Environmental Risks to Watch Out for in 2020

January 21, 2020

mapistry

Ryan Janoch

COO, Co-Founder of Mapistry

- Professional Civil Engineer
- Former Bay Area Air District Hearing Board Member
- National Committee for Stormwater BMPs with EPA

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Mapistry Software Solutions

Ensure environmental compliance and minimize your risk

Ensure real-time visibility
Quickly run reports across all your data — lab reports, inspections, corrective actions

Maximize efficiency & accountability
Empower your field and corporate teams with access to field data, tasks, deadlines and critical alerts

Centralize quality & control
Centrally managing all compliance data, documents, tasks and plans

Trusted by

The world's leading industrial and manufacturing companies

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Trends in Enterprise Environmental Compliance

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Risk in 2020

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What are the risks in 2020?

1. Increased Local and State Influence
2. Public Participation
3. Emerging Technologies

Risk #1
Local and State Influence

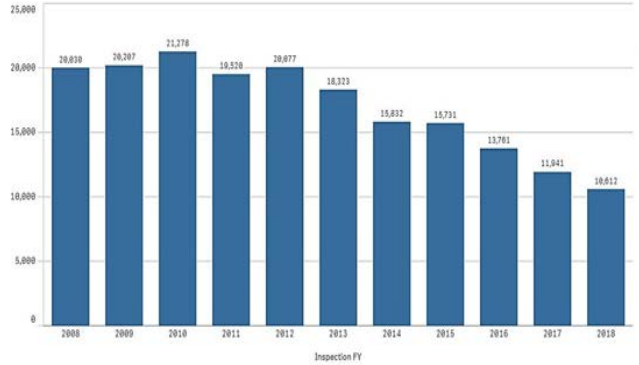
Federal Influence

Learn How Facilities Near You are Complying with Environmental Laws

- Search our ECHO database for facilities near you to learn about their environmental compliance
- Learn how the State Review Framework assesses your state's enforcement of environmental laws

Compliance Monitoring Programs

- How We Monitor Compliance
- Compliance Monitoring Programs

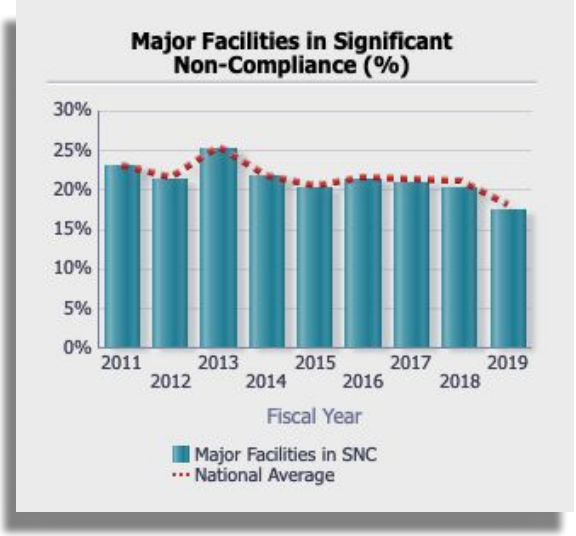


- In FY 2018, EPA conducted 10,600 inspections/evaluations.
- EPA continues to use data analytics and other tools to improve inspection targeting, which allows it to use its inspection resources more efficiently.

National Compliance Initiatives

> “The EPA focuses its enforcement and compliance resources on the **most serious environmental violations** by developing and implementing national program priorities”

Non-Compliance



Air

Creating Cleaner Air for Communities by Reducing Excess Emissions of Harmful Pollutants from **Stationary Sources**

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A case study!

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Water

Reducing Significant **Noncompliance** with National Pollutant Discharge Elimination System (NPDES) Permits

A quick case study!

News Releases from Region 01

Court Orders Two Massachusetts Companies to Comply with Environmental Laws and Pay $1.3 Million in Penalties

10/29/2019

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Hazmat

Reducing Risks of Accidental Releases at **Industrial** and Chemical Facilities

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“same color as anti-freeze or Mountain Dew”

Following the paper trail linked to the I-696 toxic ooze

Posted: 6:19 PM, Dec 31, 2019 **Updated:** 9:56 AM, Jan 01, 2020

By: Jennifer Ann Wilson

We have new information about the pit in the basement of Electro Plating Services in Madison Heights, the source of the toxic ooze on I-696.

- Hide Caption

A mysterious greenish liquid that forced lane closures after it seeped onto a Michigan interstate on Friday [illegible] from a closed electroplating business whose owner is currently serving a year in fed[illegible] hazardous waste storage facility. (MDOT)

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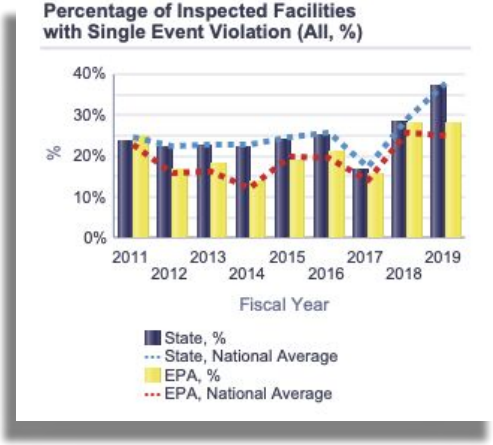
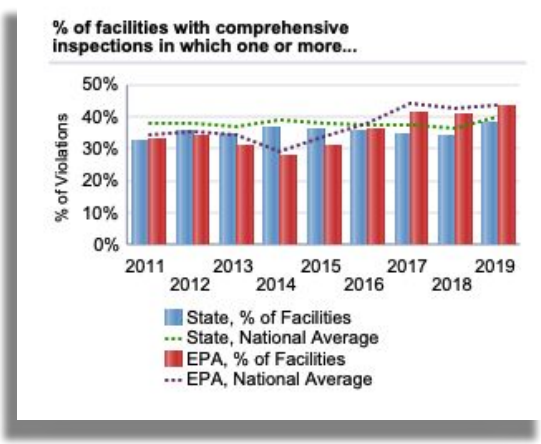
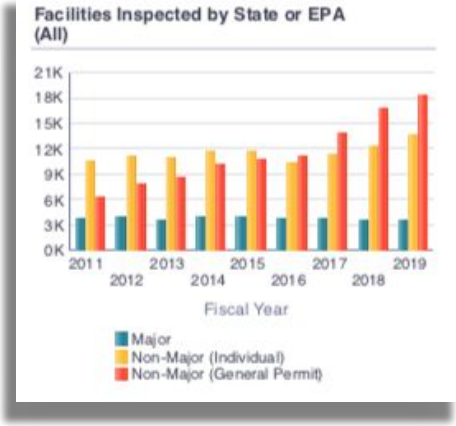
Federal Influence in Inspections







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New Business License Requirements

Senate Bill No. 205

CHAPTER 470

An act to add Sections 16000.3 and 16100.3 to the Business and Professions Code, and to add Section 13383.10 to the Water Code, relating to business.

[Approved by Governor October 02, 2019. Filed with Secretary of State October 02, 2019.]

Case Study

SIC Code 4212

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draft Wastewater Requirements for Concrete & Aggregate

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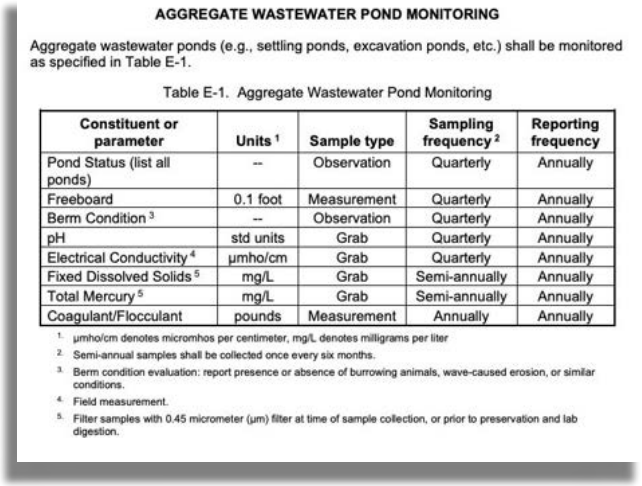
Why are we concerned?

AGGREGATE WASTEWATER CHARACTERIZATION

13. The primary constituents of concern in aggregate wastewater are mercury and suspended solids.
    a. Mercury is a naturally occurring element that exists in aggregate wastewater in some areas of the state. Mercury associated with aggregate mines exists because:
        i. Mercury is found naturally in some areas of the state and has been mined in the Coast Ranges from Santa Barbara County to Lake County.[8] Processing aggregate in such areas is likely to produce wastewater with elevated mercury concentrations.
        ii. Mercury is also found in areas of historic gold mining. It was used to improve recovery of gold through amalgamation. In that process, mercury was sometimes lost to the environment due to processing spills.
    b. Suspended solids are small soil particles that remain in suspension in water. Discharge of suspended solids to surface waters can impact wildlife habitat. Because mercury may be adsorbed to suspended solids, controlling offsite discharges of turbid wastewater is important.
14. Although not a primary constituent of concern, salinity in wastewater can also be increased from aggregate processing. Salinity is a measure of dissolved solids in water. Aggregate processing facilities increase salinity by dissolving soluble salts that exist in soil and through evapoconcentration of wastewater in ponds. Except for a modest increase in salinity if flocculants or coagulants are used, aggregate processing does not add salinity by chemical addition. Precipitation that falls on the pond catchment area can dilute pond salinity concentrations. Most of the dissolved solids in aggregate processing wastewater are inorganic (nonbiodegradable) solids or fixed dissolved solids.

Monitoring Requirements



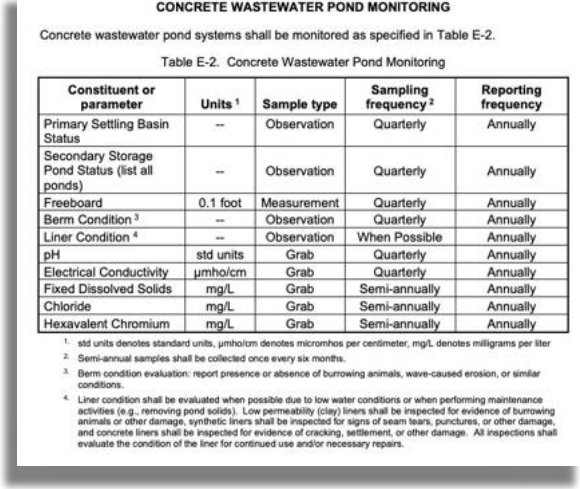
AGGREGATE WASTEWATER POND MONITORING

Aggregate wastewater ponds (e.g., settling ponds, excavation ponds, etc.) shall be monitored as specified in Table E-1.

Table E-1. Aggregate Wastewater Pond Monitoring

Constituent or parameter	Units [1]	Sample type	Sampling frequency [2]	Reporting frequency
Pond Status (list all ponds)	--	Observation	Quarterly	Annually
Freeboard	0.1 foot	Measurement	Quarterly	Annually
Berm Condition [3]	--	Observation	Quarterly	Annually
pH	std units	Grab	Quarterly	Annually
Electrical Conductivity [4]	µmho/cm	Grab	Quarterly	Annually
Fixed Dissolved Solids [5]	mg/L	Grab	Semi-annually	Annually
Total Mercury [5]	mg/L	Grab	Semi-annually	Annually
Coagulant/Flocculant	pounds	Measurement	Annually	Annually

1. µmho/cm denotes micromhos per centimeter, mg/L denotes milligrams per liter
2. Semi-annual samples shall be collected once every six months.
3. Berm condition evaluation: report presence or absence of burrowing animals, wave-caused erosion, or similar conditions.
4. Field measurement.
5. Filter samples with 0.45 micrometer (µm) filter at time of sample collection, or prior to preservation and lab digestion.



CONCRETE WASTEWATER POND MONITORING

Concrete wastewater pond systems shall be monitored as specified in Table E-2.

Table E-2. Concrete Wastewater Pond Monitoring

Constituent or parameter	Units [1]	Sample type	Sampling frequency [2]	Reporting frequency
Primary Settling Basin Status	--	Observation	Quarterly	Annually
Secondary Storage Pond Status (list all ponds)	--	Observation	Quarterly	Annually
Freeboard	0.1 foot	Measurement	Quarterly	Annually
Berm Condition [3]	--	Observation	Quarterly	Annually
Liner Condition [4]	--	Observation	When Possible	Annually
pH	std units	Grab	Quarterly	Annually
Electrical Conductivity	µmho/cm	Grab	Quarterly	Annually
Fixed Dissolved Solids	mg/L	Grab	Semi-annually	Annually
Chloride	mg/L	Grab	Semi-annually	Annually
Hexavalent Chromium	mg/L	Grab	Semi-annually	Annually

1. std units denotes standard units, µmho/cm denotes micromhos per centimeter, mg/L denotes milligrams per liter
2. Semi-annual samples shall be collected once every six months.
3. Berm condition evaluation: report presence or absence of burrowing animals, wave-caused erosion, or similar conditions.
4. Liner condition shall be evaluated when possible due to low water conditions or when performing maintenance activities (e.g., removing pond solids). Low permeability (clay) liners shall be inspected for evidence of burrowing animals or other damage, synthetic liners shall be inspected for signs of seam tears, punctures, or other damage, and concrete liners shall be inspected for evidence of cracking, settlement, or other damage. All inspections shall evaluate the condition of the liner for continued use and/or necessary repairs.

Case Study

- 200 wastewater discharge violations
- Acid rock drainage
- $535,000 penalty

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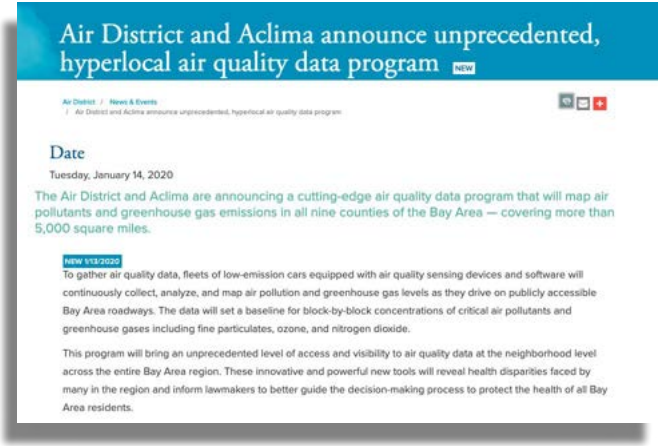
Bay Area Hyperlocal Air Quality Data Program



Air District and Aclima announce unprecedented, hyperlocal air quality data program NEW

Air District / News & Events
/ Air District and Aclima announce unprecedented, hyperlocal air quality data program

Date

Tuesday, January 14, 2020

The Air District and Aclima are announcing a cutting-edge air quality data program that will map air pollutants and greenhouse gas emissions in all nine counties of the Bay Area — covering more than 5,000 square miles.

NEW 1/13/2020

To gather air quality data, fleets of low-emission cars equipped with air quality sensing devices and software will continuously collect, analyze, and map air pollution and greenhouse gas levels as they drive on publicly accessible Bay Area roadways. The data will set a baseline for block-by-block concentrations of critical air pollutants and greenhouse gases including fine particulates, ozone, and nitrogen dioxide.

This program will bring an unprecedented level of access and visibility to air quality data at the neighborhood level across the entire Bay Area region. These innovative and powerful new tools will reveal health disparities faced by many in the region and inform lawmakers to better guide the decision-making process to protect the health of all Bay Area residents.

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

NEWS RELEASE

FOR IMMEDIATE RELEASE: January 14, 2020
CONTACT: Kristine Roselius - 415.749.4900

Air District & Aclima announce unprecedented, hyperlocal air quality data program

Block-by-block air quality data for entire Bay Area will be gathered in 2020

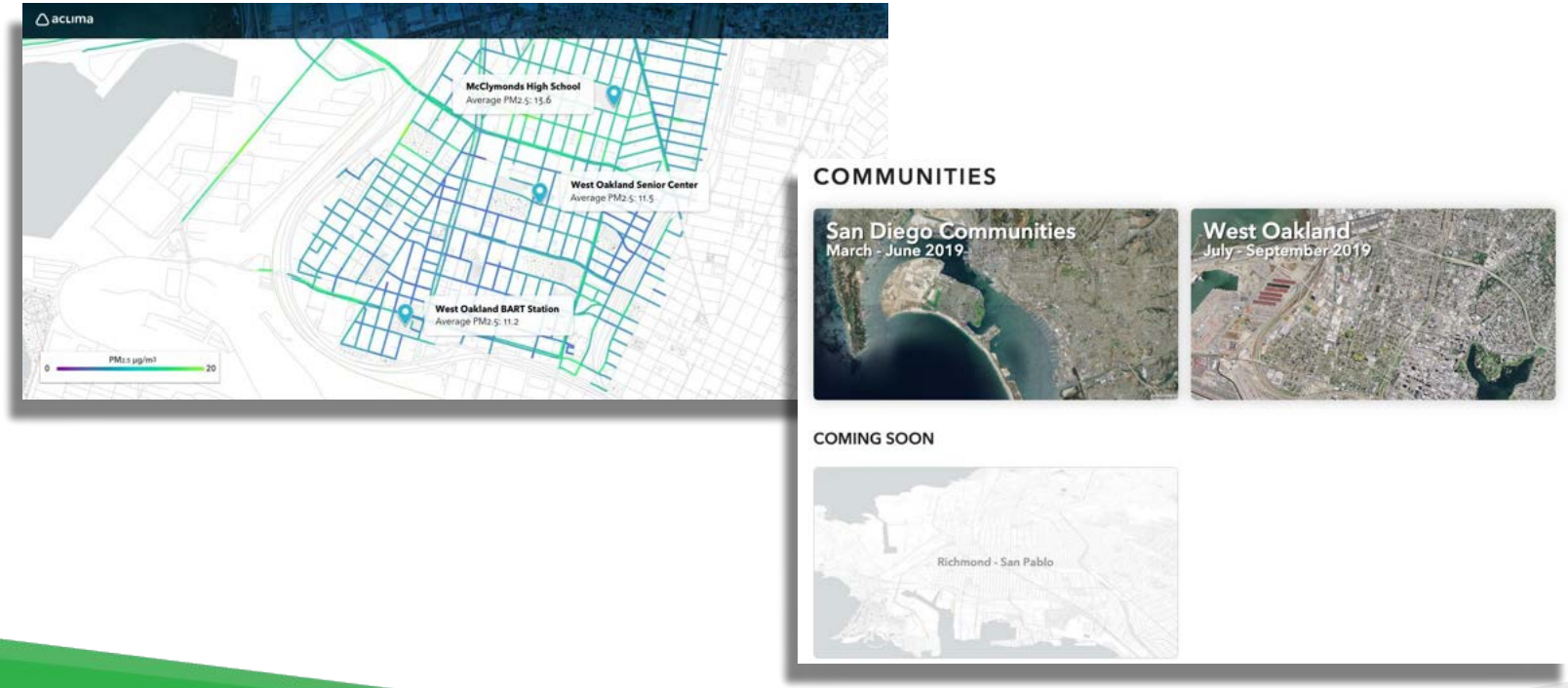
SAN FRANCISCO – Today the Bay Area Air Quality Management District and Aclima are announcing a cutting-edge air quality data program that will map air pollutants and greenhouse gas emissions in all nine counties of the Bay Area — covering more than 5,000 square miles.

To gather air quality data, fleets of low-emission cars equipped with air quality sensing devices and software will continuously collect, analyze and map air pollution and greenhouse gas levels as they drive on publicly accessible Bay Area roadways. The data will set a baseline for block-by-block concentrations of critical air pollutants and greenhouse gases including fine particulates, ozone and nitrogen dioxide.

"This program will bring an unprecedented level of access and visibility to air quality data at the neighborhood level across the entire Bay Area region," said Jack Broadbent, executive director for the Air District. "These innovative and powerful new tools will reveal health disparities faced by many in the region and inform lawmakers to better guide the decision-making process to protect the health of all Bay Area residents."

Data will be collected throughout 2020 and early 2021 in all nine Bay Area counties. After the data collection is complete and analyzed, address-based insights into air quality will be publicly available online. Air pollutant levels will be accessible for a region, city or block. This high-resolution picture of air quality will also show air pollution hotspots, enabling more targeted emissions reduction efforts.

Public-Private Partnerships



Source: https://aclima.io

Case Study

"This program will bring an unprecedented level of access and visibility to air quality data at the neighborhood level across the entire Bay Area region,"

-Jack Broadbent, BAAQMD

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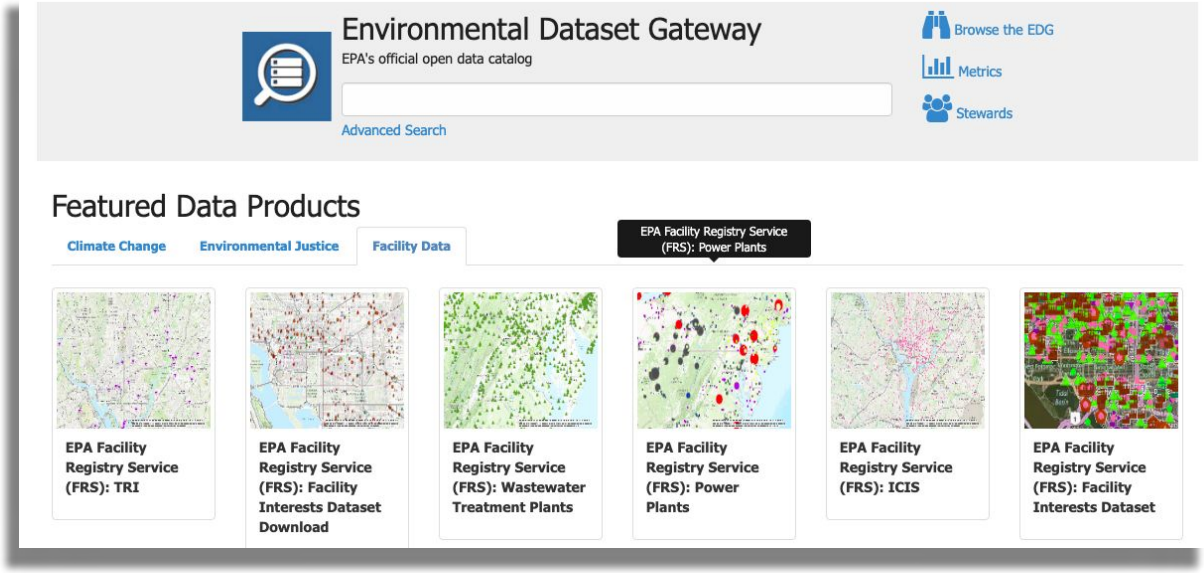
Risk #2
Public Participation

eReporting



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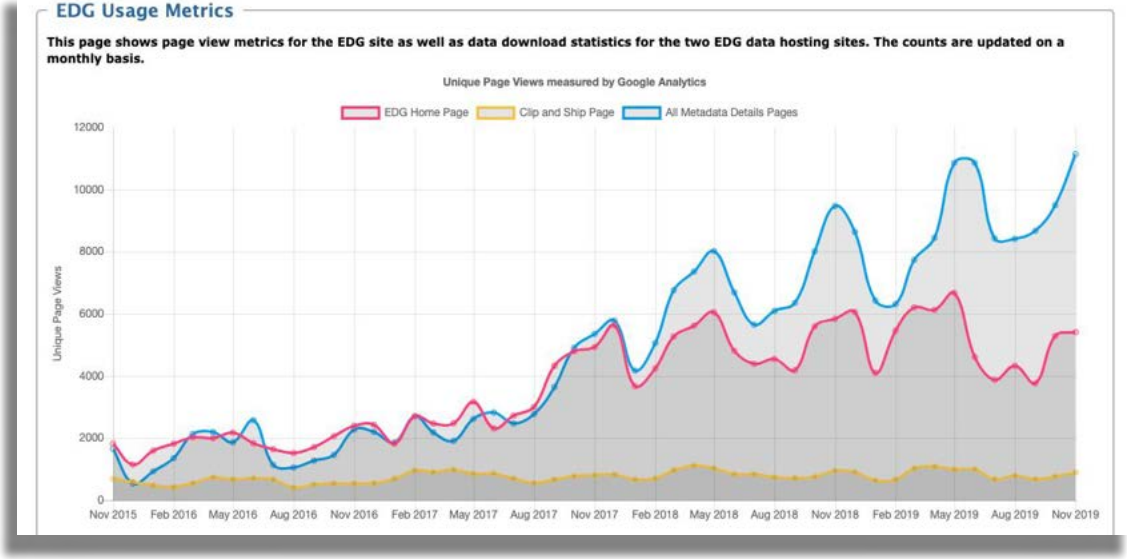
EPA's Data Gateway



Source: https://edg.epa.gov/metrics/

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Case Study

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Public Transparency

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Community Engagement

*"ensure that the public **can meaningfully participate** in all of EPA's work"*

-EPA Strategic Plan

An expensive case study!

Plastic company set to pay $50 million settlement in water pollution suit brought on by Texas residents

A judge had ruled that the company illegally dumped billions of plastic pellets and other pollutants into Lavaca Bay and other waterways.

BY STACY FERNÁNDEZ OCT. 15, 2019 UPDATED: 3 PM

REPUBLISH

https://www.desmogblog.com/2020/01/18/diane-wilson-formosa-point-comfort-texas-plastic-pollution-settlement

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Nurdles….Not Just Texas

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https://www.alleghenyfront.org/ever-hear-of-a-nurdle-this-new-form-of-pollution-could-be-coming-to-the-ohio-river/

Risks to Distribution, Transportation, Warehousing.....

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Risk #3
Emerging Technologies

Baykeeper Patrols Take to the Sky

For 29 years, Baykeeper has used on-the-water boat patrols to monitor San Francisco Bay and look for pollution threats. This year, we're expanding our patrols to the sky, to find and stop more Bay pollution.

Baykeeper is partnering with volunteer pilots to patrol in small planes and with volunteer drone operators to patrol with drones. We're already finding new sources of contamination and collecting evidence to get more pollution stopped.

With patrols by air, Baykeeper is finding new sources of contamination and collecting evidence to stop more Bay pollution.

Almost immediately after launching our aerial

April 23, 2019 **INSIGHTS**

The Use of Drones in Environmental Compliance

Kelly Daly and Patrick Paul

Share this:

As use cases for unmanned aircraft systen
whose connections to this technology wer
headlines on a routine basis. The environn
of an emerging player in the field. Aerial dr
ground, air, and waterway monitoring to ir
local and regional mapping, is revolutioniz
resources and environmental information

UCLA Institute of the Environment & Sustainability

< BACK

PRACTICUM PROJECT

UAV-Based Gas Sensor Systems Help Control Air Pollution From Ocean-Going Vessels

air quality, technology

Drones change the way advocates protect the environment

LIKE TWEET EMAIL PRINT MORE

Choptank Riverkeeper Matt Pluta often uses his Mavic Pro to illustrate land and water issues for Shore Rivers. Bay Journal photo by Dave Harp

https://www.americanbar.org/groups/environment_energy_resources/publications/natural_resources_environment/2018-19/spring/the-use-drones-environmental-compliance/
https://baykeeper.org/sites/default/files/image_upload/images/SFBaykeeper_Newsletter_18-Spring.pdf
https://marylandreporter.com/2019/03/18/drones-change-the-way-advocates-protect-the-environment/
https://www.ioes.ucla.edu/project/using-drones-to-monitor-sulphur-emissions-by-ships/

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New Data Driven Approaches

APRIL 8, 2019

Stanford scholars show how machine learning can help environmental monitoring and enforcement

An algorithm that reads satellite images can help environmental regulators identify potentially hazardous agricultural facilities more efficiently than traditional approaches.

BY MELISSA DE WITTE

How to locate potentially polluting animal farms has long been a problem for environmental regulators. Now, Stanford scholars show how a map-reading algorithm could help regulators identify facilities more efficiently than ever before.

Law Professor Daniel Ho, along with PhD student Cassandra Handan-Nader, have figured out a

Deep Learning with Satellite Imagery to Enhance Environmental Enforcement

Details

Author(s):	Daniel E. Ho | Cassandra Handan-Nader | Larry Y. Liu
Publish Date:	June 30, 2020
Publication Title:	Deep Learning with Satellite Imagery to Enhance Environmental Enforcement, in Data-Driven Insights and Decisions (forthcoming 2020)

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https://pangea.stanford.edu/news/stanford-students-deploy-machine-learning-aid-environmental-monitoring
https://law.stanford.edu/publications/deep-learning-with-satellite-imagery-to-enhance-environmental-enforcement/

What are the risks in 2020?

1. Local and State Influence
2. Public Participation
3. Emerging Technologies

Three of the top 10 largest corporate penalties in 2018 were for environmental issues

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https://learn.censible.co/risky-business-top-ten-corporate-crackdowns/

Proprietary & Confidential 2019

In 2017, environmental violations cost US companies **more than $22B**[1]

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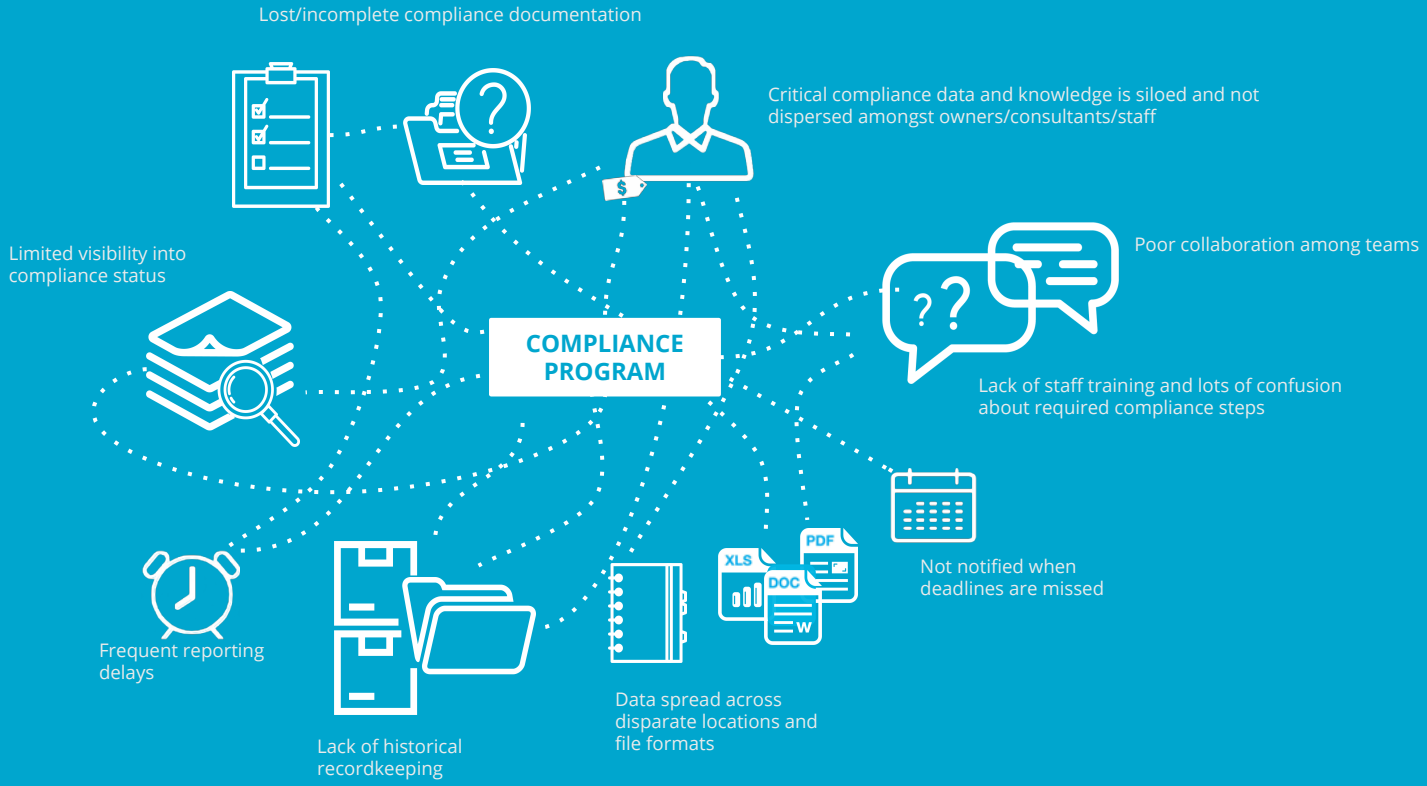
1. https://www.epa.gov/enforcement/enforcement-annual-results-numbers-glance-fiscal-year-2017

Proprietary & Confidential 2019

Compliance programs are complicated



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Proprietary & Confidential 2019

How do we build a **world-class** environmental program?

Analytics

Automation

Mobile

Training

Subject Experts

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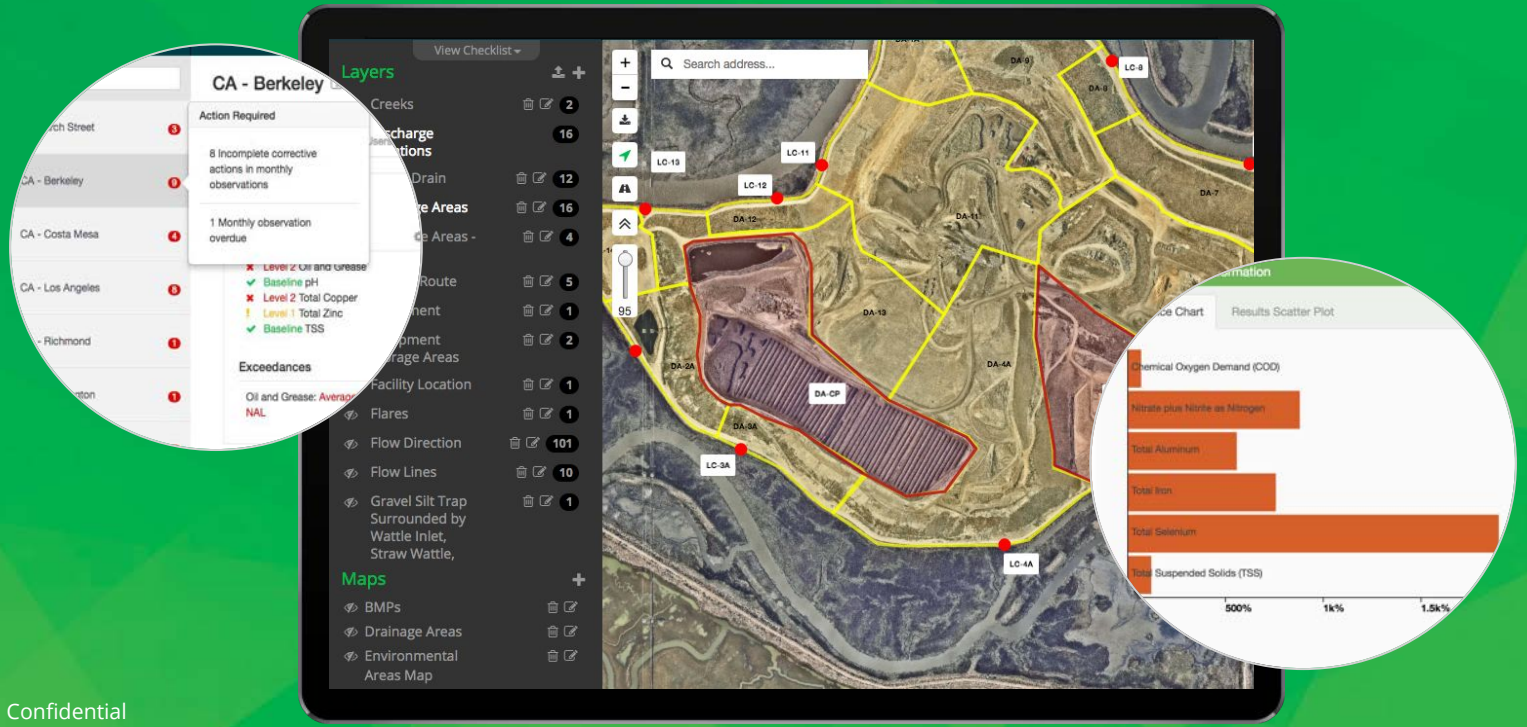
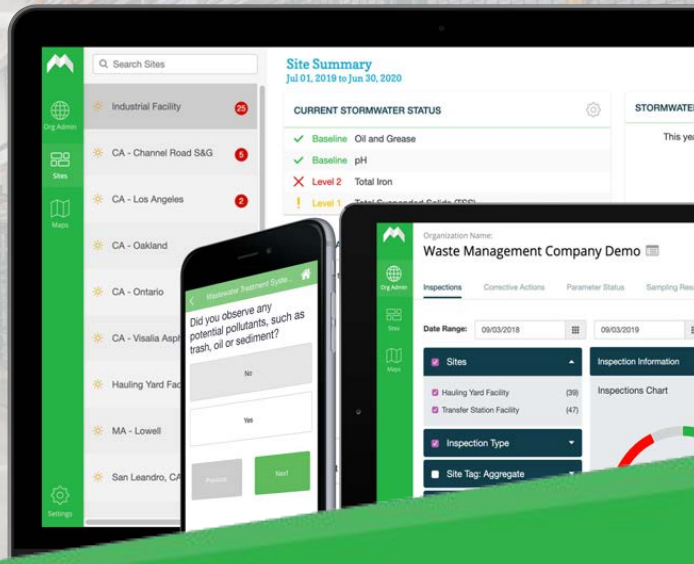
Software for Ensuring Environmental Excellence



Proprietary and Confidential

Mapistry Case Study

Warehousing



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Mapistry Case Study

Construction Materials

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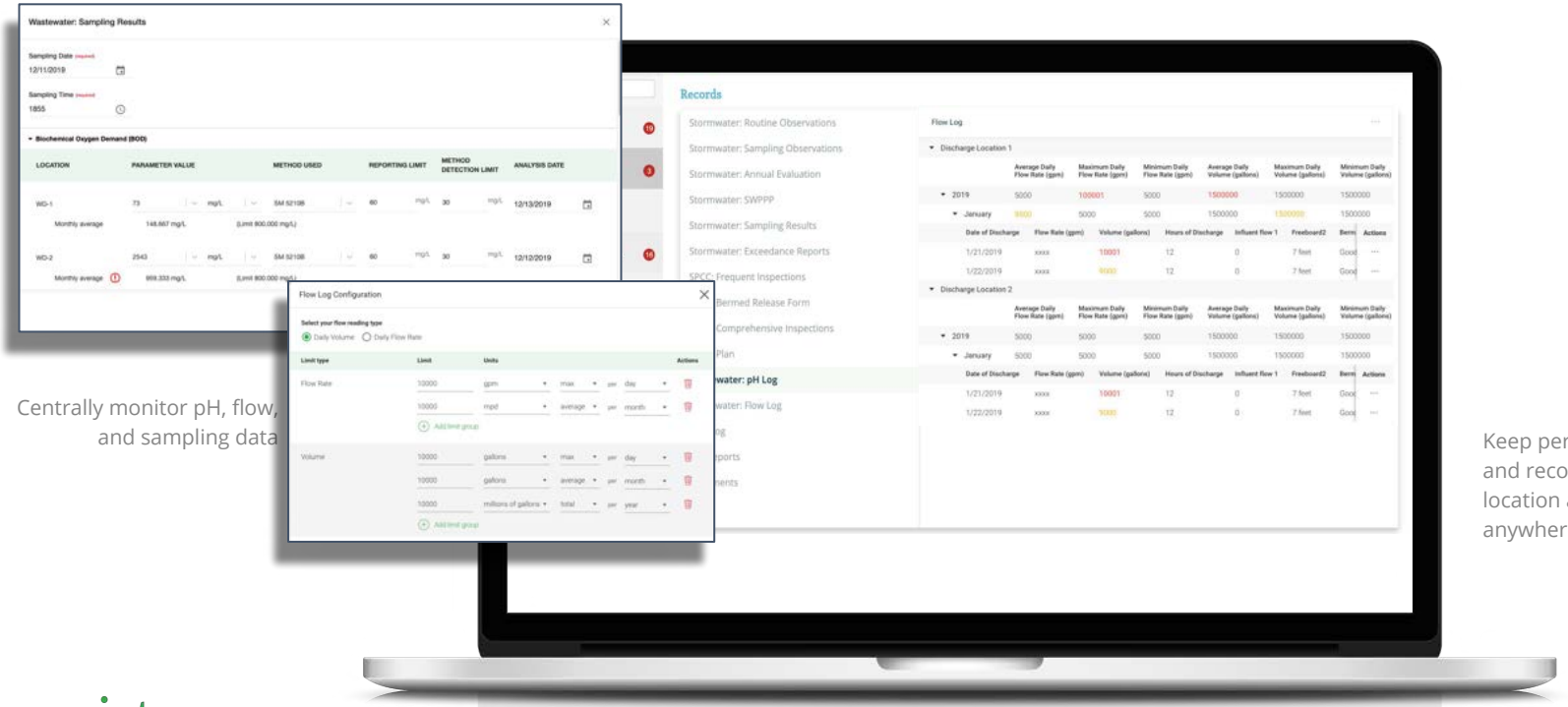
Wastewater

Log pH, connect in sampling data, and track flow...



Centrally monitor pH, flow, and sampling data

Keep permits, slug plans, and records in one location accessible anywhere

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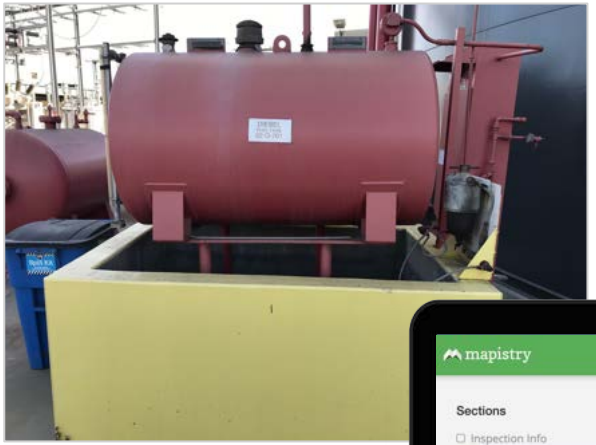
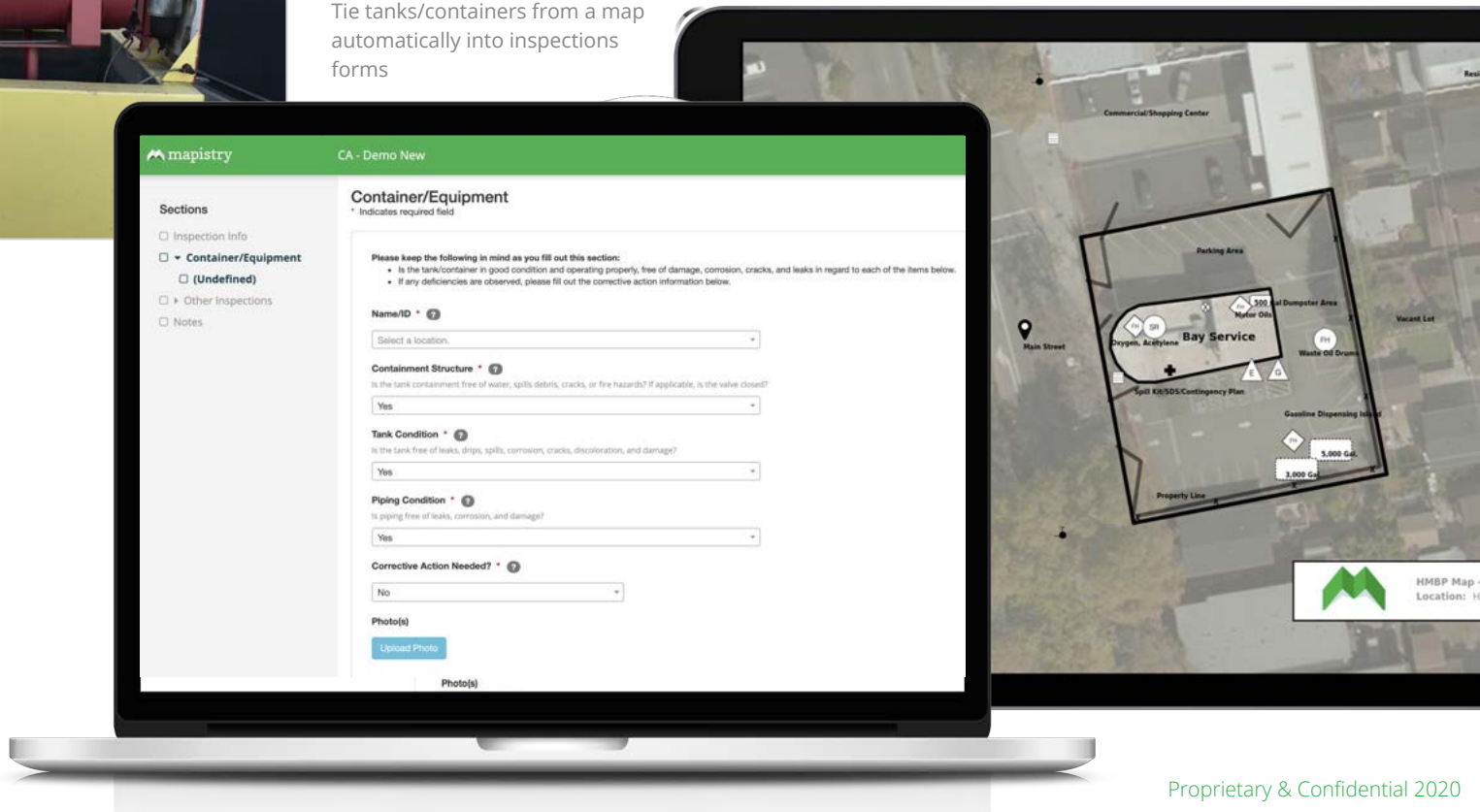
Proprietary & Confidential 2020



SPCC/Tanks

Tie tanks/containers from a map automatically into inspections forms

Inspect, track, and map containers & oil-filled equipment...



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Analytics Across Locations

Inspections | Corrective Actions | Parameter Status | Deficiencies

- Sites
- Parameters
- Site Tag: Region
- Status Legend
  - Alarming Results (9)
  - Flawed Results (10)
  - Good Results (7)

Parameter Status Information

Parameter Status Chart

Site and Parameter Status				Total
Total Copper	1	1	2	4
CA - Wilmington	Baseline	-	-	1
CA - Costa Mesa	-	-	Level 2	1
CA - Gardena	-	Level 1	-	1
CA - Berkeley	-	-	Level 2	1
Total Iron	2	2	4	8
Total Zinc	1	2	1	4
Total Suspended Solids (TSS)	-	4	2	6
pH	1	1	-	2
Oil and Grease	2	-	-	2
Totals	7	10	9	26

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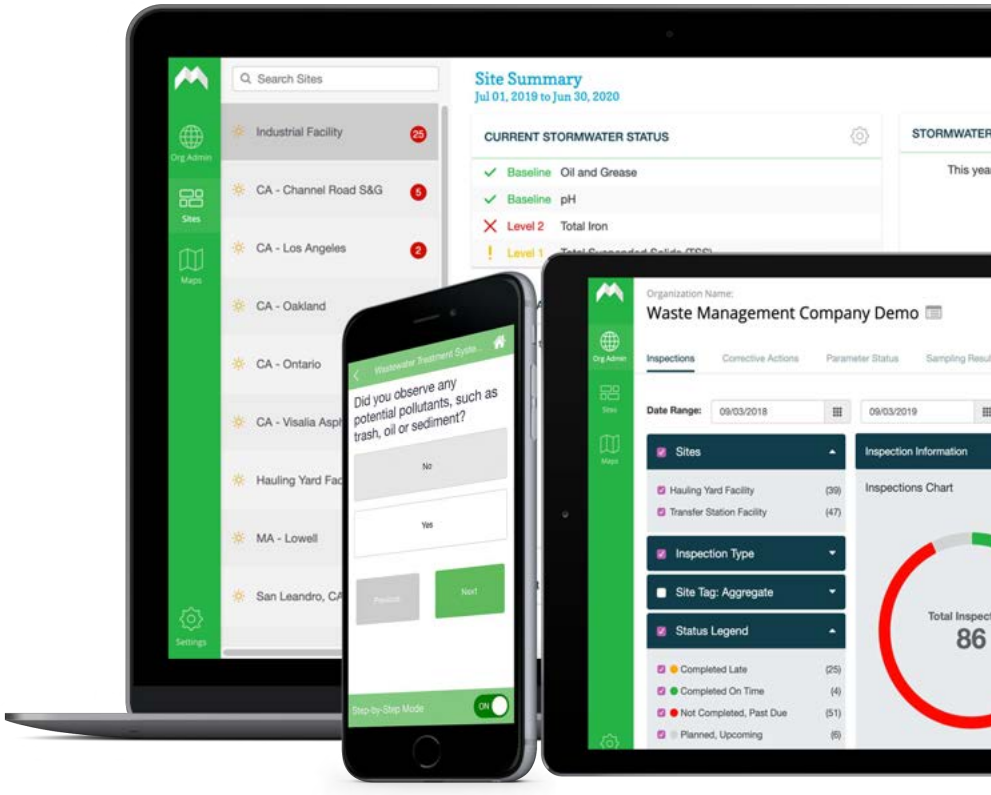
Proprietary & Confidential 2020

Reduce Compliance Risk

Digitizing industrial environmental programs

Streamlined workflows for facility staff and corporate teams

- Instantly monitor results across locations via an online dashboard and mobile app
- Real-time inspection logs, automated corrective actions, and historical reports
- Generate facility site maps for all your compliance needs
- Build and retain a powerful records repository
- Proactive monitoring, alerts and notifications to keep stakeholders informed



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Thank you!

MORE QUESTIONS?

(800) 553-7420

INFO@MAPISTRY.COM

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