

EVALUATION REPORT

Independent Evaluation of NRC's Use and Security of Social Media

OIG-13-A-08 January 23, 2013



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U.S. NUCLEAR REGULATORY COMMISSION (NRC)
OFFICE OF THE INSPECTOR GENERAL



Social Media EVALUATION REPORT

DECEMBER 2012



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

**OFFICE OF THE
INSPECTOR GENERAL**

January 23, 2013

MEMORANDUM TO: R. William Borchardt
Executive Director for Operations

FROM: Stephen D. Dingbaum */RA/*
Assistant Inspector General for Audits

SUBJECT: INDEPENDENT EVALUATION OF NRC'S USE AND
SECURITY OF SOCIAL MEDIA (OIG-13-A-08)

Attached is the Office of the Inspector General's (OIG) independent evaluation report titled, *Independent Evaluation of NRC's Use and Security of Social Media (OIG-13-A-08)*.

The report presents the results of the subject evaluation. Agency comments provided during a December 7, 2012, exit conference have been incorporated, as appropriate, into this report.

Please provide information on actions taken or planned on the recommendations within 30 days of the date of this memorandum. Actions taken or planned are subject to OIG followup as stated in Management Directive 6.1.

We appreciate the cooperation extended to us by members of your staff during the evaluation. If you have any questions or comments about our report, please contact me at 415-5915 or Beth Serepca, Team Leader, at 415-5911.

Attachment: As stated

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Executive Summary

BACKGROUND

On January 21, 2009, President Barack Obama issued a memorandum to the heads of executive agencies that outlined guidance for use of social media to promote greater openness in Government.¹ In January 2011, the Nuclear Regulatory Commission (NRC) launched its first official social media site with the release of the NRC blog.

The timing of the blog launch proved fortuitous as just three months later, the Fukushima Daiichi nuclear accident in Japan occurred and NRC quickly realized the benefits of social media for increasing the speed and reach of information dissemination. The agency should be commended for their effective use of the blog during and after the accident. In the month following the accident, the blog attracted 41,561 views. This remains the highest trafficked period across any NRC social media platform to date.

NRC followed the launch of its blog with the launch of a Twitter account (August 2011), YouTube channel (September 2011), and Flickr presence (January 2012). These four official channels served as the basis for this evaluation.

This evaluation was conducted between May 2012 and September 2012 by Booz Allen Hamilton on behalf of the NRC Office of the Inspector General (OIG).

OBJECTIVE

The objective of this independent evaluation was to determine how NRC uses social media, the effectiveness and efficiency of NRC's use of social media, and whether there are any privacy and security vulnerabilities associated with its use.

SUMMARY

Over the past two years, NRC has made significant progress with its social media program. This is particularly noteworthy considering the limited resources it has dedicated to the effort. It is compliant with Federal social media policies and regulations, it has developed a strategy and published guidance, and it has established and trained a cadre of bloggers from across the agency.

The agency has also been very active in generating frequent and informative content across its four official social media platforms and has promoted these sites internally through brown bags and postcards as well as externally through the NRC website and at NRC meetings and events. Furthermore, NRC has generated respectable subscription and viewership rates across its social media channels, especially for a small Federal agency with a niche stakeholder community.

¹ Memorandum of January 21, 2009, "Transparency and Open Government," Office of the Press Secretary, White House.

As a result of these efforts, NRC has met most of its stated social media objectives including:

- Increasing the distribution speed of agency content.
- Applying NRC branding to social media tools and services.
- Establishing new information distribution channels.
- Enhancing access to agency content through multiple channels.

However, consistent with the fact that NRC is still in its early stages with its social media program, there remains areas where the agency can enhance its efficiency and effectiveness. These areas include:

- Integrating social media into existing policies, training, and practices.
- Implementing more social media specific security, training, and awareness safeguards.
- Establishing a more prominent voice in the digital realm.
- Maximizing the potential of social media to enhance interaction with agency stakeholders and engage them in a dialogue on nuclear issues.

RESULTS IN BRIEF

This report contains three chapters—Social Media Measurement, Social Media Diagnostic, and Consolidated Recommendations—and a series of appendices with supporting materials. Presented below are overviews of each chapter along with the key findings from each.

Chapter One: Social Media Measurement

This chapter provides an assessment of NRC's social media performance against its stated objectives and against measurement best practices in the public and private sectors.

Key Finding: While NRC has made progress against all of its stated social media objectives, it currently measures success too narrowly as solely a function of readership and subscription rates.

Cause: NRC is currently only tracking traditional quantitative social media metrics that are provided by the tool providers rather than applying advanced measurement techniques.

Effect: NRC is not currently measuring the true impact or potential of its social media efforts.

Chapter Two: Social Media Diagnostic

This chapter examines NRC's use of social media through five dimensions: content, reach, influence, security, and integration. Each dimension is described below.

- **Content**—an analysis of content and visuals disseminated via official NRC social channels.

Key Finding: While NRC generates regular and informative social media content, it would benefit from consistently creating social media content that is more transparent, relevant, compelling, and engaging.

Cause: By design, NRC currently applies a one size fits all approach to its social media content that is predominantly focused solely on the general public.

Effect: NRC’s social media content is often generic and uninviting and does not meet the needs of many key stakeholder groups.

- **Reach**—an assessment of quantitative measures such as the number of individuals and stakeholder groups reached, the volume and frequency by which NRC social media content is consumed, shared, and repurposed, and NRC’s activity in nuclear conversations online.

Key Finding: While NRC has expanded its reach with four social media channels, NRC’s social media strategy is overly focused on driving traffic to its blog at the expense of engaging on Twitter and other platforms where NRC stakeholders are most active.

Cause: NRC made the decision to channel all social media activity through its blog to reduce the management burden and made the decision not to “follow” any individuals or organizations online.

Effect: NRC does not engage on Twitter and does not have an official presence on Facebook where most of its stakeholders are most active. Additionally, by making the decision not to “follow” others online, NRC is perceived by some as insular rather than an active participant in the online community because it does not “follow” others online.

- **Influence**—an assessment of qualitative measures such as thought leadership, authority, cause and effect, and prominence around topical nuclear issues.

Key Finding: NRC’s authority and leadership offline is not adequately reflected online.

Cause: With the exception of responding to questions on its blog, NRC does not currently track, monitor, or engage stakeholders online.

Effect: NRC has not yet established the credibility and status as a source for nuclear information online as it does offline.

- **Security**—an assessment of privacy, security, and records management risk or vulnerabilities associated with NRC’s use of social media and the effectiveness and efficiency of policies and safeguards (e.g., security assessments, training, and awareness).

Policy

Key Finding: While NRC is compliant with Federal social media policies and regulations, it should take measures to more effectively integrate social media into its information security policy framework.

Cause: There is an assumption among NRC management that all pertinent management directives extend to social media yet it is not codified in a document or management directive.

Effect: There is currently limited ownership, accountability, and enforcement authority regarding social media security at NRC.

Safeguards

Key Finding: While NRC has taken some measures to reduce social media risks and vulnerabilities, its current safeguards should be enhanced to adequately protect the agency.

Cause: NRC has mitigated social media risks by utilizing external third party platforms and by conducting an initial security scan prior to the launch of its official social media channels. However, no individual or office is designated as the responsible party for social media security so limited efforts have taken place since the launch of the official channels.

Effect: NRC currently has no documented or repeatable method to monitor, assess, or track social media risks and vulnerabilities. Additionally, NRC staff are not regularly educated or reminded about their responsibilities when using social media sites.

- **Integration**—an evaluation of how social media is managed and governed, and if it is integrated into other aspects of the agency including its policies, practices, and procedures.

Key Finding: All NRC social media activities are primarily managed and operated by one person, which will be difficult to sustain as the social media program matures.

Cause: NRC has dedicated limited financial and personnel resources to social media. There is not substantive or regular involvement from offices outside of the Office of Public Affairs.

Effect: Current efforts and resources are not scalable and NRC is not seeking ways to integrate social media into the agency.

Chapter Three: Consolidated Recommendations

This chapter provides a consolidated list of recommendations for NRC based on the findings of the evaluation. Recommendations are grouped by specific sections of the report: measurement, content, reach, influence, security, and integration.

Appendices

The appendices highlight the following areas:

- Research, scope, and methodology—details the parameters of the research and the approach taken to conduct the evaluation.
- Abbreviation and acronym list—lists the abbreviations and acronyms used throughout the report.
- Glossary—defines social media terminology.
- Social media best practices—details social media best practices identified through the research.
- List of web tools utilized during the evaluation.
- List of key informant interviews—provides the titles and organizations of those who provided input to this evaluation.
- References and source materials—cites all the documents, reports, plans, articles, and books which were reviewed for this evaluation.

Agency Comments

At an exit conference on December 7, 2012, agency officials provided feedback on the report's findings and recommendations and provided some suggested editorial changes. Their comments were incorporated as appropriate. The agency opted not to submit formal comments.

CHAPTER 1: SOCIAL MEDIA MEASUREMENT

Key Finding: *While NRC has made progress against all of its stated social media objectives, it currently measures success too narrowly as solely a function of readership and subscription rates*

Social media measurement should not be approached in the same way as measuring traditional media. Social media begins with gleaning quantitative data (readership, viewership, subscription rates) generated by its platform's built-in analytics. It then evolves into a qualitative evaluation of the relationships users create through these platforms. It is this combination of quantitative and qualitative analysis that drives an understanding of user behavior and social media efficacy.

Organizations need to place a greater emphasis on social media's *return on engagement*, which includes conversations and relationships, vice simply assessing social media's return on investment. NRC's social media metrics should take into consideration user behavior and user experience, not just the number of users. For example, NRC currently tracks the rate by which blog posts are commented on and tweeted, but NRC does not assess *who* is tweeting or commenting and, more importantly, what kind of digital social networks these activities touch. Social media is a potent amplification tool for messaging and its use as a way to magnify NRC's reach into new audiences is achievable with a strong understanding of how these audiences behave and connect with online networks.

An ideal state of social media measurement and definition of success would be one that considers NRC's influence within the digital nuclear conversation space.

NRC NARROWLY DEFINES SOCIAL MEDIA SUCCESS




NRC narrowly defines social media success as a function of readership and subscription statistics, while Federal Government and commercial best practices call for a more holistic approach based on both quantitative and qualitative measures. Based upon its current definitions of success, NRC is meeting basic requirements; however, based on industry best practices, NRC would benefit from tracking additional performance measures.










NRC HAS MADE PROGRESS AGAINST ALL ITS SOCIAL MEDIA OBJECTIVES



Table 1 below assigns a rating based on data from this evaluation on how well NRC is meeting its objectives for social media as stated in *NRC's Official Presence Social Media Business Vision and Scope* and *Interim Social Media Guidance*. A "MEETS" (green thumbs up) rating designates areas where NRC is successfully meeting the objective, A "PARTIALLY MEETS" (yellow thumbs level) rating indicates areas where NRC is meeting some but not all aspects of

the objective, and A “DOES NOT MEET” (red thumbs down) rating indicates areas where NRC is not meeting the objective.

Table 1: NRC Performance Against Its Stated Social Media Objectives

Key:  *Meets*  *Partially Meets*  *Does Not Meet*

NRC Objective	Rating	Progress
Information Dissemination		NRC uses the blog to discuss topics of interest and uses Twitter to drive traffic to these posts. YouTube and Flickr are also used to distribute information. In accordance with NRC requirements, NRC's solution provides the ability for internal authorized users to: post content, add and modify links, add and modify tags, group and sort content, be notified of changes in content, subscribe to automated updates to content and search through content.
Information Collection		NRC uses the blog's "Open Forum" thread and each blog post's comment section as the primary way of collecting feedback and responding to requests for information. However, according to stakeholder interviews, users do not see this as the most effective way to collect feedback and suggest the use of other platforms such as Twitter and Discussion Forums to engage users in real time. The blog platform does allow users to "like" content but not "dislike" or vote negatively, and the like/dislike ratings have been disabled on NRC's YouTube channel prohibiting users from expressing approval or disapproval to content on this platform.
Applying NRC Branding to Social Media Tools and Services		All social media platforms have NRC branding consistently applied.
New Information Distribution Channels		NRC has successfully launched profiles on four social media platforms as information distributions channels. Current activities meet NRC's requirements on distribution channels, including the ability to: distribute content on industry accepted internal protocols, display content properly on common desktop and mobile browsers, and deliver content on RSS and micro-blogging platforms like Twitter.
Administrative Requirements		In accordance with NRC's requirements on administrative requirements, NRC's current solution provides the ability to: restrict access to manage, administer and modify social media and user comments to authorized users only, minimize bandwidth in distributing content across social media, view detailed summary reports on user activity and generate activity logs as needed.
Increased Speed of Distribution of Agency Content		NRC uses the Blog and Twitter to alert the public of new content posted on the main website and major reports and documents such as the 2012-2013 Information Digest.
Enhanced Access to Agency Content Through Multiple Channels		The adoption of the blog, YouTube, Twitter, and Flickr served to provide external stakeholders with enhanced access to agency content via multiple channels.
Enhanced Interaction with Agency Stakeholders		While NRC does engage a small segment of the online nuclear community through its blog, all communications via social media channels is mediated and responded to via the blog. NRC does not interact with stakeholders on any of its other platforms nor does it officially "follow" others online. External interviews indicate that users would like to be able to engage with NRC on platforms other than the blog.
Increased Scale and Reach Across All Potential Stakeholders		NRC does not actively engage digital influencers identified through this study but does engage users who submit comments and questions via the blog. NRC identifies all stakeholders as a uniform "general public" and does not segment specific stakeholder groups. Current content reaches users interested in general information, but

NRC Objective	Rating	Progress
		there is room for improvement in how NRC generates content, defines its target audiences, and maximizes network reach.
Effectiveness in Outreach and Delivery of NRC's Message		Effectiveness of NRC's outreach and message delivery is limited by emphasis on the blog as the primary platform for message delivery.
Engagement of Stakeholders Using Social Media		Current engagement is limited to forum comment responses leading to minimal active engagement of stakeholders and the public. Also, by not following Twitter users and taking greater advantage of Twitter as an engagement tool, NRC is not engaging where users are most active.

PLATFORM METRICS AND ANALYSIS

Figure 1 highlights the performance of NRC's social media platforms and the triggers that generated high activity. Further analysis follows the chart and provides deeper insight into these metrics.

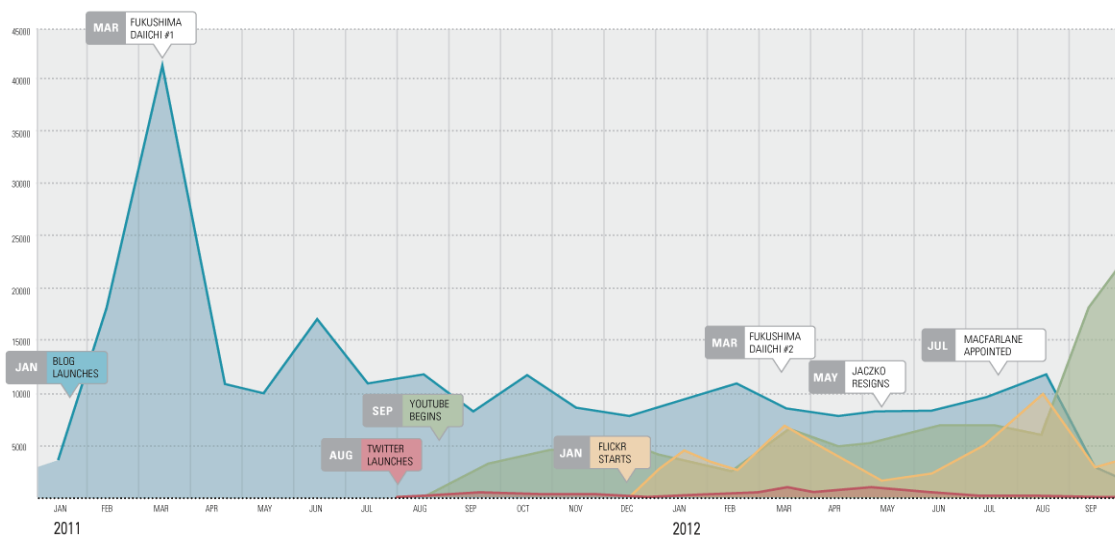


Figure 1: Timeline of Social Media Activity and Viewership Across NRC's Social Media Platforms

- The blog had a 43 percent drop in comparable total views from January to September 2011 compared with January to September 2012. There was an average of 5- to 10-percent drop on daily views from 2011-2012 and a slight increase variance in average daily viewership from January to September 2012.
- NRC experienced a large spike in blog activity during the March 2011 Fukushima incident with 41,561 views logged during that month. Prior to March 2011, the blog had 18,980 views in February 2011, which dropped to 11,014 views in April. Thereafter, views remained steady at around 10,000 until August 30, 2012.

Table 2: NRC Social Media Metrics (January 2011-September 2012)

	Blog	Twitter	YouTube	Flickr
Activity	238 posts	603 tweets	55 videos	1060 images
Views	238,067 views since launch 76,016 views in 2012	n/a	18,390 views (350-400 daily average)	90,206 views
Comments	1,350 approved comments	(not applicable)	(directed to blog)	(directed to blog)
Shares	1,054 total shares Average comment rate per post: less than 10 Average post likes: less than 5 Average Facebook shares: less than 5 Average Twitter retweets: less than 5 Blog content is shared primarily via: Facebook: 479 Twitter: 376	135 retweets	2-3 embeds in Facebook and other personal sites on average for most videos	(not applicable)
Followers	643 Followers	2,430 Followers	189 Subscribers	(not applicable)
Following	0	0	0	0

FURTHER PLATFORM ANALYSIS

NRC Blog

- **LOW TO MEDIUM BLOG VISITS:** According to www.trafficestimate.com, which provides estimates on web traffic, over a 30 day comparative period, NRC's blog received 16,500 visits. When compared to digital influencers in the nuclear space this figure is relatively low. For example, in the same 30 day period, NextBigFuture.com received 298,000 visits and the blog hosted by the Union of Concerned Scientists received 172,300 visits. When compared to blogs hosted by other federal regulatory agencies, the difference is more apparent. In the same 30 day period, the U.S. Environmental Protection Agency (EPA) "It's Our Environment" blog received 2,596,600 visits, and the U.S. Food and Drug Administration blog received 2,820,000 visits.

- **LOW POST ENGAGEMENT:** The NRC blog does not boast high virality² in that most posts are read but not engaged or shared. Furthermore, analysis of frequent user comments indicates that most of the activity is generated by a recurring set of users, which suggests limited increase in the participation of new, unique users.
- **NRC IS NOT CAPITALIZING ON WHERE USERS ARE COMING FROM:** Twitter and Facebook both rank in the top 10 websites and platforms that direct users to the NRC blog. The rest of NRC's blog referrals are from prominent blogs owned by recognized digital influencers (social media users who demonstrate a strong, active, and popular presence online as well as peer-approved thought leadership in a given topic) as well as directs from internal NRC staff (which suggests that awareness-building campaigns within the organization are working to keep NRC staff aware of blog posts).

The NRC blog does not direct its focus to Twitter and Facebook. While the NRC is currently reviewing its use of Facebook, it does have a Twitter profile and the data referenced above suggests that Twitter has the potential to augment viewership. Interestingly, in terms of sites that refer users to the NRC blog, Flickr ranks 15th, followed by LinkedIn at 20th, suggesting a strong but untapped potential for these sites to drive user traffic and activity.

Twitter

NRC's Twitter following is steadily increasing, although it is not yet at the level held by other influencers in the nuclear space (e.g., the Nuclear Energy Institute (NEI) boasts 6,774 followers compared to NRC's current following of 2,430). However, NRC's followers do include several of these digital influencers,³ indicating high potential for network amplification.

NRC does not follow Twitter users despite the fact that many of its regulatory agency peers (e.g., the Federal Drug Administration [FDA], the Federal Aviation Administration [FAA], and the EPA) follow other agencies and individual users. Interviews with the NRC's Office of the General Counsel suggest that there are no internal legal restrictions to amending NRC's current Twitter guidance to accommodate expanded activity (following and direct messaging Twitter users) as needed.

- Benchmarked against nuclear influencers who have higher levels of Twitter frequency and activity, it is clear that NRC does not fully engage

² Virality is contingent on how "viral" or frequently shared a piece of content is across social media.

³ For a list of sample digital influencers identified by this study, see report Appendix IV.

users through Twitter despite this platform being the one on which nuclear conversations are the most viral and active.

- NRC's minimal activity of only an average of 135 retweets⁴ on Twitter contributes to low shares of NRC's digital content. However, these retweets do have the potential to reach hundreds of potential new readers depending on the Twitter user's number of followers.

Flickr

- The viewership rate suggests that there is great potential for NRC to devote resources and attention to bolstering its Flickr content. Stakeholder interviews indicate that Flickr is a primary source for images for journalists and news outlets. One producer from Cable News Network (CNN) suggested that what was currently offered on Flickr does not compel him to return and urged NRC to provide more content that did not involve people in a conference room or of the chairperson speaking from a podium.

YouTube

- Users are embedding videos on social networks and other Web sites, but at a low and inconsistent frequency.
- The highest-viewed content tends to be original content, such as the "3 Minutes With" series (a public-facing video series produced by NRC's social media leads that features NRC staff providing insight into their jobs and role in the nuclear regulatory process), followed by videos related to top news incidents: 30 percent of traffic is driven from mobile devices, following a growing national (and global) trend in media viewership through smartphones.

NRC Would Increase its relevance in the Digital Space by Fully Understanding How Nuclear-Content Consumers Behave Online

A major risk to not regularly monitoring trend data beyond simple viewership rates is that NRC won't have an understanding of its users and, more importantly, may fall out of relevance in the digital space. This is a key concern because the effectiveness of NRC's presence on social media is tied heavily to NRC's ability to educate, inform, and encourage collaboration and public participation. This ability is diluted if NRC is not operating where users are most active.

Substantial benefits to developing a greater understanding of user behavior on NRC's social media platforms include the ability to (a) better track NRC's influence and relevance amongst these users, and (b) better target specific users for outreach when limited resources in staffing or time prohibit NRC from launching a larger social media campaign. NRC does not currently have the

⁴ A "retweet" is a re-posting of another Twitter user's tweet.

resource capacity within its social media program to reach out to hundreds of bloggers or Twitter followers. With user research, NRC can focus its current resources on digital influencers with high amplification potential based on their thought leadership and content popularity within the nuclear digital space.

Furthermore, broadening metric evaluations beyond what is happening strictly on NRC social media sites to activities that are happening within the nuclear community (e.g., by examining influence scores and popular content in other areas of the nuclear social media sphere to assess what kinds of content are prompting conversation at a given moment) would empower NRC to be a more active part of the digital nuclear conversation. In working to build influence within the nuclear community, NRC is also better able to meet its Open Government directives. It would therefore be advisable for NRC develop and implement a process to monitor the organization's social media influence scores to determine if it is viewed as an authoritative source of nuclear information.

Recommendations:

We recommend that the NRC Office of Public Affairs (OPA):

1. Broaden NRC's definition of success beyond quantitative viewership rates to include qualitative evaluations of digital influence, thought leadership within the nuclear social media discussion, and strength of relationships with prominent influencers.
2. Develop and implement a process to monitor user activity on NRC's social media platforms after content posts to evaluate content virality and network distribution.
3. Develop a baseline for performance by benchmarking NRC's social media metrics (i.e., viewership, subscriptions, shares, and influence) against activity within the digital nuclear industry community.

CHAPTER 2: SOCIAL MEDIA DIAGNOSTIC

CONTENT

Key Finding: *While NRC generates regular and informative social media content, it would benefit from consistently creating social media content that is more transparent, relevant, compelling, and engaging*

Content is king. Nowhere is this more important than on the information-saturated world of social media. Consider for example, that on WordPress alone, NRC shares its blog space with over 55 million other content owners. NRC videos compete with 120 million others on YouTube. NRC's Flickr photos perform against those uploaded by 51 million account holders. And, NRC's Twitter posts stream on feeds and devices alongside 400 million tweets *per second*.⁵ While NRC focuses specifically on nuclear issues and has a dedicated readership on their social media sites, it is still important to consider the volume of content that all Internet users must sift through to get to what they are looking for.

Transparency

By posting all blog posts under “Moderator” and not addressing why certain comments are not posted, NRC is perceived by some as being non-transparent

GOOGLE PUBLIC FORUM POSTS:

“Yeah, how about a real name of a person who authors the blog post instead of ‘moderator’! Who is this ‘moderator’ person anyway? ‘Moderator’ is a copout for accountability to your words.”

“Like if a comment is rejected, how about a reason why it was rejected.”

“You submit a comment...the comment takes forever for it to get on the site if at all. It is not like the typical media where your comment is added without censure or delay.”

In social media, transparency means “real” people behind blog posts and other social profiles who can develop an authentic voice with readers and followers. Transparency is generally perceived as one of the primary rules of engagement in social media. This is important when Government uses social media because it is often pursued as a platform for making bureaucracy more human and accessible. Hence,

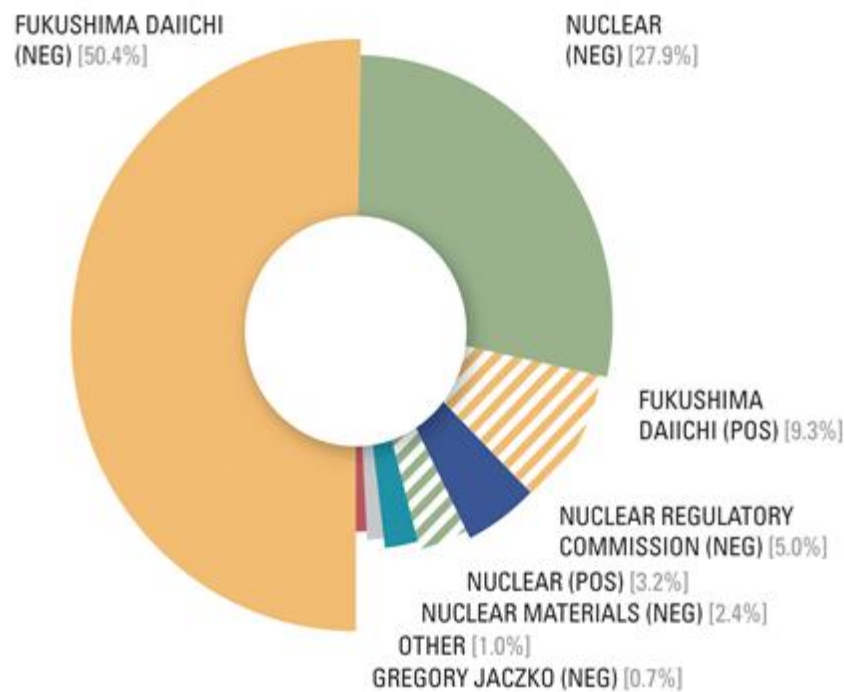
establishing transparency is a prelude to securing the public's trust that not only is the information presented credible and accurate, but also it is presented by a responsive human being empathetic to public concerns.

Admirably, NRC's content-gathering workflow (where all posts, regardless of departmental origin or author, get filtered through a single editor) provides NRC's blog with a strong level of consistency in voice, tone, and personality. This contributes to the perception of credibility discussed in the “Influence” section, while also contributing to a measure of authenticity with regards to NRC's online

⁵ All social media statistics reflect current user rates published by each platform on their websites as of September, 2012.

presence as a whole. However, it is important to note that NRC operates in a social media environment where nuclear power is largely seen as negative in conversations and posts across all major social media platforms and networks. This means that actions that are perceived as non-transparent by the digital public are amplified because they tend to reinforce persistently negative public perceptions around the nuclear topic.

Figure 2 demonstrates the results of a Radian6-driven⁶ review of over 500,000 social media posts (tweets, Facebook “likes,” mainstream news comments, YouTube content, and comments and other social media activity) from June 2012 to August 2012. Negative (solid colors) and positive (stripes) areas offer a snapshot of the conversational tone in these posts. The fact that there are more solids than stripes indicates that the overall conversational tone around nuclear topics was negative. Furthermore, within these negative topics, Fukushima Daiichi dominated online conversations (and digital activity of Fukushima is overwhelmingly negative). These do not necessarily reflect public sentiment toward NRC itself, only of these topics. NRC perception, however, is tied to this negative sentiment because conversations around NRC are rarely divorced from conversations around nuclear in general.



Data Source: Radian6

Figure 2: Public Perceptions of Nuclear Topics

⁶ Radian6 is a web-based listening platform designed to help companies and agencies know what online conversation is critical and what is being said about them on social media.

According to public feedback garnered through external stakeholder interviews and the results of the public forum on NRC’s social media, users negatively view the use of “Moderator” rather than the name of the NRC staffer uploading content when attributing blog posts. This view continues through comment responses, where user comments and questions are responded to by a “Moderator.” This tends to imply or communicate non-transparency and inauthenticity with social media users who tend to prefer names over non-descriptors. NRC does attribute post authors; however, their names appear below the post and interviews. Blog readers indicate that often they do not scroll down to the bottom of the post to see or find the author’s name. This issue can be addressed easily by moving the author’s name to the top of the blog post.

Another area of concern is the visibility of NRC’s comment policy. It is laudable that NRC’s comment policy is written clearly in plain language and accessible under the blog’s *about* section. Furthermore, NRC deserves credit for allowing a majority of user comments, positive and negative, as this reinforces perceptions of transparency and credibility. However, some users indicated that the comment policy is difficult to access and others felt that comments that are rejected or not immediately published deserve an NRC response as to why they were rejected or not immediately published.

Relevance

NRC’s “one size-fits-all” social media content is not providing sufficient technical information to key stakeholders

FEEDBACK ON NRC CONTENT FROM DIGITAL NUCLEAR INFLUENCERS

- “NRC should do a post about how a nuclear power plant works with good information graphics that I can share with my readers.”
Atomic Power Review
- “In general their posts are good for a general audience but then they have to realize that they have an audience that is very technical for which they can’t dumb down content.”
NEI Nuclear Notes
- “As part of the press, I have to be able to quickly communicate a lot of technical information into something our readers will grasp. But it helps if NRC had strong info graphics or a section that provided a breakdown of technical info so I can understand the translation from its source.”
Huffington Post

Content should be driven by the question “how is this valuable and relevant to our readers?” to provide information and insights that users want. Furthermore, arriving at an understanding of what criteria must be followed to make content relevant cannot be a one-time endeavor; rather, it is necessary for NRC to constantly monitor and glean insights from its users to gauge the ever-shifting nature of content relevance. While NRC has done an admirable job in opening up its blog to the general public and in creating spaces for public discussion, such as the “Open Forum” post where users can discuss topics freely, this strategy suffers from a limited understanding of NRC’s social media user base.

To understand what content NRC users want and need, NRC must first understand who these users are. According to interviews with staff from NRC’s OPA, NRC

has purposefully developed content aimed at the general public appropriate to the social media program's early stage. Hence, NRC creates content throughout its social media platforms that is written in a generic tone intended to communicate to as broad an audience as possible. Until the media platform reaches the next level of maturity, NRC has not decided to segment its audience beyond such a broad definition. This is a reasonable strategy for reaching the vast majority of citizens that the NRC needs to educate on the agency's regulatory role and activity within the nuclear space. However, interviews with members of the online nuclear power community revealed that NRC's social media is failing to provide the "deeper dive" into important nuclear issues. Specifically, there is an interest for content that speaks beyond the general public. By not addressing the needs of key stakeholder groups, NRC is not able to generate content that is relevant to audiences that have the highest potential to magnify NRC's reach and augment NRC's influence.

Further analysis of blog posts reveals a tagging ("labeling") system of only seven topical tags ("Emergency Preparedness," "General," "New Reactors," "Nuclear Materials," "Nuclear Security," "Operating Reactors," and "Radioactive Waste"), one "Open Forum" tag, and two tags that capture comments on other social media platforms that have comments disabled (Flickr and YouTube). This limited tagging system does not demonstrate the full breadth and scope of the content and limits content discovery and search. For example, posts about the San Onofre Nuclear Generating Station in California should be labeled "San Onofre," "California," "Region 4" in addition to the current labels of "Operating Reactors" and "nuclear." Tags should also reflect the main subject matter in the post. For example, there are several posts about flooding near facilities that are tagged "Emergency Preparedness and Response" but not the simple word "flooding." Expanding the tagging taxonomy to be more context-driven would connect similar posts together under a more intuitive and user-friendly system. Users, for example, would be more likely to search for posts related to threats to reactors caused by "flooding" and "weather" with those tags rather than higher-level concepts like "Emergency Preparedness."

Compelling

While NRC's social media content is frequent and informative, it lacks rich media elements and unique content that would attract additional readers and encourage them to share the information

"NRC's materials are very basic and not very viral. Other agencies do a better job of including information graphics, photos, even clickable links. There's no 'extra.' It's not influential."

Managing Editor, Huffington Post

Authenticity and relevance help maintain credibility and trust, while attraction (or how interesting and unique a piece of content is) contributes to a platform's "virality" or "shareability." In other words, posts that attract and sustain a reader's attention stand a greater chance of being shared across social networks.

Social media is a highly visual medium. According to a recent evaluation of the influence of images on an organization's public perception and online prominence, content featuring compelling images averages 94% more views than those without and posts with photos have far greater levels of social engagement than posts without.⁷

A cursory glance of the most viral content on the Internet demonstrates that users share content that is interesting and visual. A way to do this is by delivering content that contains photos, videos, and graphics that compels readers to engage the text further. However, a consistent observation across external stakeholder feedback was that overall NRC content—from blog posts to YouTube videos to Flickr slideshows—lacked visual elements, such as rich information graphics and interesting photos that would attract readers to engage the content further. The stories in NRC blog posts, for example, while short, are driven entirely by text rather than a combination of text and images. One of our interview subjects, a producer on a prominent news network, professed frustration that the map embedded on the post “NRC Watching Isaac” was not interactive.

For example, the screenshot in Figure 3 shows what it missing in the post “NRC Watching Isaac” and how it can be improved. The map was not clickable and interactive, textual references to data or events were not hyperlinked, and updates were not bolded or otherwise highlighted to make the change more apparent. In this example alone, NRC missed an opportunity to tell a richer, more engaging story that could have prompted additional shares on Facebook and Twitter.

⁷ In September 2012, MDG Advertising, a prominent marketing firm, created an information graphic detailing the importance of images in driving viewership and platform adoption online. View the full article on <http://www.mdgadvertising.com/blog/its-all-about-the-images-infographic>.

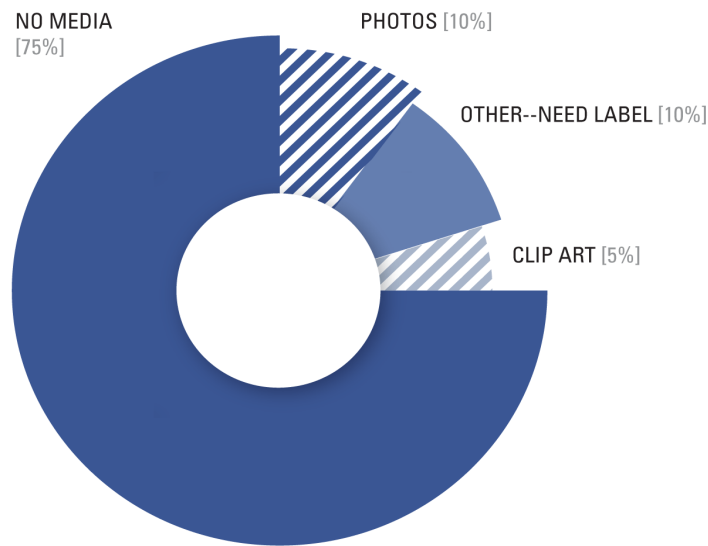


Figure 3: Screenshot of “NRC Watching Isaac” Blog Post

Source: NRC Blog

A spreadsheet tracking all posts on the NRC’s blog dating back to early 2011 reveals a lack of rich media. As Figure 4 demonstrates, the overwhelming majority (nearly 75%) of NRC’s blog posts feature no rich media content and those that do include only clip-art imagery or basic stock photographs. While the use of clip-art⁸ and stock images is convenient, it is commonplace and does not add to the unique value proposition that NRC content needs to consistently promote. The use of clip-art in particular can make NRC appear unsophisticated, particularly when compared to other organizations that use original photos and graphics.

⁸ Clip art refers to pre-drawn pictures, icons and illustrations often provided with word-processing and drawing software that users employ to illustrate text.



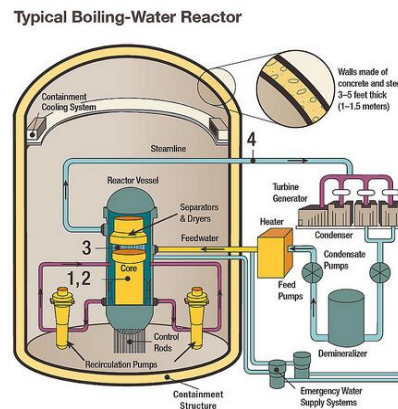
Source: Booz Allen analysis of 180 blog posts.

Figure 4: Frequency of Visual Elements in NRC Blog Posts

Stakeholder interviews indicated that users have a mixed reaction to NRC's YouTube videos. Media interview subjects said NRC's video content suffers from repetition, low production quality, and lack of excitement and visual interest. NRC's YouTube videos are largely composed of snippets of commission hearings that currently do not generate high levels of interest from social media users.

NRC hosts rich information graphics on Flickr, yet they are hard to access, and not included in blog posts (see Figure 5). The fact that these information graphics—as well as the mechanisms for creating them—already exist means that there is no need for resource augmentation. NRC just needs to embed Flickr slideshows into its blog.

Another observation gleaned from interviews was that NRC misses opportunities to leverage its access to nuclear facilities and other areas that would generate interest within the online nuclear community and the general public. A CNN producer compared NRC's unique access to National Aeronautics and Space Administration (NASA): "We as everyday people can't go

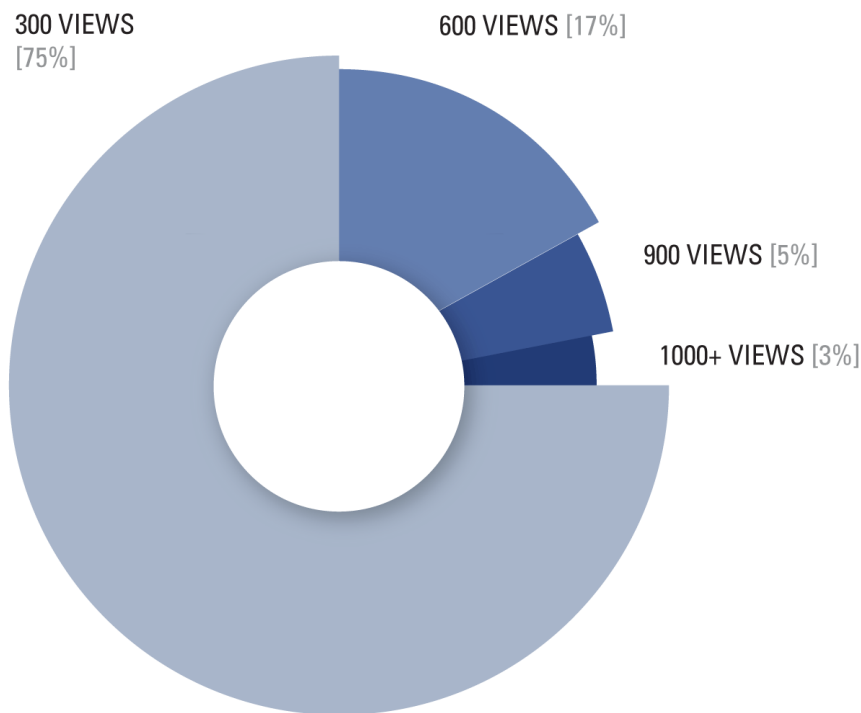


Source: NRC Flickr site.

Figure 5: Sample of Buried NRC Information Graphics on NRC

to Mars, but NASA can. Similarly, NRC has access to places people interested in nuclear can only dream of accessing.”

Figure 6 tracks the volume of users that viewed the NRC blog from its inception in January 2011 to September, 2012. Seventy-five percent of blog posts generated 300 views or less, 17% generated between 300 and 600 views, with the remaining 8% generating more than 600 views. Therefore a majority of posts generate a modest number of views (within the 75% range, most posts generate less than 100 views).



Data Source: WordPress

Figure 6: NRC Engagement Blog Viewership

Engagement

NRC does not consistently create content that prompts conversation or solicits feedback

Content engagement is the culmination of building trust through authenticity, credibility through relevance, and viewership through attraction. Once NRC has enticed viewers to peruse its content, it then must sustain those readers’ interest and, most importantly, prompt them to engage in conversation and share across personal networks. Social media is a responsive, two-way dialogue between

users and content generators. This powerful feedback mechanism is one way NRC can ensure that content posted is content that will be used and shared and addresses the question, “are we encouraging dialogue?”

However, research on NRC blog activity demonstrates that this is currently not the case. From September 2011 to September 2012, viewership of blog posts remained consistently low (from an average of 10-20 views on the lowest end to an average of 250 views on the mid-range). NRC does boast spikes in activity with some posts garnering as high as 1,700 views. It should be noted that the most viewed posts are a post on “Transcripts Providing a Unique Glimpse of the Agency” and the “Open Forum” post (which allows readers to submit comments and questions for open dialogue) indicating an interest from readers in transparency that reinforces the aforementioned finding on authenticity.

Articles on NRC’s blog are posted with admirable frequency (an average of four per week), reflect a diversity of regional sources and departmental perspectives, and are edited to speak in a consistent tone and voice. However, social media activity such as user commentary, Facebook “likes,” and Twitter “re-tweets,” remains low (an average of 2 comments and less than 10 examples of sharing NRC content on Facebook and Twitter) when compared to comparable sites in the nuclear space. When the activity is further analyzed, it reveals that the posts that generated the highest volume of social media sharing were related directly to Fukushima or were otherwise related to disasters and incidents. There is little follow-up after these spikes in activity and a consistent drop in activity due to a lack of sustained engagement (creating content that prompts shares or responds immediately to comments and recurring public concerns).

NRC would benefit from sustaining user engagement following major events. For example, there was a significant spike in activity during Fukushima (41,561 views in March 2011), but that activity dropped significantly shortly thereafter (11,014 views in April and 9,995 in May). Analyzing the content uploaded in that timeframe reveals that NRC did not sustain its content offerings around the incident or topics related to it and thus the readership of its blog dropped off. Presently, NRC baseline rates remain steady with occasional spikes. Activity level should remain relatively constant with a steady rise; should a fall occur, adjustments should be made to reverse the trend.

By keeping content interesting, evolving, and focusing on the needs of its users, NRC will be better positioned to strengthen its credibility within the nuclear community online, grow readership, increase content shares across social networks, and educate the public about NRC’s mission.

Recommendations:

We recommend that the OPA:

4. Generate content periodically that provides unique access to nuclear facilities and nuclear resources by providing photos and information.
5. Make article authors more prominent by including the blog article byline at the top of each post (rather than the bottom) so readers are immediately aware of who wrote the articles.
6. Develop and implement a process for creating more visibility into NRC's commenting policy and periodically respond to rejected posts to build trust and transparency.
7. Rather than only soliciting and creating content around topics NRC departments are interested in, solicit input from readers and bloggers on a regular basis regarding content they would be most interested in (and at what level of technicality) and create content based on their input.
8. Develop and implement a process for expanding tagging taxonomy beyond "nuclear" so content is labeled by audience or type of information.
9. Develop and implement a process for the use of rich media including videos, photos, charts, interactive graphs, and info-graphics in social media posts.
10. Develop and implement a process for adding visual interest and facilitating access to existing blog posts. For example, embed YouTube videos and Flickr slideshows within blog posts.
11. Insert links in YouTube videos so videos are clickable and link back to www.nrc.gov, the blog, or other NRC platforms.
12. Conduct periodic content analysis to glean which types of posts generate the most activity and replicate blog elements that have proven successful.
13. Develop and implement a process for expanding photo offerings on Flickr beyond bar graphs or the NRC Chairman.

REACH

Social Network

Key Finding: *While NRC has expanded its reach with four social media channels, NRC's social media strategy is overly focused on driving traffic to its blog at the expense of engaging on Twitter and other platforms where NRC stakeholders are most active*

Interviews with internal NRC staff involved with social media reveal that NRC primarily uses all its official social media channels, such as Twitter, to drive followers to NRC's blog. NRC prefers to use the blog comment section on NRC's WordPress blog to manage requests, questions, and comments rather

than respond to users queries directly on Twitter. Additionally, feedback from the Google Form⁹ confirmed NRC’s use of Twitter as merely a means to push content rather than engage external stakeholders. However, according to the evaluation team’s analysis via analytics software such as Radian6, Klout, and other software, it is clear that NRC is missing an opportunity to connect with users on Twitter and Facebook because these social media sites feature the greatest numbers of social media users in the nuclear space.

Figure 7 shows NRC’s volume of social media activity (defined by both user base and content sharing) compared with nuclear digital influencers (author of the blog “Energy Education Project” Meredith Angwin, the American Nuclear Society (ANS), the NEI, Friends of the Earth (FOE) and the Union of Concerned Scientists) and other Government agencies (the Federal Communications Commission [FCC], the EPA, and the Department of Energy [DOE]). The “balls” are organized from left to right by Klout score with NRC falling far to the left. The “ball” size reflects total user volume, driven in large part by Twitter, YouTube, and Facebook subscriptions. Organizations such as FOE and the NEI boast large followings in each of these platforms whereas NRC, which focuses a majority of its social media efforts on its blog at the expense of strengthening the organization’s presence on Twitter and YouTube, has a much smaller following.

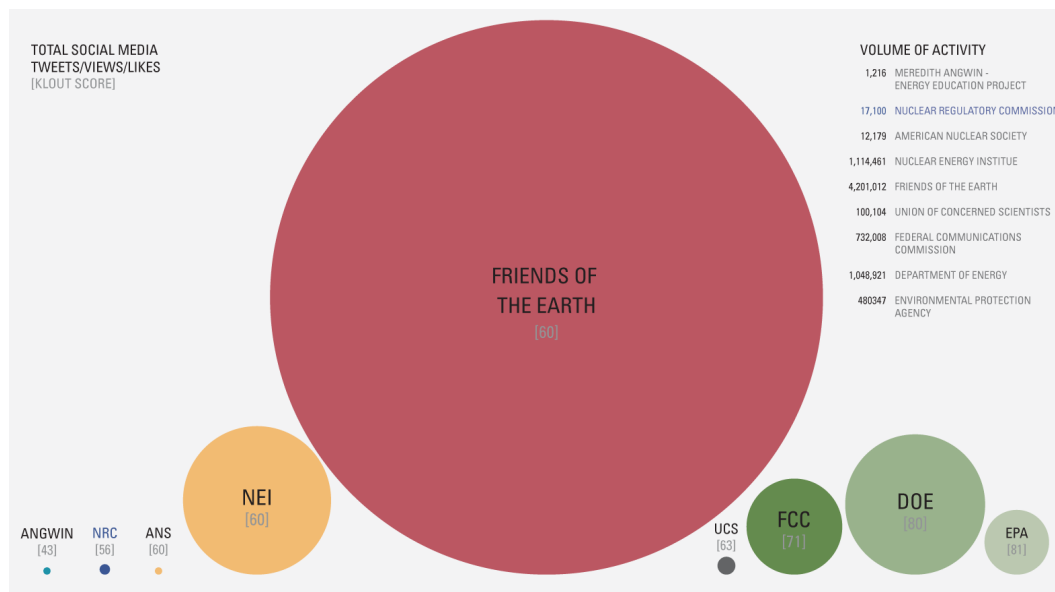


Figure 7: NRC’s Volume of Users and Social Media Activity Compared with Nuclear Digital Influencers and Other Government Agencies

By not taking full advantage of other social media platforms, NRC is missing a large audience segment that is far more active on Twitter, YouTube, and

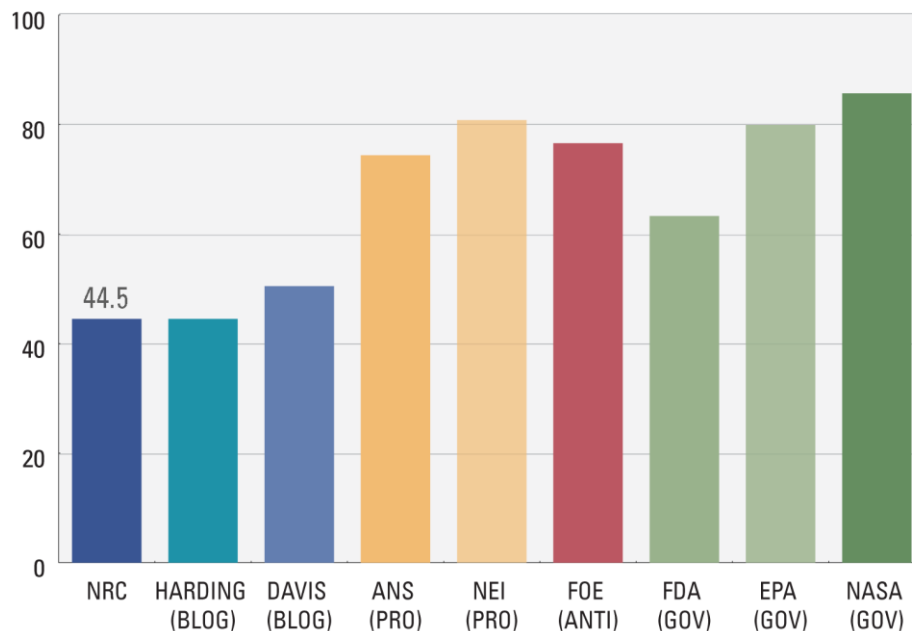
⁹ To collect public feedback, the evaluation team developed a form on Google’s social platform then distributed this link across the social network of nuclear digital influencers. To learn more, refer to Appendix I of this report.

Facebook. In fact, according to NRC's tracking data, Twitter refers more readers to NRC's blog than any other external website outside of WordPress.

Analysis via TweetLevel

NRC's TweetLevel score: 44.5 (cumulative of scores below)¹⁰

NRC's Popularity Score: This number is solely based on how many followers NRC has. Many Twitter measurement tools rank Twitter users only according to this metric; however, just because a user is popular does not mean they are influential. To increase popularity, NRC will need to follow more people, post regular and interesting content, time posts to peak times, follow trends, and add hashtags¹¹ to make it easier for people to find NRC's tweets. Figure 8 below compares NRC's scores against bloggers ("blog") Margaret Harding (Harding) and Will Davis (Davis), pro-nuclear organizations ("pro") ANS, NEI, anti-nuclear organization ("anti") FOE, and Government agencies ("gov") the FDA, the EPA, and NASA.



Data Source: Tweetlevel.

Figure 8: TweetLevel Score Comparison

¹⁰ TweetLevel measures a user's importance or influence on Twitter based on popularity (how many people follow the user), engagement (how often a user participated in a community), and trust (whether users believe what is said on your tweets).

¹¹ A hash tag is a tag embedded in a message posted on the Twitter microblogging service, consisting of a word within the message prefixed with a hash sign.

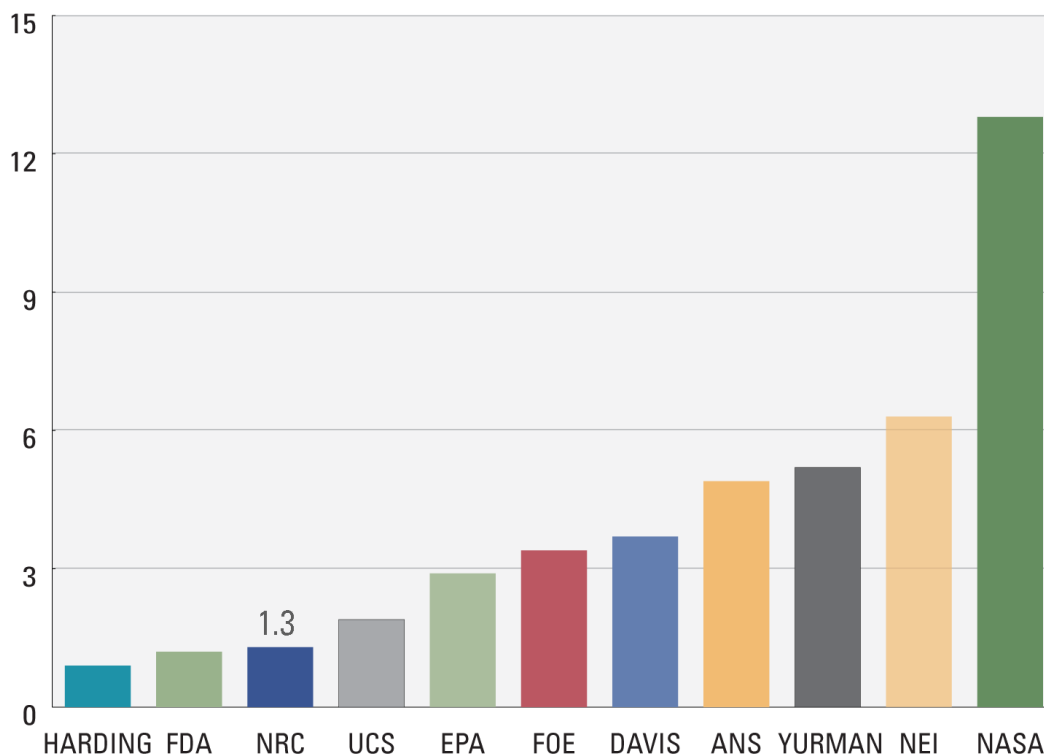
NRC's Engagement Score: NRC's engagement is low because of the way NRC interacts with the online community. Twitter is not just about broadcasting thoughts or pushing NRC's latest post—it is about conversations. NRC would benefit from knowing the people who follow the agency and contribute to nuclear discussions in order to demonstrate its active engagement in the nuclear community online.

NRC's Trust Score: Having a high trust score is considered by many to be more important than any other category. Trust can be measured by the number of times someone is happy to associate what you have said through them—in other words, how often NRC is retweeted. Creating more interesting and informative posts that give followers a reason to retweet what NRC has said will increase NRC's trust score.

Twitter Frequency

NRC ranks low in Twitter post frequency with an average score of 1.3 compared with FOE (3.4), NEI (6.3), and other regulatory agencies like EPA (2.9).¹² Twitter frequency is an important metric for NRC because Twitter usage is prevalent within the online nuclear community and particularly within the nuclear press who, according to external stakeholder interviews, rely heavily on Twitter for news and to gauge conversational trends within the nuclear community.

¹² Source: www.hashbang.com.



Data Source: Hashbang.

Figure 9: Average Number of Tweets Per Day

NRC Would Benefit from Focusing Greater Attention to Twitter because It Amplifies NRC's Message to a Larger Network

Twitter currently ranks as one of the web's 10 most-visited websites and it widely considered the preeminent micro blogging platform with over 140 million online users.¹³ Twitter users who best use this platform to their advantage do so by participating in conversations, engaging their nuanced communities of interest, and fostering dialogue via two-way communication. By responding to comments and feedback in real time, NRC will see a rise in followers and readers on both Twitter and the NRC blog. Asking open-ended questions (as has been a popular exercise on NRC's blog) is also critical in championing online stakeholders and ensuring NRC maintains a direct and genuine tone with its online community. Rather than simply using Twitter as a means to push blog entries or press releases, NRC can demonstrate leadership and know-how regarding nuclear safety issues to its online audience.

¹³ <http://www.alexa.com/siteinfo/twitter.com>.

Audience Segmentation

By focusing predominantly on the general public, NRC is not fully addressing the needs and concerns of its broader stakeholder community

NRC considers the end-user or consumer of its social media efforts to be the general public. However, research conducted for this evaluation revealed that NRC's typical social media end-user is technically savvy, highly knowledgeable on a variety of nuclear topics, and passionate about nuclear safety. Currently, NRC does not currently segment its online audience and therefore does not consistently provide relevant content to key stakeholder groups such as licensees, communities surrounding nuclear power plants, and users of nuclear materials such as the academic, science, and medical communities.

Identifying Audiences and Tailoring Content Will Help NRC Build a Larger, More Informed Social Media Audience

Taking a comprehensive look at NRC's varied online audience will allow NRC to build its following and better communicate with users via social media. By determining the needs, experiences, knowledge, and characteristics of NRC's social media subscriber base, NRC will begin to foster a more educated and engaged community of interest. Once specific audience groups are identified, targeted messaging and group-specific content will make it possible for NRC to reach beyond "the general public" and get other key stakeholders the information they desire.

NRC Can Maximize Social Media Outreach

By studying the people who matter to NRC, and the people who matter to NRC's readers, NRC's social media strategies could benefit from a new level of constituent awareness that may enhance the way the agency is perceived online. With limited resources, NRC can maximize outreach efforts to a small but influential group of social media influencers.

Awareness

NRC has an active and dedicated readership, but it is small and many of NRC's internal and external stakeholders are not fully aware of NRC's social media sites

External audiences are not fully aware of NRC's social media platforms

Interviews conducted with members of the online nuclear power community as well as analysis of platform viewership rates indicate that while NRC has attracted a respectable and modest volume of readers, the majority of engagement activity (i.e., comments on the blog) is conducted by a small and recurring group of users. Furthermore, most of these users' activities are isolated to one platform (the blog) and when asked about other NRC social media platforms, many individuals indicated that they were not aware that these other platforms existed.

There is a lack of agencywide awareness and/or adoption of the full breadth of NRC's social media program

As shown in Figure 10, NRC OPA social media staff have taken steps towards increasing awareness of social media efforts within the agency. The social media lead has conducted brown bags, created and distributed brochures, postcards and posters, and encouraged regional public affairs staff to distribute materials in public meetings. However, brown bags are conducted by request only and inclusion of social media information on NRC communications and marketing is not consistent. For example, social media did not appear in the following NRC information materials:

- *The NRC Guideline for Conducting Public Meetings*
- *Public Involvement in the Nuclear Regulatory Process*
- *The Citizen's Guide to U.S. NRC Information*
- *Independent Regulator of Nuclear Safety*



Source: NRC OPA.

Figure 10: Printed Materials Used by NRC OPA to Market and Encourage NRC Adoption of the Agency's Social Media Platforms

This could be because these materials were developed and published prior to the advent of social media at NRC. In order to be sensitive to budgetary constraints associated with revising and reprinting existing materials, it is recommended that if and when current materials are slated to be updated, NRC should include information on official social media channels if appropriate.

Inconsistent awareness contributes to low internal adoption and participation in NRC social media. Even when aware, however, several internal stakeholders confessed ambivalence to social media adoption. A majority of internal

stakeholders interviewed neither subscribe nor participate in NRC social media, nor do they promote its use to their external contacts.

NRC Can Reach More Stakeholders by Connecting with Digital Influencers Who Are Better Able to Amplify NRC's Reach Through Their Robust Networks

Use of social media as both a broadcast tool and an engagement platform is not about reaching people just because they are connected, but because they serve a role in the community. To increase its visibility within high-impact networks, NRC should learn more about social landscapes and the people who affect the social media conversations they are a part of. As important as it is to understand NRC's audience, it is also important to understand the value of relationships and how best to cultivate them. NRC's goal should not be increasing the quantity of its followers, but the *quality* of consumers of NRC's digital content as defined by their influence and peer network. According to David Armano, Executive Vice President, Global Innovation & Integration at Edelman Digital:

The size of networks to cause effect is irrelevant. The idea that only large networks can cause effect is a myth. You must understand how influence spreads. Now, you can connect with people based on common interests through the influential voices who are frequently the hub of important conversations.¹⁴

Recommendations:

We recommend that the OPA:

14. Allow and respond to user comments on NRC YouTube and Flickr sites rather than directing them to the NRC blog.
15. Develop and implement a process for identifying digital influencers and monitoring activity by maintaining a matrix of influencers according to shifting scores and activity.
16. Develop and implement a process for determining what information each user group needs and regularly provide that information on NRC's blog and in NRC's Twitter feed.
17. Engage in active outreach to bloggers and other social media followers by providing special opportunities to connect with NRC staff, such as tailored content, virtual and physical meet-and-greets, and discussions.
18. Develop and implement a process for regularly hosting brown bags or other training classes to build awareness of NRC social media activities.
19. Evaluate all of OPA's published materials and make sure information on how social media can be accessed by users is clearly defined and visible.

¹⁴ "The Rise of Digital Influence," Brian Solis and Altimeter Group.

20. Periodically host a blogger's roundtable where NRC invites prominent nuclear bloggers to opine on key issues. This can be done either in person or virtually through forums such as Google Communities.
21. Monitor, note, and engage frequent posters, commenters, and active Twitter followers.

INFLUENCE

Key Finding: *NRC's authority and leadership offline is not adequately reflected online*

Digital influence is defined as “the ability to cause effect, change behavior, and drive measurable outcomes online.”¹⁵ The concept of digital influence and its use as a mark of social media's return on investment emerged as recently as 2009 with the launch of Klout,¹⁶ a social media analysis tool that measures users' influence across their social network.

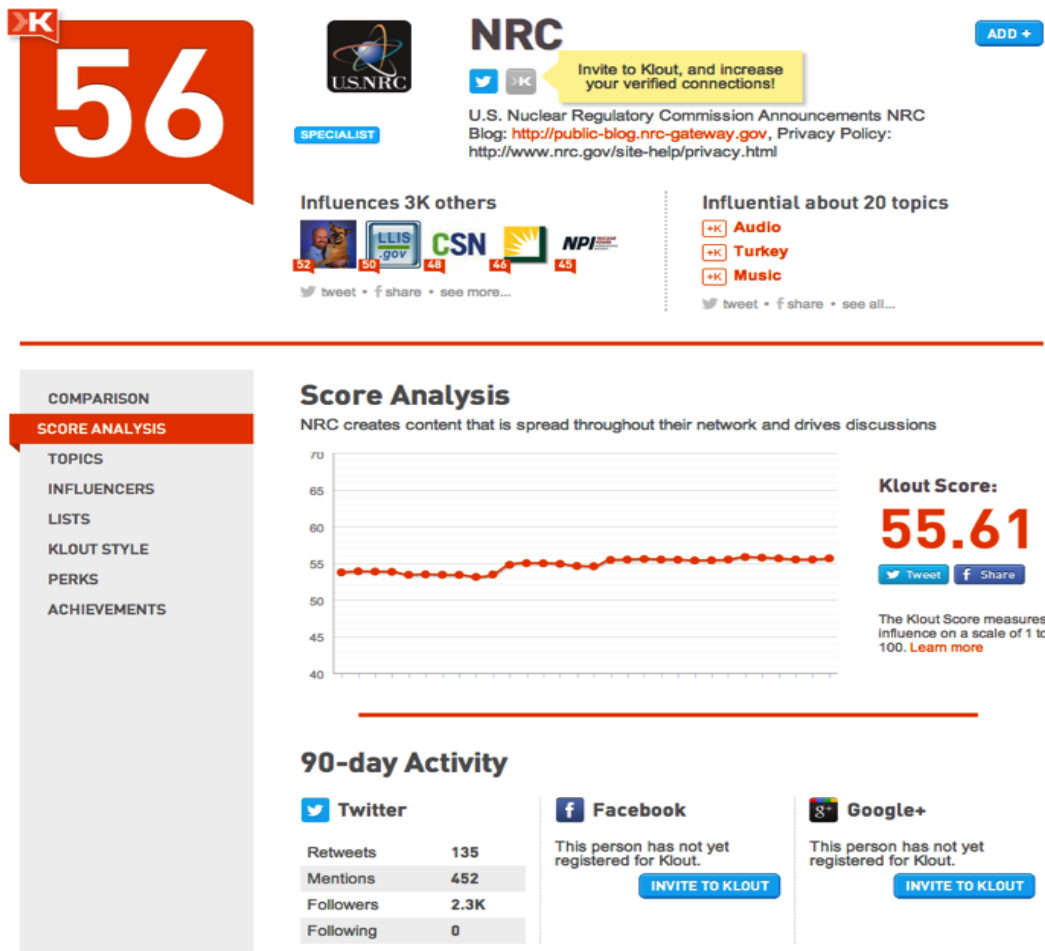
While influence may suggest activities that run counter to NRC's mandate to remain a neutral party to the pro- or anti-nuclear energy debate, in the context of social media, it provides a powerful metric and concept for understanding how well NRC is able to harness and amplify its public perception and credibility on digital platforms to meet Open and Digital Government directives. The goal of measuring and cultivating influence in this context is not to advocate for or endorse nuclear energy—which would defy NRC's mandate to stay nuclear-neutral—but to influence citizen understanding of nuclear safety, regulations, and the role of the NRC. Cultivating influence amplifies NRC's ability to meet its mission of educating the public on nuclear power and the regulations that govern it.

NRC is not currently a leading influencer on social media. With a Klout score (displayed in Figure 11) of 56 out of 100, it ranks 14th amongst a list of 50 peer organizations and influencers, including NEI and the American Nuclear Society (ANS), which boast a higher Klout status alongside bloggers such as Margaret Harding (an international recognized nuclear expert) and organizations such as FOE and Union of Concerned Scientists, that typically have anti-nuclear

¹⁵ “The Rise of Digital Influence,” Brian Solis for Altimeter Group.

¹⁶ Klout offers one of the first quantifiable measures and methodology of the value of a user's social media activity. To achieve what is known as a “Klout score,” the software combines network data (i.e., the number of “followers” or “friends”) from sites such as Twitter and Facebook with engagement indicators (how often content generated by those users are responded to or shared). Other services have risen since, competing with Klout on accuracy and market share over what has emerged as the significant business of measuring social media's return on investment. Klout alone boasts 100 million profiles, which include major commercial brands like Coke, McDonalds, and Nissan. This is important because the potential for social influence is significant on both sides of the equation. Services like Klout that rank and identify “influence” reveal opportunities for organizations like NRC to cultivate mutually beneficial relationships with “influencers” in the digital nuclear conversation and their broad social networks.

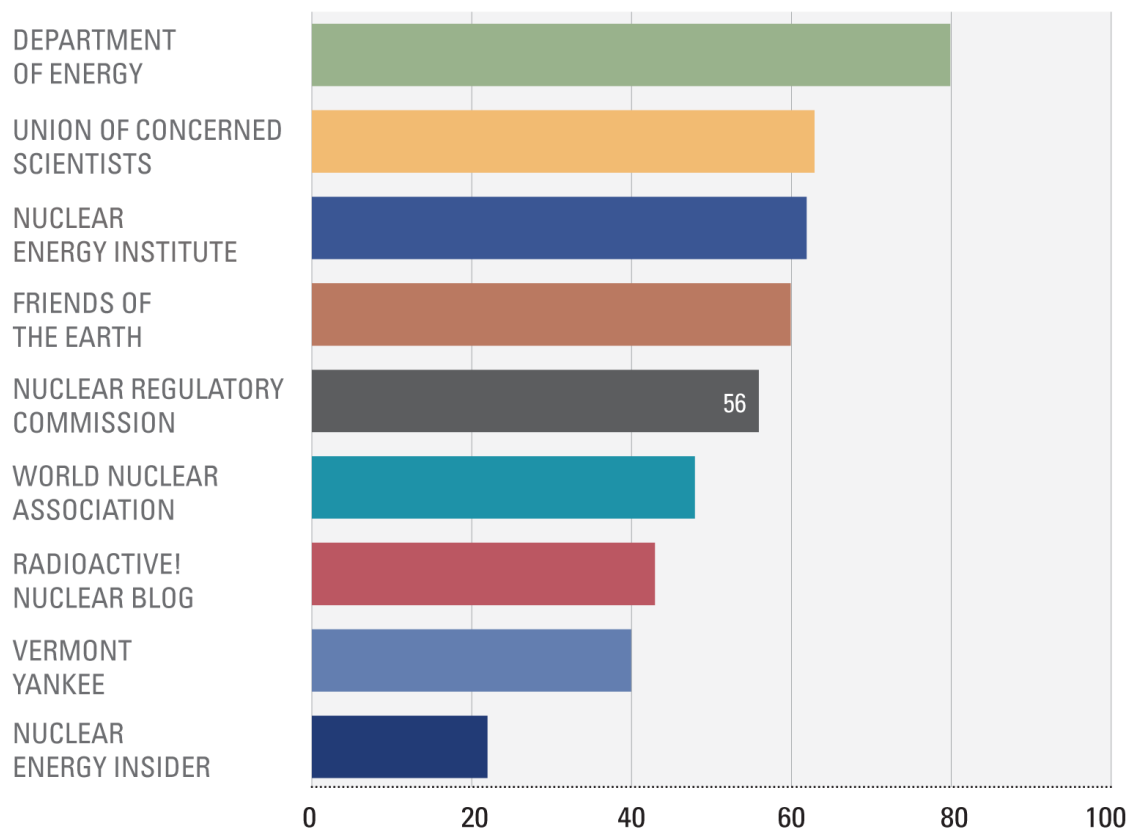
platforms. NRC also occupies a similar mid-level 22nd rank in terms of strength of topical influence within “nuclear” conversations. In fact, NRC is currently not “strong” in the nuclear topic at all, especially when compared to other groups (particularly anti-nuclear groups like “Occupy Fukushima” and “Fukushima News,” which boast higher levels of influence and overall social media activity).



Source: Klout.

Figure 11: Export of NRC’s Klout Score Analysis

While Klout and its peers are growing in popularity as measures of digital influence, NRC should not overly focus on scores generated by these companies alone. It is widely believed that no algorithm or company, no matter how complex or prolific, can claim a completely accurate estimation of “influence.” However, what these measures do indicate is NRC’s *social capital* or stature within the digital nuclear network and conversation. These scores also provide insights into the interests and topics that contribute to that standing. The score itself should be considered a benchmark that transforms users who follow NRC into potential influencers to be targeted for outreach, as well as part of an ongoing environmental scan that allows NRC to measure its influence against peers.



Data Source: Analysis of 50 NRC peers and nuclear influencers identified through Radian6, stakeholder interviews, Klout

Figure 12: NRC Klout Scores Rated Against Peers

NRC's level of influence is highly dependent on its responses to major nuclear news items, such as the Fukushima Daiichi nuclear event in March 2011, where social media activity (both readership and shares of NRC content) and NRC user engagement was high but not sustained. NRC's current occupation of a mid-level rank on the influence scale may be skewed by the spike in activity during March 2011, which explains the ranking NRC occupies in terms of raw touch-points. This ranking indicates that while NRC may occasionally enjoy high traffic, it does not actively engage those who visit or build and sustain relationships. This is a missed opportunity for NRC to capture and maintain interest among influential users.

NRC Lacks Digital Influence Because It Does Not Target Digital Influencers

External interviews and responses to the evaluation team's public Google Forum indicated that NRC's lack of digital influence is largely due to factors such as the nature of NRC's content, lack of public awareness of NRC's presence on social media, and the lack of targeted outreach to digital influencers who could amplify

network reach. This analysis is reinforced by interviews with congressional nuclear power subject matter experts, journalists, and non-profit leaders who revealed in near consensus that NRC is non-influential due to its lack of consistent participation in digital nuclear conversation. Several interviewees alluded to the fact that they would neither turn to NRC social media channels for online information nor would they be inclined to share the content on NRC social media sites.

NRC Should Command the Same Level of Authority and Leadership over the Nuclear Conversation Online as it Does Offline

According to author and social media guru Brian Solis, “an influencer is defined as someone (or an organization) with notable status and focus within a community who possesses the ability to cause effect or change behavior among those to whom they are connected.”¹⁷ An ideal state for NRC would be one where the organization, as the regulatory agency of the nuclear industry, is a digital influencer commanding the same level of authority and leadership over the nuclear conversation online as it does offline. While remaining cognizant of how “influence” is perceived and used in an organization with a mandate against advocating for or against the industry it is regulating, the NRC could use social media to cultivate a greater influence in the digital nuclear conversation, which would help the organization meet its public education mandates.

NRC Would Benefit from More Influence Online

NRC can be expected to occupy a mid-level position on the influence scale given that the agency has only been participating in social media for less than two years and has dedicated limited resources to the effort. However, there is risk that if NRC does not raise its online influence and profile within the nuclear conversation, other organizations will dominate the discussion and NRC’s important, objective information will be overshadowed.

NRC would benefit from a higher influence score and rank because it would lead to higher visibility and engagement not just with average citizens but also with stakeholders who have strong networks, substantive content, and quality engagement. Being known as a digital influencer should be an aspirational goal that NRC works towards because it would be positively perceived by social media users that NRC enjoys a level of sophistication, technology-savvy, and innovation that is not typically associated with a Government entity. This alone would position NRC uniquely in both the nuclear social media space as well as amongst its Government peers.

NRC Benefits from Reaching Out to Digital Influencers

Influencers acquire their status, popularity, and prominence in social media through their deep, at times exhaustive knowledge and interest in a specific topic. Their content focus yields a dedicated following of like-minded users who come

¹⁷ “The Rise of Digital Influence,” Brian Solis for Altimeter Group.

to rely on these influencers for information and insight that often times has the ability to shape opinions and even behavior. This is particularly true in the private sector where marketing efforts targeting influencers has had measurable impact on sales or service adoption. By delivering share-inducing content, influencers cultivate large, loyal social networks, and then ascribe to these influencers significant authority that frequently extends from online to offline via live speaking engagements and book deals.

Identifying and building relationships with digital influencers is therefore a key strategy for NRC because it has the ability to drive measurable outcomes in social media. Digital influencers can give individuals and agencies a measured amplification and magnified influence in social media messaging efforts. With its limited dedicated social media resources, NRC can maximize social media messaging by reaching out to digital influencers rather than launching a larger scale campaign. Even if NRC were to engage a few influencers via Twitter, or invite a handful to a blogger roundtable or virtual press conference, or inquire of these influencers what kinds of content and information they feel would be relevant to the greater nuclear community, the results of these efforts would yield greater network reach and overall influence than if NRC were to engage the general public.

In choosing influencers, NRC would do well to heed suggestions made by Brian Solis, who writes:

The individuals you choose should offer a notable balance of reach, reputation, relevance, and resonance. Remember, [citizens] align with respected people for personal reasons. Include a mix of popularity and authority to evaluate how your [users] respond and to what extent. Modify the program as necessary. Last but not least, don't just walk away. Continue to experiment and find new and engaging ways to recognize and reward [users] and the people who just may influence their actions and behavior.¹⁸

By studying the online nuclear community and the people who matter to them, NRC will benefit from a new level of public awareness and sensitivity that will have a positive impact in how the agency is perceived online.

Recommendations:

We recommend that the OPA:

22. Develop and implement a process to evaluate and monitor NRC's influence scores quarterly to capture and understand existing user sentiments, behavior, and awareness.

¹⁸ "The Rise of Digital Influence," Brian Solis and Altimeter Group.

23. Develop and implement a process to evaluate how NRC's score rises or falls dependent on a rise in readership or engagement and adjust strategies depending on outcome.
24. Develop and implement a process to solicit feedback from digital influencers about what they see are trends, preferences and needs in information and content within the digital nuclear community.

SECURITY

An organization's use of social media technology can create security risks and vulnerabilities. NRC has mitigated this risk by leveraging external, third-party channels (e.g., NRC Blog via WordPress, YouTube, Twitter, and Flickr) for its social media program. The agency must balance transparency and openness with the sensitive nature of its mission as a nuclear regulatory agency.

This section provides an assessment of privacy and security risks and vulnerabilities associated with the use of social media at NRC. Reviews of NRC information management and security policies and interviews with NRC information technology (IT) security personnel revealed a lack of standard operating procedures (SOPs), processes, and specific activities or policies regarding social media security. As a result, the evaluation team expanded our research and analysis to include a review of Federal information management and security policies and guidelines on social media, best practices, and the social media policies of other Federal regulatory agencies, including those with a regulatory mission. These policies, processes, procedures, and best practices were used to evaluate social media security at NRC. Specific focus was placed on policy, operational controls, governance, and records management/archiving.

Policy

Key Finding: *While NRC is compliant with Federal social media policies and regulations, it should take measures to more effectively integrate social media into its information security policy framework*

Unlike the privacy, records management, and breach response policies that are codified in management directives, NRC's social media policy is categorized as "interim" despite the structure and scope of the guidance. The *Interim Guidance on the Use of Social Media*¹⁹ remains an interim document since its agency wide dissemination in January 2011.

Federal and NRC social media policies are currently not included in NRC's key information management and security policies and guidance such as: Management Directive (MD) 2.7, *Personal Use of Information Technology*; MD 3.2, *Privacy Act*; MD 3.1, *Freedom of Information Act*; MD 3.53, *Records and Document Management Program*; the Computer Security and Incident Response

¹⁹ The *Interim Guidance on the Use of Social Media* was issued Agencywide on January 2011 via Yellow Announcement YA-11-005 (ADAMS Accession #103060402).

Policy; and the Personally Identifiable Information (PII) Breach Notification Policy (see table below). The phrase “social media” is not mentioned in any of these guidance documents. Table 3 contains an overview of the policy MDs that do not include Federal and social media policy guidance.

Table 3: NRC Information Management and Security Policies

Policy/MD Title	Date Approved	Revised/ Expiration Date	Description
MD 2.7, <i>Personal Use of Information Technology</i>	February 27, 2003	July 28, 2006	Provides guidance for employees on the appropriate limited personal use of NRC information technology resources.
MD 3.1, <i>Freedom of Information Act</i>	June 6, 2011	June 6, 2016 (Expiration)	Provides policy guidance for the review and processing of FOIA and Privacy Act Requests.
MD 3.2, <i>Privacy Act</i>	June 16, 2003	June 27, 2007	Provides policy guidance on the appropriate agencywide implementation of the Privacy Act, establishment of systems of records, and the protection of employees and members of the public from the unnecessary invasion of personal privacy.
MD 3.53, <i>Records and Document Program</i>	June 15, 1995	March 15, 2007	Provides policy guidance on the management of Agency records and the Agencywide Documents Access and Management System (ADAMS)
Computer Security and Incident Response Policy	July 3, 2008	N/A	Provides policy guidance on the end-to-end management of computer security incidents.
Personally Identifiable Information Breach Notification Policy	September 19, 2007	February 9, 2009	Provides guidance to personnel about their responsibilities to protect personally identifiable information (PII) from unauthorized access and disclosure and to standardize response and notification procedures for breaches and incidents.

The Privacy Act MD (last revised in June 2007) is due for updates and renewal, but key NRC information management and security staff interviewed for this report did not know if social media policies will be included in the updated directive. Likewise, MD 3.53, *Records and Document Management Program*, was last revised in 2007 and should be updated as well, particularly considering all of the guidance issued by the National Archives and Records Administration (NARA) in the last five years on the management of web applications, web records and Web 2.0 technologies.²⁰ Updating MD 2.7, *Personal Use of*

²⁰ NARA Bulletins: 2006-04 – Scheduling Electronic Copies of Email and Word Processing Records (July 12, 2006); 2008-05 - Guidance Concerning the use of E-mail Archiving Applications to Store E-mail (July 31, 2008); 2010-05 – Guidance on Managing Records in Cloud Computing Environments (September 30, 2010); 2011-02 – Guidance on Managing

Information Technology is equally important because the directive is both relevant and closely linked to the use of social media at NRC.

The exclusion of social media may be partially due to the timing of the development of NRC information management and security policies and MDs. For example, MD 2.7, *Personal Use of Information Technology* was last updated in 2006, almost one year before the enactment of the Open Government Act of 2007 and it has not been updated since that time. Another likely reason that social media is not integrated into information management policies is due to the process of revising policies at NRC. According to the Team Lead of the OIS Technology Direction and Standards Team, social media touches multiple MDs and would therefore be challenging to integrate in such a short span of time.

Despite the aforementioned challenges, NRC can model best practices and guidance established by agencies such as NARA for integrating social media into information management and security policies particularly in key areas such as records management. NARA Bulletin 2011-02, *Guidance on Managing Records in Web 2.0/Social Media Platforms*,²¹ provides guidelines for agencies to update policies and procedures to include the management of records (throughout the entire lifecycle from creation through disposition) produced and generated through social media. Specifically, the bulletin provides fundamental guidance to Federal agencies to determine “the most appropriate ways to incorporate record keeping requirements into their business processes” but not “step-by-step guidance that can be applied to agency-specific use of a Web 2.0/social media platform.” The bulletin provides key recommendations and guidance for Federal agencies in three key areas:

- Policy – Agencies must ensure that records management guidance is included in social media policies. Records management stakeholders and social media content creators should collaborate to establish discrete roles and responsibilities and standardized records management processes and procedures to ensure that social media records are appropriately identified, tracked, and managed.
- Records Scheduling – Agencies must develop new or apply existing records schedules to social media records based on content and how platforms are hosted (i.e., internal or external to agencies’ websites and networks).
- Preservation – Agencies must develop technologically adaptable and efficient processes and procedures to protect and preserve social media records.

Records in Web 2.0/Social Media Platforms (October 20, 2010); 2011-03 – Guidance Concerning the use of E-mail Archiving Applications to Store E-Mail (December 2010); Reports: A Report on Federal Web 2.0 Use and Record Value (2010).

²¹ NARA Bulletin 2011-02 expands existing guidance on web records such as NARA Guidance on Managing Web Records issued in January 2005 (<http://www.archives.gov/records-mgmt/policy/managing-web-records-index.html>) and Implications of Recent Web Technologies for NARA Web Guidance (<http://www.archives.gov/records-mgmt/initiatives/web-tech.html>).

Despite the agency's overall compliance to Federal social media policies, not including social media in the information management and security policy framework can potentially lead to a lack of adherence to Federal guidelines. System users may not be aware of their responsibilities to safeguard PII and sensitive agency information when using social media for both business and personal use. This may lead to potential PII spills or improper disclosure of sensitive agency data and proprietary information.

Recommendations:

We recommend that the Executive Director for Operations:

25. Update the agency's information management and security policies to include social media.
 - A) Include social media policy guidance in the revised MD3.2, *Privacy Act* in accordance with guidance provided in OMB Memorandum 10-23, *Guidance for Agency Use of Third Party Web Sites and Applications*.
 - B) Revise MD 3.53, *Records and Document Management Program* and include social media in accordance with the guidance provided in NARA Bulletin 2011-02, *Guidance on Managing Records in Web 2.0/Social Media Platforms*.
 - C) Revise the existing PII Breach Notification Policy and Computer Security Incident Response Policy to include the following statement: *All of the information contained in this policy applies to the use of social media.*

Safeguards

Key Finding: *While NRC has taken some measures to reduce social media risks and vulnerabilities, its current safeguards should be enhanced to adequately protect the agency*

Security Assessments

While NRC conducted initial security assessments prior to the launch of its Twitter, YouTube, and Flickr sites, it has not conducted an assessment on any of these channels since that time and currently has no mechanism to identify or track social media-specific risks, vulnerabilities, or incidents

Prior to January 2011, Twitter, YouTube, and Flickr were blocked by NRC. The OIS Infrastructure and Computer Operations Division (ICOD) conducted an initial review to assess the risks associated with NRC staff accessing social media sites from within the NRC network environment. The assessment indicated that the risks associated with social media use at NRC are mitigated by security controls that are currently in place, such web proxy filtering, web content filtering and malware scanning, desktop virus/malware scanning and monitoring by the agency's intrusion detection system.

Based on the results of its original security assessment, ICOD made a recommendation to OIS and CSO senior management who approved the operation and use of social media channels.

To its credit, NRC amended the WordPress Terms of Service (TOS) Agreement prior to the launch of the NRC Blog. The additions are reflective of the agency's thoughtful and deliberate approach to the secure utilization of social media platforms and protection of the network and its users. The amendments included the following language: *WordPress will, in good faith, exercise due diligence using generally accepted commercial business practices for IT security, to ensure that systems are operated and maintained in a secure manner, to ensure that proactive measures are in place to timely identify security vulnerabilities, and to ensure that the management, operational and technical controls will be sufficient to guarantee the security of systems and data.*

However, NRC's social media channels have not been screened since the initial security assessments in 2011. By not conducting annual assessments, NRC is not adhering to Federal best practices guidance or even the agency's own guidelines. Recommendations outlined in the Federal Chief Information Officer (CIO) Council Report direct agencies to "provide an annual information technology management optimization plan for improving security, technology, operations and service." Likewise the NRC Web Site Policy Exception Evaluation documents that "OIS and CSO will conduct periodic assessments to ensure that the environmental security controls put in place by the OIS remain effective against the threats posed by the NRC use of Flickr."²²

Integrating annual security assessments of social media channels into assessment and reporting routines is an efficient way to track policy changes and keep pace with Federal guidelines and standards. For example, NRC is required to adhere to numerous information management and security reporting requirements, such as the Federal Information Security Management Act (FISMA) Report, NRC Annual Chief Freedom of Information Act (FOIA) Officer Report, NRC Annual FOIA Report, and the Records Self-Assessment Survey, to name a few.

Security assessments of the social media channels should be conducted as part of the agency's information management and security reporting activities. This is particularly important because agencies are now required to address the utilization of social media technologies in reports such as the NRC Annual Chief FOIA Officer Report, which has not traditionally included questions about Web 2.0 technologies to enhance transparency and openness. Increasingly, the merger of information management and security in Federal reports, as evidenced by the Chief FOIA Officer Report, will impact NRC's reporting activities. Accurate

²² Conducted by the NRC ICOD and the CSO Security Operations Center, the purpose of the Web Site Policy Evaluation was to evaluate the risks of unblocking social media sites and to provide recommendations regarding whether or not NRC should allow access to and use of social media sites. The evaluation was completed on the February 4, 2011.

reporting is contingent upon effective agency-wide collaboration and cooperation among key privacy, records management, FOIA, and security stakeholders.

Like all IT systems, the security risks and vulnerabilities of social media channels should be reassessed on a routine basis to ensure that appropriate safeguards are in place and that network vulnerabilities do not exist for potential exploitation. Cyber criminals are continually enhancing the sophistication of their attacks and NRC must ensure that their preventative measures are keeping pace.

Recommendation:

We recommend that the Executive Director for Operations:

26. Conduct annual security and vulnerability assessments of NRC's social media channels. CSO should outline the requirements to perform the assessments and facilitate the process.

Training

Existing NRC voluntary and mandatory training currently does not address the risks associated with the use of social media and the responsibilities of NRC employees to safeguard personally identifiable and sensitive agency information

The omission of Federal and NRC social media policies from the Computer Security Awareness Course (CSAC) and OPA social media training reflect a training gap because all NRC network users are required to complete the CSAC annually and OPA social media training is mandatory for designated office bloggers.

Lack of training translates to a lack of agencywide awareness regarding the security risks and vulnerabilities associated with the use of social media. Risks and vulnerabilities such as phishing, social engineering, malware, improper disclosure of information (both PII and sensitive agency data), and web scraping²³ are mitigated by effective training and awareness, as noted in the Federal CIO Council Report, *Guidelines for the Use of Social Media by Federal Departments and Agencies* and GAO-10-872T.²⁴ These risks and vulnerabilities as well as employees' responsibilities to safeguard personally identifiable information (of fellow employees and members of the public) and sensitive agency information when using social media are not addressed in NRC's existing training activities.

The CSAC should include information about and references to Federal social media policies and guidelines such as:

²³ Often referred to as web harvesting, web scraping is a software technique for extracting information from websites.

²⁴ According to GAO-10-872T, *Information Management Challenges in Federal Agencies' Use of Web 2.0 Technologies*, "...training may be needed to ensure that employees are aware of agency policies and accountable for adhering to them."

- *NARA Bulletin 2011-02, Guidance on Managing Records in Web 2.0/Social Media Platforms (October 20, 2010)*²⁵ – Issued to the heads of Federal agencies, the guidance builds on two other NARA bulletins—Guidance on Managing Records and Implications of Recent Web Technologies. The bulletins provide baseline guidance for Federal agencies on how to manage records produced and generated through social media.
- *Guidelines for the Use of Social Media by Federal Departments and Agencies, Federal CIO Council (September 2009)* – Developed by the Web 2.0 Working Group of the Information Security and Identity Management Committee, the document contains Federal guidance and best practices on the use of social media and the challenges and security risks associated with its use that are unique to Federal agencies.
- *OMB Memorandum, Social Media, Web-Based Interactive Technologies, and the Paperwork Reduction Act (April 7, 2010)* – The Memorandum provides guidance to Federal agencies on how the effective use of social media can support efforts to comply with the Paperwork Reduction Act and Open Government Act.
- *OMB Memorandum 10-23, Guidance for Agency Use of Third Party Web Sites and Applications (June 25, 2010)* – The memorandum provides guidance to Federal agencies on the importance of safeguarding PII and sensitive agency information and directs Federal agencies to develop privacy impact assessments (PIAs) for third-party web sites and applications pursuant to OMB Memorandum 03-22.

It is important to note that all of the Federal social media policies and guidelines were issued before the *Interim Guidance on the Use of Social Media* was published and disseminated in January 2011. The Federal CIO Council Report was issued in September 2009, almost 6 months before the establishment of the NRC Twitter page. All of this suggests that at least some, if not all, of the Federal policy guidance on social media could be integrated into the CSAC.

Computer Security Awareness Course

All NRC network users are required to complete the CSAC each fiscal year. For FY2012, the CSAC was available as early as January 2012 and all system users were required to complete the course by August 15, 2012. System users must pass the test at the end of the course and acknowledge the Rules of Behavior (via electronic signature) to complete the CSAC.

However, the course does not test network users' knowledge of social media security, specifically their responsibilities to safeguard PII (of personnel, members of the public and NRC stakeholders), sensitive agency data, and proprietary information when using social media inside and outside of the NRC network.

²⁵ <http://www.archives.gov/records-mgmt/bulletins/2011/2011-02.html>.

OPA Social Media Training

OPA developed social media training, but the training consists of information-based overviews of social media and NRC blogging guidelines. To its credit, OPA's social media training is comprised of three main components: Two Power Point documents (*Social Media and the NRC: What We're Doing, Why We're Doing It, and What Else We Might Do* and *Mini Blog Training*) and a brown bag in-person training session (in which the *Social Media and the NRC* Power Point document is presented). The in-person brown bag session is provided by OPA when requested by NRC offices.

Based on a content review of the OPA social media training, the documents do not contain information about Federal and NRC social media guidelines, security risks and vulnerabilities or instructions for office bloggers to safeguard PII, sensitive agency data, and proprietary information when developing posts for the NRC blog. This is important because office bloggers are responsible for removing any PII and sensitive information from posts *prior* to submission to OPA. It is therefore incumbent upon office bloggers to know what information should be excluded or redacted from posts. This places the responsibility to safeguard PII and sensitive agency information when utilizing social media on office bloggers rather than on all NRC personnel. Designated office bloggers must be able to identify PII, sensitive agency data, and proprietary information as well as have basic knowledge of Federal and NRC policies that govern such information as well as social media and web policies. This highlights the need for effective social media security training and awareness.

According to the Federal CIO Council Report, "the appropriate use of social media in the Federal government should be part of the security awareness training."²⁶ Social media should be an essential part of IT security training at NRC. Failure to do so could result in a lack of agency-wide awareness about the appropriate use of NRC's social media channels and users' responsibilities to safeguard PII and sensitive agency information when using social media personally and professionally. In this manner, training serves two purposes: overall awareness and risk mitigation.

It is impossible to completely eliminate risk, but ongoing, structured training and awareness activities can help mitigate risks and vulnerabilities for system users. It is users, according to data gathered through a telephone interview with a United States Computer Emergency Readiness Team (US-CERT) representative, that are at the center of numerous social media incidents. This representative noted that the majority of social media-related incidents reported

²⁶ Guidelines for the Use of Social Media by Federal Departments and Agencies, Federal CIO Council, September 2009.

through US-CERT fall under Category 4 - Improper Usage, described as “a person violating acceptable computing use policies.”²⁷

The NRC Computer Security Incident Response Team (CSIRT) follows US-CERT guidelines for the categorization of computer security incidents. Category 4 incidents are the second highest number (30) of incidents. The highest number of incidents (56) was Category 5 – Scans, Probes, Attempted Access, described as “any activity that seeks to access or identify a Federal agency computer, open ports, protocols, service, or any combination for later exploit.”²⁸ The total number of NRC computer security incidents for FY2011 is 138. Table 4 below illustrates computer security incidents reported to NRC CSIRT for FY2011.

Table 4: NRC Computer Security Incidents – FY2011

Category	Description	# of Incidents
CAT 1 Unauthorized Access	An individual gains logical or physical access without permission to a Federal agency network, system, application, data, or other resources	23
CAT 2 Denial of Service	An attack that successfully prevents or impairs the normal authorized functionality of networks, systems or applications by exhausting resources	0
CAT 3 Malicious Code	Successful implementation of malicious software (e.g., virus, worm, Trojan horse, or other code-based malicious entity) that infects an operating system or application	7
CAT 4 Improper Usage	A person violates acceptable computing use policies	30
CAT 5 Scans, Probes, Attempted Access	Any activity that seeks to access or identify a Federal agency computer open ports, protocols, service, or any combination for later exploit	56
CAT 6 Investigation	Unconfirmed incidents that are potentially malicious or anomalous activity deemed by the reporting entity to warrant further review	22
Total Incidents		138

It is unclear what percentage of the total incidents are social media related because NRC does not have a separate tracking or monitoring process for social media security incidents. The Agency categorizes incidents according to US-CERT guidelines.

Recommendations:

We recommend that the Executive Director for Operations:

²⁷ US CERT Federal Incident Reporting Categories: <http://www.us-cert.gov/government-users/reporting-requirements.html>.

²⁸ FY2011 NRC Internal Computer Security Incident Summary.

27. Develop a section on social media security for inclusion in the annual mandatory CSAC. Include information on Federal and NRC social media policies and employee responsibilities to safeguard PII and sensitive agency information when using social media inside and outside of the NRC network.
28. Develop a section on social media security for inclusion in the OPA social media training for all official NRC bloggers. Include an overview of social media security and Federal and NRC social media policies, as well as guidelines regarding employee responsibilities to safeguard PII and sensitive agency information when developing posts for the NRC blog.

Awareness

While NRC has taken some measures to remind employees of their responsibilities to safeguard PII and sensitive agency information when using social media, it would benefit by increasing warnings, blockers, and announcements

Accessing Social Media Sites

NRC has established warnings and reminders for approved and blocked social media sites but these notices should be more detailed in order to influence user behavior

Security warnings and blockers for social media sites have been embedded into the NRC network. System users and web page viewers receive warnings/blockers if they attempt to: (1) access approved social media sites (e.g., Twitter) inside the NRC firewall, (2) access approved social media sites via icons on the NRC public website, and (3) access blocked social media sites such as Facebook.

Accessing Approved Social Media Sites Inside the NRC Firewall

If system users attempt to access approved social media sites inside the NRC firewall, users receive the following warning: *“You are about to visit a social media website. Please ensure that any posting that you make is in conformance with applicable NRC policy. NRC employees must comply with the Agency’s Interim Guidance on the Use of Social Media. Click on Accept to acknowledge this message.”*

The message contains a link to the interim guidance but no information about Federal social media policies or reminders about safeguarding PII and sensitive agency information when using social media. Despite the *option* to access the *Interim Guidance on the Use of Social Media*, users must acknowledge the message (by clicking Accept) to access the approved social media sites. Users can therefore “acknowledge” policies without actually reading the policies. See Figure 13 below for an illustration of the process.



Figure 13: Accessing Approved Social Media Sites inside the NRC Firewall

If system users attempt to access approved social media sites via the icons on the NRC webpage (e.g., Twitter), they receive the following general message (see Figure 14): *“You have requested a website outside of <http://www.nrc.gov/>. Thank you for visiting. You will now be directed to: NRC Twitter Feed. Cancel or press the ESC key.”*



Figure 14: Warning Banner When Accessing Approved Social Media Sites from the NRC Homepage via the Intranet and Internet

Accessing Blocked Social Media Sites Inside the NRC Firewall

If system users attempt to access blocked social media sites, such as Facebook, by typing the URL (www.facebook.com), they immediately receive a Problem Report with the following message: *The page you are trying to access is blocked*

because the web content category of “Social Networking” is not allowed by agency policy. Figure 15 illustrates the full Problem Report. Included in the message are a reference to two management directives (MD 2.6 *Information Technology Infrastructure* and MD 2.7 *Personal Use of Information Technology*) and a link to the Yellow Announcement #022²⁹ regarding appropriate use of the Internet, but no reference or link to the *Interim Guidance on the Use of Social Media*.



Figure 15: Accessing Blocked Social Media Social Media Sites Inside the NRC Firewall

There is no requirement in the interim guidance regarding which instructions and information should be included in the warnings and reminders. The interim guidance requires only that NRC develop “an alert to a visitor explaining that visitors are being directed to a nongovernmental website that may have different privacy policies than those of NRC.” However, the interim guidance does not require that warnings and reminders include instructions for employees to

²⁹ Issued on April 5, 2005, Yellow Announcement #022 is a reminder to employees that they are permitted to “use the Internet for limited personal use when such use involves minimal or no additional expense to the Government, is performed on the employees’ own time, does not interfere with the NRC’s mission or operation, does not violate the Standards of Ethical Conduct for Employees, and is not otherwise prohibited by law.” Despite the inclusion of the policy in the warning, the MD to which the policy refers is outdated and does not include Federal and NRC social media policies.

safeguard PII and sensitive agency information in their personal and professional use of social media.

Warnings and blockers should be specific and remind employees of their responsibilities to safeguard PII and sensitive agency data as well as what information should not be disclosed when using social media sites inside and outside of the NRC network. According to the Federal CIO Council Report, reminders should educate users about specific social media threats before they are granted access to social media sites to ensure that users are aware because many users may be “desensitized to openly granting unnecessary access to their private information.”

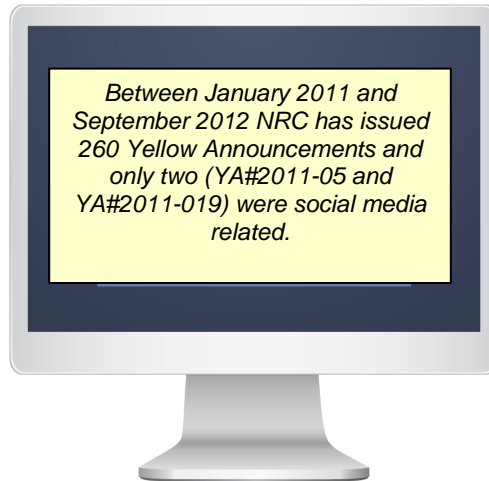
The security warnings should be part of the agency’s overall ongoing social media training and awareness strategy. More importantly, the warnings and reminders should be reviewed on an annual basis to ensure compliance with rapidly changing Federal policies and adaptation to new web applications and technologies. It is important to note that all of the warnings and reminders should be based on the 10 guiding principles for social media utilization outlined in the *Interim Guidance on the Use of Social Media*.

Risks and vulnerabilities resulting from insufficient warnings and reminders are primarily associated with user behavior. System users have the potential to access social media sites without reading and understanding Federal and NRC social media policies. The lack of knowledge may result in unintentional PII spills, inappropriate postings, and improper disclosure of sensitive agency and safeguards information (SGI). These risks and vulnerabilities underscore the importance of consistent reminders and warnings as part of ongoing training and awareness activities.

Agencywide Announcements

NRC provides minimal agencywide announcements for NRC system users on the safeguarding of PII and sensitive agency information when using social media

Since NRC launched its first social media site, the NRC Blog, in January 2011, the agency has issued 260 Yellow Announcements. Of these Yellow Announcements, only two are social media-related: #2011-005 – Interim Guidance on the Use of Social Media (January 5, 2011) and #2011-019 – NRC Launches Agency-wide External Blog Today (January 31, 2011) (see Figure 16 below).



(source: <http://www.internal.nrc.gov/announcements/yellow-previous.html>)

Figure 16: NRC Yellow Announcements

Recommendations:

We recommend that the Executive Director for Operations:

29. Disseminate electronic agencywide Yellow Announcements on a periodic basis regarding social media security, NRC-approved social media sites and the responsibilities of employees to safeguard PII, sensitive agency data, and proprietary information when using social media sites inside and outside of the NRC network.
30. Revise warning messages for network users:
 - A) Revise warning message for users that attempt to access approved social media sites to indicate that any postings they make must comply with Federal and NRC social media policies and that they are responsible for safeguarding the personally identifiable information of themselves, fellow employees and members of the public.
 - B) Revise the warning message to users and visitors who attempt to access approved social media sites via the NRC Intranet site and public facing website to indicate that activity on NRC social media sites is monitored by the Agency and subject to NRC policies.
31. Revise the Problem Report to include a link to the Interim Guidance on the Use of Social Media.
32. Include social media security articles in the IT Security Awareness Newsletter, which is published and disseminated by the Computer Security Office (CSO) on a quarterly basis.

INTEGRATION

Social Media Program Support

Key Finding: *All NRC social media activities are primarily managed and operated by one person, which will be difficult to sustain as the social media program matures*

All NRC social media efforts are primarily managed and conducted by one employee with some support from two other individuals. The volume of work undertaken by this small staff is impressive as evidenced by the regular publishing of content that has attracted a steady following and incremental rise in viewership. The social media lead is responsive to blog comments, manages article submissions from up to 25 blog writers from across the agency, and edits these into a consistent voice while also maintaining content production for YouTube and leading efforts to raise awareness of social media amongst NRC employees.

Table 5: Current Social Media Governance Structure and Responsibilities

CURRENT FUNCTION: Social Media Lead <i>OPA</i>	CURRENT FUNCTION: Social Media Deputy <i>OPA</i>	CURRENT FUNCTION: Social Media Tech Lead <i>Office of Information Services</i>
<p>Primary contact for all social media and leads strategy</p> <p>Trains NRC staff on blog writing</p> <p>Conducts brown bags and produces marketing collateral to increase knowledge and encourage use of social media</p> <p>Sole editor of blog</p> <p>Moderates and responds to blog user comments</p> <p>Manages Twitter account, tweets, and requests from other departments on desired tweets</p> <p>Writes, shoots, and produces video content for NRC's YouTube channel</p> <p>Oversees Social Media Deputy</p>	<p>Oversees YouTube and Flickr</p> <p>On YouTube, functions as producer, at-times director and manages uploads</p> <p>On Flickr, manages and edits content and uploading</p> <p>Social media duties are only part of overall work as public affairs officer</p>	<p>All Tech support and training for social media platforms</p> <p>Default "back-fill" for Social Media Lead and Social Media Deputy</p>

The limitations on time and staffing resources was cited repeatedly as a reason behind the lack of activity in a number of areas, specifically targeted outreach, expansion of activity beyond the blog, exploration of other platforms, and more aggressive web analytics monitoring.

According to stakeholder interviews, limits to the expansion of key social media strategies around public outreach, measurement, and platform adoption is attributed to staff fatigue and limited knowledge of emerging trends in these areas. For example, when approached with questions around expanding NRC's presence on Twitter, staff expressed that they had "reached the end of their knowledge" with regards to ways to fully activate the potential for this technology. Furthermore, all staff expressed the need for additional resources to free them up from present day-to-day logistical oversight. They cited the newly created social-media position description as a source of both relief from logistical tasks as well as a knowledge base for trends, research, and strategic expansion.

Social Media Costs

The scope of this evaluation included the examination of budgetary concerns. Establishing NRC's social media platforms cost \$66,000 in contractor support between August 2010 and July 2011. This contractor gathered business requirements, performed technical analysis, prepared Capital Planning and Investment Control (CPIC) review packages process, supported privacy impact assessments, and supported the Authority to Operate/Use certification process. This is a reasonable expenditure for this level of support.

NRC maintenance costs for its social media sites are minimal, amounting to \$67.95 per year for premium-level accounts on Wordpress and Flickr.³⁰ NRC does not spend any money on its Twitter or YouTube sites.

All maintenance is provided by existing FTEs in the OPA and the Office of Information Services. NRC recently posted a position description for an additional FTE specializing in social media. NRC anticipates that this individual will be hired by the end of the 2012 calendar year.

Social Media Governance

Although NRC has a champion in its current social media lead, there is limited coordination between key internal offices

Internal stakeholder interviews have clearly demonstrated a lack of consistent and formal collaboration among OPA, OIS, and CSO. Although social media appears to be integrated into guidance documents on NRC's Digital and Open Government initiatives (particularly on the public website where links are frequent between the Open Government pages and the social media platforms), in practice, there appears to be minimal coordination. Specifically, when the Evaluation Team asked the OPA staff whether public feedback collected through the Open Government form is shared with OPA, we were told that there is no structured coordination. Furthermore, when asked about formal coordination of public feedback and announcements on Open Government, we were told that such activities were ad-hoc, periodic, and informally organized.

³⁰ Wordpress subscription costs \$43 per year. Flickr subscription costs \$24.95 per year.

Effective cooperation and collaboration are necessary for the full integration of social media into the information management structure at NRC. NRC should be commended for establishing a cross-agency Social Media Working Group to explore the business value of social media to NRC. This group clearly outlined all the aspects of social media including content, channels, security, privacy, and archival issues and worked to develop the Official Presence Social Media Business Vision and Scope document which led to the establishment of NRC's official social media channels.

However, the working group was only created to explore and launch the sites and was never intended to be an ongoing function.

Reestablishing the Social Media Working Group with a more targeted representation of stakeholders from OPA, OIS, and CSO and with clearly defined roles and responsibilities will help to ensure the ongoing coordination and collaboration regarding social media activities such as policies, training, awareness, and security across NRC. Additionally, this group can serve as a forum to evaluate the effectiveness of current efforts and discuss future plans or needs.

Having a single point of contact for all social media activities presents some security risk

One person could be targeted and vulnerable to spear phishing, social engineering, and web application attacks. The Senior Advisor for OPA could be targeted for social engineering and other risks, such as spear phishing and malware, due to her relatively visible role at NRC.

Adding to the more obvious risks, such as social engineering and phishing, is the potential for PII spills and improper disclosure of information because all reviews for PII and sensitive agency information are conducted by one person. There are no documented redaction processes and procedures, no historical data, and no log of posts from office bloggers. Furthermore, there is no documented process for removing inappropriate content posted on the NRC blog.

Recommendations

We recommend that the Executive Director for Operations:

33. Establish a social media governance structure including representatives from the OGC, CSO (Policy Standards and Training Team, Cyber Situational Awareness, Analysis and Response Team), OIS (ICOD, Enterprise Architecture Team, Records and Archives Services Section, FOIA/Privacy Section) and OPA, and convene periodic meetings to guide NRC policies and practices around social media content, security, privacy, and records management.

We recommend that OPA:

34. Develop an SOP to track, monitor, and escalate to other NRC offices, comments posted on the NRC blog that do not adhere to NRC policies.

CHAPTER 3: CONSOLIDATED RECOMMENDATIONS

We recommend that OPA:

Measurement:

1. Broaden NRC's definition of success beyond quantitative viewership rates to include qualitative evaluations of digital influence, thought leadership within the nuclear social media discussion, and strength of relationships with prominent influencers.
2. Develop and implement a process to monitor user activity on NRC's social media platforms after content posts to evaluate content virality and network distribution.
3. Develop a baseline for performance by benchmarking NRC's social media metrics (i.e., viewership, subscriptions, shares, and influence) against activity within the digital nuclear industry community.

Content:

4. Generate content periodically that provides unique access to nuclear facilities and nuclear resources by providing photos and information.
5. Make article authors more prominent by including the blog article byline at the top of each post (rather than the bottom) so readers are immediately aware of who wrote the articles.
6. Develop and implement a process for creating more visibility into NRC's commenting policy and periodically respond to rejected posts to build trust and transparency.
7. Rather than only soliciting input from and creating content around topics NRC departments are interested in, solicit input on a regular basis from readers and bloggers regarding content they would be most interested in (and at what level of technicality) and create content based on their input.
8. Develop and implement a process for expanding tagging taxonomy beyond "nuclear" so content is labeled by audience or type of information.
9. Develop and implement a process for the use of rich media including videos, photos, charts, interactive graphs, and info-graphics in social media posts.
10. Develop and implement a process for adding visual interest and facilitating access to existing blog posts. For example, embed YouTube videos and Flickr slideshows within blog posts.

11. Insert links in YouTube videos so videos are clickable and link back to www.nrc.gov, the blog, or other NRC platforms.
12. Conduct periodic content analysis to glean which types of posts generate the most activity and replicate blog elements that have proven successful.
13. Develop and implement a process for expanding photo offerings on Flickr beyond bar graphs or the NRC Chairman.

Reach:

14. Allow and respond to user comments on NRC YouTube and Flickr sites rather than directing them to the NRC blog.
15. Develop and implement a process for identifying digital influencers and monitoring activity by maintaining a matrix of influencers according to shifting scores and activity.
16. Develop and implement a process for determining what information each user group needs and regularly provide that information on NRC's blog and in NRC's Twitter feed.
17. Engage in active outreach to bloggers and other social media followers by providing special opportunities to connect with NRC staff, such as tailored content, virtual or physical meet and greets, and discussions.
18. Develop and implement a process for regularly hosting brown bags or other training classes to build awareness of NRC social media activities.
19. Evaluate all of OPA's published materials and make sure information on how social media can be accessed by users is clearly defined and visible.
20. Periodically host a blogger's roundtable where NRC invites prominent nuclear bloggers to opine on key issues. This can be done either in person or virtually through forums such as Google Communities.
21. Monitor, note, and engage frequent posters, commenters, and active Twitter followers.

Influence:

22. Develop and implement a process to evaluate and monitor NRC's influence scores quarterly to capture and understand existing user sentiments, behavior, and awareness.
23. Develop and implement a process to evaluate how NRC's score rises or falls dependent on a rise in readership or engagement and adjust strategies depending on outcome.
24. Develop and implement a process to solicit feedback from digital influencers about what they see are trends, preferences and needs in information and content within the digital nuclear community.

We recommend that the Executive Director for Operations:

Security:

25. Update the agency's information management and security policies to include social media.
 - A) Include social media policy guidance in the revised MD 3.2 - Privacy Act in accordance with guidance provided in OMB Memorandum 10-23, *Guidance for Agency Use of Third Party Web Sites and Applications*.
 - B) Revise MD 3.53, Records and Document Management Program and include social media in accordance with the guidance provided in NARA Bulletin 2011-02, *Guidance on Managing Records in Web 2.0/Social Media Platforms*.
 - C) Revise the existing PII Breach Notification Policy and Computer Security Incident Response Policy to include the following statement: *All of the information contained in this policy applies to the use of social media.*
26. Conduct annual security and vulnerability assessments of NRC's social media channels. CSO should outline the requirements to perform the assessments and facilitate the process.
27. Develop a section on social media security for inclusion in the annual mandatory CSAC. Include information on Federal and NRC social media policies and employee responsibilities to safeguard PII and sensitive agency information when using social media inside and outside of the NRC network.
28. Develop a section on social media security for inclusion in the OPA social media training for all official NRC bloggers. Include an overview of social media security and Federal and NRC social media policies, as well as guidelines regarding employee responsibilities to safeguard PII and sensitive agency information when developing posts for the NRC blog.
29. Disseminate electronic agencywide Yellow Announcements on a periodic basis regarding social media security, NRC-approved social media sites and the responsibilities of employees to safeguard PII, sensitive agency data, and proprietary information when using social media sites inside and outside of the NRC network.
30. Revise warning messages for network users:
 - A) Revise warning message for users that attempt to access approved social media sites to indicate that any postings they make must comply with Federal and NRC social media policies and that they are responsible for safeguarding the personally identifiable information of themselves, fellow employees and members of the

public.

B) Revise the warning message to users and visitors who attempt to access approved social media sites via the NRC Intranet site and public facing website to indicate that activity on NRC social media sites is monitored by the Agency and subject to NRC policies.

31. Revise the Problem Report to include a link to the Interim Guidance on the Use of Social Media.
32. Include social media security articles in the IT Security Awareness Newsletter, which is published and disseminated by the Computer Security Office (CSO) on a quarterly basis.

Integration:

33. Establish a social media governance structure including representatives from the OGC, CSO (Policy Standards and Training Team, Cyber Situational Awareness, Analysis and Response Team), OIS (ICOD, Enterprise Architecture Team, Records and Archives Services Section, FOIA/Privacy Section) and OPA, and convene periodic meetings to guide NRC policies and practices around social media content, security, privacy, and records management.

We recommend that OPA:

34. Develop an SOP to track, monitor, and escalate to other NRC offices, comments posted on the NRC blog that do not adhere to NRC policies.

AGENCY COMMENTS

At an exit conference on December 7, 2012, agency officials provided feedback on the report's findings and recommendations and provided some suggested editorial changes. Their comments were incorporated as appropriate. The agency opted not to submit formal comments.

Appendix I. Scope and Methodology

The NRC Office of the Inspector General (OIG) embarked on this evaluation to assess the NRC's use of social media with regards to:

- Effectiveness in outreach and delivery of NRC's message
- Definitions of success of social media initiatives at NRC
- Engagement of stakeholders and the public using social media
- Budgetary and FTE concerns for maintaining social media outlets
- Commenting policies
- Archival issues
- Security issues

This evaluation focused on determining how NRC uses social media through documentation reviews, assessment of NRC's current social media channels and content, and interviews with NRC management and staff involved with social media as well as external stakeholders who consume NRC social media.

The scope included NRC's official social media channels – the NRC Blog (<http://public-blog.nrc-gateway.gov/>), Twitter (<https://twitter.com/nrcgov>), YouTube (<http://www.youtube.com/user/NRCgov>), and Flickr (<http://www.flickr.com/people/nrcgov>). Even though approximately one-third of NRC's roughly 4,000 employees appear to be registered on the site,³¹ NRC does approve the use of the social networking site LinkedIn for employees and it is not considered an official NRC social media site. Additionally, NRC does not have an official Facebook page, and it currently blocks access to Facebook for NRC employees from within the NRC firewall.

The evaluation team analyzed NRC social media from five dimensions: content, reach, influence, security, and integration. Key elements of each dimension are described below.

- **Content**—an analysis of content and visuals disseminated via official NRC social channels. This included an assessment of whether information NRC creates and publishes is transparent, relevant, compelling, and engaging.
- **Reach**—an assessment of quantitative measures such as the number of individuals and stakeholder groups reached, the volume and frequency by which NRC social media content is consumed, shared, and repurposed, and NRC's activity in the nuclear conversations online.

³¹ Source: LinkedIn.com.

- ***Influence***—an assessment of qualitative measures such as thought leadership, authority, cause and effect, and prominence around topical nuclear issues.
- ***Security***—an assessment of privacy, security, and records management risk or vulnerabilities associated with NRC’s use of social media and the effectiveness and efficiency of existing safeguards such as policies, security assessments, training, and awareness.
- ***Integration***—an evaluation of how social media is integrated into other aspects of the agency including its policies, practices, and procedures.

Key parameters of our methodology included the following:

Environmental Scan

To gain an understanding of what was being said online regarding NRC and nuclear-related topics, the evaluation team conducted a comprehensive environmental scan. Using a combination of free- and subscription-based social media software, the scan identified:

- Communities of interest – an online community of people who share a common interest or passion.
- Conversation areas – an online space for specific web-based communication.
- Digital influence – the ability to cause and effect, change behavior, and drive measurable outcomes online.
- General chatter – collaborative web-based conversations around a specific topic area.
- Thought leaders – individuals, companies, or agencies recognized by peers for having innovative ideas, publishing articles, and producing blog posts on trends and topics.
- True reach – the number of people influenced by a particular user’s social media outreach.
- Web trends – the type and frequency of web data sent and received by social media users.

Key word searches for the environmental scan included nuclear, nuclear power, nuclear energy, nuclear materials, and nuclear regulation. Key words and topic searches were also derived from top news items such as the *Fukushima* anniversary, the transition of agency leadership from Chairman *Gregory Jaczko* to Chairman *Allison Macfarlane*, and regional community concerns around nuclear plants at *San Onofre*, CA and *Vermont Yankee*, VT. To monitor these news items, the evaluation team established real-time alerts that automatically notified the team when new NRC-related content from news, web, blogs, video, and/or discussion groups were posted.

Key Informant Interviews

The evaluation team conducted 27 interviews with NRC employees and external stakeholders between June 2012 and September 2012. A complete list of these interview participants appears in Appendix VI.

Internal interviewees were identified by NRC leadership during the entrance conference for this evaluation, by members of the NRC Social Media Working Group, and by the OIG. Additionally, at the conclusion of the interviews, all interviewees were asked for recommendations of additional internal and external sources of input. Internal interviews included representatives from NRC's OPA; Office of Congressional Affairs; Office of Information Services (Enterprise Architecture, and Standards Branch and Information and Records Services Division), Computer Security Office; E-Government Initiatives, and Freedom of Information Act and Privacy Office.

External interview targets were identified by NRC leadership during the entrance conference, by referral from internal interviewees, and from a comprehensive environmental scan of prominent online voices in the nuclear arena. Additionally, all external interviewees were asked for recommendations for additional sources of input. External interviews included representatives from the nuclear industry, prominent nuclear bloggers, congressional staff, and the media. Separate interview guides were developed for internal and external stakeholders. Internal interview guides focused on the processes and procedures for using social media and determining NRC's desired objectives for social media. External interviews focused on the type, amount, and frequency of information desired from NRC through social media as well as the level of satisfaction with NRC social media efforts and how the agency compares to its peers.

Additionally, because NRC is a regulatory agency and must maintain neutrality on the issue of nuclear energy, an effort was made to include voices from all sides of the nuclear debate. However, despite contacting eight representatives from traditionally anti-nuclear organizations, including Bluewater Valley Downstream Alliance, Friends of the Earth, Greenpeace, Union of Concerned Scientists, and Uranium Watch, no one agreed to an interview for this report. A few individuals from anti-nuclear organizations did express their opinions via the Google open forum detailed below.

Social Media Techniques

As this was an evaluation of social media, it was important to apply social media specific techniques to the evaluation. Several free and subscription-based software tools were utilized for this research, including Radian6, Klout, Quantcast, SemRush, Tweet Level, Twitalyzer, and SimilarSites.com. These tools helped to identify key influencers to target for interview requests, analyze the impact and amplification of NRC's social media content, and benchmark NRC against other online voices in the nuclear industry.

Additionally, because social media is fundamentally about giving an equal voice to all, a Google Forum was established to solicit feedback from the general public

on NRC's use of social media. This site was promoted via the evaluation team and by prominent nuclear bloggers and organizations. Feedback obtained via this channel helped to inform the findings and recommendations in this report.

Appendix II. Abbreviations and Acronyms

ADAMS	Agency-wide Documents Access and Management System
ANS	American Nuclear Society
CIO	Chief Information Officer
CNN	Cable News Network
CSAC	Computer Security Awareness Course
CSIRT	Computer Security Incident Response team
CSO	Computer Security Office
DOE	Department of Energy
EPA	Environmental Protection Agency
FAA	Federal Aviation Administration
FCC	Federal Communications Commission
FDA	Food and Drug Administration
FERC	Federal Energy Regulatory Commission
FOIA	Freedom of Information Act
FOE	Friends of the Earth
FRA	Federal Regulatory Agencies
FISMA	Federal Information Security Management Act
ICOD	Infrastructure and Computer Operations Division
MD	Management Directive
NARA	National Archives and Records Administration
NEI	Nuclear Energy Institute
NRC	Nuclear Regulatory Commission
OGC	Office of the General Counsel
OIG	Office of the Inspector General
OIS	Office of Information Services
OPA	Office of Public Affairs
PII	Personally Identifiable Information

TOS

Terms of Service

US-CERT

United States Computer Emergency Readiness Team

YA

Yellow Announcement

Appendix III. Social Media Evaluation Glossary

Blog	Blog is a word that was created from two words: "web log." Blogs are usually maintained by an individual or a business with regular entries of commentary, descriptions of events, or other material such as graphics or video. Entries are commonly displayed in reverse-chronological order. "Blog" can also be used as a verb, meaning to maintain or add content to a blog.
Crowdsource	The practice of asking a collection of individuals online for opinions, suggestions, or submissions. For example, you might not be able to choose between two newsletter articles, so you would ask the people who Like you on Facebook or are following you on Twitter which one you should include. Or you can simply post both stories to Facebook and Twitter and discover which one resonates most based on the number of Likes, shares, comments, or retweets. Crowdsourcing can also be helpful if you're planning an event and can't decide on a date or location, or if you're looking for suggestions for a vendor.
Digital Influence	The ability to cause effect, change behavior, and drive measurable outcomes online.
Digital voice	Digital voice is a messaging style specific to social media.
Hashtag	Words preceded by a # sign (e.g., #ctctsocial) can be used to tie various tweets together and relate them to a topic, be it a conference, television show, sporting event, or any happening or trend of your choosing. Twitter automatically links all hashtags so users can search for other tweets using the same tag.
Like(s)	Like(s) are defined by Facebook as a way to "give positive feedback and connect with things you care about." Facebook users can "Like" status updates, comments, photos, and links posted by their friends, as well as adverts, by clicking the "Like" button at the bottom of the content.
Meme	A meme refers to a concept that spreads rapidly from person to person via the Internet, largely through email, blogs, networking forums, social media sites, instant messaging platforms, and video streaming sites such as YouTube.
Microblogging	The act of broadcasting very short messages to an audience, such as on Twitter, where posts are limited to 140 characters each. Other microblogging services include Plurk

and Jaiku.

Network	This can refer to a social network like Facebook, Twitter, or LinkedIn, or the people you are connected to on those sites.
Permalink	A permalink is an address or URL of a particular post within a blog or website.
Retweet	A retweet is when someone on Twitter sees your message and decides to re-share it with his/her followers. A retweet button allows them to quickly resend the message with attribution to the original sharer's name.
RSS Feed	RSS (Really Simple Syndication) is a family of web feed formats used to publish frequently updated content, such as blogs and videos, in a standardized format. Content publishers can syndicate a feed, which allows users to subscribe to the content and read it when they please, and from a location other than the website (such as reader services like Google Reader).
RSS Reader	An RSS reader allows users to aggregate articles from multiple websites into one place using RSS feeds. The purpose of these aggregators is to allow for a faster and more efficient consumption of information. An example of an RSS Reader is Google Reader.
Search engine optimization	This is the process for improving the chance that a webpage will rank high in the results for a specific search query. Different search engines use different algorithms for how they rank results, but some ways to improve results include using qualified keywords (i.e., frequently searched-for keywords) in headlines and first paragraphs of blog posts, and naming photos and videos with those same keywords. There are also many on- and off-page technical considerations.
Sentiment	A level of assessment that determines whether the tone of an article, blog post, tweet, or other content is positive, neutral, or negative.
Share	To post or re-post content on a social media site is to share it. Facebook specifically has a Share option, which allows you to post someone else's content on your page. On Twitter, this is called re-tweeting.
Social media	Social media is media designed to be disseminated through social interaction, created using highly accessible and scalable publishing techniques.

Tweet	Tweets are messages sent to and from Twitter users. They are text-based messages of up to 140 characters.
Viral	When a piece of content on the Internet is shared organically, without prodding or encouragement from the business, organization, or person who created it, it is said to have "gone viral." This means it has been shared on social networks, posted and reposted, tweeted and retweeted multiple times.
Viral marketing	Viral marketing refers to marketing techniques that use pre-existing social networks to produce increases in brand awareness or to achieve other marketing objectives through self-replicating viral processes.
Web analytics	Web analytics is the measurement, collection, analysis, and reporting of Internet data for purposes of understanding and optimizing web usage.

Appendix IV. Best Practices

MEASUREMENT

Suggested Metrics for NRC to Track

The following are industry measures that are not currently measured by NRC but provide a more holistic perspective of NRC's social media performance. Taken together, they reinforce NRC's minimal presence in the larger nuclear digital discussion.

Comparative Platform Performance

- According to interviews with social media staff, one key metric that NRC is not measuring is NRC's platform performance against others in the nuclear social media space. The table below demonstrates social media activity across what we identified were organizations and digital influencers within the nuclear digital space (e.g., NRC, NEI, CASEnergy Coalition, the American Nuclear Society, Friends of the Earth and Union of Concerned Scientists as well as prominent blog writers as identified through Radian6, Klout and stakeholder interviews). We also included activity within NRC's fellow regulatory agencies (the Federal Energy Regulatory Commission [FERC], the EPA, and the FCC) to demonstrate how NRC performed against both industry and government peers.

NRC social media statistics benchmarked against select digital nuclear influencers and regulatory peers.

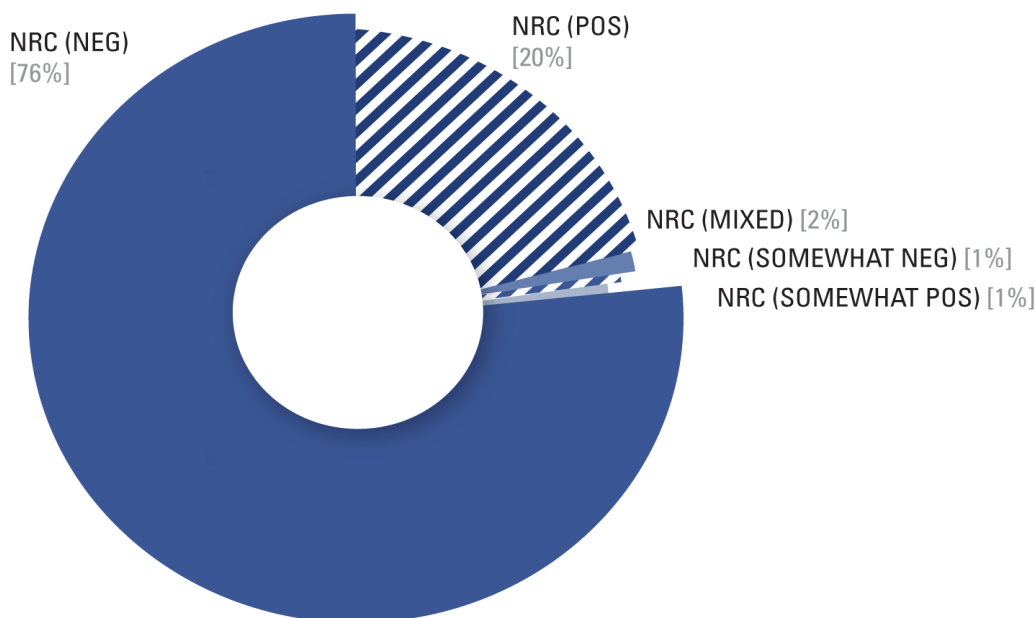
	Twitter	Twitter: following	Twitter: tweets	YouTube: subscribers	YouTube: views	Facebook
Nuclear Community						
NEI	6780	2380	8011	414	1102126	5,555
CASEnergy Coalition	515	582	1477	5	1,099	N/A
American Nuclear Society	3530	228	5870	17	3971	4678
Anti-Nuclear						
Friends of the Earth	21722	717	4581	3624	4149213	30,077
Union of Concerned Scientists	9262	6254	2589	215	88891	1951
Regulatory Agencies						
NRC	2431	0	604	154	18390	502
FERC	3,971	0	807	N/A	N/A	452
EPA	89,618	173	4,694	3,384	347,818	42,911
FCC	500,728	52	2,420	655	221,589	9,691
Nuclear Blogs						
Atomic News	241	233	1,383	85	20,573	451
Idaho Samizdat	1,264	91	7,515	N/A	N/A	53
NEI Nuclear Notes	1664	699	7937	N/A	N/A	N/A
Atomic Insights	1,663	235	6,608	50	37,908	N/A
Energy Education Project	485	242	4012	0	245	486
Margaret Harding	440	148	1295	N/A	N/A	N/A

- The table provides a cursory analysis of readership and activity, demonstrating that NRC falls in the low-to-medium scale in terms of activity. Of particular note is the prevalence of anti-nuclear groups on Twitter, YouTube, and Facebook, the most popular social networking sites. This suggests a need for NRC to balance the conversation with neutral, fact-based information that the public can use to round-out their perception of nuclear energy.

Sentiment

- Key to understanding the social media environment in which NRC operates is an evaluation of conversational sentiment – specifically, the positive, negative, or emotionally neutral tone with which NRC and the topic of nuclear energy is discussed. Sentiment is typically measured according to the proximity of pre-defined words associated with positive, negative, or neutral emotion (i.e., “love,” “hate,” “like,” “dislike”) with the search topic (in this case “NRC,” “Nuclear Regulatory Commission,” and “Nuclear”).
- According to Radian6, NRC suffers from negative sentiment across social media attributed largely to the conversational prominence of anti-nuclear users who tend to be more active in social media.

Topics and their frequency in digital nuclear conversations. Source: Radian6.



Benchmarked Digital Influence against industry peers

- NRC ranks 54th overall in “nuclear” conversations across social media, 14th overall according to Klout score measures against top industry influencers.
- NRC ranks mid-to-low against other government agencies and nuclear digital influencers.

The chart demonstrates the “share” occupied by certain conversation topics in social media. Specific to nuclear conversations, “nuclear” and mentions of “Fukushima” still dominate the nuclear space. “NRC” is only mentioned in 9.9% of nuclear-related conversations.

Conversation Share

- NRC is perceived as an industry subject matter expert and influences 3,000 top “influencers” in the social media space but does not enjoy a large share of the overall nuclear conversation.
- Overall, NRC does not have a significant mind share across relevant topics (specifically “nuclear,” “nuclear power,” and “nuclear energy”).

True Reach & Social Network

- Klout: 3,000 users self-reported that they are influenced by NRC. These users include those with Klout and Peerindex scores that exceed NRC’s scores, suggesting great potential for targeted outreach.
- An evaluation of NRC’s Twitter network boasts a potential reach of 20,000 when the followers of NRC’s direct followers are taken into consideration.
- Radian6 data suggests a potential for greater “reach” via Twitter and social networks like Facebook, but NRC is not actively engaging so this can be interpreted as an untapped resource.
- NRC does not currently engage in a social network strategy (as demonstrated by lack of engagement in platforms such as Facebook or Ning).
- Twitter and Facebook rank as top places where nuclear digital conversations occur and are shared.

Social Media Activity

- Minimal and sporadic overall activity on blog.
 - Highest forum activity based on specific posts. All have less than 100 comments and shares.
 - Average activity equals 1 comment per post.
 - Average of less than 500 mentions per month.

- Twitter Activity:
 - Retweets equal less than 150 per month.
 - NRC does not follow users on Twitter, which is attributed to a lack of staffing resources and knowledge. However, as noted previously in the report, following users on Twitter will provide a deeper level of engagement with users. NRC is encouraged to follow the example of fellow regulatory agencies (EPA and FDA) that actively follow other Twitter followers.

CONTENT

The following case studies provide examples of how other Government agencies address content issues of transparency, create visual interest, and build relationships with influencers. The evaluation team advises NRC to consider the TSA example for publicly acknowledging public perceptions around comment censorship. Doing so would help to nurture a more open and transparent environment with the online nuclear community.

Transparency

Transportation Security Administration (TSA) Addresses Public Outcry Over Perceived Comment Censorship

The TSA Delete-O-Meter

Source: <http://blog.tsa.gov/>



In 2010, TSA came under fire with well-publicized public criticism and perception that blog comments were being frozen, censored, or deleted in a manner that did not comply with the agency's comment policy. In response, the blog team wrote an article titled "Moderation of the Blog, the TSA Delete-O-Meter (which demonstrates a prominent way of providing access and visibility to the comment policy), and Fake Twitter Accounts" that directly challenged these public concerns. Though criticism against NRC's comments allowance has not been as harsh, frequent, or viral, such sentiments were expressed during the course of this evaluation.

From the TSA Blog (<http://blog.tsa.gov/2010/11/moderation-of-blog-tsa-delete-o-meter.html>)

"The TSA Blog has been receiving quite a bit of attention this past month and I wanted to clarify a few things that have been popping up. It's being falsely reported that I froze comments on the TSA Blog.

Comments were never frozen. Over 4,000 comments were posted to the blog in a very short period of time and we had to moderate them all prior to approving. When moderating, we work from oldest to newest comments. So, after posting several posts in a row, the newest post had zero comments for an extended period of time. In my dream world, I would have a command center with a moderation team. But the reality is that

while TSA does have some folks who are able to assist; at times I am the only one moderating the blog, so your patience is greatly appreciated.

We're not new to criticism here at TSA and we're definitely not shy about posting negative comments as long as they're not offensive or overly disrespectful and adhere to our comment policy. All you need to do is read what's been approved in the past 3 years and you'll see that we're pretty good at taking punches.

As far as the Delete-O-Meter, we created it to show that we're not really deleting that many comments. Currently, the number is at 5,488. That might seem like a high number, but let's do the math. Since January of 2008, we have received a total of 41,389 comments. So we've deleted a little over 10% and that number includes spam, double or multiple postings, and violations of our comment policy. The Delete-O-Meter is updated manually and is not a live counter."

REACH

Awareness

Department of Defense (DoD) Hosts Popular 'Bloggers Roundtable' As Outreach Effort to Digital Influencers

Screen grab of the DoD Roundtable

Source:
<http://www.dodlive.mil/index.php/category/bloggers-roundtable/>



The evaluation team advises NRC to consider a bloggers roundtable as a way for reaching out to digital influencers. A good example of this is the DoD's Roundtable series, which the DoD has hosted as far back as February 2, 2007. These conference calls connect bloggers and online journalists interested in defense issues, programs, and operations with DoD civilian and military leaders and subject matter experts (including diplomats and field commanders in Iraq and Afghanistan). The Roundtable provides source material where available, including audio, video, transcripts, biographies, and related fact sheets. These calls are

also broadcast live on Blogtalkradio and podcast via the Pentagon's Channel website as well as iTunes.

NASA hosts social media with "NASA Social" program

NASA Social is a program to provide the agency's social media followers a centralized platform to learn and share information about NASA's missions, people, and programs. NASA's Social program provides behind-the-scenes access to facilities, opportunities to speak with and learn from more scientists, engineers, astronauts and



managers, and “meet and greet” sessions where social media followers can network with fellow digital influencers and NASA social media managers.

For example, in February 2013, NASA will host a two-day event for NASA’s social media followers at Vandenberg Air Force Base in California for the launch of the Landsat Data Continuity Mission. Guests will view the launch, tour facilities, speak with representatives from Landsat science and engineering teams, view the launch pad, and meet fellow space enthusiasts.

NASA Social participants are selected at random from those who register interest on NASA’s website. Additionally, NASA Social provides press credentials to social media influencers thereby equalizing access across all forms of media. According to the NASA Social website:

“Social media credentials give users a chance to apply for the same access as journalists in an effort to align the access and experience of social media representatives with those of traditional media. People who actively collect, report, analyze and disseminate news on social networking platforms are encouraged to apply for media credentials. There will be no special badge, tour or program for social media attendees. Selection is not random. Those chosen must prove through the registration process they meet specific engagement criteria. Qualified attendees will have the same access to the event as news media and may view the launch, participate in media briefings, tours and other available opportunities. All social media accreditation applications will be considered on a case-by-case basis.”

For more information, visit <http://www.nasa.gov/connect/social/index.html>.

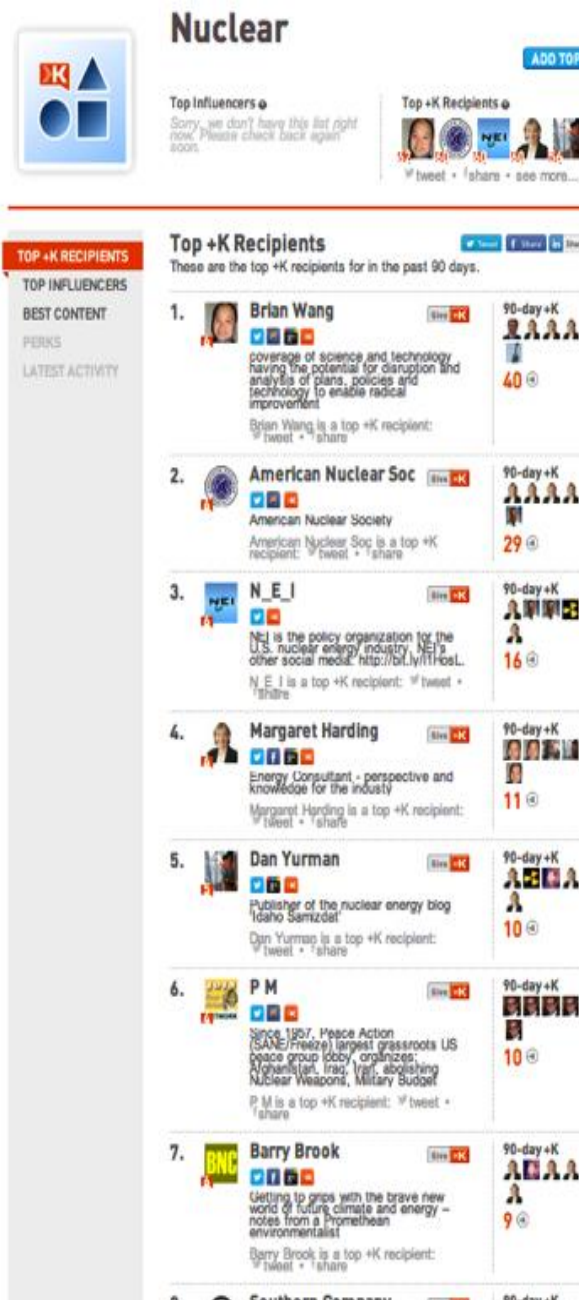
INFLUENCE

Digital Influencers Identified Through This Evaluation

A best practice in social media is identifying and monitoring digital influencers in a topic of interest. Doing so allows NRC to evaluate conversational trends and content offerings by higher rated influencers as a way of assessing what users in the digital nuclear community are interested in. Adopting these trends in NRC’s own content would boost *relevance*, viewership, and social media activity because echoing popular topics would lead users to NRC platforms. Furthermore, knowing who the influencers are helps to build lists for targeted outreach, enabling NRC to maximize community engagement efforts (such as blogger roundtables or Twitter press conferences). The list below provides a snapshot of where NRC lies in the Klout scale against peers identified through stakeholder interviews, content scans on Radian6, and Klout itself.

Klout report on Nuclear Influencers

Source: Klout (<http://klout.com>)



ORGANIZATION	KLOUT SCORE
Union of Concerned Scientists	63
NextBigFuture	62
Nuclear Energy Institute	60
Duke Energy	60
American Nuclear Society	60
Barry Brook	60
Margaret Harding	60
Friends of the Earth	60
Glen Granberry	58
Fukushima Actu	57
World Nuclear News	57
Nuclear Regulatory Commission	56
Rod Adams	56
Ben Geman	56
Dan Yurman	56
Will Davis	55
Idaho National Lab	54
Enformable	53
AREVA, Inc	52
Nonproliferation Policy Education Center (NPEC)	51
Forum on Energy	50
Nuke Roadie	50
Energy Solutions	48
World Nuclear Association	48
Southern Nuclear	47
Glenn Williams	46
North American Young Generation in Nuclear	45
Brian Wheeler	43
Meredith Angwin	43
RadioActive! Nuclear Blog	43
John Wheeler	42
Energy Nuclear	41
Nuclear Townhall	41
Vermont Yankee	40
Nicole Stricker	38

SECURITY

Social Media and Records Management

Agencies with energy, environment, and defense missions such as the Department of Energy (DOE) have developed records management guidance for social media. The figure below illustrates DOE's quick reference guide on managing social media records. Targeted to all DOE personnel, the guide provides an overview of the records management lifecycle. The guide also reminds DOE personnel that their responsibility to ensure that records are maintained, accessible and retrievable applies to social media records. The guide summarizes the social media records management process at DOE in four steps:

- ☐ Capture records you post or that are posted to your social media platform
- ☐ Ensure record integrity by managing content
- ☐ Follow disposition schedules to reduce risk
- ☐ Destroy temporary records

DOE's Records Management Guidance on Social Media



Establishment of Permanent Social Media Policies

Revising existing policies and establishing permanent social media policy are effective ways to institutionalize social media. An example of revising existing policies is the recently issued (September 2012) DoD Directive, DoD *Internet Services and Internet Capabilities* which supersedes Directive-Type Memorandum 09-026, *Responsible and Effective Use of Internet-Based Capabilities*, which was issued in February 2010. The Environmental Protection Agency (EPA) has established permanent social media policy guidance (approved in June 2011 and due for updates in June 2014) and developed a suite of social media guidance documents.

Appendix V. Web Tools

Facebook	Facebook is a social utility that connects people with friends and others who work, study, and live around them. Facebook is the largest social network in the world with more than 1 billion users.
Flickr	Flickr is a social network based around online picture sharing. With more than 6 billion images, Flickr allows users to store photos online and then share them with others through profiles, groups, sets, and other methods. Flickr has more than 51 million registered members and 80 million unique visitors.
Klout	Klout is a free social media analysis tool that measures users' influence across their social network. Klout offers one of the first quantifiable measure and methodology of the value of a user's social media activity. To achieve what is known as a "Klout score," the software combines network data (i.e., the number of "followers" of "friends") from sites such as Twitter and Facebook with engagement indicators (how often content generated by those users are responded to or shared).
Ning	A fee-based online community site that lets customers create their own social networks. Customers can create blogs, video sharing sites, show photos, create user forums, hold group chats, and more.
Quantcast	Quantcast enables users to buy and sell targeted audiences in real time and provides free audience reports on millions of web properties
Radian6	Radian6 is a web-based listening platform designed to help companies and agencies know what online conversation is critical and what is being said about them on social media
SEMrush	SEMrush tracks an immense amount of organic data in Google and Bing SERPs using a vast array of different metrics and types.
Tweet Level	TweetLevel is a Twitter measurement tool created by Edelman.
Twitalyzer	Twitalyzer 5.0 is a tool that provides an industry-first multidimensional view of 50+ metrics provided in a "Trends" report. The report can be a powerful analytical tool that allows Twitter users a unique view

of which of their efforts are creating value and driving results.

Twitter

The social media network based on 140-character micro-blog posts. Users post short updates that can be seen by anyone, even if they are not logged into the site. Posts can only include text and links; any multimedia content (photos, video, audio) must be linked to. The people who follow you will see your updates in their timeline when they log in. Unlike with Facebook, you do not have to confirm or reciprocate the follower connection, meaning people can follow your updates without you having to see theirs.

WordPress

WordPress is a content management system and contains blog publishing tools that allow users to host and publish blogs.

YouTube

YouTube is a video-sharing website on which users can upload, share, and view videos. YouTube is the largest video sharing site in the world hosting hundreds of millions of users from around the world.

Appendix VI. Social Media Evaluation Interview List

All interviews took place between June 2012 and September 2012.

Internal Stakeholders (NRC staff):

- Attorney, Office of the General Counsel, NRC
- Branch Chief, Enterprise Architecture and Standards Branch, NRC
- Branch Chief, Information Services Branch, NRC
- IT specialist/Enterprise architect, Enterprise Architecture Branch, NRC
- Privacy Act Program Analyst, NRC
- Public Affairs Officer, Office of Public Affairs, NRC
- Senior Advisor for E-Government Initiatives, NRC
- Section Chief and Archives Services Section, NRC
- Section Chief, Freedom of Information Act and Privacy Section, NRC
- Senior Congressional Affairs Officer, Office of Congressional Affairs, NRC
- Senior IT Security Officer/Team Leader, Policy Standards and Training
- Team, Computer Security Office, NRC
- Senior IT Security Officer/Team Leader, NRC
- Senior Level Advisor on Public Affairs, Office of Public Affairs, NRC
- Team Lead, Technology Direction and Standards Team, NRC
- Web Master, Office of Information Security, NRC

External Stakeholders (Press)

- Energy Editor, AOL, Huffington Post
- Nuclear Writer, Huffington Post
- Producer, CNN News

External Stakeholders (Digital Influencers)

- Blogger, Atomic Power Review
- Blogger, Idaho Samizdat: Nuke Notes
- Blogger, Yes Vermont Yankee

External Stakeholders (Nuclear Industry)

- Digital Strategy Director, CAsEnergy
- Senior Manager for Social Media, Nuclear Energy Institute
- Social Media Manager, Center for Sustainable Energy

External Stakeholders (US Government and US Senate Staff)

- US-CERT Representative, United States Computer Emergency Readiness Team
- Policy Director, US Senate

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