**via posting**

**TO:** NAESB Critical Infrastructure Committee Members: Bill Boswell, Jim Buccigross, J. Cade Burks, Valerie Crockett, Dave Darnell, Michael Desselle, Bruce Ellsworth, Christopher Freitas, William Gallagher, Bob Gee, Annabelle Lee, Joelle Ogg, Thomas Pearce, Brett Perlman, and Leigh Spangler

**FROM:** Caroline Trum, Deputy Director, NAESB

**RE:** Meeting Notes from theNAESB Board Critical Infrastructure Committee Meeting – July 11, 2019

**DATE:** August 14, 2019

Dear Board Critical Infrastructure Committee Members,

A Board Critical Infrastructure Committee meeting was held on July 11, 2019. The meeting was called to order at 2:00 PM Central. Mr. Burks and Mr. Darnell presided over the meeting. The notes and attachments below serve as a record for the meeting.

| **Notes from the July 11, 2019 NAESB Board Critical Infrastructure Committee Meeting** | |
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| **Administrative** | Mr. Burks welcomed the committee members to the conference call. Ms. Trum provided the antitrust and meeting policy guidance and called the roll of the Critical Infrastructure Committee. Quorum was established. Mr. Burks reviewed the agenda. Mr. Darnell moved, seconded by Ms. Crockett, to adopt the agenda. The motion passed without opposition. |
| **Review of Final Draft of the OASIS Report by Sandia National Laboratories and Discussion** | Mr. Burks asked Mr. Dawson and Mr. Bruneau to review the report.  Mr. Dawson stated that Sandia National Laboratories is appreciative of the Critical Infrastructure committee meeting to provide feedback regarding the final drafts for the surety assessment.  Mr. Bruneau stated that in Section 6.1.1, the main recommendation is that data should be encrypted as needed to secure transactions. The surety assessment team recommends following NIST 800-63-3 for implementation of new technologies and authentication methods as well as a review of NIST 800-52 for recommendations on updating TLS/SSL references. Mr. Bruneau stated that the surety assessment team also recommends a review of the historical information posted on OASIS and removal of that data as can be allowed. Mr. Burks stated that the FERC requires certain information to be posted to OASIS for transparency purposes. Ms. Ogg stated that there are a number of valid uses for the data and stated that data retention is a balancing act. She suggested that NAESB may want to raise the issue to the FERC.  Ms. Trum stated that the surety assessment team has previously asked the reason why the WEQ OASIS Business Practice Standards refer to both HTTP and HTTPS protocols. She explained that in discussions with subject matter experts, the HTTP protocol is to be used for information the FERC requires to be made publicly available, and the HTTPS protocol is to be used for non-public information posted to OASIS.  Mr. Bruneau stated that in Section 6.1.2, the key recommendations address the method of encryption and using the most recently available versions of software. Mr. Freitas asked if 7 days is a reasonable time period for the industry to implement software patches and fixes. Mr. Bruneau stated that the intent of the recommendation is that when a vulnerability becomes known, entities are updating software to address that vulnerability as soon as possible. He explained that entities must find a balance between applying the software patch or fix in the shortest time span versus accepting a small amount of risk to ensure the patch or fix will work as intended. |
| **Review of Final Draft of the Addendum Report by Sandia National Laboratories and Discussion** | Mr. Burks asked Mr. Dawson and Mr. Bruneau to review the draft report and path forward document.  Mr. Dawson stated in Section 2.2.2, the surety assessment team tried to include information to provide a more cohesive picture of the attack analysis. For the gas nominations process, the surety assessment team investigated how, through malicious purposes or a cyberattack, the process could be modified or manipulated to cause the physical displacement of gas or other ill intent. Ms. Lee asked for more clarity in the diagram. Mr. Freitas noted that in the future, as the gas industry evolves, the market may incorporate changes to the process, such as hourly nominations and the leveraging of blockchain technology. He asked how this could potentially impact cybersecurity. Mr. Dawson stated that some of the current protections against malicious actors are due to the depth of the current gas nomination process. He explained that with the introduction of new technologies or changes, some of the current defenses may be lost, but that these could be replaced with different protections gained by the use of the new technology or changes to the process.  Mr. Dawson stated that in Section 2.3.1, the surety assessment team discusses recommendations for voluntary and mandatory reporting requirements. The critical factors to consider in the development of new standards would be use cases and existing reporting requirements mandated by various organizations or government agencies. Mr. Dawson noted that the surety assessment team recommends NAESB coordinate with NERC and the TSA, which already have cybersecurity incident reporting requirements, in this area, to identify determine NAESB’s role and then consider the development of any needed or identified requirements. Ms. Lee noted that the development of incident reporting standards would be a significant undertaking by NAESB. Mr. Burks agreed, stating that this recommendation would likely require additional discussion by the NAESB Board of Directors.  Mr. Dawson stated that in the previous feedback, the committee had requested additional information on the recommendations from the surety assessment team found in Section 2.3.2 regarding two-factor authentication and whitelisting. Mr. Darnell asked if OASIS nodes require authentication of individual users. Mr. Quimby responded that the WEQ OASIS Business Practice Standards require users each user to have a digital certificate and an individual username/password to login to an OASIS node. Ms. Trum noted that the WEQ-012 Public Key Infrastructure Business Practice Standards do allow digital certificates to be issued at the device and application level. Mr. Dawson stated that multi-factor authentication needs to be done at the individual user level as opposed to authentication of a machine. He added that the surety assessment team found WEQ-002-5.1.1 to meet the requirements for robust authentication and that the standards in WEQ-002 are adequate and consistent with current best practices. Regarding the WGQ/RMQ Business Practice Standards, Mr. Dawson stated that the surety assessment team recommends updating the requirements to require multi-factor authentication as the current standards only require a username/password. Mr. Booe stated that a final report which included more information on specific recommendations regarding multi-factor authentication for the WGQ/RMQ Business Practice Standards would be beneficial.  Mr. Dawson stated that whitelisting, while beneficial, is a hardware specific implementation. Mr. Spangler stated that some challenges associated with whitelisting include the need for 24-7 support and the difficulty in identifying all the parameters to ensure information is not inadvertently blocked. Mr. Freitas asked if any industries currently employ whitelisting. Ms. Crockett stated that TVA does utilize whitelisting in some areas. Mr. Lamb stated that whitelisting is most beneficial in areas with a static environment and well-established support process. Mr. Burks stated that whitelisting may be of benefit for EDI applications but could have a negative impact if applied in other areas.  Mr. Dawson stated that within Section 3.1, the surety assessment team will modify the final report to include new technology implementations that should be evaluated. He stated that Mr. Booe had provided a list of technologies developed by the NAESB Board Digital Committee and that the surety assessment team would include in the final report discussions on key considerations and how Sandia National Laboratories could assist. Mr. Burks stated that of the most benefit would be if the final report included material that NAESB can use as a resource to strategize future standards development efforts. Mr. Dawson stated that of the eleven identified technologies, the three areas that could be most beneficial for future collaboration between NAESB and Sandia National Laboratories are distributed ledger technology, distributed energy resources, and data analytics. He noted that additional information on these three areas can be added to the final report. Mr. Freitas stated that distributed ledger technology is already being utilized for offshore wind energy and that the Department of Energy is currently investigating machine learning in regards to physical pipeline operations.  Mr. Bruneau stated that the surety assessment team is currently conducting a final review of the draft reports and that all final reports should be provided to NAESB on or before July 31, 2019.  Mr. Freitas thanked the committee, NAESB leadership, and Sandia National Laboratories for its continued efforts regarding the surety assessment. He stated that from a Department of Energy perspective, it would be beneficial if NAESB could provide to the FERC any standards that result from efforts related to the surety assessment as soon as possible.  Mr. Burks thanked Mr. Freitas and the Department of Energy for its support of the surety assessment. |
| **Plan for Future Meetings** | The next meeting of the committee will be on Wednesday, August 7 from 2:00 – 4:00 PM Central. |
| **Other Business** | There was no other business discussed. |
| **Adjourn** | The meeting adjourned at 3:43 PM Central on a motion by Mr. Darnell. |
| **Work Papers Provided for the Meeting** | * **Agenda Item 1** – Administrative:   <http://www.naesb.org/misc/antitrust_guidance.doc> (antitrust)  <https://naesb.org/pdf4/board_critical_inf_members.pdf> (roster)   * **Agenda Item** **2** – SNL NAESB PKI Report – Final Draft: <https://naesb.org/member_login_check.asp?doc=bd_cic062019w1.pdf> * **Agenda Item 3** – SNL NAESB Business Operations Practices and Standards Report – Final Draft: <https://naesb.org/member_login_check.asp?doc=bd_cic062019w2.pdf> |

| **July 11, 2019 NAESB Board Critical Infrastructure Committee Conference Call**  **CRITICAL INFRASTRUCTURE COMMITTEE MEMBERS** | |
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| **Name** | **Organization** |
| Jim Buccigross | 8760, Inc. |
| Cade Burks | Big Data Energy Services |
| Valerie Crockett | TVA |
| Dave Darnell | Systrends USA |
| Bruce Ellsworth | New York State Reliability Council |
| Christopher Freitas | Department of Energy |
| Annabelle Lee | Nevermore Security |
| Joelle Ogg | DC Energy |
| Leigh Spangler | Latitude Technologies |
| **OTHER ATTENDEES** | |
| **Name** | **Organization** |
| Ben Anderson | Sandia National Laboratories |
| Jonathan Booe | NAESB |
| Robert Bruneau | Sandia National Laboratories |
| Christopher Burden | Enbridge (U.S.) Inc. |
| Pete Connor | Representing American Gas Association |
| Lon Dawson | Sandia National Laboratories |
| Chris Lamb | Sandia National Laboratories |
| Steve McCord | TransCanada Pipelines |
| Ken Quimby | SPP |
| Timothy Reinhardt | Department of Energy |
| Caroline Trum | NAESB |