



Unmanned Aerial Systems (UAS) Program Review

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District UAS Reliability Program

Purpose

Authorized Licensed Remote Pilots will utilize UAS for the operations of utility facilities to ensure PEC staff can effectively inspect utility equipment to determine the requirements for design, construction, maintenance, or repair of equipment, and to maintain system reliability and integrity.

First Class



Current District Pilots

All districts currently have one UAS deployed:

Kyle:

- Joshua Stanford
- Charley Goines

Canyon Lake:

- Thomas Logan
- Chris Dodson

Oak Hill:

- Heath Hamilton
- Travis Sasko

Junction:

- Caleb Daharsh

Marble Falls

- Steven Chambers
- Wes Womack

Bertram

- Doug Thompson
- Mickey Winkler

Cedar Park

- Justin Lundgaard
- Evan Bradfield

Liberty Hill

- Marshall Swoda
- Jimmy Rios
- Chris Ingram

Training Facility



District Activity

District: Canyon Lake

Repair: Bad order poles

Truck Access: No

Note: Crew went in on foot to make repairs, preventing possible outages and/or potential fire.



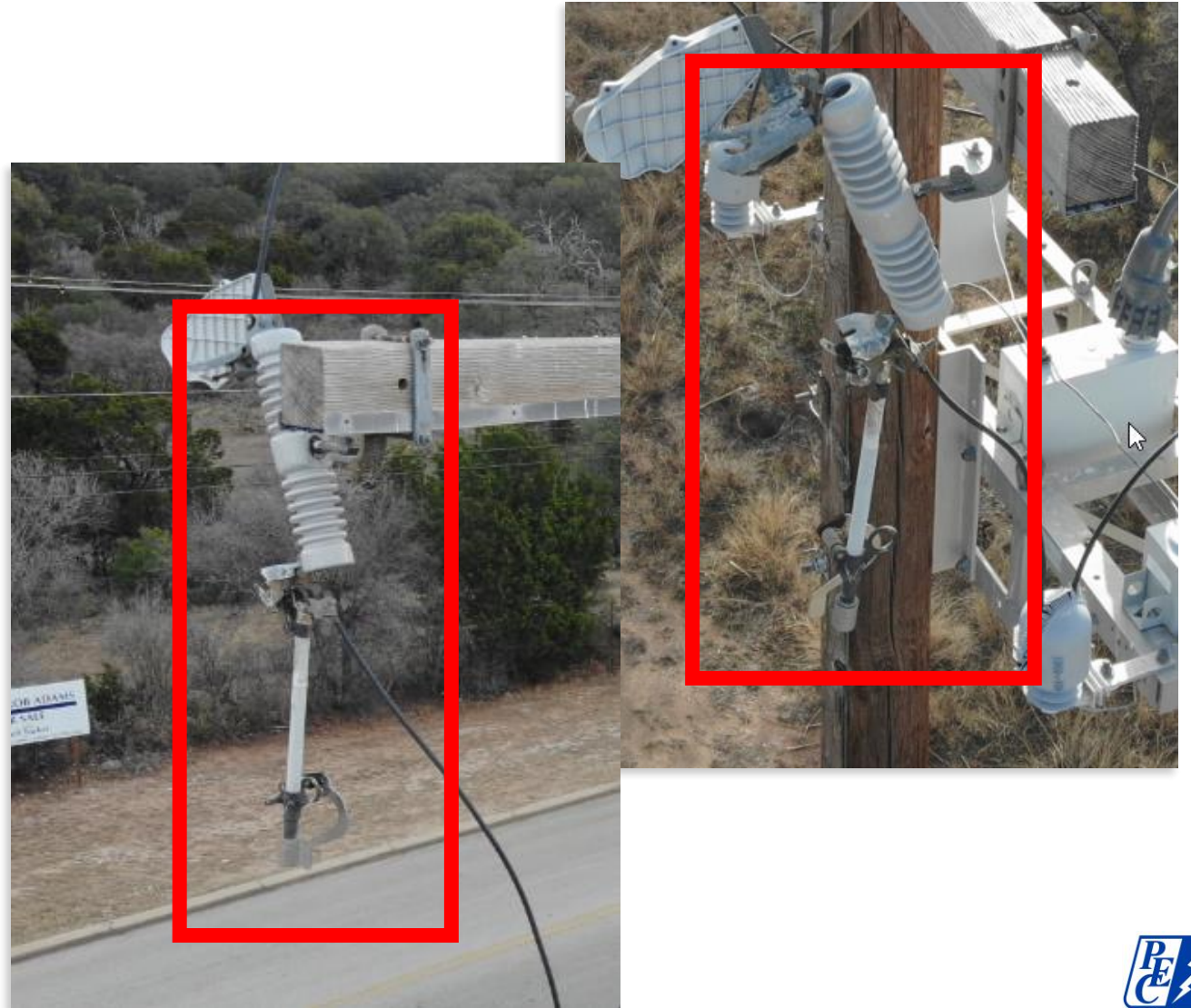
District Activity

District: Marble Falls

Repair: Blown load break fuse

Truck Access: Yes

Note: Inspecting capacitor for any visible signs of damage or cause of blown load break fuse before the bucket truck arrived to test the capacitor.



District Activity

District: Marble Falls

Repair: Broken Insulator

Truck Access: No

Notes: Found while patrolling line in search of fault, was not the cause of the OCR operation, but repaired while crews on site.



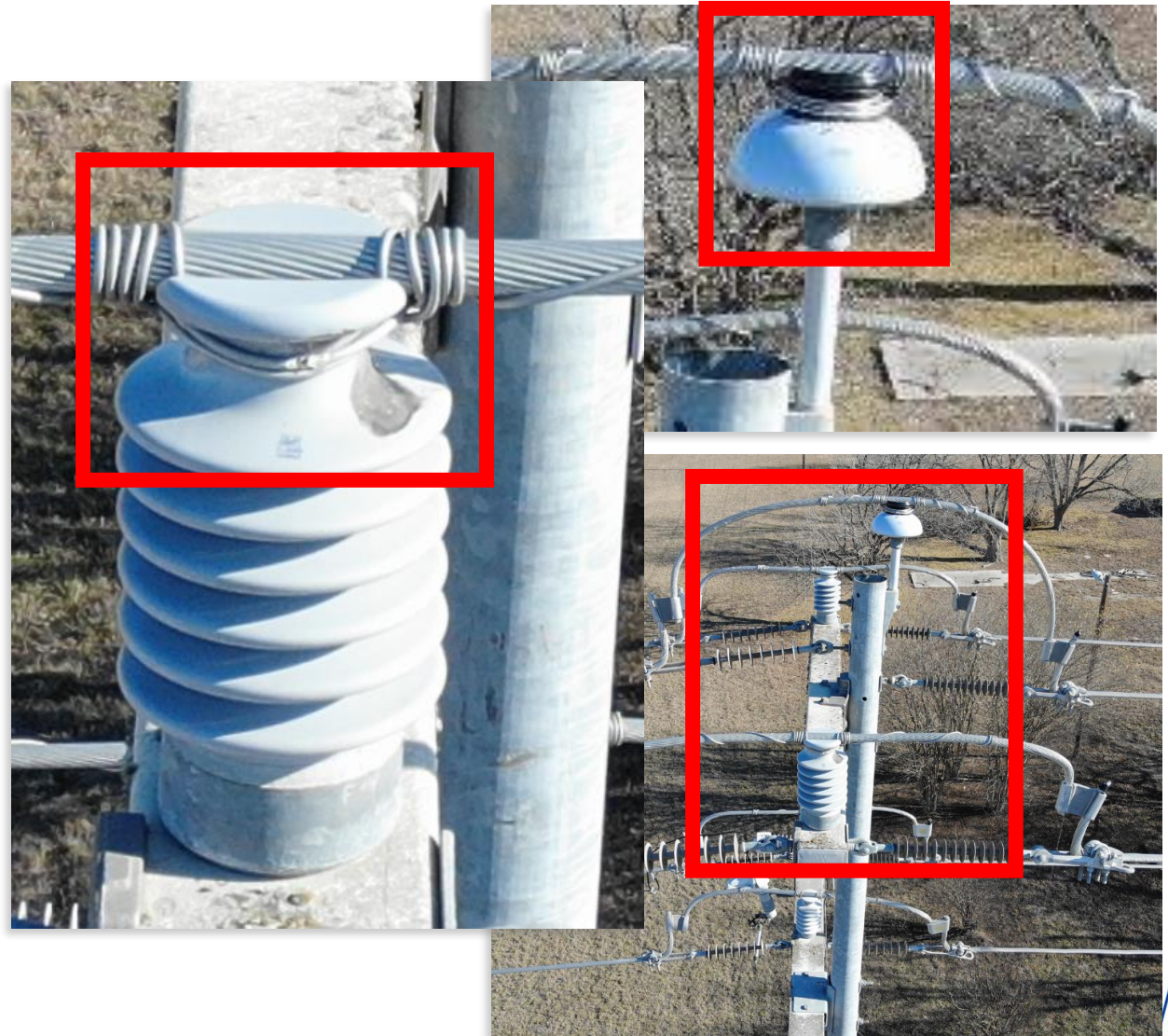
District Activity

District: Kyle

Repair: Bad order insulator and flashed pineapple insulator, and a damaged tie wire.

Truck Access: Yes

Notes: Found while troubleshooting worst performing feeders.



Additional Training & Initiatives

Additional Training and Initiatives

- Power Line Inspector (PLI) software supports identifying locations for repair:
 - Includes one full day of hands-on training at district office, began in Feb. 2021
- Air Data software uses GPS to track and logs all UAV flights and hours:
 - Software licenses and installations began Jan. 2021
- Night Flight training course and FAA Part 107.23 Waiver to be developed.
- Internal tracking for licensing and training:
 - Integrated with PEC's Success Factors program for automated reminders and reporting.
 - Supports policy compliance and insurance requirements - PEC maintains insurance for both drones and pilots.

2021 Winter Storm Support



Wimberley, TX – HW10 3-Phase Feeder – No Road Access
Outage Discovered by UAV – Services ~260 Meters

UAV Mobilization & Support for Outage Restoration

12 UAVs deployed:

- Kyle District
- Oak Hill District
- Canyon Lake District
- Marble Falls
- Junction District - heaviest use due to terrain

Supplemental pilots deployed by Support Services:

- Eric Bitzko – EOP Aircraft Manager
- Clayton Fuchs – UAS Pilot
- Joel Liebeskind – UAS Pilot



UAV Support in Junction

- **46** hours of active air time
- **350** miles of line patrolled, **672** total flight miles
- Roughly **1,200** discrepancies discovered, or about 3 per each mile of line flown
- UAS expedited system assessments about **90%** faster than traditional methods:
 - Quicker assessments - avoiding 4x4 requirement or bulldozer towing
 - Improved logistics - knowing material and crew-type requirements to be deployed
- UAS minimized potential risk of:
 - Damage claims - avoiding destructive patrolling (mud tracks)
 - Fleet damage - avoiding ROW hazards, blown tires, and stuck-vehicle recovery
- Improved employee safety by limiting on-foot patrolling of downed lines and other hazardous conditions

UAV Support in EOP



UAV Support in EOP



UAV Support in EOP



UAV Support in EOP



