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COMMITTEE ON REACTOR SAFEGUARDS

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NUCLEAR REGULATORY COMMISSION

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Digital Instrumentation and Control Systems  
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1 UNITED STATES OF AMERICA

2 NUCLEAR REGULATORY COMMISSION

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4 ADVISORY COMMITTEE ON REACTOR SAFEGUARD

5 (ACRS)

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7 DIGITAL INSTRUMENTATION AND CONTROL SYSTEMS

8 SUBCOMMITTEE

9 + + + + +

10 OPEN SESSION

11 + + + + +

12 FRIDAY

13 OCTOBER 23, 2009

14 + + + + +

15 ROCKVILLE, MARYLAND

16 + + + + +

17 The Subcommittee met at the Nuclear  
18 Regulatory Commission, Two White Flint North, Room  
19 T2B3, 11545 Rockville Pike, at 8:30 a.m., Dr. George  
20 Apostolakis, Chairman, presiding.

21 SUBCOMMITTEE MEMBERS PRESENT:

22 GEORGE APOSTOLAKIS, Chairman

23 DENNIS C. BLEY

24 JOHN D. SIEBER

25 JOHN W. STETKAR

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CONSULTANTS TO THE SUBCOMMITTEE PRESENT:

EARL BOEBERT

SERGIO GUARRO

NRC STAFF PRESENT:

CHRISTINA ANTONESCU, Designated Federal Official and  
Cognizant Staff Engineer

CRAIG ERLANGER

RALPH COSTELLO

RUSS SYDNOR

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P-R-O-C-E-E-D-I-N-G-S

8:28 a.m.

CHAIRMAN APOSTOLAKIS: The meeting will now to come order.

This is a meeting of the Digital Instrumentation and Control Systems Subcommittee of the ACRS. I am George Apostolakis, Chairman of the Subcommittee.

ACRS members in attendance are Dennis Bley, John Stetkar and Jack Sieber.

Sergio Guarro and Earl Boebert are also attending as consultants for the Subcommittee.

Christina Antonescu of the ACRS staff is a Designated Federal Official for this meeting.

The purpose of this meeting is to discuss Regulatory Guide 5.71, Cyber Security Programs for Nuclear Facilities. We will also discuss the status of the Cyber security Assessment Team and the NERC/FERC MOU.

Any other acronyms, Christina?

CHAIRMAN APOSTOLAKIS: ACRS, GEA.

The Subcommittee will gather information, analyze relevant issues and facts and formulate and propose positions and actions as appropriate for deliberation by the full Committee.

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1           The rules for participation in today's  
2 meeting have been announced as part of the notice of  
3 this meeting previously published in the *Federal*  
4 *Register* on October 1st, 2009.

5           We have receive no written comments or  
6 requests for time to make oral statement from members  
7 of the public regarding today's meeting.

8           A portion of this meeting may be closed  
9 in order to discuss and protect information  
10 classified as national security information as well  
11 as safeguards information pursuant to 5 USC  
12 55.2(b)(c)(1) and (3).

13           We also have Region II on the bridge  
14 phone listening to the discussions.       To preclude  
15 interaction of the meeting the phone line will be  
16 placed on listen-in mode during the presentations and  
17 Committee discussions.

18           A transcript of the meeting is being kept  
19 and will be made available as stated in the *Federal*  
20 *Register* notice. Therefore, we request that  
21 participants in this meeting use the microphones  
22 located throughout the meeting room when addressing  
23 the Subcommittee. The participants should first  
24 identify themselves and speak with sufficient clarity  
25 and volume so that they may be readily heard.

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1                   Before we proceed with the meeting I  
2 would like to welcome our new consultant, Mr. Earl  
3 Boebert. And I would like him to say a few words of  
4 why he's here.

5                   MR. BOEBERT: I'm here because George  
6 asked me to come.

7                   CHAIRMAN APOSTOLAKIS: Okay.

8                   MR. BOEBERT: He's a friendly guy, so you  
9 know. George asked me to recite a bit of my  
10 background. Air Force 1962 to 1966. Honeywell 1966  
11 to roughly 1985. Technical founder of Secure  
12 Computing Corporation, Sandia National Laboratories  
13 from 1995 to 2005 performing intelligence analysis  
14 and leading Red Team activities.

15                  CHAIRMAN APOSTOLAKIS: Wonderful. Thank  
16 you very much, Earl.

17                  We'll now proceed with the meeting. I  
18 call upon Mr. Craig Erlanger, Chief of the Integrated  
19 Security Coordination and Policy Branch, Division of  
20 Security Policy in the office of Nuclear Security and  
21 Incident Response to provide some introductory  
22 remarks.

23                  Craig?

24                  MR. ERLANGER: Good morning, everyone.

25                  My name is Craig Erlanger, I'm the Chief

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1 of the Integrated Security Coordination and Policy  
2 Branch. And my branch is responsible for the  
3 development of Regulatory Guide 5.71.

4 This morning, as was mentioned, we have a  
5 very packed agenda with open and closed sessions.  
6 We're going to begin with an overview of the Cyber  
7 security Assessment Team, followed by a break to make  
8 this a closed session. A very quick break. And then  
9 we're going to be discussing the FERC/NERC MOU as  
10 well as a detailed opening of where we have been and  
11 where we are heading with cyber security regulations  
12 throughout the Agency, given by my boss, the Deputy  
13 Director for Reactor Security Scott Morris.

14 It's interesting to note that 5.71 is the  
15 last of the tier 1 Reg. Guides related to the Part 73  
16 rulemaking. So there is an emphasis states to get  
17 this Reg. Guide completed. And we are really looking  
18 forward to your feedback on your review of the  
19 document, and hopefully answering any questions you  
20 have related to the Guide.

21 With no further introductions, I'd like  
22 to turn it over to Mr. Ralph Costello from the  
23 Division of Security Operations. And he will be  
24 providing you with an update on the Cyber security  
25 Assessment Team. And if there are no questions, I

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1 will turn it over to Ralph right now.

2 MR. COSTELLO: Good morning, everyone.  
3 My name is Ralph Costello. I'm with the Office of  
4 Nuclear Security and Incident Response.

5 I would like to thank the Chairman and  
6 the Committee for the opportunity to speak here  
7 today.

8 The purpose of my presentation is  
9 information only. I'll be discussing the Nuclear  
10 Regulatory Commission's Cyber Assessment Team, in  
11 particular I'll provide an overview of the team's  
12 formation and composition. I'll also discuss the  
13 team's purpose, the progress we made to date and our  
14 path forward.

15 The Cyber Assessment Team was formed by  
16 the Executive Director for Operations of the Nuclear  
17 Regulatory Commission in April of 2009.

18 The team is composed of staff with  
19 expertise in cyber security from various offices and  
20 regions. And the skills and backgrounds of the team  
21 members are extensive and include digital  
22 instrumentation and control, plant operations,  
23 electrical information, technology security, digital  
24 forensics, digital security and much, much more.  
25 With this diverse and multi-talented group the

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1 Nuclear Regulatory Commission has the capability to  
2 quickly marshall these skill sets to address any  
3 emerging issues with potential cyber security related  
4 implications.

5 The purpose of the team is to provide a  
6 constant process for evaluation and resolution of  
7 these events. I'm going to go over the process  
8 briefly in the high level, and then on the next slide  
9 I'll go into some more detail.

10 The first step that the team takes would  
11 be to analyze and determine the facts; who, what,  
12 when, where, how and why of the issues brought to  
13 them. One of the first two questions we're going to  
14 ask in that analysis phase is there an actual  
15 perceived threat our licensees. And the other  
16 question we'd want an answer to is is there a  
17 vulnerability which can possibly be exploited by an  
18 adversary.

19 The next thing we'd want to do is  
20 determine the impact to our licensees.

21 And last but not least, provide  
22 recommendations and services to our stakeholders.

23 The visual provided has the activity in  
24 terms of how we process. And I don't want to belabor  
25 a lot of detail here, but I want to give you a high

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1 level view of how the process is going to work.

2 You can see that the slide provides two  
3 columns. One column has the heading of threat on the  
4 top, and the other column has the heading of event or  
5 vulnerability at the top.

6 The first type I'd like to discuss of an  
7 issue that would come to us would be one in which  
8 there was a threat actual perceived to our licensees.

9 An example would be the Department of Homeland  
10 Security United States Computer Emergency Response  
11 Team provides an announcement concerning a certain  
12 software vulnerability which would impact or could  
13 impact our licensees. That would be processed  
14 definitively by our Cyber Assessment Team, and again  
15 using the overall high level processing analysis that  
16 we have discussed, we'd look at the impact to our  
17 licensees and provide recommendations.

18 The column on the left hand side gives us  
19 an overview of those issues which at first we have an  
20 unknown source of the issue. An example of that would  
21 be a situation whereby a software anomaly could cause  
22 a plant transient. Again, the initial cause were  
23 unknown, and could have been possibly caused by  
24 malicious actions. And because it's unknown, or  
25 because of the capability of possibility errors, our

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1 assessment team would process it through our system  
2 and come to a resolution.

3 Again, we would want to have answers to  
4 the following information:

5 We would want know is the issue caused by  
6 an adversary, or possibly caused by an adversary  
7 and/or is it a vulnerability which could be exploited  
8 by an adversary threat. If the answer is yes to  
9 either of the above, we would follow through to  
10 final completion of our process.

11 CHAIRMAN APOSTOLAKIS: What kind of  
12 guidance dose this team have? I mean, when you say  
13 cyber team perform emergency assessment and so --

14 MR. COSTELLO: Yes.

15 CHAIRMAN APOSTOLAKIS: Does the team rely  
16 on the expertise of its members or there is some sort  
17 of guidance?

18 MR. COSTELLO: That's a very good  
19 question, sir. You're reading into my next slide.

20 CHAIRMAN APOSTOLAKIS: I am?

21 MR. COSTELLO: Yes, sir.

22 CHAIRMAN APOSTOLAKIS: I do know that.

23 CHAIRMAN APOSTOLAKIS: Yes, sir. And I  
24 appreciate that reading.

25 CHAIRMAN APOSTOLAKIS: Okay. Sorry. If

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1 you are going to addressing it, that's fine.

2 MR. COSTELLO: I will.

3 I just want to add one more point. And  
4 that is if the issue definitively not a vulnerability  
5 or potential vulnerability and definitively not an  
6 actual attack or an exploit by an adversary, then  
7 obviously it would be handled through the normal  
8 processes the Agency uses for digital I&C or  
9 electricity for Office of Nuclear Reactor Regulation  
10 and their processes, operating experience, et cetera.

11 I'll now follow into the Chairman's  
12 question, this goes to the progress that we've made  
13 so far. And we've developed a charter and  
14 procedures. And as an answer to the Chairman's  
15 question, we follow those procedures and we do rely  
16 on the extensive backgrounds of the team members,  
17 both here at Headquarters and the regions.

18 These guidelines are not set in stone.  
19 We're Constantly enhancing them and improving them.  
20 And as we speak we're making some enhancement to the  
21 procedures as a learning and improving organization.

22 CHAIRMAN APOSTOLAKIS: I mean, again,  
23 maybe it's because I'm not an expert in the field but  
24 how do you decide what is a threat? It says here on  
25 the previous slide threat or exploit. How does the

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1 team become aware of the fact that there is a threat  
2 somewhere? I mean --

3 MR. COSTELLO: Well, the example I gave  
4 was a US-CERT announcement of, say, a certain  
5 exploit--

6 CHAIRMAN APOSTOLAKIS: Oh, so somebody  
7 else tells you there is a threat.

8 MR. COSTELLO: There's many inputs. An  
9 input can be from a licensee. Input could be from  
10 US-CERT. Input could be through intelligence  
11 channels. There's many input points that we view  
12 this information.

13 CHAIRMAN APOSTOLAKIS: All right.

14 MR. COSTELLO: It could be an allegation.  
15 There's other areas. I'm sure I'm missing where we  
16 could have input points.

17 And then we would analyze them. We would  
18 do a thorough analyses and we'd follow at the ground  
19 to ensure that the public health and safety and  
20 security is protected.

21 CHAIRMAN APOSTOLAKIS: Yes. Thank you.

22 MR. COSTELLO: As I mentioned, we have  
23 these processes and procedures. And this team is on  
24 call 24 hours a day, seven days a week and has been  
25 since shortly after we formed.

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1 Have been trained initially in  
2 conjunction with our Operation Center officers and  
3 our Information Assessment Team. I'd like to say a  
4 little bit about Information Assessment Team. You  
5 may not know what that organization is, but they are  
6 formed by intelligence analysts who have close  
7 contact and integration with our partners in the  
8 intelligence community. And we work closely with that  
9 team also.

10 The training that we conducted initially  
11 consist of: familiarization with emergency  
12 operations; our procedures, as mentioned; digital I&C  
13 controls, and; plant operations and scenario-based  
14 team training. These joint training sessions that we  
15 conduct initially we found to be very beneficial. We  
16 will continue to this and other type training in the  
17 future on a regular basis.

18 MEMBER STETKAR: Ralph?

19 MR. COSTELLO: Yes, sir.

20 MEMBER STETKAR: In your evaluations do  
21 you make any attempts to rank or rate a particular  
22 threat or vulnerability with respect to its relative  
23 importance to plant safety, or is everything simply  
24 rated a potential threat?

25 MR. COSTELLO: No. Your question is a

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1 very good one. That is, in fact, one of the  
2 enhancements we're making to the procedure as we  
3 speak. So that, we found out very early on that that  
4 would be a very good tool for the team to  
5 expeditiously process and know where to go. And  
6 these are all learning things that we found out real  
7 early on, and that's part of the --

8 MEMBER STETKAR: It's in process right  
9 now?

10 MR. COSTELLO: It's being integrated in  
11 the procedure as we speak. And it's going to be on a  
12 color-based tiered level.

13 MEMBER STETKAR: So it seems to work, so  
14 that's fine.

15 MR. COSTELLO: Sir?

16 MEMBER BLEY: That guidance is going to  
17 be in the new ISG when we see it, is that right?

18 MR. COSTELLO: I don't believe it will  
19 be.

20 MEMBER BLEY: It won't? It's separate?

21 MR. COSTELLO: Yes, sir.

22 MEMBER BLEY: I was just curious.

23 The ISG, I guess I get mixed up on this  
24 occasionally. The ISG can either be something that's  
25 going to become an SRP or a Reg. Guide. And the ISGs

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1 here are aimed at the Reg. Guides, is that right  
2 rather than SRP?

3 If this is going to be guidance to your  
4 staff, why wouldn't be in an ISG or a SRP?

5 MR. ERLANGER: What might be helpful is  
6 how the CAT team came into existence. We were under  
7 direction from the EDO to come under the process to  
8 deal with everything Ralph mentioned and in addition,  
9 the topics you saw on the news. The Soviets attacked  
10 at Georgia, the Chinese attacked the grid.  
11 Everything, how do we address and deal with these  
12 issues.

13 What we're in right now is a one year  
14 pilot to conclude approximately winter of 2010. So  
15 at this time we're basically just trying -- we  
16 recognized a need to deal with an emerging threat, a  
17 topic that was constantly in the news. You caught  
18 all these headlines. There were a few just this week  
19 that we saw there. How do you take that, what you see  
20 in the news, or a real threat that we get through  
21 intelligence channels and work it into our  
22 longstanding processes. The analogy that Ralph made  
23 to the Information Assessment Team is probably the  
24 closest.

25 As you know, 24/7 you might have an

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1 incident at a plant related to, it could be a pipe,  
2 it could be whatever and there are subject matter  
3 experts available to look at that to adjudicate it  
4 whether it is a just it happened because or there was  
5 some malicious intent. So that's what this process  
6 is trying to mirror.

7           Whether or not it fits into an ISG or  
8 Reg. Guide, I would say that is not the thought  
9 process at this time. It's just really --

10           CHAIRMAN APOSTOLAKIS: But what you're  
11 doing today is just briefing the Subcommittee.

12           MR. COSTELLO: Yes, sir. Just information  
13 only.

14           CHAIRMAN APOSTOLAKIS: That this team  
15 exists.

16           MR. COSTELLO: Absolutely, sir.

17           CHAIRMAN APOSTOLAKIS: It has nothing to  
18 do with Regulatory Guide 5.71?

19           MR. COSTELLO: It is not. That's correct,  
20 yes.

21           MR. ERLANGER: That's correct.

22           CHAIRMAN APOSTOLAKIS: This is he warm-up  
23 performance?

24           MR. COSTELLO: It's background  
25 information that --

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1 CHAIRMAN APOSTOLAKIS: The warm-up.

2 MR. COSTELLO: -- we feel you need to  
3 know.

4 MR. ERLANGER: It's another leg to what  
5 we're doing for cyber as an Agency.

6 CONSULTANT BOEBERT: How many people?

7 MR. COSTELLO: Over 20.

8 CONSULTANT BOEBERT: How many locations?

9 MR. COSTELLO: Headquarters and the four  
10 regions.

11 CONSULTANT BOEBERT: Communications,  
12 secure mail --

13 MR. COSTELLO: We have all that. Yes,  
14 sir.

15 CHAIRMAN APOSTOLAKIS: Okay.

16 MR. COSTELLO: And last but not least, we  
17 can open the database with current and past notable  
18 issues as a tool for this team to work through its  
19 issues.

20 The path forward.

21 As noted previously, we're going to  
22 continue to assess team processes as noted by the  
23 some questions we've already worked towards, some of  
24 those improvements already.

25 And we're going to apply those

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1 efficiencies through enhancements on a continuous  
2 basis and, obviously, continue training efforts in  
3 that vein.

4 Today we discussed the Cyber Assessment  
5 Team's formation, the composition, the team's  
6 purpose, the progress we've made and our path  
7 forward. Are there any questions?

8 CHAIRMAN APOSTOLAKIS: Well hearing none,  
9 thank you.

10 MR. COSTELLO: Thank you, sir.

11 CHAIRMAN APOSTOLAKIS: We're ahead of  
12 schedule here, aren't we?

13 MR. COSTELLO: I'm sorry about that.

14 CHAIRMAN APOSTOLAKIS: Yes, you should  
15 apologize.

16 Now we're moving to Mr. Morris, or he's  
17 not here.

18 MR. SYDNOR: He stepped out to his  
19 office?

20 CHAIRMAN APOSTOLAKIS: Russ?

21 MR. ERLANGER: Let me, I'll grab him.  
22 He's probably right out this door.

23 MS. ANTONESCU: We're moving to the  
24 closed session?

25 CHAIRMAN APOSTOLAKIS: Who is?

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1 MS. ANTONESCU: Well, we are.

2 CHAIRMAN APOSTOLAKIS: Yes, you're right.

3 Okay. So what do we do?

4 I am advised that we are moving to a  
5 closed session. And, Christina, what does that mean?

6 MS. ANTONESCU: That means that people  
7 who were already approved are able stay, and the  
8 other ones have to leave the closed session.

9 (Whereupon, at 8:48 a.m. the open session  
10 was concluded.)

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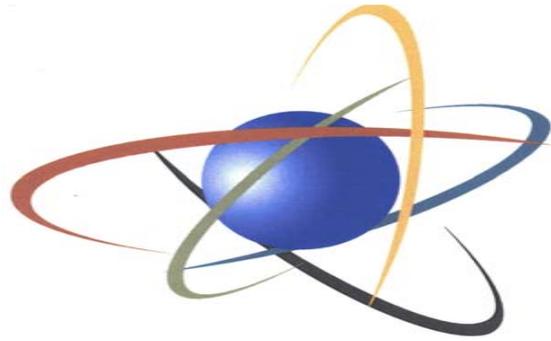
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UNITED STATES NUCLEAR REGULATORY COMMISSION

*Protecting People and the Environment*

## **NRC CYBER ASSESSMENT TEAM**

**Advisory Committee on Reactor Safeguards  
Digital Instrumentation and Control Subcommittee  
October 23, 2009**

**Ralph Costello  
Division of Security Operations  
Office of Nuclear Security and Incident Response  
(301-415-6821, [ralph.costello@nrc.gov](mailto:ralph.costello@nrc.gov))**



# Formation of the CAT Team

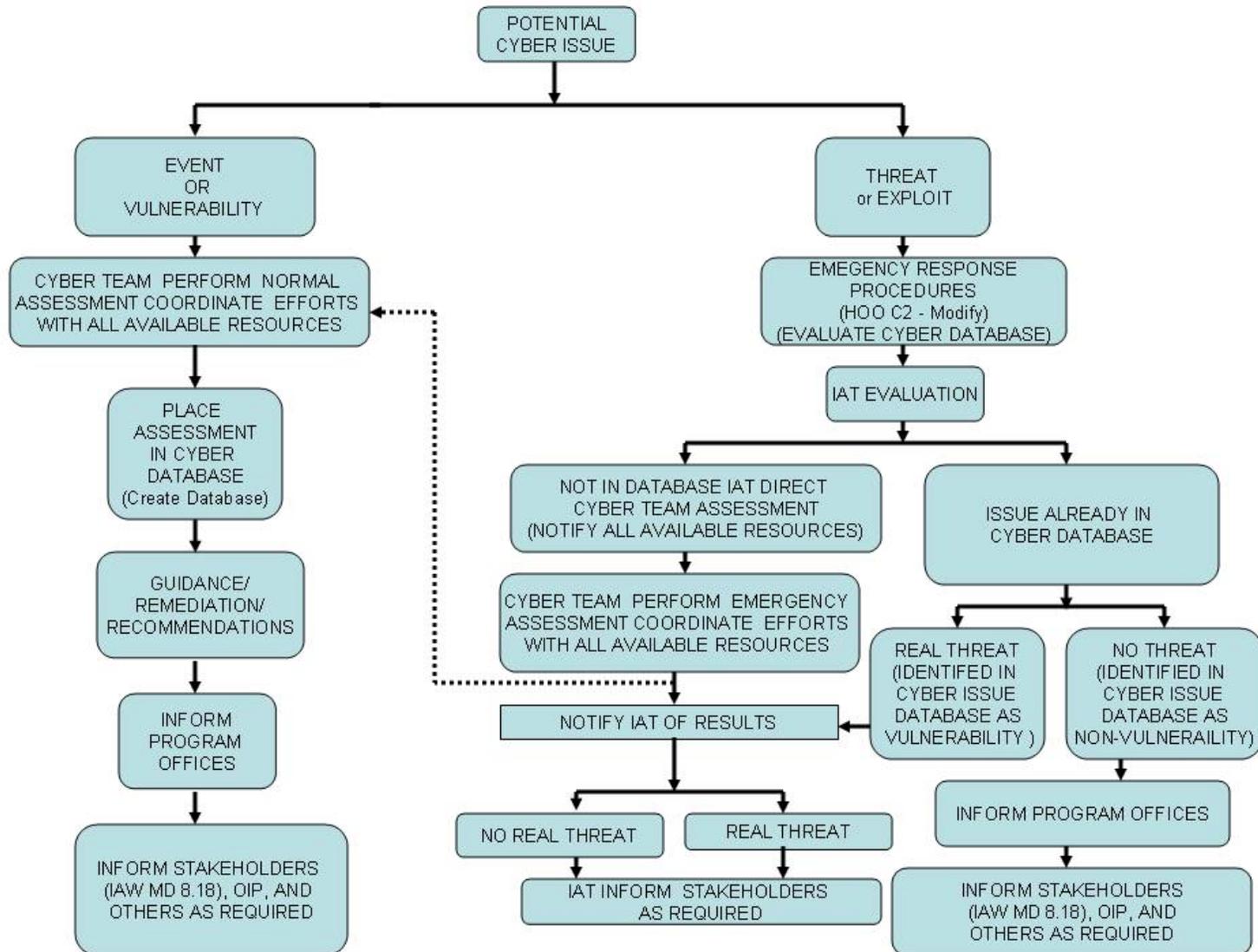
- **CAT team was formed in April 2009**
  
  
  
  
  
  
  
  
  
  
- **Composition of the CAT team**



# Purpose and Process

- **Provide a consistent process for evaluation and resolution of cyber security issues with potential cyber security related implications**
- **Process**
  - **Analyze cyber security issue**
    - **Determine the facts**
    - **Determine impact to licensees**
    - **Make recommendations to stakeholders**

# Process continued





# CAT Team Progress

- **CAT team charter and procedures**
- **Cat team is available on a 24/7 basis**
- **Personnel have received initial training**
  - Regular continuous training
- **Database is being developed**



## Path forward

- **Assess processes of the CAT team**
- **Apply enhancements - continuous**
- **Continuous training**



**Questions?**



# Acronyms

- **CAT – Cyber Assessment Team**
- **HOO – Headquarters Operations Officer**
- **IAT – Information Assessment Team**
- **IAW – In Accordance With**
- **OIP – Office of International Programs**