

These aerial surveys support LM's long-term stewardship mission.

Since 2021, LM has conducted sUAS aerial surveys at over 19 uranium tailings disposal sites in nine different states encompassing a total of 11,143.6 acres. These sites lie at different elevations above sea level and have varied topographical profiles, ranging from relatively flat to dramatic undulating canyons and cliffs.

DOE prohibits intentional aerial imaging of private citizens using a drone. LM and its contractors plan the drone flight trajectories to prevent any inadvertent photographing of people or property during any aerial survey missions.



Inspection of the Wingtra WingtraOne Gen II at the Maybell, Colorado, Disposal Site on Aug. 30, 2022. This platform collects photogrammetry data, or RGB photos.



U.S. DEPARTMENT OF  
**ENERGY**

Legacy  
Management

LM/LMSP Aviation Team (past and present members) at the Fernald, Ohio, Site on March 8, 2023.

# For more information, visit

<https://www.energy.gov/lm/aviation-program>

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The U.S. Department of Energy (DOE) Office of Legacy Management (LM) Aviation Program ensures the safety, efficiency, and effectiveness of LM's aviation operations and supports its mission to protect human health and the environment. Through the program, DOE, LM, and LM Support Partners manage and oversee aerial surveys using crewed aircraft and small uncrewed aircraft systems (sUAS, or drones) at disposal sites across the United States.



A Hopi tribal partner and his grandson come to see the drone before it takes flight at the Tuba City, Arizona, Disposal Site.

#### Drones LM uses:

- Skyfront Perimeter 8 Octocopter, which collects high-quality 3D spatial data using a lidar sensor.
- Wingtra WingtraOne GEN II, which collects high-resolution photographs.

### Aerial Survey Projects

The Aviation Program uses drones with specialized sensors to provide high-resolution color photographs, 3D imagery, and other data from a viewpoint that's not accessible from ground level. LM uses this data to monitor topographical information across its many sites.

Scientists, engineers, and data managers also use the data to build 3D site models and use baseline and follow-on data to analyze how disposal sites are changing, which helps detect potential issues. LM can then address those issues before they become bigger or cost more to correct.

## Aerial Survey Overview

Until recently, LM inspected its disposal sites on foot, which only provided a two-dimensional perspective over a broad area. In 2020, LM stood up its Aviation Program to address Federal Aviation Administration, General Services Administration, and DOE requirements. The program uses drone technology to obtain high-quality data, which is used to develop 3D models of disposal sites. Aerial surveys provide the ability to precisely record, document, and analyze disposal cell topographic features and performance.

## Drones

Small uncrewed aircraft systems weigh less than 55 pounds, including all aircraft systems and payloads attached to the aircraft, and are remotely piloted by an operator on the ground. LM contractors may use one or more kinds of drones to perform aerial surveys.



A drone takes flight at the Shiprock, New Mexico, Disposal Site.