

Group   C  

FOIA/PA NO:   2015-0112  

## RECORDS BEING RELEASED IN PART

The following types of information are being withheld:

- Ex. 1: ☐ Records properly classified pursuant to Executive Order 13526
- Ex. 2: ☐ Records regarding personnel rules and/or human capital administration
- Ex. 3: ☐ Information about the design, manufacture, or utilization of nuclear weapons  
☐ Information about the protection or security of reactors and nuclear materials  
☐ Contractor proposals not incorporated into a final contract with the NRC  
☐ Other \_\_\_\_\_
- Ex. 4: ☐ Proprietary information provided by a submitter to the NRC  
☐ Other \_\_\_\_\_
- Ex. 5: ☒ Draft documents or other pre-decisional deliberative documents (D.P. Privilege)  
☐ Records prepared by counsel in anticipation of litigation (A.W.P. Privilege)  
☐ Privileged communications between counsel and a client (A.C. Privilege)  
☐ Other \_\_\_\_\_
- Ex. 6: ☒ Agency employee PII, including SSN, contact information, birthdates, etc.  
☐ Third party PII, including names, phone numbers, or other personal information
- Ex. 7(A): ☐ Copies of ongoing investigation case files, exhibits, notes, ROI's, etc.  
☐ Records that reference or are related to a separate ongoing investigation(s)
- Ex. 7(C): ☐ Special Agent or other law enforcement PII  
☐ PII of third parties referenced in records compiled for law enforcement purposes
- Ex. 7(D): ☐ Witnesses' and Allegers' PII in law enforcement records  
☐ Confidential Informant or law enforcement information provided by other entity
- Ex. 7(E): ☒ Law Enforcement Technique/Procedure used for criminal investigations  
☐ Technique or procedure used for security or prevention of criminal activity
- Ex. 7(F): ☒ Information that could aid a terrorist or compromise security

Other/Comments: \_\_\_\_\_  
\_\_\_\_\_

**Klukan, Brett**

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**From:** Klukan, Brett  
**Sent:** Thursday, October 30, 2014 10:52 AM  
**To:** Safford, Carrie; StAmour, Norman  
**Subject:** Drone Flyovers at Nuclear Power Plants

Carrie & Norm,

To set the scene a little bit: I've been asked to speak, as RI's regional counsel, at an upcoming NEI Lawyer meeting in Philly. Generally, I think, the purpose is just for me to introduce myself and to highlight some interesting legal issues / problems.

While I plan to discuss the deliberate ignorance rulemaking, I was also thinking about bringing up the topic of video drone use by journalists / activists. While this hasn't occurred at any nuclear power plants (yet), it has been used by environmental advocates to document industrial agricultural operations. The question I would pose to the group is what (if any) actions should be taken in response to a low-flying video drone over a licensee site. I don't have an answer to this question—I just want to throw the issue out there as something that I think will need to be addressed at some point.

I just wanted to make sure that the agency isn't already in the process of addressing that question now.

Thanks.

Cheers,  
Brett Klukan  
RI Regional Counsel  
(610)-337-5301

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~~This email may contain communications protected by the attorney-client privilege or the attorney work-product doctrine. In addition, this e-mail may contain proprietary, sensitive or other protected information. Please treat accordingly. Do not publicly disclose without proper authorization.~~

**McDermott, Brian**

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**From:** McDermott, Brian  
**Sent:** Tuesday, September 09, 2014 3:19 PM  
**To:** Layton, Michael; Lui, Christiana  
**Cc:** Pretzello, Andrew; Holahan, Patricia; Hahn, Matthew; Masse, Todd  
**Subject:** RE: Drone Overflights

Perhaps worth a mention at next NSWG...simply that we are getting some reports and a pointer to the applicable guidance?

**From:** Masse, Todd  
**Sent:** Thursday, August 21, 2014 3:41 PM  
**To:** McDermott, Brian  
**Cc:** Layton, Michael; Pretzello, Andrew; Holahan, Patricia; Hahn, Matthew  
**Subject:** Drone Overflights

Hi Brian,

We've looked over some of our historical Information Assessment Team Advisories and

(b)(5)

Best,  
Todd

Todd Masse  
Chief, Intelligence Liaison and Threat Assessment Branch  
Office of Nuclear Security and Incident Response  
Nuclear Regulatory Commission

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(301) 492-3933

**McDermott, Brian**

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**From:** McDermott, Brian  
**Sent:** Thursday, August 21, 2014 4:41 PM  
**To:** Masse, Todd  
**Cc:** Layton, Michael; Pretzello, Andrew; Holahan, Patricia; Hahn, Matthew  
**Subject:** Re: Drone Overflights

Since this is already published guidance, can we put something out on PWS indicating the applicability to suspected drone based surveillance? Not sure licensees will make the connection but doesn't seem like enough to issue something more. Thoughts?

Brian J. McDermott  
Deputy Director, NSIR

301.287.3734 office  
(b)(6) mobile

Message sent from NRC BlackBerry.

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**From:** Masse, Todd  
**Sent:** Thursday, August 21, 2014 03:40 PM  
**To:** McDermott, Brian  
**Cc:** Layton, Michael; Pretzello, Andrew; Holahan, Patricia; Hahn, Matthew  
**Subject:** Drone Overflights

Hi Brian,

We've looked over some of our historical Information Assessment Team Advisories and

(b)(5)

- NRC Headquarters Operations Center at 301-816-5100.

Best,  
Todd

Todd Masse  
Chief, Intelligence Liaison and Threat Assessment Branch  
Office of Nuclear Security and Incident Response  
Nuclear Regulatory Commission  
(301) 492-3933

**McDermott, Brian**

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**From:** McDermott, Brian  
**Sent:** Friday, November 07, 2014 3:29 PM  
**To:** Johnson, Michael; Wiggins, Jim  
**Cc:** Peduzzi, Francis; Layton, Michael  
**Subject:** OOU - Drone News clips and SID Report (OOU)

OOU SID report at bottom of page

**Three Men With Drone Arrested Near French Nuclear Plant.** The AP (11/5) reports, "Three men in their 20s have been arrested in possession of a drone near a French nuclear reactor, the first such arrests since a spate of mysterious drone overflights of reactors began in early October." Security concerns have been raised since the drone sightings began. The "National Gendarmerie said the men were being questioned after being found with a drone Wednesday afternoon near the Belleville-sur-Loire reactor in the Cher region south of Paris." The drones that "overflow nuclear plants ranged from very small to one spanning two meters (six feet)."

Reuters (11/6) reports that the people arrested included a man and two women.

**Lochbaum: Mystery Drones Over French Nuclear Plants A Cause For Concern.** Bloomberg News (11/4, Patel, 1.94M) reports, "A series of mysterious drone flights over French nuclear reactors recently is exposing a security threat that has authorities scrambling." With more than a dozen sightings of small unmanned aircraft so far, "including one this week," French officials are at a loss to explain the incursions. David Lochbaum of the Union of Concerned Scientists said "Drones can undermine the defenses used to protect nuclear plants from sabotage," and added, "They can aid an attack by damaging power supplies and communications networks that shorten the list of damage that ground attackers must complete." While Lochbaum "doesn't consider drones in themselves a 'clear and present danger' to the plants, he says they are an 'emerging technology and need to be factored as expeditiously as possible into security measures to protect nuclear plants.'"

Lochbaum's quote:

"Drones can undermine the defenses used to protect nuclear plants from sabotage," Dave Lochbaum, director of the nuclear safety project at the **Union of Concerned Scientists**, a Cambridge, Massachusetts-based advocacy group, said by e-mail. "They can aid an attack by damaging power supplies and communications networks that shorten the list of damage that ground attackers must complete."

(b)(7)(E)

(b)(7)(C),(b)(7)(E)



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**McDermott, Brian**

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**From:** McDermott, Brian  
**Sent:** Friday, November 07, 2014 1:31 PM  
**To:** Wiggins, Jim; Johnson, Michael  
**Cc:** Peduzzi, Francis; Layton, Michael  
**Subject:** QUERY: Updated IAT Advisory on Reporting Suspicious Overflights  
**Attachments:** MD 141107 Update Suspicious Flight Activity FINAL DRAFT v6 (ILTAB).doc

NRC issued Information Assessment Team (IAT) Advisories on how to report suspicious flight activities near licensed facilities in 2005 and 2006. Due to recent international events, and increasing domestic media coverage reported by OPA, the staff believes it would be prudent to update the reporting guidance. (b)(5)

(b)(5)



Please let me know if you have objections to this approach.

Brian









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**McDermott, Brian**

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**From:** Masse, Todd  
**Sent:** Friday, November 07, 2014 9:42 AM  
**To:** McDermott, Brian  
**Cc:** Johnson, Daryl  
**Subject:** HAND DELIVERED FINAL VERSION  
**Attachments:** MD 141107 Update Suspicious Flight Activity FINAL DRAFT v6 (ILTAB).doc

Brian – e-copy of what I just delivered to you.

Thanks,  
Todd

~~Official Use Only - Security-Related Information~~



December 8, 2006

INFORMATION ASSESSMENT TEAM ADVISORY FOR POWER REACTORS,  
DECOMMISSIONING REACTORS, NONPOWER REACTORS, CATEGORY I FUEL  
FACILITIES, GASEOUS DIFFUSION PLANTS, INDEPENDENT SPENT FUEL  
STORAGE INSTALLATIONS AND CONVERSION FACILITY

IA-06-05

SUBJECT: Updated Suspicious Flight Activity Reporting Procedures

(b)(7)(E),(b)(7)(F)

~~Official Use Only - Security-Related Information~~

~~Official Use Only - Security-Related Information~~

(b)(7)(E),(b)(7)(F)

Approved by           /RA/          

William F. Kane  
Deputy Executive Director for Reactor  
And Preparedness Programs  
Office of the Executive Director

~~Official Use Only - Security-Related Information~~



~~Official Use Only - Security-Related Information~~



December 8, 2006

INFORMATION ASSESSMENT TEAM ADVISORY FOR POWER REACTORS,  
DECOMMISSIONING REACTORS, NONPOWER REACTORS, CATEGORY I FUEL  
FACILITIES, GASEOUS DIFFUSION PLANTS, INDEPENDENT SPENT FUEL  
STORAGE INSTALLATIONS AND CONVERSION FACILITY

IA-06-05

SUBJECT: Updated Suspicious Flight Activity Reporting Procedures

*The OFFICIAL USE ONLY (OUO) designation applies to unclassified oral and/or written information authorized to be withheld from public disclosure under provisions of the Freedom of Information Act and/or Privacy Act. The licensee shall furnish OUO information only to those persons who need the information in the conduct of official business.*

(b)(7)(E),(b)(7)(F)

~~Official Use Only - Security-Related Information~~

~~Official Use Only - Security-Related Information~~

(b)(4),(b)(7)(E),(b)(7)(F)

Approved by IRA/

William F. Kane  
Deputy Executive Director for Reactor  
And Preparedness Programs  
Office of the Executive Director

~~Official Use Only - Security-Related Information~~

(b)(7)(C),(b)(7)(E)

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(b)(7)(C),(b)(7)(E)

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# **UK: David Cameron pledges £1.1 billion for defence to fight cyber terrorists**

The Telegraph, 2014-07-14

The Armed Forces must adapt to deal with "unseen enemies", David Cameron says as he announces a £1.1 billion investment in the military to tackle new threats to national security.

The Prime Minister will say that spending on "intelligence and surveillance" equipment, such as drones, is a "national necessity".

Mr Cameron, writing in The Telegraph, warns that Britain faces changing threats in the form of global terrorism and unseen cyber criminals who can target the country from abroad.

We "cannot defend the realm from the white cliffs of Dover", he writes.

The new military funding package, to be outlined when the Prime Minister visits the Farnborough International Air Show, includes an extra £800 million investment in an intelligence, surveillance, target acquisition and reconnaissance package.

It will boost the special forces' ability to deal with the threat of global terrorism and hostage taking, Downing Street says. A further £300 million will be used for existing programmes, including next generation radars for Typhoon jets. The country will not be left safer if the Government "retreated" from the world by reducing our military capabilities, Mr Cameron says.

Britain's military must be enhanced to defend against the threat of terrorist attacks as well as the potential for extra immigration if "fragile and lawless states fracture", Mr Cameron warns. "Today's investment demonstrates our approach to national security.

"There are those who believe we would be safer if we fundamentally retreated from the world. They see new warships and military investment and imagine a Government bent on foreign adventurism. But the plain fact is that in the 21st century, you cannot defend the realm from the white cliffs of Dover.

"Terrorist plots hatched thousands of miles away threaten to cause harm on our streets. When fragile and lawless states fracture, migration flows can affect us right here."

Mr Cameron's article will be welcomed by critics of the Government's programme of defence cuts. A total of 30,000 Armed Forces job cuts have been outlined since the Strategic Defence and Security Review in 2010. The regular Army has been told it must cut numbers from 102,000 to 82,000 by 2020.

Philip Hammond, the Defence Secretary, suggested last week that while the Ministry of Defence could "live with" its current projected budget up until 2020, further cuts could prove damaging.

There has been growing concern in recent months that the defence budget could be subjected to further cuts after the election next year when a new strategic review will be held.

"Having a modern, technological, advanced and flexible Armed Forces to protect and advance these interests is not national vanity — it is national necessity," Mr Cameron says. "Our national interest is served by Britain playing a role in the world. That is what we are doing today — whether working with forces in Nigeria or Somalia to close down terrorist threats at source, training up the security forces in Afghanistan, or sending Royal Navy warships to the Gulf to ensure vital trade routes remain open.

"We need to maintain this ability."

Mr Cameron says the Government will focus on "equipping our Armed Forces for the conflicts of this century, not the last".

He adds: "The threats we face have changed utterly in 30 years — from the clarity of the Cold War to the complex and shifting challenges of today: global terrorism, organised crime, hostage taking, the risk of nuclear proliferation, cyber attack, energy security.

"The enemy may be seen or unseen. So as the Strategic Defence and Security Review in 2010 made clear, it is not massed tanks on the European mainland we need, but the latest in cyber warfare."

In his article, Mr Cameron is also highly critical of the last Labour government's approach to defence spending.

"Labour left a £38 billion black hole in the defence budget and a long list of overrunning and over-budget equipment orders," Mr Cameron writes. "Trying to build a 21st-century Armed Forces out of a stack of IOU notes must rank — in a competitive field — as one of the biggest scandals of their time in Government."

Labour called on the Prime Minister to say whether the £1.1 billion was "new funding or underspend from previous years which we were previously told was earmarked for existing projects".

During his visit to the Farnborough Airshow, Mr Cameron will also outline plans to set up a UK Defence Solutions Centre in the Hampshire town to develop new defence technology.

It emerged that the airshow would open without one of its star attractions, the F-35B Lightning II fighter aircraft.

The jet should have been on display when the Queen named the Royal Navy's new aircraft carrier Queen Elizabeth earlier this month.

However, an engine fire on an F-35 in Florida last month led to the jet being grounded.

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## **U.S. needs better intelligence cooperation with African states for effective counterterrorism strategy**

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Homeland Security News Wire, 2014-06-30

The U.S. focus on counterterrorism efforts in Africa will require forming long-term partnerships with nations, an all-hands-on-deck commitment from all U.S. military branches, and a strong investment in intelligence, and surveillance technologies to face significant challenges created by the continent's size and scope. Forming intelligence partnerships with Africa's fifty-four countries, all with their own civil and military traditions, mixed with multiple languages and cultures is complex.

The U.S. focus on counterterrorism efforts in Africa will require forming long-term partnerships with nations, an all-hands-on-deck commitment from all U.S. military branches, and a strong investment in intelligence, and surveillance technologies to face significant challenges created by the continent's size and scope.

President Barack Obama recently proposed a \$5 billion counterterrorism fund, largely focused on north and west Africa. "As we move to a train-and-advise mission in Afghanistan, our reduced presence allows us to more effectively address emerging threats in the Middle East and North Africa," Obama said in a 27 May speech. Congress showed its support for pouring more resources into the continent when the Senate Armed Services Committee markup of the fiscal 2015 authorization bill added \$60 million for additional intelligence, surveillance and reconnaissance (ISR) in Africa.

Military analysts warn that achieving success in disrupting terror networks in Mali, Nigeria, Somalia, Kenya, and the Central African Republic will require greater sharing of information and intelligence assets in the region. In an interview with *Defense News*, Brig. Gen. John Linder, the head of the U.S. Army's Africa Special Operations Command, said that "Africa is not about maneuver warfare and it's not about seizing terrain, it's about sharing our lessons learned with partner nations and their forces so they can solve their own problems."

Forming intelligence partnerships with Africa's fifty-four countries, all with their own civil and military traditions, mixed with multiple languages and cultures is complex. Moreover, the long distances between deployed special operations units make supply and logistics further complicated.

The U.S. Air Force will likely play a major role in cross-country missions. "We're talking about airspace that's not highly contested," said Mark Gunzinger, an analyst with the Center for Strategic and Budgetary Assessments. "We're talking about very large geographic areas that could be covered persistently by long-duration UAVs. I do think there will be a growing demand for UAVs to support missions in Africa, and we're already seeing evidence of this." For UAVs (drones) to operate in Africa, however, basing options must be established with partner nations.

Gen. Frank Gorenc, commander of U.S. Air Forces in Europe and Africa, highlighted a program that builds relationships between Air National Guard units and African nations. "Those little steps go a long way, and quite honestly, those little steps in a country that has a fledgling air force allows them to make enormous gains," Gorenc told *Defense News* in February. "In Africa, there are some air forces that have some capability, but they're in the early stages, they need to develop the human capital." The U.S. Army National Guard also has partnerships with several African countries to perform short-term advise-and-assist and humanitarian missions.



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Leveraging these existing relationships to gain better intelligence assets is key to a successful counterterrorism mission. "Special operations do bring (a history of) long-term relationships with our partners across the continent of Africa," Linder said. "It's certainly been proposed that Africa is the arena of conflict of tomorrow, and with that I will tell you that ... special operations rarely accomplish tasks on their own, they need support from others."

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## **South Korea: Military Secrets Leaked From State Run Defense Agency**

### **South Korea: Military Secrets Leaked From State Run Defense Agency**

SEOUL, April 10, 2014 (Yonhap) -- Large amounts of military intelligence have been leaked from a state-run defense agency after its computer networks came under attack from suspected Chinese and North Korean hackers, an opposition lawmaker claimed Thursday.

The hackers stole classified information by planting malicious codes and programs into the computer networks of the state-run Agency for Defense Development (ADD), Rep. Kim Young-joo of the main opposition New Politics Alliance for Democracy said in a press release.

The leaked intelligence included information related to South Korea's development of midaltitude unmanned aerial vehicles (MUAV) aimed at strengthening its reconnaissance and inspection capabilities against North Korea, she claimed.

The lawmaker did not say how she found out about the alleged leak.

"All 3,000 or more computers at ADD were hacked, and yet ADD and the military are unaware of when the hacking took place or how extensive the damage is," Kim said.

The revelations call for a thorough investigation and countermeasures as ADD is a key arm of the defense ministry that has been tasked with analyzing the suspected North Korean drones that were recently found crashed near the border, she said.

ADD reported the case to the police on Wednesday only after Kim requested confirmation of the suspected leak, she added.

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## **French Defense Minister: Cyber-Defense Now 'National Priority'**

### **French Defense Minister: Cyber-Defense Now 'National Priority'**

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Paris Le Figaro in French 26 Nov 13

[Interview with French Defense Minister Jean-Yves Le Drian by Alain Barluet and Veronique Guillemard; place and date not given: "Jean-Yves Le Drian: 'France Has, and Will Continue To Have, Europe's Foremost Army'"]

[Le Figaro] An intervention in Central Africa is imminent. What will France's deployment be?

[Le Drian] The situation is completely different from that in Mali. The Central African Republic (CAR) no longer has a state now. Rival get groups are killing one another, and violent actions are occurring every day. The humanitarian situation is tragic. The country is a lawless area at a major strategic crossroad among three sensitive regions — the Sahel, the Great Lakes region, and the Horn of Africa. This is a cause for concern for our security, for that of its neighboring countries, and for that of Europe. An initial resolution has already been unanimously adopted by the UN Security Council. In a few days' time a second resolution will mandate the International Support mission in the CAR (MISCA) to restore security conditions in the CAR. This resolution will take account of France's support to the African forces' security mission. We will be acting in support of MISCA.

[Le Figaro] Difficulties up accumulating in Mali. Has the mission been accomplished?

[Le Drian] We have moved on from war to counterterrorism. The initial objectives have been achieved. The jihadis' penetration has been halted and their safe havens have been destroyed. Democracy has returned, even among the peoples of the North, who fielded candidates in the first round of the general election that is just been held. The conditions necessary for development now exist. There is still close monitoring of acts of terrorism, a few of which have occurred in recent months, including the tragic one involving the RFI reporters. Operation Serval's manpower, now 3,000, will be reduced. But we will maintain a force of 1,000 men tasked among other things with conducting counterterrorism operations. The UN mission in Mali (MINUSMA) is being established. I'm pleased that the Netherlands has decided to dispatch 400 experienced troops and helicopters. And the Malian Army is restructuring. The EU will probably extend its training mission by two years.

[Le Figaro] What do you think the priorities should be at the African security summit to be held in Paris at the beginning of December?

[Le Drian] With regard to defense, the aim is to nurture the emergence in Africa of the concept of collective security shouldered by the Africans. We're working on two things. First, the idea of African intervention assets capable of responding swiftly to crises, in coordination with the existing regional bodies. Second, the maritime issue. The Gulf of Guinea, from Senegal to Angola, is one of Africa's major fragile areas. It is essential for the African states to assert their action at sea in order to guarantee their security. France is willing to provide help in establishing these provisions and supporting the Africans in taking charge of their own security, on which ours very often depends.

[Le Figaro] Some 34,000 positions will be eliminated in the Armed Forces by 2019. Is this not going too far?

[Le Drian] France has, and will still have in 2020, Europe's foremost army, in terms of manpower, too. In 2019 we will have 187,000 military personnel (out of a total of 242,000 defense personnel,) whereas Britain will have only 145,000, and the German Army will have fewer as well. These military personnel

will be equipped and trained to confront the challenges of the future. Operational preparation allocations will increase by more than 4 percent per year. This is the backbone of war. I saw this when I visited Mali, the Ametettai Valley, following the tough fighting that took place there. Our soldiers, who display exceptional courage and spirit, were also equipped to enable them to remain in contact with the drones and the Rafales [fighter planes] supporting them.

This is the army of tomorrow – not only soldiers' capabilities and physical courage, but also their operational preparation and technological capabilities. Proper organization between the armed forces is essential. What adjustments need to be made to achieve that? This is the question we must consider, rather than saying: let's keep these resources and then see what we can do with them. I wanted a consistent approach.

[Le Figaro] In a few days' time you will be announcing a reform of the military personnel payment system, following serious dysfunctions of the Louvois software. How can a new departure be made?

[Le Drian] Louvois is a disaster, the nation owes military personnel an apology, and I do apologize to them, on my every visit. No fewer than three major mistakes have been made. Louvois was introduced much too quickly, without testing, and often the previous personnel management arrangements had been eliminated. Unfortunately Louvois can't be repaired and in any case the new system will undergo prior testing.

[Le Figaro] What do you expect from the December meeting of the European Council devoted to defense?

[Le Drian] France's aim is to secure concrete progress. I'm optimistic. In the operational field, we're working on implementing a joint maritime security strategy. It involves some major challenges. First, the pursuit of European action off the Horn of Africa, and in particular the future of the Atalanta mission, which has been a great success for European cooperation. In the Mediterranean, we must deal with the problem of human trafficking, with illegal immigration networks and the tragedies that they entail, but also the danger of infiltration by terrorists that they also entail. With regard to military capabilities, I will propose the establishment of a European club of users of American Reaper drones. This could constitute a strength in negotiations with the United States with a view to the Europeanization of its drones so that they can fly in Europe and carry European sensors. And, on France's initiative, we are working on a European solution for the next generation of surveillance drones. In the industrial field, we're working on tax arrangements to encourage cooperative projects. It's not right for projects carried out within NATO to be exempt from VAT, whereas European cooperative projects are taxed.

[Le Figaro] France is the first European country to adopt legislation on cyber-defense. What are the stakes?

[Le Drian] France is indeed in the lead. I made the decision to make cyber-defense a national priority, because there is a threat to the state's decisionmaking apparatus and to vital equipment and infrastructures. We must acquire the legal means to act and react, by attacking if necessary. This is a first. The bodies of vital importance to the nation are obliged to protect themselves and to declare any incidents to the state. These measures establish a cyber chain of command attached to the Operational Planning and Command Center. We will also be recruiting at least 400 cyber threat experts.

[Le Figaro] The state will be able to acquire sensitive data, partly from businesses. Is this that not too intrusive?

[Le Drian] We must adapt our legislative arsenal to the conduct of terrorists and criminals. The CNCIS, an independent administrative authority, will govern the gathering of connection and geolocation data. So this is an extension of its powers. Whenever we increase the services' technical or legal resources to deal with the development of crime or terrorism, at the same time we strengthen the monitoring capabilities of the administrative and judicial authorities, and those of Parliament.

"Major programs will be pursued"

[Le Figaro] What are the key points of the 2014–2019 Military Planning Bill (LPM)?

[Le Drian] Our military planning is balanced, ambitious, and stringent. France must be equal to the threats of the future and possess an army capable of dealing with them. With this LPM, I repeat, the French Army will remain in the forefront in Europe. This army will continue to fulfill three major missions – the protection of our territory, nuclear deterrence, and external intervention. In response to the new threats, this LPM embodies some significant changes in the intelligence field, and places the emphasis on special forces and cyber-defense. Furthermore, our shortcomings in the fields of tactical transport and in-flight refueling will be remedied. Last, the LPM permits the pursuit of all the major industrial programs already launched.

[Le Figaro] The balance of this LPM is based among other things on an unprecedented level of exceptional revenue. In the past these have never met expectations.

[Le Drian] I intend this military planning to be observed. I am committed to its complete implementation. We must not overestimate the scale of exceptional revenue, which amounts to 6.6 billion euros, that is, less than 3.5 percent of total resources over the six years. Furthermore, unusually, this revenue will be identified and quantified in the budget. The LPM includes the necessary guarantees to safeguard the whole plan. And this does work: in 2013 I have received the expected revenue; in 2014, I will have 1.8 billion euros.

[Le Figaro] The Armed Forces' equipment budget has been cut within the adjustment finance bill. What are the consequences of this for manufacturers that have just renegotiated the scheduling of deliveries?

[Le Drian] In order to compensate fully for this effort, I have secured 500 million euros in exceptional revenue to be used in case of need. This enables me to honor equipment commitments in 2013 and to begin 2014 on a solid foundation, despite some people's fears. I will be able, as I pledged to do, to place further orders, such as F3R standard for the Rafale (the most highly developed standard for the aircraft, which will enable it to carry the Meteor long-range air-to-air missile -- Le Figaro editor's note.)

[Le Figaro] The LPM depends on another gamble – the conclusion of export contracts to take over from national orders, starting in 2017. Are you optimistic?

[Le Drian] This relates mainly to exports of the Rafale (manufactured by the Dassault group, which owns Le Figaro -- Le Figaro editor's note.) Yes I am optimistic, because I believe in this. This is a credible objective. The Rafale will be exported, and we are already very much involved in this in India. This is why we've planned 11 deliveries to the French Air Force in 2014 and 2015. Starting in 2016 there will be

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a gap, because exports will take over. By the end of 2015 we have a clause to re-examine the LPM in order to see where we stand and to adopt corrective measures if appropriate. Furthermore this LPM does not signify the end of national orders for the Rafale. We have 225 fighter aircraft planned for our Armed Forces in 2025. Out of this total, there are the Mirage 2000s that will have to be further replaced by Rafales. We will embark on a further tranche, the fifth, of orders for Rafale in the next LPM.

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## **Belarus Reinforces Border Security Near Belarusan Nuclear Power Plant Under Construction**

Moscow Atomic-energy.ru 10 Dec 14

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[Top text box: Distance from the Belarus border to the Ignalina Nuclear Power Plant is 8 – 10 kilometers]

[Bottom text box: Distance from the Lithuanian border to the Belarusian Ostrovets Nuclear Power Plant is about 25 kilometers]

The Belarus State Border Committee has reinforced security at the state border near the Belarus Nuclear Power Plant under construction. A BELTA correspondent reports that Leonid Maltsev, Chairman of the State Border Committee, notified Belarus President Aleksandr Lukashenko of this measure on December 5th.

The Chairman of the State Border Committee has emphasized that national border security remains stable. The border security services continue to operate under normal status conditions. Tense and dynamic conditions prevail at the border checkpoints on the eve of the Christmas and New Year holidays. However, Leonid Maltsev has issued assurances that the State Border Committee is prepared for any changes in the situation.

With respect to presidential directives to provide reliable national border security, they're currently being implemented fully, effectively and on schedule. Specifically, the staffing structure is being optimized, which has made it possible to reinforce security at the state border, including on the southern side of the border, and to deploy additional guard units and border outposts. Two border outposts have been deployed to reinforce security in the direction of the nuclear power plant currently under construction, and deployment of a new border guard unit at Mazyr is being finalized.

Engineered security measures at the state border have been expanded considerably, principally on the southern side of the border, as well as along the Belarus border with Lithuania and Latvia. Leonid Maltsev has indicated that efforts are ongoing to introduce an electronic access pass management system at the border checkpoints. Development of a draft decree is being finalized; this will make it possible to establish a legal framework for the introduction of an electronic access pass system.

The head of state was also briefed on the installation of state-of-the-art engineered security systems for the state border; specifically, drones, rapidly-deployable tracking and alarm systems and other technical capabilities that will make it possible to provide more reliable and higher quality state border security at lower cost.

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## **France Backs Anti-Drone Research After Mystery Nuclear Flights**

Bloomberg, 2014-12-09

France is backing research on how to track and destroy drones as the mystery of who is behind a series of illegal flights over atomic sites remains unsolved.

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The French National Research Agency will start a tender later this month for systems to “detect and even neutralize” drones, according to a statement from the Secretariat for Defense and National Security, which advises the president and prime minister.

Areva SA (AREVA), Electricite de France SA and Commissariat a l’Energie Atomique et aux Energies Alternatives confirmed some 20 incidents since the middle of September of remote-controlled drone-like objects violating protected zones around their nuclear installations. The government vowed to put an end to the flights, which haven’t inflicted damage. No one has publicly claimed responsibility.

“The use of drones is bringing progress but with it new risks,” the national security committee said in yesterday’s statement.

The flights exposed a security weakness described by speakers at a parliamentary hearing last month in Paris. Top military and police officials joined experts from the nuclear industry and research organizations to testify before lawmakers on the kinds of drone technology that may be at work and the risks they pose.

French radar systems aren’t adapted to detect so-called mini-drones weighing a few kilograms and flying at low altitudes, Denis Mercier, Chief of Staff of the French Air Force, told the hearing.

Drone industry representatives gave evidence on the sector’s exponential growth and lack of adequate supervision.

EDF operates 58 nuclear reactors at 19 plants dotting the countryside, making France the country that relies on atomic power the most. EDF’s Deputy Director of Production and Engineering Dominique Miniere declined to comment on the flights following a press conference today in Paris.

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## **Russia and non-proliferation: A concession that never was**

European Council on Foreign Relations; 2014-11-25

In November 2014, Russia announced that it would build two new nuclear plants in Iran, in spite of faltering negotiations on Iran’s nuclear programme. Days later, Russia told the United States that it intended to curtail US-Russian efforts to secure nuclear materiel left over from the Soviet Union. Western diplomats have always feared that, at some point, Russia would walk away from non-proliferation efforts if it were to be confronted on other issues of international politics, and ensuring Russian cooperation with the West in this field was one of the major rationales behind engagement with Russia. However, Western policymakers seem not to have realised that Russia has, in fact, never been cooperative on non-proliferation: it simply hid its proliferation activities behind a diplomatic smokescreen.

It is conventional wisdom in the West that North Korea is the epicentre of missile proliferation. It is supposed to have reverse-engineered the Soviet SCUD (or in the Russian designation, the R-17) missile

and then gone on to develop an intermediate range ballistic missile (IRBM) called Nodong by scaling up the R-17. Both of these missiles, the reverse-engineered R-17 and the Nodong, were then supposedly exported or built under licence in Iran, Pakistan, and other countries.

However, this conventional wisdom is misleading. Reverse engineering is a very complex task that requires intense labour and testing. This testing never occurred in North Korea, and it is not clear if North Korea has sufficient technological expertise or skilled labour to support such a missile development programme.[1] Furthermore, reverse-engineered copies always differ from the original, because some details have to be tailored to local needs and manufacturing processes. However, all of the R-17 missiles exported by North Korea look exactly like Russian missiles and fly exactly like Russian missiles. This is because they are Russian missiles.

The Nodong is almost certainly not a North Korean missile. Its engine has a design typical of Soviet standards and it follows 1950s Soviet design patterns. It is probably an early Soviet missile that was produced in small quantities but was never formally introduced into the Soviet arsenal because other missiles quickly outperformed it. Because there is limited knowledge about it in the West, Western experts wonder whether the R-18 or R-19 (two missile numbers probably assigned to pre-production or evaluation missiles) later became the Nodong. The system's absence from Soviet arsenals made the missile an ideal tool for proliferation.

All liquid-propellant Iranian and North Korean missiles are either Russian missiles or depend on key components from Russia, especially the missile's engine(s). And there seems to be no shortage of those components: while Iran's solid-propellant Sejil missile was essentially grounded after sanctions interrupted the import of key components from China, the Iranian missile- and space-launcher programme based on Russian liquid-fuelled missiles continued launching.

An Iranian defector passed the technical details of Iran's nuclear weapons design to the West in 2004, and since then, all members of the International Atomic Energy Agency (IAEA), including Russia, have known that the "baby bottle" re-entry vehicle fitted to all recent Iranian missiles is based around a 60cm diameter implosion-type nuclear warhead design. The IAEA conducted intensive debate on the blueprints, because the plans suggested the militarisation of Iran's nuclear programme. However, since 2004, launches of Iranian liquid-fuelled missiles have not declined in frequency. Russia knows that Iran's missile programme is about delivering nuclear warheads, and yet it keeps on selling engines to Iran.

North Korea was just a black-market proxy for Russia's proliferation activities. And Russia's activities were not limited to ballistic missiles. In 2010, Israel agreed to help Russia develop drones, if Russia would refrain from giving Iran the S-300 advanced air defence system. Shortly thereafter, an S-300 look-alike appeared in North Korea, supposedly developed in North Korea. And in 2014, Iran test-fired an air defence missile that looked like a differently painted S-300, now called "Bavar-373". North Korea was previously operating vintage Russian and Chinese air defence systems from the 1950s and Iran was operating vintage Russian and American systems from the 1960s. It is very unlikely that they could have made such a huge leap forward in air-defence technology within a matter of years.

Nuclear programmes are much more difficult to assess from the outside. Missiles need to be tested, which makes them clearly visible to the outside world. But nuclear programmes are easier to conceal – at least until the first nuclear test. There are hints of Russian-Iranian cooperation on nuclear weapons proliferation, but such collaboration is very hard to prove. Even so, given Russia's behaviour in other areas, Moscow's assurances that it will refrain from assisting Iran can hardly be let pass without scrutiny.



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Greater Russian assistance to the Iranian nuclear energy sector does not indicate a change in Russia's behaviour, but rather, a continuation of Russia's proliferation policy on a larger scale. Russia sees non-proliferation as a particular objective of the United States. The US tried to maintain the Middle Eastern political order in the First Gulf War in 1990 and 1991 and then to redesign it in 2003. A nuclear-armed, missile-capable Iran would be an obstacle to any such efforts in the future. Russia, on the other hand, has never even tried to be a responsible stakeholder; it just keeps supporting everyone who opposes the West. This behaviour has always been the same – but now it is becoming more obvious.

Russian irresponsibility is a very serious challenge to the West. The current norms and conventions on non-proliferation were carved out in cooperation with a Soviet leadership that – in its own way – felt some sense of shared responsibility for international peace. Today's Russia does not feel this way. Therefore, Western non-proliferation policies need to be re-calibrated, and the Russian actors who are involved in proliferation must be sanctioned. Europe should consider whether it really wants to rely on Russian space launching systems for putting satellites in orbit or for lifting cargo to the International Space Station. And ultimately, Europe has to ask itself whether stopping missile proliferation is a realistic goal, or whether a European version of missile defence will sooner or later have to emerge.

[1] A forthcoming book offers a very detailed technical description of missile proliferation that is highly recommended for reading: Robert H. Schmucker and Markus Schiller, *Raketenbedrohung 2.0 – Technische und politische Grundlagen* (Hamburg: Kohler & Mittler, 2014). The book explains the many issues, obstacles, and results of missile proliferation and missile programmes in Iran and North Korea in detail and with excellent technical expertise.

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## **France studies how to intercept mystery drones over nuclear**

AFP, 2014-11-28

A spate of mystery drones flying over French nuclear plants has led the country to launch a programme aimed at developing ways of detecting and intercepting them, officials said Thursday.

Around 20 unidentified drones have been spotted over nuclear plants since Oct 19 throughout France.

Police are clueless as to who is piloting the unmanned aircraft at a time of heightened vigilance in the face of Islamist extremism.

France is heavily dependent on nuclear power.

"While the currently listed overflights do not present a threat to the operation and security of nuclear installations, they nevertheless constitute a warning of the potential risks from inappropriate or malicious use," a statement from France's General Secretariat of Defence and National Security said.

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The secretariat has put France's National Research Agency in charge of developing the €1 million (S\$1.6 million) programme aimed at finding ways to detect and intercept such drones.

France plans to share its findings with other European countries.

French law bans small, civilian drones from areas such as nuclear facilities, which are protected by a no-fly zone that spans a 2.5km radius and a height of 1,000m.

State-run power company EDF was the first to ring the alarm bells when it announced it had filed a complaint with police after detecting the small unmanned aerial vehicles zipping over seven nuclear plants last month.

Since then, more drones fitted with propellers have been spotted above nuclear facilities.

Experts say they do not pose a threat to the rock-solid plants and believe the mystery flyovers are being carried out to prove a point about nuclear security.

- See more at: <http://www.straitstimes.com/news/world/europe/story/france-studies-how-intercept-mystery-drones-over-nuclear-plants-20141128?#sthash.eFaWWuYn.dpuf>

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## **Terrorism fears high as drones survey French nuclear reactors**

Deutsche Welle, 2014-11-25

More than 30 civilian drones have been seen over French nuclear reactors over the past two months. Greenpeace suspects terrorist activity and wants the reactors shut down.

This story goes back to October 5, when French energy company Electricite de France began seeing things in the sky above three of its nuclear reactors in the southwest of the country.

They saw drones flying over the facilities - over several areas at the same time. But the company had no idea who was operating the drones or why.

Since then, more than 30 drones have been spotted.

Oda Becker is a physicist and nuclear consultant, who has written a report on the drones.

DW: What kinds of drones are we talking about?

Oda Becker: Mid-sized. Larger than a remote-controlled, multi-copter. Something like a drone that could deliver medicine or packages, like those used by parcel services.

So Greenpeace is worried that terrorists might use these drones to do what, exactly?

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Insiders could use the drones to deliver explosives, and then trigger an accident. They could prepare an attack from the air - figure out whether there are any security systems to stop an attack with a helicopter, for example. And they could spy on the ground - the security, all the details - so that they can attack the facility [from the ground] with an anti-tank weapon.

If I were a terrorist, which area of a nuclear facility would I want to strike to do the most damage?

There are two targets that could result in a very major release [of nuclear material]. One is the reactor building itself.

The reactor core is only protected by a wall measuring 90 centimeters (three feet). [Newer reactors - built today - have two-meter walls - the ed.] So it could be destroyed by various devices.

And the other point is - and this is very particular to France - the spent fuel rod buildings. They are only protected by a very thin wall - 30 centimeters - and just a very thin metal roof. And there could be more nuclear materials in the spent rod building than in the reactor itself.

No protection

So a thin metal roof is the only protection between us and a room full of nuclear materials.

Yes.

And the specific threat is that an explosive device could be detonated in that room?

The threat is that the water from the spent fuel pools would drain. If that happens, there will be a meltdown of the fuel, and a release of a big amount of radioactive material.

But how could they drain a pool with just one drone? Isn't that difficult?

Terrorist groups have the capabilities to figure out a scenario.

Let's go back to the thicker wall protecting the reactor building. Could a drone really break through a cement wall that's almost one meter thick?

You can't destroy such a wall with a drone. You'd need nearly 100 kilograms [240 pounds] of explosives. But there are other possibilities. I think more credible is a scenario where a terrorist group uses the drones to spy, and then carries out an attack with a helicopter, for example.

And if you [break that wall], you also destroy the cooling system of the reactor core. And without the cooling, there's a meltdown - and a very quick release in the environment.

The threat spreads

What would the consequences be for France and Europe?

It could spread up to 300 kilometers (180 miles).

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So by that math, the nuclear materials wouldn't reach Germany, since the plants are in southwestern France?

Of course they would reach Germany. Near the border, the areas would have to be evacuated, and people wouldn't be able to come back for decades. But the important point is the speed of the nuclear release. It would not be possible to evacuate the people as fast as necessary. And that's exactly the danger.

Depending on the weather, it could spread to Italy, Sweden, Spain, Greece. But obviously the most threatened areas are in Luxembourg, Germany, and Belgium - and of course, France itself.

Are the risks limited to the three, older nuclear plants in southwest France?

There are 34 in the 900-megawatt class in France. And they are all as badly protected. The spent fuel rod facilities, especially.

If I'm France's energy minister, I'd probably say, 'Well, we need the electricity - we're not shutting them down.' So what can France do to protect itself in the meantime?

To be honest, I have no idea. Because they've tried since the beginning of October. But they haven't stopped the drones.

Air traffic control doesn't pick up civilian drones below a certain size or flight ceiling, but couldn't the French military use more powerful radar to figure out where these drones are taking off and landing?

I think in China they have devices to deal with civilian drones. France doesn't have any. So how do you protect the facilities?

Make thicker walls.

Oda Becker, a scientific consultant on nuclear safety based in Hanover, Germany. Her clients include the Austrian federal government as well as several non-governmental organizations (NGOs). Her studies include the European "Stress Tests" in the aftermath of the Fukushima accident and analyses of accident scenarios from flooding or terrorist attacks on nuclear facilities (for example, the crash of a large commercial airliner or the impact of an anti-tank weapon).

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## **French police arrest three in nuclear plant drones probe**

2014-11-05, PARIS (Reuters) - Police arrested three people found in possession of remote-controlled drones near one of the nuclear plants involved in a series of mystery overflights by the unmanned aircraft, a source close to the investigation said on Wednesday.

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Two women and a man were apprehended near the Belleville-sur-Loire nuclear plant in central France and two drones were confiscated, the source said.

Interior Minister Bernard Cazeneuve said last week that France had launched an investigation after drones were repeatedly sighted over seven of power utility EDF's atomic plants, raising concerns over nuclear safety.

The drones in question were very small, but police have given no indication of their exact nature.

French law bans aircraft of all types from flying within five kilometers of nuclear facilities.

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## **'Game of drones' highlights France's nuclear vulnerability**

EurActiv, 2014-11-04

Unidentified drones have made flights over 11 French nuclear power stations since the beginning of October. French authorities and nuclear experts are becoming increasingly worried about this activity, which Libération has dubbed the "game of drones". EurActiv France reports.

Energy company EDF has complained to France's Atomic Energy Commission, and an investigation is being opened into the subject. It is forbidden to fly within 5 kilometers of a nuclear power station, or less than 1,000 meters above one. Contravening this law can earn you a year in prison, and a fine of €75,000.

"These are very serious events! I do not understand why they are not taken more seriously. One issue is the unknown origin of these drones, but there is also the potential danger demonstrated by this kind of occurrence," said Mycle Schneider, a French nuclear expert and author of the World Nuclear Industry Status Report.

"All the state services for the safety and security of the most important sectors (interior, energy and environment, defence) have been mobilised since the beginning of these flyovers, in an attempt to identify those responsible and to put an end to them," the French Secretariat General for Defence and National Security stated in a press release.

### **Security questions**

The French government has refused to admit that the security of the power stations could be inadequate.

Ségolène Royale, the Minister for the Environment, said in an interview with Europe 1 that she "will not [...] allow the credibility and the reputation for safety standards in [France's] nuclear power stations to be jeopardised".

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Greenpeace expressed concern on Saturday that drones could be used to drop explosives on nuclear power stations.

France is the world's most nuclear-reliant country, with 58 nuclear reactors spread over 19 power stations, but unlike those under construction in Normandy and Finland, its current nuclear facilities have no protection against attacks from the air. The pools in which spent fuel is stored are not equipped with solid roofs, a situation the Nuclear Safety Authority has already asked EDF to rectify.

A reconnaissance operation?

"The heart of a nuclear reactor is installed inside a very solid enclosure. But a clever person would look for a power station's weakest points, and with reconnaissance operations, they might find what they are looking for. Of course there are fragile and attackable areas," Mycle Schneider said, citing the vulnerability of the facility at La Hague.

He believes this is one of the most vulnerable sites, presenting a high risk of radioactive contamination. 10,000 tons of irradiated material is stored in 5 relatively unprotected pools, raised above ground to avoid damage from seismic activity. "The problem with above-ground pools is that they can be drained, and they are only covered by corrugated metal," he said.

The anti-nuclear lobby has long opposed the intrinsically dangerous practice of transporting plutonium by lorry on public roads, which the specialist says exposes the material to attack from terrorists. The vulnerability of La Hague is all the more concerning because of the large volume of radioactive material that is processed and stored there, originating from France, Germany, Belgium, the Netherlands, Switzerland, Spain, Italy and Japan.

A spokesperson for Areva, the company that operates the site at La Hague, said that transporting plutonium to and from the power station was inherent to the process of waste recycling, but that the material was moved in special containers and did "not represent a radiological threat to populations or the environment".

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## **Mysterious Drones Spotted Over Two More French Nuclear Plants**

Bloomberg, 2014-10-31

Drones were spotted after dark yesterday flying over two nuclear plants operated by Electricite de France SA (EDF), deepening the mystery over the flights that began earlier this month.

Aircraft resembling drones were detected within the airspace of EDF's Golfech and Penly atomic plants yesterday around 9 p.m. local time, a spokeswoman for the utility said by telephone. The flights had no effect on safety or operations at the sites, she said.

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Drones have also flown over several sites of nuclear research organization, the Commissariat à l'Energie Atomique et aux Energies Alternatives. A spokesman for the organization known as CEA declined to provide details.

No one has so far publicly taken responsibility.

The latest sightings bring to nine the number of EDF plants whose airspace has been penetrated illegally by drone-like aircraft since Oct. 5, according to the state-controlled utility, operator of all of France's 58 nuclear reactors spread across the country at 19 sites. French Interior Minister Bernard Cazeneuve confirmed yesterday authorities are investigating the events and have the "means to neutralize these drones." He didn't elaborate.

Under French law, aircraft are forbidden from flying within a five-kilometer (three-mile) perimeter less than 1,000 meters above a nuclear plant. Infringements are punishable with prison and fines.

#### **Greenpeace Stunt**

The first suspected drone flight was detected Oct. 5. They have now been spotted at sites including Blayais, Bugey, Cattenom and Nogent-sur-Seine as well as the latest at Golfech in southwestern France and the coastal Penly plant on the English Channel.

The anti-nuclear group Greenpeace, which has sneaked into nuclear sites to highlight security lapses in the past, has denied involvement and expressed concern the flights are continuing.

Greenpeace and EDF have long been at odds about the safety of nuclear energy. Following security breaches by activists in 2011 and 2012, the utility set aside at least 400 million euros (\$505 million) to boost security at the plants with measures including guards, alarms, fences and dogs.

In 2012, an activist landed a paraglider inside a plant to show the risk of aerial attack.

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## **France: EDF Confirms Probe Into Mystery Drones Flying Over Nuclear Sites**

Bloomberg, 2014-10-29

Unidentified aircraft were spotted flying over seven French nuclear plants this month, prompting Electricite de France SA to alert the police.

The utility's security teams have detected the presence of "illegal" aircraft resembling drones within the atomic sites' protected air space, a spokeswoman, who declined to be named because of company policy, said by telephone. EDF has filed a complaint with police, who are investigating, she said.

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The anti-nuclear group Greenpeace, which has sneaked into nuclear sites to highlight security lapses in the past, denied any involvement. In 2012, an activist landed a paraglider inside a plant to show the risk of aerial attack.

"We are very worried about the repeated existence of these suspicious flights," Greenpeace said in a statement yesterday. "Neither EDF nor police have provided an explanation."

Greenpeace and EDF have long been at odds about the safety of nuclear energy and France's reliance for power on 58 reactors operated by EDF. Following security breaches by activists in 2011 and 2012, the utility set aside at least 400 million euros (\$505 million) to boost security at the plants with measures including guards, alarms, fences and dogs.

The most recent intrusions had no consequences for nuclear safety or reactor operations, the EDF spokeswoman said late yesterday. The first suspected drone flight was detected Oct. 5, followed by more between Oct. 13 and Oct. 20 at seven sites including Blayais, Bugey, Cattenom and Nogent-sur-Seine.

Under French law, aircraft are forbidden from flying within a five-kilometer (three-mile) perimeter and 1,000 meters over a nuclear plant, she said. Infringements are punishable with prison and fines.

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## How the Fukushima Disaster Is Changing the Future of Robotics

Defense One, 2014-06-27

Next June, several robotics teams will converge on a testing ground at the Fairplex facility in Pomona, California, to compete in the American Idol of robot contests, [the DARPA Robotics Challenge finals](#).

It's a massive effort to rapidly advance the field of search and rescue machines and owes much of its inspiration to the devastating earthquake and tsunami that hit Japan in 2011. In fact, Japan, South Korea, and the European Union will all be sponsoring teams to compete in the effort.

Why is Japan competing in a U.S. robot competition? On its face, the dangerous situation presented by the Fukushima Daiichi nuclear disaster seemed perfectly suited to Japanese technical expertise. But when a wave took out the backup generators at the power plant, triggering a massive meltdown event, Japan — a country famous for advanced robot technology — had no machines capable of operating in the dangerous environment.

The Massachusetts-based iRobot company donated four robots (two PackBot 510s and two Warrior 710s) to assist. The robots were able to provide video from inside the power plant, but were unable to execute any of the important human functions to slow the meltdown or manage plant operations.

The facility has since seen [a parade](#) of robots go through, but in the critical hours when the emergency first erupted, the mother of all robot tests, the robots failed.



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DARPA program manager Gill Pratt took members of several of the competing teams to Japan recently, an experience that he called "tremendously moving."

He said the obstacle course for this final portion of the Robotics Challenge will be significantly tougher than what the teams had to contend with during the trials phase. For one thing, they'll have less than hour to complete eight different, disaster-related tasks, like accessing controlled areas and climbing rubble, as opposed to facing those tasks separately and having thirty minutes for each of them. And bulky power cords won't be allowed. Each robot will have to be battery-powered and energy self-sufficient. If a robot falls, it will need to be able to get up. Most importantly, the robots will perform in what Pratt describes as a communication-degraded environment. This will require each team to improve the autonomy of their robot. In a sense, the human researchers won't have nearly as much opportunity to steer, or tele-operate, their machines the way drone pilots steer drones. The robot will have to do much more on its own.

The exact obstacles have yet to be determined but will be heavily influenced by the events at Fukushima.

"We learned a whole lot" on that trip, Pratt said. "Certainly, a lot of what you're seeing is inspired by what happened, including the bad communication. That was inspired by the fact that the reactor buildings have thick concrete with re-enforcement rods in them that tends to shield wireless and the big plating, made the [communications] very, very bad there."

The trick now is to keep from making the simulation for the challenge resemble Fukushima too closely. "We don't want to overfit," Pratt said. He described how he and other researchers had been talking with first responders and other emergency personnel to find broad themes related to disasters to help them better design the challenge.

Communication was a debilitating factor not only at Fukushima but also in the aftermath of 9/11, where New York City police and fire had different radio systems. The recent ferry capsized in South Korea is a case of robots faced with the task of navigating difficult territory.

History is, of course, littered with case studies of disasters. But none represent quite so Carthaginian a challenge as does Fukushima. The events of March 11, 2011, provide a textbook worst-case scenario, a concatenation of emergencies. Much of the area, indeed much of the north-eastern portion of the country, was only partially accessible after the massive wave. But accessing the power plant was an urgent necessity, a job that became more deadly by the moment.

Researchers now need to find "the goldilocks zone in terms of how hard [the challenge] should be," said Pratt.

The entire cost to the U.S. government (excluding the Japan, South Korean, and EU sponsorship) of the Robotics Challenge is \$95 million, with qualifying teams each getting about \$1.5 million to develop their robots over the entire course of the challenge. The winning team will get another \$2 million dollars in June.

It's research that will complement what's going in the private sector. The leading team, SCHAFT, withdrew from the event, according to DARPA. It was acquired by Google last year. It's all evidence of

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how quickly the field is advancing, according to Pratt. "Because we [at DARPA] take high risks, things often don't turn out as well as we hoped. This happens to be one of the times when things went better," he said. "The mobility was better than we thought it would be [during the trials]. The grasping and manipulation of the arms was better than we thought it would be."

If DARPA and the roboticist teams succeed in pushing the field forward, improving the ability of robots to do more on their own, the events at Fukushima Daiichi will be at least partially the reason.

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## **Long expedition for nuclear-powered icebreaker "Yamal"**

### **Long expedition for nuclear-powered icebreaker "Yamal"**

Barentsobserver, 2014-04-08: The nuclear-powered icebreaker Yamal today leaves port of Murmansk for a two-month expedition to the Russian Arctic. The aim for the expedition is to study ice and weather conditions in the area to prepare for future oil and gas projects.

33 scientists from the Russian Arctic and Antarctic Research Institute will take part in the "Shelf-2014" scientific expedition, which is one of the largest since the Soviet Union.

The scientists will be studying the sea ice and all of its characteristics with the help of submersible vehicles, helicopters and drones. "The information we plan to collect is required before one can start drilling for hydrocarbons in this area", head of the expedition Andrey Tyuryakov says to Murmansk Vestnik. "Our task is to secure future installations, or at least to minimize all risks."

«Yamal» will sail through the Kara Sea, Laptev Sea and East Siberian Sea all the way to the New Siberian Islands. The amount of sea ice in the area is at its peak right now, with a thickness of up to two meters in the Laptev Sea.

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## **Funding Could Make 'Nuclear Accident Drones' A Reality**

### **Funding Could Make 'Nuclear Accident Drones' A Reality**

21 Mar, 2014 (NucNet): A new and "much-needed" remote system to safely and accurately assess dangerous nuclear accident sites has been awarded funding from the UK's Royal Academy of Engineering to help it move out of the university science laboratory where it was developed and turn it into reality.

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A team led by Bristol University's Dr James MacFarlane developed the Advanced Airborne Radiation Monitoring (AARM) system to be able to remotely assess radiological hazards, provide real-time information on the source, intensity and location of radiation.

AARM integrates an unmanned aerial vehicle or drone, equipped with a lightweight gamma spectrometer and other positional sensors, and a camera for high-resolution images.

The system could significantly improve the safety and effectiveness of hazard response operations, including rapid response monitoring of nuclear events, the university said.

The university said hazardous nuclear events have the potential to cause widespread damage to individuals and the environment. Getting close enough to these incidents to accurately assess the problem can be extremely dangerous.

A prototype has already been tested at a uranium mine in southwest Romania.

The team will receive 15,000 pounds (GBP) (18,000 euros, 24,000 US dollars) in funding for the project, and Dr MacFarlane will receive a GBP 5,000 personal award.

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## **France Builds Closer Military Ties with US with African Jihadists in Mind**

### **France Builds Closer Military Ties with US with African Jihadists in Mind**

Paris Le Canard Enchaîné 29 Jan 14: At a defense council meeting that was held at the Elysee at the end of December, Francois Hollande asked his military and civilian interlocutors not to remain inactive. According to him, "France's armed forces" must have "the capacity to take action in three theaters of operation"; simultaneously, if necessary. So, after Mali and the Central Africa Republic, on what field does Hollande want to play warlord again? Monday, 26 January, Admiral Edouard Guillaud took it upon himself to give approximately 20 curious journalists the lowdown.

"Southern Libya has become a veritable black hole," he insisted on telling them. "The ideal thing would be to mount an international operation with the assent of the (Libyan) authorities. The question of an intervention will have to be raised one day. The problem however is that, first, there would need to be a state in the northern part of the country."

Finally, prior to his retirement at the end of February, the armed forces chief of staff described southern Libya "as a place for recuperating, supplying terrorists with arms, and the new terrorism center of gravity." To tell the truth, we somewhat suspected that.... And an old hand in African conflicts allows us to complete the picture: "The current Libyan shambles," he says, "is the result of the badly waged and badly terminated war into which Sarkozy and Cameron dragged us."

Free Nuclear and Space Trade

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Africa and its itinerant terrorists have also become a subject of concern in Washington. There, on 24 January, Chuck Hagel, the Pentagon boss, and Jean-Yves Le Drian, the French minister of defense, prepared the creation of a "high level working group" on African security. Moreover, this Franco-American initiative will be on the agenda of the conversations between Obama and Hollande, when they meet at the White House on 11 February.

In short, the role of this "group" will be to exchange information and analyses on terrorist threats that target "the Sahara-Sahelian zone" that, according to French officials, extends from Mauritania, on the west side of the continent, to the Horn of Africa, in the east; an area already contaminated or "in the process of being contaminated," deem the pessimists at the Quai d'Orsay [Ministry of Foreign Affairs].

Franco-American cooperation, through this "working group," will also extend to the field of nuclear and space "vigilance." The French Ministry of Defense is preparing to sign an "agreement" in this sense with the US Strategic Command, which, under the responsibility of Admiral Cecil Haney, is just the type [of organization] that dabbles in everything. This high-level American command is in fact interested in nuclear and space issues, anti-missile defense, computer threats, weapons of mass destruction, etc.

According to the terms of this "agreement," Admiral Haney will be authorized to share all the information he has with the French. Hollande, Le Drian and Fabius (is that a promise?) will therefore know everything about that deadly hardware. The US admiral kindly confided to Le Drian, "We only sign such agreements with our closest allies"; for example, Great Britain, which has never questioned United States military and political engagements.

Hollande, now considered by Washington as "one of the closest allies," may perhaps forget his recent setbacks with his European friends. He was never able to obtain significant assistance from them for the interventions in Mali and in the Central African Republic. The Americans, for their part, proved to be much more responsive than the Europeans. They supplied French forces with transport airplanes and in-flight refueling tankers for the Rafale fighters, intelligence collected by their drones and their spies, etc.

"Our dear Old Continent neighbors feel that it is up to France to play the gendarme in the Sahel, not them," scoffs a diplomat. "They are hardly smothered by solidarity."

It is enough to disgust Francois Hollande from repeating that his interventions in Africa prevent jihadism from spreading... in Europe.

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**Klukan, Brett**

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**From:** StAmour, Norman  
**Sent:** Thursday, October 30, 2014 11:19 AM  
**To:** Klukan, Brett; Safford, Carrie  
**Subject:** RE: Drone Flyovers at Nuclear Power Plants

Brett

I know that the Intelligence Community as a whole is considering this issue. I am not aware that the NRC has done much in this area. You may want to consult with the Division of Security Policy in NSIR (Christiana Lui) to find out where the agency is at.

Norm

**From:** Klukan, Brett  
**Sent:** Thursday, October 30, 2014 10:52 AM  
**To:** Safford, Carrie; StAmour, Norman  
**Subject:** Drone Flyovers at Nuclear Power Plants

Carrie & Norm,

To set the scene a little bit: I've been asked to speak, as RI's regional counsel, at an upcoming NEI Lawyer meeting in Philly. Generally, I think, the purpose is just for me to introduce myself and to highlight some interesting legal issues / problems.

While I plan to discuss the deliberate ignorance rulemaking, I was also thinking about bringing up the topic of video drone use by journalists / activists. While this hasn't occurred at any nuclear power plants (yet), it has been used by environmental advocates to document industrial agricultural operations. The question I would pose to the group is what (if any) actions should be taken in response to a low-flying video drone over a licensee site. I don't have an answer to this question—I just want to throw the issue out there as something that I think will need to be addressed at some point.

I just wanted to make sure that the agency isn't already in the process of addressing that question now.

Thanks.

Cheers,  
Brett Klukan  
RI Regional Counsel  
(610)-337-5301

---

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**Klukan, Brett**

---

**From:** Klukan, Brett  
**Sent:** Thursday, October 30, 2014 5:17 PM  
**To:** StAmour, Norman; Safford, Carrie  
**Subject:** RE: Drone Flyovers at Nuclear Power Plants

Norm,

Thanks for info. I'll reach out to Christiana.

Cheers.  
Brett

**From:** StAmour, Norman  
**Sent:** Thursday, October 30, 2014 11:19 AM  
**To:** Klukan, Brett; Safford, Carrie  
**Subject:** RE: Drone Flyovers at Nuclear Power Plants

Brett

I know that the Intelligence Community as a whole is considering this issue. I am not aware that the NRC has done much in this area. You may want to consult with the Division of Security Policy in NSIR (Christiana Lui) to find out where the agency is at.

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**From:** Klukan, Brett  
**Sent:** Thursday, October 30, 2014 10:52 AM  
**To:** Safford, Carrie; StAmour, Norman  
**Subject:** Drone Flyovers at Nuclear Power Plants

Carrie & Norm,

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I just wanted to make sure that the agency isn't already in the process of addressing that question now.

Thanks.

Cheers,  
Brett Klukan  
RI Regional Counsel  
(610)-337-5301

**Klukan, Brett**

---

**From:** Klukan, Brett  
**Sent:** Friday, October 31, 2014 10:03 AM  
**To:** Lew, David  
**Subject:** Presentation for Nov. 5 NEI Meeting

Dave,

While I'm still pulling the talk / presentation together (I would like to incorporate a lot of short video clips to keep it interesting), I wanted to give you a sense of what I plan to talk about.

After introducing myself (with some background information about me), I plan to talk a little about the role / responsibilities of the regional counsel position (you would be surprised—many attorneys in OGC aren't even sure what the regional counsels do). Then I plan to devote the remainder of my time to a discussion of an issue emerging on the horizon (especially as the technology continues to evolve): video surveillance drone flyovers of nuclear power plants. Some of the more expensive electric models (low db operation) currently available in the private market have exception long ranges (up to a mile).

Given yesterday's news out of France, this issue isn't as speculative as one might first think:  
<http://www.bbc.com/news/world-europe-29831897>

I will, of course, begin my discussion with the necessary caveats (i.e., that this is my own opinion and should not be construed as binding upon the agency).

Thanks.

Cheers,  
Brett Klukan  
RI Regional Counsel  
(610)-337-5301

---

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## Klukan, Brett

---

**From:** Klukan, Brett  
**Sent:** Thursday, November 06, 2014 8:19 AM  
**To:** Khan, Cheryl  
**Subject:** Possible Idea for RUG Presentation

Cheryl,

Dave and I both spoke yesterday at the NEI Lawyers Committee meeting yesterday (it was held in Philadelphia this year).

The purpose of my presentation (link below) was to introduce those in attendance (who were not already aware of the issue) to the potential security / public optics implications of commercially-available drones flying / hovering over licensee sites. Even if there would be limited valuable security information to be gained from such drone operations, the public dissemination (i.e., youtube) of images / videos of a plant protected area could cause a public outcry.

Dave thought that it might be a good idea to give an abbreviated version of the presentation (minus much of the law) at the next RUG?

Would this be possible? Would you think this something that the members would be interested in?

[http://prezi.com/bvgkitaibh0v/?utm\\_campaign=share&utm\\_medium=copy&rc=ex0share](http://prezi.com/bvgkitaibh0v/?utm_campaign=share&utm_medium=copy&rc=ex0share)

Thanks.

Cheers,  
Brett Klukan  
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## Klukan, Brett

---

**From:** Klukan, Brett  
**Sent:** Thursday, November 06, 2014 10:31 AM  
**To:** Heck, Jared; Fuller, Karla; Price, Sarah; Roth(OGC), David; Scott, Catherine; Lemoncelli, Mauri  
**Subject:** Drone Presentation

All,

I plan to mention this during the call this morning. Here is a link to the presentation I gave yesterday to the NEI Lawyers Committee (the meeting was in Philadelphia).

[http://prezi.com/bvgkitaibh0v/?utm\\_campaign=share&utm\\_medium=copy&rc=ex0share](http://prezi.com/bvgkitaibh0v/?utm_campaign=share&utm_medium=copy&rc=ex0share)

Generally speaking, the point of the presentation was to get those assembled to start thinking about the legality of any potential response actions their clients might take in response to drone "loitering" / surveillance.

Cheers,  
Brett Klukan  
RI Regional Counsel  
(610)-337-5301

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**Klukan, Brett**

---

**From:** Khan, Cheryl  
**Sent:** Thursday, November 06, 2014 2:32 PM  
**To:** Klukan, Brett  
**Subject:** RE: Possible Idea for RUG Presentation

Brett,

Yes, I think this topic would be of-interest to RUG members.

The next RUG workshop is next week, Nov 13 from 8 – 12.

How much time would you suggest for the shortened version? If it's 10 – 15 minutes total (including questions), I think we can fit it into the agenda. If you recommend longer, then it might be a challenge to fit it into the schedule next week, but we could easily add it to the agenda for the next workshop (tentatively scheduled for late February).

What do you think?

Cheryl

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## **Klukan, Brett**

---

**From:** Klukan, Brett  
**Sent:** Thursday, November 06, 2014 4:06 PM  
**To:** Khan, Cheryl  
**Subject:** RE: Possible Idea for RUG Presentation

Cheryl,

It could be abbreviated (taking out all the law bits) to less than 10 minutes, leaving 5 minutes for questions.

Thanks.

Cheers,  
Brett

**From:** Khan, Cheryl  
**Sent:** Thursday, November 06, 2014 2:32 PM  
**To:** Klukan, Brett  
**Subject:** RE: Possible Idea for RUG Presentation

Brett,

Yes, I think this topic would be of-interest to RUG members.

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Would this be possible? Would you think this something that the members would be interested in?

**Klukan, Brett**

---

**From:** Cataldo, Paul  
**Sent:** Thursday, November 20, 2014 2:06 PM  
**To:** Klukan, Brett  
**Subject:** Drones

Brett:

I heard you had provided an excellent presentation on drones during a recent conference with Region 1 licensing managers.....are you sharing this during the regional seminar in December maybe??

Paul

**Klukan, Brett**

---

**From:** Klukan, Brett  
**Sent:** Thursday, November 20, 2014 3:43 PM  
**To:** Cataldo, Paul  
**Subject:** RE: Drones

Paul,

At the last seminar planning committee, I was asked to give my presentation during one of the breakout sessions.

Cheers.  
Brett

**From:** Cataldo, Paul  
**Sent:** Thursday, November 20, 2014 2:06 PM  
**To:** Klukan, Brett  
**Subject:** Drones

Brett:

I heard you had provided an excellent presentation on drones during a recent conference with Region 1 licensing managers.....are you sharing this during the regional seminar in December maybe??

Paul

**Klukan, Brett**

---

**From:** Klukan, Brett  
**Sent:** Tuesday, December 02, 2014 8:04 AM  
**To:** Klukan, Brett  
**Subject:** French Parliament Drone Hearing

<http://videos.assemblee-nationale.fr/video.6118>

Cheers,  
Brett Klukan  
RI Regional Counsel  
(610)-337-5301

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**Klukan, Brett**

---

**From:** Klukan, Brett  
**Sent:** Tuesday, December 02, 2014 8:18 AM  
**To:** Afshar-Tous, Mugeh  
**Subject:** English Transcript of French Parliamentary Hearing

Mugeh,

On Nov. 24, the French National Assembly Committee on Science and Technology (OPCEST) held a hearing on the security risks posed by drone (or UAV) flyovers of French nuclear facilities. I'm interested in this topic as I'm slated to make a similar presentation to Region I next week—I've actually given the presentation twice previously—once to NEI attorneys, once to plant management reps for RI licensees. I'd be very interested to know what Greenpeace presents to the French Parliament on this topic. However, I don't speak French and, as such, I was wondering if you knew of any way to get a transcription of this hearing in English?

Thanks.

Video link: <http://videos.assemblee-nationale.fr/video.6118>

Cheers,  
Brett Klukan  
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---

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**Klukan, Brett**

---

**From:** Sheehan, Neil  
**Sent:** Tuesday, December 02, 2014 10:09 AM  
**To:** Klukan, Brett  
**Cc:** Screnci, Diane  
**Subject:** RE: Greenpeace Reports

I'll see what I can find out, Brett.

**From:** Klukan, Brett  
**Sent:** Tuesday, December 02, 2014 8:41 AM  
**To:** Screnci, Diane; Sheehan, Neil  
**Subject:** Greenpeace Reports

Diane & Neil,

Greenpeace France and Greenpeace Germany have commissioned reports on the risks associated with commercially-available drones.

<http://www.greenpeace.org/international/en/news/Blogs/nuclear-reaction/security-and-safety-risks-at-french-nuclear-r/blog/51471/>

Assuming that Greenpeace has not shared these reports with us, is there a delicate way to ask to see them or would that cause a ruckus? I ask because I'm slated to give a presentation on this topic at the winter seminar and I'd be curious to know what Greenpeace pulled together (from public sources).

Thanks.

Cheers,  
Brett Klukan  
RI Regional Counsel  
(610)-337-5301

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## Klukan, Brett

---

**From:** Afshar-Tous, Mugeh  
**Sent:** Tuesday, December 02, 2014 10:28 AM  
**To:** Klukan, Brett  
**Subject:** RE: English Transcript of French Parliamentary Hearing

Brett - We have a contract with Department of State for translation/interpretation and their staff can translate this for you for a fee. It usually takes a few weeks. Do you want us to pursue this?

Mugeh

**From:** Klukan, Brett  
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**Klukan, Brett**

---

**From:** Klukan, Brett  
**Sent:** Tuesday, December 02, 2014 11:05 AM  
**To:** Afshar-Tous, Mugeh  
**Subject:** RE: English Transcript of French Parliamentary Hearing

Mugeh,

Thanks for the help. Let me see if I can get the reports Greenpeace presented to the French Parliament. If I can get those, I wouldn't really need the transcript.

Thanks again.

Cheers.  
Brett

**From:** Afshar-Tous, Mugeh  
**Sent:** Tuesday, December 02, 2014 10:28 AM  
**To:** Klukan, Brett  
**Subject:** RE: English Transcript of French Parliamentary Hearing

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## Klukan, Brett

---

**From:** Klukan, Brett  
**Sent:** Wednesday, December 03, 2014 4:11 PM  
**To:** Sheehan, Neil  
**Subject:** RE: Drones and French reactors

Neil,

Thanks I had the French (with a bad English translation). This translation is much, much better.

Thanks again.

Cheers,  
Brett

**From:** Sheehan, Neil  
**Sent:** Wednesday, December 03, 2014 3:44 PM  
**To:** Klukan, Brett  
**Subject:** FW: Drones and French reactors

Brett,

I think these are the same documents you already received but just in case.

Neil

**From:** Jim Riccio [<mailto:jim.riccio@greenpeace.org>]  
**Sent:** Wednesday, December 03, 2014 3:33 PM  
**To:** Sheehan, Neil  
**Subject:** Drones and French reactors

Morning' Neil,

Well, morning in Korea at any rate ....  
Please forward these onto Mr. Masse  
in NSIR along with my contact information.  
I'd be interested in hearing what his take is  
on the threat posed by drones.

Jim

**Klukan, Brett**

---

**From:** Klukan, Brett  
**Sent:** Wednesday, December 03, 2014 4:14 PM  
**To:** Masse, Todd  
**Subject:** FW: Drones and French reactors  
**Attachments:** R3228-A1 20-11-14 FINAL.pdf, 20141121 Studie\_Drohnen\_eng.pdf

Todd,

See attached. The RI PAO was able to get these from Greenpeace directly.

Cheers,  
Brett

**From:** Sheehan, Neil  
**Sent:** Wednesday, December 03, 2014 3:44 PM  
**To:** Klukan, Brett  
**Subject:** FW: Drones and French reactors

Brett,

I think these are the same documents you already received but just in case.

Neil

**From:** Jim Riccio [<mailto:jim.riccio@greenpeace.org>]  
**Sent:** Wednesday, December 03, 2014 3:33 PM  
**To:** Sheehan, Neil  
**Subject:** Drones and French reactors

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Jim

**Klukan, Brett**

---

**From:** Klukan, Brett  
**Sent:** Thursday, December 11, 2014 11:00 AM  
**To:** Dunn, Thomas  
**Subject:** Presentation  
**Attachments:** Presentation Notes.docx

Tom,

Here is a link to the presentation: [http://prezi.com/bmtmv1mqpckb/?utm\\_campaign=share&utm\\_medium=copy&rc=ex0share](http://prezi.com/bmtmv1mqpckb/?utm_campaign=share&utm_medium=copy&rc=ex0share)

Attached are my speaking notes.

Thank you again for the feedback.

Cheers,  
Brett Klukan  
RI Regional Counsel  
(610)-337-5301

---

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**Klukan, Brett**

---

**From:** Gladney, Robert  
**Sent:** Friday, December 12, 2014 9:55 AM  
**To:** Klukan, Brett  
**Subject:** Risks Posed by Privately Owned Drones presentation

Hello Brett,

I attended the conference this week and saw your presentation, "Risks Posed by Privately Owned Drones." It was very good and informative. Would you send me a copy of it?

Thanks.

**Robert L. Gladney**  
Project Manager  
NRC/NRR/DORL/Branch I-2  
[Robert.Gladney@nrc.gov](mailto:Robert.Gladney@nrc.gov)  
(301) 415-1022

**Klukan, Brett**

---

**From:** Klukan, Brett  
**Sent:** Monday, December 29, 2014 8:25 AM  
**To:** Masse, Todd  
**Subject:** Newsweek Article re Drones

Todd,

In case you had seen this yet: <http://www.newsweek.com/drones-threat-nuclear-plants-294458>

Cheers,  
Brett Klukan  
RI Regional Counsel  
(610)-337-5301

---

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**Klukan, Brett**

---

**From:** Nicholson, John  
**Sent:** Tuesday, January 06, 2015 1:36 PM  
**To:** Klukan, Brett  
**Subject:** drones

Thought you might be interested in this from Mondays WSJ...

<http://blogs.wsj.com/cio/2015/01/05/france-seeks-tech-to-stop-drone-flights-over-nuclear-plants/>

John Nicholson  
health physicist  
U.S. Nuclear Regulatory Commission  
Region I Office  
Division of Nuclear Materials Safety  
Decommissioning & Technical Support Branch  
2100 Renaissance Boulevard  
Suite 100  
King of Prussia, PA 19406  
610.337.5236  
[john.nicholson@nrc.gov](mailto:john.nicholson@nrc.gov)



**Klukan, Brett**

---

**From:** Klukan, Brett  
**Sent:** Tuesday, January 20, 2015 8:32 AM  
**To:** Masse, Todd  
**Subject:** Notes from UAS Summit

Todd,

FYI. This was included in the drone news roundup compiled by Bard College - see  
link: <http://skygearsolutions.com/index.php/education-training/news/25-uas-summit-notes-january-16-2015>

I imagine that we had someone attend this, but just in case, I thought that I would send it along.

Cheers,  
Brett Klukan  
RI Regional Counsel  
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What to Do with Drones – Nov. 5, 2014

[http://prezi.com/bvgkitaibh0v/?utm\\_campaign=share&utm\\_medium=copy&rc=ex0share](http://prezi.com/bvgkitaibh0v/?utm_campaign=share&utm_medium=copy&rc=ex0share)

What to Do with Drones (Fall 2014 RUG)

[http://prezi.com/m3voyyfgdmmg/?utm\\_campaign=share&utm\\_medium=copy&rc=ex0share](http://prezi.com/m3voyyfgdmmg/?utm_campaign=share&utm_medium=copy&rc=ex0share)

What to Do with Drones (Region I Winter Seminar 2014)

[http://prezi.com/bmtmv1mqpckb/?utm\\_campaign=share&utm\\_medium=copy&rc=ex0share](http://prezi.com/bmtmv1mqpckb/?utm_campaign=share&utm_medium=copy&rc=ex0share)

## Drone Article Bibliography

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<http://www.lagunabeachindy.com/san-onofre-risk-denial/>

[http://www.nytimes.com/2014/12/07/sunday-review/things-to-consider-before-buying-that-drone.html?\\_r=0](http://www.nytimes.com/2014/12/07/sunday-review/things-to-consider-before-buying-that-drone.html?_r=0)

<http://www.westernjournalism.com/epic-watch-the-awesome-flight-of-a-new-100-mph-drone-made-in-a-crazy-cool-way/>

<http://www.spiked-online.com/newsite/article/drones-time-to-reach-for-the-skies/16329>

<http://timesofindia.indiatimes.com/india/Uber-rape-case-fallout-Drones-with-night-vision-cameras-to-patrol-Delhi-streets/articleshow/45478971.cms>

<http://www.popsci.com/ask-anything-are-there-electronic-defenses-against-drones>

<http://dronelawjournal.com/>



















(b)(7)(F)







**Klukan, Brett**

---

**From:** Ferdas, Marc  
**Sent:** Monday, January 26, 2015 3:56 PM  
**To:** Klukan, Brett  
**Subject:** Drone

[http://www.govexec.com/management/2015/01/drone-crashes-monday-south-lawn-white-house-obama/103716/?oref=govexec\\_today\\_pm\\_nl](http://www.govexec.com/management/2015/01/drone-crashes-monday-south-lawn-white-house-obama/103716/?oref=govexec_today_pm_nl)

Thought you would find this article interesting.

*Marc S. Ferdas*

Chief, Decommissioning & Technical Support Branch (NRC/Region 1/DNMS)

[Marc.Ferdas@nrc.gov](mailto:Marc.Ferdas@nrc.gov)

610-337-5022 (w)

(b)(6)



**Klukan, Brett**

---

**From:** Klukan, Brett  
**Sent:** Wednesday, February 11, 2015 4:11 PM  
**To:** Klukan, Brett  
**Subject:** <http://www.popsci.com/france-tests-kamikaze-netted-interceptor-drones-protect-nuclear-reactors>

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**Klukan, Brett**

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**From:** Khan, Cheryl  
**Sent:** Wednesday, February 18, 2015 5:03 PM  
**To:** Klukan, Brett  
**Subject:** RUG - Drone Question

Brett,

Next week Region I is participating in another Region I RUG workshop.

The question was just asked (by the RUG members) if there are any drone updates/concerns since you last spoke at the RUG.

Is there anything new/different regarding the drone issue that you believe is worth sharing at next week's workshop (either by you, or Dan Dorman or another Region I representative)?

Thanks,  
Cheryl

**Klukan, Brett**

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**From:** Dimitriadis, Anthony  
**Sent:** Friday, February 20, 2015 3:29 PM  
**To:** Klukan, Brett  
**Subject:** FW: Drone article that will interest you guys

FYI

**From:** Barkley, Richard  
**Sent:** Thursday, February 19, 2015 12:43 PM  
**To:** Dimitriadis, Anthony; Cherubini, John  
**Subject:** Drone article that will interest you guys

**The Opinion Pages | Editorial**

## **Regulating the Drone Economy**

By THE EDITORIAL BOARD FEB. 19, 2015

Interest in drones has been growing faster than government rules about how they can be used. That's what makes the Obama administration's proposed rules for unmanned aircraft by businesses and federal agencies so important. The measures include many good ideas but do not do enough to protect the privacy of Americans.

Drones have played ever more important military roles, particularly in tracking suspected terrorists abroad in places like Pakistan. But these flying robots also have commercial uses, like monitoring energy pipelines, photographing real estate and managing large farms.

With few exceptions, however, the Federal Aviation Administration has prohibited the commercial use of drones. On Sunday, the agency proposed allowing commercial use as long as operators pass a written test every two years. The proposal would also restrict when and how the devices can be used. On the same day, President Obama imposed some restrictions on how federal agencies like the F.B.I. and Customs and Border Protection collect information from drones and what they do with it.

The F.A.A.'s proposal would require that drone operators always be able to see the aircraft without the aid of binoculars, cameras or other devices. The aircraft can be no heavier than 55 pounds, cannot be flown higher than 500 feet or faster than 100 miles per hour. The devices can be used only during daylight hours and cannot be flown over people not involved in their use. That means a movie director could fly a drone over a film set but not over a pedestrian on the street.

Some businesses like Amazon, which says it plans to deliver packages by drones, complain that the rules are too restrictive because operators will have to stay close to their machines. But the rules are a sensible starting point for a new technology. Most drones cannot yet sense and avoid obstacles, making them a hazard to people and property. In recent months, drones, mostly operated by hobbyists, have had near misses with airplanes and one crashed on the South Lawn of the White House. As drone technology advances, officials can change the rules.

A1

(44P)

Regardless of what the final rule says, the F.A.A. could find it difficult to enforce the regulation. It will have to rely on complaints from the public and local law enforcement. Also, the agency, which is in the middle of a major upgrade to the nation's air traffic system to reduce congestion, may not have enough resources to monitor the thousands of drones that could take to the sky once this rule is finalized in the coming months. The agency has about 7,200 employees in its aviation safety division, a number that has not increased much in recent years.

Mr. Obama's action on drone use by government agencies is much more problematic. For example, the president's memorandum says the government should not retain personally identifiable information collected by drones for more than 180 days. But agencies can keep the data for longer if it is "determined to be necessary to an authorized mission of the retaining agency" — a standard that grants officials far too much latitude. Moreover, the administration says agencies have to provide only a "general summary" of how they use drones, and only once a year. Law enforcement agencies like the F.B.I. and local police departments are already using drones and manned aircraft for surveillance, often without obtaining warrants, but they have said little publicly about what they are doing with the information collected.

The use of drones is likely to grow, and the devices could become as common as utility and delivery trucks. At the dawn of this technology, it's appropriate to set sound safety and privacy rules.

**Klukan, Brett**

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**From:** Klukan, Brett  
**Sent:** Friday, December 12, 2014 10:04 AM  
**To:** Gladney, Robert  
**Subject:** FW: Presentation  
**Attachments:** Presentation Notes.docx

Robert,

I'm glad that you enjoyed the presentation.

Here is a link to the presentation: [http://prezi.com/bmtmv1mqpckb/?utm\\_campaign=share&utm\\_medium=copy&rc=ex0share](http://prezi.com/bmtmv1mqpckb/?utm_campaign=share&utm_medium=copy&rc=ex0share)

Attached are my speaking notes.

Thank you again for the feedback. I really appreciate it.

Cheers,  
Brett Klukan  
RI Regional Counsel  
(610)-337-5301

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**Klukan, Brett**

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**From:** drone\_roundup-request@sympa.bard.edu on behalf of Center for the Study of the Drone <csd@bard.edu>  
**Sent:** Monday, December 15, 2014 10:44 AM  
**To:** Center for the Study of the Drone Weekly Roundup  
**Subject:** [drone\_roundup] Weekly Roundup

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## At the Center for the Study of the Drone

As the aerial view becomes more accessible, questions persist about how to properly read an aerial image. Revisiting Harun Farocki's *Images of the World and the Inscription of War* (1988), Chanterelle Mcnashe Ribes considers the process of gazing at aerial images, and describes how when we look at a photo we only see what we want to see.

President Obama has nominated Ash Carter as the new Secretary of Defense. What will this mean for the future of U.S. military drones? Here's what you need to know.

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## News

Israel dispatched fighter jets to intercept an alleged Hamas drone near the border with Gaza. The drone crossed into Israeli airspace during a festival celebrating the 27th anniversary of the founding of Hamas. The fighter planes returned to their base after the pilots determined that the drone posed little threat to Israel. (*Jerusalem Post*)

Amazon warned the Federal Aviation Administration that it could move its Prime Air operations overseas if it is not given permission to test the drones inside the United States. With Prime Air, Amazon hopes to be able to deliver packages in 30 minutes or less using drones. (Reuters)

Meanwhile, the FAA has allowed four additional companies to use drones for commercial purposes. The companies—Trimble Navigation Limited, VDOS Global, LLC, Clayco, Inc. and Woolpert, Inc.—were issued five exemptions from the ban on commercial drones. The companies will use drones for surveying land, inspecting oil rigs, and monitoring construction sites. (CBS News)

Police in Delhi are planning on using drones equipped with night vision cameras to patrol the streets in the northern part of the city. The decision follows several cases of rape that have prompted calls for better security in the capital. "The video can be streamed to the [Quick Response Team] vehicle which will monitor it in real time and respond quickly if it sees something wrong," a senior police official told the *Times of India*.

*For more on drones in India, [click here](#).*

The "Mistletoe Drone"—an advertising stunt by restaurant chain TGI Fridays—accidentally crashed into a customer. The aircraft, which was flying around the restaurant carrying mistletoe, injured Georgine Benvenuto, a Brooklyn-based photographer. (CNBC)

The Islamic State released aerial footage that it claims was taken with a drone of Kobane, a city in northern Syria. The video was released last week by the group's media branch in Aleppo. (Washington Post)

Mexico refuted claims that it had attempted to purchase drones from Iran. Unnamed officials in the Mexican government told IHS Jane's that there was no truth to a report by Iran's Fars news agency that Mexico had expressed interest in acquiring the aircraft.

A couple in Washington state claims that their neighbor is using a drone to spy on them. (King5)

A former executive from the Association for Unmanned Vehicle Systems International has joined DroneDeploy, a startup company that creates software for managing commercial drones. Gretchen West, formerly the executive vice president of AUVSI, will lead DroneDeploy's Business Development and Regulatory Affairs section. (Forbes)

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## Commentary, Analysis and Art

Tony Tyler, the head of the aviation trade group International Air Transport Association, told Reuters that more regulations are needed if drones are to safely share the airspace with manned aircraft.

In an interview on BBC World Service Business Matters, Center for the Study of the Drone co-director Dan Gettner discusses domestic drone regulations in the U.S.

Professor David H. Dunn, the co-author of a recent report on drones published by the University of Birmingham, says that drones "could be used as flying bombs" by terrorists. (The Telegraph)

The Washington *Post* editorial board argues that the FAA shouldn't require commercial drone operators to hold pilot licenses.

At Forbes, Greg McNeal argues that Congress must intervene in the regulatory process if it wants to prevent companies from taking the drone industry overseas.

On North Country Public Radio, David Sommerstein interviewed a woman who works as a drone sensor operator for the U.S. Air Force.

Senator Dianne Feinstein warned that the CIA had better not be lying about the number of civilians killed in drone strikes. (Wired)

At Foreign Policy, Marcy Wheeler argues that the Bush and Obama administrations have both used the same legal memos to defend the torture program and the targeted killing campaign.

At Al Jazeera, Naurcen Khan wonders whether in the future drone warfare will be viewed in the same way as the torture program is viewed today.

At Newsweek, Lucy Draper looks back at what has happened in the year since a deadly drone strike hit a wedding party in Yemen.

At the *Guardian*, Leo Benedictus writes about how drones are revolutionizing photography.

At Quartz, Zachary M. Seward compiled the 17 best drone videos that "gave a whole new perspective to 2014."

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## Know Your Drone

In a live test in the Persian Gulf, a laser aboard the USS Ponce destroyed a target drone. (ABC)  
*For more on anti-drone lasers, click [here](#)*

The U.S. Navy tested a 5-foot long submersible drone that looks and swims like a tuna fish. It's called the Silent NEMO. (Virginian-Pilot)

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## Drones at Work



A3

British hobbyist Nathaniel Durman made a short aerial drone video of the Shard skyscraper in London. (The *Independent*)

Rangers in the Australian Capital Territory will begin using drones to spray herbicides on invasive weeds. (The *Age*)

And this Christmas-y drone video has apparently beat out apple pie and football for the title of "Most American Thing Ever." (Motherboard)

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**Klukan, Brett**

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**From:** drone\_roundup-request@sympa.bard.edu on behalf of Center for the Study of the Drone <csd@bard.edu>  
**Sent:** Monday, December 22, 2014 12:57 PM  
**To:** Center for the Study of the Drone Weekly Roundup  
**Subject:** [drone\_roundup] Weekly Roundup

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## At the Center for the Study of the Drone

Wondering what to read this holiday season? We've chosen the best drone books of 2014.

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## News

A U.S. drone strike reportedly killed six people in the Datta Khel area of North Waziristan in Pakistan. An unnamed Pakistani security official told the *New York Times* that the dead were all militants, "three Uzbeks, one Arab and two locals." It is the first drone strike in Pakistan since the Taliban killed 148 people at a school in Peshawar earlier in the week. (*New York Times*)

A U.S. drone strike in Afghanistan reportedly killed four members of the Pakistani Taliban and seven other people. According to Mahlem Mashuq, a government official in the eastern Nangarhar province who spoke with Reuters, the 11 individuals were killed when a missile struck the pickup truck they were travelling in.

The *Washington Post* reported that the Federal Aviation Administration has been riven by internal debate and division over whether to allow certain companies to fly drones commercially. Earlier this year, senior officials within the FAA objected to allowing several Hollywood filmmakers to fly drones, citing safety concerns. The FAA has faced pressure from lawmakers and the industry to allow more companies to fly drones.

A man in Melbourne, Australia was fined AUD \$850 for crashing a drone near an ongoing police operation. The drone hobbyist was flying above a nine-hour standoff between police and the suspect of a stabbing. The drone, a DJI Phantom multirotor, hit power lines before crashing and nearly colliding with one of the officers. (CNET)

Anticipating an uptick in small civilian drone use this holiday season, the FAA, the Association for Unmanned Vehicle Systems International, the Academy of Model Aeronautics, and the Small UAV Coalition announced a new campaign, "Know Before You Fly" to educate amateur drone users about safety and regulations.

New York City council members Paul Vallone and Daniel Garodnick introduced anti-drone legislation that, if passed, could be the strictest in the country. The bill bans the operation of personal drones near any airport, school, hospital, church, or "open-air assembly," or during nighttime, bad weather, or above 400-ft. In order to be passed into law, the bill must make it through committee and be supported by a majority of the 51 city council members. (Capital New York)

Northrop Grumman secured a \$657.4 million contract to provide South Korea with four Global Hawk RQ-4B Block 30 drones. The Global Hawk is a high altitude, long endurance surveillance and reconnaissance aircraft. The delivery of the four aircraft, two spare engines, and two ground control systems will begin in 2017. (Janes)

State-run media in Syria claimed last week that an Israeli Skylark drone was shot down in the Quneitra province near the Golan Heights. The Skylark is a small surveillance and reconnaissance aircraft that is often operated by infantry soldiers in the field. A spokesperson for the Israeli military said that it had no knowledge of any drone being shot down. (Haaretz)

The U.S. Navy awarded Washington-based Boeing Insitu a \$41 million contract for three new RQ-21A Blackjack drone systems. The Blackjack is a small surveillance and reconnaissance drone equipped with a larger array of audio and video sensors than the popular Insitu ScanEagle drone. (Oregon Live)

Wikileaks released a 2009 CIA analysis of high-value targeting. In "Best Practices in Counterinsurgency: Making High Value Targeting Operations an Effective Counterinsurgency Tool," the CIA's Office of Transnational Issues argues that while targeting high value individuals could be effective when combined with a broader counterinsurgency campaign, it is largely ineffective as a stand-alone tactic. (ABC News)

The North American Aerospace Defense Command (NORAD) will deploy an unmanned blimp east of Washington, D.C. to protect the capital against missiles and drones. The 242 ft.-long tethered aerostat can stay in the air for up to a month and will be equipped with radar for detecting small aerial vehicles like drones. It is against the law to fly a drones in Washington, D.C. (Defense One)

The results of an Associated Press-GfK poll indicate that a majority of Americans are suspicious of commercial drones. Of the respondents, 21 percent support the idea of commercial drones, while 43 percent opposed and 35 were undecided. (Associated Press)

In Springfield, Ohio, charges were dropped against a man who was arrested in April for allegedly flying his drone in the path of an emergency helicopter. “[A] lot of times our laws don’t exactly fit all the facts when you are dealing with new or different technologies,” said Springfield Chief Prosecutor Marc Ross in an interview with WHIO.

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## Commentary, Analysis and Art

Michael Toscano, the outgoing president and CEO of the Association of Unmanned Vehicle Systems International, discussed drone regulations and safety on C-SPAN’s Washington Journal.

Photographer Tomas van Houtryve continues to take striking aerial photos of America. (Time) *For our in-depth interview with van Houtryve, [click here](#).*

At the Guardian, Robin McNicholas describes why 2015 could be the year of the art drone.

At TomDispatch, Tom Engelhardt imagines what a future U.S. Senate report on drone strikes could look like.

At Popular Science, Kelsey D. Atherton elaborates on the downsides of deploying nuclear-armed drones.

At Breaking Defense, Colin Clark writes about the different ways that the U.S. Air Force is thinking about using drones in the future.

At Just Security, law professors Jeffrey Brand, Amos Guiora, and Steven Barela defend the idea of drone courts, arguing that “we seek to *restore a balance of power* that is now totally absent.”

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## Know Your Drone

The British Royal Navy is holding “Robot Wars” exercises for drone manufacturers seeking contracts to demonstrate their technologies. (ITV)

At Popular Science, Eric Adams looks at the future of highly autonomous stealth drones like the Northrop Grumman RQ-180.

The Coast Guard is testing the MQ-8B Fire Scout, an unmanned helicopter, on the USCGC Bertholf off the coast of California. (Times of San Diego)

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## Drones at Work

Mark Devries uses drones to uncover the toxic wastelands created by American factory farms. (Motherboard)

The Peruvian government released drone footage showing the damage caused by Greenpeace activists to one of the Nazca Lines, a UNESCO World Heritage site. (Vice)

Swedish company Intuitive Aerials attached a Christmas tree to one a drone and flew it around Linköping, Sweden. (YouTube)

A kangaroo in Australia swiped a drone out of the sky. (9news.com.au)

And the first ever test flight at Nevada's drone testing facility came to a very early end when the drone crashed...immediately after launch. (Gizmodo)

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**Klukan, Brett**

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**From:** drone\_roundup-request@sympa.bard.edu on behalf of Center for the Study of the Drone <csd@bard.edu>  
**Sent:** Monday, December 29, 2014 12:04 PM  
**To:** Center for the Study of the Drone Weekly Roundup  
**Subject:** [drone\_roundup] Weekly Roundup

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## At the Center for the Study of the Drone

The debate around Lethal Autonomous Weapon Systems, sometimes referred to as “killer robots,” is heating up on the international stage. But what exactly is a killer robot, and why is the UN considering a moratorium on this technology? [Here's what you need to know.](#)

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## News

Two U.S. drone strikes reportedly killed at least nine people in the Shawal Valley of North Waziristan, Pakistan. The first strike destroyed a vehicle carrying four Uzbek fighters, and the second strike targeted a compound belonging to Asmatullah Muawiyah, a Punjabi Taliban leader. (New York Times)

Al-Qaeda in the Arab Peninsula released a video on how best to avoid drones. The video describes the multiple sensors on the drones, such as thermal detection capabilities. It recommends several tactics for camouflaging oneself and using “insulation cover” as protection. (Long War Journal)

UAS America Fund, LLC, an industry-supported commercial drone advocacy group, submitted a set of possible regulations for small drones to the Federal Aviation Administration. The rules would require operators to have a “demonstrated level of aeronautical knowledge” and follow the existing rules for small drones, such as a flying under a 400 ft. ceiling. The proposed rules are intended to get the commercial industry airborne “quickly but safely,” according to a UAS America press release. (Law360)

The British Civil Aviation Authority warned people receiving drones this Christmas that improper use of their gifts would result in hefty fines. Operators could face up to \$8,000 in fines for flying over congested areas or near people and buildings. The move follows a campaign by the U.S. Federal Aviation Administration encouraging hobbyists to respect regulations when flying drones. (Associated Press)

Hungary's data protection agency (NAIH) has urged lawmakers to consider the privacy issues raised by drones. In a research paper, the agency warned that drones could allow a "very strong penetration into the private sphere of individuals." Hungarian lawmakers are in the process of drafting regulations for commercial drones.

In a report, the Iowa Department of Public Safety advised lawmakers to hold off on passing anti-drone laws. The report argues that there are a number of beneficial drone applications for agriculture and police work. (KCCI18)

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## Commentary, Analysis and Art

At the *New York Times*, Mark Mazzetti considers how the Senate's "torture memo" has had little effect on the CIA's mandate to carry out drone strikes.

At Just Security, Marty Lederman has a few thoughts on Steve Coll's in-depth article on targeted killing and drones in the *New Yorker*.

The *Der Spiegel* staff examine the history of targeted killings in Afghanistan.

At the *Jerusalem Post*, Yaakov Lappin notes that Israel's center for training drone pilots is growing rapidly.

At Vice, Jason Koebler argues that drones don't pose a threat to aircraft as long as hobbyists aren't flying near an airport.

At the World Economic Forum, Carolyn Baylon argues that "drones are a growing nuclear security issue."

DesignBoom compiled a list of the most notable drone innovations of 2014.

The French drone company Parrot released a new advertisement featuring tightrope walkers playing with drones at dizzying heights. (YouTube)

In an episode of "The Big Future," the Verge takes a look at the potential commercial applications of drones. (YouTube)

At the Verge, Sean O’Kane assembles photos and videos of people unwrapping their holiday drones.

Meanwhile, according to Brian Barrett at Gizmodo, “dads with drones are ruining Christmas.”

A Hanukkah tweet by the Israeli Defense Forces features a soldier carrying a drone. (Haaretz)

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## Know Your Drone

The Defense Advanced Research Projects Agency has issued a call for software that could enable small drones to navigate complex indoor environments at high speeds. (Defense One)

NASA has awarded defense contractor Lockheed Martin a small research fund to study the feasibility of creating a drone capable of reaching Mach 6.0, which is about 4,500 mph. (Popular Mechanics)

China has announced that it has created a jet-powered version of its Wing Loong military drone. (China Post)

Iran unveiled a “suicide drone” at a large military drill. (AP)

Tested created a step-by-step guide to building your own racing quadcopter. (YouTube)

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## Drones at Work

La Poste, the French national post service, is developing a multirotor drone to deliver medical supplies to difficult-to-reach areas. (The *Telegraph*)

At Popular Science, Andrew Rosenblum examines how more and more people are using drones to create aerial maps.

Acrodyne Geospatial, a UAV company in Malaysia, used a drone to capture images of wide-scale flooding. (Yahoo)

Meteorologist Jeff Tilley and the Nevada Desert Research Institute are building cloud seeding drones to help increase precipitation during storms. (CBS)



AS

Defying warnings, a hobbyist flew his drone around a California Christmas fireworks display.  
(Gizmodo)

TravelbyDrone.com is a popular new website that allows users to upload drone videos of destinations around the world. (New York Times)

A drone hobbyist in Texas shares a few of his favorite aerial tricks to do with quadcopters.  
(Popular Science)

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## Klukan, Brett

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**From:** drone\_roundup-request@sympa.bard.edu on behalf of Center for the Study of the Drone <csd@bard.edu>  
**Sent:** Monday, January 05, 2015 11:08 AM  
**To:** Center for the Study of the Drone Weekly Roundup  
**Subject:** [drone\_roundup] Weekly Roundup

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## News

The U.S. Department of Defense confirmed in a statement that it had carried out an airstrike in Somalia, killing Abdishakur, the chief of intelligence for al-Shabab. The strike, which is thought to have been carried out by a drone, targeted a convoy of vehicles in the vicinity of Saakow, Somalia. One other al-Shabab militant is believed to have been killed. (Reuters)

In Pakistan, a U.S. drone strike reportedly killed six people in the tribal region of North Waziristan. According to an unnamed Pakistani government official who spoke with the New York Times, the strike targeted the compound of Usman, an Uzbek Taliban leader. It remains unclear if Usman was killed in the attack.

The U.S. Air Force's drone operators are at "breaking point," according to an internal memo obtained by The Daily Beast. According to the memo and several USAF sources, the Air Force doesn't have enough pilots and operators to meet the Pentagon's demands for surveillance flights, which have increased as a result of the fight against ISIS. Not only are overworked crews leaving the Air Force, the service has had to suspend training for many pilots in order to staff the rising number of patrols.

The U.S. Federal Aviation Administration missed a deadline to release regulations for hobbyist and commercial drones. In October, when the FAA turned in a draft of the rules to the White House, the FAA said that it expected the rules to be published by the end of the year. The rules must be reviewed by the White House Office of Management and Budget before going into effect. (Reuters)

The FAA will allow the Florida Keys Mosquito Control District to use drones to monitor mosquito populations. The District will fly two unmanned aircraft over an area of Monroe

County, Florida, where some species of mosquito are known to carry diseases such as dengue and malaria. (Fox News Latino)

The FAA is investigating at least 20 incidents of drone sightings that have taken place in the Washington, D.C. area over past few months. Several drones have been spotted flying near Reagan National and Dulles International airports. In other cases, hobbyists have been spotted flying around popular D.C. tourist destinations and sports stadiums. (NBC4 Washington)

The Civil Aviation Authority of the Philippines has issued regulations for aerial drones. Under the regulations, drone operators are prohibited from flying above 400 feet or near airports, and will be required to obtain approval from the CAAP before flying over populated areas.

Police in England arrested a photojournalist while he was flying his drone above the scene of a caravan fire that killed three people. Eddie Mitchell, a licensed drone operator, was flying in an area within the airspace of Gatwick International Airport, though outside of the no-fly zone immediately surrounding the airport. He was released without charge. (Forbes)

Energy companies in the United Kingdom are worried that hobbyist drones could crash into power lines and damage the National Grid. "If one of them strikes a power line or crashes into a substation, it can potentially damage an important piece of equipment and cause a power cut," Rodney Grubb, the head of Scottish and Southern Hydro Electric Power Distribution, told the *Independent*.

Ehang, a drone startup, raised \$10 million in Series A funding. The company, which is based in Beijing and San Francisco, makes the Ghost Drone, an aircraft that can be controlled using a smartphone. (VentureBeat)

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## Commentary, Analysis and Art

At Popular Mechanics, Joe Pappalardo warns that Iran's recently unveiled "suicide drone" could cause serious damage.

Cryptome posted a series of satellite photos that appear to show the expansion of Chabelley Air Base, a station for U.S. drones in Djibouti.

At Defense One, Patrick Tucker predicts that 2015 will be a big year for artificial intelligence in the U.S. military.

At ArchDaily, Evan Rawn examines how drones could provide a new aerial vantage point for city planners.

At the Navy Times, Meghann Myers predicts that in 2015 the X-47B and Triton drones could set milestones in the history of naval aviation.

At Geographical Imaginations, Derek Gregory reviews *Kill Chain: Drones and the Rise of High-Tech Assassins*, a forthcoming book by Andrew Cockburn.

A special edition of the Journal of Strategic Studies was dedicated to studying the “challenges in drone geopolitics.”

At the Smithsonian's Air and Space Museum Blog, Roger Connor advises recipients of holiday drones on how to fly drones safely.

At War is Boring, David Axe reports that the U.S. spy plane fleet, which includes several unmanned platforms, recorded 1,000 hours of surveillance video per day in 2012.

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## Know Your Drone

ComQuest Ventures, a small drone maker, has unveiled a hobby drone model capable of both vertical takeoff and landing (VTOL) and fixed-wing flight. (DIY Drones)

Meanwhile, AeroVel has released a video of its updated Pandora drone, which is also capable of both VTOL and normal flight. (Youtube)

Defense contractor General Atomics has installed a catapult system that can be used for both manned and unmanned aircraft on the USS Gerald R. Ford. (C4ISR)

Researchers at the National University of Singapore are developing bio-inspired underwater drones modeled after sea turtles. (Futurity)

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## Drones at Work

“Selfie bots”—drones that follow their owner—are becoming popular among sports enthusiasts and athletes. (IEEE Spectrum)

A hobbyist drone captured video of Sydney's New Year's fireworks display. (ABC News)

Meanwhile, Team Black Sheep filmed Hong Kong's New Year's fireworks. (YouTube)

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**Klukan, Brett**

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**From:** drone\_roundup-request@sympa.bard.edu on behalf of Center for the Study of the Drone <csd@bard.edu>  
**Sent:** Monday, January 12, 2015 12:17 PM  
**To:** Center for the Study of the Drone Weekly Roundup  
**Subject:** [drone\_roundup] Weekly Roundup

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## At the Center for the Study of the Drone

The U.S. Customs and Border Patrol has been flying a fleet of Predator B drones over U.S. borders since 2006. The program is the most substantial domestic government drone operation, flying tens of thousands of hours of surveillance missions. But a recent audit found that CBP's drones may not be worth the cost. [Here's what you need to know.](#)

Dr. Mirko Kovac, a leading robotics professor at Imperial College London, has dedicated himself to finding ways to use drones for good. [He sat down with the Center](#) to talk about construction drones, hospital drones, rescue drones, and more.

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## News

The U.S. Department of Defense is considering [offering drone pilots large retention bonuses.](#) The plan would increase the size of payouts made under the Air Force's Aviator Retention Program, which offers bonuses to pilots who switch from manned to unmanned aircraft. "We're looking at incentives of how we maintain people in the career field and how we incentivize growth in the career field," Col. Ray Alves of Air Combat Command told the *Military Times*.

The Federal Aviation Administration [will allow an agricultural company and a real estate agency](#) to use drones for commercial applications. The Administration granted exemptions to Advanced Aviation Solutions in Star, Idaho, and Douglas Trudeau of Tierra Antigua Realty in Tucson, Arizona. The FAA has so far granted 13 commercial drone exemptions out of 214 requests. (ABC News)

The FAA issued a guide for law enforcement agencies on how to handle encounters with drone hobbyists. The 12-page document offers suggestions to police on the best methods for investigating individuals suspected of endangering the national air space. "State and local Law Enforcement Agencies (LEA) are often in the best position to deter, detect, immediately investigate, and, as appropriate, pursue enforcement actions to stop unauthorized or unsafe UAS operations," writes the FAA in the guidance. (Bloomberg)

In the U.S. House of Representatives, Congressman Ted Poe spoke about the threats to privacy posed by drones. Rep. Poe, a Republican from Texas, has tried since 2012 to pass a bill curbing domestic drone use. "Here a drone, there a drone, everywhere a drone. Just more eyes in the sky and these eyes can be anywhere and on any person," said Mr. Poe. (C-SPAN)

An Indian Air Force Heron drone reportedly crashed in the northwestern Rajasthan province. The Heron, a medium-altitude surveillance and reconnaissance aircraft, experienced engine failure shortly after taking off from Jaisalmer Air Base. (First Post)

The U.K.'s Airprox Board, a committee tasked with investigating domestic aviation incidents, released a report on a near-miss between a British military drone and an Army manned helicopter during a training session in July 2014. The Desert Hawk surveillance drone came within 60 ft. of the troop-carrying Merlin helicopter. (The Telegraph)

In New York City, model aircraft enthusiasts are getting ready to lobby the City Council not to pass an anti-drone bill introduced by Councilman Daniel Garodnick, which would prohibit all drone use except for NYPD drone operations. "Your legislation would destroy a decades-old, family-oriented and community-based recreational activity," wrote Academy of Model Aeronautics Vice President Eric Williams in a letter to Garodnick. (New York Daily News)

Citizens for Ethics and Responsibility in Washington (CREW) filed a Freedom of Information Act request with the Department of Justice for information about the FBI's reported drone programs. With this FOIA, CREW "seeks documents that will shed light on the FBI's drone program, including the source of its drones."

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## Commentary, Analysis and Art

The Bureau of Investigative Journalism compiled all of its statistics on drone strikes that took place in 2014.

At the New York *Times*, Scott Shane connects the recent terrorist attacks in Paris, France, to Anwar al-Awlaki, the American-born member of al-Qaeda in the Arab Peninsula who was killed in a U.S. drone strike in 2011.

At Rolling Stone, John Keel notes that the military's rules for operating drones in Afghanistan remain unchanged in spite of the official end to the war.

At Lawfare Blog, Bryan Cunningham argues that policymakers must decide whether the military or law enforcement should respond to acts of terrorism.

In the New York Review of Books, Kenneth Roth explains why he is disappointed with President Obama's approach to torture and drones.

At War is Boring, Joseph Trevithick takes a look at how U.S. special operations commandos use drones to hunt suspected militants for weeks on end.

At Geographical Imaginations, Derek Gregory previews Adam Rothstein's forthcoming book, *Drone (Object Lessons)*, which will be published later this month.

Speaking at the 2015 International Consumer Electronics Show, Shawn DuBravac, the chief economist for the US Consumer Electronics Association, predicted that the drone industry will grow to \$1 billion by 2018. (*The Guardian*)

Helen Greiner, a co-founder of iRobot and inventor of the Roomba vacuum, tells AP that she started her new company, CyPhy Works, to develop useful new kinds of drones.

The Royal Aeronautical Society argues that the manufacturers of commercial airliners and engines need to update the bird strike test to include small drones.

The editors at Staten Island Live urge the New York City Council not to ban model aircraft with new anti-drone legislation.

And here's the trailer for "Good Kill," an upcoming film featuring Ethan Hawke as a conflicted drone pilot. (YouTube)

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## Know Your Drone

PC Magazine has put together a gallery of the 15 most interesting drones that were on display at the 2015 Consumer Electronics Show.

Computer company Intel has partnered with German drone maker Ascending Technologies to develop a system that allows small drones to sense and avoid moving and stationary obstacles, even in complex environments. (Wired)



Meanwhile, drone maker SkySpecs has unveiled its own obstacle avoidance system for small drones.

India's Ministry of Defense has announced that it will fund the development of the country's first combat drones, the Rustom-2. (C4 ISR)

Chinese drone maker Chengdu Aircraft Corporation has unveiled a new, stealthier version of its Tian Yi high-altitude surveillance drone. (IHS Jane's)

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## Drones at Work

Archaeologists in Peru are turning to drones to protect cultural sites from growing housing developments and vandalism. (PBS)

The Verge's Ben Popper raced drones at the Consumer Electronics Show.

Managers at Cleveland Metroparks, a system of nature preserves in Ohio's Greater Cleveland area, want to use eBee drones to map vegetation. (Cleveland.com)

Sky Tech One, an aerial photo and video company, created a drone tour of New York City's boroughs and abandoned facilities, as well as a second behind-the-scenes video. (YouTube)

A drone was used to get an aerial perspective of the red carpet at the Golden Globes. (Cosmopolitan)

In the Netherlands, amateur drone hobbyist Zwier Spanjer rushed waist-deep into a lake to save his DJI Phantom quadcopter. The dramatic video received over 2 million views in two days. To his friends, he is a "hero." (Daily Mail)

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## Klukan, Brett

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**From:** drone\_roundup-request@sympa.bard.edu on behalf of Center for the Study of the Drone <csd@bard.edu>  
**Sent:** Monday, January 19, 2015 1:24 PM  
**To:** Center for the Study of the Drone Weekly Roundup  
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## At the Center for the Study of the Drone

As the drone industry grows and becomes more complex, it is both more important and more difficult than ever to keep track of the business of unmanned systems. Our Industry Intel feature has [all the news, the deals, and the commentary and analysis](#) you need to stay informed.

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## News

A U.S. [drone strike in Pakistan](#) reportedly killed at least five people. The strike targeted a house in the Shawal Valley of North Waziristan. According to Pakistan's *Dawn* newspaper, there has been no confirmation of the strike by Pakistani security officials.

A second U.S. drone strike in Pakistan [reportedly killed seven](#) people. The strike, which took place in the Tehsil Ladha area of South Waziristan, targeted a compound suspected of housing militants. (Express Tribune)

In a press conference at the Pentagon, U.S. Air Force officials [announced several changes](#) to drone personnel arrangements in an attempt to relieve overworked and understaffed air crews. Air Force Secretary Deborah James and Chief of Staff Gen. Mark Welsh said that they will raise the monthly incentive pay for pilots, pull in personnel from the National Guard and USAF Reserve, and extend mission assignments for pilots. (Washington Post)

Meanwhile, the U.S. Air Force decided that it will [continue to operate](#) both the U-2 manned spyplane and the Global Hawk unmanned aircraft. The Air Force had considered scrapping the

U-2 in favor of the Global Hawks as its primary high-altitude surveillance and reconnaissance aircraft. (Aviation Week)

*For more on the transfer of operations from the U-2 to the Global Hawk, [click here](#).*

The Wall Street *Journal* reports that multiple American pilots associations are pressuring the Federal Aviation Administration to implement restrictive rules on domestic drones. The Air Line Pilots Association and the National Agricultural Aviation Association have lobbied the FAA to place restrictions on drones out of concern that unmanned aircraft could hurt manned aircraft pilots. According to the *Journal*, the resistance from ALPA may be why so few companies have received FAA exemptions to fly drones.

The Federal Aviation Administration has allowed CNN to test drones for newsgathering. CNN will partner with Georgia Tech Research Institute to test the aircraft. The information gathered from the tests will go to the FAA, where it will be used to inform the integration process for journalism drones into the National Airspace System. (Time)

*For an in-depth essay on using drones for journalism, [click here](#).*

Meanwhile, a coalition of 10 news media organizations has entered into an agreement with Virginia Tech University to test drones for journalism. The group, which includes the New York *Times* and Associated Press, has long petitioned the Federal Aviation Administration to allow the news media to test drones. Virginia Tech is one of the six national test sites sanctioned by the FAA. (New York *Times*)

Clark State Community College in Ohio received permission from the Federal Aviation Administration to fly drones as part of the College's agriculture program. The College received a Certificate of Authorization from the FAA to fly the drones over farm fields. The drones will collect data on soil moisture and pests. (Springfield *News-Sun*)

After two reported sightings of drones near Westchester County Airport, Senator Chuck Schumer (D-NY) has called on the FAA to quickly implement rules for integrating drones into the national airspace. "In too many ways, New York airspace has become the Wild West of drones and it must stop," said Sen. Schumer in a statement. (CBS New York)

Meanwhile, Senator John McCain (R-AR) released the draft of a bill in which he proposes a number of measures aimed at reforming the Customs and Border Patrol drone program. Earlier this month, the Inspector General for the Department of Homeland Security released a report detailing inefficiencies in the CBP drone program. (Tucson *Sentinel*)

*For more on the drones that patrol America's borders, [click here](#).*

Unconfirmed reports indicate that the Crimea-based Black Sea Fleet has obtained a number of Orlan-10 reconnaissance and surveillance drones. The fleet also received several Sukhoi Su-30 multirole fighter jets. (Russia Beyond the Headlines)

*For more on Russian drones, [click here](#).*

Photographs and video appeared on social media last week showing a Schiebel S-100 Camcopter drone that was reportedly shot down in Libya. Four of the Austrian-made S-100 reconnaissance and surveillance helicopter drones were obtained by Gaddafi's Khamis Brigade in 2008. (IHS Jane's 360)

Reuters reported that the U.S. is hoping to enter into a partnership with India to produce small surveillance drones. The collaboration would be based around the RQ-11 Raven surveillance drone, which is produced by AeroVironment. Sources told Reuters that export restrictions on U.S. drones might compel India to seek drone suppliers from other countries.

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## **Commentary, Analysis and Art**

At Vice News, Jason Leopold reports on a trove of documents revealing that the FBI wanted to recruit a radical blogger before he was killed in a drone strike in Yemen.

At the Council on Foreign Relations, Micah Zenko asked 30 historians what the legacy of President Obama's drone strike campaign will be.

At Just Security, Eric Messinger considers whether it is even possible to ban autonomous cyber weapons, and whether International Humanitarian Law can accommodate these new realms of war.

At the *Atlantic*, Venkat Srinivasan writes about the ways in which honeybees have contributed to warfighting throughout history.

Skygear Solutions Inc. published notes from a conference on domestic drones that included a lengthy discussion on how small amounts of explosives could be attached to commercially available quadcopters.

At Drone Wars UK, Chris Cole considers British airstrikes in Iraq, writing that one third of the strikes have been carried out using drones.

At the Columbia Journalism Review, David Uberti points out that in spite of FAA permission, CNN faces several other hurdles before it will be able to use drones to report the news.

At the International Business *Times*, Christopher Zera argues that anti-drone laws in North Carolina could threaten free speech.

At the *Guardian*, Jonathan Jones makes the case that drones should not be banned, given what these aircraft offer to artists.

Meanwhile, at the Art Newspaper, Rachel Corbett writes that emerging FAA regulations could ground the burgeoning field of drone art.

The World Economic Forum identified the abuse of autonomous weapons and artificial intelligence as an emerging risk in the “Global Risks 2015” report.

In the *Washington Post*, Dan Lamothe wonders whether Ethan Hawke’s upcoming “Good Kill” film will re-hash traditional stereotypes of the U.S. military.

John Roth, the Inspector General of the Department of Homeland Security, discusses the ineffectiveness of the border patrol drones on C-SPAN’s Washington Journal.

At Popular Science, Lois Parshley uses a flight simulator to virtually test fly two top-secret spy drones.

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## Know Your Drone

A team of anonymous developers and engineers is developing a drone that seeks out and destroys other drones. (CNET)

Skydio, a San Francisco-based startup, has received \$3 million in venture capital to develop computer vision for drones so that they can operate more autonomously. (Wired)

A student at the University of Massachusetts Dartmouth has devised a smart parking lot that employs drones to guide drivers to open parking spaces. (VentureBeat)

Defense contractor Lockheed Martin is expanding its efforts to develop drones for civil and commercial use. (Executive Biz)

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## Drones at Work

Footage from a drone showed the extent of the destruction of Donetsk Airport in Ukraine. The video was published by Army SOS, an organization that raises funds for the Ukrainian army. (Vice News)

The ongoing struggle in Namibia between poachers and conservationists has taken to the air, with both sides using drones and GPS to try and gain the upper hand. (NBC)

*For an in-depth perspective on using drones for conservation work, click here.*

The Police Service of Northern Ireland (PSNI) has used drones over 100 times since it acquired nine aircraft for the June 2013 G8 Summit in Belfast. (*Irish Times*)

Meanwhile, community leaders in California's Bay Area have criticized a move by local police departments to explore using drones to monitor public spaces. "'Trust us' isn't going to work," said Joe Simitian, a supervisor in Santa Clara County, in an interview with Bloomberg News.

Warner Bros. flew a drone to capture a shot for its film "The Mentalist," the first time a studio legally flew a drone on set in the U.S. (Yahoo!)

A filmmaker used a drone to capture Chicago's frigid "Chiberia" weather conditions. (YouTube)

FliteTest tried landing drones on a remote-controlled flying aircraft carrier.

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**Sent:** Monday, January 26, 2015 10:55 AM  
**To:** Center for the Study of the Drone Weekly Roundup  
**Subject:** [drone\_roundup] Weekly Roundup

*We are pleased to mark the 100th edition of our Weekly Roundup of drone news, commentary and analysis, art, and technology. We sent out the first Roundup almost two years ago to a group of Bard students who were taking our first drone studies class, a human rights seminar. Today, the Roundup has thousands of subscribers and is widely recognized as a reliable source of drone-related content. We would like to thank you for your decision to subscribe to our Roundup, and we look forward to continuing to keep you in the loop.*

*If you know someone who would like to receive the Weekly Roundup, they can [subscribe online](#) or write to us at [csd@bard.edu](mailto:csd@bard.edu).*

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## **At the Center for the Study of the Drone**

As the president of the Association for Unmanned Vehicle Systems International from 2008 to 2014, Michael Toscano served as the drone industry's leading representative and advocate. During this period, drones turned from a niche technology into a mainstream tool for a variety of applications. In a [wide-ranging interview](#) with Richard Whittle, Toscano explains why he believes drones will create jobs and save lives, and shares his predictions for a drone-filled future.

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## **News**

A U.S. drone strike in Pakistan [reportedly killed 4 people](#). The strike targeted a militant compound in the Shawal Valley area of North Waziristan, the tribal region that borders Afghanistan. (Associated Press)

U.N. peacekeepers stationed in the Golan Heights [spotted two Israeli drones](#) crossing from Israel into Lebanon in the moments before and after missiles from an Israeli helicopter killed



several Hezbollah leaders. "This incident is a violation of the 1974 Agreement on Disengagement between Israeli and Syrian forces," said U.N. spokesperson Farhan Haq in a statement to reporters. (Yahoo)

The Federal Aviation Administration and Raphael Pirker have settled a long-running legal dispute. Pirker, a well-known drone hobbyist, was fined \$10,000 by the FAA after he made an aerial video of the University of Virginia campus for the University's Medical School. The closely watched case has been a test of the FAA's authority to regulate drones. According to the terms of the settlement, Pirker will pay the FAA \$1,100. (Washington Post)  
*For the full history of the case, [click here](#).*

The United States will not halt counterterrorism efforts in Yemen in the wake of the collapse of the government in Sanaa. Rear Admiral John Kirby, the spokesperson for the Pentagon, and Alistair Baskey, a spokesperson for the National Security Council, both denied reports that the U.S. was halting the campaign against al-Qaeda in the Arab Peninsula following the fall of President Hadi's government. (The Guardian)

The House of Representatives Committee on Science, Space and Technology held a hearing on efforts to integrate drones into the National Airspace System. The hearing examined research initiatives into technologies that could facilitate integration, as well as the status of the FAA's forthcoming regulations for small drones. The hearing was also the first time that a drone was flown inside the U.S. Capitol building. (C-SPAN)

Islamic State militants released video footage of what they claim to be a downed Syrian drone. The video, which was released by the IS wing in Syria's Deir ez-Zor province, purports to show an Iranian-made Ghods Mohajer-4 drone. (Vice News)

Flights at Dubai International Airport were grounded for almost an hour after recreational drones were spotted flying inside the airport's airspace. "These UAVs are strictly prohibited in Dubai air space for any purpose without a prior permit," said Mohammed Abdulla Ahli, director-general of Dubai Civil Aviation Authority (DCAA), in a statement. (USA Today)

The FAA is investigating a nighttime drone flight over Naperville, Illinois after a complaint by the local police chief. (Chicago Tribune)

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## Commentary, Analysis and Art

Former British Labour Security Minister Lord West has called for stricter measures to prevent the use of drones for terrorist attacks. Lord West is a member of the All Party Parliamentary Group on Drones. (The Independent)

On NPR's "All Things Considered," Brookings Institute scholar Ibrahim Sharqieh explains how the American drone campaign against al-Qaeda in the Arab Peninsula has contributed to the instability in Yemen.

At War is Boring, Adam Rawnsley considers the role that Iranian drones play in the conflict in Iraq.

*For more on Iranian drones, [click here](#).*

The *Guardian* obtained a copy of a September 2014 report by the Pentagon's Inspector General that criticizes the Air Force's plan to purchase more Reaper drones.

At Lawfare blog, Jack Goldsmith argues that, contrary to statements made by the President at the State of the Union, the White House does not want a new Congressional Authorization for Use of Military Force.

The BBC interviewed Brandon Bryant, a former drone operator who has become an outspoken critic of American drone strikes.

In the latest podcast at the Bureau of Investigative Journalism, Adam Baron discusses a controversial November 2012 drone strike in Yemen that killed Adnan al Qadhi.

At the Huffington Post, Medea Benjamin speaks with Kathy Kelly, a peace activist who is serving a three-month jail sentence after being arrested last year during an anti-drone protest at Whiteman Air Force Base in Missouri.

*For our interview with Medea Benjamin, [click here](#).*

At the *Washington Post*, Matt McFarland suggests that Britain is an example of how to properly certify commercial drone pilots.

At Slate, John Frank Weaver argues that America's "14th Century Drone Policies" are hurting opportunities for innovation.

At Popular Science, Kelsey D. Atherton considers whether aerial drones could serve as useful explorers on Mars.

Anne Hathaway will star in a Broadway production of "Grounded," a play about a drone operator, directed by Julie Taymor.

*For our review of "Grounded," [click here](#).*

Pop band Ok Go showed off a few drones at a concert at the 9:30 Club in Washington, D.C. The event was part of the rollout of the Small UAV Coalition's "Know Before You Fly" Campaign, which aims to promote the safe use of small drones. (Heard on the Hill)

## Know Your Drone

The Defense Advanced Research Projects Agency is looking to develop a system to allow a single pilot to operate multiple drones at once in denied airspace. (*Washington Post*)

At the UAV Guy blog, Iain Butler posts a in-depth examination of Drone Deploy, a software that allows users to create 3D maps using aerial video footage from drones.

Robotics company CyPhy Works is developing a tethered drone to give soldiers and emergency responders an eye in the sky. (*IEEE Spectrum*)

Google-owned robotics company Boston Dynamics has unveiled a new version of its Atlas humanoid robot. The new Atlas can operate without a power cable or tether. (*Motherboard*)

Engineers at the Swiss National Centre of Competence in Research have developed a fixed-wing drone that can also crawl along the ground. (*Popular Mechanics*)

Robotbase, an New York robotics company, is hoping to develop a personal assistant robot. (*Live Science*)

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## Drones at Work

The Professional Society of Drone Journalists made a 3D map of the ruins of Ukraine's Donetsk Airport using a viral aerial video of the airport that was shot using a drone. (*Motherboard*)

Mexico's environmental protection agency will begin using drones to track an endangered porpoise species. Fewer than 100 of the vaquita marina remain in the Gulf of California. (*The Guardian*)

ESPN will be filming this year's X-Games using a drone. It will be the first time a network television station has covered a live sporting event in America with a drone. (*Engadget*)

A Mexican cartel rigged a multi-rotor drone to carry 6 pounds of meth across the border. The drone crashed a quarter mile south of the border in a parking lot in Tijuana. (*The Daily Beast*)

Komatsu Ltd., a Tokyo-based company that manufactures equipment for construction work, announced that it plans to supplement human construction workers with drones and robots. (*Wall Street Journal*)

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**Sent:** Monday, February 02, 2015 10:42 AM  
**To:** Center for the Study of the Drone Weekly Roundup  
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## At the Center for the Study of the Drone

This week, we introduccd the Portals, comprehensive collections of the best multimedia resources on a variety of issues on drones. Portals are now available on Strategy, Terrorism and Targeted Killing, and the Laws of War.

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## News

A U.S. drone strike in Yemen reportedly killed three members of al-Qaeda in the Arab Peninsula. The strike targeted a vehicle in the central Marib province carrying two men and, potentially, a teenage boy. The strikes took place amid increasing turmoil in Yemen and uncertainty as to whether the U.S. counterterrorism operations there will continue. (New York Times)

A second drone strike in Yemen reportedly killed four people. The strike targeted a vehicle traveling in the Shabwa province. It was the second strike in Yemen this year. (Associated Press)

A U.S. drone strike in Pakistan reportedly killed six people. The strike targeted a suspected Taliban compound in the Shawal area of North Waziristan. An unnamed Pakistani security official told Agence-France Presse that the victims were believed to be from Central Asia. It is believed to be the fifth drone strike in Pakistan this year.

A DJI phantom quadcopter drone crashed on White House grounds last week. The owner of the drone was reportedly test-flying in downtown Washington D.C. when the machine malfunctioned. The owner, whose identity has not been released to the public, is believed to be employed by the National Geospatial-Intelligence Agency. (New York Times)

In response to the White House drone incident, drone manufacturer DJI said that it will introduce software changes that will keep drones out of restricted areas. The required software update will prevent users from taking off or flying within a 15.5-mile radius of Washington D.C.'s restricted airspace. (*The Telegraph*)

The U.S. Air Force Scientific Advisory Board (SAB) announced that it will spend the year studying the roles that three new technologies—including drones—will play in the future fighting force. At a meeting at the Secretary of the Air Force Technical and Analytical Support Conference Center last week, the USAF SAB determined that it will focus on the ability of drones to operate in contested environments. The board will release a report of its findings in December. (*Military Times*)

The Federal Aviation Administration announced that the Super Bowl was a “No Drone Zone.” The FAA suggested that everyone leave their drones at home and reminded attendees that there were penalties for flying drones over crowded stadiums. (*Gizmodo*)

A Chinese-made CH-3 drone reportedly crashed in Nigeria's Borno province. Photos of the drone, which is thought to be owned by the Nigerian military, show the aircraft upside down with two anti-tank missiles strapped to the wings. (*Popular Science*)

Thailand's Transport Ministry is reportedly working on new regulations that will prohibit members of the public from flying drones fitted with cameras. The regulations should go into effect next month. (*Bangkok Post*)

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## **Commentary, Analysis and Art**

At *Forbes*, Greg McNeal writes that the FAA's forthcoming drone rules may also apply to toy remote-controlled aircraft.

Sales of drones on eBay have passed \$16 million since last March, reports Frank Bi at *Forbes*.

At *War on the Rocks*, Paul Scharre points out that drones are a big ticket item to look for in the forthcoming Department of Defense budget.

At *Warscapes*, Jyoti Omi Chowdhury considers the strategic viability of continuing drone strikes in Pakistan and Yemen.

At *Breaking Defense*, Richard Whittle writes that the U.S. Army is increasingly teaming manned helicopters with drones.

At *Popular Mechanics*, Joshua A. Krisch considers how long it will be until ambulance drones work on the battlefield.

At the Yemen *Times*, Ahlam Mohsen and Amal al-Yarisi argue that American drone strikes against al-Qaeda in the Arab Peninsula are often counterproductive.

The Editorial Board of the New York *Times* criticizes both the Obama administration and Congress for failing to pass a new war authorization for the air campaign against the Islamic State.

Also at the New York *Times*, Michael S. Schmidt and Michael D. Shear write that recent security breaches by hobby drone pilots are fueling concerns that the small aircraft could be used in attacks.

At IEEE Spectrum, David Schneider argues that small drones are not a big threat to commercial aircraft.

In a "Snapchat Interview," Senator Rand Paul (R-KY) said that he would shoot down with a shotgun any drone that flies over his property. (CNN)

The Washington *Post* picked out the best moments in the coverage of the White House drone incident on late-night comedy shows.

Also at the *Post*, Matt McFarland argues that Washington's no-fly zone hurts drone innovation.

At Time, Dan Kedmey considers why, in spite of DJI's software updates, "keeping drones out of no-fly zones is harder than you think."

At Slate, Konstantin Kakaes questions why drone manufacturers are helping the U.S. government crack down on hobbyists.

Afghan weavers in Pakistan are including images of drones on traditional rugs. (The *Atlantic*)

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## **Know Your Drone**

The Marine Corps *Times* takes a closer look at Qinetiq's Modular Advanced Armed Robotic System, a machine gun equipped ground robot.

Defense One's Patrick Tucker considers what kind of anti-drone measures the Secret Service might have used against that drone the crashed on the White House lawn.

Security researcher Rahul Sasi has developed malware that can take control of a drone's autonomous flight system. (Gizmodo)

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## Drones at Work

Arthur Holland Michel profiles a born-again Christian who uses drones to get closer with God. (Motherboard)

YouTube user Sky Frog posted a video imagining what it would be like for a drone delivery service to operate in Hong Kong. (Boing Boing)

U.S. Lieutenant General Ben Hodges, the commander of NATO forces in Europe, told reporters that pro-Russian forces are using drones to target Ukrainian troops. (Defence Talk)

ESPN released a video of drone footage from the X-Games.

A team from the University of Maryland's Institute for Advanced Computer Studies has developed a system to use data from drones and satellites is being used to curb rhino poaching. (Mashable)

At the French theme park Puy du Fou, a nighttime show called Cinéscénie is reaching ambitious new heights with the incorporation of 50 drones.

A farmer in Kansas used a drone to capture "cow art." (YouTube)

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**From:** Klukan, Brett  
**Sent:** Tuesday, February 03, 2015 9:55 AM  
**To:** Klukan, Brett  
**Subject:** NYT Article re Drone Use by Terrorists

[http://www.nytimes.com/2015/01/30/us/for-super-bowl-and-big-games-drone-flyovers-are-rising-concern.html?\\_r=0](http://www.nytimes.com/2015/01/30/us/for-super-bowl-and-big-games-drone-flyovers-are-rising-concern.html?_r=0)

Cheers,  
Brett Klukan  
RI Regional Counsel  
(610)-337-5301

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## **At the Center for the Study of the Drone**

The proliferation of drone technology has been accompanied by a vibrant movement of artists who make art about drones, or with them. In our newest [Multimedia Portal](#), we explore drone art's many forms with a series of lectures and interviews by and with artists and curators at the forefront of the movement.

*For more Multimedia Portals, [click here](#).*

President Obama's budget for 2016 includes, among other things, the Pentagon's spending plans for the year. These plans include significant investments in drones and drone research. We pored over the budget to find drone spending items (so that you don't have to). [Here's what you need to know](#).

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## **News**

A U.S. drone strike in Somalia reportedly [killed Yusef Dheeq](#), a senior leader of al-Shabab. According to the *Washington Post* Dheeq, who was responsible for the group's external operations, was killed along with several other Shabab members when a missile struck their vehicle.

The U.S. Department of Defense [will sell four General Atomics MQ-9 Reaper](#) drones to the Netherlands for \$339 million. The sale will include four ground stations, as well as sensor packages and communication systems. The Netherlands will join European NATO partners Britain, France, and Italy in flying the Reaper. (Defense Security Cooperation Agency)

A bill in the U.S. Senate proposes [lifting some of the](#) Federal Aviation Administration's restrictions on commercial drone research. The bill, which was proposed by Senators Ron Wyden (D-Ore.) and Lisa Murkowski (R-Alaska), would require the FAA to develop rules for

beyond line-of-sight drone flights, thereby permitting the operation of drones within line-of-sight distances. (KTVZ)

Eight companies were granted exemptions by the FAA to operate drones commercially. The companies that received exemptions will fly drones for television and film production and to inspect flare stacks for the oil industry. (Fox News)

The FAA is in the process of deciding whether Shawn Usman should face charges for crashing a drone on a lawn at the White House. Mr. Usman, who has worked at the National Geospatial-Intelligence Agency, could face a penalty of up to \$1,000 for flying his DJI Phantom within Washington D.C. airspace. (New York Times)

Meanwhile, DJI, the Chinese manufacturer of popular hobbyist drones (including Mr. Usman's), is halting a firmware update for its Phantom quadcopters that would have erected geofences around some of the nation's no-fly zones. In a statement on its website, DJI said there were "a small number of reported issues" with the update. (TechCruch)

A Reuters/Ipsos poll found that American citizens are far more apprehensive about hobby drones than of police drones. 73% of respondents said that they wanted regulations for small, lightweight privately-owned drones, whereas 62 % responded favorably to the idea that police should use drones to deter crime. (Reuters)

Chinese e-commerce giant Alibaba will begin testing drone delivery systems in three cities. In the trials, which are being launched in Beijing, Shanghai, and Guangzhou, drones will deliver packets of ginger tea. (CNN)

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## Commentary, Analysis and Art

At Wired, Kevin Poulsen considers the ramifications of DJI's geofencing, a feature of the the firmware update for Phantom quadcopters that would prevent users from flying into certain areas.

Meanwhile, at the Electronic Frontier Foundation, Parker Higgins questions the logic of DJI's geofencing solution to the White House drone crash.

At Fortune, Elizabeth Segran profiles Lisa Ellman, a lawyer who is helping President Obama draft rules for commercial drones.

James Mackler, a criminal defense attorney, argues that law enforcement officers might be outside of their jurisdiction when investigating drone-related offenses for the FAA. (UAS Magazine)

At the New York *Times*, Farhad Manjoo argues that the drone industry needs to be given an opportunity to innovate, as the “most interesting applications for drones are the ones we can’t predict.”

At Slate, Faine Greenwood argues that press freedom is the biggest casualty of Thailand’s crackdown on drones.

At the L.A. *Times*, Ryan Calo, a law professor at the University in Washington who specializes in robotics, says that drone operators, rather than the drones themselves, must be the focus of regulation.

At the Guardian, Nicholas Blincoe considers whether startup drone manufacturers can compete with Amazon and Google in the commercial drone market.

At Forbes, Frank Bi argues that the reality of Alibaba’s proposed drone delivery service doesn’t live up to expectations.

In a letter, Rep. Duncan Hunter, a Republican member of the House Armed Services Committee, urges President Obama to sell armed drones to Jordan. (The Hill)

At Defense One, Patrick Tucker takes a look at the Pentagon’s proposal to purchase 29 new MQ-9 Reapers in FY 2016.

At Al Jazeera, Neve Gordon argues that drones allow governments to engage in manhunts instead of war.

Drone Wars UK released initial figures of the number of British drone strikes in Iraq and Syria since the air campaign began last fall.

At Newsweek, Lauren Walker points out that drone strikes continue to take place in spite of President Obama’s promise to curb the practice.

At the Bureau of Investigative Journalism, Jack Serle considers whether the latest U.S. drone strike in Somalia signals a change in tactics.

“Drone,” a documentary by Flimmer Film, examines the consequences of the rise of robotics in the U.S. military. (The *Guardian*)

To mark the 70th anniversary of the liberation of Auschwitz, the BBC used a drone to create a haunting film of the former concentration camp.

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## Know Your Drone

NASA and the FAA have announced successful tests of a proof-of-concept drone sense and avoid system. The project is a collaboration with contractors General Atomics and Honeywell. (UAS Magazine)

Robotics Trends has put together a list of 6 useful phone apps for drone users.

Drone company PrecisionHawk has unveiled a cellular-based tracking and avoidance system that can be installed on drones. (Aviation Today)

Turkish Aerospace Industries has reported its successful maiden flight of the Anka Block B medium-altitude military surveillance and reconnaissance drone. (IHS Jane's 360)

Mother Jones compiled some notable drone trademarks.

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## Drones at Work

The UAE Drones for Good competition opened this week in Dubai's Internet City. Participants submitted case studies of a range of potentially beneficial applications of drones, from wildlife conservation to emergency medical assistance. The winning drone, developed by Swiss company Flyability, is designed for rescue missions in confined spaces. (Al Arabiya)

Animal conservationists in Canada are using drones to count caribou and keep track of endangered bird populations. (Mashable)

The FAA issued a warning to sports fans not to bring drones to the Super Bowl, calling the major sporting event a "no drone zone." (New York Times)

Politicians on the campaign trail are increasingly turning to drones to help shoot advertisements. (Politico)

Rice Research Australia is examining ways that drones could assist with surveying rice fields by collecting data on rice density and weeds. (ABC)

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*For Mashable's take on the week in drone news, check out Drone Beat*

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**Klukan, Brett**

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**From:** drone\_roundup-request@sympa.bard.edu on behalf of Center for the Study of the Drone <csd@bard.edu>  
**Sent:** Monday, February 16, 2015 12:29 PM  
**To:** Center for the Study of the Drone Weekly Roundup  
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## News

The Federal Aviation Administration has released its proposed rules for the domestic, non-recreational use of drones weighing less than 55 lbs. The rules, which would require commercial drone pilots to acquire an operator's certificate and maintain visual contact with the aircraft, among other requirements, would not apply to hobbyists or recreational users. The FAA will now open a 60-day period for public comment on the rules. (Washington Post)

President Obama issued a memorandum that outlines new privacy guidelines for government agencies that wish to fly unmanned aircraft. The order requires federal agencies to publish reports on their use of drones, ensure compliance with existing privacy protections, and establish oversight processes for the collection, retention, and dissemination of information. (White House)

A U.S. drone strike in Afghanistan reportedly killed nine people. The strike targeted a compound in the Nangarhar province near the border with Pakistan. (Dawn)

President Obama submitted a request to Congress for a new three-year authority to wage war against the Islamic State. While the authorization would repeal the 2002 congressional authority to use force in Iraq, it would not take the place of the 2001 Authorization for the Use of Military Force that the White House has used as a legal foundation for the CIA's targeted killing campaign. (CNN)

Fewer than 10 U.S. Air Force drone pilots will receive a \$1,500 monthly incentive pay this year. Last month, the Air Force announced that it intended to raise the bonus pay for drone pilots after the Daily Beast reported that drone crews were overworked. Air Force spokesperson Rose Richeson told Military.com that only pilots who have served six years or more will receive the bonus.

An FAA economic impact report indicating the proposed drone rules was leaked on Saturday. The publication of the proposed rules on Sunday seems to have been coordinated in response to the leak. (Forbes)

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## Commentary, Analysis and Art

A working paper by Paul Scharre and Michael Horowitz at the Center for a New American Security explains the capabilities and limitations of current autonomous weapons, and considers the ways in which future weapons systems could incorporate autonomous operations.

At War is Boring, Adam Rawnsley takes a look at Iranian drones that have crashed in Iraq.

The *Guardian* reports that a 13-year-old Yemeni boy who was killed in a recent U.S. drone strike told the paper before his death that he had nightmares about drones.

At Lawfare, Jack Goldsmith reacts to President Obama's proposal for a new AUMF, arguing that there will be little support for the proposal in Congress.

Meanwhile, at Just Security, Ryan Goodman argues that the new AUMF needs to have an expiry date, and that there should be substantial congressional oversight of the ongoing campaign against ISIS.

At Defense One, Patrick Tucker argues that the U.S. could supply Ukraine with non-lethal technology like reconnaissance and surveillance drones instead of arms.

At *Epoch Times*, Mark Pomerleau examines the downsides to the Air Force's reliance on drones.

At the *Kyiv Post*, Bozhena Sheremeta profiles a robotics academy that is making 3D-printed drones for the Ukrainian army.

At the *Canadian Press*, Murray Brewster writes that Russia's recent drone purchases are stoking fears that it could be expanding operations in the Arctic.

At Motherboard, Timothy McLaughlin takes a look how drone hobbyists in Myanmar are under scrutiny from the government.

Also at Motherboard, Shawn Musgrave writes that the FBI is having difficulty coming up with privacy assessments for drones.

At the *New York Times*, Jelani Cobb considers why the American public is suspicious of drones.

At CNN, Aaron Cooper describes some of the strict conditions attached to the FAA's commercial drone exemptions.

At Gizmodo, Adam Clark Estes takes stock of the DIY drone industry.



At Slate, Faine Greenwood argues that “42 percent of Americans are wrong about drones.”

A series of aerial photos by Kunrong Chen captures a bird’s-eye view of everyday activities in China. (World Press Photo)

ABC has announced that it will revive the robot fighting TV series BattleBots. (Deadline Hollywood)

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## **Know Your Drone**

Google-owned robotics company Boston Dynamics has unveiled a small four-legged robot called Spot. (Gizmag)

Drone maker 3D Robotics has released a new open-source flight control application for drones. (Tech Crunch)

French Company Malou has released a video of a drone that ensnares smaller drones in an aerial net. (Popular Mechanics)

Samsung has announced that it will open a new lab to develop drones, along with a range of other future technologies. (The Guardian)

Defense contractor GuardBot has developed an amphibious ball drone for the U.S. Marines. (Defense One)

Drone maker DJI has partnered with Olympus and Panasonic, indicating that it may create built-in drone cameras that are compatible with the lenses made by the two photography equipment companies. (CNET)

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## **Drones at Work**

NoFlyZone.org allows users to enter their home address as a no-fly zone. Some drone makers have agreed to comply with the no-fly zones created through the site. (ArsTechnica)

Pro-Russian separatists posted a video of their drone at work over Debaltsevo in eastern Ukraine. (YouTube)

Members of the New York City Drone User Group raced drones in the Bronx. (Motherboard)

AI  
In Brazil, scientists are using drones to scan the Amazon for evidence of ancient civilizations. (BBC)

A restaurant in Singapore is using drones to deliver food to customers. (Washington Post)

Fjurze, a Dutch company, is working with the Royal Dutch Airforce to put on a massive drone circus in Amsterdam. (Creators Project)

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**Klukan, Brett**

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**From:** drone\_roundup-request@sympa.bard.edu on behalf of Center for the Study of the Drone <csd@bard.edu>  
**Sent:** Monday, February 23, 2015 8:41 AM  
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## At the Center for the Study of the Drone

The FAA's proposed drones rules are only a draft of the final regulations. The FAA still has questions about how to best integrate commercial drones into domestic airspace, and it wants you to answer these questions in the public comment period. We've listed [31 questions that the FAA wants you to answer](#).

The U.S. military drone program relies on an extensive global communications infrastructure. In an [in-depth piece](#), Dan Gettinger takes a closer look at the bases, satellites, and other complex systems that enable U.S. drone operations.

Using open source satellite imagery, it is possible to discover a great deal about military drone programs. Here's our [how-to guide for hunting drones](#) from your computer. *And here's a [resource page for your hunting adventures](#).*

Our [latest Multimedia Portal](#) examines the past, present, and future of global intelligence operations, and looks at the growing role that drones play in them. *For more Multimedia Portals, [click here](#).*

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## News

A possible U.S. drone strike in Yemen [reportedly killed three members](#) of al-Qaeda in the Arab Peninsula. The strike, which took place in the southern Shabwa province, hit a vehicle carrying the three men. If confirmed, it will be the third time that American drones have targeted militants in the Shabwa province this year. (Long War Journal)

The United States [loosened restrictions on selling](#) American-made drones to foreign militaries, ending the ban on exporting armed drones. In a statement on its website, the State Department said that some rules, such as a prohibition against selling drones to countries that intended to

use drones to “conduct unlawful surveillance or use unlawful force against their domestic populations,” would remain in place. (*New York Times*)

Days later, Australian Air Force officials announced that Australian personnel have begun training on armed Reaper drones in the U.S. indicating a possible move by Australia to acquire armed U.S. drones. “It would be remiss of Australia not to continue to develop our knowledge of this technology to ensure we are able to gain the greatest benefit from unmanned aerial systems,” said Australian Parliamentary Secretary to the Minister for Defence, Darren Chester, in a statement. (Reuters)

Kalashnikov Concern, Russia’s largest manufacturer of automatic weapons, announced that it will acquire a 51 percent stake in Zala Aero, a producer of small tactical drones. “[W]e plan to develop and manufacture drones, mobile and earth-based management stations,” said Kalashnikov Concern CEO, Aleksey Krivoruchko, in a statement. (Defense News)

Several companies are not happy with all of the Federal Aviation Administration’s proposed rules for commercial drones. A number of the rules would make drone delivery operations, such as those proposed by Amazon, illegal. “[E]very member is contemplating moving abroad for testing and development,” said Michael Drobac, the executive director of the Small UAV Coalition, a group of 24 companies including Amazon and Google, told the *Guardian*.

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## **Commentary, Analysis and Art**

The *Economist* reviews the FAA’s proposed rules for commercial drones, writing that some businesses will be left out.

At Popular Mechanics, Michael Belfiore explains why the FAA rules aren’t necessarily bad for the commercial drone industry.

At the Verge, Ben Popper lists five take-aways from the FAA’s proposed drone rules.

At the Silicon Valley *Business Journal*, Cromwell Schubarth takes a look at the five best funded commercial drone startups.

At Popular Science, Erik Sofge argues that delivery drones still have a chance, even if Amazon isn’t in the picture.

In a statement, Senator Chuck Schumer (D-NY) said that while the FAA’s regulations were a “good first step,” it should reconsider its line-of-sight rule.

At Forbes, Greg McNeal writes that a bill in the California legislature proposing to prohibit unauthorized drone flights over private property would be unenforceable in its current form.

In a series at the RAND blog, Lynn E. Davis, Michael J. McNerney, and Daniel Byman attempt to dispel some of the “misconceptions about drones,” beginning with the idea that drones have revolutionized warfare.

At War is Boring, Adam Rawsley writes that in spite of a push by Ukraine to acquire drones, Moscow remains far ahead of Kyiv in acquiring unmanned vehicles.

At Foreign Policy, Micah Zenko argues that the Obama administration's new rules for exporting armed drones contradict its own track record.

At Defense One, Patriek Tucker and Marcus Weisgerber consider the implications of the loosened restrictions on drone exports.

At the National Interest, Richard Whittle argues that there are several potential benefits to allowing American companies to export drones.

At Just Security, Sarah Knuckey argues that the sale of armed American drones could “export US-style drone war.”

At War is Boring, John Costello considers how new weapons will influence military strategy, and looks at the challenges posed by an emerging era of technological warfare.

At Defense News, a panel of experts weigh in on the challenges facing the new Secretary of Defense Ash Carter.

At Motherboard, Brian Merchant takes a look at *The Mechanical Butcher*, a 1895 short sci-fi about automation.

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## **Know Your Drone**

A team at the Spanish Air Traffic Laboratory for Advanced Unmanned Systems has successfully tested a small drone at a 20km range. (Flight Global)

Defence contractor Lockheed Martin has unveiled a long-endurance version of its Fury surveillance drone. (Flight Global)

India's Defence Research and Development Organisation is in talks with defence contractors Boeing and Lockheed Martin about developing an indigenous combat drone. (The Hindu)

A California company has created a prototype for a wind-powered drone that could fly for extremely long stretches of time. (Venture Beat)

A12

A startup proposes to create computer vision systems for drones. (Drone Blog)

Meanwhile, Bloomberg tested the computer vision capabilities of several advanced robots and found that the results left much to be desired.

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## Drones at Work

Draco Scientific, an Australian company, uses drones to find methane gas leaks released during fracking operations. (ASME)

Falconers in Abu Dhabi are using drones to train their birds. (Popular Science)

At Nonprofit Quarterly, Jeanne Allen considered the use of drones, robots, and apps for disaster relief.

The City of Somerville, Massachusetts hired a drone photography company to inspect the roofs of municipal buildings for snow damage. (The Boston Globe)

Drones were used to create a 3D reconstruction of the Christ the Redeemer statue in Rio de Janeiro. (Gizmodo)

Explorer Sam Cossman joined geologists in using drones to create a 3D map of the active volcano Vanuatu. (National Geographic)

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## Klukan, Brett

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**From:** drone\_roundup-request@sympa.bard.edu on behalf of Center for the Study of the Drone <csd@bard.edu>  
**Sent:** Monday, March 02, 2015 10:51 AM  
**To:** Center for the Study of the Drone Weekly Roundup  
**Subject:** [drone\_roundup] Weekly Roundup

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## At the Center for the Study of the Drone

As a Department of Homeland Security shutdown started to look increasingly likely, we wondered what that would mean for the Customs and Border Protection's drone program. Would the drones be furloughed? Or will they keep flying?

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## News

A U.S. drone strike in Yemen reportedly killed four suspected members of al-Qaeda in the Arabian Peninsula. The strike targeted two vehicles in the southern Shabwa province. While local security officials identified the men to Reuters as militants, a statement by AQAP contradicted reports that the strike took place at all.

French police are investigating a series of nighttime drone flights over landmarks and restricted locations around Paris. Over the course of two consecutive nights, drones were spotted flying above the Élysée Palace, the Invalides, the Eiffel Tower, and the U.S. Embassy. According to an unidentified government spokesperson, the French authorities "are mobilised on a matter which is and should be taken seriously." (The *Guardian*)

Meanwhile, in an apparently separate incident, three Al-Jazeera journalists were arrested for flying a drone in the Bois de Boulogne park without a permit. The journalists were reportedly testing drones for newsgathering. It is against the law in France to fly drones without a permit. (New York *Times*)

Australia acknowledged that members of its military have begun training on the MQ-9 Reaper drone. "It would be remiss of Australia not to continue to develop our knowledge of this technology," said Junior Minister Darren Chester in a statement. This follows the Obama administration's announcement that it is lifting a ban on the export of armed drones. (Wall Street *Journal*)

The U.S. Secret Service announced that it will launch a series of drone exercises in the Washington, D.C. area. In a short press release, the Secret Service said that the exercises will take place in “normally flight restricted areas.” The announcement comes weeks after a hobbyist crashed a quadcopter on White House grounds. (*Washington Post*)

The Federal Aviation Administration is investigating a spike in the number of drone sightings by pilots of manned aircraft. According to CBS News, there were on average two reported sightings every day for the first few weeks of this year, far more than during the same period last year.

The City Council of Berkeley, California passed a one-year moratorium on the use of drones by the police department, declaring the city a “No Drone Zone.” The 7-1 decision exempts the Fire Department, but only in emergencies. Last year, the Sheriff of Alameda County purchased two drones. (*Contra Costa Times*)

3D Robotics, a company that manufactures small multi-rotor consumer and commercial drones, raised \$50 million in a round of fundraising led by Qualcomm. “The incredible pace of innovation in the smartphone industry is transforming many adjacent industries, including drones,” said co-founder Chris Anderson in a statement. (*Forbes*)

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## Commentary, Analysis and Art

At the *Guardian*, Chris Woods examines the psychological strain experienced by military personnel who fly drones. “Research confirmed that many of the stresses experienced by personnel were being amplified by poor working environments,” writes Woods.  
*For more on the challenges faced by drone pilots, [click here](#).*

At Wired, Jeffrey Marlow explains how adventurous drone pilots are changing the nature of exploration.

At Rhizome, Adam Rothstein calls for a common open system for drones, similar to the early PC systems.

At Lawfare, Alexander Velez-Green looks at the lethal robot sentry guarding South Korea’s northern border, arguing that “killer robots” could help stabilize conflict zones.  
*For more on “killer robots,” [click here](#).*

The New America Foundation hosted its “Future of War” conference, which featured several discussions of drones and robotic technologies.



Meanwhile, the New America Foundation released a new project identifying the countries that are producing or have acquired drones.

At Defense One, Peter Bergen and Emily Schneider argue that the proliferation of armed drones will require new international standards to govern their use.

Meanwhile, in an ongoing series on drone myths at the RAND blog, Lynn E. Davis, Michael J. McNerney, and Daniel Byman argue that it will be difficult, if not impossible, to develop international norms to govern the use of this technology.

At Breaking Defense, Peter Lichtenbaum and Rachel Stohl propose that the Obama administration's decision to lift the ban on exporting drones "actually raises the level of scrutiny over the technology."

At Reuters, Stanley Carvalho reports that armed drone exports could lead to a rise in the acquisition of armed drones by Gulf states.

At War on the Rocks, Paul Scharre continues the "Coming Swarm" series, arguing that by investing in numerous low-cost robotic systems, the U.S. military could give a new meaning to the concept of mass on the battlefield.

*For more on drone swarms, click here.*

At War is Boring, Joseph Trevithick examines the U.S. Air Force's drone program during the Vietnam War.

At Drone Wars UK, Chris Cole takes a look at what drone crashes around the world could reveal about military operations.

In the *Atlantic*, Conor Friedersdorf considers the drone scare in France and what it could mean if commercial drones were weaponized.

At CNN, Drew Griffin and David Fitzpatrick report on the Customs and Border Protection drones, writing that the steep cost of each arrest brought about through the use of the drones casts doubt on the value of the program.

At the Drone Journalism Lab, Matt Waite offers a few practical suggestions to journalists who are arrested for flying drones.

*For more on drone journalism, click here.*

At Slate, Margot Kaminski writes that there is much progress to be made in developing privacy rules that protect individuals against domestic drones.

Also at Slate, Faine Greenwood offers tips on how to travel overseas with a drone "without causing an international incident."

At BBC News, Regan Morris profiles Jordi Muñoz, one of the founders 3D Robotics.

At Business Insider, Marcelo Ballve has a few take-aways from Business Intelligence's latest report on the commercial drone market.

At Muckrock, Shawn Musgrave reports that the FBI will follow President Obama's order to federal agencies to release details on drone activities.

At the *Baltimore Post-Examiner*, Anthony C. Hayes interviews Dan Hesperman, the author of the novel *Unmanned*, about the effects of drone flying on pilots.

In City of Drones, architect Liam Young and musician John Cale create a digital visualization of what it might feel like to fly around a future city with a drone. "The visual language of City of Drones is based on the mechanics of machine vision," Young told the Creators Project.

3D Robotics released a beginner's guide to taking aerial shots with drones.

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## **Know Your Drone**

Portuguese company Tekever has demonstrated a system for controlling drones using only your mind. (Forbes)

The Australian Air Force announced that it is hoping to enter into a joint development program with the U.S. Navy for the Triton high-altitude long endurance surveillance drone. (IHS Jane's 360)

Chinese defence company Norinco has unveiled a lightweight missile designed to be mounted on combat drones. (IHS Jane's 360)

Students at Simon Fraser University have developed a 3D-printed quadcopter for first responders. (Vancouver Sun)

Italian aerospace company Piaggio announced the successful maiden flight of its medium-altitude long endurance military drone, the Hammerhead. The Italian Air Force has said that it will buy three Hammerheads. (Defense News)

Drone company Perceptiv has unveiled an \$800 tracking system that allows filmmakers to use drones as aerial dollies. (TechCrunch)

A team at the Australian Research Centre for Aerospace Automation has created an emergency automated landing system for unmanned aircraft. (Phys.org)

Bloomberg takes a closer look at the crash-proof disaster response drone that recently won the \$1 million grand prize at the Drones for Good competition.

A German startup has created a device that blocks all wifi-connected surveillance devices that may snoop on your home, including drones. (Daily Dot)

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## Drones at Work

Wright State University is partnering with Ohio/Indiana Unmanned Aircraft Systems Center to research the potential uses of drones in emergency situations. (Dayton Business Journal)

Photographer Tomás Thibaud used a drone to film the first wildlife bridge in Latin America. (New Scientist)

Adnear, a Singapore-based company, is using drones that intercept cell phone signals in order to deliver targeted advertisements. (Forbes)

At Drone Girl, Sally French spoke with Sonja Betschart, the chief marketing officer at Pix4D, about using drones to map Brazil's Christ the Redeemer statue.

Drones are increasingly being used to photograph weddings, but not everyone is convinced that these machines are an appropriate guest. (Washington Post)

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**Klukan, Brett**

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**From:** Khan, Cheryl  
**Sent:** Friday, November 07, 2014 12:58 PM  
**To:** Klukan, Brett  
**Subject:** RE: Possible Idea for RUG Presentation

Brett - I should be able to work that in to the schedule. (b)(6)  
(b)(6) and will finalize the draft agenda then. I'll send you a copy at that time FYI.

Separately, I'll send you a meeting request for both the pre-brief (monday) and the RUG (thursday) that are next week. Hope you can make it to both.

Lastly, there is one other agenda item that you might have insights on. I plan to put both agenda items back-to-back, so you don't have to stay for the entire meeting (unless you want to). The second agenda item is associated with a question that came up from Hope Creek during the Region's prep for an operator licensing equal inspection. (b)(6)

(b)(5)

I'm out of the office today, but will be back in-office Monday. Let me know if you have any questions.

Thanks,  
Cheryl

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**From:** Klukan, Brett  
**Sent:** Thursday, November 06, 2014 4:05 PM  
**To:** Khan, Cheryl  
**Subject:** RE: Possible Idea for RUG Presentation

Cheryl,

It could be abbreviated (taking out all the law bits) to less than 10 minutes, leaving 5 minutes for questions.

Thanks.

Cheers,  
Brett

**From:** Khan, Cheryl  
**Sent:** Thursday, November 06, 2014 2:32 PM  
**To:** Klukan, Brett  
**Subject:** RE: Possible Idea for RUG Presentation

Brett,

Yes, I think this topic would be of-interest to RUG members.

The next RUG workshop is next week, Nov 13 from 8 – 12.

How much time would you suggest for the shortened version? If it's 10 – 15 minutes total (including questions), I think we can fit it into the agenda. If you recommend longer, then it might be a challenge to fit it into the schedule next week, but we could easily add it to the agenda for the next workshop (tentatively scheduled for late February).

What do you think?

Cheryl

From: Klukan, Brett  
Sent: Thursday, November 06, 2014 8:19 AM  
To: Khan, Cheryl  
Subject: Possible Idea for RUG Presentation

Cheryl,

Dave and I both spoke yesterday at the NEI Lawyers Committee meeting yesterday (it was held in Philadelphia this year).

The purpose of my presentation (link below) was to introduce those in attendance (who were not already aware of the issue) to the potential security / public optics implications of commercially-available drones flying / hovering over licensee sites. Even if there would be limited valuable security information to be gained from such drone operations, the public dissemination (i.e., youtube) of images / videos of a plant protected area could cause a public outcry.

Dave thought that it might be a good idea to give an abbreviated version of the presentation (minus much of the law) at the next RUG?

Would this be possible? Would you think this something that the members would be interested in?

[http://prezi.com/bvgkitaibh0v/?utm\\_campaign=share&utm\\_medium=copy&rc=ex0share](http://prezi.com/bvgkitaibh0v/?utm_campaign=share&utm_medium=copy&rc=ex0share)

Thanks.

-----Cheers,  
Brett Klukan  
RI Regional Counsel  
(610)-337-5301

~~-----  
This email may contain communications protected by the attorney-client privilege or the attorney work product doctrine. In addition, this e-mail may contain proprietary, sensitive or other protected information. Please treat accordingly. Do not publicly disclose without proper authorization.~~

**Klukan, Brett**

---

**From:** Klukan, Brett  
**Sent:** Monday, November 10, 2014 4:28 PM  
**To:** Brett Klukan (b)(6)  
**Subject:** <http://www.greenpeace.org.uk/newsdesk/energy/news/video-drone-footage-reveals-illegal-coal-mining-source-chinas-yellow-river>

<http://www.greenpeace.org.uk/newsdesk/energy/news/video-drone-footage-reveals-illegal-coal-mining-source-chinas-yellow-river>

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**Klukan, Brett**

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**From:** Brett Klukan (b)(6)  
**Sent:** Friday, November 21, 2014 7:02 AM  
**To:** Klukan, Brett

<http://gizmodo.com/5968058/an-awesome-guy-made-a-flying-drone-armed-with-a-paintball-gun>

<http://www.usnews.com/news/articles/2013/05/21/the-next-gun-debate-armed-drones-could-be-protected-by-the-second-amendment-->

<http://www.foxnews.com/tech/2014/09/15/us-military-new-laser-gun-zaps-drones/>

[http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2117724](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2117724)

(b)(6)

## Klukan, Brett

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**From:** Klukan, Brett  
**Sent:** Friday, November 21, 2014 11:01 AM  
**To:** Klukan, Brett

<http://www.youtube.com/watch?v=KBa22uwYzlw>

**From:** Brett Klukan (b)(6)  
**Sent:** Friday, November 21, 2014 7:02 AM  
**To:** Klukan, Brett  
**Subject:**

<http://gizmodo.com/5968058/an-awesome-guy-made-a-flying-drone-armed-with-a-paintball-gun>

<http://www.usnews.com/news/articles/2013/05/21/the-next-gun-debate-armed-drones-could-be-protected-by-the-second-amendment-->

<http://www.foxnews.com/tech/2014/09/15/us-military-now-laser-gun-zaps-drones/>

[http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2117724](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2117724)

(b)(6)



## Klukan, Brett

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**From:** Dimitriadis, Anthony  
**Sent:** Monday, December 01, 2014 6:11 PM  
**To:** McKenzie, Kieta; Pinkham, Laurie; Wingfield, Ted; Gallagher, Robert; Gaskins, Farrah; Klukan, Brett; Andrews, Elizabeth; Dentel, Glenn; Wingfield, Ted  
**Cc:** Nieh, Ho  
**Subject:** Winter Seminar 2014 Agenda Rev 9.xlsx  
**Attachments:** Winter Seminar 2014 Agenda Rev 9.xlsx

Folks, Glenn and I sat down and went through all of the items on the agenda and I re-did some of the graphics on an Exel Document (my apologies).

I followed the 2013 Winter Agenda where each day has a unique color and the associated breakout session also follows the color scheme.

Kieta was kind enough to make a Word document out of the Rev 7 that Liz Andrews was gracious enough to develop.

I would love to get your input tomorrow so that we can support distribution to the Regional folks of a "draft Agenda" as I committed to Ho today.

Thank you for taking the time to review and I look forward to getting your feedback. Please review the sessions that list the speaker for which you were a key communicator and verify that I don't list any errors. Some of the titles were shortened to support the Agenda print document.

Thank you.

Tony

Anthony Dimitriadis, Chief  
Plant Support Branch I



US NRC Region I  
2100 Renaissance Blvd  
King of Prussia, PA 19406  
Telephone: 610-337-6953 (office)  
Cell: (b)(6) (cell)  
Fax: 610-337-5320  
E-mail: [Anthony.Dimitriadis@nrc.gov](mailto:Anthony.Dimitriadis@nrc.gov)

μολών λαβέ !

**Klukan, Brett**

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**From:** Klukan, Brett  
**Sent:** Wednesday, December 10, 2014 2:10 PM  
**To:** Klukan, Brett; Brett Klukan (b)(6)  
**Subject:** <http://www.c-span.org/video/?323186-1/hearing-drone-regulations>

<http://www.c-span.org/video/?323186-1/hearing-drone-regulations>

Cheers,  
Brett Klukan  
RI Regional Counsel  
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**Klukan, Brett**

---

**From:**

(b)(6)

**Sent:**

Thursday, December 11, 2014 9:08 AM

**To:**

Klukan, Brett

**Subject:**

wapo drone article

<http://www.washingtonpost.com/blogs/the-switch/wp/2014/12/10/the-faa-wont-make-up-its-mind-on-drone-rules-until-2017-at-the-earliest/>

**Klukan, Brett**

---

**From:** Klukan, Brett  
**Sent:** Thursday, December 11, 2014 9:50 AM  
**To:** 'Abbey Swan'  
**Subject:** RE: wapo drone article

Thanks for the article. I was actually listening to CSPAN's recording of the hearing on the (long, icy) drive to work this morning. It was interesting how many Congressmen admitted to either already owning a drone or having one on his/her Christmas list.

One really cool (automated) drone application—DHL's parcelcopter. <https://www.youtube.com/watch?v=AlxsVkk-B-c>

(b)(6)

**From:** (b)(6)  
**Sent:** Thursday, December 11, 2014 9:08 AM  
**To:** Klukan, Brett  
**Subject:** wapo drone article

<http://www.washingtonpost.com/blogs/the-switch/wp/2014/12/10/the-faa-wont-make-up-its-mind-on-drone-rules-until-2017-at-the-earliest/>

**Klukan, Brett**

---

**From:** Brett Klukan (b)(6)  
**Sent:** Wednesday, December 17, 2014 2:03 PM  
**To:** (b)(6)  
**Cc:** Klukan, Brett  
**Subject:** Spy Drones Expose Smithfield Foods Factory Farms

<http://factoryfarmdrones.com/>

Sent from my iPhone

**Klukan, Brett**

---

**From:** Brett Klukan (b)(6)  
**Sent:** Thursday, December 18, 2014 11:05 AM  
**To:** Klukan, Brett

<http://www.forbes.com/sites/gregorymcneal/2014/12/15/new-software-allows-fleets-of-drones-to-be-controlled-by-the-cloud/>

<http://www.defenseone.com/technology/2014/12/drone-hunting-blimp-launch-over-washington-dc/101328/>

(b)(6)

**Klukan, Brett**

---

**From:** Brett Klukan (b)(6)  
**Sent:** Monday, December 22, 2014 1:30 PM  
**To:** Klukan, Brett  
**Subject:** FAA drone approvals bedeviled by warnings, conflict, internal e-mails show - The Washington Post

[http://www.washingtonpost.com/world/national-security/faa-drone-approvals-bedeviled-by-warnings-conflict-internal-e-mails-show/2014/12/21/69d8a07a-86c2-11e4-a702-fa31ff4ae98e\\_story.html](http://www.washingtonpost.com/world/national-security/faa-drone-approvals-bedeviled-by-warnings-conflict-internal-e-mails-show/2014/12/21/69d8a07a-86c2-11e4-a702-fa31ff4ae98e_story.html)

Sent from my iPhone

**Klukan, Brett**

---

**From:** Lui, Christiana  
**Sent:** Friday, October 31, 2014 9:10 AM  
**To:** Klukan, Brett  
**Cc:** Thaggard, Mark; Layton, Michael  
**Subject:** Re: Drone Flyovers at Nuclear Power Plants

Interesting that you are thinking about discussing this topic since there seems to be an ongoing situation overseas.

(b)(5)

Hope this info helps. Let us know if you have any further questions.

**From:** Klukan, Brett  
**Sent:** Thursday, October 30, 2014 05:19 PM Eastern Standard Time  
**To:** Lui, Christiana  
**Subject:** FW: Drone Flyovers at Nuclear Power Plants

Christiana,

(b)(5)

Thanks!

Cheers,  
Brett Klukan  
RI Regional Counsel  
(610)-337-5301

---

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**From:** StAmour, Norman  
**Sent:** Thursday, October 30, 2014 11:19 AM  
**To:** Klukan, Brett; Safford, Carrie  
**Subject:** RE: Drone Flyovers at Nuclear Power Plants

Brett



I know that the Intelligence Community as a whole is considering this issue. I am not aware that the NRC has done much in this area. You may want to consult with the Division of Security Policy in NSIR (Christiana Lui) to find out where the agency is at.

Norm

**From:** Klukan, Brett  
**Sent:** Thursday, October 30, 2014 10:52 AM  
**To:** Safford, Carrie; StAmour, Norman  
**Subject:** Drone Flyovers at Nuclear Power Plants

Carrie & Norm,

To set the scene a little bit: I've been asked to speak, as RI's regional counsel, at an upcoming NEI Lawyer meeting in Philly. Generally, I think, the purpose is just for me to introduce myself and to highlight some interesting legal issues / problems.

(b)(5)

I just wanted to make sure that the agency isn't already in the process of addressing that question now.

Thanks.

Cheers,  
Brett Klukan  
RI Regional Counsel  
(610)-337-5301

---

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**Klukan, Brett**

---

**From:** Lew, David  
**Sent:** Tuesday, November 04, 2014 10:55 AM  
**To:** Klukan, Brett  
**Subject:** FW: Drone Overflights

fyi

**From:** McDermott, Brian  
**Sent:** Tuesday, November 04, 2014 9:59 AM  
**To:** Lew, David; Wert, Leonard; Brown, Frederick; Roberts, Darrell; Kennedy, Kriss  
**Cc:** Wiggins, Jim; Layton, Michael; Pretzello, Andrew  
**Subject:** FYI: Drone Overflights

Recent media coverage about drone flyovers in France may generate questions about how NRC licensees are expected to address drone fly overs.

~~NSIR will be updating an existing advisory on reporting aircraft flyovers to explicitly address the applicability to drones.~~

(b)(5)

NSIR plans to mention this during the industry's NSWG meeting this afternoon.

Brian

Brian J. McDermott  
Deputy Director, NSIR

301.287.3734 office

(b)(6) mobile

Message sent from NRC BlackBerry.

**From:** Masse, Todd  
**Sent:** Monday, November 03, 2014 09:58 AM  
**To:** McDermott, Brian  
**Cc:** Layton, Michael; Johnson, Daryl; Hahn, Matthew  
**Subject:** UAV Overflights in France

(b)(5)

<http://www.telesur.tv/english/news/French-Government-on-Alert-after-Unidentified-Drones-Flew-over-Nuclear-Plants-20141102-0035.html>

Best,  
Todd

Todd Masse  
Chief, Intelligence Liaison and Threat Assessment Branch  
Office of Nuclear Security and Incident Response  
Nuclear Regulatory Commission  
(301) 492-3933

**Klukan, Brett**

---

**From:** Lorson, Raymond  
**Sent:** Tuesday, November 04, 2014 1:25 PM  
**To:** Klukan, Brett  
**Cc:** Trapp, James  
**Subject:** FW: Drone Overflights

Brett:

Not to drone on but I thought that you would find the email below to be of interest.

Ray

**From:** Dimitriadis, Anthony  
**Sent:** Tuesday, November 04, 2014 12:42 PM  
**To:** Bream, Jeffrey; McCarver, Sammy; Lorson, Raymond; Trapp, James  
**Subject:** Re: Drone Overflights

Great work. Thank you

I am going to forward this information to Division for their awareness and they may have some followup.

Nice work!

Jim and Ray,  
Jeff did a little research on drones and is listed below.

Tony  
Sent by Blackberry

**From:** Bream, Jeffrey  
**Sent:** Tuesday, November 04, 2014 12:28 PM  
**To:** Dimitriadis, Anthony; McCarver, Sammy  
**Subject:** RE: Drone Overflights

Tony,

Currently the FAA breaks down drones into 3 categories: 1) drones used as public aircraft; 2) drones used as civil aircraft; 3) drones used as model aircraft.

Drones in the first category are drones used by public agencies and organizations (governmental) to operate a particular drone, for a particular purpose, in a particular area. They are granted certificates of authorization and are limited in application. Common uses today include law enforcement, firefighting, border patrol, disaster relief, search and rescue, military training, and other government operational missions.

Drones in the second category are drones used by non-governmental groups for research and development purposes. They are granted special airworthiness certificates for the purposes of flight and sales demonstrations and training. They are currently the only way civil operators of unmanned aircraft are accessing the national airspace system.

Drones in the third category are designated as model aircraft. They are defined as "an unmanned aircraft" that is: 1) capable of sustained flight in the atmosphere; 2) flown within visual line of sight of the person operating the aircraft; and 3) flown for hobby or recreational purposes only. The FAA is prohibited from making any rule or regulation against model aircraft provided certain statutory requirements are met (mostly related to size and manner of operation). However, the FAA is not prohibited from making rules and regulations against model aircraft that would apply to all aircraft, such as general rules that address the use of airspace for safety or security reasons.

Right now the types of drones that we would have to worry about would be model aircraft. However, restricted and prohibited airspace would still apply to their use. Combining that with the requirement to maintain visual line of sight would significantly limit the ability of someone from flying one over one of our sites without violating FAA rules and regulations.

Let me know if you want me to any more digging or if I should try to make contact with someone from the FAA for a little more information.

Jeff

**From:** Dimitriadis, Anthony  
**Sent:** Tuesday, November 04, 2014 10:59 AM  
**To:** McCarver, Sammy; Bream, Jeffrey  
**Subject:** Fw: Drone Overflights

Jeff, can you do a little digging to see what guidelines there are for rules on flying drones.  
Just a bit, I'm sure this can be a black hole...  
Sent by Blackberry

**From:** Lew, David  
**Sent:** Tuesday, November 04, 2014 10:56 AM  
**To:** McDermott, Brian  
**Cc:** Ordaz, Vonna; Lorson, Raymond; Trapp, James; Nieh, Ho; Scott, Michael; Dimitriadis, Anthony  
**Subject:** RE: Drone Overflights

Thanks for the heads up Brian.

**From:** McDermott, Brian  
**Sent:** Tuesday, November 04, 2014 9:59 AM  
**To:** Lew, David; Wert, Leonard; Brown, Frederick; Roberts, Darrell; Kennedy, Kriss  
**Cc:** Wiggins, Jim; Layton, Michael; Pretzello, Andrew  
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(b)(5)

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Brian

Brian J. McDermott  
Deputy Director, NSIR

301.287.3734 office

(b)(6) mobile

Message sent from NRC BlackBerry.

**From:** Masse, Todd

**Sent:** Monday, November 03, 2014 09:58 AM

**To:** McDermott, Brian

**Cc:** Layton, Michael; Johnson, Daryl; Hahn, Matthew

**Subject:** UAV Overflights in France

(b)(5)

<http://www.telesurtv.net/english/news/French-Government-on-Alert-after-Unidentified-Drones-Flew-over-Nuclear-Plants-20141102-0035.html>

Best,  
Todd

Todd Masse  
Chief, Intelligence Liaison and Threat Assessment Branch  
Office of Nuclear Security and Incident Response  
Nuclear Regulatory Commission  
(301) 492-3933

## **Klukan, Brett**

---

**From:** Klukan, Brett  
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**Subject:** FW: Drone Overflights

Jeff,

I was wondering if you could send me what info you have re restricted / prohibited airspace over nuclear power plants—while I've heard multiple people mention that, I haven't seen any documentation of it.

Thanks.

Cheers,  
Brett

**From:** Lorson, Raymond  
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**Cc:** Trapp, James  
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Brett:

Not to drone on but I thought that you would find the email below to be of interest.

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**To:** Lew, David; Wert, Leonard; Brown, Frederick; Roberts, Darrell; Kennedy, Kriss  
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(b)(5)

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Brian J. McDermott  
Deputy Director, NSIR

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(b)(6) mobile

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<http://www.telesur.tv.net/english/news/French-Government-on-Alert-after-Unidentified-Drones-Flew-over-Nuclear-Plants-20141102-0035.html>

Best,  
Todd

Todd Masse  
Chief, Intelligence Liaison and Threat Assessment Branch  
Office of Nuclear Security and Incident Response  
Nuclear Regulatory Commission  
(301) 492-3933

**Klukan, Brett**

---

**From:** Bream, Jeffrey  
**Sent:** Tuesday, November 04, 2014 1:53 PM  
**To:** Klukan, Brett  
**Subject:** RE: Drone Overflights  
**Attachments:** FDC NOTAMS 4-4386 and 4-0811.pdf

Brett,

As I understand it, the prohibition is a voluntary no fly zone. The website [here](#) is the FAA site for prohibitions, restrictions, and notices. The attached document has the notice I was able to find concerning the airspace around nuclear power plants. While it doesn't appear enforceable to me, the FAA typically gets involved whenever someone does a flyover of a plant.

Jeff

**From:** Klukan, Brett  
**Sent:** Tuesday, November 04, 2014 1:39 PM  
**To:** Bream, Jeffrey  
**Subject:** FW: Drone Overflights

Jeff,

I was wondering if you could send me what info you have re restricted / prohibited airspace over nuclear power plants—while I've heard multiple people mention that, I haven't seen any documentation of it.

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Cheers,  
Brett

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**Cc:** Trapp, James  
**Subject:** FW: Drone Overflights

Brett:

Not to drone on but I thought that you would find the email below to be of interest.

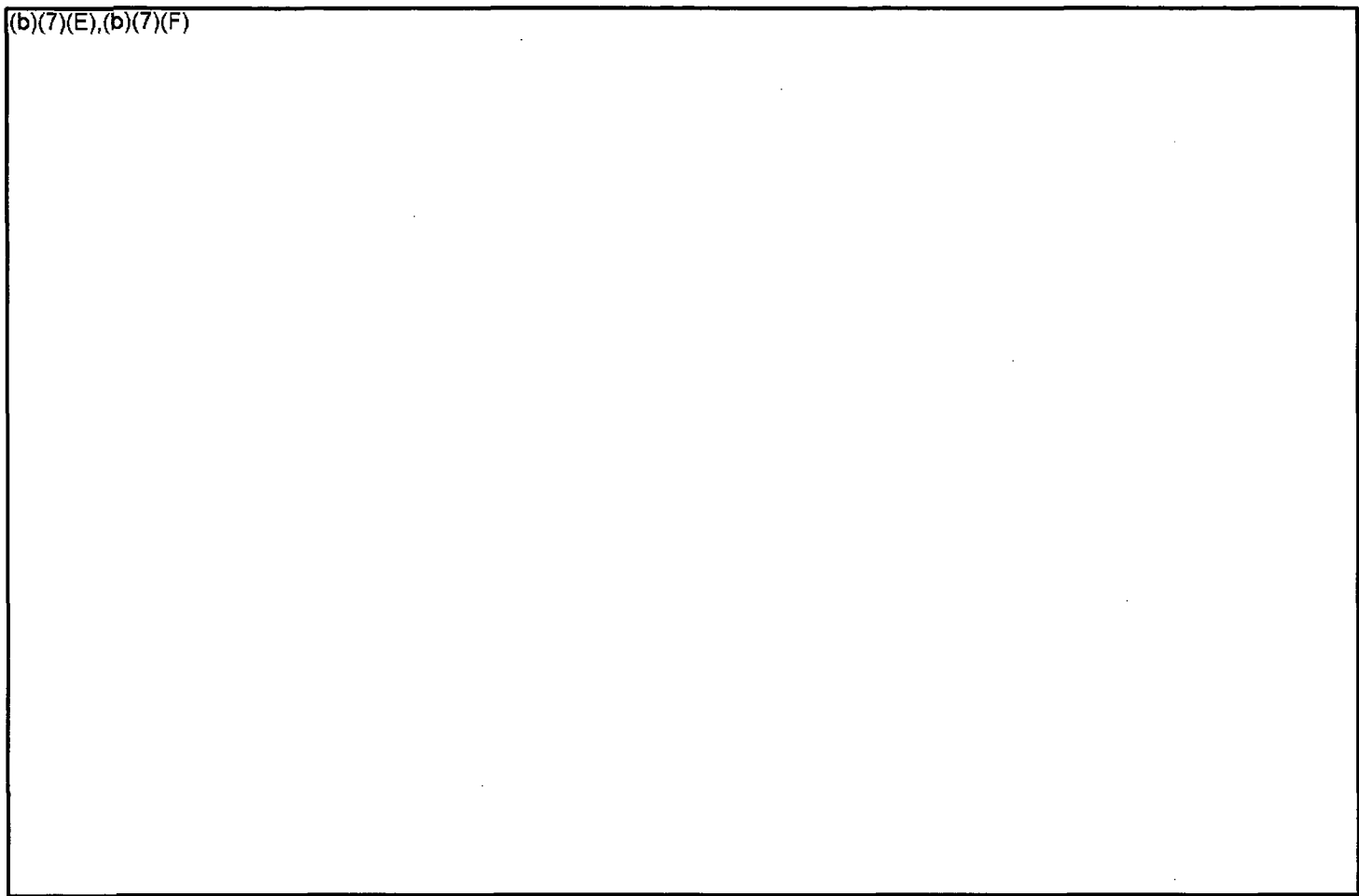
Ray

**From:** Dimitriadis, Anthony  
**Sent:** Tuesday, November 04, 2014 12:42 PM  
**To:** Bream, Jeffrey; McCarver, Sammy; Lorson, Raymond; Trapp, James  
**Subject:** Re: Drone Overflights

Great work. Thank you

I am going to forward this information to Division for their awareness and they may have some followup.

(b)(7)(E), (b)(7)(F)



## **Klukan, Brett**

---

**From:** Klukan, Brett  
**Sent:** Wednesday, November 05, 2014 2:54 PM  
**To:** Lorson, Raymond; Lew, David; Ordaz, Vonna  
**Cc:** Trapp, James; Bream, Jeffrey  
**Subject:** RE: Drone Overflights

Dave & Vonna,

Here is the link to the prezi I used for my talk this morning at the NEI Lawyer Committee meeting regarding drones (note that the presentation doesn't include my talking notes). Given that the presentation includes youtube videos, I am going to talk with OIS to see if this can go into ADAMS with my talking notes (and, if so, how exactly to do that in terms of formatting).

[http://prezi.com/bvgkitaibh0v/?utm\\_campaign=share&utm\\_medium=copy&rc=ex0share](http://prezi.com/bvgkitaibh0v/?utm_campaign=share&utm_medium=copy&rc=ex0share)

I think that the lawyers were receptive to the discussion. A couple noted to me afterwards that this was an issue of significant concern to their clients.

Cheers,  
Brett

---

**From:** Lorson, Raymond  
**Sent:** Tuesday, November 04, 2014 1:24 PM  
**To:** Klukan, Brett  
**Cc:** Trapp, James  
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Brett:

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Jeff did a little research on drones and is listed below.

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Sent by Blackberry

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Jeff

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Subject: Fw: Drone Overflights

Jeff, can you do a little digging to see what guidelines there are for rules on flying drones, Just a bit, I'm sure this can be a black hole...  
Sent by Blackberry

From: Lew, David  
Sent: Tuesday, November 04, 2014 10:56 AM  
To: McDermott, Brian  
Cc: Ordaz, Vonna; Lorson, Raymond; Trapp, James; Nieh, Ho; Scott, Michael; Dimitriadis, Anthony  
Subject: RE: Drone Overflights

Thanks for the heads up Brian.

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To: Lew, David; Wert, Leonard; Brown, Frederick; Roberts, Darrell; Kennedy, Kriss  
Cc: Wiggins, Jim; Layton, Michael; Pretzello, Andrew  
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NSIR will be updating an existing advisory on reporting aircraft flyovers to explicitly address the applicability to drones.

(b)(5)

NSIR plans to mention this during the industry's NSWG meeting this afternoon.

Brian

Brian J. McDermott  
Deputy Director, NSIR

(b)(6) 301 287 3734 office  
mobile

Message sent from NRC BlackBerry.

From: Masse, Todd  
Sent: Monday, November 03, 2014 09:58 AM  
To: McDermott, Brian  
Cc: Layton, Michael; Johnson, Daryl; Hahn, Matthew  
Subject: UAV Overflights in France

(b)(5)

Best,  
Todd

Todd Masse  
Chief, Intelligence Liaison and Threat Assessment Branch Office of Nuclear Security and Incident Response  
Nuclear Regulatory Commission  
(301) 492-3933

## **Klukan, Brett**

---

**From:** Lorson, Raymond  
**Sent:** Wednesday, November 05, 2014 3:17 PM  
**To:** Klukan, Brett  
**Subject:** RE: Drone Overflights

Brett- what exactly is the concern??

Thanks

Ray

-----Original Message-----

**From:** Klukan, Brett  
**Sent:** Wednesday, November 05, 2014 2:54 PM  
**To:** Lorson, Raymond; Lew, David; Ordaz, Vonna  
**Cc:** Trapp, James; Bream, Jeffrey  
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Cheers,  
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(b)(6)

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**Klukan, Brett**

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**From:** Lorson, Raymond  
**Sent:** Wednesday, November 05, 2014 4:25 PM  
**To:** Klukan, Brett  
**Subject:** RE: Drone Overflights

Ok; thanks. I could provide some additional food for thought in your next meeting.

Ray

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**Klukan, Brett**

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**From:** Klukan, Brett  
**Sent:** Thursday, November 06, 2014 10:22 AM  
**To:** Lui, Christiana  
**Cc:** StAmour, Norman  
**Subject:** FW: Drone Overflights Presentation

Christiana,

Below is linked a short presentation I gave yesterday to a collection of industry lawyers at the NEI Lawyers Committee meeting in Philadelphia. Note that this presentation doesn't include my talking points. I also pointed out to the group that the presentation doesn't reflect the views of the NRC—really the purpose of the presentation was just to get the attorneys thinking about the issue (specifically the legality of licensee response actions) in the wake of the events in France.

[http://prezi.com/bvgkitaibh0v/?utm\\_campaign=share&utm\\_medium=copy&rc=ex0share](http://prezi.com/bvgkitaibh0v/?utm_campaign=share&utm_medium=copy&rc=ex0share)

Thanks.

Cheers,  
Brett Klukan  
RI Regional Counsel  
(610)-337-5301

This email may contain communications protected by the attorney-client privilege or the attorney work-product doctrine. In addition, this e-mail may contain proprietary, sensitive or other protected information. Please treat accordingly. Do not publicly disclose without proper authorization.

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**Klukan, Brett**

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**From:** Baker, Pamela  
**Sent:** Monday, November 17, 2014 1:16 PM  
**To:** Ordaz, Vonna  
**Cc:** Walker, Tracy; Todd, Colleen; Klukan, Brett  
**Subject:** RE: Notes from this week's NRR/NSIR/DRA Monthly Call

Vonna,

Per Darrel's inquiry below, DRM offered negative input to Brett regarding the solicitation for CBA articles to be opened.

Pam

**From:** Ordaz, Vonna  
**Sent:** Friday, November 14, 2014 1:08 PM  
**To:** Lew, David; Nieh, Ho; Scott, Michael; Lorson, Raymond; Trapp, James; Collins, Daniel; Dwyer, James; Klukan, Brett; McNamara, Nancy; Screnci, Diane; Baker, Pamela; Walker, Tracy  
**Subject:** Notes from this week's NRR/NSIR/DRA Monthly Call

NRR (Jennifer Uhle)

(b)(5)

- Lessons Learned Paper on Operator Licensing – Putting together a working group to address next steps out of the paper. This will be briefed to RAs at an upcoming direct reports meeting.

NSIR (Rob Lewis)

- Effort to consolidate IT for incident response centers with an NSIR lead. Wiggins and Rob Lewis are not on board. Wiggins has a call with RAs on 11/21. Issue originated with Darren through the budget process.
- I asked Rob about the status of the drone issue in HQs. NSIR will be updating an existing advisory on reporting aircraft flyovers to explicitly address the applicability to drones.

(b)(5)

For DRAs only

(b)(5)



**Klukan, Brett**

---

**From:** Klukan, Brett  
**Sent:** Tuesday, December 02, 2014 8:35 AM  
**To:** Lui, Christiana  
**Cc:** StAmour, Norman; Thaggard, Mark; Layton, Michael  
**Subject:** RE: Drone Overflights Presentation

Christiana,

Greenpeace recently presented evidence to the French Parliament regarding drone flyovers. It also appears that Greenpeace Germany released a similar report. Has Greenpeace US shared anything similar with us? I ask because I've been invited to give my presentation again (this time to the Region I audience) and I'd like to update the presentation with the latest info if possible.

Thanks.

<http://www.greenpeace.org/international/en/news/Blogs/nuclear-reaction/security-and-safety-risks-at-french-nuclear-r/blog/51471/>

Cheers,  
Brett Klukan  
RI Regional Counsel  
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**Cc:** StAmour, Norman; Thaggard, Mark; Layton, Michael  
**Subject:** RE: Drone Overflights Presentation

Wow, cool presentation - much more engaging than the typical PowerPoint slides that we usually see. Thanks for sharing.

-----Original Message-----

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**Sent:** Thursday, November 06, 2014 10:22 AM  
**To:** Lui, Christiana  
**Cc:** StAmour, Norman  
**Subject:** FW: Drone Overflights Presentation

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Thanks.

Cheers,  
Brett Klukan  
RI Regional Counsel  
(610)-337-5301

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From: Klukan, Brett  
Sent: Wednesday, November 05, 2014 2:54 PM  
To: Lorson, Raymond; Lew, David; Ordaz, Vonna  
Cc: Trapp, James; Bream, Jeffrey  
Subject: RE: Drone Overflights

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(b)(5)

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Brian J. McDermott  
Deputy Director, NSIR

301.287.3734 office  
(b)(5) mobile

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Cc: Layton, Michael; Johnson, Daryl; Hahn, Matthew  
Subject: UAV Overflights in France

(b)(5)

(b)(5)

<http://www.telesur.tv.net/english/news/French-Government-on-Alert-after-Unidentified-Drones-Flew-over-Nuclear-Plants-20141102-0035.html>

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Todd Masse  
Chief, Intelligence Liaison and Threat Assessment Branch Office of Nuclear Security and Incident Response  
Nuclear Regulatory Commission  
(301) 492-3933

**Klukan, Brett**

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**From:** Masse, Todd  
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**To:** Lui, Christiana; Klukan, Brett  
**Cc:** Layton, Michael; Thaggard, Mark  
**Subject:** RE: Drone Overflights Presentation  
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**Klukan, Brett**

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**To:** Bearde, Diane; Sheehan, Neil  
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**Attachments:** DE 141124 English Translation Studie Drohnen France-ES (Greenpeace).docx; DE 141124 Studie Drohnen France-ES (Greenpeace).pdf

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**Subject:** RE: Drone Overflights Presentation  
**Attachments:** Presentation Notes.docx

All,

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My speaking notes are attached.

Cheers,  
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Hi Brett,

Please find attached the original Greenpeace report (in French), along with a rough English translation.

Best,  
Todd

Todd Masse  
Chief, Intelligence Liaison and Threat Assessment Branch Office of Nuclear Security and Incident Response  
Nuclear Regulatory Commission  
(301) 492-3933

-----Original Message-----

From: Lui, Christiana  
Sent: Tuesday, December 02, 2014 8:47 AM  
To: Masse, Todd  
Cc: Layton, Michael; Thaggard, Mark  
Subject: FW: Drone Overflights Presentation

Todd: Do we have any info from Greenpeace or other material to share with Brett (R-I Counsel)? Thanks.

-----Original Message-----

From: Klukan, Brett  
Sent: Tuesday, December 02, 2014 8:35 AM  
To: Lui, Christiana  
Cc: StAmour, Norman; Thaggard, Mark; Layton, Michael  
Subject: RE: Drone Overflights Presentation

Christiana,

Greenpeace recently presented evidence to the French Parliament regarding drone flyovers. It also appears that Greenpeace Germany released a similar report. Has Greenpeace US shared anything similar with us? I ask because I've been invited to give my presentation again (this time to the Region I audience) and I'd like to update the presentation with the latest info if possible.

Thanks.

<http://www.greenpeace.org/international/en/news/Blogs/nuclear-reaction/security-and-safety-risks-at-french-nuclear-r/blog/51471/>

Cheers,  
Brett Klukan  
RI Regional Counsel  
(610)-337-5301

~~This email may contain communications protected by the attorney-client privilege or the attorney work-product doctrine. In addition, this e-mail may contain proprietary, sensitive or other protected information. Please treat accordingly. Do not publicly disclose without proper authorization.~~

-----Original Message-----

From: Lui, Christiana



Sent: Thursday, November 06, 2014 10:30 AM  
To: Klukan, Brett  
Cc: StAmour, Norman; Thaggard, Mark; Layton, Michael  
Subject: RE: Drone Overflights Presentation

Wow, cool presentation - much more engaging than the typical PowerPoint slides that we usually see. Thanks for sharing.

-----Original Message-----

From: Klukan, Brett  
Sent: Thursday, November 06, 2014 10:22 AM  
To: Lui, Christiana  
Cc: StAmour, Norman  
Subject: FW: Drone Overflights Presentation

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Below is linked a short presentation I gave yesterday to a collection of industry lawyers at the NEI Lawyers Committee meeting in Philadelphia. Note that this presentation doesn't include my talking points. I also pointed out to the group that the presentation doesn't reflect the views of the NRC--really the purpose of the presentation was just to get the attorneys thinking about the issue (specifically the legality of licensee response actions) in the wake of the events in France.

[http://prezi.com/bvgkitaibh0v/?utm\\_campaign=share&utm\\_medium=copy&rc=ex0share](http://prezi.com/bvgkitaibh0v/?utm_campaign=share&utm_medium=copy&rc=ex0share)

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(610)-337-5301

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-----Original Message-----

From: Klukan, Brett  
Sent: Wednesday, November 05, 2014 2:54 PM  
To: Lorson, Raymond; Lew, David; Ordaz, Vonna  
Cc: Trapp, James; Bream, Jeffrey  
Subject: RE: Drone Overflights

Dave & Vonna,

Here is the link to the prezi I used for my talk this morning at the NEI Lawyer Committee meeting regarding drones (note that the presentation doesn't include my talking notes). Given that the presentation includes

youtube videos, I am going to talk with OIS to see if this can go into ADAMS with my talking notes (and, if so, how exactly to do that in terms of formatting).

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I think that the lawyers were receptive to the discussion. A couple noted to me afterwards that this was an issue of significant concern to their clients.

Cheers,  
Brett

---

From: Lorson, Raymond  
Sent: Tuesday, November 04, 2014 1:24 PM  
To: Klukan, Brett  
Cc: Trapp, James  
Subject: FW: Drone Overflights

Brett:

Not to drone on but I thought that you would find the email below to be of interest.

Ray

From: Dimitriadis, Anthony  
Sent: Tuesday, November 04, 2014 12:42 PM  
To: Bream, Jeffrey; McCarver, Sammy; Lorson, Raymond; Trapp, James  
Subject: Re: Drone Overflights

Great work. Thank you

I am going to forward this information to Division for their awareness and they may have some followup.

Nice work!

Jim and Ray,  
Jeff did a little research on drones and is listed below.

Tony  
Sent by Blackberry

From: Bream, Jeffrey  
Sent: Tuesday, November 04, 2014 12:28 PM  
To: Dimitriadis, Anthony; McCarver, Sammy  
Subject: RE: Drone Overflights

Tony,

Currently the FAA breaks down drones into 3 categories: 1) drones used as public aircraft; 2) drones used as civil aircraft; 3) drones used as model aircraft.

Drones in the first category are drones used by public agencies and organizations (governmental) to operate a particular drone, for a particular purpose, in a particular area. They are granted certificates of authorization and are limited in application. Common uses today include law enforcement, firefighting, border patrol, disaster relief, search and rescue, military training, and other government operational missions.

Drones in the second category are drones used by non-governmental groups for research and development purposes. They are granted special airworthiness certificates for the purposes of flight and sales demonstrations and training. They are currently the only way civil operators of unmanned aircraft are accessing the national airspace system.

Drones in the third category are designated as model aircraft. They are defined as "an unmanned aircraft" that is: 1) capable of sustained flight in the atmosphere; 2) flown within visual line of sight of the person operating the aircraft; and 3) flown for hobby or recreational purposes only. The FAA is prohibited from making any rule or regulation against model aircraft provided certain statutory requirements are met (mostly related to size and manner of operation). However, the FAA is not prohibited from making rules and regulations against model aircraft that would apply to all aircraft, such as general rules that address the use of airspace for safety or security reasons.

Right now the types of drones that we would have to worry about would be model aircraft. However, restricted and prohibited airspace would still apply to their use. Combining that with the requirement to maintain visual line of sight would significantly limit the ability of someone from flying one over one of our sites without violating FAA rules and regulations.

Let me know if you want me to any more digging or if I should try to make contact with someone from the FAA for a little more information.

Jeff

From: Dimitriadis, Anthony  
Sent: Tuesday, November 04, 2014 10:59 AM  
To: McCarver, Sammy; Bream, Jeffrey  
Subject: Fw: Drone Overflights

Jeff, can you do a little digging to see what guidelines there are for rules on flying drones, Just a bit, I'm sure this can be a black hole...  
Sent by Blackberry

From: Lew, David  
Sent: Tuesday, November 04, 2014 10:56 AM  
To: McDermott, Brian  
Cc: Ordaz, Vonna; Lorson, Raymond; Trapp, James; Nieh, Ho; Scott, Michael; Dimitriadis, Anthony  
Subject: RE: Drone Overflights

Thanks for the heads up Brian.

From: McDermott, Brian  
Sent: Tuesday, November 04, 2014 9:59 AM  
To: Lew, David; Wert, Leonard; Brown, Frederick; Roberts, Darrell; Kennedy, Kriss  
Cc: Wiggins, Jim; Layton, Michael; Pretzello, Andrew  
Subject: FYI: Drone Overflights

Recent media coverage about drone flyovers in France may generate questions about how NRC licensees are expected to address drone fly overs.

NSIR will be updating an existing advisory on reporting aircraft flyovers to explicitly address the applicability to drones. V

(b)(5)

NSIR plans to mention this during the industry's NSWG meeting this afternoon.

Brian

Brian J. McDermott  
Deputy Director, NSIR

(b)(6) 301.287.3734 office  
[redacted] mobile

Message sent from NRC BlackBerry.

From: Masse, Todd  
Sent: Monday, November 03, 2014 09:58 AM  
To: McDermott, Brian  
Cc: Layton, Michael; Johnson, Daryl; Hahn, Matthew  
Subject: UAV Overflights in France

(b)(5)

<http://www.telesurty.net/english/news/French-Government-on-Alert-after-Unidentified-Drones-Flew-over-Nuclear-Plants-20141102-0035.html>

Best,  
Todd

Todd Masse  
Chief, Intelligence Liaison and Threat Assessment Branch Office of Nuclear Security and Incident Response  
Nuclear Regulatory Commission  
(301) 492-3933

**Klukan, Brett**

---

**From:** Klukan, Brett  
**Sent:** Thursday, December 11, 2014 11:28 AM  
**To:** Price, Sarah; Roth(OGC), David; Scott, Catherine; Lemoncelli, Mauri; Heck, Jared; Fuller, Karla  
**Subject:** FW: Drone Overflights Presentation  
**Attachments:** Presentation Notes.docx

All,

I thought that I would share this with you as well--my drone presentation that I gave at RI's winter seminar. See the link below.

Cheers,  
Brett

-----Original Message-----

**From:** Klukan, Brett  
**Sent:** Thursday, December 11, 2014 11:02 AM  
**To:** Masse, Todd; Lui, Christiana  
**Cc:** Layton, Michael; Thaggard, Mark  
**Subject:** RE: Drone Overflights Presentation

All,

Here is a presentation I made to Region I as part of the winter seminar using some updated information out of France (with a couple of more videos):  
[http://prezi.com/bmtmv1mqpckb/?utm\\_campaign=share&utm\\_medium=copy&rc=ex0share](http://prezi.com/bmtmv1mqpckb/?utm_campaign=share&utm_medium=copy&rc=ex0share)

My speaking notes are attached.

Cheers,  
Brett Klukan  
RI Regional Counsel  
(610)-337-5301

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-----Original Message-----

**From:** Klukan, Brett  
**Sent:** Tuesday, December 02, 2014 12:48 PM  
**To:** Masse, Todd; Lui, Christiana  
**Cc:** Layton, Michael; Thaggard, Mark  
**Subject:** RE: Drone Overflights Presentation

Todd,

Thanks a bundle. I appreciate that.

Cheers,  
Brett

-----Original Message-----

From: Masse, Todd  
Sent: Tuesday, December 02, 2014 11:39 AM  
To: Lui, Christiana; Klukan, Brett  
Cc: Layton, Michael; Thaggard, Mark  
Subject: RE: Drone Overflights Presentation

Hi Brett,

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Todd Masse

Chief, Intelligence Liaison and Threat Assessment Branch Office of Nuclear Security and Incident Response  
Nuclear Regulatory Commission  
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From: Lui, Christiana  
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To: Masse, Todd  
Cc: Layton, Michael; Thaggard, Mark  
Subject: FW: Drone Overflights Presentation

Todd: Do we have any info from Greenpeace or other material to share with Brett (R-I Counsel)? Thanks.

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Cc: StAmour, Norman; Thaggard, Mark; Layton, Michael  
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From: Klukan, Brett  
Sent: Wednesday, November 05, 2014 2:54 PM  
To: Lorson, Raymond; Lew, David; Ordaz, Vonna  
Cc: Trapp, James; Bream, Jeffrey  
Subject: RE: Drone Overflights

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NSIR will be updating an existing advisory on reporting aircraft flyovers to explicitly address the applicability to drones. [REDACTED]

(b)(5)

NSIR plans to mention this during the industry's NSWG meeting this afternoon.

Brian

Brian J. McDermott  
Deputy Director, NSIR

301.287.3734 office  
(b)(5) [REDACTED] mobile

Message sent from NRC BlackBerry.

From: Masse, Todd  
Sent: Monday, November 03, 2014 09:58 AM  
To: McDermott, Brian  
Cc: Layton, Michael; Johnson, Daryl; Hahn, Matthew  
Subject: UAV Overflights in France

(b)(5)

<http://www.telesur.tv/english/news/French-Government-on-Alert-after-Unidentified-Drones-Flew-over-Nuclear-Plants-20141102-0035.html>

Best,  
Todd

Todd Masse  
Chief, Intelligence Liaison and Threat Assessment Branch Office of Nuclear Security and Incident Response  
Nuclear Regulatory Commission  
(301) 492-3933

**Klukan, Brett**

---

**From:** Rogge, John  
**Sent:** Monday, December 22, 2014 2:01 PM  
**To:** Klukan, Brett  
**Subject:** FW: (OUO-SRI) Advanced Copy of U.S. NRC Issuance of IA-14-03, "Updated Suspicious Flight Activity Reporting Procedures - Unmanned Aircraft Systems (UAS)"  
**Attachments:** IA-14-03.Updated Suspicious Flight Activity Voluntary Reporting Procedures - UAS (OUO-SRI).pdf

I thought you may find this of interest. Great drone presentation by the way.

**From:** NSIRContact Resource  
**Sent:** Monday, December 22, 2014 11:10 AM  
**To:** Dimitriadis, Anthony; Cherubini, John; Caron, Dana; Desai, Binoy; Graham, Jay; Wallo, Jon; Smith, Otis; Hall, Ivan; Orth, Steven; Funk, Don; Maynen, Joseph; Haire, Mark; Holman, David; Larsen, James; Kozal, Jason; Ahern, Gregory; Werner, Greg; Rogge, John; Shaeffer, Scott; Daley, Robert; Dixon, John  
**Cc:** Layton, Michael; Pretzello, Andrew; Albert, Ronald; Sullivan, Frederick; Costa, Richard; Abrahams, Susan; Johnson, Daryl  
**Subject:** (OUO-SRI) Advanced Copy of U.S. NRC Issuance of IA-14-03, "Updated Suspicious Flight Activity Reporting Procedures - Unmanned Aircraft Systems (UAS)"

~~OFFICIALS ONLY - SECURITY RELATED INFORMATION~~

ATTN: NRC Regional Counterparts,

Please be advised that NSIR will be issuing the attached Information Assessment Team Advisory (IATA) to affected NRC-licensed facilities on Tuesday, December 23, 2014. The attached file is your advanced copy. Please distribute among NRC regional management and staff as appropriate based on NRC Region protocols for the handling of OUO-SRI material (e.g., senior resident inspectors, resident inspectors, NRC Regional State Agreement Officers, NRC Regional State Liaison Officers, OI representative in each region, etc.). Please treat the attached advisory as sensitive information and share it only with authorized personnel who have a need-to-know the contents of this advisory. This information should not be released to the public.

Please direct any question to the technical point of contact listed on the attached advisory.

Thank you for your time,

Ronald J. Albert, Chief  
Nuclear Security Oversight Branch  
Division of Security Operations  
Office of Nuclear Security and Incident Response  
Office No. (301) 287-3661

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UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

December 22, 2014

INFORMATION ASSESSMENT TEAM ADVISORY FOR POWER REACTORS, INCLUDING THOSE UNDER CONSTRUCTION; NON-POWER REACTORS; DECOMMISSIONING REACTORS, INCLUDING THOSE THAT ARE PERMANENTLY DEFUELED BUT HAVE NOT TRANSITIONED TO DECOMMISSIONING; FUEL FABRICATION, ENRICHMENT, AND CONVERSION/DECONVERSION FACILITIES; INDEPENDENT SPENT FUEL STORAGE INSTALLATIONS; ALL RADIATION CONTROL PROGRAM DIRECTORS AND STATE LIAISON OFFICERS

IA-14-03

SUBJECT: UPDATED SUSPICIOUS FLIGHT ACTIVITY VOLUNTARY REPORTING PROCEDURES - UNMANNED AIRCRAFT SYSTEMS

(b)(7)(E), (b)(7)(F)

~~OFFICIAL USE ONLY - SECURITY RELATED INFORMATION~~

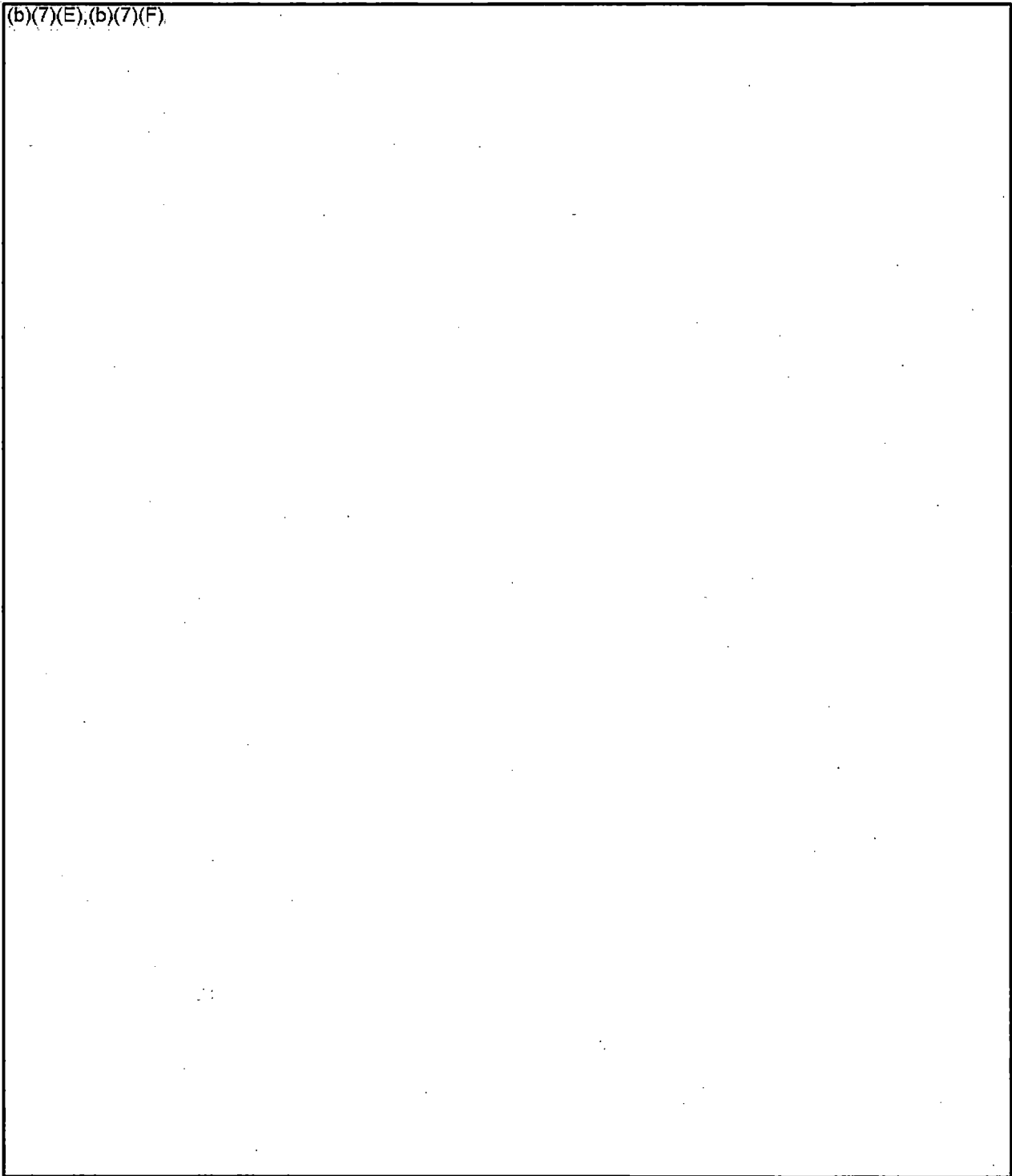
~~OFFICIAL USE ONLY - SECURITY RELATED INFORMATION~~

(b)(7)(E),(b)(7)(F)

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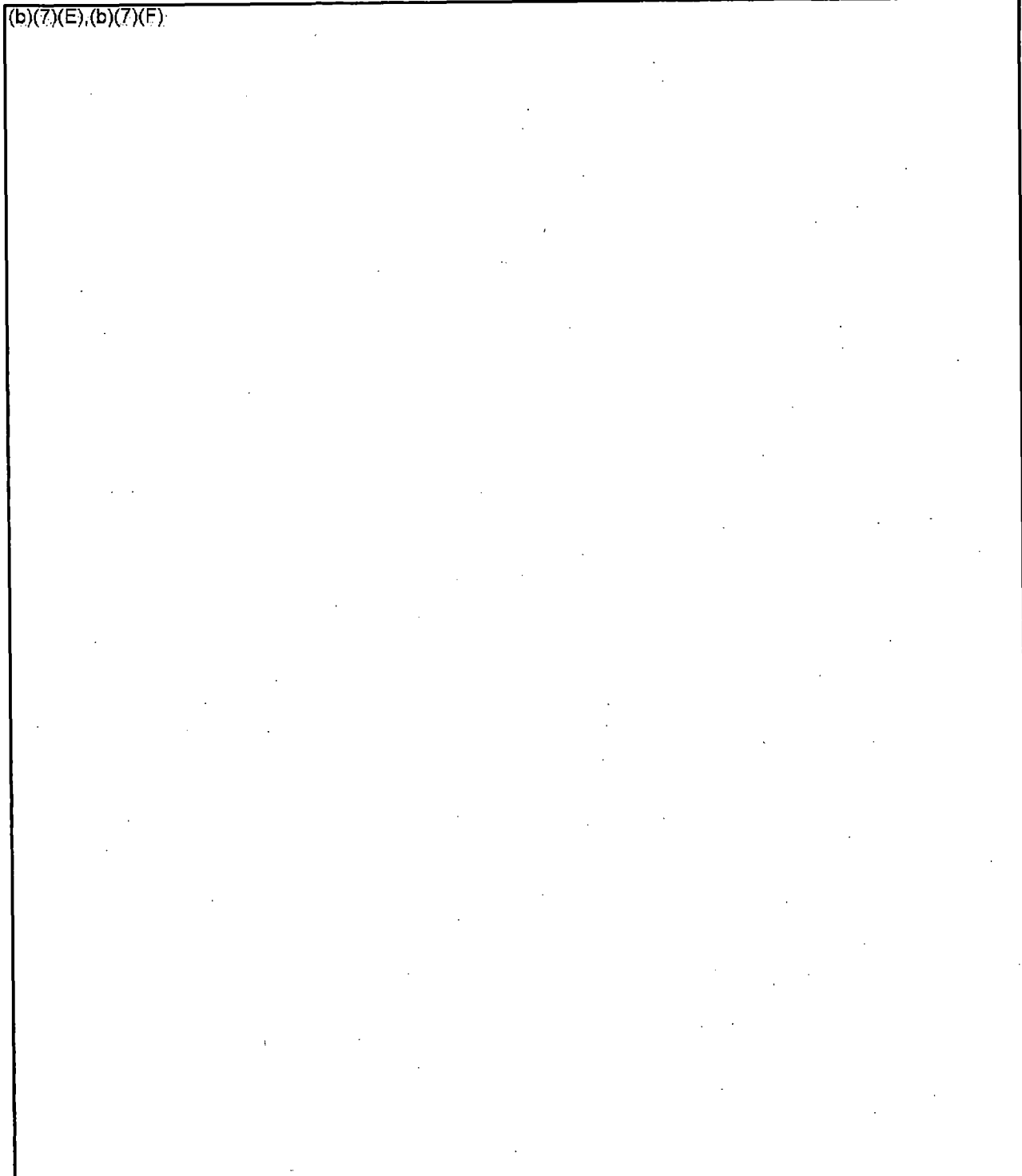
(b)(7)(E), (b)(7)(F)



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(b)(7)(E),(b)(7)(F)



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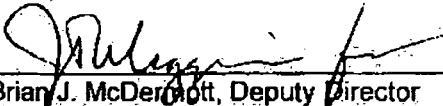


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(b)(7)(E),(b)(7)(F)

**Paperwork Reduction Act Statement:** This advisory does not contain information collections and, therefore, is not subject to the requirements of the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.).

Approved by

  
Brian J. McDermott, Deputy Director  
Office of Nuclear Security  
and Incident Response

Technical Contact: Todd Masse  
301-492-3933  
E-Mail: todd.masse@nrc.gov

~~OFFICIAL USE ONLY - SECURITY RELATED INFORMATION~~

**Klukan, Brett**

---

**From:** Khan, Cheryl  
**Sent:** Tuesday, December 23, 2014 11:35 AM  
**To:** Klukan, Brett  
**Subject:** FW: (OUO-SRI) Advanced Copy of U.S. NRC Issuance of IA-14-03, "Updated Suspicious Flight Activity Reporting Procedures - Unmanned Aircraft Systems (UAS)"  
**Attachments:** IA-14-03 Updated Suspicious Flight Activity Voluntary Reporting Procedures - UAS (OUO-SRI).pdf

Brett,

I haven't read this yet, but thought you might be interested. Please note it is OUO-SRI.

Cheryl

**From:** Dimitriadis, Anthony  
**Sent:** Tuesday, December 23, 2014 11:00 AM  
**To:** Khan, Cheryl; Schroeder, Daniel; Burritt, Arthur; Dentel, Glenn; Bower, Fred; McKinley, Raymond; Kennedy, Silas; Powell, Raymond  
**Cc:** Pinkham, Laurie; McKenzie, Kieta; Thompson, Margaret; Barkley, Richard  
**Subject:** FW: (OUO-SRI) Advanced Copy of U.S. NRC Issuance of IA-14-03, "Updated Suspicious Flight Activity Reporting Procedures - Unmanned Aircraft Systems (UAS)"

Please provide to all your staff and residents for awareness;

**From:** Dimitriadis, Anthony  
**Sent:** Tuesday, December 23, 2014 8:41 AM  
**To:** Trapp, James; Lorson, Raymond; Nieh, Ho; Scott, Michael; Collins, Daniel; Dwyer, James  
**Cc:** Ferdas, Marc; Bream, Jeffrey; Hussar, Kenneth; Everhart, Dave; Rey, Jeremiah; McCarver, Sammy; Lew, David; Dorman, Dan; Klukan, Brett  
**Subject:** FW: (OUO-SRI) Advanced Copy of U.S. NRC Issuance of IA-14-03, "Updated Suspicious Flight Activity Reporting Procedures - Unmanned Aircraft Systems (UAS)"

FYI

**From:** NSIRContact Resource  
**Sent:** Monday, December 22, 2014 11:10 AM  
**To:** Dimitriadis, Anthony; Cherubini, John; Caron, Dana; Desai, Binoy; Graham, Jay; Wallo, Jon; Smith, Otis; Hall, Ivan; Orth, Steven; Funk, Don; Maynen, Joseph; Haire, Mark; Holman, David; Larsen, James; Kozal, Jason; Ahern, Gregory; Werner, Greg; Rogge, John; Shaeffer, Scott; Daley, Robert; Dixon, John  
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Office of Nuclear Security and Incident Response  
Office No. (301) 287-3661

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**Klukan, Brett**

---

**From:** Trapp, James  
**Sent:** Monday, December 29, 2014 7:14 AM  
**To:** Klukan, Brett  
**Subject:** (b)(7)(E) 12/27/2014  
**Attachments:** SID.pdf

Another one for your slide show.

-----Original Message-----

**From:** HOO Hoc  
**Sent:** Saturday, December 27, 2014 5:32 PM  
**To:** HOO Hoc; Fardas, Marc; Totterer, Davey  
**Subject:** (b)(7)(E) 12/27/2014

~~FOR OFFICIAL USE ONLY - LIMITED DISTRIBUTION~~

(b)(7)(E)

Headquarters Operations Officer  
U.S. Nuclear Regulatory Commission  
Phone: 301-816-5100  
Fax: 301-816-5151  
email: [hoo.hoc@nrc.gov](mailto:hoo.hoc@nrc.gov)  
secure e-mail: [hoo1@nrc.sgov.gov](mailto:hoo1@nrc.sgov.gov)

(b)(7)(E),(b)(7)(C)

**Klukan, Brett**

---

**From:** Scott, Catherine  
**Sent:** Wednesday, January 21, 2015 7:31 AM  
**To:** Klukan, Brett  
**Subject:** FW: NRC Daily Notes for January 20, 2015

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Cathy

**From:** NRC Daily Notes [<mailto:EDO.GroupAccount@nrc.gov>]  
**Sent:** Tuesday, January 20, 2015 4:00 PM  
**To:** EDO GroupAccount  
**Cc:** Pena, Alex  
**Subject:** NRC Daily Notes for January 20, 2015

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### **Daily Notes for January 20, 2015**

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---

**From:** Klukan, Brett  
**Sent:** Wednesday, January 21, 2015 8:20 AM  
**To:** Scott, Catherine  
**Subject:** RE: NRC Daily Notes for January 20, 2015

Cathy,

Thanks so much. Assuming that NSIR staff would support my attendance at the event in February, I would absolutely love to go to it.

Thanks again. I really appreciate it.

Cheers,  
Brett

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**Klukan, Brett**

---

**From:** Scott, Catherine  
**Sent:** Thursday, January 22, 2015 9:27 AM  
**To:** Klukan, Brett  
**Subject:** RE: Unable to attend telecon today

No problem, Brett

I'm glad I could pass on the useful information on the training. I would just go ahead and try to contact Norm St. Amor to see if he knows or if he or Carrie has an NSIR contact.

Hope that helps and you get to go!

Cathy

**From:** Klukan, Brett  
**Sent:** Thursday, January 22, 2015 8:09 AM  
**To:** Scott, Catherine  
**Subject:** Unable to attend telecon today

Cathy,

I just wanted to let you know that I will be in training this morning and, as such, unable to participate in the telecon. Also, please let me know if there is anyone I should speak with regarding the UAS meeting. I wanted to thank you again for bringing that to me—I really, really appreciate it.

Thanks.

Cheers,  
Brett Klukan  
RI Regional Counsel  
(610)-337-5301

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**Klukan, Brett**

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**From:** Sheehan, Neil  
**Sent:** Wednesday, December 03, 2014 3:44 PM  
**To:** Klukan, Brett  
**Subject:** FW: Drones and French reactors  
**Attachments:** R3228-A1 20-11-14 FINAL.pdf; 20141121 Studie\_Drohnen\_eng.pdf

Brett,

I think these are the same documents you already received but just in case.

Neil

**From:** Jim Riccio [<mailto:jim.riccio@greenpeace.org>]  
**Sent:** Wednesday, December 03, 2014 3:33 PM  
**To:** Sheehan, Neil  
**Subject:** Drones and French reactors

Morning' Neil,

Well, morning in Korea at any rate ....  
Please forward these onto Mr. Masse  
in NSIR along with my contact information.  
I'd be interested in hearing what his take is  
on the threat posed by drones.

Jim

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**Sent:** Wednesday, January 28, 2015 8:32 AM  
**To:** Klukan, Brett; StAmour, Norman  
**Subject:** RE: NRC Daily Notes for January 20, 2015

Hi Brett, My apologies for the delay in responding. I'm not aware of NSIR's plans to participate in the February workshop, but perhaps Norm has more information. If not, we can probably at least identify the appropriate point of contact in NSIR for you. -Carrie.

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**Sent:** Thursday, January 22, 2015 11:50 AM  
**To:** Safford, Carrie; StAmour, Norman  
**Subject:** FW: NRC Daily Notes for January 20, 2015

Carrie & Norm,

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A little background: starting in November (with the first new reports coming out of France regarding drone flyovers), I've been researching the potential security / legal implications of publicly available drone (or UAS) technology with respect to nuclear facilities. I've done so mostly to prepare for when this inevitably (IMO) occurs at a Region I facility.

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**Klukan, Brett**

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**Sent:** Wednesday, January 28, 2015 8:49 AM  
**To:** Safford, Carrie; StAmour, Norman  
**Subject:** RE: NRC Daily Notes for January 20, 2015

Carrie.

Thanks. I appreciate it.

I'm sure that you probably heard about this already, but just in case: [http://www.washingtonpost.com/politics/drone-incident-at-white-house-highlights-long-studied-still-unsolved-security-gap/2015/01/26/ed2e7f9e-a594-11e4-a7c2-03d37af98440\\_story.html](http://www.washingtonpost.com/politics/drone-incident-at-white-house-highlights-long-studied-still-unsolved-security-gap/2015/01/26/ed2e7f9e-a594-11e4-a7c2-03d37af98440_story.html)

The French flyovers are briefly mentioned in the article.

Thanks again.

Cheers,  
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**From:** StAmour, Norman  
**Sent:** Friday, January 30, 2015 11:33 AM  
**To:** Klukan, Brett  
**Subject:** RE: NRC Daily Notes for January 20, 2015

Brett

I checked with NSIR and three staff will be going to the workshop at Los Alamos next week. They include Joe Rivers, Ralph Way and I am sorry but I forget the last name.

Norm

**From:** Klukan, Brett  
**Sent:** Thursday, January 29, 2015 12:42 PM  
**To:** StAmour, Norman  
**Subject:** FW: NRC Daily Notes for January 20, 2015

Norm,

I hate to bother you with this, as I'm sure that you have a bundle of other matters on your plate, I was just wondering if you had any information or had heard anything from the staff related to the February workshop

Thanks. I appreciate it.

Cheers,  
Brett

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**Sent:** Wednesday, January 28, 2015 8:32 AM  
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(b)(5)

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**Klukan, Brett**

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**From:** Klukan, Brett  
**Sent:** Tuesday, February 03, 2015 10:40 AM  
**To:** Rivers, Joseph; Way, Ralph  
**Cc:** StAmour, Norman; Safford, Carrie  
**Subject:** UAS Workshop  
**Attachments:** Presentation Notes.docx

Joseph & Ralph,

Norm let me know that you are attending the workshop in Los Alamos next week regarding UAS threats. Given that legal issues are proposed to be addressed at the workshop (at least based on the description I've seen), would you like an attorney to tag along? I ask because I've done some research into the topic and have done my best to keep up to date on the associated legal issues (e.g., the FAA exemption process and ongoing rulemaking).

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Thanks.

Cheers,  
Brett Klukan  
RI Regional Counsel  
(610)-337-5301

---

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**Klukan, Brett**

---

**From:** Klukan, Brett  
**Sent:** Wednesday, February 04, 2015 9:53 AM  
**To:** Bunch, Robert  
**Cc:** Layton, Michael  
**Subject:** FW: UAS Workshop  
**Attachments:** UAS Workshop

Robert,

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**From:** StAmour, Norman  
**Sent:** Wednesday, February 04, 2015 9:47 AM  
**To:** Klukan, Brett  
**Cc:** Safford, Carrie  
**Subject:** RE: UAS Workshop

Brett

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Norm

**From:** Klukan, Brett  
**Sent:** Wednesday, February 04, 2015 9:32 AM  
**To:** StAmour, Norman



**Cc:** Safford, Carrie  
**Subject:** FW: UAS Workshop

Norm,

Thanks again. Since both Joe and Ralph are out this week, is there anyone else you think I might be able to reach out to? I don't want to go overboard trying to push this but I thought that I would give it one more shot.

I really appreciate your help and I owe you one.

Cheers,  
Brett

**From:** Klukan, Brett  
**Sent:** Tuesday, February 03, 2015 10:40 AM  
**To:** Rivers, Joseph; Way, Ralph  
**Cc:** StAmour, Norman; Safford, Carrie  
**Subject:** UAS Workshop

Joseph & Ralph,

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**Sent:** Tuesday, February 03, 2015 10:40 AM  
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**Subject:** UAS Workshop  
**Attachments:** Presentation Notes.docx

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**Klukan, Brett**

---

**From:** Klukan, Brett  
**Sent:** Wednesday, February 04, 2015 9:58 AM  
**To:** Masse, Todd  
**Subject:** FW: UAS Workshop  
**Attachments:** UAS Workshop

Todd,

See below and attached. To cut to the chase, I've reached out to whom OGC believes are the attendees for the upcoming workshop to see if they would like an attorney to attend as well (given that the workshop has been billed as including legal topics). However, all of those persons seem to be out of the office this week on travel. If NSIR would like an attorney to attend (and assuming I can get my management's approval), I'd be happy to go.

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**Cc:** Layton, Michael  
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**Klukan, Brett**

---

**From:** Masse, Todd  
**Sent:** Wednesday, February 04, 2015 10:01 AM  
**To:** Klukan, Brett  
**Subject:** RE: UAS Workshop

Thanks Brett. The workshop is actually taking place today and tomorrow at LANL. Someone from my shop is in attendance.

Best,  
Todd

Todd Masse  
Chief, Intelligence Liaison and Threat Assessment Branch  
Office of Nuclear Security and Incident Response  
Nuclear Regulatory Commission  
(301) 492-3933

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**Klukan, Brett**

---

**From:** Klukan, Brett  
**Sent:** Wednesday, February 18, 2015 5:37 PM  
**To:** Khan, Cheryl  
**Cc:** Dorman, Dan  
**Subject:** RE: RUG - Drone Question  
**Attachments:** IA-14-03 Updated Suspicious Flight Activity Voluntary Reporting Procedur....pdf

Cheryl,

(b)(5)

Relative to France, there's this: [http://www.google.com/url?url=http://www.popsci.com/france-tests-kamikaze-netted-interceptor-drones-protect-nuclear-reactors&rct=j&frm=1&q=&esrc=s&sa=U&ei=Kq7IVKH\\_IYSuyQTkiYGgDQ&ved=0CBQQqQloADAA&sig2=Qcchv\\_nvNM7OytZsIIDFSQ&usq=AFQjCNHjdr49xrJzq33cYXU4BZusl8MhQ](http://www.google.com/url?url=http://www.popsci.com/france-tests-kamikaze-netted-interceptor-drones-protect-nuclear-reactors&rct=j&frm=1&q=&esrc=s&sa=U&ei=Kq7IVKH_IYSuyQTkiYGgDQ&ved=0CBQQqQloADAA&sig2=Qcchv_nvNM7OytZsIIDFSQ&usq=AFQjCNHjdr49xrJzq33cYXU4BZusl8MhQ)

(b)(5)

Let me know if you have any questions. I'm always happy to talk about this issue.

Thanks.

Cheers.

**From:** Khan, Cheryl  
**Sent:** Wednesday, February 18, 2015 5:03 PM  
**To:** Klukan, Brett  
**Subject:** RUG - Drone Question

Brett,

Next week Region I is participating in another Region I RUG workshop.

The question was just asked (by the RUG members) if there are any drone updates/concerns since you last spoke at the RUG.

Is there anything new/different regarding the drone issue that you believe is worth sharing at next week's workshop (either by you, or Dan Dorman or another Region I representative)?

Thanks,  
Cheryl

**Klukan, Brett**

---

**From:** Khan, Cheryl  
**Sent:** Wednesday, February 18, 2015 8:05 PM  
**To:** Klukan, Brett  
**Subject:** RE: RUG - Drone Question

Thanks for the quick turnaround.

We'll discuss this at the RUG pre-brief tomorrow at 11am. If management expresses an interest in your participation, or has questions, I'll let you know.

**From:** Klukan, Brett  
**Sent:** Wednesday, February 18, 2015 5:37 PM  
**To:** Khan, Cheryl  
**Cc:** Dorman, Dan  
**Subject:** RE: RUG - Drone Question

Cheryl,

(b)(5)

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(b)(5)

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**Klukan, Brett**

---

**From:** Klukan, Brett  
**Sent:** Thursday, February 19, 2015 10:26 AM  
**To:** Masse, Todd  
**Cc:** Khan, Cheryl  
**Subject:** FW: RUG - Drone Question

Todd,

See below. I gave a presentation re the potential for malevolent use of drones at a previous RI RUG meeting. The RUG has asked for an update. I was wondering if there were any insights to come out of the Los Alamos workshop that you think would be useful to pass along to the RUG.

Thanks.

Cheers,  
Brett

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**Sent:** Wednesday, February 18, 2015 5:03 PM  
**To:** Klukan, Brett  
**Subject:** RUG - Drone Question

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**Klukan, Brett**

---

**From:** Trapp, James  
**Sent:** Monday, March 02, 2015 3:23 PM  
**To:** Klukan, Brett  
**Cc:** Lorson, Raymond  
**Subject:** (b)(7)(E) 03/02/2015  
**Attachments:**

I know you have a passion for this topic! FYI only.

-----Original Message-----

**From:** HOO Hoc  
**Sent:** Monday, March 02, 2015 2:55 PM  
**To:** HOO Hoc  
**Subject:** (b)(7)(E) 03/02/2015

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(b)(7)(E)

; Open

The following attached report may contain "law enforcement sensitive" information. Please do not relay this information to individuals who do not have a "need to know".

Headquarters Operations Officer  
U.S. Nuclear Regulatory Commission  
Phone: 301-816-5100  
Fax: 301-816-5151  
email: [hoo.hoc@nrc.gov](mailto:hoo.hoc@nrc.gov)  
secure e-mail: [hoo1@nrc.sgov.gov](mailto:hoo1@nrc.sgov.gov)



**Klukan, Brett**

---

**From:** Scott, Michael  
**Sent:** Monday, March 02, 2015 4:01 PM  
**To:** Klukan, Brett  
**Subject:** (b)(7)(E) 03/02/2015  
**Attachments:**

Drone item

-----Original Message-----

**From:** HOO Hoc  
**Sent:** Monday, March 02, 2015 2:55 PM  
**To:** HOO Hoc  
**Subject:** (b)(7)(E) 3/02/2015

**FOR OFFICIAL USE ONLY - LIMITED DISTRIBUTION**

(b)(7)(F)

Headquarters Operations Officer  
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Phone: 301-816-5100  
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email: [hoo.hoc@nrc.gov](mailto:hoo.hoc@nrc.gov)  
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(b)(7)(C),(b)(7)(E)