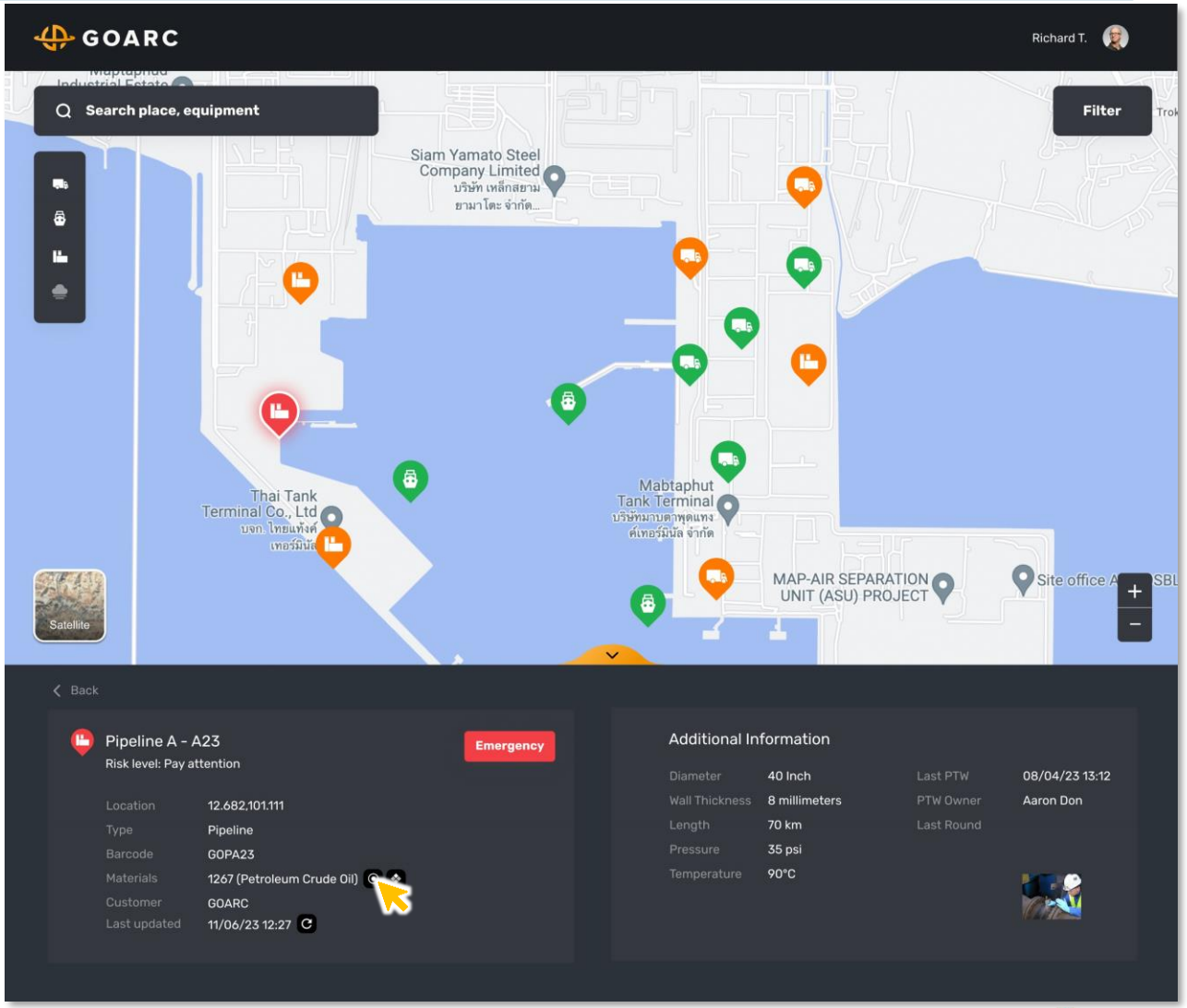
- **Integrations with Asset Management, ERP, OSIsoft PI, IoT sensors, MSDS and more**



GOARC Materials Center

Consequence analysis:

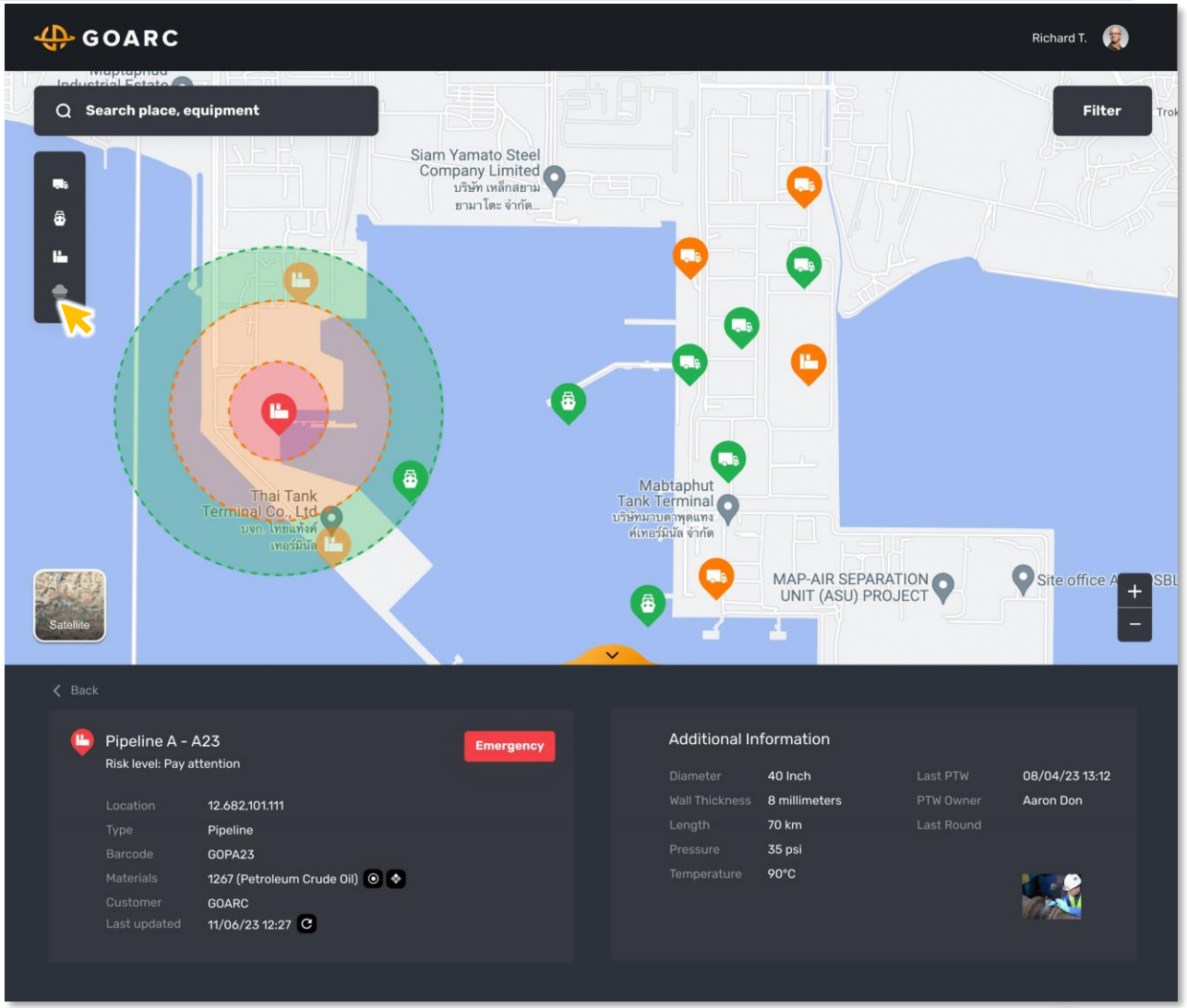
- **Integrations with solutions for modeling discharge, dispersion, fires, explosions, and toxic effects**



GOARC Materials Center

Consequence analysis:

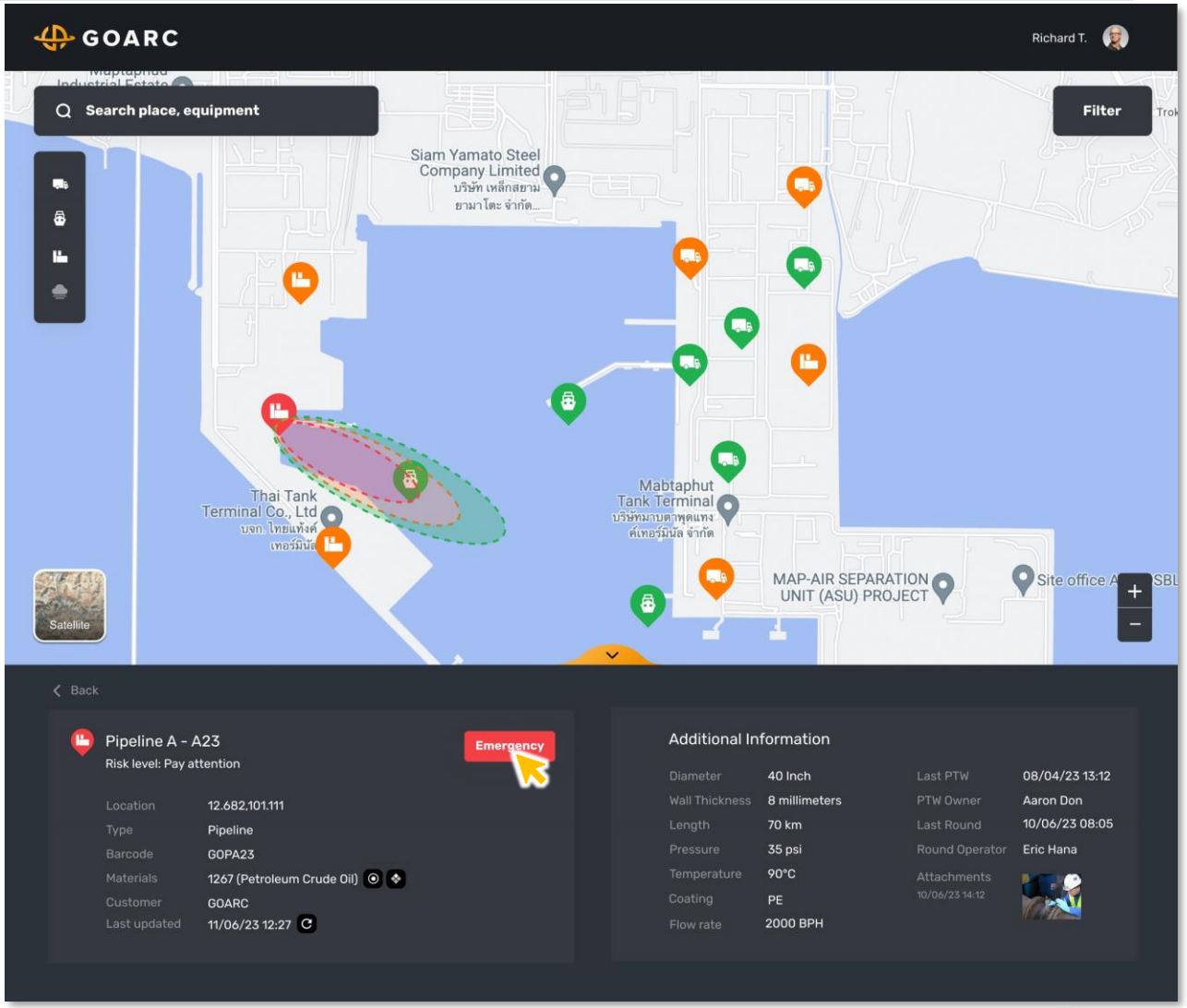
- **Integrations with solutions for modeling discharge, dispersion, fires, explosions, and toxic effects**



GOARC Materials Center

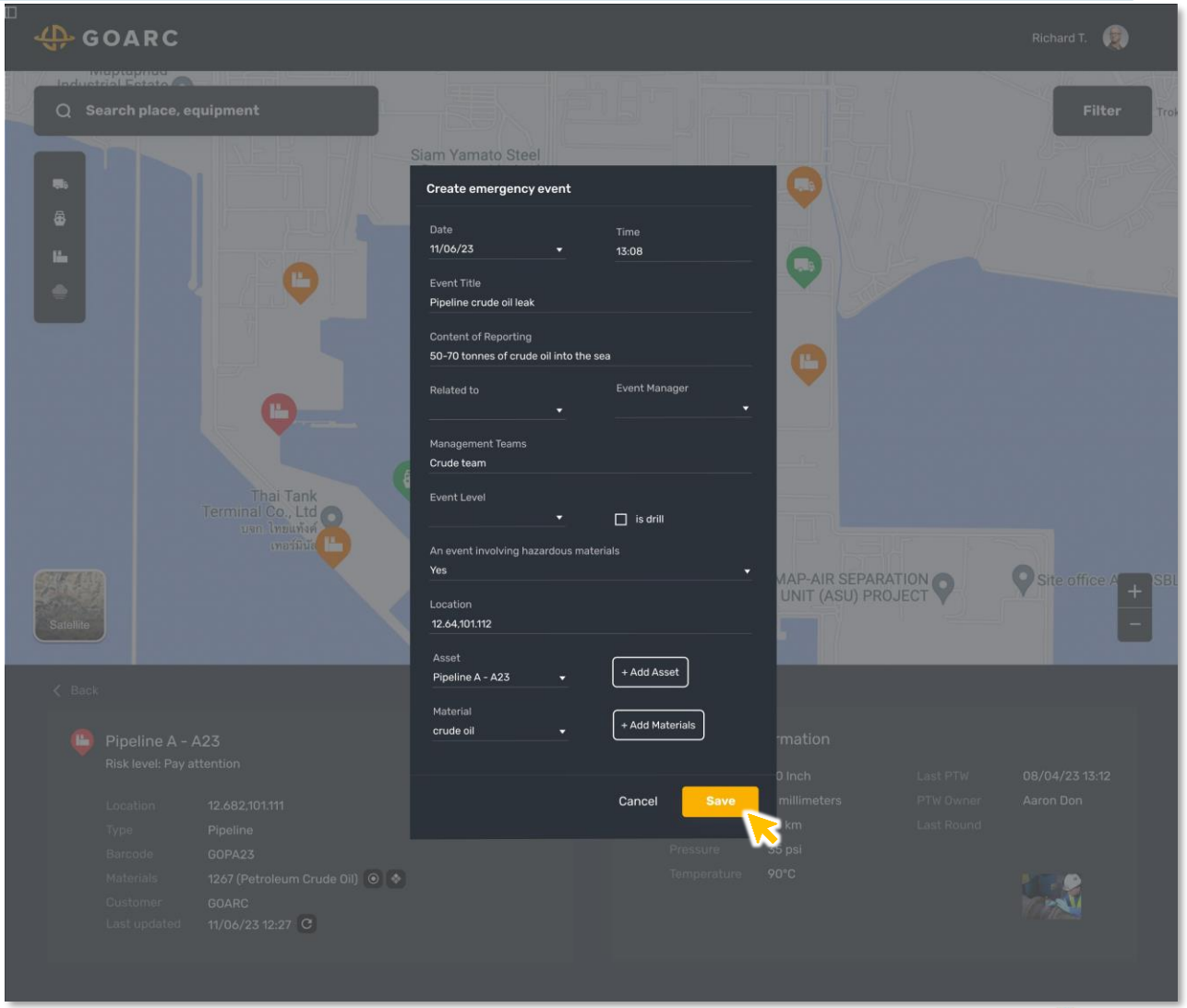
Consequence analysis:

- **Integrations with weather forecasting solutions**

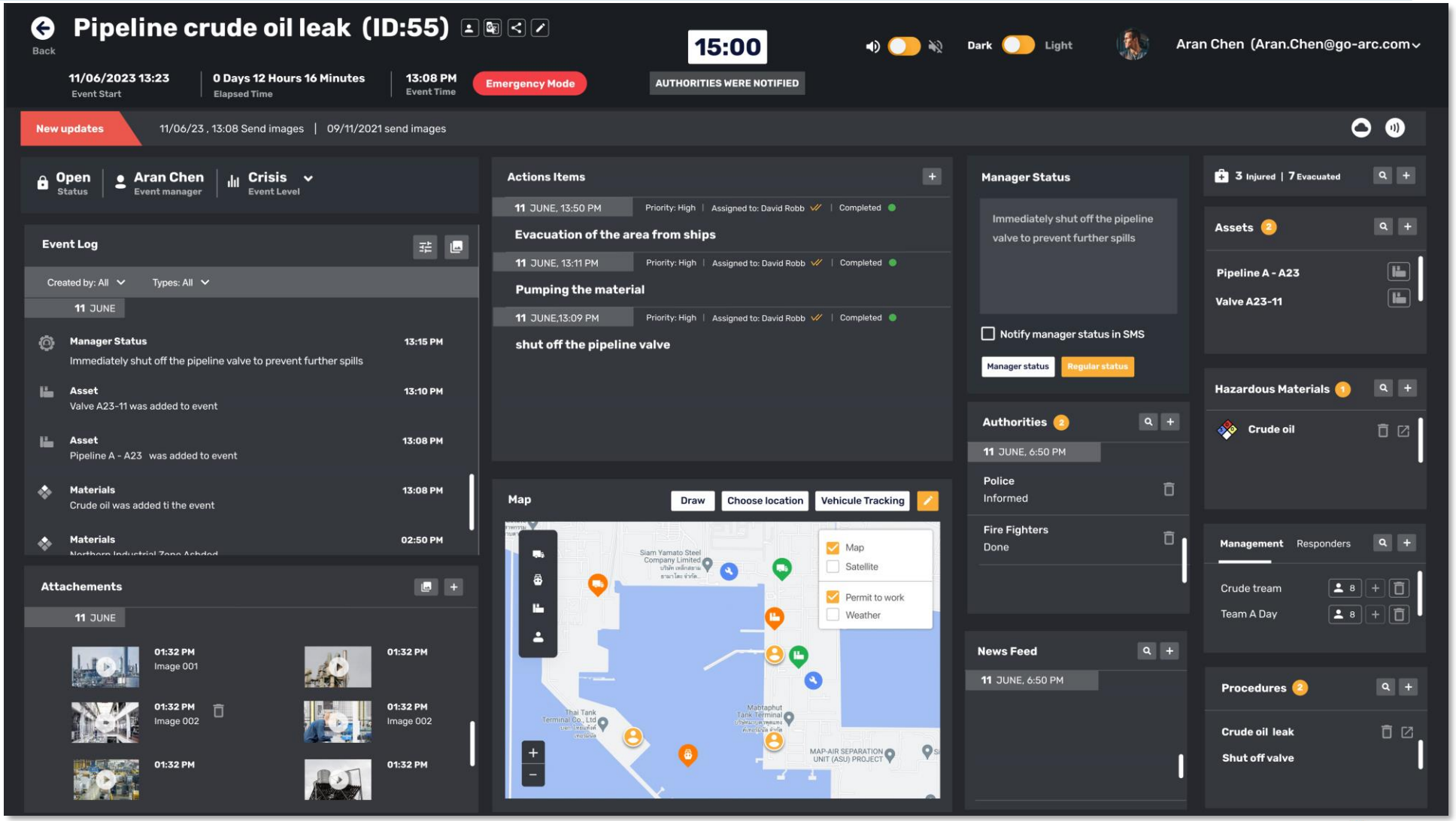


GOARC Materials Center

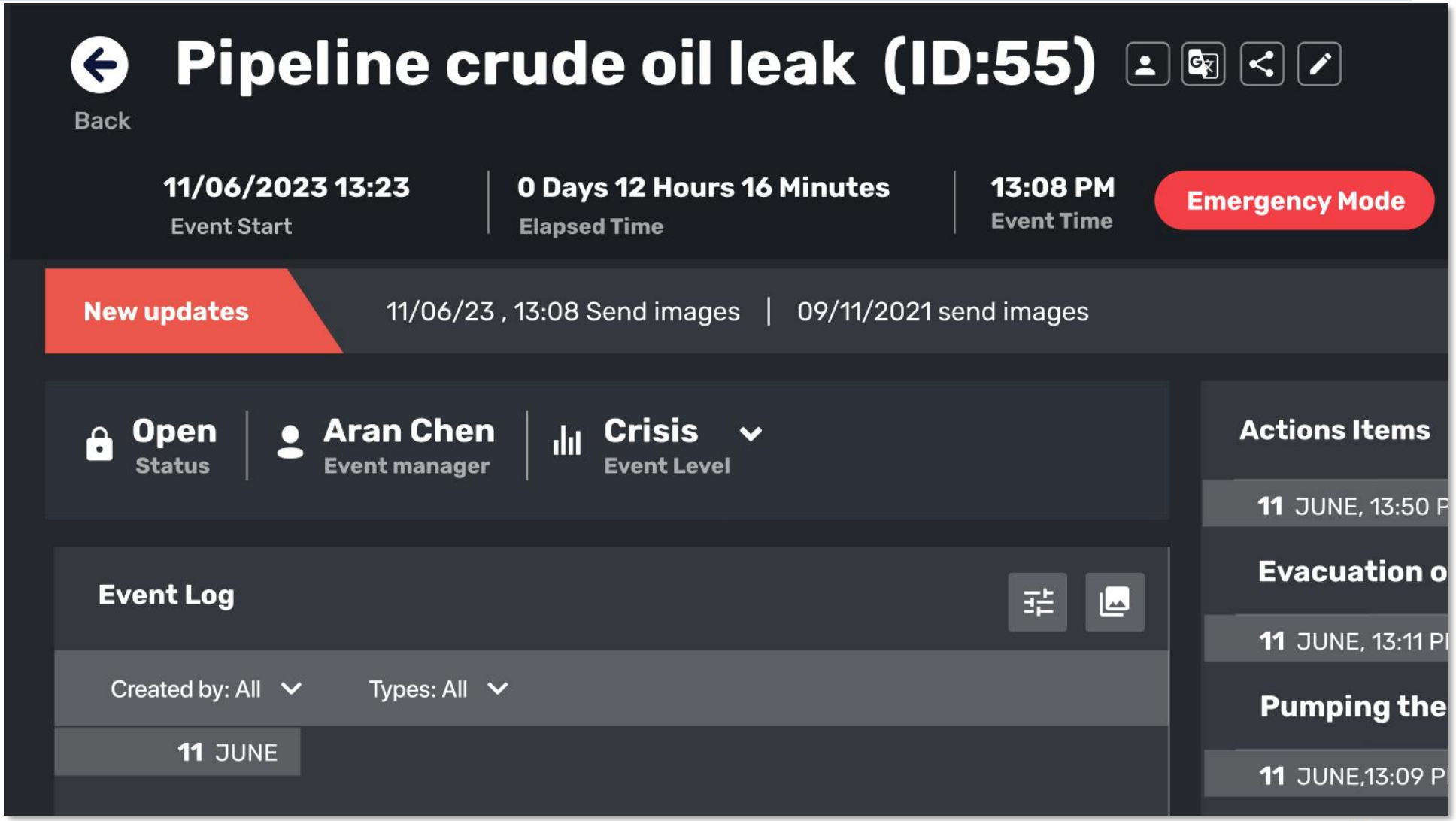
Minimize the damage by quickly and effectively managing an emergency incident involving hazardous materials



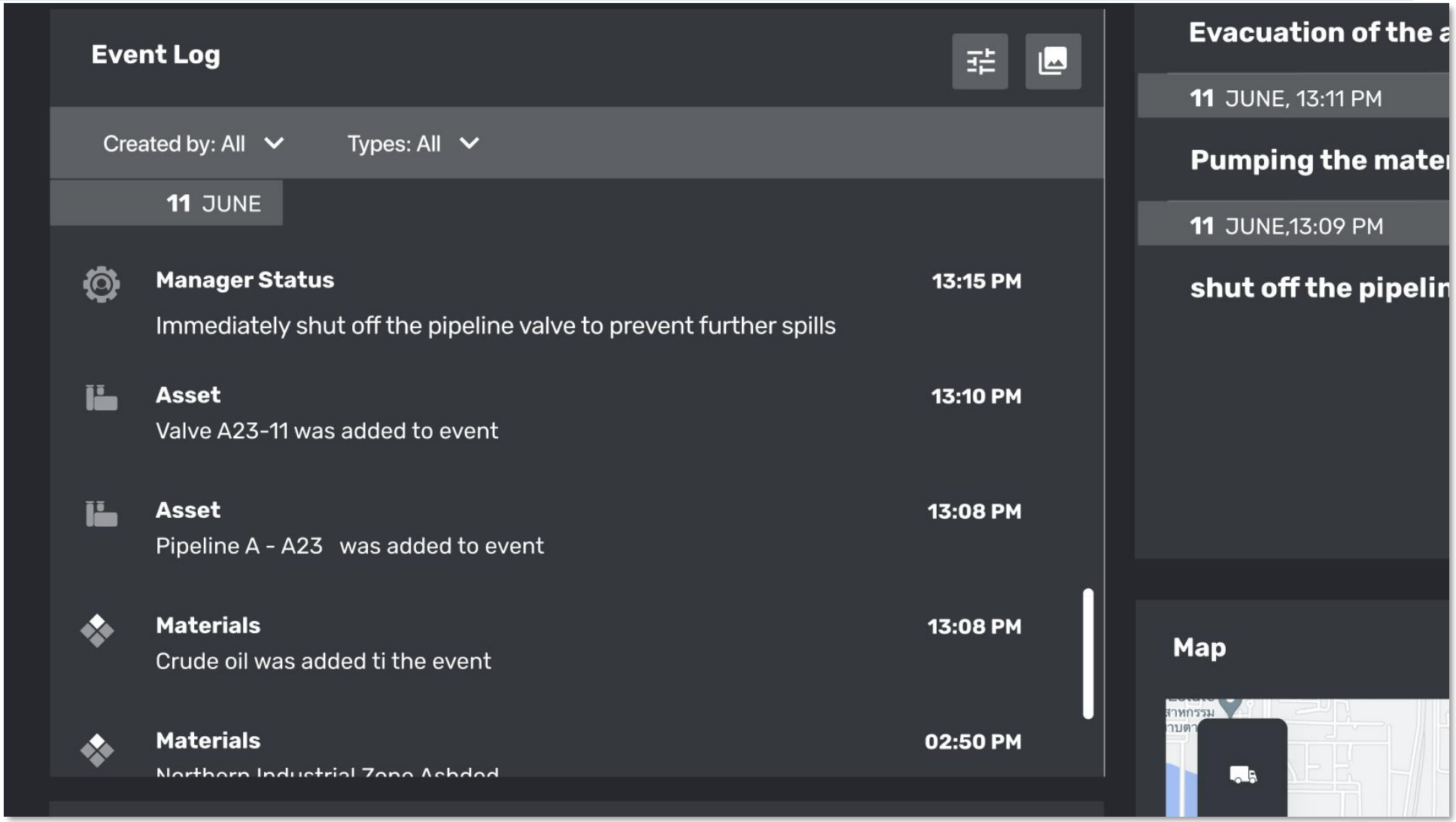
GOARC Emergency Event Center



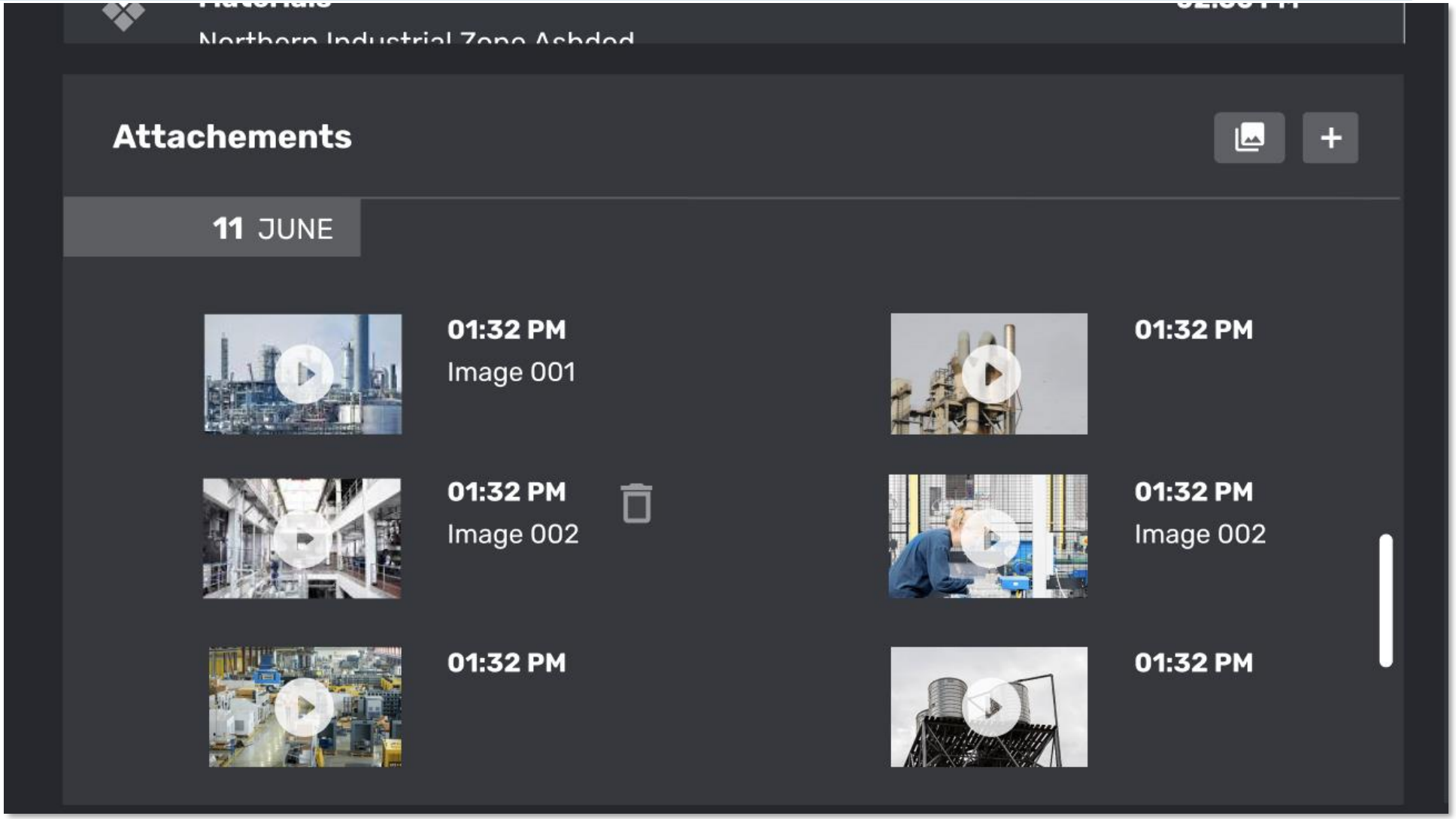
GOARC Emergency Event Center



GOARC Emergency Event Center



GOARC Emergency Event Center



GOARC Emergency Event Center

Actions Items +

11 JUNE, 13:50 PM | Priority: High | Assigned to: David Robb | Completed

Evacuation of the area from ships

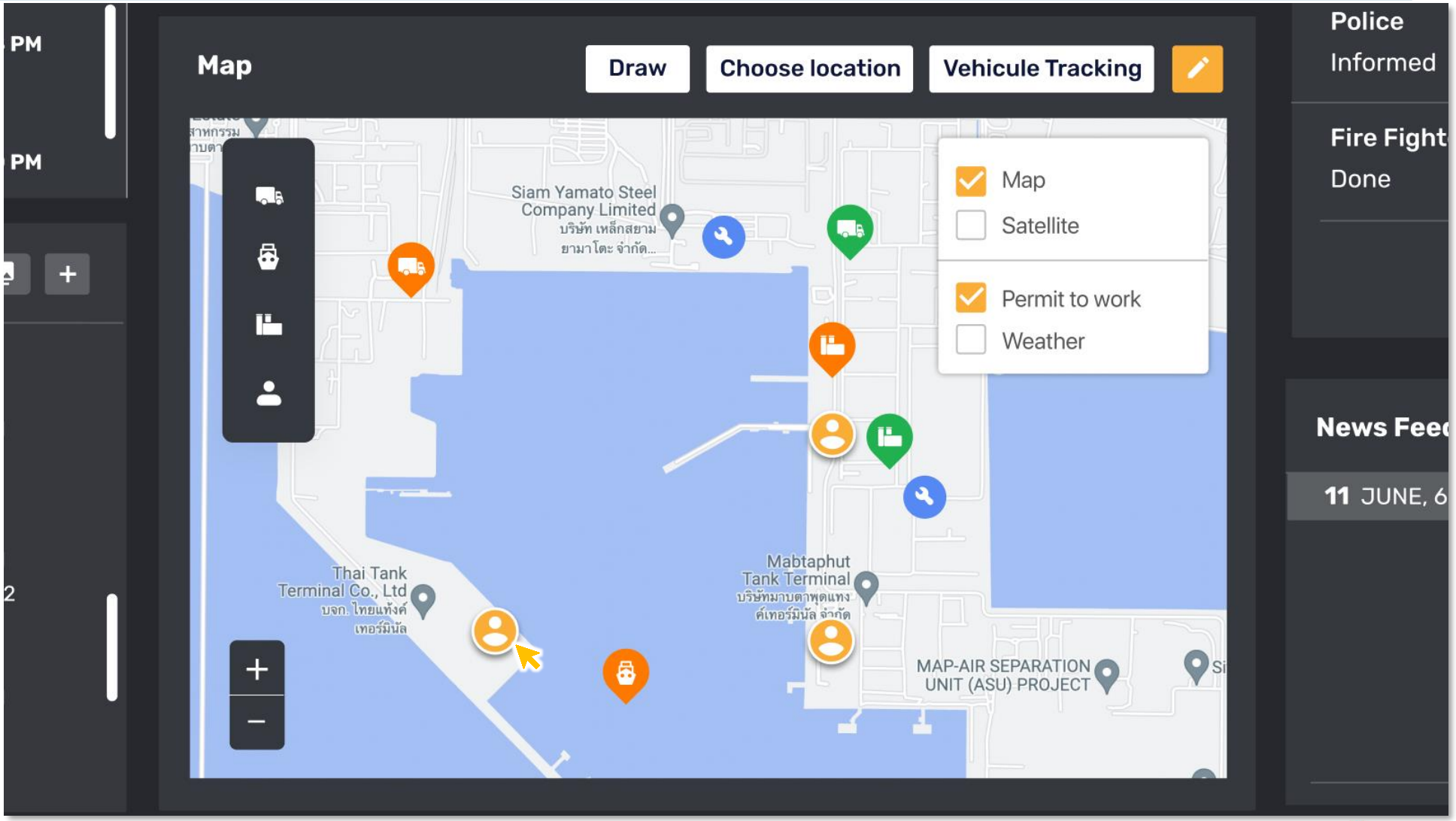
11 JUNE, 13:11 PM | Priority: High | Assigned to: David Robb | Completed

Pumping the material

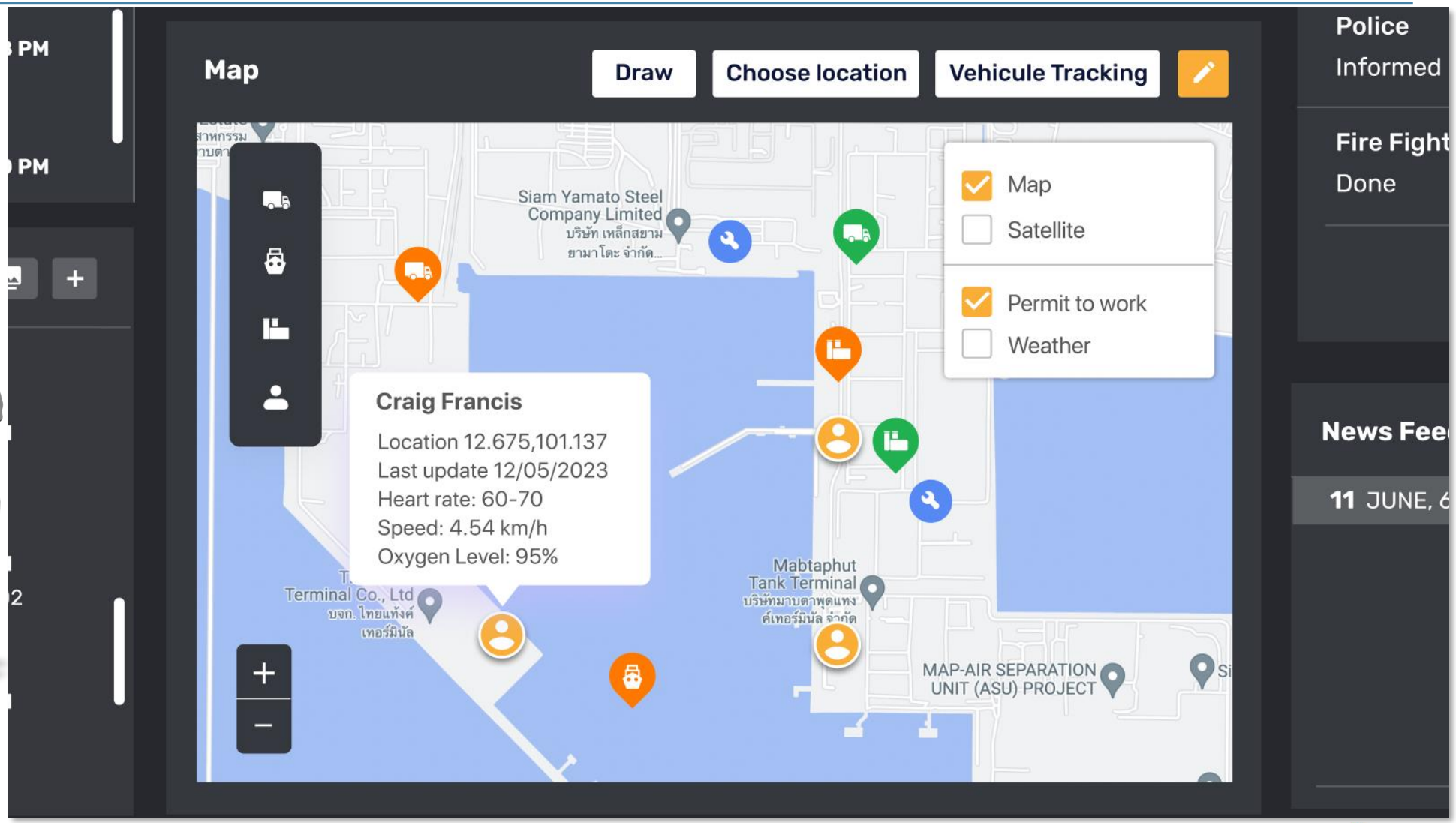
11 JUNE,13:09 PM | Priority: High | Assigned to: David Robb | Completed

shut off the pipeline valve

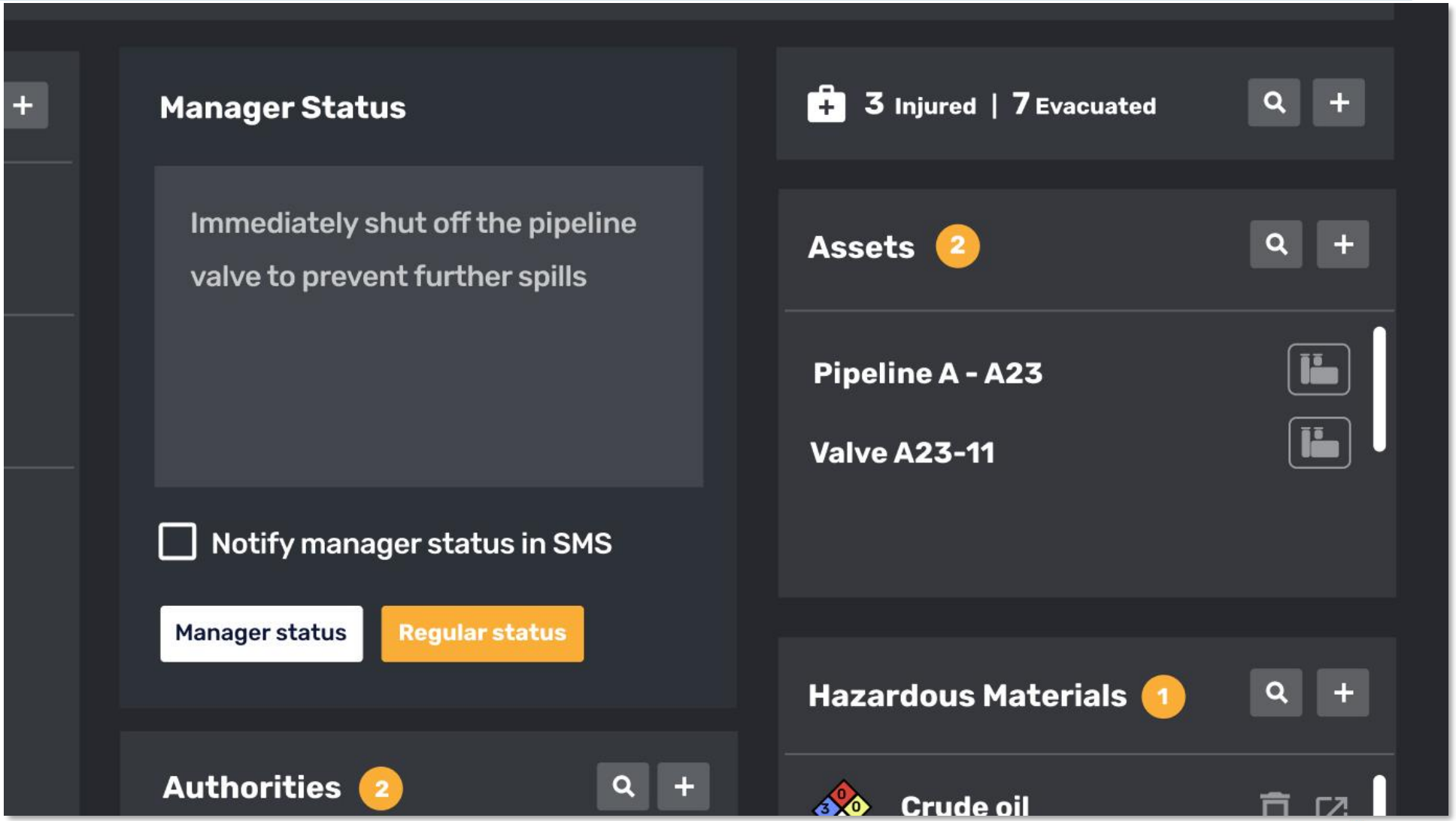
GOARC Emergency Event Center



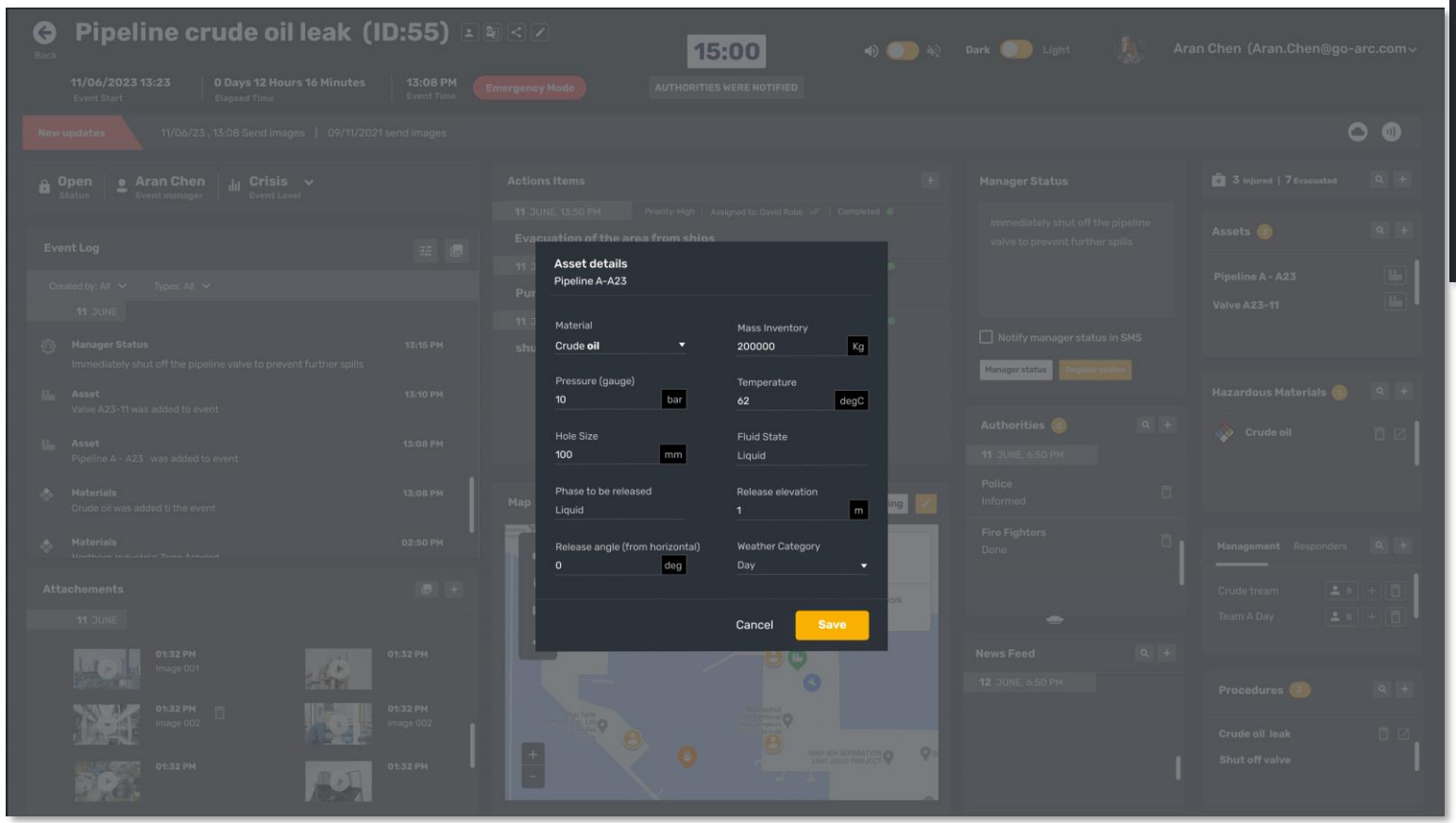
GOARC Emergency Event Center

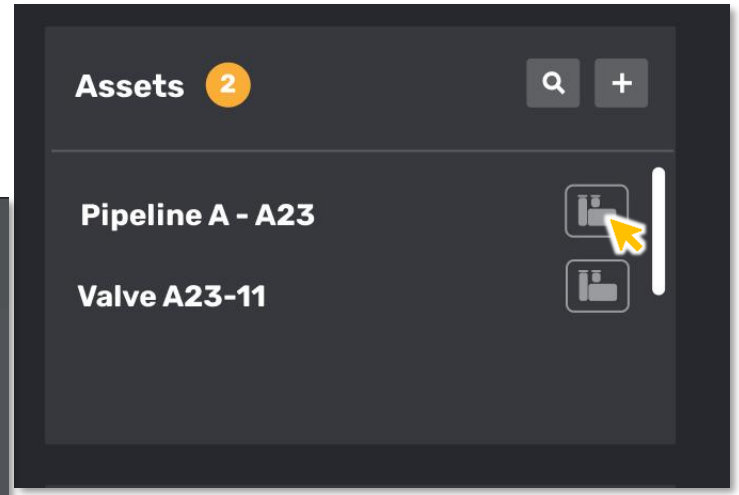


GOARC Emergency Event Center

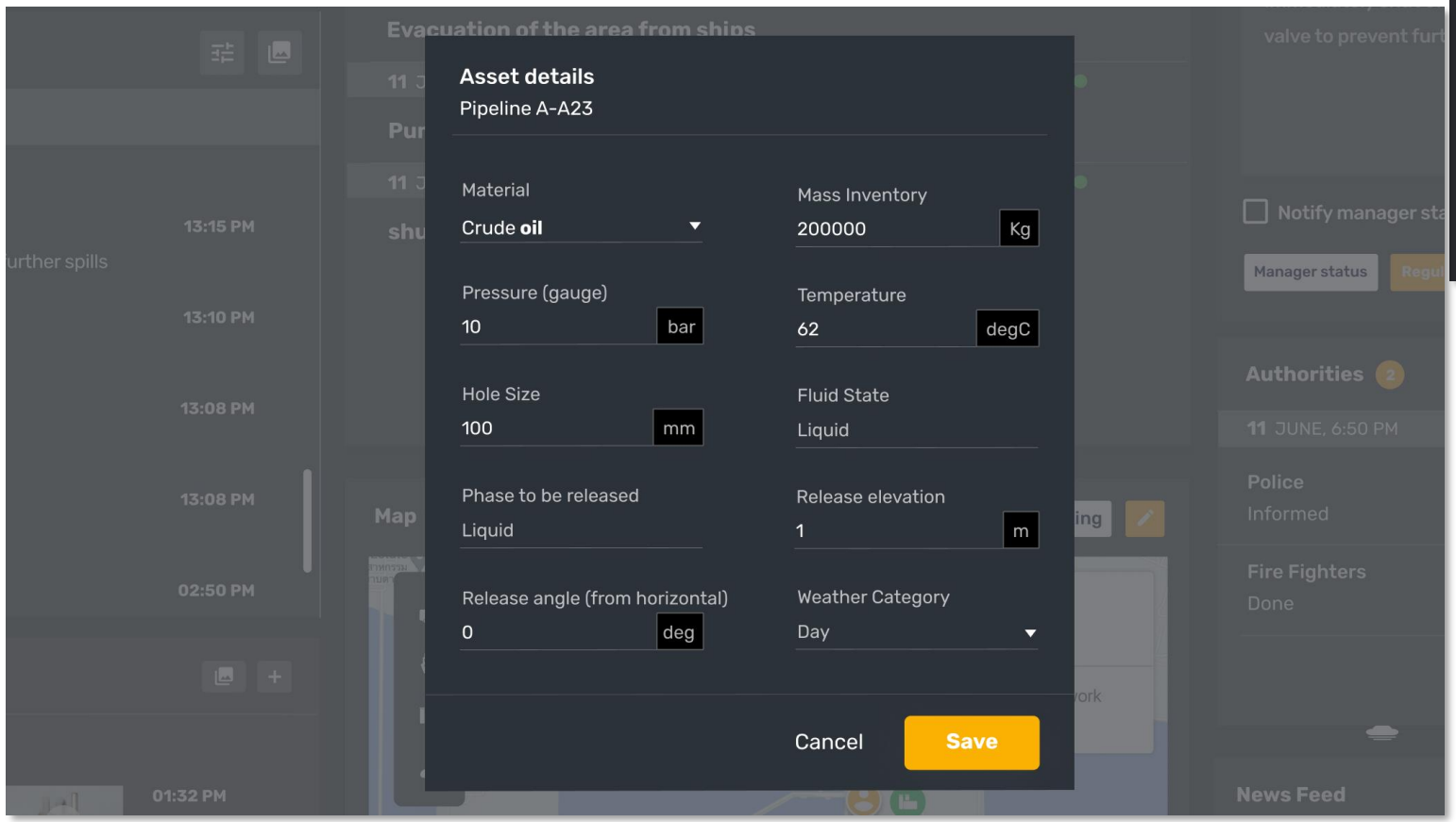


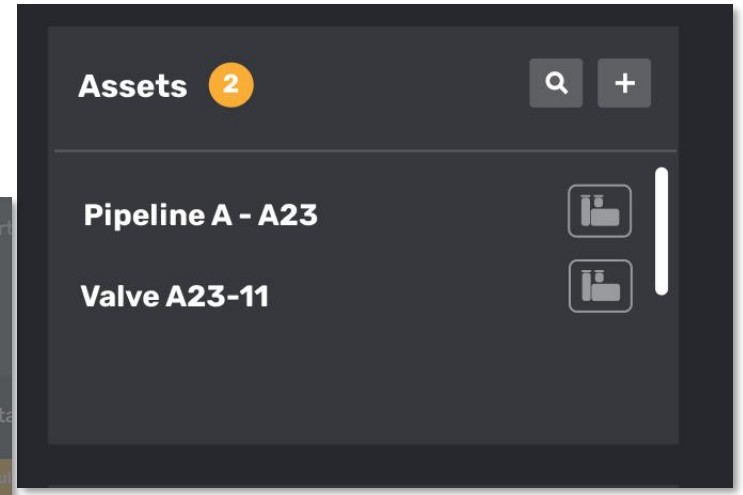
GOARC Emergency Event Center



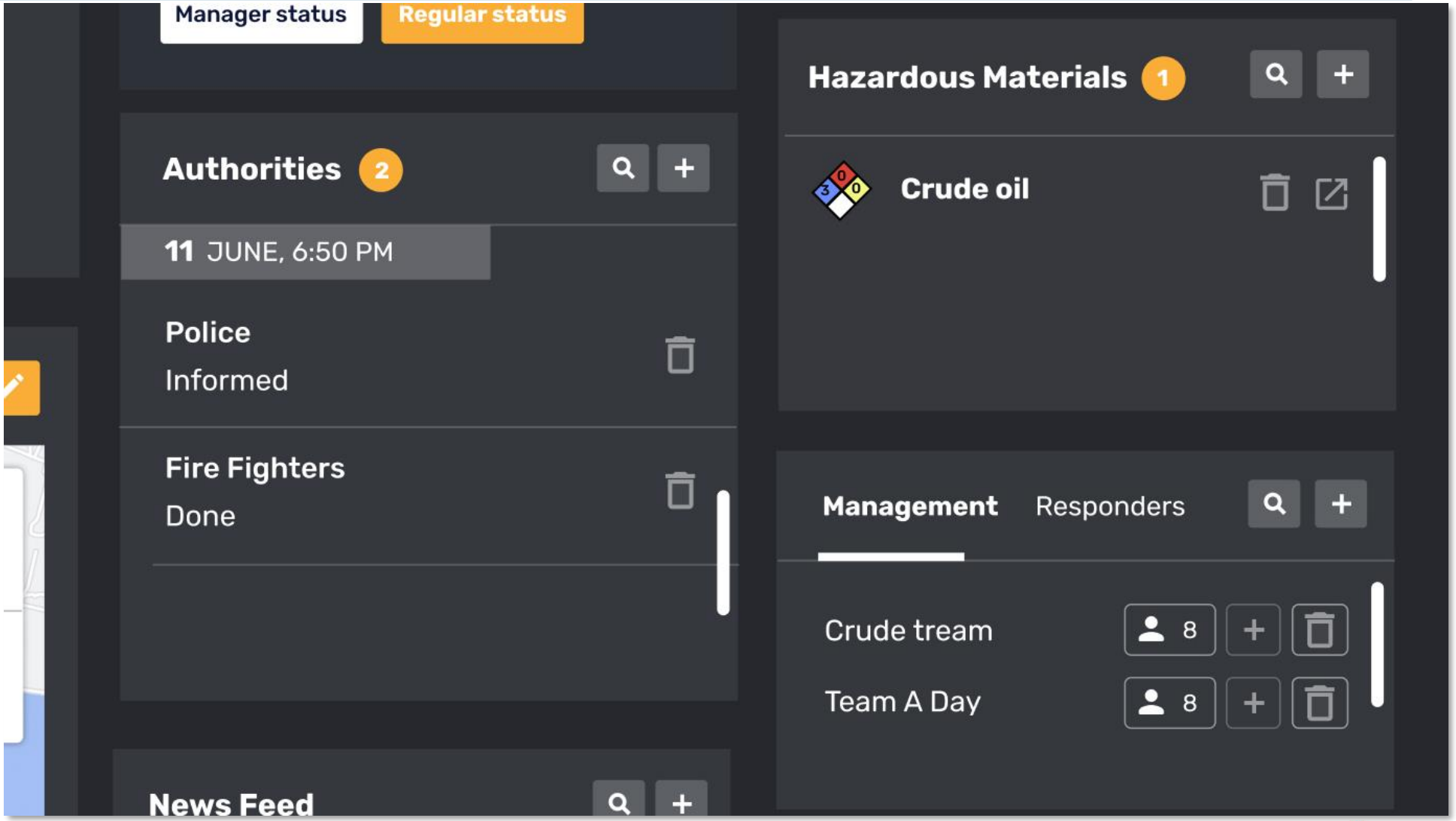


GOARC Emergency Event Center

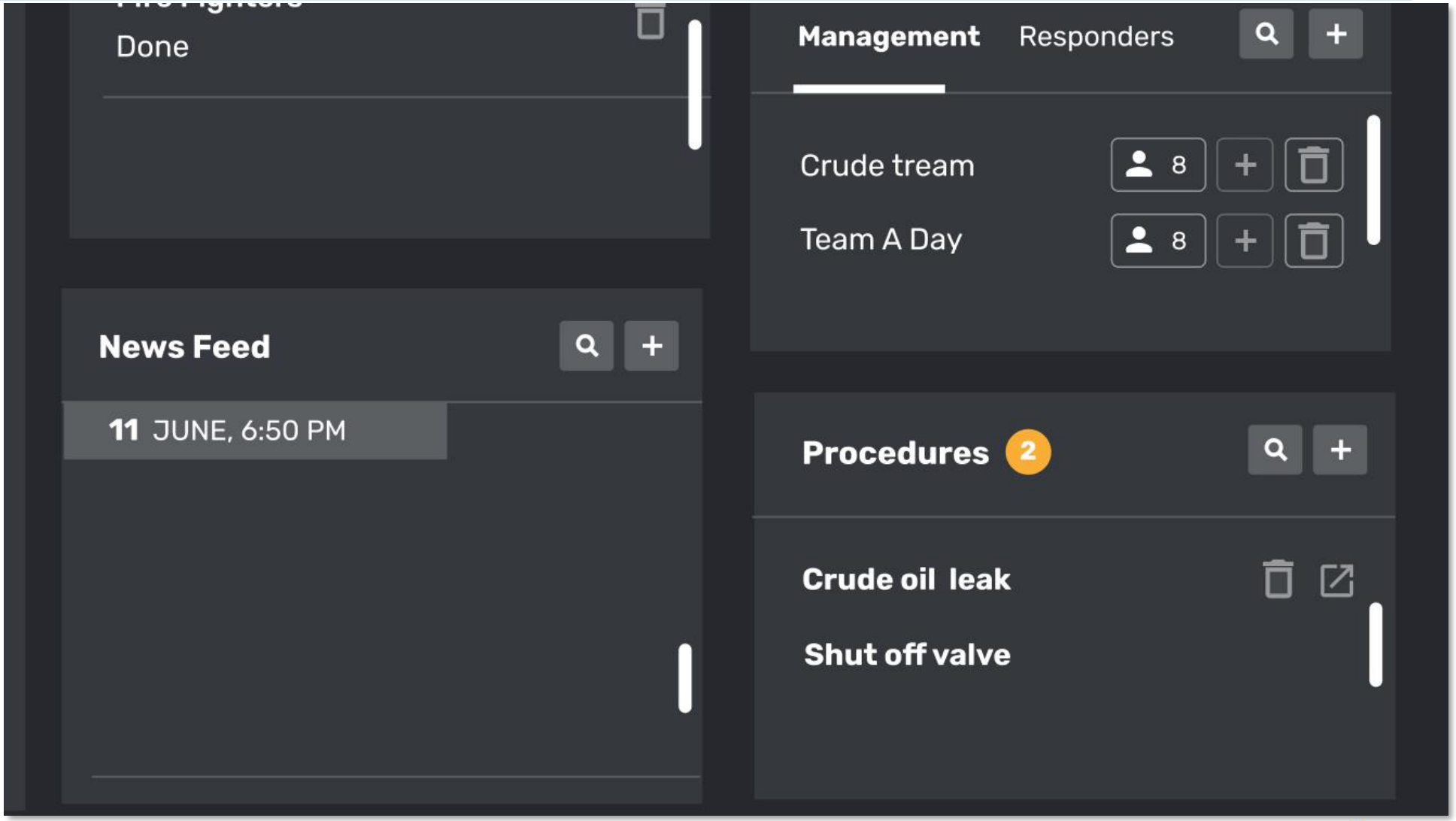




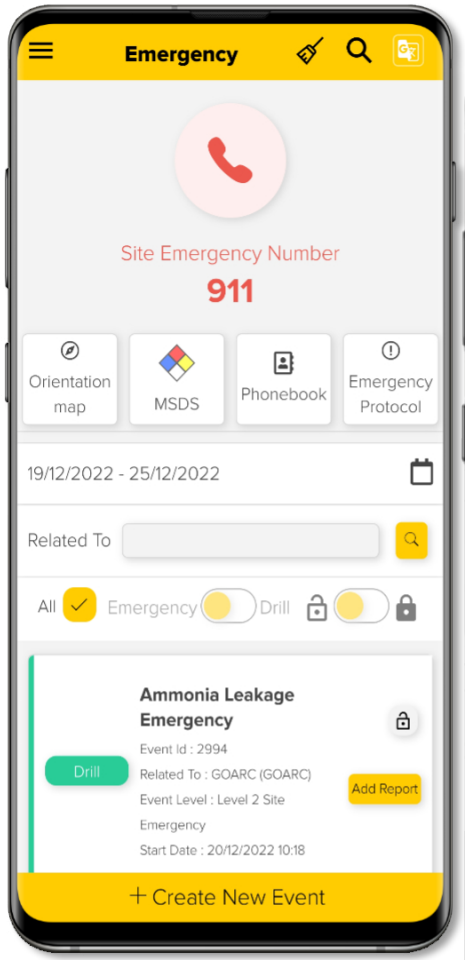
GOARC Emergency Event Center

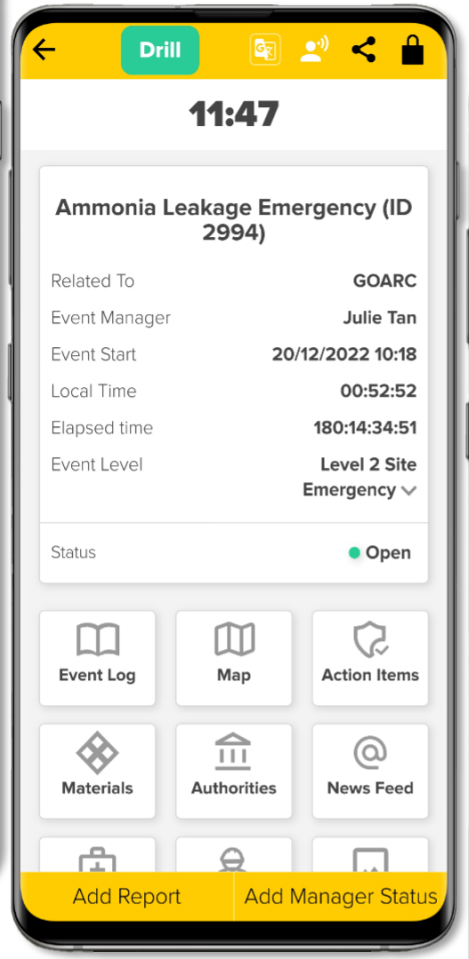


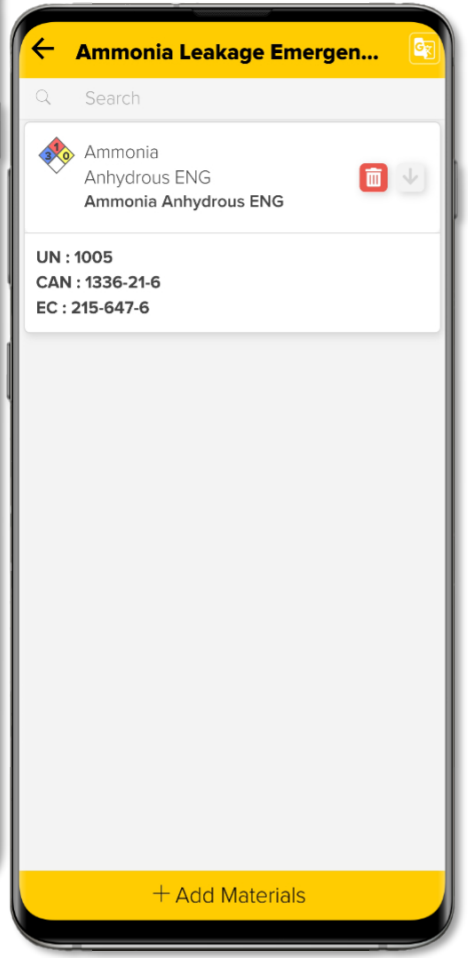
GOARC Emergency Event Center

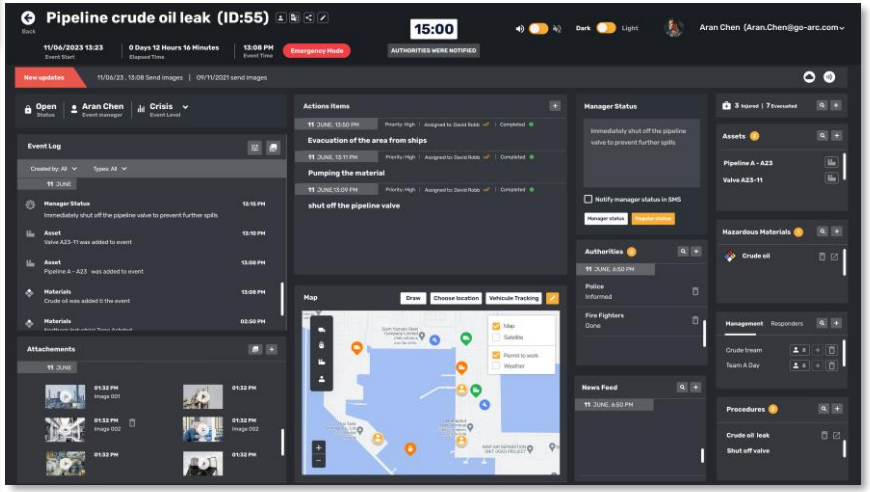


GOARC **Mobile** Emergency Center









Chemical Process Safety Sharing

We make your industry safer and smarter

Thank you for your attention