



Standard Operating Procedure (SOP)



Bird Droppings Cleaning on Light Pole Sensors Buc-ee's



Supervisor: S. Petracco

Phone: 281-702-4227

Email: stephen@droneforcetech.com

Purpose:

To clean bird droppings from the top of light pole sensors in Buc-ee's Gas Station plazas to ensure proper light sensor operations.

Required Tools and Equipment

- Soft-wash cleaning drone with 45-degree nozzles to effectively clean bird droppings off of sensor for each LED light pole within the parking area.
- Non-conductive, quick-drying neutral cleaning solution
- Proprietary, triple-reverse osmosis, soft-wash 4-6 GPM, self-sustaining wash unit to connect with a specialized Drone.
- Specialty Wash drone with soft-wash capabilities
- Protective suit, helmet, safety goggles, radio communication system, live weather monitoring system, command control unit
- Safety barriers, warning signs, caution tape, a safety coordinator, and staff
- Additional picture drones for before-and-after photos and to ensure proper job completion from height.

Personnel Allocation:

Site Supervisor - 1 - On-site command, documentation, risk response

FAA Part 107 certified Drone Pilot – (1-2) - Conduct cleaning work

Visual Observer – (1) - Watches the drone visually per FAA regulations. **Safety Coordinator** - (1) - Maintains perimeter, keeps patrons out of work zones. **Additional Staff:** (1) - Assists with hoses, pumps, and photo records.

Recommended Work Time:

- *Avoid Peak customer hours*
- Weather: Dry, wind $\leq$ level 3, humidity $\leq$ 75%- Strategy allows for service to be conducted at any time aside from peak hours. No need to block off large sections of the parking lot to perform services. Strategic, temporary barricading of parking sections enables minimal disruption to business. Perimeter lights will be blocked off in 2 sections at a time to clean and then re-opened, promptly. Approximate cleaning of each light is 10 minutes. Interior light sensor cleaning time is approximately 10 minutes and will be blocked off in a circular fashion to keep vehicles and customers from areas temporarily, then immediately opened once finished.

Special Requirements for Live Work:

- Use non-conductive cleaning systems only.
- Use low-pressure, soft-wash, biodegradable chemicals that clean the sensor and apply protective coating to keep bird droppings from sticking, for additional protection between cleanings to sustain the power of LED light poles. All operations will be done VIA drone through a connected, proprietary wash system at approximately 150 psi to protect electronic sensors and to clean without penetrating internal components, avoiding damage.
- The drone will fly at a minimum distance of 5 feet from live components to ensure protection of the internal electrical components of lights and sensors.
- No solo work; always work with a visual observer and safety coordinator present
- An on-site emergency shutdown plan and insulated repair tools will be provided.

Cleaning Procedure:

Preparation:

- Notify gas station staff of the cleaning schedule.
- Strategic planning to ensure minimal disruption of gas station parking lot operations.
- Set up perimeter with barriers and warning signs while cleaning light pole sensors in each area and will be fast and efficient to complete each and move on to complete each location.
- Take before-cleaning photos (front and upward angles)

Cleaning:

- Position a specialized drone near the sensor (within 5 feet for optimal cleaning without affecting electrical components).
- Soft-wash (150 psi) with neutral, biodegradable cleaner to remove bird waste and apply protective barrier coating to ensure longevity of treatment. (Avoid overuse)
- Repeat spray and use an environmentally friendly surfactant to assist in removal if heavily soiled; 100% removal is required.
- Take a comparison photo after each sensor is cleaned

Wrap-Up and Inspection:

- Ensure all sensors are clean with no residue
- Remove gear and safety signs, and restore the site
- Present photo comparison to customer for sign-off- Log cleaning report with sensor ID and condition.

Safety Reminders:

- Never touch metal parts with wet hands
- Never allow two people to touch the same live metal part
- Perform an insulation test before the first daily use
- Stop immediately and report if any electrical anomaly or arc occurs.
- Always ensure barriers are set up to keep Buc-ee's patrons away from operations.

Operations for Buc-ee's facilities:

We understand you are experiencing an issue with bird feces being deposited on the sensor that controls the "on-off" function of your new LED light poles. Currently, you are employing manual labor and utilizing lifts to clean each light. The recommendation is that this service be completed monthly and, at a minimum, quarterly. While it is unclear how many of your locations have been outfitted with this new LED lighting system and sensor, we recognize that cleaning them this way is cost-prohibitive. The ownership/rental of lifts incurs significant expenses, and renting them is even more costly, particularly when using a localized workforce to manage each site.

Drone Force USA has the assets and manpower to provide service to each location throughout Texas and the rest of the USA where you operate. We can efficiently clean each light, apply coatings to prevent bird feces from blocking the sensors, and complete the job without disrupting your operations. Moreover, we do it quickly, and our costs will be a fraction of what you are currently paying.

We would appreciate the opportunity to speak with you about a sensible solution that leverages our proprietary drones, wash systems, and specialized chemicals to ensure the longevity of the treatments we provide.