Unmanned Aircraft Systems (UAS) Tool Kit

PREPARED BY
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I. INTRODUCTION

Unmanned Aircraft Systems (UAS), or so-called “drones,” are gaining popularity across industries for their efficiency and safety benefits in performing tasks ranging from infrastructure inspection and precision agriculture to real estate marketing and filmmaking. The potential benefits of UAS operations for refineries, petrochemical manufacturers, and their customers are great. Among other activities, UAS can be used to inspect and monitor equipment and facilities, or to access and evaluate emergency situations from different perspectives. By utilizing UAS, the need for human personnel to directly undertake such potentially hazardous activities is greatly reduced, if not eliminated. While the industry has much to gain from using UAS, there is also reason for concern. The use of UAS by unauthorized operators or for unauthorized operations presents critical safety, privacy, and security risks to the refinery and petchem communities.

This AFPM UAS Tool Kit is designed to provide refiners and petrochemical manufacturers an understanding of the existing UAS legal framework, including the Federal Aviation Administration’s (FAA) new Part 107 Small UAS Rule and the waiver process under the rule for authorizing more advanced operations beyond the scope of what is permitted under the rule. It also outlines the risks to the industry as a result of the increasingly prevalent use of this technology by hobbyists, public entities, news organizations, and commercial industry, and describes what protections are available (or may soon be available)—including FAA enforcement, common law torts, and certain UAS-specific state laws.

As part of this AFPM UAS Tool Kit, we have assembled a portfolio of key UAS reference documents from a range of sources that contain valuable information and guidance material for commercial UAS operators. An index of this guidance material is attached as Appendix A.

This AFPM UAS Tool Kit provides a general overview of a complex and evolving topic. For legal advice on particular issues, the authors of this report, members of the Hogan Lovells Global UAS team, are available to answer any questions that individual companies may have.

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A UAS consists of an unmanned aircraft, an aircraft control station, and command and control links.
II. UAS LEGAL FRAMEWORK

The use of UAS for hobbyist or recreational purposes has been part of American tradition, and broadly authorized in the United States, for decades. Over the last several years, as UAS and information technology have improved at a rapid pace, UAS have become cheaper, smaller, more mobile, and increasingly able to capture data from the air safely and efficiently. With these technological advances, the commercial marketplace, including the oil and gas industry, has embraced the use of this technology.

However, UAS technology has moved much more quickly than U.S. policymaking. This section of the AFPM UAS Tool Kit provides an overview of the current UAS legal framework for hobbyist, public, and commercial use of drones in the United States in order to guide industry activity and provide a roadmap for the future.

A. Hobbyist Use

Hobbyist use of drones is broadly authorized in the United States. The Small UAS Rule (14 Code of Federal Regulations Part 107; hereinafter “Part 107”), which will be discussed in detail below, does not apply to operations of small UAS carried out strictly for hobby or recreational purposes. Model aircraft are generally permitted to be flown less than 400 feet above ground level\(^2\) if the model aircraft weighs less than 55 pounds,\(^3\) is flown within visual line of sight, and is operated in accordance with a community-based set of guidelines in a manner that does not interfere with, and gives way to, manned aircraft.\(^4\) Model aircraft operators do not have complete flexibility, however; they must provide advance notice to air traffic control and airport operators in order to fly within five miles of an airport, and the FAA has the ability to enforce the law against hobbyists who fly their model aircraft in a way that recklessly endangers the public.\(^5\)

For the refinery and petchem industries, it is important to recognize that a flight only qualifies as an authorized hobbyist flight if it is flown \textit{strictly for hobby or recreational use}. This means that an employee hobbyist may not fly a model aircraft to benefit the company (even if he or she also flies for fun) and still fall under the hobbyist umbrella. A hobbyist who flies a UAS for the benefit of the company, even if the individual is not paid to do so, is engaging in commercial activity, which is regulated by the FAA. Doing so without complying with the applicable regulations and authorizations raises legal liability issues for both the individual employee and the company for which he/she is flying.\(^6\)

\(^2\) Advisory Circular 91-57A, Model Aircraft Operating Standards (September 2, 2015).
\(^3\) Unless otherwise properly certified. See FAA Reauthorization Act of 2012, Section 336 (Special Rule for Model Aircraft).
\(^4\) FAA Reauthorization Act of 2012, Section 336.
\(^6\) For additional guidance on the distinction between hobbyist and commercial use, see Interpretation of the Special Rule for Model Aircraft Notice of Interpretation and Request for Comment, 79 Fed. Reg. 36172 (June 25, 2014; Docket FAA-2014-0396).
B. Public Use

Federal, state, and local agencies may also operate UAS in the United States with authorization from the FAA. A public operation involves a “public aircraft” UAS (meaning that it is publicly owned or operated on behalf of a public agency or government), carrying out a “governmental function” under the authority of a public Certificate of Waiver or Authorization (COA) issued to the government entity.

Public use of UAS is relevant to AFPM members for at least two reasons. First, private companies often collaborate with public entities, such as public universities, in order to fly in partnership under a public COA. Refineries and petrochemical manufacturers interested in UAS may consider partnering with a public university for this purpose. Second, refineries and petrochemical manufacturers should be aware that local, state, and federal agencies, including those related to environmental and regulatory enforcement, may themselves be operating UAS under this provision. Companies may therefore be on the receiving end of UAS surveillance from the government.

In addition to operating UAS under a public COA, governmental entities can also voluntarily choose to operate as a civil (commercial) aircraft under the regulatory framework of Part 107.

C. Commercial / Civil Use

Any UAS operations that do not meet the requirements for hobbyist or public use are treated as civil or commercial UAS operations. As discussed in Section III below, the FAA imposes additional certification and operating restrictions on commercial UAS operations, as compared to hobbyist and public use operations.

III. UAS REGISTRATION AND MARKING REQUIREMENTS

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7 The term “governmental function” means an activity undertaken by a government, such as national defense, intelligence missions, firefighting, search and rescue, law enforcement (including transport of prisoners, detainees, and illegal aliens), aeronautical research, or biological or geological resource management. 49 U.S.C. § 40125(a)(2).

8 This means that a non-governmental organization (NGO) using UAS for air or environmental sampling would be treated the same as a commercial use under the law.
Over the past two years there has been a surge in news events involving careless operators misusing drones, including crashes at stadium sporting events and hundreds of incidents involving close encounters between UAS and manned aircraft. In response to these news reports, the FAA released a new registration rule in December 2015 mandating the registration of small UAS, including those used for recreational or hobby use. While commercial operators were already required to register UAS, hobbyist operators were historically exempt from registration requirements.

While the new rule upset the hobbyist community, the commercial UAS community was generally pleased with the development. The new rule, which applies to all UAS weighing more than 250 grams (0.55 pounds) and less than 55 pounds, created an alternative web-based UAS registration system designed to be simpler and more streamlined than the FAA’s existing (archaic) paper-based aircraft registration system that commercial operators are currently required to use.

Below is a summary of the key registration requirements for commercial UAS operators:

- The new online registration system opened to commercial operators of small UAS on March 31, 2016.

- Commercial operators are required to register each individual UAS and pay a $5 registration fee for each application. Registration lasts 3 years, and there is a $5 renewal fee for each renewal. These fees are the same as those currently required under the paper-based registration system.

- Commercial operators are required to provide UAS-specific information in addition to basic contact information. The owner will receive a Certificate of Aircraft Registration with a registration number for each individual UAS registered.

- Although each UAS must be assigned a unique registration number, commercial operators will be given a single online profile that allows them to manage the registration application process for each UAS.

- Prior to operation, unmanned aircraft must be marked with its registration number. The UAS can be marked using a permanent marker, label, or engraving, as long as the number remains affixed to the unmanned aircraft during routine handling and all operating conditions and is
readily accessible and legible upon close visual inspection. The registration number may also be enclosed in a compartment that is readily accessible, such as a battery compartment.

- While there is a U.S. citizenship requirement for registration, as is the case for manned aircraft, UAS owned by non-U.S. citizen corporations qualify for registration so long as the corporation is organized and doing business under the laws of the U.S. or a State, and the UAS is “based and primarily used in” the U.S. The FAA has strict guidelines for meeting the “based and primarily used in” test.

- There is no requirement to re-register UAS that have already been registered under the existing system. Operators may continue using the existing registration system or, alternatively, switch over to the new registration system when the registration is renewed.

- If the UAS is destroyed, sold, lost, or transferred, the UAS registration should be cancelled using the FAA’s online registration system.

IV. FAA SMALL UAS RULE (PART 107)

In 2012, Congress passed the FAA Modernization and Reform Act (FMRA) of 2012. FMRA Section 333 directed the Secretary of Transportation to determine whether UAS operations posing the least amount of public risk and no threat to national security could safely be operated in the National Airspace System (NAS) and, if so, to establish requirements for the safe operation of these systems in the NAS. On February 23, 2015, as part of its ongoing efforts to integrate UAS operations in the NAS and in accordance with FMRA Section 333, the FAA issued a Notice of Proposed Rulemaking (NPRM) proposing to amend its regulations to adopt specific rules for the operation of UAS in the NAS. The FAA received over 4,600 public comments on the proposed rule before the comment period closed on April 24, 2015. AFPM submitted comments to the FAA on behalf of its membership, urging the FAA to move expeditiously to finalize the proposed UAS regulations and suggesting several revisions to the proposed rule. AFPM’s comment requested enhanced protections for critical infrastructure from unauthorized UAS overflights and enhanced flexibility for the FAA to provide relief from certain operational restrictions.

After considering comments submitted in response to the NPRM, the FAA released its highly anticipated and long-awaited Small UAS Rule on June 21, 2016. The rule was implemented on August 29, 2016. The new rule represents a significant milestone for the commercial UAS industry, and will benefit a wide range of commercial industries, including refineries and petrochemical manufacturers. Prior to the new rule, businesses seeking to operate UAS needed to apply for and receive a “Section 333 Exemption” from the FAA, which was often a time-consuming and expensive process.

The final rule is codified in various parts of the Federal Aviation Regulations (FARs), but is referred to collectively as “Part 107,” which is the new part of the FARs specifically reserved for commercial small UAS activities. Part 107 provides clarity and a streamlined operational pathway for operators seeking to use UAS commercially.

Part 107 contains several key operating restrictions, some of which are quite strict. Notably, as discussed in more detail below, Part 107 does contain a waiver process that will allow for more
advanced small UAS operations beyond the scope of Part 107 in circumstances where it can be done safely. This AFPM UAS Tool Kit provides a summary of the new rule and identifies the key requirements and restrictions that refineries and petrochemical manufacturers should be aware of when operating small UAS. The Tool Kit also describes the Part 107 waiver process and discusses key issues AFPM members should consider when pursuing FAA waivers.

A. Part 107 Pilot Certification Requirements

Prior to the enactment of Part 107, businesses seeking to operate UAS needed to apply for and receive a “Section 333 Exemption” from the FAA. One of the most burdensome requirements for operations conducted under the “Section 333” framework was the requirement that the operator of the UAS hold a manned aircraft pilot’s license. Part 107 eliminates the manned aircraft pilot’s license requirement and instead requires operators to obtain a Remote Pilot Certificate with a small UAS rating.

Unlike the requirements for obtaining manned aircraft pilot certificates, the FAA does not require actual flight training, practical examinations, or separate medical certification to receive a remote pilot certificate.

Part 107 contemplates three potential types of personnel, or flight crewmembers, involved in UAS operations: a remote pilot-in-command (remote PIC), a person manipulating the flight controls, and a visual observer (Observer). All UAS flights must have a designated remote PIC. The remote PIC is responsible for a number of aspects of the UAS flight and operation. However, the remote PIC does not have to be the person manipulating the flight controls (although often he or she will be) and can instead supervise that individual. Observers and the person manipulating the controls of the UAS (if not the remote PIC), are not required to possess a pilot certificate of any kind.

In order to be eligible for a Remote Pilot Certificate, applicants must be at least 16 years old, be able to read, speak, write, and understand the English language, and be in a physical and mental condition that would not interfere with the safe operation of a UAS. Applicants with no prior manned aircraft pilot’s certificate must take an initial aeronautical knowledge exam (multiple-choice questions) designed for UAS operations. This test must be taken at one of the more than 700 FAA-approved testing centers, and the applicant’s identity will be verified at that time. Upon receiving a passing score, the applicant will apply for the certificate online using the FAA’s electronic FAA Integrated Airmen Certificate and/or Rating Application (IACRA) system here. After the application is submitted,

9 Additional details on the application process are available at: https://www.faa.gov/uas/getting_started/fly_for_work_business/becoming_a_pilot/
the Transportation Security Administration (TSA) conducts a background security screening on the applicant. The FAA anticipates that the TSA vetting will be completed within 10 days, although there could be delays depending on the number of applicants at the time the pilot-applicant’s application is made. Once TSA approval has been received, the FAA will issue a temporary Remote Pilot Certificate that is valid for 120 days. This will allow sufficient time for processing the official certificate. The certificate does not expire; however, the certificate holder must pass a recurrent aeronautical knowledge test every 24 months to remain active.

Licensed manned aircraft pilots (other than student pilots) who are current with respect to their flight review requirements have the option of either taking the initial knowledge test or taking an online training program. If taking the knowledge test, the pilot follows the same steps as outlined above, but the 10-day TSA waiting period will not apply since the individual has already been vetted by TSA. If choosing to take only the training, the pilot must submit the application for a Remote Pilot Certificate to one of several individuals authorized by the FAA. The point of this requirement is to confirm the individual’s identity and to verify that the applicant meets the relevant flight review requirements. As is the case with individuals with no previous manned aircraft pilot’s license, there is a recurrent training requirement every 24 months for the Remote Pilot Certificate to remain valid for these manned aircraft pilots.

B. General Operating Requirements Under Part 107

While Part 107 broadly authorizes low-risk commercial small UAS operations in the United States, the rule contains several key operating restrictions to maintain the safety of the NAS and ensure that small UAS do not pose a threat to national security. Key operational restrictions in Part 107 include the following:

- Unmanned aircraft must weigh less than 55 lbs. (25 kg) including payload.

- Visual line of sight (sometimes abbreviated “VLOS”) operations only. The unmanned aircraft must remain within VLOS of the remote PIC and visual observer (if one is used). At all times, the unmanned aircraft must remain close enough to the remote PIC for the remote PIC to be capable of seeing the aircraft with vision unaided by any device other than corrective lenses.

- Observers may be used, but they are not required. The remote PIC may choose to use a Visual Observer (VO) to supplement situational awareness and VLOS. Although the remote PIC and person manipulating the controls (if different from the remote PIC) must maintain the capability to see the unmanned aircraft, using one or more VOs allows the remote PIC and person manipulating the controls to conduct other mission-critical duties (such as checking display monitors) while still ensuring situational awareness of the unmanned aircraft.

- No person may act as the remote PIC, a person manipulating the controls, or an Observer for more than one unmanned aircraft operation at one time.

- Daylight-only operations (official sunrise to official sunset, local time). Twilight operations are approved when the small UAS is equipped with lighted anti-collision lights.
• Must yield right-of-way to other aircraft, manned or unmanned.

• First-person view (FPV) camera cannot satisfy “see-and-avoid” requirement but can be used as long as requirement is satisfied in other ways.

• Small unmanned aircraft may not operate over any persons not directly involved in the operation (i.e., other than the UAS flight crew and direct participants, described below).

• No operations from a moving aircraft.

• No operations from a moving land or water-borne vehicle, except when flown over a sparsely populated area and not carrying another person’s property for compensation or hire.

• Maximum airspeed of 100 mph (87 knots).

• Maximum altitude of 400 feet above ground level unless flown within a 400-foot radius of a structure and no higher than 400 feet above the structure’s immediate uppermost limit.

• Minimum weather visibility of 3 statute miles from control station.

• No operations are allowed in Class A (18,000 feet and above) airspace.

• Operations in Class B, C, D, and E airspaces are allowed with the required Air Traffic Control (ATC) permission. ATC permission comes in the form of an airspace authorization. Requests for airspace authorizations can be submitted using the FAA’s online portal here.

• Operations in Class G airspace are allowed without ATC permission.

• No careless or reckless operations.

C. UAS Requirements

Part 107 does not establish any design standards for UAS, and an FAA airworthiness certification is not required. However, remote PICs must maintain the UAS in a condition for safe operation and, prior to each flight, must verify that it is actually in a condition for safe operation. Upon request from the FAA, remote PICs are required to make the UAS available for testing or inspection, as well as any associated documents and records (for example, maintenance logs and manufacturer manuals). While not required by Part 107, whenever possible, the operator should maintain and inspect the UAS and its components in accordance with the manufacturer’s instructions.
D. Effect of Part 107 on Section 333 Exemptions

Now that Part 107 is in effect, many companies that have a “Section 333” Exemption are wondering how Part 107 impacts their exemptions. Part 107 allows UAS operators who have received and are currently operating under approved Section 333 Exemptions to conduct operations under their Section 333 Exemptions or under Part 107, whichever provides the broadest regulatory permission. For example, operators with a current Section 333 Exemption allowing nighttime operations can continue to conduct nighttime operations under their Section 333 Exemption until the exemption expires, avoiding the immediate need to obtain a waiver for such operations under Part 107 but subject to the conditions and limitations set forth in the Section 333 Exemption. Prior to expiration, applicants can seek renewal, at which time the FAA will evaluate the operations covered by the Exemption. If the operations fall within the scope of Part 107 and may be eligible for a waiver, the FAA will likely find no need to renew the Section 333 Exemption. Instead, the FAA would require the operator to seek a waiver under Part 107. In the vast majority of cases, Part 107 is more lenient and provides more operational flexibility than Section 333 Exemptions. For this reason, there would be little, if any, incentive for refiners and petrochemical manufacturers to continue operating UAS under a Section 333 Exemption.

V. PART 107 WAIVERS & AUTHORIZATIONS

To provide flexibility and help accommodate new and innovative UAS technology, Part 107 contains a waiver process for authorizing expanded operations beyond the scope of what is currently permitted under the rule. Waivable sections of Part 107 include:

- Operation from a moving vehicle or aircraft (§ 107.25)
- Daylight operation (§ 107.29)
- Visual line of sight aircraft operation (§ 107.31)
- Visual observer (§ 107.33)
- Operation of multiple small unmanned aircraft systems (§ 107.35)
- Yielding the right of way (§ 107.37(a))
- Operation over people (§ 107.39)
- Operation in certain airspace (§ 107.41)
- Operating limitations for small unmanned aircraft (§ 107.51)

To be eligible for a waiver, applicants must be able to demonstrate to the FAA that the
A proposed operation can be conducted safely. The FAA evaluates waiver applications on a case-by-case basis. Factors considered by the FAA include the nature of the proposed operation, the unique environment in which the operation will take place, and proposed safety mitigations. Similar to Exemptions granted under the “Section 333” framework, each waiver contains conditions and limitations that need to be complied with (called “common provisions” and “special provisions”).

As of February 10, 2017, the FAA has granted 318 waivers, the vast majority of which are waivers to permit UAS operations at night (304 waivers). The remaining waivers granted thus far include:

- 7 waivers authorizing a single remote pilot to operate multiple UAS simultaneously
- 2 waivers authorizing limited beyond visual line of sight operations (BVLOS)
- 2 waivers relating to Observer requirements
- 1 waiver authorizing UAS operations from a moving vehicle (non-sparingly populated area)
- 1 waiver authorizing flights over people
- 1 waiver from visibility and cloud minimum operating limitations

As of January 10, 2016, the FAA had denied a total of 901 waiver applications, and there were 601 waiver applications in the queue waiting to be processed.

Waiver applications can be submitted electronically using the FAA’s online portal here. The FAA’s instructions for filing a waiver application are available here. The waiver application form is the first step in applying for a waiver and only requires applicants to submit basic information about the proposed operations (type of waiver requested, applicant contact information, etc.). After submitting the waiver application form, applicants receive an automated email confirmation with a waiver tracking number. The waiver tracking number will need to be included on all correspondence or supplemental documents provided to the FAA in support of the application.

After submitting the waiver application form, documents and information supporting the safety case for granting a waiver can be submitted to the FAA via email at: 9-afs-800-part107Waivers@faa.gov. The FAA’s performance-based standards describe information needed to make a successful safety case for granting a waiver. There are different standards for each type of waiver, and the level of detail that needs to go into the safety case for satisfying those standards will vary depending on the complexity of the proposed operation. In other words, the riskier the proposed operation, the more substantial the safety case will need to be in order for the FAA to grant the waiver.

**A. Relevant Waivers for Refiners and Petrochemical Manufacturers**

Depending on individual facility needs and characteristics, AFPM members may want to consider applying for waivers from the following provisions of Part 107:

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10 Some companies have been granted waivers from multiple sections of Part 107.
i. **Daylight operation (§ 107.29)**

As previously noted, Part 107 only authorizes UAS operations during daylight and civil twilight hours (30 minutes before official sunrise and 30 minutes after sunset). A waiver waiving the Daylight operation requirement in § 107.29 would allow UAS operations to be conducted at night. This is currently the most popular waiver being applied for and the safety case mitigations have become fairly standardized. The FAA has previously determined that the following mitigations meet the performance-based standards for granting a waiver authorizing night operations:

- Mandatory use of one or more Observers;

- The remote PIC and Observer must be trained to recognize and overcome visual illusions caused by darkness, and understand physiological conditions which may degrade night vision;

- Sufficient illumination to allow both the remote PIC and Observer to identify people or obstacles on the ground, or conduct a daytime site assessment prior to conducting operations to identify hazards; and

- The unmanned aircraft must be equipped with lighted anti-collision lighting visible from a distance of no less than 3 statute miles.

ii. **Operation over people (§ 107.39)**

Part 107 authorizes UAS operations directly over people “directly participating” in the UAS operation or other individuals who are located under a protective structure or stationary vehicle. As long as it is safe to do so and does not create a hazard, the UAS can be operated near, but not directly over, other people who are not directly participating in the UAS operation. The group of people “directly participating” in the operation does not include individuals participating in a broader endeavor, such as on-site company employees, even if they consent to the overflight. “Directly participating” only refers to specific personnel that the remote pilot has deemed to be involved with the flight operation, including the person manipulating the controls of the UAS (if different from the remote PIC) and the Observer. Direct participants also includes any person who is necessary for the safety of the UAS flight operation. This could include, for example, security personnel tasked with ensuring that the area of operation below where the UAS is operating...
remains free from people or other potential hazards. Depending on a plant’s layout and other characteristics, it may be difficult or impractical to control the flow of company employees or other people on the ground. For these plants, the prohibition of flights over people, including brief moments of overflight, could make it difficult or impossible to conduct on-site UAS operations. In these types of scenarios, a waiver authorizing operations over nonparticipating plant employees would provide more UAS operational flexibility.

### iii. Visual line of sight aircraft operation (§ 107.31)

As previously noted, Part 107 requires the remote PIC and the person manipulating the controls of the UAS (if different from the remote PIC) to be able to see the unmanned aircraft at all times during the flight with unaided vision (except glasses or contact lenses).\(^{11}\) While companies may voluntarily choose to use an Observer to assist the remote PIC in maintaining situational awareness, it is important to note that Part 107 still requires that the remote PIC and the person manipulating the controls always be capable of exercising visual line of sight (VLOS). The benefit to using an Observer is that it relieves the remote PIC from the obligation of always exercising VLOS, freeing-up the remote PIC to conduct other mission-critical duties (such as checking displays). It does not, however, relieve the remote PIC from the requirement that he/she always be located in a position that would permit him/her to see the unmanned aircraft. In practice, depending on the size of the unmanned aircraft and other conditions affecting visibility, the VLOS requirement effectively limits the area of UAS operation to within a mile or so of the remote PIC. This limitation on the geographic scope of operation can make it difficult or impractical to conduct a variety of UAS operations, including, for example, aerial inspections of large facilities or other linear assets like pipelines where the unmanned aircraft would typically need to operate at greater distances from the remote PIC. In these scenarios, a waiver permitting UAS operations beyond VLOS (sometimes abbreviated “BVLOS”) would make these activities much easier by expanding the geographic scope of UAS operations.

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\(^{11}\) Vision aids, such as binoculars, may be used only momentarily to enhance situational awareness.
iv. Operating limitations for small unmanned aircraft (§ 107.51)

Under Part 107, the operating limitations for UAS include limitations on speed, altitude, flight visibility, and cloud clearance. For refiners and petrochemical manufacturers operating UAS, the operating limitations relating to flight visibility and cloud clearance minimums are likely more relevant than the speed and altitude limitations. The minimum flight visibility under Part 107 is 3 statute miles from the location of the UAS ground control station, and the minimum distance of the unmanned aircraft from the clouds must be no less than 500 feet vertically and 2,000 feet horizontally. In order to receive a waiver from these operating limitations, an applicant needs to provide a method by which: (1) the VLOS requirement in § 107.31 will be satisfied; (2) the unmanned aircraft will avoid non-participating aircraft; and (3) conspicuity of the unmanned aircraft can be increased to allow it to be seen at a distance of at least 3 statute miles.

B. Part 107 Airspace Authorizations

Part 107 authorizes UAS to be operated in Class G airspace without prior approval from ATC. UAS may be operated in Class B, C, D, and E airspace with prior approval from ATC. In order to receive ATC approval, applicants must submit an electronic Airspace Authorization application using the same online portal used to submit waiver applications here. When completing the application, under “regulations subject to airspace authorization,” be sure to check the box titled “107.41 Operation in certain airspace.” See below:

A common mistake among applicants is to select the box for seeking a waiver from 107.41 Operation in certain airspace, as opposed to an authorization. A waiver from this provision should only be requested in situations where it would be impossible to receive ATC approved in the form of an Airspace Authorization. For most applicants, this will almost never be the case, and therefore the majority of applicants seeking to operate in controlled airspace will want to request an airspace authorization, not a waiver from the requirements for operating in certain airspace.
VI. UPDATE: MICRO-UAS AVIATION RULEMAKING COMMITTEE

On February 23, 2016, the FAA announced the creation of a new aviation rulemaking (ARC) committee to study and recommend rules for authorizing some UAS to fly over people. The ARC is composed of various industry stakeholders, including UAS manufacturers, operators, academics, and trade organizations. On April 1, 2016, the ARC Recommendations Final Report was published. The recommendations made by the ARC, and the rules ultimately adopted by the FAA for operating UAS over people, will significantly affect not only how UAS are manufactured, but could broaden the scope of permissible UAS operations for many commercial industries, including operations for refineries and petrochemical manufacturers.

The ARC report presents the FAA with four categories of UAS operations based on the level of risk. Below is a summary of the four categories:

**Category 1:** Includes small UAS weighing 250g (0.55 lbs.) or less. The ARC determined that the level of risk of injury posed by this category of UAS is so low that no performance standards and no operational restrictions beyond those imposed by the proposed Part 107 are necessary.

**Category 2:** Under Category 2, a small UAS weighing more than 250g may operate over people if it meets certain certification and operational requirements. It would require the manufacturer of the small UAS to provide an operating manual to the operator, which would need to include operator requirements for flights over people. There is a requirement to maintain minimum set-off distances of 20 feet above people’s heads, or 10 feet laterally away from people, and the UAS may not operate so close to people as to create an undue hazard.

**Category 3:** Category 3 operations present a higher level of risk than Category 2 operations. As such, operations are prohibited over crowds or dense concentrations of people. Limited operations over people are permitted if the operation is conducted over a closed-site or restricted-access area, or if the flight is limited to brief overflight of people incidental to the operation.

**Category 4:** Category 4 operations are those that present the same level of risk as Category 3, but that involve sustained flight over crowds and/or dense gatherings of persons. Category 4 operations require the operator to have a risk mitigation plan specific to the operation, similar to what helicopter operators have to submit to the FAA for operations over congested areas.

It is important to note that the ARC report contains only recommendations. The FAA still must review the recommendations and issue a proposed rule for operating UAS over people.

VII. RESTRICTED FLIGHT AREAS

While the potential benefits of UAS use to AFPM members are great, there is also the concern that unlicensed individuals will fly UAS over their facilities without permission and/or in violation of federal, state, or local laws (so-called “rogue” UAS or drones). For example, UAS could be used for
surveillance or photography of facilities, personnel, or sensitive areas within facilities, which have been identified as critical infrastructure by the U.S. government. Environmental groups could use drones to support citizen suits, or rely on the same information captured by a hobbyist’s drone. A UAS could be armed with explosives and flown into a refinery. Less threatening but nevertheless very concerning, a hobbyist could accidentally crash his or her UAS into a refinery or petchem facility, similar to what happened when a hobbyist crashed his UAS onto the White House lawn in October 2015 or, more recently, the Seattle Space Needle.

A. FAA Flight Restrictions

In the example of a UAS being used for environmental surveillance, the relevant threshold question from an FAA enforcement perspective would be whether the environmental group is categorized as a hobbyist or non-hobbyist operator. An environmental group operating its drone to further a lawsuit would likely be considered a non-recreational flight under the FAA’s current understanding, as the flight is not solely for “hobby or recreational purposes.”12 The flight would need to comply with Part 107 and the individual operating the UAS on behalf of the environmental group would be required to have a Remote Pilot Certificate with a Small UAS rating issued by the FAA.

However, legal questions remain as to whether that same environmental group could use a hobbyist drone operator’s video images against a refinery in court. In the news media context, the FAA has indicated that it may be acceptable for newsgatherers to use hobbyist-captured drone images for commercial purposes, so long as the model aircraft operator’s original intention in flying the aircraft was actually recreational.13 As one could imagine, the difficulty with this standard is that it may be difficult to prove what the operator’s initial intent was for conducting the flight. In a recent Notice of national policy about aviation-related videos or other electronic media on the internet, the FAA noted: (1) FAA inspectors “have no authority to direct or suggest that electronic media posted on the Internet must be removed”; and (2) “[e]lectronic media posted on a video Web site does not automatically constitute a commercial operation or commercial purpose, or other non-hobby or non-recreational use.”14

Under FAA rules, refineries along with a number of other sensitive facilities are covered by Notice to Airmen Advisory 4/0811 (NOTAM 4/0811). NOTAM 4/0811 does not prohibit flight over the sensitive facility, but says instead: “Pilots are strongly advised to avoid the airspace above, or in proximity to such sites as… refineries, industrial complexes… and other similar facilities……Pilots should not circle as to loiter in the vicinity over these types of facilities.”15 The advisory applies to all aircraft and pilots, including UAS.

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12 See https://www.faa.gov/uas/media/model_aircraft_spec_rule.pdf/.
14 FAA Notice N 8900.292 (effective April 8, 2015).
15 Federal Aviation Administration, FDC Special Notice, Notice to Airmen Advisory 4/0811 ("Power Plant NOTAM. Nuclear, hydro-electric or coal power plants, dams, refineries, industrial complexes, military facilities and other similar facilities are covered by NOTAM 4/0811...In the interest of national security and to the extent practicable, pilots are strongly advised to avoid the airspace above, or in proximity to such sites as power plants (nuclear, hydro-electric, or coal) dams, refineries, industrial complexes, military
As a general matter, the FAA’s safety authority preempts any state or local government regulation of aircraft operations.\textsuperscript{16} However, state and local governments do retain certain authority to limit the aeronautical activities of their own departments and institutions.\textsuperscript{17} Recently, state and local governments have enacted UAS rules that test the boundaries of this authority. For instance, the Georgia Building Authority passed a resolution banning UAS within five miles of a heliport located atop a parking garage near the State Capitol building in downtown Atlanta.\textsuperscript{18} Whether a state or local government restriction is preempted by federal law depends on the precise nature of the limitation.

**B. Private Entity Restrictions on UAS and Other Protections**

In addition to governmental restrictions, some private entities have worked with the FAA to establish flight restrictions over certain lands, usually based on security concerns. Airspace over Disney theme parks, for example, is restricted from the surface to 3,000 feet.\textsuperscript{19} This restriction applies to UAS as well as to manned aircraft. More recently, private entities, like ski resorts, have enacted policies restricting UAS without involving the FAA. However, such policies, particularly as they pertain to UAS launched or operated from outside resort boundaries, raise unresolved legal issues over whether a private entity has any right or authority to limit the use of low-altitude airspace over its land, or whether such actions are strictly under the purview of FAA.

Some companies, such as SkySafe, advertise they provide the ability for companies to detect, track, and identify low altitude, small UAS. A group of UAS hardware, operating system, and component makers support www.noflyzone.org -- a sort of “do not call list” website for UAS that allows individuals to insert their address indicating their preference not to have UAS fly over their property. Certain manufacturers have promised to respect the opt-out preferences of individuals and to incorporate those preferences into their product design.

**VIII. ENFORCEMENT AGAINST ROGUE DRONES**

The FAA has several civil enforcement tools to assert its authority over “rogue drones” flown by commercial and hobbyist operators alike. The FAA may elect to take no action, pursue an administrative action, or pursue a legal enforcement action. Administrative action may take the form of a warning notice or letter of correction. A warning notice is similar to a traffic warning in that the FAA retains a record of the event, but declines to pursue further punitive action. A letter of correction facilities and other similar facilities. Pilots should not circle as to loiter in the vicinity over these types of facilities.”


\textsuperscript{17} Id.


outlines required action for the recipient, which if complied with, results in no further action by the FAA. Failure to comply with a letter of correction would elevate the incident to a legal enforcement action. Legal enforcement actions can include either certificate action (which applies only to FAA-certificated individuals) or civil penalties. In the case of certificated pilots, the FAA may take action against that airmen’s certificate, including suspension or revocation. If a company holds additional FAA authorizations in the form of a Part 107 waiver or “Section 333 Exemption,” the FAA could revoke those authorizations. Alternatively, the FAA may elect to pursue legal enforcement action by levying a civil penalty or fine.

The FAA is authorized to issue civil penalties for certain violations of the Federal Aviation Regulations pursuant to 49 U.S.C. § 46301. Civil penalties issued against commercial and hobbyist UAS operators vary widely and have ranged from $400 to $200,000 dollars. The FAA determines the amount of the civil penalty using a Sanction Guidance Table, which provides ranges for civil penalties based upon the type and size of the business, the type and severity of alleged violation, and the number of alleged violations. For most UAS violations, the per-violation penalty ranges are outlined in FAA Order 2150.3B and summarized in the table below. In the absence of aggravating or mitigating circumstances, the FAA typically recommends a sanction at the middle of the sanction range.

<table>
<thead>
<tr>
<th></th>
<th>Large Business Concern</th>
<th>Small Business Concern</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum</td>
<td>$18,750-$25,000</td>
<td>$4,400-$11,000</td>
</tr>
<tr>
<td>Moderate</td>
<td>$10,000-$18,749</td>
<td>$2,200-$4,399</td>
</tr>
<tr>
<td>Minimum</td>
<td>$2,000-$9,999</td>
<td>$550-$2,199</td>
</tr>
</tbody>
</table>

It is important to note that sanctions are applied to each individual violation. As illustrated by the FAA’s record setting proposed civil penalty of $1.9 million dollars against Chicago-based UAS operator SkyPan International, a single activity could violate more than one regulation, and if the action is continuous and ongoing, each action is a new violation that will continue to compound the civil penalty amount. In October 2015, the FAA alleged that SkyPan International conducted 65 unauthorized flights in controlled airspace over Chicago and New York City. As a small business concern, the maximum amount for any individual infraction would be $11,000. However, since each of the 65 unauthorized flights violated more than one regulation (operating in a reckless manner, failure to display an airworthiness certificate/registration, failing to have proper equipment/clearance for Class B airspace), the FAA alleged 389 individual violations. In January 2017, SkyPan reached a settlement agreement with FAA, agreeing to pay a $200,000 civil penalty. The company also agreed to pay an

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20 Section 503 of Vision 100 — Century of Aviation Reauthorization Act sets different limits on the civil penalties the FAA may seek for violations by small business concerns, as opposed to violations by other entities. Vision 100 CARA gives the term “small business concern” the same meaning as in the Small Business Act (15 U.S.C. § 632). Section 632 defines small business concern as an enterprise “which is independently owned and operated and which is not dominant in its field of operation.”
additional $150,000 if it violates Federal Aviation Regulations in the next year, and $150,000 more if it fails to comply with the terms of the settlement agreement.

Beyond FAA civil penalties, some federal criminal statutes may be implicated by some UAS operations. For example, a person that knowingly violates a temporary flight restriction (TFR) could be subject to criminal and or civil penalties that go beyond the repercussions of an FAA administrative enforcement action. Under 49 U.S.C. § 46307 – Violation of national defense airspace, a knowing and willful violation of a TFR is a Class A misdemeanor, punishable by imprisonment of 6 to 12 months and a fine of not more than $100,000. Nevertheless, the FAA has indicated that most violations of the FAA’s regulations would be dealt with by administrative enforcement actions.

Despite its authority to act against unauthorized and unsafe UAS and model aircraft operations, carrying out enforcement actions has proved challenging for the FAA. This may be partly due to difficulty in identifying possible violators. Moreover, with the competing demands on the FAA’s limited resources, the FAA is not able to monitor every UAS operation, particularly unauthorized ones, by itself. To fill the enforcement gap, the FAA has stated it considers state and local law enforcement agencies best positioned to detect and immediately investigate rogue UAS or UAS operations. To that end, the FAA has issued a guidance document, “Law Enforcement Guidance for Suspected Unauthorized UAS Operations” (“LEA Guidance”), so that state and local officials are educated about what to do in case of rogue (or allegedly rogue) UAS flight.

A. Defending Against Rogue Drones: Countermeasures

So what should a company do if there is evidence that an unauthorized unmanned aircraft has, is, or will be flying over facility property? As a threshold matter, and despite what many may have heard or read about the so-called Kentucky “Drone Slayer,” it is never appropriate to try and shoot down or capture a rogue unmanned aircraft, even if it is operating over one’s facility/property without permission. Since both commercial and hobbyist UAS are considered aircraft, it would technically be a felony act to try and destroy or capture an unmanned aircraft in flight.

In recent years, growing security and privacy concerns over rogue drones have prompted the development of a variety of counter-UAS systems designed to detect, identify, and track rogue drones. Many of these systems also provide the ability to mitigate the threat, by interfering with, hacking, capturing, or destroying rogue drones. Before deploying UAS-countermeasures, it is important for facility owners and operators to understand the legal and regulatory risks around their use. Depending on the type of counter-UAS technology deployed, different federal, state, and local laws may apply.

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21 See 49 U.S.C § 40103 and 18 U.S.C §§ 3559, 3571.
22 See e.g., 18 U.S.C. § 32 - Destruction of aircraft or aircraft facilities.
As a general rule, companies may typically detect, identify, and track rogue drones under the law. For example, one may legally use specialized radar and video technology to identify unmanned aircraft that may be invisible to traditional radar, including small plastic drones. The technology deployed in this scenario is passive in nature and does not actually interfere with the unmanned aircraft or its wireless communication links. Thus, unlike counter-UAS measures that involve destroying or disrupting an unmanned aircraft’s control links or navigation technology, there are few, if any, restrictions on the use of technology used to identify and track rogue drones.

Mitigation methods may run afoul of the law, however. Broadly speaking, counter-UAS mitigation methods generally fall into one of three categories:

1) Targeting operator and neutralizing operator’s ability to operate the drone;
2) Targeting the drone and destroying it; or
3) Targeting the drone’s command and control links or its navigation technology and flying it away, or otherwise preventing it from operating in particular areas.

In the first scenario, a combination of visual spotting and electronic listening devices can be used to locate the operator, who can then be approached and compelled to land the unmanned aircraft. The FAA and Department of Homeland Security are experimenting with this approach in the form of CACI International Inc.’s SkyTracker technology, which tries to monitor UAS radio signal activity around sensitive areas and pinpoints an operator's likely location. In most scenarios, this technology is legal to deploy because it is generally passive in nature and does not physically interfere with the flight of the rogue drone or violate Federal Communication Commission (FCC) regulations against jamming or interfering with wireless communications.

In the second scenario, the rogue drone itself is targeted. The most common example of this is use of a projectile, such as a firearm, beanbag gun, or water cannon, to knock the rogue drone out of the sky. In almost all instances, these forms of counter-UAS measures will run afoul of federal laws. For purposes of federal law, UAS are considered “aircraft.” Under 18 U.S.C § 32 - Destruction of aircraft or aircraft facilities - destroying or disabling an aircraft is a federal crime punishable by up to a 20-year prison sentence. Shooting down a rogue drone may also give rise to criminal liability under state laws. Most states have laws that criminalize the intentional destruction of property. For example, in Virginia, intentionally damaging property is a Class 1 misdemeanor or a Class 6 felony depending on the value of the property. There could also be criminal liability under local ordinances criminalizing vandalism, destruction of property, reckless endangerment, or, depending on the location, discharging of a firearm. Moreover, in some states, the owner of a damaged or destroyed unmanned aircraft could potentially have a cause of action for personal property damage. There is also the risk of potential civil liability for personal injury or property damage in the event that someone is injured or property is damaged on account of the counter-UAS activity.

Rather than using methods that physically interfere with the rogue drone, some companies are marketing counter-UAS services or equipment that are designed to target the wireless control links or navigation technology of an unmanned aircraft. This technology generally works by either: (1) creating a virtual “geo-fence” that prevents the unmanned aircraft from flying into certain airspace; or (2) providing a means for a third party to take over control of the unmanned aircraft and fly it to a specific location. The main obstacle to deploying this technology is that federal law makes it illegal to interfere

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23 VA. Code Annot. Sec. 18.2-137(A); 18.2-1347(B).
with wireless communications. Most counter-UAS technology that involves the use of a radio transmitting device to interfere with the UAS’s wireless communications (otherwise known as “jamming”) would be illegal under federal law, and could give rise to civil and criminal liability. For example, using a device to interfere with a UAS’s radio communications, GPS link, Wi-Fi, or Bluetooth connection would be illegal. The FCC defines a “jammer” as a radio frequency transmitter that is “designed to block, jam, or otherwise interfere with authorized radio communications,” by “emitting radio frequency waves that prevent the targeted device from establishing or maintaining a connection.” The FCC considers any effort to market, sell, or use a transmitter designed to block, jam, or interfere with any wireless communications, including the unlicensed Wi-Fi frequency bands, to be a violation of the Communications Act of 1934. To the extent a person interdicts and or “takes over” a rogue drone on its property, it may also constitute a violation of the Federal Wiretap Act, which generally prohibits "intentionally intercept[ing], endeavor[ing] to intercept, or procur[ing] any other person to intercept or endeavor to intercept, any wire, oral, or electronic communication."

With the growth in the drone market, federal policymakers recognize there is a need to further develop counter-UAS technology policy and law, and they are working to do so now. It will be important for the AFPM community to be engaged in the policymaking around these issues.

In the meantime, for now, rather than deploying counter-UAS measures that interfere with or target the rogue drone or its communication/navigation system, facility management should instead legally gather as much data and information as possible that would facilitate a law enforcement or FAA investigation. Arguably, someone flying directly over people and/or sensitive facilities such as an oil refinery without the owner’s/operator’s knowledge or consent may be operating in a hazardous or reckless fashion, which is illegal regardless of whether the UAS operator is a commercial operator or hobbyist. Additionally, as discussed in Section VIII(E) below, several states have passed legislation that make it a criminal offense to operate UAS over certain critical infrastructure facilities. Accordingly, if there is evidence that a rogue drone will fly over your property, or is currently flying there, the first step should be to contact local law enforcement and advise them of the rogue drone.

B. Building a Case Against a Rogue UAS Operator

While federal, state, and local governments have clear authority to enforce the law against rogue UAS operators that fly recklessly or in violation of state law property or privacy rights, in practice regulators and law enforcement agencies have difficulty identifying possible violators. Most of the time, an operator flying illegally will not reveal himself or herself. It is therefore very important to be thorough in gathering evidence in order to build a case against a rogue UAS operator.

While the LEA Guidance referenced above is principally aimed at law enforcement officials investigating suspected illegal UAS flights, the guidance also provides helpful tips for facility owners/operators about how to document suspected rogue UAS flight activity during and after the flight occurrence.

25 47 U.S.C. §§ 301, 302a (b), 333.
Immediately upon noticing a suspected rogue UAS flight, facility owners/operators should legally gather as much data and information as possible that would facilitate a law enforcement investigation, FAA investigation, or potential civil action against the operator. For example, helpful information for enforcement purposes would include:

- Descriptive information about the unmanned aircraft, including whether it is a rotorcraft or fixed wing;
- Registration number or markings (if any);
- Time/date of the flight;
- Duration of flight over facility or property;
- Approximate altitude; and
- Any visible payload.

The next step is to gather as much information as possible relating to each of these points, and to work with local law enforcement to report the issue to the FAA. In particular, the following steps should be taken:

1) **Witness Identification and Interviews.** Identify potential witnesses and conduct initial interviews, documenting what each witness observed while the event is still fresh in their minds. Depending on the circumstances, it may also be a good idea to ask witnesses to provide written statements documenting their observations.

2) **Identification of Operators and the UAS.** As noted above, it is often difficult to identify the UAS operator. In a future civil action against a rogue operator, facility owners/operators will bear the burden of proof for showing who was actually operating the UAS. If possible, you should try to photograph the operator, the unmanned aircraft itself, and any observable registration and/or serial numbers on the aircraft. You should try to record the license plate number of associated motor vehicles if any are spotted.

3) **Viewing and Recording the Location of the Event.** Pictures taken in close proximity to the event are often helpful in describing light and weather conditions, any damage or injuries, and the number and density of people on the surface, particularly in populated areas. During any witness interviews, use of fixed landmarks that may be depicted on maps, diagrams, or photographs help immeasurably in fixing the position of the aircraft. Such landmarks also should be used to describe lateral distances and altitude above the ground, structures or people (e.g., below the third floor of Building X).

4) **Identifying Sensitive Locations, Events, or Activities.** The FAA maintains a variety of security-driven airspace restrictions around the country to help protect sensitive locations, events, and activities through Temporary Flight Restrictions (TFRs), Prohibited Areas, and other mechanisms. UAS operations, including model aircraft hobbyist flights, are generally prohibited within these defined areas of airspace. Commercial UAS operations are prohibited in controlled airspace (anything other than Class G) without air traffic control (“ATC”) airspace authorization. Hobbyist flights are generally prohibited within 5 miles of an airport/heliport absent airport/ATC notification. You should become familiar with airspace restrictions over and around the location of your facility.
5) **FAA Notification.** Immediately report suspected rogue UAS flights to one of the FAA Regional Operation Centers (“ROC”) located around the country. This will allow the FAA to initiate an investigation into the flight activity. FAA ROC contact information is below:

<table>
<thead>
<tr>
<th>LOCATION WHERE ACCIDENT OCCURRED:</th>
<th>TELEPHONE:</th>
</tr>
</thead>
<tbody>
<tr>
<td>DC, DE, MD, NJ, NY, PA, WV, and VA</td>
<td>404-305-5150</td>
</tr>
<tr>
<td>AL, CT, FL, GA, KY, MA, ME, MS, NC, NH, PR, RI, SC, TN, VI, and VT</td>
<td>404-305-5156</td>
</tr>
<tr>
<td>AK, AS, AZ, CA, CO, GU, HI, ID, MP, MT, NV, OR, UT, WA, and WY</td>
<td>425-227-1999</td>
</tr>
<tr>
<td>AR, IA, IL, IN, KS, LA, MI, MN, MO, ND, NE, NM, OH, OK, SD, TX, and WI</td>
<td>817-222-5006</td>
</tr>
</tbody>
</table>

### C. Potential Legal Actions at the Federal Level

Depending on how a UAS is being operated, UAS flying over critical infrastructure facilities, such as refineries and petrochemical sites, may be violating a number of Federal or state laws. It will be important for owners/operators of critical infrastructure facilities to understand these laws so that you know when it is appropriate to initiate contact with local law enforcement and how to best advise them once on the scene.

For purposes of federal law, UAS are considered “aircraft” and are regulated as such. The Federal Aviation Regulations are located in Title 14 of the Code of Federal Regulations (14 CFR). Title 14 CFR § 91.13 prohibits careless or reckless aircraft operations, and is one the most commonly cited regulations in FAA enforcement actions. It states, in part:

§ 91.13 Careless or reckless operation.

(a) Aircraft operations for the purpose of air navigation. No person may operate an aircraft in a careless or reckless manner so as to endanger the life or property of another.

Section 91.13 is a catch-all regulation that commonly serves as the basis for FAA enforcement actions brought against careless or reckless UAS or manned aircraft operators. Arguably, someone flying directly over or close to company employees, vehicles, facilities, and/or structures, without the company’s knowledge or consent, may be operating in a hazardous or reckless fashion, which is illegal regardless of whether the UAS is being operated for commercial or hobbyist/recreational purposes. The same thing could be true for UAS that are operated near or over sensitive facilities and infrastructure. If company personnel observe a UAS flying near or over company property in a manner that could potentially be hazardous to its employees or any company facility, building or infrastructure (whether because of proximity or some other reason), local law enforcement and the applicable FAA Regional Operations Center (see chart above) should be contacted immediately and advised of the unsafe flight operation.
In addition, company personnel interacting with local law enforcement should familiarize themselves with any airspace restrictions surrounding their facilities that would make a UAS flight illegal. These restrictions could provide a basis for law enforcement or FAA enforcement action against the operator of the UAS.

i. **FAA’s New Part 107 and Prohibited or Restricted Areas**

Part 107 prohibits a small UAS from “operating in prohibited or restricted areas unless that person has permission from the using or controlling agency, as appropriate.” It is important to note that prohibited or restricted areas are designated by the FAA under 14 CFR Part 73. In other words, it does not encompass areas deemed restricted or prohibited by private entities, unless that area is also designated as such by the FAA under Part 73. In response to comments made to the proposed small UAS rule, the FAA stated the following in its analysis of Part 107:

Restricted airspace is designated when the FAA determines it is necessary to confine or segregate activities hazardous to nonparticipating aircraft. The FAA does not create special use airspace applicable to only one particular airframe or aircraft type. The public’s right of free transit through the airspace includes the users of unmanned aircraft. Accordingly, the FAA declines commenters’ suggestions to create UAS-specific restricted airspace around certain facilities.

In response to commenters’ concerns that Part 107 did not go far enough in protecting overflights of sensitive buildings and infrastructure, the FAA emphasized that FDC NOTAM 4/0811 advises pilots to avoid airspace above sensitive facilities:

…[T]he FAA acknowledges commenters’ concerns. In response to these concerns, the FAA emphasizes FDC NOTAM 4/0811, which states that “…to the extent practicable, pilots are strongly advised to avoid the airspace above, or in proximity to such sites as power plants (nuclear, hydro-electric, or coal), dams, refineries, industrial complexes, military facilities and other similar facilities. Pilots should not circle as to loiter in the vicinity over these types of facilities.” This NOTAM applies with equal force to pilots of manned and unmanned aircraft.…. [T]he FAA notes that FDC NOTAM 4/0811 is advisory and thus, does not constitute a regulatory prohibition.

Thus, an operator may not hover over critical infrastructure facilities, but there is no blanket rule against flying over such facilities. Moreover, NOTAMs are advisory only, and violation of a NOTAM is not itself an enforceable offense.

Finally, Part 107 does not require operators to obtain consent before flying over private property. Thus, while Part 107 includes several operational requirements that would make it difficult in practice to legally operate over third party property without permission from the owner/controller, and which could provide a basis for an FAA enforcement action if not met, such as the restriction on

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27 81 FR 42147 (June 28, 2016).

28 Id.
flights over people and prohibition on careless or reckless operations, it does not provide explicit protections for property owners against UAS overflight.

D. Potential Legal Actions at the State and Local Level

In addition to FAA enforcement, individual states offer varying levels of protection against misuse of UAS in the form of UAS-specific privacy laws, platform-neutral laws, and common law tort. There are several potential state law causes of action against an individual or entity operating UAS over or near critical infrastructure facilities without permission from the facility owner/operator. Over the past few years, many states, including Arkansas, Florida, Idaho, Indiana, Louisiana, North Carolina, Oregon, Tennessee, Texas, and Wisconsin, have enacted privacy laws that impact commercial and private use of UAS. Several cities and towns have done the same, and most states and cities are considering legislation or ordinances that would restrict UAS flight.

The laws that have been passed take many different forms. For example, Idaho’s law specifically prohibits UAS from photographing or recording an individual for purposes of publicly disseminating the information without the individual’s written consent. Other laws prohibit the use of UAS to record or survey private property. Louisiana’s UAS law, for instance, prohibits the use of UAS to conduct surveillance of certain manufacturing facilities. Importantly, most of these state laws have an exception to the general prohibitions on image capture with a person’s or property owner’s consent.

Additionally, some states have privacy laws that do not explicitly mention UAS but may be broad enough to cover UAS activities. California law, for instance, prohibits the capture of images taken in an offensive manner of an individual engaging in a personal or familial activity. Also, most states have general consumer protection laws that prohibit “unfair” or “deceptive” acts or practices, the enforcement of which theoretically could include UAS activities that violate a person’s privacy expectations. Companies also could pursue a misappropriation of trade secrets claim.

At a high level, refiners and petrochemical manufacturers should consider bringing a private cause of action against a UAS operator in situations where a rogue UAS is flown:

1) At a relatively low altitude over the property and in a way that interferes with the use of the property;

29 Cal. Civ. Code § 1708.8; California Assembly Bill 2306, (2014), available at http://leginfo.ca.gov/pub/13-14/bill/asm/ab_2301-2350/ab_2306_bill_20140930_chaptered.pdf. (A person is liable for constructive invasion of privacy when the person “attempts to capture, in a manner that is offensive to a reasonable person, any type of visual image, sound recording, or other physical impression of the plaintiff engaging in a personal or familial activity under circumstances in which the plaintiff had a reasonable expectation of privacy, through the use of any device, regardless of whether there is a physical trespass, if this image, sound recording, or other physical impression could not have been achieved without a trespass unless the device was used.”).

2) Over or near a property and causes a noise or other disturbance;

3) Over or near a property and captures images of company trade secrets; or

4) Over or near property in a way that intrudes upon a person’s private affairs and that intrusion is highly offensive to a reasonable person (such as peering through a bathroom window).

Also, as discussed above, facility owners/operators should work with law enforcement as appropriate to help prosecute rogue UAS flights over or near its properties.

E. State Laws Protecting Critical Infrastructure Facilities

In general, state specific UAS laws are enforced by state law enforcement or regulatory agencies. AFPM members may wish to work with the state government on these matters by providing video of the flight, information about the operator (or the operator’s employer), and other evidence documenting details of the flight, as previously discussed in Section VII(B).

In addition to state laws protecting against UAS misuse and privacy protections generally, some states have laws that make it a criminal offense to operate UAS over certain critical infrastructure facilities. While barring UAS operation around certain facilities, these statutes often provide exemptions—usually for law enforcement agencies, owners and operators of facilities, and those with the written consent of owners and operators. In some cases, UAS are restricted from going within a certain distance of a facility’s perimeter. In Tennessee, for instance, UAS are prohibited from going within 250 feet of a facility’s external perimeter, regardless of the height. Other states—like Oklahoma, Oregon, and Texas—have made it illegal to operate a UAS above critical facilities at a height of less than 400 feet above the ground. This creates a column of restricted airspace above facilities that ends 400 feet above the ground. However, given that FAA rules generally prohibit UAS operation above 400 feet, the combination creates a de facto no-fly zone over these facilities.

States often vary, however, in how they define critical infrastructure. Oklahoma, Oregon, and Texas have some of the broadest—most inclusive—definitions. Their statutes outline more than a dozen types of infrastructure and facilities, including various types of refineries and power plants; certain components of electric grid; chemical manufacturing plants; many aspects of the natural gas processing and distribution system; and various components of oil and chemical pipelines. Other states have defined critical infrastructure more narrowly. Tennessee, for instance, defines critical infrastructure as one of the following five types of facilities: electric power plants, petroleum refineries, manufacturing facilities that use combustible chemicals, facilities that manufacture chemicals or rubber, and petroleum or chemical storage facilities.

Below is a summary of various UAS-specific state laws that restrict and/or criminalize UAS misuse over critical infrastructure facilities. Note that this list is constantly evolving and changing as states consider and pass legislation.

i. Arkansas

Arkansas codified the offense of “unlawful use of UAS,” which is committed when anyone knowingly uses a UAS to “conduct surveillance of, gather evidence or collect information about, or
photographically or electronically record critical infrastructure without the prior written consent of the owner...” For the purpose of this law, critical infrastructure includes an electrical power generation or delivery system, a petroleum refinery, a chemical or rubber manufacturing facility, or a petroleum or chemical storage facility. The offense is a class B misdemeanor.

AR Code § 5-60-103 (2015)

(a) As used in this section:
   (1) "Critical infrastructure" means:
       (A) An electrical power generation or delivery system;
       (B) A petroleum refinery;
       (C) A chemical or rubber manufacturing facility; or
       (D) A petroleum or chemical storage facility; and
   
   (b) A person commits the offense of unlawful use of an unmanned aircraft system if he or she knowingly uses an unmanned aircraft system to conduct surveillance of, gather evidence or collect information about, or photographically or electronically record critical infrastructure without the prior written consent of the owner of the critical infrastructure.

   ....

   (d) Unlawful use of unmanned aircraft system is:
       (1) A Class B misdemeanor; or
       (2) A Class A misdemeanor for a second or subsequent offense.

ii. Arizona

Arizona made it a class 1 misdemeanor to operate a UAS in violation of a federal law or regulation or to interfere with a law enforcement, firefighter or emergency services operation using UAS. It also made using a UAS to intentionally photograph or loiter over or near a critical facility a class 6 felony. Critical facility is defined to include petroleum production facilities, chemical manufacturing facilities, energy control centers, any railroad infrastructure or facility, courthouses and military installations, among others. The law also clarifies that the definition of aircraft includes UAS for the purpose of the offense of careless or reckless aircraft operation.

AZ Rev. State § 13-3729. Unlawful operation of model or unmanned aircraft; state preemption; classification; definitions

A. It is unlawful for a person to operate a model aircraft or a civil unmanned aircraft if the operation:
   1. Is prohibited by a federal law or regulation that governs aeronautics, including federal aviation administration regulations.
   2. Interferes with a law enforcement, firefighter or emergency services operation.
B. It is unlawful for a person to operate or use an unmanned aircraft or unmanned aircraft system to intentionally photograph or loiter over or near a critical facility in the furtherance of any criminal offense.

   ....

   3. "Critical facility" means any of the following:
(a) A petroleum or alumina refinery.
(b) A petroleum, chemical or rubber production, transportation, storage or processing facility.
(c) A chemical manufacturing facility.

iii. Delaware

Delaware recently passed House Bill No. 195 which makes it a criminal offense to operate a UAS over a critical infrastructure facility without written permission from the property owner/occupier. The Bill’s definition of “critical infrastructure” includes petroleum refineries, petroleum storage facilities, chemical storage facilities, chemical manufacturing facilities, fuel storage facilities, electric substations, power plants, electric generation facilities, military facilities, commercial port and harbor facilities, rail yard facilities, drinking water treatment or storage facilities, correctional facilities, government buildings, and public safety buildings or facilities.

iv. Louisiana

Louisiana created the crime of unlawful use of a UAS, defined as the intentional use of a UAS to conduct surveillance of a targeted facility without the owner’s prior written consent. Targeted facilities include petroleum and other refineries, chemical and rubber manufacturing facilities, and nuclear power electric generation facilities. The crime is punishable by a fine of up to $500 and imprisonment for six months. A second offense can be punished by a fine of up to $1,000 and one year imprisonment.

LA Rev Stat § 14:337 Unlawful use of an unmanned aircraft system

A. Unlawful use of an unmanned aircraft system is the intentional use of an unmanned aircraft system to conduct surveillance of, gather evidence or collect information about, or photographically or electronically record a targeted facility without the prior written consent of the owner of the targeted facility.
B. As used in this Section, the following definitions shall apply:

(3) "Targeted facility" means the following systems:
(a) Petroleum and alumina refineries.
(b) Chemical and rubber manufacturing facilities.

v. Nevada

Under Nevada law, anyone who operates a UAS within a horizontal distance of 500 feet or a vertical distance of 250 feet from a “critical facility” without the written consent of the owner of the critical facility is guilty of a misdemeanor. The law’s definition of a “critical facility” includes petroleum refineries and petroleum or chemical production facilities, among others. Nev. Rev. Statute 493.109
vi. Oklahoma

Oklahoma recently passed a law making it a criminal offense to: (1) operate a UAS over a critical infrastructure facility at an altitude below 400 feet above ground level; (2) allow a UAS to make contact with a critical infrastructure facility, including any person or object on the premises of or within the facility; or (3) allow a UAS to come within a distance of a critical infrastructure facility that is close enough to interfere with the operations of or cause a disturbance to the facility. See Oklahoma House Bill 2599 - Unmanned aircraft; prohibiting operation of an unmanned aircraft over a critical infrastructure facility; effective date. The Oklahoma statute’s definition of a “critical infrastructure facility” includes, among others, petroleum refineries and chemical manufacturing facilities.

vii. Oregon

In 2016, Oregon passed a law making it a class A violation to operate UAS over critical infrastructure. Critical infrastructure is defined to include petroleum and alumina refineries; electrical power facilities; and chemical, polymer, and rubber manufacturing facilities, among others. Oregon also has a statute providing a private cause of action by property owners against the operator of a UAS in circumstances where the property owner has previously warned the operator not to fly over the property. OR Rev. Stat. § 837.380 (2015)

viii. Tennessee

In 2016, Tennessee passed a law making it a criminal offense to operate a UAS within 250 feet of a critical infrastructure facility for the purpose of conducting surveillance or gathering information about the facility without the owner or business operator’s written consent:


(a) Subject to the exceptions set forth in § 39-13-902(a), a person commits an offense if the person:

... 

(6)(A) Without the owner or business operator’s written consent, knowingly uses an unmanned aircraft within two hundred and fifty feet (250) of the perimeter of any critical infrastructure facility for the purpose of conducting surveillance of, gathering evidence or collecting information about, or photographically or electronically recording critical infrastructure data.

(B) As used in this subdivision, "critical infrastructure facility" means:

(i) An electrical power generation system;
(ii) A petroleum refinery;
(iii) A manufacturing facility that utilizes any combustible chemicals either in storage or in the process of manufacturing;
(iv) A chemical or rubber manufacturing facility; or
(v) A petroleum or chemical storage facility.
ix. Texas

Texas has particularly strong state laws in terms of pursuing civil and/or criminal penalties against rogue UAS flights. Texas state law also provides a private cause of action. Depending on the exact nature of the flight and the intent of the individual operating the UAS, the following sections of the Texas Government Code (Tex. Gov't Code Ann.) could provide a basis for pursuing an action against a UAS operator flying near or over your facility’s property:

§ 423.003. OFFENSE: ILLEGAL USE OF UNMANNED AIRCRAFT TO CAPTURE IMAGE.

(a) A person commits an offense if the person uses an unmanned aircraft to capture an image of an individual or privately owned real property in this state with the intent to conduct surveillance on the individual or property captured in the image.
(b) An offense under this section is a Class C misdemeanor.
(c) It is a defense to prosecution under this section that the person destroyed the image:
   (1) as soon as the person had knowledge that the image was captured in violation of this section; and
   (2) without disclosing, displaying, or distributing the image to a third party.

§ 423.004. OFFENSE: POSSESSION, DISCLOSURE, DISPLAY, DISTRIBUTION, OR USE OF IMAGE.

(a) A person commits an offense if the person:
   (1) captures an image in violation of Section 423.003; and
   (2) possesses, discloses, displays, distributes, or otherwise uses that image.
(b) An offense under this section for the possession of an image is a Class C misdemeanor. An offense under this section for the disclosure, display, distribution, or other use of an image is a Class B misdemeanor.
(c) Each image a person possesses, discloses, displays, distributes, or otherwise uses in violation of this section is a separate offense.

Sec. 423.0045. OFFENSE: OPERATION OF UNMANNED AIRCRAFT OVER CRITICAL INFRASTRUCTURE FACILITY.

(a) In this section:
   (1) "Critical infrastructure facility" means:
      (A) one of the following, if completely enclosed by a fence or other physical barrier that is obviously designed to exclude intruders, or if clearly marked with a sign or signs that are posted on the property, are reasonably likely to come to the attention of intruders, and indicate that entry is forbidden:
         (i) a petroleum or alumina refinery;
         (ii) an electrical power generating facility, substation, switching station, or electrical control center;
         (iii) a chemical, polymer, or rubber manufacturing facility;
         (iv) a water intake structure, water treatment facility, wastewater treatment plant, or pump station;
         (v) a natural gas compressor station;
         (vi) a liquid natural gas terminal or storage facility;
         (vii) a telecommunications central switching office;
(viii) a port, railroad switching yard, trucking terminal, or other freight transportation facility;
(ix) a gas processing plant, including a plant used in the processing, treatment, or fractionation of natural gas;
(x) a transmission facility used by a federally licensed radio or television station;
(xi) a steelmaking facility that uses an electric arc furnace to make steel; or
(xii) a dam that is classified as a high hazard by the Texas Commission on Environmental Quality; or
(B) any portion of an aboveground oil, gas, or chemical pipeline that is enclosed by a fence or other physical barrier that is obviously designed to exclude intruders.

(b) A person commits an offense if the person intentionally or knowingly:
(1) operates an unmanned aircraft over a critical infrastructure facility and the unmanned aircraft is not higher than 400 feet above ground level;
(2) allows an unmanned aircraft to make contact with a critical infrastructure facility, including any person or object on the premises of or within the facility; or
(3) allows an unmanned aircraft to come within a distance of a critical infrastructure facility that is close enough to interfere with the operations of or cause a disturbance to the facility.

(d) An offense under this section is a Class B misdemeanor, except that the offense is a Class A misdemeanor if the actor has previously been convicted under this section.

§ 423.006. CIVIL ACTION.

(a) An owner or tenant of privately owned real property located in this state may bring against a person who, in violation of Section 423.003, captured an image of the property or the owner or tenant while on the property an action to:
(1) enjoin a violation or imminent violation of Section 423.003 or 423.004;
(2) recover a civil penalty of:
(A) $5,000 for all images captured in a single episode in violation of Section 423.003; or
(B) $10,000 for disclosure, display, distribution, or other use of any images captured in a single episode in violation of Section 423.004; or
(3) recover actual damages if the person who captured the image in violation of Section 423.003 discloses, displays, or distributes the image with malice.

(d) In addition to any civil penalties authorized under this section, the court shall award court costs and reasonable attorney's fees to the prevailing party.

F. State Common Law Actions Against Rogue UAS Operators

In addition to statutory restrictions, there are common law privacy rules that may protect against certain misuse of UAS. For instance, a person is subject to liability for the tort of intrusion upon seclusion, if the person “intentionally intrudes...upon the solitude or seclusion of another or his private affairs or concerns...if the intrusion would be highly offensive to a reasonable person.”31 In the context of UAS, an individual could claim that aerial images of his or her property captured private details and intruded on his or her seclusion. However, the requirement that the intrusion be “highly offensive to a reasonable person” can be a difficult standard to meet, and courts have rejected the

31 RESTATEMENT (SECOND) OF TORTS § 652B.
claim that simply looking at another’s property is sufficiently invasive of privacy to meet the standard.\textsuperscript{32}

Below is a brief summary of some of the relevant common law rules that may protect against certain misuse of UAS:

- **Trespass**: A number of states have enacted laws that prohibit the use of drones over private property without the consent of the owner. In some cases, the property owner may have a private cause of action to sue the UAS operator for trespass, and in other cases, the state might prosecute the operator for use of a UAS in contravention of state law. Under the Restatement of Torts, flights constitute a trespass if (a) the aircraft enters the immediate reaches of the airspace next to the land, and (b) it interferes substantially with the other’s use and enjoyment of the land.

- **Nuisance**: Relatedly, a property owner can invoke nuisance doctrine to prohibit unwanted UAS. A nuisance is “an activity which arises from unreasonable, unwarranted or unlawful use by a person of his own property, working obstruction or injury to the right of another, or to the public, and producing such material annoyance, inconvenience and discomfort that law will presume resulting damage.” Theoretically, a plaintiff could argue that the use of UAS interferes with his or her normal occupancy of the land by creating noise or flying low enough to create a safety or privacy risk. Depending upon the size of a UAS, consistent use of it over one’s own property could make enough noise to disturb neighboring property owners in the quiet enjoyment of their own property, possibly resulting in a potential lawsuit for nuisance. Similarly, a powerful UAS could kick up enough dust and dirt, and blow it over to a neighbor’s property. If this occurs regularly, it may potentially interfere with the neighbor’s use of his or her property to the point where the neighbor sues to stop the intrusion.

- **Privacy**: Some states have passed laws or may soon do so that prohibit photography or recording by UAS. Where an individual has a reasonable expectation of privacy (for example, inside a home), a UAS operator that invades that privacy and publishes the result may be subject to a lawsuit for the invasion under state law.

- **Stalking and Harassment**: Traditional crimes such as stalking, harassment, voyeurism, and wiretapping may all be committed through the operation of a UAS.

- **Reckless Endangerment**: Some states may have the crime of reckless endangerment, which could be applied to the operation of a UAS under certain circumstances. Under a reckless endangerment scenario, the UAS operator could be charged if he or she operates the UAS in such a manner so as to put him/her or third parties at risk of injury, or has actually caused injury to third parties.

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\textsuperscript{32} See, e.g., *GTE Mobilnet of S. Texas Ltd. P’ship v. Pascouet*, 61 S.W.3d 599, 618 (Tex.App. 2001) (finding that “the mere fact that maintenance workers...look[ed] over into the adjoining yard is legally insufficient evidence of highly offensive conduct.”).
G. Federal Preemption of State and Local UAS Laws

In discussing state laws protecting privacy and restricting UAS use, it is important to understand the overall scope of permissible UAS regulation at the state and local level. As previously noted, the FAA’s safety authority preempts any state or local government regulation of aircraft operations. The FAA recently released new guidance in its State and Local Regulation of UAS Fact Sheet for state and local government authorities as they increasingly seek to regulate UAS.

In response to a flurry of local and state UAS policy proposals, the FAA clarified that the FAA maintains regulatory authority over matters pertaining to aviation safety.

This has broad implications for what states and localities are trying to do. Across the country, states and cities are attempting to impose their own registration and operational requirements for UAS—but these may in fact be preempted. For example, the FAA declared that federal registration is the exclusive means for registering UAS for purposes of operating an aircraft in navigable airspace. Therefore, no state or local government may impose additional registration requirements on UAS operating in navigable airspace without first obtaining FAA approval. State lawmakers seeking to mandate equipment or training for UAS, such as geo-fencing, would likely find such state laws to be preempted.

However, the FAA also stated that laws traditionally related to state and local police power—including land use, zoning, privacy, trespass, and law enforcement operations—generally are not subject to federal preemption. Therefore, the FAA acknowledged that it is within local and state government purview to require their police to obtain a warrant prior to using a UAS for surveillance, or specify that UAS may not be used for voyeurism.

The Senate version of the proposed FAA reauthorization bill also contains strong federal preemption language for state and local laws relating to the design, manufacture, testing, licensing, registration, certification, operation, or maintenance of a UAS, including airspace, altitude, flight paths, equipment or technology requirements, purpose of operations, and pilot, operator, and observer qualifications, training, and certification. Consistent with powers historically granted to state and local governments, the Senate’s proposed FAA reauthorization bill states that laws (including common law causes of action) relating to nuisance, voyeurism, harassment, reckless endangerment, wrongful death, personal injury, property damage, or other illegal acts arising from the use of UAS would not be preempted if they are not specifically related to the use of a UAS.

IX. RECENT CONGRESSIONAL ACTIVITY

A. FAA Extension

A full FAA reauthorization bill was not passed last year due to controversy about unrelated aviation issues. Instead, in July 2016, Congress passed and the President signed into law an extension of FAA programs and authorities (H.R.636 – FAA Extension, Safety, and Security Act of 2016 – the “Act”). Included in this Act are provisions that impact the ability of a critical infrastructure owner to protect, inspect, and maintain that infrastructure using UAS.
Specifically, the Act requires the expedited development of procedures for processing, on an emergency basis, exemptions, certificates of authorization or waivers for the use of UAS by civil or public operators in response to a catastrophe, disaster, or other emergency to facilitate emergency response operations, such as firefighting, search and rescue, and utility and infrastructure restoration efforts.

In addition, the Act directs the Secretary of Transportation to establish a process to allow critical infrastructure owners and operators to petition the FAA Administrator to prohibit or restrict the operation of an unmanned aircraft in close proximity to a fixed site facility. This provision was originally offered as part of the Senate’s version of the FAA Reauthorization bill. Appropriate applicants include operators and proprietors of critical infrastructure, such as energy production, transmission, and distribution facilities and equipment, oil refineries and chemical facilities, amusement parks, and other locations that warrant such restrictions. In making such determinations, the FAA Administrator is to consider aviation safety, protection of persons and property on the ground, national security, and homeland security issues. This provision may prove valuable to AFPM members seeking to ensure that rogue UAS are not flying above or near their facilities.

Finally, and while certain aspects of this may be redundant given Part 107, the Act provides for expanded operations, including beyond the visual line of sight during both day or at night, when such operations are associated with certain critical infrastructure. For purposes of this section, critical infrastructure includes, among others, pipelines and oil or gas production, refining, or processing facilities. It eases some of the regulatory challenges for natural gas and oil pipelines, as well as other critical infrastructure owners and operators, and it authorizes critical infrastructure operators to use UAS to conduct any activity already permissible with manned aircraft. This provision was originally introduced by Senator Jim Inhofe (R-Okla.) as a standalone bill titled, UAVs for Energy Infrastructure Act (S.2684). The language of section 2210 is as follows:

SEC. 2210. OPERATIONS ASSOCIATED WITH CRITICAL INFRASTRUCTURE.

(a) In General.—Any application process established under section 333 of the FAA Modernization and Reform Act of 2012 (49 U.S.C. 40101 note) shall allow for a person to apply to the Administrator of the Federal Aviation Administration to operate an unmanned aircraft system, for purposes of conducting an activity described in subsection (b)—

(1) beyond the visual line of sight of the individual operating the unmanned aircraft system; and

(2) during the day or at night.

(b) Activities Described.—The activities described in this subsection are—

(1) activities for which manned aircraft may be used to comply with Federal, State, or local laws, including—

(A) activities to ensure compliance with Federal or State regulatory, permit, or other requirements, including to conduct surveys associated with applications for permits for new pipeline or pipeline systems construction or maintenance or rehabilitation of existing pipelines or pipeline systems; and

(B) activities relating to ensuring compliance with—

(i) parts 192 and 195 of title 49, Code of Federal Regulations; and
(ii) the requirements of any Federal, State, or local governmental or regulatory body, or industry best practice, pertaining to the construction, ownership, operation, maintenance, repair, or replacement of covered facilities;

(2) activities to inspect, repair, construct, maintain, or protect covered facilities, including for the purpose of responding to a pipeline, pipeline system, or electric energy infrastructure incident; and

(3) activities in response to or in preparation for a natural disaster, manmade disaster, severe weather event, or other incident beyond the control of the applicant that may cause material damage to a covered facility.

(c) Definitions.--In this section, the following definitions apply:

(1) Covered facility.--The term "covered facility" means—

(A) a pipeline or pipeline system;

(B) an electric energy generation, transmission, or distribution facility (including a renewable electric energy facility);

(C) an oil or gas production, refining, or processing facility; or

(D) any other critical infrastructure facility.

(2) Critical infrastructure.--The term "critical infrastructure" has the meaning given that term in section 2339D of title 18, United States Code.

(d) Deadlines.—

(1) Certification to congress.--Not later than 90 days after the date of enactment of this Act, the Administrator shall submit to the appropriate committees of Congress a certification that a process has been established to facilitate applications for unmanned aircraft systems operations described in this section.

(2) Failure to meet certification deadline.--If the Administrator cannot provide a certification under paragraph (1), the Administrator, not later than 180 days after the deadline specified in paragraph (1), shall update the process under section 333 of the FAA Modernization and Reform Act of 2012 (49 U.S.C. 40101 note) to facilitate applications for unmanned aircraft systems operations described in this section.

(e) Exemptions.--In addition to the operations described in this section, the Administrator may authorize, exempt, or otherwise allow other unmanned aircraft systems operations under section 333 of the FAA Modernization and Reform Act of 2012 (49 U.S.C. 40101 note) that are conducted beyond the visual line of sight of the individual operating the unmanned aircraft system or during the day or at night.

B. FAA Reauthorization – Proposed Provisions that would Affect Oil Refineries and Chemical Facilities

On February 3, 2016, Congressman Bill Shuster and Members of the Transportation and Infrastructure Committee introduced the FAA Reauthorization Bill. Officially called the Aviation Innovation, Reform, and Reauthorization (AIRR) Act, the bill was a six-year reauthorization of the FAA and included a number of proposals that would impact FAA regulation of UAS. As noted above the bill was considered by the House Transportation and Infrastructure Committee, but ultimately was not considered on the House floor. During the Committee’s consideration of the bill, several key UAS amendments were added, including one amendment that would place new restrictions on the
operation of UAS over and near certain chemical facilities and oil refineries. Although these provisions were not enacted into law, it is likely that they will be offered again as the Congress works in 2017 to enact a long-term FAA Reauthorization Bill.

In relevant part, the provision reads as follows:

§ 45509. Chemical facilities and oil refineries

(a) REGULATIONS.—Not later than 6 months after the date of enactment of this section, the Administrator of the Federal Aviation Administration shall issue final regulations concerning the operation of small unmanned aircraft systems in the proximity of chemical facilities and oil refineries.

(b) CONTENTS.—In issuing the regulations, the Administrator shall—

(1) determine, in consultation with the heads of other government agencies that have relevant security information, which chemical facilities and oil refineries will be subject to the regulations;

(2) ensure that the chemical facilities and oil refineries that are subject to the regulations include facilities subject to other security-related laws, unless the Administrator specifically excludes a facility and provides a justification for the exclusion;

(3) establish boundaries for permissible unmanned aircraft operation, both for proximity to and distance above chemical facilities and oil refineries;

(4) ensure that the regulations permit owners and operators of chemical facilities and oil refineries to operate small unmanned aircraft on or around the facilities and refineries for business or site operational purposes; and

(5) ensure that the regulations establish civil and criminal penalties for individuals and entities that violate the regulations.

(c) CHEMICAL FACILITIES AND OIL REFINERIES DEFINED.—In this section, the term ‘chemical facilities and oil refineries’ means—

(1) the facilities regulated pursuant to title XXI of the Homeland Security Act of 2002 (6 U.S.C. 621 et seq.); and

(2) the facilities regulated under the Maritime Transportation Security Act of 2002 (Public Law 107–295; 116 Stat. 2064).

If enacted into law, this amendment would benefit AFPM members by directing the FAA to establish new restrictions for operating UAS over, and within certain proximities to, chemical facilities and oil refineries. Unlike NOTAM 4/0811 for sensitive facilities referenced above, which is advisory in nature, the proposed amendment would establish civil and criminal penalties for individuals who violate
restrictions on operating UAS over and within certain proximities of chemical facilities and oil refineries. Additionally, the amendment contains a carve-out to allow certain UAS activity by facility owners; as drafted, it would require the FAA to ensure that the restrictions adopted by the FAA still permit facility owners to operate UAS “on or around the facilities and refineries for business or site operational purposes.”

X. FEDERAL GOVERNMENT AND UAS PRIVACY

On a federal government level, the FAA regulates the safety and operations of the National Airspace – but it does not regulate privacy. To fill this gap, the White House requested the National Telecommunications and Information Administration (NTIA) at the Department of Commerce to convene stakeholders to draft a set of voluntary best practices for UAS operators to follow when privacy concerns may be implicated. In May 2016, stakeholders agreed on a set of best practices, which include a recommendation that UAS operators make a reasonable effort to minimize UAS operations over or within private property without the consent of the property owner. However, the best practices provide an exception for flying over private property without consent when the UAS operator has the “appropriate legal authority” to do so. Given the arguments surrounding what “appropriate legal authority” could entail, and the fact that the best practices are voluntary guidelines, we do not expect the industry best practices document to be a significant deterrent to unauthorized operations over critical infrastructure facilities. However, the best practices can be pointed to in court or otherwise in the course of a dispute as setting a consensus baseline, in terms of privacy, for not operating over or within private property without consent.
Appendix A: FAA UAS Guidance Material Index

1. Airman Knowledge Testing Center List
3. AC 91-57A – Model Aircraft Operating Standards
4. Advisory Circular (AC) 107-2 - Small UAS
6. FAA Fact Sheet on State and Local Regulation of UAS
7. FAA Fact Sheet on UAS (March, 2015)
8. FAA Interim Operational Approval Guidance 08-01, UAS Operations in the National Airspace System (NAS) (March 13, 2008)
10. FAA Law Enforcement Reference Card for Suspected Unauthorized UAS Operations
11. FAA Office of Chief Counsel Legal Interpretation Re Operation of UAS as Public Aircraft for Educational Purposes
12. FAA Letter to COA Holders Regarding UAS Registration
13. FAA Order 8900.1 – UAS Surveillance/Compliance and Enforcement
14. FAA Order N JO 7210.891 – Unmanned Aircraft Operations in the NAS
15. FAA Pilot Handbook, Chapter 14 – Airspace
16. Part 107 (full version)
17. Huerta (FAA) v. Pirker
18. Grant of Exemption to Astraeus Aerial (No. 11062)
19. FAA Office of Chief Counsel Legal Interpretation Regarding Media Use of UAS
20. New UAS Registration Interim Final Rule
21. Sporting Events Special Security NOTAM
22. Notice 8900.313 – Education, Compliance, and Enforcement of Unauthorized UAS Operators

23. Notice JO 7210.891 – Unmanned Aircraft Operations in the NAS

24. NAMIC Report – A Compendium of State Laws and Proposed Legislation Related to UAS

25. NTIA - State Laws Addressing Use Cases Presented in UAS

26. Voluntary Best Practices for UAS Privacy, Transparency, and Accountability

27. Proposed FAA Reauthorization Bill – UAS Provisions Extract

28. Instructions for Registering UAS to LLC

29. Remote Pilot Exam Sample Questions

30. Remote Pilot Knowledge Test Guide

31. Remote Pilot Small UAS Study Guide

32. Remote Pilot Small UAS Airman Certification Standards

33. Section 333 of the FAA Modernization and Reform Act of 2012

34. Small UAS NPRM (full version)

35. Standard Conditions and Limitations in a Section 333 Grant of Exemption

36. Summary of Small UAS Rule (Part 107)

37. Waiver and Airspace Authorization Application Instructions

38. Waiver Performance-Based Standards