

# So You've Built Your Data Center – Now What?

## On-Going Environmental Compliance

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# Logistics

- ❑ Thank you for attending!
- ❑ Questions?
  - Please enter questions in the text box
  - We will address questions at the end
- ❑ Will I get a copy of the slides?
  - Yes, we will post webinar recording and slide deck on our website
  - Link will be emailed to participants
- ❑ A certificate of attendance will be sent to all attendees



# Webinar Series

- Fourth session of our data center webinar series!
- Check out our other three sessions if you missed them!

<https://www.all4inc.com/insights-webinars/environmental-roadmap-to-building-and-operating-a-data-center/>

<https://www.all4inc.com/insights-webinars/air-quality-permitting-and-planning-for-data-centers/>

<https://www.all4inc.com/insights-webinars/oil-storage-and-data-centers-what-to-know/>

- Keep an eye out for future sessions, like regulated waste!



# On-Going Environmental Compliance





# Today's Agenda

- ❑ Clean Air Act Requirements
  - Typical items, State-specifics, common violations and Best Management Practices (BMPs)
- ❑ Clean Water Act Requirements: Storage Tanks and Water Discharges
  - Typical items, State-specifics, common violations and BMPs
- ❑ EPCRA Hazardous Materials Requirements
  - Typical items, State-specifics, common violations and BMPs
- ❑ Regulated Waste (topic of future webinar)



# Clean Air Act Requirements





# Typical Clean Air Act Requirements

- ❑ Record every operation
- ❑ Sum operating data/emissions monthly, and on a calendar year and/or 12-month rolling total basis
- ❑ Receive fuel documentation with each delivery
- ❑ Keep maintenance records and written O&M procedures
- ❑ Other items may include:
  - Submit notifications
  - Conduct stack testing (*we're going to talk more about this!*)
  - Follow NESHAP Subpart ZZZZ work practice standards, if applicable

# Typical Clean Air Act Requirements

- ❑ For air pollution control devices:  
maintain applicable records such as  
temperatures, differential pressure,  
or urea consumption
- ❑ How long to keep records?  
Default = 5 years
- ❑ Routine submittals:
  - Reports for operating data from  
previous calendar year
  - Renewals
  - Fees





# Examples of State Differences

- ❑ Each State has their own permit template
- ❑ *Previously mentioned (e.g., initial notifications, stack testing, log of public complaints, operator training)*
- ❑ Maximum sulfur content of diesel fuel
- ❑ Fuel or fuel documentation criteria
- ❑ Relationship with Federal engine regulations

## STATEMENT OF COMPLIANCE:

This product complies with ASTM D975 specifications or equivalent, with a maximum sulfur content of 15 ppm.





# Performance Testing

- ❑ Requirements are State and situation specific
- ❑ Common pollutants: NO<sub>x</sub>, CO, visible emissions, particulate matter, and perhaps air toxics
- ❑ Duration varies by State and by pollutant
- ❑ Common violations: not doing it, failing, or incomplete
- ❑ Success involves good planning, routine coordination among multiple vendors, complete recordkeeping, plenty of fuel, and a well-maintained engine



# Common Air Violations and BMPs

- ❑ **#1:** Generally missing records
  - BMPs: Training, compliance audits, and calendaring
  
- ❑ **#2:** Changing type of engine operation and not the permit
  - BMPs: Coordinate with regulatory agency and environmental team early!
  
- ❑ **#3:** Incomplete generator logs
  - BMPs:
    - Develop compliance tools
    - Begin recordkeeping during start-up/commissioning
    - Confirm which operations are captured by which limit

# Common Air Violations and BMPs



- ❑ **#4:** Insufficient fuel delivery documentation
  - BMPs: Coordinate with fuel company, pipeline, or refinery
  
- ❑ **#5:** Short record retention
  - BMPs: Maintain back-ups, and stay in touch with recordkeeping personnel



# Fuel Documentation Examples

## CERTIFICATE OF ANALYSIS

PRODUCT: DMV015 Diesel Fuel  
 Product Grade: Buckeye Grade 190 #2 Motor Vehicle 15 ppm Diesel Fuel  
 TANK No: 139

LIMS No: 1220401476  
 BATCH No: 299  
 SAMPLE DATE: 4/6/2022

| TEST                          | ASTM METHOD | RESULTS      | Specification |        |
|-------------------------------|-------------|--------------|---------------|--------|
|                               |             |              | Min           | Max    |
| API Gravity, 60 deg. F        | D4052       | 34           | 30            |        |
| Initial BP, deg. F            | D86         | 371.1        |               |        |
| 10% rec, deg. F               | D86         | 428.9        |               |        |
| 50% rec, deg. F               | D86         | 522.7        |               | Report |
| 90% rec, deg. F               | D86         | 606.9        | 540           | 640    |
| End Point, deg. F             | D86         | 652.7        |               | 690    |
| Cloud Point, °F               | D5773       | 6            |               | 20     |
| Pour Point, °F                | D5949       | -3           |               | 10     |
| ASTM Color                    | D1500       | <1.5         |               | 2.5    |
| Copper Strip Corrosion Rating | D130        | 1A           |               | 1      |
| Viscosity @ 40°C              | D445        | 2.8          | 1.9           | 4.1    |
| Flash Point, °F               | D93         | 179          | 130           |        |
| Carbon Residue, %             | D4530       | <0.01        |               | 0.35   |
| Cetane Index                  | D4737       | 45           | 40            |        |
| Cetane Index                  | D976        | 46           | 40            |        |
| Haze Rating @ 77 °F           | D4176       | 1            |               | 2      |
| Sulfur, ppm                   | D7039       | 8            |               | 11     |
| Ash, wt%                      | D482        | <0.001       |               | 0.01   |
| Thermal Stability, Pad Rating | D6468       | 1            |               | 7      |
| Water & Sediment              | D2709       | <0.05        |               | 0.05   |
| Conductivity                  | D2624       | 4            |               | Report |
| NACE                          | TM0172      | A            | B+            |        |
| FAME                          | D7371       | Free of FAME |               | <0.01  |

Product is free of FAME  
 15 ppm sulfur (maximum) Undyed Ultra Low Sulfur Diesel. For use in all diesel vehicles and engines.

## PRODUCT SPECIFICATIONS SPECIFICATIONS FOR FUNGIBLE 15ppm SULFUR DIESEL FUEL DYED BY CPC CONTAINING UP TO 5% RENEWABLE HYDROTREATED DIESEL FUEL NONROAD GRADE 83

3.37.1

EPa Designation: MVNRLM, Motor vehicle diesel fuel, 15 ppm sulfur  
 Cancels Previous Issues of Grade 83

| PRODUCT PROPERTY                                     | ASTM Test     | Test Results     |               | Note |
|--|---------------|------------------|---------------|------|
|  | Method        | Minimum          | Maximum       |      |
| Renewable Fuel (volume %)                            |               |                  | 5             | 5    |
| Gravity API  | D4052         | 30               |               |      |
| Flash Point, °F                                      | D93           | 130 (Origin)     |               |      |
|  |               | 125.8 (Delivery) |               |      |
| Physical Distillation, °C(°F)                        | D86           |                  |               | 4    |
| 50%  |               |                  | Report        |      |
| 90%  |               | 282(540)         | 338(640)      |      |
| End Point  |               |                  | 371(700)      |      |
| or Simulated Distillation, °C(oF)                    | D2887         |                  |               | 4    |
| 50% recovered  |               |                  | Report        |      |
| 90% recovered  |               | 300(572)         | 356(673)      |      |
| End Point  |               |                  | 421(790)      |      |
| Color ASTM   | D6045         |                  | 2.5           |      |
| Color Visual   |               |                  | Undyed        |      |
| Viscosity, cSt @ 40oC (104oF)                        | D445          | 1.9              | 4.1           |      |
| Pour Point   | D97           |                  |               | 2    |
| Cloud Point  | D2500         |                  |               | 2    |
| Corrosion, 3 hrs. @ 50°C (122°F)                     | D130          |                  | 1             |      |
| Total Sulfur, ppmwt                                  | D5453         |                  | 11 (Origin)   | 3    |
|  |               |                  | 14 (Delivery) |      |
| Cetane Number  | D613          | 40               |               |      |
| [W] And One of the following condition should be met |               |                  |               |      |
| 1. Aromatics (Volume %) , OR                         | D1319         |                  | 31.7          |      |
| 2. Cetane Index                                      | D976          | 40               |               |      |
| Ash, wt.%  | D482          |                  | 0.01          |      |
| Carbon Residue: Ramsbottom on 10% Bottom             | D524          |                  | 0.35          |      |
| BS&W, vol.%  | D2709         |                  | < 0.05        |      |
|  | or equivalent |                  |               |      |

# Clean Water Act Requirements: Storage Tanks



# Typical Storage Tank Requirements

- ❑ Register/permit tanks; renew as needed
- ❑ Obtain Spill Prevention, Control, and Countermeasure (SPCC) or other plans; update as needed
- ❑ Conduct inspections, testing, and maintenance
- ❑ Follow SPCC requirements (e.g., fuel transfer, spill clean-up)
- ❑ Train annually
- ❑ Maintain spill notifications





# Examples of State Differences



- ❑ Registration/permit criteria varies by size and type of tank, and by location
- ❑ Spill notification criteria and procedures
- ❑ Localities/Fire Marshals have their own tank construction requirements





# Common Tank Violations and BMPs

## ❑ Violations:

- Outdated or non-existent SPCC plan
- Gaps in training or inspection records
- Not registering/permitting tanks
- Not notifying the appropriate agency of spills
- Not following procedures, leading to a release

## ❑ BMPs:

- Start compliance early, even before turnover
- Research state and local requirements – don't assume
- Add inspections to work order system
- Review plans annually to check for gaps or outdated information



# Clean Water Act Requirements: Water Discharge





# Typical Water Requirements

- ❑ NPDES Permit and SWPPP
- ❑ Stormwater during Construction
  - Install silt fences
  - Perform inspections
- ❑ Stormwater during Operations
  - Sample
  - Submit Discharge Monitoring Reports
- ❑ Check municipality sanitary requirements



*COMMONWEALTH of VIRGINIA*

*DEPARTMENT OF ENVIRONMENTAL QUALITY*

General Permit No.: VAR10

Effective Date: July 1, 2019

Expiration Date: June 30, 2024

GENERAL NPDES PERMIT FOR DISCHARGES OF  
STORMWATER FROM CONSTRUCTION ACTIVITIES

AUTHORIZATION TO DISCHARGE UNDER THE VIRGINIA STORMWATER MANAGEMENT  
PROGRAM AND THE VIRGINIA STORMWATER MANAGEMENT ACT

# Examples of State Differences



- ❑ Each state has their own stormwater (NPDES) program
  - Criteria for general vs. individual permits
  - Specific general permits
  - Frequency of reports





# Common Water Violations and BMPs

- ❑ Violations:
  - Exceeding max allowable concentrations
  - Gaps in reports or inspections
- ❑ BMPs:
  - Coordinate closely with personnel and water quality vendor
  - Capital projects to replumb if needed



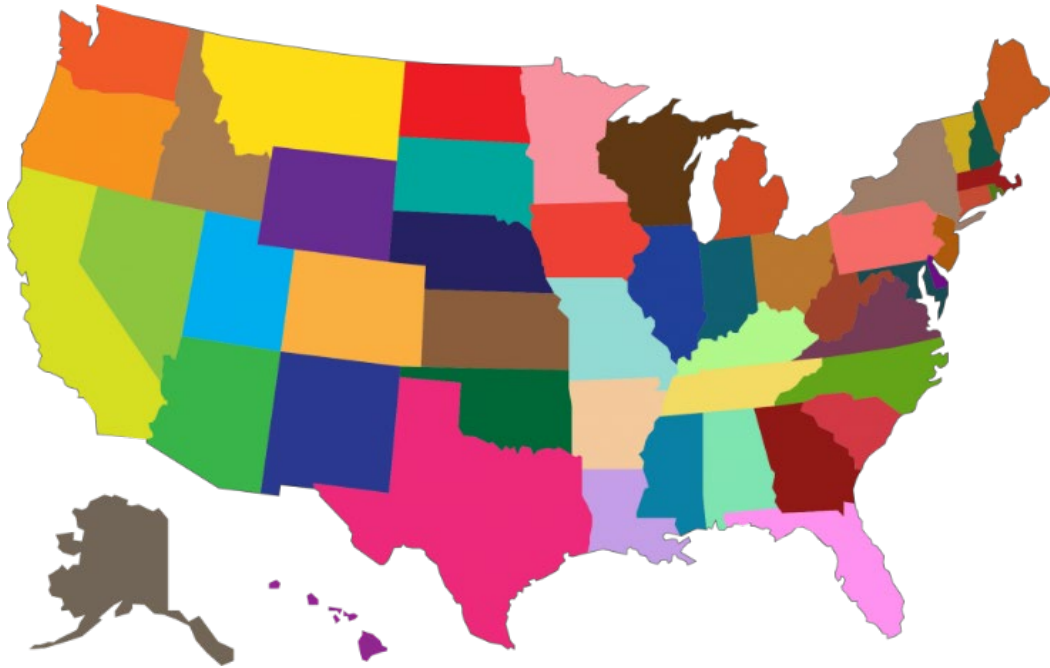
# EPCRA Hazardous Substance Requirements



# Typical EPCRA Requirements

- ❑ **Section 303 Initial Notification:**  
Storage of extremely hazardous substances (EHS) on-site above thresholds
- ❑ **Section 304 Notification:** Release of extremely hazardous substances
- ❑ **Section 311 Initial Notification:**  
Storage of hazardous substances on-site above thresholds
- ❑ **Section 312 or Tier 2 Report:**  
Quantities of hazardous substances on-site during year above thresholds
- ❑ **Most common EHS:** sulfuric acid
- ❑ **Common hazardous substances:**
  - Diesel fuel
  - Motor oil
  - Transformer fluid
  - Lead acid batteries
  - Lithium-ion batteries
  - Refrigerant
- ❑ **Safe Storage!**

# Examples of State Differences



- ❑ Method of reporting
- ❑ Fees
- ❑ Criteria for materials and/or quantities
- ❑ State-specific and locality/  
Fire Marshal-specific  
programs



# Common EPCRA Violations and BMPs

## ❑ Violations:

- Missing notifications or reports
- Incomplete reports (missing materials)

## ❑ BMPs:

- Track hazardous substances and Safety Data Sheets
- Coordinate with contractors
- Good housekeeping for safety







# Regulated Waste Requirements





# Regulated Waste

- ❑ Waste streams for data centers (in addition to municipal solid waste and separate recycling streams) are primarily:
  - E-waste
  - Universal waste
  - Hazardous waste (rare)
- ❑ Typical requirements: proper storage, labeling, and transportation; monitor storage duration; conduct training
- ❑ Minimize through recycling programs and vendor coordination, and watch for State-specific nuances



# Additional Considerations

- ❑ Strategic management of data
  - What tools best fit your needs?
- ❑ Sustainability
- ❑ Consequences of non-compliance
  - Coordinate with senior management and legal
- ❑ What didn't I talk about?





# Thank you!



- ❑ Please reach out if you need support
- ❑ Please share these webinars with your network
- ❑ Stay tuned for our regulated waste webinar



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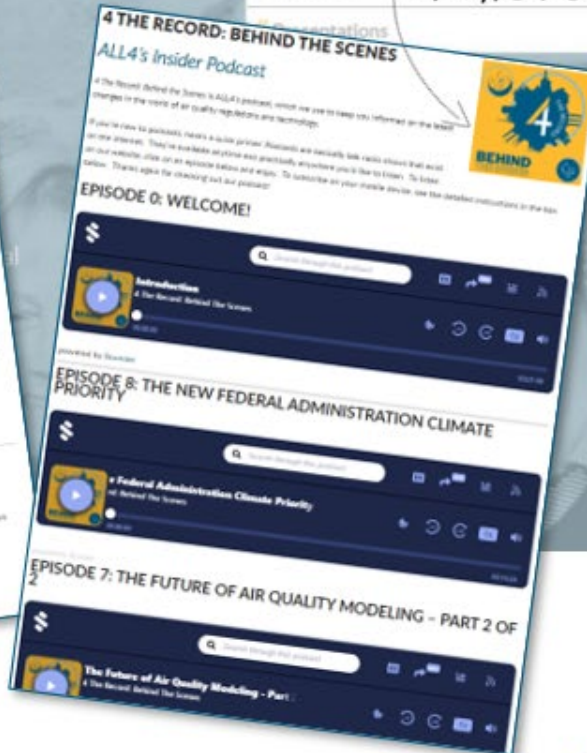
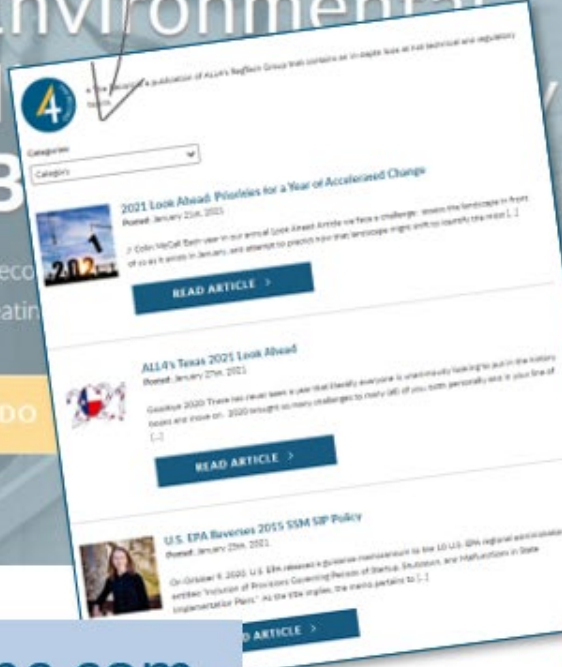
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# Questions?

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