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State Environmental Agency Modernization/Leveraging Unmanned Aerial Systems to Improve Environmental Results: Environmental Council of the States Report (Including an Arkansas Case Study)

02/23/2021

The Environmental Council of the States ("ECOS") released a February 11th report titled:

State Environmental Agency Modernization – Leveraging Unmanned Aerial Systems to Improve Environmental Results ("Report")

The *Report* is authored by Paulina Lopez-Santos, Project Associate, under the direction of Beth Graves, Executive Project Manager, ECOS.

The ECOS *Report* discusses the various state environmental agencies that utilize unmanned aerial systems ("UAS" [i.e., "drones"]) for various purposes.

The *Report* includes case studies from 19 states which includes the State of Arkansas.

The ability of drones to assist in a variety of activities undertaken by state environmental agencies is expanding. Examples of drone use in such activities include:

- Surveillance
- Enforcement
- Permit Support Documentation
- Waste and Landfill Inspections
- Illegal Dumping of Chemicals, Oils or Waste Tires
- General Emergency Response Functions Involving Facility Discharges, Trail Derailments, Truck Accidents, and Oil Spills
- Investigation of Unusual Events

The ECOS *Report* describes drones as an important state agency tool because of certain abilities such as:

- Ability to quickly obtain data
- More effective response to emergencies
- Ensuring worker safety
- Improving environmental results

Besides the state's case studies, the *Report* addresses:

- Drone Operations (including the discussion of the Federal Aviation Administration regulations)
- Benefits and Uses

The information provided by the state environmental agency case studies includes:

- Year drone use began
- Emergency preparedness and response use
- Use in water monitoring
- Use in mapping
- Use in mining
- Use in watershed and groundwater inspections
- Use in dam inspections
- Volume and construction estimations
- Drinking water, coastline inspection and other uses

The ECOS *Report* states that the Arkansas Department of Energy and Environment ("ADEE") launched its Unmanned Aerial Vehicle ("UAV" [(i.e., drone)]) Program in the Fall 2019. It further notes in part that the Drone Program:

. . . began as a shared service program to provide UAV flights for DEQ environmental programs to enhance data collection. The program has only conducted a few projects to date following the completion of the UAV training program because the COVID health emergency grounded the program. However, the pilots did maintain their Federal Aviation Administration Licensed proficiency with training flights during that time. The technical services program, although in its initial startup phase, has already proven to be a powerful tool for monitoring dynamic environmental processes.

Observed certain benefits are stated to include:

- The ability to perform inspections in areas not readily accessible, such as inspecting facilities during flooding.
- The ability to gather various remote sensing data not easily or economically gathered through ground access, such as aerial mapping and survey data for mine reclamation purposes, magnetometer data (locating abandoned wells), and infrared data to determine leaks and spill extent, as well as an overview perspective during an emergency response.

Arkansas is stated to be undertaking both the following current and planned activities:

- Pipeline, oil, and gas production facility inspections for the Oil and Gas Commission
- Geologic mapping and investigations for Arkansas Geological Survey
- Mining survey and mapping for Department of Environmental Quality Office of Land Resources
- Emergency response flights to assist ADEE Emergency Management incident responses
- Planned: topographical mapping, subsurface mapping, air monitoring, and continued emergency response capability

The Arkansas case study also provides a specific example of drone use by the State and "Lessons Learned."

Note that while the *Report* focuses on the use of drones by state environmental agencies, their use by the private sector for environmental tasks is rapidly expanding. For example, as noted in a previous blog post, the Little Rock/Springdale firm of Pollution Management, Inc., operates a drone for certain environmental/energy services such as:

- Aerial imagery (i.e., dam/levee inspections), slope failures, structure layout, etc.
- Topographic data (civil site layout, flood studies, landfills, industrial site design)

Drones have been stated to have certain potential inherent advantages in the private sector when it comes to their ability to cost effectively observe for environmental assessment purposes addressing larger or relatively inaccessible areas.

A copy of the Report can be found [here](#).