UAS Safety Guidelines for Power Line Inspections

1. Pre-Flight Preparation

1.1 Regulatory Compliance
- Ensure compliance with FAA Part 107 or local aviation authority regulations.
- Verify the pilot holds a valid Remote Pilot Certificate and is current on training.
- Check airspace authorization using LAANC or approved methods.
- Follow all utility company flight authorization protocols and obtain permissions.

1.2 Mission Planning
- Conduct a site survey to identify hazards (power lines, trees, vehicles, personnel).
- Review weather conditions and ensure within operational limits.
- Identify takeoff/landing zones clear of obstacles and personnel.
- Plan flight paths maintaining safe separation from energized components.
- Inspect aircraft, batteries, and sensors before flight.

2. On-Site Safety

2.1 Team Coordination
- Hold a pre-flight safety briefing.
- Assign roles: Pilot in Command, Visual Observer, Data Specialist.
- Maintain line-of-sight (LOS) and clear communication throughout operations.

2.2 Electrical Safety
- Maintain at least 10 ft (3 m) from low-voltage lines and 50 ft (15 m) from high-voltage lines.
- Never fly between conductors or phases.
- Avoid flying in wet conditions; water conducts electricity.
- Never attempt to recover a drone in contact with a live wire—notify utility control immediately.

3. Flight Operations

3.1 Takeoff and Flight
- Conduct low-altitude hover checks before inspection.
- Maintain a steady flight path near structures.
- Monitor battery voltage, GPS signal, and telemetry continuously.
- Abort mission if GPS loss, unstable control, or high wind occurs.

3.2 Communication
- Maintain visual and verbal contact with observer and drone.
- Notify field crews before starting inspection.
- Maintain contact with utility operations center if required.

4. Post-Flight Procedures

- Power down the aircraft away from energized areas.
- Inspect drone for damage and review telemetry logs.
- Securely store captured data following company policy.
- Conduct a team debrief on operational and safety lessons learned.

5. Emergency Procedures

- Loss of Control/Link: Initiate Return-to-Home if safe, or perform controlled descent.
- Battery Failure: Land immediately in a safe zone.
- Collision/Contact: Do not recover; contact utility dispatcher.
- Injury or Fire: Call emergency services and use Class C fire extinguisher for battery fires.

6. Additional Best Practices

- Always fly with a visual observer for line inspections.
- Conduct annual recurrent safety and technical training.
- Store batteries and SD cards safely.
- Use geo-fencing to prevent encroachment on energized lines.
- Maintain required insurance coverage.