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21G-08-0165  
GOV-01-55-04  
ACF-08-0308  
October 9, 2008

Mr. David A. Ayers  
Configuration Management and Safety Culture  
Improvement Oversight Panel  
U.S. Nuclear Regulatory Commission  
Region II  
Atlanta, GA 30303-8931

- References:
- 1) Docket No. 70-143; SNM License 124
  - 2) NRC Letter from David A. Ayres to B. Marie Moore, dated September 9, 2008
  - 3) NRC Letter from David A. Ayres to D. B. Ferguson, Jr., dated September 16, 2008

**Subject: Response to NRC Questions Regarding the 2007 Independent Safety Culture Assessment Results Report (ISCARR) and NFS' Comprehensive Safety Culture Improvement Initiative (CSCII) Plan**

Dear Sir:

In Reference 2, NRC's Configuration Management and Safety Culture Improvement Oversight Panel (NRC Panel) forwarded a list of twenty-seven questions to Nuclear Fuel Services, Inc. (NFS), which the NRC Panel had regarding the 2007 Independent Safety Culture Assessment Results Report and NFS' Comprehensive Safety Culture Improvement Initiative Plan. Reference 3 confirmed a working meeting between NRC and NFS to discuss progress on NFS' Comprehensive Safety Culture Improvement Initiative and to discuss the questions forwarded by the NRC Panel in Reference 2.

As requested by Reference 2, NFS submits the attached responses to the NRC Panel's questions.

Attachment 1 contains responses to Panel Questions 1-11 regarding the 2007 Independent Safety Culture Board of Advisors (SCuBA) Report. Attachment 1 responses were prepared by and are submitted on behalf of the Independent SCuBA Team.

Attachment 2 contains NFS' responses to Panel Questions 12-27 regarding NFS' Comprehensive Safety Culture Improvement Initiatives. NRC feedback from the working meeting held on October 1, 2008 has been incorporated into the NFS responses.

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If you or your staff have any questions, require additional information, or wish to discuss this, please contact me, or Mr. Rik Droke, Licensing and Compliance Director, at (423) 743-1741. Please reference our unique document identification number (21G-08-0165) in any correspondence concerning this letter.

Sincerely,

NUCLEAR FUEL SERVICES, INC.



B. Marie Moore  
Vice President, Safety and Regulatory

JHM/pdj  
Attachments

Copy:  
Mr. Kevin M. Ramsey, Project Manager  
Fuel Cycle Facilities Branch  
Office of Nuclear Material Safety and Safeguards  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555

✓ Mr. Manuel Crespo  
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U.S. Nuclear Regulatory Commission  
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Mr. Stephen Burris  
Senior Resident Inspector  
U.S. Nuclear Regulatory Commission

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ATTACHMENT 1

SCuBA Team Response to NRC Staff Questions

(32 pages)

September 29, 2008

Ms. B. Marie Moore  
Vice President of Safety and Regulatory Management  
Nuclear Fuel Services, Inc.  
1205 Banner Hill Road  
Erwin, TN 37650

Dear Ms. Moore:

On September 2, 2008, you forwarded to the SCUBA Team a set of eleven questions related to the 2007 Independent Safety Culture Assessment Results Report that were provided to you by the NRC Staff.

The SCUBA Team's responses to the NRC Staff's questions are provided in the attached document.

It is our understanding that both the NRC Staff's questions and the SCUBA Team's responses to those questions will be placed in the NFS-Erwin public docket.

In all of our responses we have included the text of the NRC Staff's questions. In many of our responses, we have also included background information to ensure a more complete understanding of the responses.

Please let us know if the NRC Staff has any additional questions.

Sincerely,



John C. Guibert  
SCUBA Team Leader

Attachment: As stated

## SCUBA TEAM RESPONSE TO NRC STAFF QUESTIONS

### NRC STAFF QUESTION #1

“Provide details of why the SCUBA did not perform an assessment of chemical safety at NFS (i.e. justify its exclusion).

The SCUBA report (p. 4) stated that chemical safety was not assessed, but observations and suggestions in this area were provided to NFS separately. Chemical hazards and controls are some of the most prevalent issues at most fuel cycle facilities, including NFS. Observations by the SCUBA team of chemical safety concerns could factor significantly into a number of safety culture components depending upon the nature and repetitiveness of the concerns.”

### SCUBA TEAM RESPONSE

Chemical safety was included in the SCUBA Team’s assessment of the safety culture at the NFS-Erwin Site. Chemical safety was assessed within the context of NRC-licensed activities, with particular emphasis on potential challenges to industrial/personnel safety. It was addressed in the workforce survey, in personnel interviews, and in behavioral observations. It was evaluated from the perspective of having an influence on the overall safety culture at NFS-Erwin.

Chemical safety issues contributed to SCUBA Team Findings in the Resources, Work Control, Work Practices, and (to a lesser extent) Continuous Learning Environment Safety Culture Components. An example of this is the following SCUBA Team observation, which supports Finding AFI-RES-01:

“The SCUBA Team has observed a significant number of operator burdens/work-arounds (some of which involve the use of administrative controls in lieu of engineering controls) as a response to degraded equipment conditions. A specific example is the venturi scrubber in the fuel area that requires operators to make manual caustic additions for pH control because the automated system is not functional. This situation has existed so long that the operating procedure has been modified to make the manual addition process the standard mode of operation. (The original operating procedure only allowed manual additions for “off-normal” conditions.) This is clearly a case where industrial safety margin has been sacrificed in that (1) operators must manually handle hazardous chemicals, and (2) administrative controls have replaced engineered controls.”

The statement on page 4 of the SCUBA Team’s 2007 ISCA Results Report was not that chemical safety wasn’t assessed, but rather that the SCUBA Team did not perform a “specific assessment of chemical safety at NFS-Erwin” – meaning a specific, comprehensive evaluation of the NFS-Erwin Chemical Safety Program and Processes, including compliance with the EPA Risk Management Program, OSHA Process Safety requirements and EPA Emission standards. The 2007 ISCA was a Safety Culture assessment – not a Chemical Hazards Assessment.

Several of the SCUBA Team members have specific experience related to chemical hazards and the above-mentioned EPA/OSHA standards and requirements. In the course of conducting field observations to support the 2007 ISCA, these SCUBA Team members identified a set of observations that were thought to represent potential chemical safety issues that may warrant further evaluation by NFS. The SCUBA Team decided to document these out-of-scope observations and to provide them to NFS under separate cover. The different nature of these

## **SCUBA TEAM RESPONSE TO NRC STAFF QUESTIONS**

SCUBA Team observations is clearly reflected in the separate document provide to NFS. This is very clearly stated in both the transmittal letter for that document and in the document itself.

When this information was provided to NFS management in late January/early February 2008, NFS management indicated that they intended to have an independent chemical safety audit performed in the near future.

## SCUBA TEAM RESPONSE TO NRC STAFF QUESTIONS

### NRC STAFF QUESTION #2

“Explain why the security findings were not addressed in accordance with the 13 attributes of safety culture found in RIS 2006-013.

Due to the sensitive nature of the information involved, the evaluation of the security departments and programs was conducted by an individual separate from the rest of the SCUBA team. The resultant report was not in accordance with the format specified in the SCUBA report in that it did not address security issues with regard to the 13 components of safety culture found in RIS 2006-013, and its findings were not categorized using the Area for Improvement (AFI)/ Area in Need of Attention (ANA)/ Opportunity for Improvement (OFI) designators. Thus, they were not used as part of the listing of “most significant” findings, and common themes in the findings may not have been considered between the security department and the rest of NFS.”

### SCUBA TEAM RESPONSE

#### Background

The SCUBA Team obtained and used information on the safety culture within the NFS-Erwin security organizations in its assessment of the 13 Safety Culture Components of NRC RIS 2006-13. This information was obtained through personnel interviews, behavioral observations, documentation reviews, workforce survey numerical ratings and workforce survey write-in comments.

Since the Confirmatory Order specifically called for a review of NFS nuclear material security, the SCUBA Team concluded that the NRC meant that NFS nuclear material security should not only be included in the assessment of the safety culture at the NFS-Erwin Site but also should be assessed in greater organizational and programmatic detail. As a result the SCUBA Team, with the assistance of the SCUBA Team Advisor on matters related to nuclear material security, also conducted a discrete assessment of NFS-Erwin’s nuclear material security programs, processes and policies.

The discrete assessment of NFS nuclear material security-related programs, processes and policies was considered to be conceptually similar to the SCUBA Team’s discrete assessments of several other specific areas (beyond the 13 Safety Culture Components) that were called for in the Confirmatory Order (i.e., the assessment of the adequacy of the corrective actions taken (or planned) by NFS to address the specific NRC Notifications of Violations identified in the Order, the adequacy of actions taken (or planned) by NFS with respect to the commitments made by NFS at the management meeting with the NRC on September 18, 2006, and the adequacy of actions taken (or planned) to address needed improvements related to configuration management).

[NOTE: As indicated in the response to NRC Staff Question #10, information obtained through these other three discrete assessments was also considered by the SCUBA Team in the context of the 13 Safety Culture Components of NRC RIS 2006-13.]

In summary, in addition to including the Security and Material Control & Accountability organizations in the same context as any other organization at the NFS-Erwin Site with respect to the assessment of the 13 Safety Culture Components, the SCUBA Team performed a discrete assessment of nuclear material security programs, processes and policies.

## SCUBA TEAM RESPONSE TO NRC STAFF QUESTIONS

### Response

Until near the end of the 2007 ISCA, due to the time required to obtain necessary security clearances, the SCUBA Team members were somewhat limited in their ability (1) to personally conduct behavioral observations of security activities in certain areas of the NFS-Erwin Site and (2) to review certain classified documentation. However, it is incorrect to assume that the SCUBA Team's discrete assessment of NFS nuclear material security was either exclusively or independently performed by the SCUBA Team's Advisor on nuclear material security. More importantly, it is incorrect to assume that the SCUBA Team did not use nuclear material security-related information obtained through all sources of input (i.e., personnel interviews, behavioral observations, documentation reviews, workforce survey numerical ratings and workforce survey write-in comments) in its assessment of the 13 Safety Culture Components of NRC RIS 2006-13. In addition, as indicated below, it is incorrect to assume that the SCUBA Team Advisor operated separately or in a vacuum.

- A SCUBA Team member (Dr. Carl Paperiello) was designated as the SCUBA Team lead for the nuclear material security assessment and closely coordinated activities with the SCUBA Team Advisor for nuclear material security.
- With respect to their assigned lead areas of responsibility for individual Safety Culture Components, all SCUBA team members conducted interviews with Security personnel.
- Many SCUBA team members performed behavioral observations of nuclear material security activities.
- The SCUBA Team Advisor routinely and frequently provided information (that he obtained through assessment activities related to the 13 Safety Culture Components) to the SCUBA Team leads for the individual Safety Culture Components for their consideration and follow-up. Similarly, the SCUBA Team members provided information and requests for the SCUBA Team Advisor to consider and follow-up on. This approach was the same as used by all SCUBA Team members with each other.
- The SCUBA Team Advisor was treated no differently than the SCUBA Team members with respect to access to all information obtained and developed during the conduct of the 2007 ISCA. In some cases, additional input specific to security was developed and provided to assist the SCUBA Team Advisor (e.g., two sets of confidential workforce survey comments – one including comments provided by security personnel; the other including comments provided by other organizations regarding security – were provided).
- The SCUBA Team Advisor was treated no differently than the SCUBA Team members with respect to participation in SCUBA Team meetings and discussions. The SCUBA Team Advisor participated in all SCUBA Team meetings and discussions, including meetings and discussions on the 13 Safety Culture Components, the associated SCUBA Team Findings, and the integration and prioritization of the SCUBA Team Findings. He specifically confirmed that, with respect to the 13 Safety Culture Components, the SCUBA Team's Findings were applicable to the security organizations and that the SCUBA Team's overall assessment of the 13 Safety Culture Components adequately addressed the information obtained from the assessment of the security organizations.
- The SCUBA Team collectively reviewed, commented on and approved the separate Classified Report on nuclear material security programs, processes and policies.

## SCUBA TEAM RESPONSE TO NRC STAFF QUESTIONS

The format for the separate Classified Report on the results of the discrete assessment of nuclear material security programs, processes and policies was developed by the SCUBA Team Lead for nuclear material security and the SCUBA Team Advisor for nuclear material security, and was reviewed and approved by the SCUBA Team Leader. The format was designed to best fit the nature of the discrete assessment and its associated results.

[NOTE: This was also the case for the unique formats used in reporting the results of the other discrete assessments conducted by the SCUBA Team.]

Contrary to the statement in the NRC Staff's Question, the individual Findings in the separate Classified Report were characterized as Areas for Improvement (AFIs), Areas in Need of Attention (ANAs) and Opportunities for Improvement (OFIs). These Findings were generally considered to be unique to the nuclear material security organizations (i.e., "stand alone" Findings).

[NOTE: Several identified security-related equipment or facility issues contributed to the SCUBA Team's development of Finding AFI-RES-02, "Infrastructure Improvement Plan".]

With respect to the content of the 2007 ISCA Results Report, the SCUBA Team elected as a matter of policy to take a conservative approach regarding the inclusion of detailed information that could potentially result in the public disclosure of an actual, potential or hypothetical vulnerability in nuclear material security at NFS-Erwin. Accordingly, if any such potential vulnerability had been discovered by the SCUBA Team – even if it could be shown as supporting information for a SCUBA Team Finding or as supporting a "most significant" Finding presented in the 2007 ISCA Results Report – it would not have been specifically documented in the 2007 ISCA Results Report. On the other hand, it would have been documented and characterized in the separate Classified Report, and it would have been discussed in a classified meeting with NFS-Erwin management – including its relationship to the Findings and "most significant" Findings identified in the 2007 ISCA Results Report.

It should be noted that information derived from the assessment of the nuclear material security organizations that was considered by the SCUBA Team to be non-classified in nature was included in the individual Safety Culture Component sections of the 2007 ISCA Results Report. For example:

"There are parallel databases on the site that compete with PIRCS. In addition to IROFS records (discussed in *Issue Trending*), the security force maintains separate records for reasons of classification, LOAs are tracked on paper, commitments are shared by three different individuals and systems, and the results of benchmarking trips are informally reported and filed for action. The PIRCS software is capable of handling the needs of each of these sub-systems but there is no formal plan for consolidation."

"There is a reasonable approach to internal review of NRC generic communications. There are several communication paths, with redundancy. However, there is no data base or formal mechanism to create an institutional memory of how these generic communications have been addressed. Some NRC issues do create permanent changes in policies, plans and procedures particularly for security and material control and accountability (MC&A)."

## SCUBA TEAM RESPONSE TO NRC STAFF QUESTIONS

### NRC STAFF QUESTION #3

“Provide information on why the SCUBA team did not recommend actions for the High Enriched Uranium (HEU) organization and why there were no recommended actions to address the identified issues related to the other Priority 2 Outlier Organizations.

The SCUBA report (p. 104) identified an ANA for the Outlier Organizations and included recommendations for four of the seven organizations, but not the other three. The report stated that no independent corrective action was required for three of the Outlier Organizations and that NFS management needed to take remedial action for the other four organizations. However, one of the three organizations where there is no recommended action, the HEU Fuel Production facility, is designated Priority 1 in that it had a potential need to take remedial action in the immediate future. An understanding is needed of how the SCUBA team determined that this Priority 1 organization (and the other Priority 2 organizations) did not need remedial action.”

### SCUBA TEAM RESPONSE

#### Background

The NFS workforce survey was conducted for NFS and the SCUBA Team by SYNERGY Consulting Services Corporation. A number of NFS-Erwin individual Functional Organizations were identified by SYNERGY as Priority Level 1 and 2 “organizational outliers” based on the low workforce survey numerical ratings of key cultural metrics (i.e., the Overall NSC rating and the Overall SCWE rating) that they provided. The methodology used in identifying organizational outliers is proprietary to SYNERGY.

Based on the results of the 2007 NFS-Erwin workforce survey, SYNERGY identified five Priority Level 1 outlier organizations and two Priority Level 2 outlier organizations:

- BLEU Complex Operations (NFS Only) – Priority Level 1
- Analytical Services – Priority Level 1
- Health Physics (including Radiation Monitoring & Nuclear Measurements) – Priority Level 1
- Transportation & Waste Management – Priority Level 1
- HEU Fuel Production – Priority Level 1
- BPF Operations – Priority Level 2
- Other Operations Support – Priority Level 2

Absent the results of any further evaluation of the underlying reasons for the low numerical ratings, SYNERGY recommended that Priority Level 1 outlier organizations be considered as localized AFIs and that Priority Level 2 outlier organizations be considered as localized ANAs.

[NOTE: Base on SYNERGY’s experience, evaluations of the underlying reasons for the low numerical ratings in “outlier organizations” can (and frequently do) result in changes to the initial Priority Level assignments.]

The results of the NFS-Erwin workforce survey were provided to the SCUBA Team for further evaluation. The SCUBA Team conducted an evaluation of the Priority Level 1 and 2 “outlier organizations” using three primary sources of input:

- The detailed workforce survey numerical survey ratings of key cultural metrics and individual safety culture attributes provided by each of the “outlier organizations”.

## SCUBA TEAM RESPONSE TO NRC STAFF QUESTIONS

- The confidential workforce survey write-in comments provided by personnel from within each of the “outlier organizations”.
- Structured confidential personnel interviews with a randomly-selected set of individuals from within each of the “outlier organizations”.

The focus of the SCUBA Team’s evaluation was to determine (1) the underlying reasons for the low workforce survey numerical ratings and (2) whether any remedial action unique to each outlier organization was warranted. With respect to the former, of particular interest was whether the underlying reasons were based on NSC or SCWE related concerns or on concerns related to the general work environment and/or leadership, management and supervisory behaviors and practices. With respect to the latter, of particular interest was whether additional localized actions were needed above and beyond the Site-wide actions recommended by the SCUBA Team as set forth in its 41 Site-wide 2007 ISCA Findings.

The results of the SCUBA Team’s evaluations are summarized on page 103 of the 2007 ISCA Results Report. Unique remedial actions are recommended for four of the seven outlier organizations on page 104 of the Report under Finding ANA-LOC-01. Detailed evaluation results for each of the seven originally identified outlier organizations were provided to NFS on a confidential CD-ROM.

[NOTE: The detailed information is considered to be confidential in nature since it is based in part on confidential personnel interviews.]

### Point of Clarification

One of the Priority Level 2 outlier organizations was “Other Operations Support”. The workforce survey offered three organizational affiliation choices within the overall Operations Support Organization:

- Transportation & Waste Management: There were 20 actual survey participants that selected this organizational affiliation out of a potential 35 survey participants based on organizational headcount.
- Facilities: There were 23 actual survey participants that selected this organizational affiliation out of a potential 40 survey participants based on organizational headcount.
- Other Operations Support: The organizational headcount for this organizational affiliation choice was 5. The actual number of survey participants that selected this organizational affiliation was 29.

As indicated above, the Other Operations Support organizational affiliation selection was significantly “oversubscribed”. Based on the survey participation distribution shown above, it is likely that individuals whose actual organizational affiliation was Transportation & Waste Management or Facilities selected Other Support Organizations on the workforce survey form. Since the Transportation & Waste Management organization was already identified as a Priority Level 1 “outlier organization”, the SCUBA Team conducted an evaluation of the Facilities organization.

## SCUBA TEAM RESPONSE TO NRC STAFF QUESTIONS

### Response

As indicated in the 2007 ISCA Results Report, based on the SCUBA Team's evaluation of the underlying reasons for the low numerical ratings provided by the Priority Level 1 and 2 "outlier organizations", four organizations were identified that warranted unique remedial action (refer to ANA-LOC-01). Also based on the results of the SCUBA Team's evaluation, each of these organizations was re-classified as a localized Area in Need of Attention.

Based on the results of the SCUBA Team's evaluation of the underlying reasons for the low survey numerical ratings provided by the remaining three organizations originally identified as Priority Level 1 or 2 outliers, the SCUBA Team concluded that no additional, unique localized actions were needed above and beyond the Site-wide actions recommended by the SCUBA Team as set forth in its 41 Site-Wide Findings.

As part of ANA-LOC-01, the SCUBA Team recommended that:

"Management should ensure that the specific concerns of the remaining outlier organizations, as identified in the workforce survey, are successfully addressed as NFS progresses in implementing its Safety Culture improvement program."

## SCUBA TEAM RESPONSE TO NRC STAFF QUESTIONS

### NRC STAFF QUESTION #4

“Provide information on why the SCUBA did not develop recommendations for the Safety Culture Leadership Team based on their evaluation of the NFS Safety Culture Self-Assessment.

The SCUBA team evaluated the Safety Culture Self-Assessment (SCSA) conducted by the NFS Safety Culture Leadership Team in terms of sufficiency of self-criticalness (Att. D). Results of this analysis are provided and there are indications of weaknesses in the SCSA, however, there are no accompanying recommendations even though the Action Plan indicates that they will continue to conduct SCSAs.”

### SCUBA TEAM RESPONSE

As indicated in Attachment D to the 2007 ISCA Results Report, the SCUBA Team’s major concern with the quality of the Safety Culture Self-Assessment (SCSA) conducted by the NFS Safety Culture Leadership Team was related to the lack of a sound organizational frame of reference for characterizing the results of the SCSA. The lack of a sound organizational frame of reference also was identified in the SCUBA Team’s assessment of a number of the individual Safety Culture Components. Collectively this led to the development of SCUBA Team Finding AFI-CLE-01:

“NFS has developed a frame of reference that is based primarily upon its own experience as opposed to one based upon current nuclear industry standards and best practices. This is largely due to organizational insularity, which appears to have developed as a result of the organization’s sense of the uniqueness of its operations.

In this regard, the SCUBA Team recommends the following:

- Industry benchmarking is needed to enhance overall organizational effectiveness and to address the existing organizational frame of reference issue. NFS should establish and implement a strategic, multi-year approach for conducting benchmarking activities at commercial nuclear power plants, other nuclear fuel cycle facilities and chemical industry facilities. A single point of accountability and ownership should be assigned for the success of this strategic benchmarking program.
- Scheduling INPO Assist Visits, participating on external industry assessments and engaging external peers as participants in NFS-Erwin internal assessments will further enhance the development of a current, industry-based frame of reference.
- Management must adopt and enforce a regulatory standard of excellence where minimum levels of compliance are not considered to be acceptable.
- Management must create an environment where proactive self-criticism becomes the norm and where management holds itself, as well as the balance of the workforce, accountable for complying with all operational and administrative procedures.”

## SCUBA TEAM RESPONSE TO NRC STAFF QUESTIONS

At the time that the SCUBA Team requested NFS to conduct the SCSA, the SCUBA Team was concerned that NFS may not fully understand or fully appreciate organizational self-assessment in general. This concern was further validated during the SCUBA Team's assessment of the "Self and Independent Assessment" Safety Culture Component and led to SCUBA Team Finding AFI-SA-01:

"In mid-2007, NFS instituted a formal Self-Assessment Program, which is documented in NFS-GH-945. This program primarily focuses on management field observations. Compared to nuclear power plant industry best practices, the scope of this Self-Assessment Program is somewhat limited in nature. Since this Program is in the early stages of implementation, it is premature to reach a conclusion as to its effectiveness. On the other hand, the SCUBA Team has concluded that there are a number of additional opportunities to enhance organizational effectiveness through increased emphasis on additional self-assessment and external assessment activities.

In this regard, the SCUBA Team recommends the following:

- Develop and implement a multi-year, integrated self-assessment plan that:
  - Includes a combination of compliance-based audits (which are focused on compliance with regulatory and customer requirements) and performance-based assessments (which are designed to evaluate the effectiveness of programs, processes and functions as compared to industry standards and best practices).
  - Includes an appropriate mix of external assessments and/or industry peer participation on NFS performance-based self-assessments to ensure that NFS-Erwin keeps abreast of evolving industry standards and best practices.
  - Includes forward-looking elements designed to self-identify potential fragilities in organizational effectiveness and performance.
  - Is sufficiently flexible to address unanticipated or emerging performance assessment needs.
  - Is managed and coordinated by a specifically assigned individual who serves as a single point of accountability and ownership for the success of the integrated plan. (The most likely candidate for this role would be the newly-appointed NFS Chief Nuclear Safety Officer.)
- Conduct benchmarking activities to identify industry best practices for the design and implementation of the integrated self-assessment plan.
- Enhance the current Self-Assessment Program by including a program element focused on periodic (e.g., semi-annual) comprehensive self-assessments of organizational performance and effectiveness conducted by line organizations. Conduct a formal, collegial management team review of these self-assessments at the completion of each assessment period.
- Conduct benchmarking activities to identify industry best practices for the design and implementation of periodic (e.g., semi-annual) comprehensive self-assessments of organizational performance and effectiveness performed by line organizations. (This issue is further addressed in SCUBA Team Finding AFI-CLE-01.)

## **SCUBA TEAM RESPONSE TO NRC STAFF QUESTIONS**

- Continue to enhance the effectiveness of management field observations (i.e., “Management by Walking Around”) by providing training to participants on standards and expectations for the conduct of their observations, as well as on the standards and behaviors that they are expected to reinforce in the field.
- Train managers in program and process self-assessment methods, using external facilitators with demonstrated competence.
- Include “demonstrated effectiveness in conducting self-assessment activities” as a performance measure in the annual performance evaluations of NFS managers and supervisors.”

These two findings, and associated recommendations, were considered by the SCUBA Team to be sufficient to address the major issues identified through its evaluation of the NFS SCSA.

The SCUBA Team also discussed the results of the SCUBA Team’s evaluation of the NFS SCSA with the NFS Safety Culture Leadership Team. Among other things, the SCUBA Team expressed its view that the results of future self-assessments such as the NFS SCSA should be processed through PIRCS.

## SCUBA TEAM RESPONSE TO NRC STAFF QUESTIONS

### NRC STAFF QUESTION #5

“Provide information on how the SCUBA team compensated for the differences and limitations in workforce representation in the Phase 1 and Phase 2 interviews.

Phase 1 interviews, conducted prior to administering the survey, were heavily drawn from management/executive director level and significantly less so from the workforce level. Phase 2 interviews focused on survey follow-up with outlier organizations. Since it is important to gain sufficient information from all organizational levels to determine extent of alignment in perceptions/attitudes of “how things work around here,” a description of how the SCUBA team compensated for the limited Phase I and Phase 2 interviews of the workforce to help with an understanding of the context of the team’s conclusions of the interview results.”

### SCUBA TEAM RESPONSE

#### Response

As indicated in the 2007 ISCA Results Report, in performing the 2007 ISCA, the SCUBA Team utilized five diverse sources of input:

- Confidential personnel interviews
- Behavioral observations
- Documentation reviews
- Workforce survey numerical results
- Workforce survey confidential write-in comments

[NOTE: The Safety Culture Self-Assessment (SCSA) conducted by the NFS Safety Culture Leadership Team, which was another source of assessment input, was considered as a documentation review.]

Information obtained from all sources of assessment input was evaluated on an integrated basis by the SCUBA Team in the process of identifying findings and reaching conclusions.

As shown below, the SCUBA Team obtained more than ample information from all sources combined and from all organizational levels (1) to determine the extent of alignment in perceptions/attitudes of “how things work around here” and (2) to accurately characterize the safety culture at the NFS-Erwin Site.

#### Personnel Interviews

As indicated in the 2007 ISCA Results Report, the SCUBA Team conducted 269 Phase 1 structured personnel interviews and 75 Phase 2 structured personnel interviews, for a total of 344 structured interviews.

- Of these, 137 (or approximately 40%) were with supervisors and below. This represents approximately 20% of the “supervisor and below” Site population.
- Of these, 61 (or approximately 18%) were with hourly/Union employees. This represents approximately 20% of the “hourly/Union employee” Site population.

The total number of personnel interviews noted above does not include any of the numerous informal interviews that were conducted by the SCUBA Team with personnel in the field during the conduct of behavioral observations and other activities. It is conservatively estimated that a

## SCUBA TEAM RESPONSE TO NRC STAFF QUESTIONS

minimum of 100 such informal interviews were conducted (not including informal interviews with Security Force personnel serving as escorts for individual SCUBA Team members).

[NOTE: Informal personnel interviews are differentiated from formal structured personnel interviews in the following ways:

- Formal structured interviews were conducted at a specific time, at a specific location (an enclosed office), with a specific previously-selected individual (either selected for a specific reason or randomly selected), for a specific duration (typically from 60 to 90 minutes), and using a checklist of specific interview questions (based on the 13 Safety Culture Components).
- Informal interviews were conducted as the opportunity arose, generally in an informal setting, with individuals that were not previously-selected, for varying time periods (typically from 5 to 20 minutes), and using a combination of ad-hoc questions and questions drawn from the checklists specifically developed to evaluate one or more of the 13 Safety Culture Components.]

### Behavioral Observations

The SCUBA Team conducted 200 behavioral observations. Of these,

- 85 were of field work activities
- 27 were of training activities
- 88 were of various types of meetings

### Workforce Survey

A workforce survey was conducted in August 2007. All NFS-Erwin employees and long-term contractors were provided the opportunity to participate in the survey.

- 88% of the overall Site population participated in the workforce survey.
- 84% of the hourly/Union employee population participated in the workforce survey.
- 48% of the workforce survey participants provided write-in comments.
- 1114 discrete write-in comments were provided.

[SYNERGY indicated that, based on their experience in administering similar surveys throughout the commercial nuclear power plant industry, the typical Site-wide survey participation rate is ~77%, and ~33% of the survey participants typically provide write-in comments.]

### Documentation Reviews

The SCUBA Team obtained and reviewed an extensive amount of documentation, including a large portion of the NFS-Erwin policy statements, process documents, and procedures in order to develop a basic understanding of the licensing basis and operating philosophy for the company. The initial bibliography was developed in consort with the NFS-Erwin Safety Culture Component owner and expanded to include such pertinent items as second-tier references found in the governing documents as well as leads developed during interviews and meetings.

In addition to the list of approximately 1500 documents that can be found in the NFS Policy Listing, the SCUBA Team reviewed selected information, nominally developed over the past

## SCUBA TEAM RESPONSE TO NRC STAFF QUESTIONS

two years (i.e.,2005-2007), from such diverse sources as:

- NFS-Erwin Operating License
- NRC Licensee Performance Reports
- PIRCS Problem Reports
- Root Cause Analyses
- Apparent Cause Analyses
- PIRCS Review Committee Agendas
- PIRCS Oversight Committee Minutes
- Safety and Safeguards Review Committee Minutes
- Training Lesson Plans
- Benchmarking Trip Reports
- Quality Assurance Audit Reports
- Radiation Protection Program Records
- Preventive Maintenance Database
- Work Orders (completed and pending)
- Equipment Logbooks
- Murray Guard Force Training and Employee Manual
- Fitness for Duty Records
- Human Resources Correspondence
- "NFS Currents" (site newspaper)
- "NFS Supervisor News"
- Policy, Process, and Procedure documents in draft

This body of documented information covered each of the 13 Safety Culture Components, nuclear material security and the additional areas of scope included in the assessment.

## SCUBA TEAM RESPONSE TO NRC STAFF QUESTIONS

### NRC STAFF QUESTION #6

“Provide information on how the SCUBA team addressed comments received through survey responses that were not items specifically addressed in the survey questions.

Approximately 48% of survey respondents provided comments (1114 comments; 64% were negative). Some of the write-in comments identified issues in areas that were not specifically addressed by the survey questions. The SCUBA report indicates that follow-up interviews were targeted to personnel in the Outlier Organizations or organizations with low survey results. It is not clear if the SCUBA team conducted any follow-up interviews due to “identified issues not specifically addressed in the survey” that were not necessarily linked to Outlier Organizations or low survey results.”

### SCUBA TEAM RESPONSE

#### Background

The confidential workforce survey write-in comments were initially evaluated by SYNERGY Consulting Services Corporation, who:

- Identified and separated the discrete comments
- Classified each comment as positive, negative and neutral in nature.
- Categorized each comment (e.g., by Safety Culture Component)
- Identified recurring themes derived from the write-in comments
- Created special sub-sets of the write-in comments (e.g., comments provided by personnel from within the “outlier organizations”)

Based on the comment categorization process:

- Approximately 80% of the comments were directly linked to the 13 Safety Culture Components.
- Approximately 8% of the comments were on various aspects of the General Culture and Work Environment. (Of these, approximately 43% were positive comments related to the quality of the workforce, 21% were negative comments related to sufficiency of communications, 17% were balanced comments related to teamwork and 10% were negative comments related to Union relationships and/or strike-related issues.)
- Approximately 8% of the comments were on various aspects of Trust and Confidence in Management.
- Approximately 2% of the comments were on aspects of Industrial/Personnel Safety.
- Approximately 2% of the comments were on Miscellaneous Topics, ranging from comments related to the NFS Security organization through comments related to the NRC.

This information was provided to each member of the SCUBA Team (and the SCUBA Team Advisor for nuclear material security) for review and action, as appropriate.

## SCUBA TEAM RESPONSE TO NRC STAFF QUESTIONS

### Response

SCUBA Team members (and the SCUBA Team Advisor) reviewed all of the survey write-in comments for the purposes of determining (1) whether the write-in comments were consistent with information obtained through other sources of assessment input, and (2) whether the write-in comments identified new information or conflicting information from that obtained through other sources of assessment input.

Based on this review, there were a number of instances where SCUBA Team members determined that additional information was needed. This additional information was obtained through a number of mechanisms, including personnel interviews (primarily informal in nature) and documentation reviews.

An example of a SCUBA Team Finding that was initially identified through a survey write-in comment is OFI-RES-01:

“The operational readiness of the Emergency Response Brigade (including both personnel and equipment) has not been recently evaluated by an external expert. It is recommended that such an evaluation be performed.”

## SCUBA TEAM RESPONSE TO NRC STAFF QUESTIONS

### NRC STAFF QUESTION #7

“Provide the source(s) of “industry best practices” other than those in the Industry Best Practices reference list, if any, and also the sources for “industry norms.”

The SCUBA team report (pg. 5) states that “Application of these challenging evaluation criteria led to the identification of a significant number of identified ‘Areas for Improvement’ and ‘Areas in Need of Attention’ in the NFS Safety Culture.” However, it is important to recognize that the application of somewhat less challenging criteria (e.g., industry norms) would also have led to the identification of a significant number of areas needing improvement.”

### SCUBA TEAM RESPONSE

#### Background

The introductory statement in Attachment G to the 2007 ISCA Results Report, “Tabulation of Basic References for Industry Best Practices”, is provided below (with emphasis added):

“The SCUBA Team recommends that NFS-Erwin consider the following sources of information as helpful reference material that will assist the Site as the leadership team addresses the Findings offered in the SCUBA Team’s Independent Safety Culture Assessment. These recommendations represent the collective experience of the team members, but it should be noted that the site’s recent decision to become a member of the Institute of Nuclear Power Operations (INPO) will pay dividends in developing professional associations and contemporary suggestions that may be more useful. In that vein, the following recommendations are offered for each Safety Culture Component (SCC). The information presented herein provides basic references. Individual SCUBA Team members have provided and will continue to provide NFS management with specific references to organizations (commercial nuclear power plants, nuclear fuel cycle facilities and chemical industry facilities) that are believed to be demonstrating best practices in specific areas.”

The information provided in Attachment G was not intended to represent a comprehensive listing of the “industry best practices” applied by the SCUBA Team. Nor is it a comprehensive list of the references and information, including contact information, provided by the SCUBA Team to NFS. In this regard, the SCUBA Team was sensitive to the privacy and proprietary ownership rights of the sources of information, including contact information.

#### Response

The “industry best practices” used by the SCUBA Team in the conduct of the 2007 ISCA were based on the collective knowledge, experience and judgment of the SCUBA Team members and the SCUBA Team Advisor on matters related to nuclear material security. The collective knowledge and experience of these individuals includes experience related to the commercial nuclear power industry, other commercial nuclear fuel cycle facilities and the chemical industry. These individuals were selected to conduct the 2007 ISCA based on their knowledge and experience. It should be noted that these individuals were also approved by the NRC for participation in the 2007 ISCA.

## SCUBA TEAM RESPONSE TO NRC STAFF QUESTIONS

The SCUBA Team's collective knowledge and experience related to "industry best practices" includes knowledge of and experience with:

- Documented guidance and standards provided by such organizations as INPO, NEI and others. The SCUBA Team collectively has significant knowledge of how (and where) those practices are best being applied (and in some cases expanded upon), particularly within the commercial nuclear power plant industry (which was selected by NFS as the primary standard that they desired to be compared against).
- "Industry best practices" in areas that are not specifically addressed by INPO, NEI or others. (Not everything related to safety culture is specifically codified in the industry.)
- Practices, programs, processes and policies that may represent the currently existing highest standards & expectations in the industry as applied by individual/groups of owner/operators (i.e., industry leaders or organizations on the cutting edge).

The SCUBA Team's collective knowledge and experience related to "industry norms" is based on similar knowledge and experience. "Industry norms", as the term was used and applied by the SCUBA Team, are associated with the type and quality of programs, policies and practices that are being used throughout the commercial nuclear power plant industry at the present time.

In terms of differentiating between "industry best practices" and "industry norms", three examples are provided below:

- Employee Concerns Programs are used throughout the commercial nuclear power plant industry. The lack of an effective Employee Concerns Program would represent both a failure to meet applicable industry norms and a failure to meet industry best practices.
- Formal, systematic Operational Decision Making processes are used throughout the commercial nuclear power plant industry. The lack of a formal, systematic Operational Decision Making process would represent both a failure to meet applicable industry norms and a failure to meet industry best practices.
- The nature and use of specific programs and processes to "anticipate and prevent the perception of retaliation" vary considerably throughout the commercial nuclear power plant industry. In some cases, these programs and processes are more formal and more comprehensive in nature than others. Those would be considered to represent "industry best practices" rather than "industry norms".

During the conduct of the 2007 ISCA, the SCUBA Team identified several programs/processes/ways of doing business where there are inherent differences in the degree of detail that may be required at a nuclear fuel cycle facility as compared to at a commercial nuclear power plants in order to meet industry norms or industry best practices. While the fundamental objectives are similar, implementation details may be different due to differences in the nature of facility design, operations and maintenance. Hence, in these instances, some degree of adjustment was made in considering the direct application of commercial nuclear power plant norms and best practices. For example, the SCUBA Team concluded that this situation applied to certain aspects of Work Control (i.e., risk management).

The NFS workforce survey was conducted by SYNERGY Consulting Services Corporation. In reporting the survey numerical rating results to NFS and to the SCUBA Team, SYNERGY applied "industry norms criteria" and the equivalent of "industry best practices criteria" based on information obtained from its extensive industry database.

## SCUBA TEAM RESPONSE TO NRC STAFF QUESTIONS

### NRC STAFF QUESTION #8

“Provide information on which specific aspects of the Work Control Safety Culture Component descriptions the SCUBA team determined does not directly apply to fuel cycle facilities and which do. What is the source(s) for the fuel cycle facility industry best practices in this area and how does it differ from the nuclear reactor industry best practices?”

The SCUBA team report (p. 36) states that the Work Control safety culture component is not directly applicable to fuel cycle facilities and makes a comparison of the types of risks and risk assessments between nuclear reactors and fuel cycle facilities. This component is described in the enclosure to RIS-2006-13 is not necessarily reactor specific as it explains Work Control as planning and coordinating work activities consistent with nuclear safety. The description goes on to generically mention that Work Control includes appropriately planning and coordinating work activities by incorporating risk insights, job site conditions, the need for planned contingencies and compensatory actions, addressing impacts of changes to work scope, coordination of work groups, keeping personnel apprised of work status, and planning work to support long-term equipment reliability. It is not clear why the SCUBA team determined that most of this component, as described in RIS-2006-13, would not apply to fuel cycle facilities.”

### SCUBA TEAM RESPONSE

#### Background

On page 5 of the 2007 ISCA Results Report, the SCUBA Team indicated that:

“The NFS-Erwin Safety Culture Leadership Team requested the SCUBA Team to perform a critical assessment of NFS-Erwin’s safety culture based upon comparisons with industry best practices. In this regard, with one exception, the SCUBA Team utilized commercial nuclear power plant industry best practices for these comparisons.”

“The one exception was for the “Work Control” Safety Culture Component. Due to significant differences in the safety-related considerations that apply to commercial nuclear power plants and nuclear fuel cycle facilities in this area, the SCUBA Team decided to use nuclear fuel cycle facility best practices for comparison purposes.”

On page 36 of the 2007 ISCA Results Report, the SCUBA Team indicated that (with emphasis added):

“RIS-2006-13 was developed for application at commercial nuclear power plants. Although, most of the Safety Culture Components set forth in RIS-2006-13 are directly applicable to fuel cycle facilities, this is not the case for the Work Control Safety Culture Component.

Commercial power reactors have large amounts of stored energy in the form of fission products and decay heat. They also have relatively complex, integrated safety systems, almost all of which have multiple trains, redundant systems, or other back-up capabilities. Maintenance of these systems requires careful planning, resource coordination and risk assessment lest such activities lead to an unintended impact on plant operations and protection of the reactor core. Fuel cycle facilities have neither the stored energy, complexity nor integrated systems

## SCUBA TEAM RESPONSE TO NRC STAFF QUESTIONS

typical of a nuclear power plant. Instead, fuel cycle facility safety systems are based on Integrated Safety Analyses (ISA) that identify items relied on for safety (IROFS) that are not typically redundant. Maintenance activities at fuel cycle facilities are focused on assuring the reliability and availability of these IROFS. Thus, risk assessment and management activities do not involve Probabilistic Risk Assessment or other comparable tools. The SCUBA Team has evaluated the Work Control Safety Culture Component with these differences in mind.”

The SCUBA Team takes this opportunity to amplify the information provided on page 36 of the 2007 ISCA Results Report with the following:

- Commercial nuclear power plants operate for the intended purpose of providing continuity of power production and supply. As a result, surveillance testing and maintenance activities are routinely conducted while the plants are operating.
- Fuel cycle facilities, such as NFS-Erwin, routinely suspend operations over the weekend, during which most significant maintenance activities are conducted. This significantly reduces the risk and complexity associated with work planning and execution.

On page 37 of the 2007 ISCA Results Report, the SCUBA Team presented Finding OFI-WC-01 (with emphasis added):

“NFS-Erwin should implement a comprehensive Work Management System to provide an integrated, organization-wide process for identifying and prioritizing issues, planning the required work and associated resources, and executing the work in a safe and error-free manner. Objectives of this initiative should include:

- Improving equipment safety margin and reliability.
- Increasing the rigor, formality and management oversight of the work order process.
- Increasing organizational focus on reliability-centered maintenance.
- Eliminating the backlog of degraded equipment facilities, equipment and processes, and the associated operator work-arounds.

A benchmarking visit to the Westinghouse Columbia Fuel Fabrication Facility is recommended to start this effort. Interactions with INPO and manufacturing facilities having world-class maintenance programs are recommended as well.”

### Response

The SCUBA Team did not indicate that the attributes associated with the Work Control Safety Culture Component (as set forth in NRC RIS 2006-13) are not applicable to NFS-Erwin. The SCUBA Team’s statements provided on pages 5 and 36 were intended to convey that it would not be appropriate to directly apply commercial nuclear power plant industry standards and expectations for some aspects of work control (i.e., risk management) to the NFS-Erwin facility due to the inherent differences in the nature of the risks involved and the differences in the approaches taken for the design, operations and maintenance of such facilities. The SCUBA Team believes that the principle of effectively using risk management applies to both types of facilities; however, the manner in which that principle is effectively incorporated would be different.

## SCUBA TEAM RESPONSE TO NRC STAFF QUESTIONS

The SCUBA Team considered all of the Work Control cultural attributes set forth in NRC RIS 2006-13 during its assessment of the Work Control Safety Culture Component. This is clearly exemplified on pages 36 of the 2007 ISCA Results Report, in which the SCUBA Team expressed the following conclusions related to Work Control at NFS-Erwin:

“Work Control is an attribute of the NFS-Erwin safety culture that is considered to be an Opportunity for Improvement (OFI). Work Control performance is acceptable when compared to fuel cycle facility industry best practices, but is a noteworthy candidate for continuous improvement. It does not meet regulatory expectations in that existing processes have contributed significantly to the creation of a significant backlog of undocumented maintenance issues. This backlog has, in turn, contributed to (1) increased operator burdens/work-arounds, and (2) the use of compensatory measures that rely on manual actions and administrative controls.

In this regard, the SCUBA Team has concluded that:

- NFS does not have a comprehensive work management process/system to identify, prioritize, plan, schedule, manage risks and execute work. A work management system of the type described would (1) significantly improve equipment/process equipment reliability, safety margins and operating efficiency, and (2) support resolution of the backlog of degraded equipment issues that currently exists at NFS-Erwin site.
- The quality of work orders should be upgraded. Current documents are loosely worded and do not provide the degree of specificity needed to assure error-free implementation.
- The preventive maintenance program needs to be expanded. It is more reactive than proactive. There is little or no equipment performance monitoring or equipment life-cycle management; and reliability-centered maintenance is not a focal point for the organization.
- Industrial Safety oversight of site activities needs to be improved for the specific purpose of providing enhanced reinforcement of safety requirements. This is particularly important for contractor activities performed outside the Material Access Area (MAA).”

[NOTE: SCUBA Team recommendations related to these conclusions are primarily provided in Finding OFI-WC-01. Certain aspects of these recommendations were also addressed in SCUBA Team Findings AFI-RES-01, AFI-RES-03 and AFI-RES-04.]

In terms of industry comparisons, the SCUBA Team used the Westinghouse Columbia Fuel Fabrication Facility as its primary point of comparison. In this regard, the SCUBA Team was aware of that facility’s progress in applying (customizing) commercial nuclear power plant standards and processes for work management and control at its facility. As indicated in OFI-WC-01, the SCUBA Team recommended benchmarking at that facility.

## SCUBA TEAM RESPONSE TO NRC STAFF QUESTIONS

### NRC STAFF QUESTION #9

“Provide information as to how the over-arching themes and their groupings were determined. Detail the criteria that were used to determine the “most significant” findings of the over-arching themes.

The SCUBA report (p.10) discusses that the SCUBA team developed a set of nine major over-arching themes to organize, categorize and cross-correlate the individual findings from the assessment. It further discusses that using such an approach will help ensure that assigned corrective action issue owners are aligned and can effectively coordinate their efforts with co-workers who are working on similar broad themes within different Safety Culture Components.

The designation of an item as a “most significant” finding can be misleading since each of the over-arching themes has at least one “most significant” finding and the most significant finding under one theme may be less important than a finding under another theme that was not designated as “most significant”. A better understanding of what a “most significant” finding means is needed in determining the adequacy of the NFS prioritization plan.”

### SCUBA TEAM RESPONSE

#### Background

During the process of conducting the integrated analysis of the findings associated with each Safety Culture Component, the SCUBA Team determined that a number of interrelated cultural issues existed at the NFS-Erwin Site and that these should be organized within the context of a set of over-arching themes. The SCUBA Team also determined that it should identify the specific Findings that were related to each of these themes. In this regard, the SCUBA Team concluded that the use of these over-arching themes would be helpful to NFS in (1) understanding and communicating the inter-relationships between the individual Findings, and (2) ensuring that the actions taken to address interrelated Findings were appropriately coordinated. This led to the development of the nine over-arching themes that the SCUBA Team used to group the individual Findings.

It was also clear to the SCUBA Team that the large number of individual Findings would present a significant challenge to NFS unless the Findings were prioritized within their respective over-arching themes or groupings.

As stated on page 7 of the 2007 ISCA Results Report:

“The SCUBA Team recognizes that:

- The individual Findings are not all equal in importance and/or urgency.
- There are significant variations in the nature and level of effort that will be necessary to address individual Findings.

As specified in the 2007 ISCA Assessment Plan, the SCUBA Team has developed recommendations on the relative priority of the identified Findings. To facilitate this process, the SCUBA Team developed and used a set of nine major themes to organize, categorize and cross-correlate the individual Findings.

## SCUBA TEAM RESPONSE TO NRC STAFF QUESTIONS

Although this approach and the results of its application are subject to interpretation, it is suggested that the site leadership adopt either this approach or a similar binning process to evaluate and address the Findings. The SCUBA Team believes that such an approach will help to ensure that assigned corrective action issue owners are aligned and can effectively coordinate their efforts with co-workers who are working on similar broad themes within different Safety Culture Components.”

In identifying the “most important Findings”, the SCUBA Team took a number of factors into consideration, including:

- Failure to meet regulatory requirements is more important than failure to meet regulatory expectations
- Failure to meet industry norms is more important than failure to meet industry best practices (That is, not all AFIs are of equal importance)
- The relative importance of addressing the identified Findings, including such considerations as the nature and significance of the identified gaps in safety culture and safety performance associated with each Finding.
- The relative urgency of addressing the identified Findings, including such considerations as the nature and significance of the identified gaps in safety culture and safety performance associated with each Finding.
- The relative sequence of addressing the identified Findings, including such considerations as focusing initially on key “building blocks” for improvement
- The resource required to address each Finding and how that would likely affect the ability of NFS to successfully address multiple Findings simultaneously (That is, some Findings have more resource impacts than others)

The SCUBA Team’s approach to identifying the “most significant Findings” included all of the above-mentioned considerations and the SCUBA Team’s recommendations were arrived at through extensive collegial discussion, which drew upon the knowledge, experience and judgment of each member of the Team.

The SCUBA Team recognizes that it is certainly possible that others – such as NFS management or the NRC Staff – may arrive at a different set of priorities and recommendations based on their perspective on the relative importance of the Findings.

## SCUBA TEAM RESPONSE TO NRC STAFF QUESTIONS

### NRC STAFF QUESTION #10

“Provide the basis for not addressing issues identified in the supplemental evaluations within the overall safety culture assessment.

The SCUBA conducted supplemental evaluations of a number of areas as specified in their assessment plan. These additional reviews included: Adequacy of Corrective Actions in Response to violations listed in the Confirmatory Order (Att. A); Outlier Organization Interview Results (p. 103); Adequacy of Actions Related to Commitments made during a meeting with NRC (Att. B); Adequacy of Corrective Actions associated with Configuration Management (Att. C); In-Process Recommendations (Att. E). In many cases, the SCUBA team assigned AFI/ANA/OFI criteria to these reviews. Since these supplemental evaluations identified issues dealing with safety culture, an understanding is needed as to why they were not specifically addressed in the safety culture component write-ups, the AFI/ANA/OFI designations, and the nine over-arching themes and associated “most significant” determinations.”

### SCUBA TEAM RESPONSE

#### Background

As required by the NRC Confirmatory Order, three “supplemental evaluations” were conducted by the SCUBA Team as part of the 2007 ISCA. These were:

- An assessment of the adequacy of the corrective actions taken (or planned) by NFS to address the specific NRC Notifications of Violations identified in the Order
- An assessment of the adequacy of actions taken (or planned) by NFS with respect to the commitments made by NFS at the management meeting with the NRC on September 18, 2006
- An assessment of the adequacy of actions taken (or planned) to address needed improvements related to configuration management)

The results of these discrete assessments are provided in Attachments A, B and C to the SCUBA Team’s 2007 ISCA Report, respectively.

As indicated in the SCUBA Team’s Assessment Plan for the 2007 ISCA, the SCUBA Team envisioned the possibility that it might provide NFS management in-process recommendations during the conduct of the 2007 ISCA. The SCUBA Team committed to document any such in-process recommendations and has done so in Attachment E to the 2007 ISCA Results Report.

#### Response

As shown in detail below, all issues identified in the “supplemental evaluations” were specifically addressed within the overall safety culture assessment.

Also as shown in detail below, all issues associated with the SCUBA Team’s “in-process recommendations” to NFS management were specifically addressed within the overall safety culture assessment.

## SCUBA TEAM RESPONSE TO NRC STAFF QUESTIONS

With respect to Attachment A, the SCUBA Team developed and documented one Finding (AFI-NOV-01). In the text of this Finding, it was specifically cross-correlated to Finding AFI-CAP-03. Similarly in the 2007 ISCA Results Report, Finding AFI-CAP-03 was specifically cross-correlated to Finding AFI-NOV-01. The intent of these cross-correlations was to incorporate the respective Findings by reference. Finding AFI-CAP-03 is identified as a “most significant Finding” under the over-arching theme of “Enhance Effectiveness of Programs and Processes” (refer to page 12 of the 2007 ISCA Results Report).

With respect to Attachment B, the SCUBA Team developed and documented one Finding (AFI-RCC-01). In the text of this Finding, it was specifically cross-correlated to Finding AFI-CAP-02. [NOTE: This was a typo, as the correct cross-correlation was to Finding AFI-CAP-04.] In the 2007 ISCA Results Report, Finding AFI-CAP-04 was specifically (and correctly) cross-correlated to Finding AFI-RCC-01. The intent of these cross-correlations was to incorporate the respective Findings by reference. Finding AFI-CAP-04 is identified as a Finding grouped under the over-arching theme of “Enhance Effectiveness of Programs and Processes” (refer to page 12 of the 2007 ISCA Results Report).

The evaluation documented in Attachment B also led to the development of Finding AFI-ACC-02, which was related to management ownership and accountability for the quality and timeliness of responses to regulatory commitments. Finding AFI-ACC-02 is identified as a Finding grouped under the over-arching theme of “Enhance Effectiveness of Programs and Processes” (refer to page 12 of the 2007 ISCA Results Report).

With respect to Attachment C, the SCUBA Team developed and documented three Findings.

- AFI-CM-01: In the text of this Finding, it was specifically cross-correlated to Finding AFI-RES-04. In the 2007 ISCA Results Report, Finding AFI-RES-04 was specifically cross-correlated to Finding AFI-CM-01. The intent of these cross-correlations was to incorporate the respective Findings by reference. Finding AFI-RES-04 is identified as a “most significant Finding” under the over-arching theme of “Resourcing for Success” (refer to page 12 of the 2007 ISCA Results Report).
- AFI-CM-02: In the text of this Finding, it was specifically cross-correlated to Finding AFA-RES-04. [NOTE: This was a typo, as the correct cross-correlation should have been to Finding ANA-CAP-01.] In the 2007 ISCA Results Report, Finding AFI-RES-04 was specifically (and incorrectly) cross-correlated to Finding AFI-CM-02. As noted, the correct correlation should have been to ANA-CAP-01. [NOTE; NFS noted this error in the “crosswalk” it developed for the NFS SCII and made the correct correlation.] The intent of these cross-correlations was to incorporate the respective Findings by reference. Finding ANA-CAP-01 is identified as a Finding grouped under the over-arching theme of “Enhance Effectiveness of Programs and Processes” (refer to page 12 of the 2007 ISCA Results Report).
- AFI-CM-03: In the text of this Finding, it was specifically cross-correlated to Finding OFI-CLE-01. In the 2007 ISCA Results Report, Finding OFI-CLE-01 was specifically cross-correlated to Finding AFI-CM-03. The intent of these cross-correlations was to incorporate the respective Findings by reference. Finding OFI-CLE-01 is identified as a Finding grouped under the over-arching theme of “Resourcing for Success” (refer to page 12 of the 2007 ISCA Results Report).

## SCUBA TEAM RESPONSE TO NRC STAFF QUESTIONS

With respect to Attachment E, the “in-process” recommendations provided to NFS management either (1) were considered to be complete based on actions taken by NFS or (2) were specifically reflected in specific Findings documented in the 2007 ISCA Results Report. Since Attachment E was informational in purpose, the SCUBA Team did not see the need to provide cross-references to the specific Findings in the 2007 ISCA Results Report that directly addressed the “in-process” recommendations. For the sake of completeness of this response, such a cross-correlation is provided below.

- In-Process Recommendation: Adopt an approach to Nuclear Oversight that included both “compliance-based” and “performance-based” oversight and assessment activities. Refer to Finding AFI-SA-01 on page 64 of the 2007 ISCA Results Report. Finding AFI-SA-01 was identified as a “most significant Finding” under the over-arching theme “Focus on Continuous Improvement” (refer to page 13 of the 2007 ISCA Results Report).
- In-Process Recommendation: Create a new senior management position to serve as the leader of the Nuclear Oversight function with that position/function reporting directly to the NFS Chief Executive Officer. NFS accepted this recommendation and created and filled this position. Based on that action, the SCUBA Team did not develop a Finding on this subject.
- In-Process Recommendation: Develop an overtime policy that appropriately addresses FFD fatigue considerations. Refer to Finding ANA-RES-01 on page 30 of the 2007 ISCA Results Report. Finding ANA-RES-01 was identified as a Finding grouped under the over-arching theme of “Organizational Values, Standards and Expectations” (refer to page 11 of the 2007 ISCA Results Report). [NOTE: The SCUBA Team characterized this Finding as an ANA rather than as an AFI on the basis of its understanding that issuance of an appropriate policy in this area was imminent.]
- In-Process Recommendation: The individual assigned overall project management responsibility for the RFS project should be relieved of other concurrent responsibilities. NFS accepted this recommendation and took action accordingly. Based on that action, the SCUBA Team did not develop a Finding on this subject.
- In-Process Recommendation: Establish an Employee Concerns Program. Refer to Finding AFI-ERC-01 on page 69 of the 2007 ISCA Results Report. Finding AFI-ERC-01 was identified as a “most significant Finding” under the over-arching theme “Enhance Effectiveness of Programs and Processes” (refer to page 12 of the 2007 ISCA Results Report). Finding AFI-RES-04 also applies to this topic with respect to staffing the Employee Concerns Program. Finding AFI-RES-04 is identified as a “most significant Finding” under the over-arching theme of “Resourcing for Success” (refer to page 12 of the 2007 ISCA Results Report).
- In-Process Recommendation: Augment resources supporting the implementation of the NFS-Erwin Corrective Action Program. Refer to Finding AFI-RES-04 on page 29 of the 2007 ISCA Results Report. Finding AFI-RES-04 is identified as a “most significant Finding” under the over-arching theme of “Resourcing for Success” (refer to page 12 of the 2007 ISCA Results Report).
- In-Process Recommendation: Augment resources supporting the implementation of the NFS-Erwin Industrial/Personnel Safety Program. Refer to Finding AFI-RES-04 on page 29 of the 2007 ISCA Results Report. Finding AFI-RES-04 is identified as a “most significant Finding” under the over-arching theme of “Resourcing for Success” (refer to page 12 of the 2007 ISCA Results Report).

## SCUBA TEAM RESPONSE TO NRC STAFF QUESTIONS

- In-Process Recommendation: Augment resources to implement the “compliance-based” Quality Assurance organization and add resources to implement a “performance-based” Nuclear Oversight function. Refer to Finding AFI-RES-04 on page 29 of the 2007 ISCA Results Report. Finding AFI-RES-04 is identified as a “most significant Finding” under the over-arching theme of “Resourcing for Success” (refer to page 12 of the 2007 ISCA Results Report).
- In-Process Recommendation: Augment engineering resources to ensure increased availability of process and project engineers. Refer to Finding AFI-RES-03 on page 29 of the 2007 ISCA Results Report. Finding AFI-RES-03 is identified as a Finding grouped under the over-arching theme of “Resourcing for Success” (refer to page 12 of the 2007 ISCA Results Report).
- In-Process Recommendation: Hire a qualified leader for the NFS Human Performance Program. Refer to Finding AFI-WP-01 on page 42 of the 2007 ISCA Results Report. Finding AFI-WP-01 is identified as a “most significant Finding” under the over-arching theme of “Human Performance Challenges” (refer to page 11 of the 2007 ISCA Results Report).
- In-Process Recommendation: Allocate resources necessary for the implementation of a supervisor/manager leadership training program. Refer to Finding AFI-CLE-03 on page 87 of the 2007 ISCA Results Report. Finding AFI-CLE-03 is identified as a Finding grouped under the over-arching theme of “Organizational Values, Standards and Expectations” (refer to page 11 of the 2007 ISCA Results Report).
- In-Process Recommendation: Evaluate the adequacy of current Health Physics staffing in light of attrition. There was no specific SCUBA Team Finding in this area. The in-process recommendation was advisory in nature.
- In-Process Recommendation: Evaluate the adequacy of operations staffing in light of then-current high levels of overtime. There was no specific SCUBA Team Finding in this area. The in-process recommendation was advisory in nature. However, this recommendation is correlated to Finding ANA-RES-01 on page 30 of the 2007 ISCA Results Report. Finding ANA-RES-01 was identified as a “Finding grouped under the over-arching theme of “Organizational Values, Standards and Expectations” (refer to page 11 of the 2007 ISCA Results Report). [NOTE: The SCUBA Team characterized this Finding as an ANA rather than as an AFI on the basis of its understanding that issuance of an appropriate policy in this area was imminent.]
- In-Process Recommendation: Evaluate augmenting engineering resources, including but not limited to providing support for resolution of HVAC issues. Refer to Finding AFI-RES-03 on page 29 of the 2007 ISCA Results Report. Finding AFI-RES-03 is identified as a Finding grouped under the over-arching theme of “Resourcing for Success” (refer to page 12 of the 2007 ISCA Results Report).
- In-Process Recommendation: Increase the focus of recruiting activities to fill currently open positions. There was no specific SCUBA Team Finding in this area based on subsequent progress achieved by NFS in filling open positions.
- In-Process Recommendation: Conduct an inventory of currently exiting operator burdens/work-arounds and other degraded conditions, and dedicate resources to aggressively work them off. Refer to Finding AFI-RES-01 on page 28 of the 2007 ISCA Results Report. Finding AFI-RES-01 is identified as a “most significant Finding” under the over-arching theme of “Eliminate Tolerance for Degraded Conditions” (refer to page 13 of the 2007 ISCA Results Report).

## SCUBA TEAM RESPONSE TO NRC STAFF QUESTIONS

- In-Process Recommendation: Evaluate the readiness (personnel and material) of the NFS Emergency Brigade. Refer to Finding OFI-RES-01 on page 30 of the 2007 ISCA Results Report. Finding OFI-RES-01 is identified as a Finding grouped under the over-arching theme of “Resourcing for Success” (refer to page 12 of the 2007 ISCA Results Report).
- In-Process Recommendation: Evaluate working conditions at the NFS firing range. This was identified as a Finding, which is unique to the security organization, in the separate Classified Report related to nuclear material security. The characterization of the significance of that Finding is provided in the Classified Report.
- In-Process Recommendation: Assign ownership and accountability to a single person for design and coordination of the implementation of an NFS Operating Experience Program. Refer to Finding AFI-OE-01 on page 58 of the 2007 ISCA Results Report. Finding AFI-OE-01 is identified as a Finding grouped under the over-arching theme of “Focus on Continuous Improvement” (refer to page 13 of the 2007 ISCA Results Report).
- In-Process Recommendation: Evaluate and address the reasons underlying high levels of attrition in Security. This was identified as a Finding, which is unique to the security organization, in the separate Classified Report related to nuclear material security. The characterization of the significance of that Finding is provided in the Classified Report.
- In-Process Recommendation: Evaluate changing the Maintenance organization’s reporting relationship from Engineering to Operations. Refer to Finding OFI-RES-02 on page 30 of the 2007 ISCA Results Report. Finding OFI-RES-03 was identified as a “Finding grouped under the over-arching theme of “Organizational Values, Standards and Expectations” (refer to page 11 of the 2007 ISCA Results Report).
- In-Process Recommendation: The SCUBA Team briefed the NFS GM on the status of the NFS-Erwin Configuration Management Program – in particular the impact that the lack of resources was having on the schedule milestone dates. Refer to Finding AFI-RES-04 on page 29 of the 2007 ISCA Results Report. Finding AFI-RES-04 is identified as a “most significant Finding” under the over-arching theme of “Resourcing for Success” (refer to page 12 of the 2007 ISCA Results Report).

## SCUBA TEAM RESPONSE TO NRC STAFF QUESTIONS

### NRC STAFF QUESTION #11

“Provide an explanation as to how the results of the evaluation of “Outlier Organizations” were incorporated (or reasons why they were not incorporated) into the overall Independent Safety Culture Assessment.

The SCUBA team report (p. 103) discusses the Outlier Organizations as identified by low numerical ratings for key cultural metrics in the survey results. The SCUBA team designated them as either Priority 1 or Priority 2 in terms of recommended action levels (i.e., potential need for remedial action in the immediate future [Priority 1] or near-term [Priority 2]). The SCUBA team recommended that NFS management take remedial action with four of the Outlier Organizations to resolve the issues identified, and provided separate reports detailing its findings to NFS management. It is not evident how these findings were considered in the overall safety culture assessment, the safety culture component supporting information, the nine over-arching themes, and the “most significant” findings determination. Since the results were linked to low ratings on key cultural metrics, it is not clear why these results would not be incorporated into the safety culture assessment, but would be dealt with separately.”

### SCUBA TEAM RESPONSE

#### Background

(Repeated from the response to Question #3)

The NFS workforce survey was conducted for NFS and the SCUBA Team by SYNERGY Consulting Services Corporation. A number of NFS-Erwin individual Functional Organizations were identified by SYNERGY as Priority Level 1 and 2 “organizational outliers” based on the low workforce survey numerical ratings of key cultural metrics (i.e., the Overall NSC rating and the Overall SCWE rating) that they provided. The methodology used in identifying organizational outliers is proprietary to SYNERGY.

Based on the results of the 2007 NFS-Erwin workforce survey, SYNERGY identified five Priority Level 1 outlier organizations and two Priority Level 2 outlier organizations:

- BLEU Complex Operations (NFS Only) – Priority Level 1
- Analytical Services – Priority Level 1
- Health Physics (including Radiation Monitoring & Nuclear Measurements) – Priority Level 1
- Transportation & Waste Management – Priority Level 1
- HEU Fuel Production – Priority Level 1
- BPF Operations – Priority Level 2
- Other Operations Support – Priority Level 2

Absent the results of any further evaluation of the underlying reasons for the low numerical ratings, SYNERGY recommended that Priority Level 1 outlier organizations be considered as localized AFIs and that Priority Level 2 outlier organizations be considered as localized ANAs.

[NOTE: Base on SYNERGY’s experience, evaluations of the underlying reasons for the low numerical ratings in “outlier organizations” can (and frequently do) result in changes to the initial Priority Level assignments.]

## SCUBA TEAM RESPONSE TO NRC STAFF QUESTIONS

The results of the NFS-Erwin workforce survey were provided to the SCUBA Team for further evaluation. The SCUBA Team conducted an evaluation of the Priority Level 1 and 2 “outlier organizations” using three primary sources of input:

- The detailed workforce survey numerical survey ratings of key cultural metrics and individual safety culture attributes provided by each of the “outlier organizations”.
- The confidential workforce survey write-in comments provided by personnel from within each of the “outlier organizations”.
- Structured confidential personnel interviews with a randomly-selected set of individuals from within each of the “outlier organizations”.

The focus of the SCUBA Team’s evaluation was to determine (1) the underlying reasons for the low workforce survey numerical ratings and (2) whether any remedial action unique to each outlier organization was warranted. With respect to the former, of particular interest was whether the underlying reasons were based on NSC or SCWE related concerns or on concerns related to the general work environment and/or leadership, management and supervisory behaviors and practices. With respect to the latter, of particular interest was whether additional localized actions were needed above and beyond the Site-wide actions recommended by the SCUBA Team as set forth in its 41 Site-wide 2007 ISCA Findings.

The results of the SCUBA Team’s evaluations are summarized on page 103 of the 2007 ISCA Results Report, and unique remedial actions are recommended and detailed for four of the seven outlier organizations on page 104 of the Report under Finding ANA-LOC-01. Additional detailed evaluation results for each of the seven originally identified outlier organizations were provided to NFS on a confidential CD-ROM.

[NOTE: The detailed information is considered to be confidential in nature since it is based in part on confidential personnel interviews.]

### Response

The concept of “outlier organizations” includes the following elements:

- An “outlier organization” is one that stood out from the rest of the NFS-Erwin Site organizations based on providing low workforce survey numerical ratings for key cultural metrics.
- For “outlier organizations”, there is an initial premise that there may be unique or significantly exacerbated situations existing within the “outlier organizations” that have caused the low workforce survey ratings and that further localized evaluation is needed to understand the situation so that, if applicable, localized corrective actions unique to an “outlier organization” are identified and implemented.

As noted in the background section above, the SCUBA Team’s evaluation of the “outlier organizations” was focused on (1) determining if there were any unique, localized factors influencing the numerical survey results provided by those specific organizations and (2) determining if additional localized actions were needed above and beyond the Site-wide actions recommended by the SCUBA Team as set forth in its 41 Site-wide 2007 ISCA Findings.

Since the SCUBA Team’s evaluation of the “organizational outliers” determined that the issues and associated recommended corrective actions were localized and unique to the individual “outlier organizations” and were above and beyond the Site-wide actions recommended by the

## SCUBA TEAM RESPONSE TO NRC STAFF QUESTIONS

SCUBA Team as set forth in its 41 Site-wide Findings, the recommended actions set forth in ANA-LOC-01 are considered to be stand-alone in nature.

Sixty-five structured confidential personnel interviews were conducted with individuals in the "outlier organizations". The information obtained through those interviews was reviewed by the SCUBA Team collectively for the explicit purpose of determining whether the SCUBA Team's Site-wide Findings should be changed in any way (including the identification of any new Site-wide Findings). That is, the information obtained from those personnel interviews was processed as an additional source of assessment input.

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ACF-08-0308

ATTACHMENT 2

NFS Response to NRC Questions Regarding the  
Comprehensive Safety Culture Improvement Initiative  
(CSCII)

(19 pages)

**NFS RESPONSE TO NRC QUESTIONS REGARDING THE  
COMPREHENSIVE SAFETY CULTURE IMPROVEMENT INITIATIVE  
(CSCII)**

12. **NRC Question:** Explain why NFS did not provide an evaluation of the findings from the SCUBA member's review of the security program. Explain how NFS considered the security findings in the overall assessment of NFS' CSCII.

Although recommendations were developed and placed in the Crosswalk for these security findings, information is needed on how NFS considered these findings within the overall context of the NFS' CSCII.

**NFS Response:** SCUBA team findings in the security program area were treated in the same manner as other SCUBA team identified findings and were integrated into NFS' Safety Culture Initiatives. Safety culture assessments are inherently cross-cutting and encompass all safety, safeguards, and operational areas. Security program findings were evaluated, prioritized, concurred in, entered into the corrective action program, and integrated into the NFS response to the NRC on the SCUBA report and the NFS crosswalk.

13. **NRC Question:** Provide information on how NFS is meeting the most significant challenges as identified by the SCUBA team.

The SCUBA report (p. 9) states that the most significant challenges for NFS are “(1) convince the organization of the need to change; (2) develop and implement an effective action plan; (3) ensure that the appropriate resources are made available, effectively deployed, and steadfastly reinforced by NFS management.” Since these are high-level, over-arching conclusions, it is of utmost importance that NFS ensures it does not lose sight of these challenges when working on the individual pieces of the safety culture improvement program. Information is needed on which specific CSCII Plan actions or activities address challenges #1 and #3, and on the process used in developing the NFS CSCII Plan and its associated activities.

**NFS Response:** NFS’ Safety Culture Strategic Plan was developed to address the most significant findings identified by the SCUBA Team. For example, while NFS safety culture has been one of regulatory compliance, NFS management acknowledges the importance of taking the necessary steps to strengthen our safety culture and move to an environment of regulatory excellence, where NFS is constructively dissatisfied with the status quo and works to continuously improve in all areas of plant operations. This commitment is highlighted in NFS’ Safety Culture Strategic Plan by the General Manager’s vision for NFS: “Within the next four years<sup>1</sup>, all NFS employees will demonstrate excellence in everyday safety resulting in an organizational Safety Culture recognized by stakeholders as a standard in the nuclear industry.”

The importance of improving its safety culture is clearly communicated and reinforced in all that NFS does. As discussed in NFS’ Safety Culture Strategic Plan, NFS has implemented an integrated, multi-channel, internal and external communications plan organized around the 13 safety culture components to provide relevant and timely information to the public and employees on the success of safety culture initiatives.

To aid NFS management in executing its Safety Culture Strategic Plan, evaluating the Plan’s effectiveness, and ensuring resources are adequate to achieve the Plan’s results, NFS has fundamentally changed the way the company is managed. The NFS planning and execution process developed for the Safety Culture Improvement Initiative has been expanded to include the entire NFS business plan. For the upcoming year, business results and safety culture initiatives are identified in One-Page Plans for senior management that contain strategies for achieving results, specific metrics to evaluate progress and

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<sup>1</sup> Before the end of the year 2011

determine success, and dates for when actions will be accomplished. Responsibility for delivering business and safety culture results in One-Page Plans flow down three or four levels in the organization. Monthly execution meetings are used to review One-Page Plans, the adequacy of resources, performance metrics, and the effectiveness of actions taken. Exceptions to plan are identified and adjustments to One-Page Plans are made, as appropriate. Daily, NFS senior management meets to review and discuss employee identified safety items and other items entered into the NFS corrective action program. In daily meetings, senior management assigns corrective actions for employee identified problems and reviews problem reporting for trends and safety culture significant items. Effectiveness of corrective actions is solicited from the employee who reported the problem as well as from other employees who were involved in the event. In addition, an independent assessment of the effectiveness of corrective actions is performed on a selective basis when appropriate for the action taken. Information from the effectiveness of corrective actions is permanently maintained. From this rigorous process, daily feedback on the adequacy of resources, effectiveness of corrective actions, and reinforcement of safety culture expectations is accomplished by senior management.

At each of these opportunities for engagement: annual, monthly, and daily, senior management reinforces the most significant challenges, assesses actions, and provides feedback and course correction, if necessary.

NFS recognizes that to be successful in strengthening its safety culture, teamwork between labor and management is required. The United Steelworkers Local 9-677 are actively participating in safety culture improvement initiatives by embracing Human Performance Initiatives and proactively reporting safety items in the NFS problem identification system.

NFS is keenly focused on ensuring adequate resources to accomplish safety culture improvement initiatives and acknowledges that improvements in safety culture will need to be demonstrated during the NRC inspection process.

14. **NRC Question:** Provide information on all the differences and their bases between the SCUBA recommendations and CSCII Plan activities, priorities, and/or schedule (e.g., AFI-CAP-01, OFI-CLE-01, AFI-OCM-01).

NFS' CSCII plan differs from the SCUBA recommendations in several places. Since the SCUBA recommendations were a result of their ISCA, the basis for the differences is not clear.

**NFS Response:**

**AFI-CAP-01:** The SCUBA Team identified that the NFS corrective action program (CAP) called PIRCS, is not currently being used to record every issue or problem identified at the NFS Site. As a suggestion, the SCUBA Team recommended changes to temporarily limit the scope of PIRCS to only safety-related programs, processes, procedures and equipment and regulatory commitments. Once sufficient performance with a limited scope PIRCS system is achieved, PIRCS could be expanded to other areas. NFS is committed to fixing the underlying problems identified by the SCUBA team and has evaluated this suggestion. NFS considers that a more effective strategy is to not limit the scope of PIRCS but to improve the management of items in the system, thus reinforcing management's expectation for documenting all problems in PIRCS.

**OFI-CLE-01:** The SCUBA Team acknowledged NFS' Training Program is acceptable when compared to industry best practice but recommended some training program enhancements for continuous improvement. NFS will implement the SCUBA Team recommendations and is evaluating one recommendation for applicability—the recommendation to establish a Curriculum Review Committee and Training Review Council to mirror industry best practices. If this recommendation is applicable to NFS, NFS will implement it.

**AFI-OCM-01:** The SCUBA team identified that NFS does not have a formal organizational change management process and major changes are not consistently or effectively communicated throughout the organization. The SCUBA Team made several recommendations to improve in this area. NFS will implement the SCUBA recommendations.

15. **NRC Question:** Describe the process, criteria, and justification that NFS used for defining priority levels (VH, H, M, and L) and assigning priorities and completion dates to items in the Crosswalk.

A review of the Crosswalk items showed that the listed priorities are not always aligned with the "most significant" and other designations of the findings in the SCUBA report. The SCUBA team's designations are based on comparisons to industry best practices (per NFS' direction). A review of the definitions of the various priority levels shows that priorities are based first on an item's impact on improving the Configuration Management and/or Procedural Compliance Programs, and secondarily to other Safety Culture components. The definitions also include targeted completion or implementation dates associated with each level (VH targeted for 2008, H for 2009, M for 2010 and L for 2011).

**NFS Response:** The relative importance of issues and actions was established by the SCUBA Team recommendations. However, the priority levels used by NFS (VH, H, M, L) are based on NFS' evaluation of the timing and resources necessary to accomplish the actions and are used by NFS to identify when actions will be complete. For example, near-term actions that will be complete in 2008 are labeled Very High (VH). Even if an action was very important, if the earliest possible completion date for an action were 2009, NFS would label the action a High (H) Priority. Therefore, priority levels assigned by NFS do not necessarily imply significance. NFS acknowledges the confusion this taxonomy created and should have better explained its methodology.

16. **NRC Question:** Describe how the three recommendations in the Crosswalk related to SCUBA Report Attachment G, were determined to have an OFI designation, and how their priority was determined.

The recommendations in Attachment G of the SCUBA report, “Reference List for Industry Best Practices” were not given AFI/ANA/OFI designations by the SCUBA team. The NFS CSCII Crosswalk rolls up the findings in Attachment G of the SCUBA Report into three recommendations related to; information collection, benchmarking, and training. The Crosswalk gives each of these three recommendations an OFI designator. One of these (OFI-REF-01) is listed as Very High priority. The other two (OFI-REF-02 and OFI-REF-03) are listed in the Crosswalk as Medium priority and they relate to SCUBA findings designated as AFIs (AFI-DEC-01-003 and AFI-CAP-03 respectively). Hence, it is not clear why the three recommendations were given an OFI designation or how their priority was determined.

**NFS Response:** The SCUBA team identified issues in three levels of importance (from highest-to-lowest): AFI/ANA/OFI. The SCUBA Team did not characterize recommendations of lesser importance, such as those from Attachment G. NFS decided to elevate the SCUBA Report Attachment G recommendations to an OFI designation—the lowest level of importance identified by the SCUBA Team. NFS considered an OFI designation for Attachment G recommendations to be conservative and consistent with the rest of the SCUBA Report. As discussed in NFS’ response to NRC Question #15, the priority levels used by NFS (VH, H, M, L) are based on the timing and resources necessary to accomplish the actions and are used by NFS to identify when actions will be complete. Priority levels assigned by NFS do not necessarily imply significance.

17. **NRC Question:** Explain how the prioritization process determined that all nine recommendations associated with the Corrective Action Program Effectiveness and Quality (AFI-CAP-03) were Medium priority and all six recommendations associated with the Operating Experience (AFI-OE-01, and 02) safety culture component were Low (4 ea.) or Medium (2 ea.) priority.

Nine recommendations from a SCUBA team finding were in the area of the effectiveness and quality of the Corrective Action Program. Although this finding was rated as an AFI and a "most significant" finding, all nine recommendations (split into 10 recommendations in the Crosswalk) associated with this finding were given a Medium priority. These recommendations center on improving the timeliness and quality of both event investigations and identified corrective actions which has been a significant problem in the past and was recognized by the SCUBA team to need a lot of attention.

Further, the OE recommendations are tied to the CAP issue in that they are addressing learning from and acting on internal and external operating experience.

**NFS Response:** Overall, like items were consolidated within a programmatic area for efficiency. Then a priority level was assigned considering SCUBA Team importance, resource availability, and the opportunity and time required for implementation. NFS agrees that improving the effectiveness and quality of the Corrective Action Program is very important. NFS also recognizes that the SCUBA Team's recommendations to improve the Corrective Action Program will involve significant resources and take considerable time. Because of the length of time required to realize the improvements, a Moderate (M) priority was assigned. As discussed in NFS' response to NRC Question #15, the priority levels used by NFS (VH, H, M, L) are based on the timing and resources necessary to accomplish the actions and are used by NFS to identify when actions will be complete. Priority levels assigned by NFS do not necessarily imply significance.

For Findings AFI-OE-01 and -02 which were not considered most significant by the SCUBA Team, NFS decided that Corrective Action Program improvements would be completed first. However, NFS acknowledges the importance of learning from operating experience and has agreed to consider accelerating the planned implementation of a more robust Operating Experience Program during the development of NFS' 2009 Safety Culture Strategic Planning Initiatives and 2009 One-Page Plans.

18. **NRC Question:** Provide a description of NFS' plans for addressing items in the Crosswalk that were not identified as "most significant" in the SCUBA report.

Section 4.3.5 of the NFS CSCII provides NFS' Progress and 2008 Plans Related to "Most Significant Findings" and states that NFS has focused near-term action on the 21 findings designated as "most significant." These descriptions give NRC a more complete understanding of NFS' direction in improving safety culture. However, some of the recommendations that were not designated as "most significant" were listed with VH or H priority in the NFS Crosswalk, thus indicating their relative importance from NFS' perspective. The items listed with M or L priorities are also of importance because they may help provide long-term sustainability of the safety culture improvement initiative. Information on how NFS plans to address all of the findings and recommendations not listed as "most significant" is needed beyond the limited information given in the Crosswalk.

**NFS Response:** NFS will implement and complete all actions identified in the crosswalk, including those items not identified as "most significant." All SCUBA Team findings and recommendations have been entered in PIRCS and will be tracked until completion. As discussed in NFS' response to NRC Question #15, the priority levels used by NFS (VH, H, M, L) are based on the timing and resources necessary to accomplish the actions and are used by NFS to identify when actions will be complete. Priority levels assigned by NFS do not necessarily imply significance.

Items not identified as "most significant" are entered in the NFS corrective action program with an action manager assigned, and detailed corrective action (when developed) will be available for inspection.

19. **NRC Question:** Because of the interrelatedness of many of the safety culture component findings and recommendations, provide details on how NFS will ensure coordination and communication with regard to their corrective actions.

**NFS Response:** As discussed in NFS' response to NRC Question #13, NFS has fundamentally changed its regulatory and safety philosophy and its approach to regulatory compliance. NFS' strategic business and safety culture planning processes have been integrated. For example, workshops held by senior management to develop the overall business plan for the year will now include safety culture improvement initiatives and are held to ensure alignment. Business results and safety culture initiatives are identified in One-Page Plans for senior management that contain strategies for achieving results, specific metrics and performance goals to evaluate progress and determine success, and dates for when actions will be accomplished. Responsibility for delivering business and safety culture results in One-Page Plans flow down three or four levels in the organization. Individual plans are then re-aligned in another workshop before they are finalized. Monthly execution meetings are used to review One-Page Plans, review coordination, the adequacy of resources, performance metrics, and the effectiveness of actions taken. Exceptions to plan are identified and adjustments to One-Page Plans are made, as appropriate. Weekly, senior management participates in an operations meeting which highlights deviations to plans and provides another opportunity for coordination and communication. Daily, NFS senior management meets to review and discuss employee identified safety items and other problems entered into the NFS corrective action program. In daily meetings, senior management assigns corrective actions for employee identified problems and reviews problem reporting for trends and safety culture significant items. Effectiveness of corrective actions is solicited from the employee who reported the problem as well as from other employees who were involved in the event. In addition, an independent assessment of the effectiveness of corrective actions is performed on a selective basis when appropriate for the action taken. Information from the effectiveness of corrective actions is permanently maintained. From this rigorous process, daily feedback on the adequacy of resources, effectiveness of corrective actions, and reinforcement of safety culture expectations is accomplished by senior management.

20. **NRC Question:** Provide information on how NFS will address specific program weaknesses described in each safety culture component write-up under "Supporting Information" in the SCUBA report that are not specifically addressed in the AFI, ANA, or OFI roll-up.

The SCUBA report systematically goes through each of the 13 safety culture components providing observations and examples of individual programmatic deficiencies, rolling them up to reach conclusions and recommendations. NFS provides commitments to implement these general recommendations, but does not always address the individual programmatic deficiencies. Information is needed on how NFS will address the individual programmatic deficiencies.

Examples include but are not limited to:

- The SCUBA report (pg. 34) states a number of observations and other process related documents revealed: that the current procedures are too detailed and clumsy to use in the field, and that it is difficult to make timely changes to procedures....the deficiencies in the procedure change process contributed to inconsistent procedure use. ...the resultant procedures were frequently impossible to implement without operator work-arounds or manual compensation.. This indicates that there are organizational contributors in addition to individual contributors to procedure non-compliance. Yet the focus appears to be on the individual procedure compliance (WP2) issue.
- The stated need/desire for additional training focused on the recognition and mitigation of criticality and radiation hazards. (SCUBA pg 31, last bullet)
- Consideration of a reliability-centered approach to preventive maintenance. (SCUBA pg 33)
- "...root cause analysis training has not been systematically administered in the past ten years; and there are no...re-qualification requirements for analysts or reviewers. No formal training is offered relative to the conduct of apparent cause evaluations." (SCUBA report, pg. 55);
- "Common cause investigations are inconsistent and not available yet in PIRCS options." (SCUBA report, pg. 60)
- Attachment B of the SCUBA report evaluates NFS' responses and efforts to close/complete the commitments made in the meeting at NRC HQ on 9/18/06.
- The SCUBA team found the NFS effort to develop and implement a common cause analysis for CAP was inadequate. (SCUBA report, Att. B)

**NFS Response:** The “Supporting Information” was added to the SCUBA Report for NFS to better understand the basis of SCUBA Team recommendations. NFS has assigned a responsible manager to address all issues identified by the SCUBA Team. These responsible managers have the “Supporting Information” available to them to better understand the basis of SCUBA Team recommendations and develop effective corrective actions that address root causes. “Supporting Information” provided by the SCUBA Team does not contain new issues that are not already addressed by SCUBA Team recommendations.

21. **NRC Question:** Provide information on how the 2008 Safety Culture Strategic Plan objectives, strategies, and action plans were identified and how they relate to the findings in the SCUBA report. Provide what metrics such as “increase,” “decrease,” “improve,” represent, i.e., what are the criteria? Provide information on how each of the performance-based metrics is tied to the SCUBA team findings or other identified deficiencies.

**NFS Response:** The Safety Culture Strategic Plan objectives, strategies, and action plans were developed from the NFS self-assessment. The NFS self-assessment was performed at the suggestion of the SCUBA team. The initial Safety Culture Strategic Plan identified most of the significant issues but was later updated based on findings from the SCUBA Report.

As discussed in NFS’ response to NRC Question #13, NFS’ strategic business and safety culture planning processes have been integrated. Each year, business results and safety culture initiatives are developed and identified in One-Page Plans for each member of the senior management team. Each One-Page Plan contains strategies for achieving results, specific metrics to evaluate progress and determine success, and dates for when actions will be accomplished. Responsibility for delivering business and safety culture results in One-Page Plans flow down three or four levels in the organization.

NFS acknowledges the importance of having specific and measurable performance metrics to provide management tools to evaluate the effectiveness of safety culture improvement initiatives. However, every SCUBA Team finding does not have a corresponding performance-based metric. NFS has identified objectives in One-Page Plans that contain performance-based metrics along with a specific performance goal to measure progress in most of the safety culture component areas but welcomes NRC feedback in this area.

Where available, metrics and related performance goals were developed based on benchmarking and industry guidance (e.g., INPO, etc.). Where not available, NFS historical performance was evaluated and a reasonably achievable improvement goal was set.

Some Examples of safety culture metrics in One-Page Plans and their relationship to SCUBA Team Finding are:

1. Decrease mean time to correct PIRCS items (Corrective Action Program items) by 30%. (AFI-CAP-03 — Corrective Action Program effectiveness and quality)
2. Increase number of employee identified safety items by 10% over 2007 levels. (AFI-CAP-02 — Remove Barriers to Problem Identification and Reporting)

NFS also acknowledges that the use of metrics should be balanced by sound management judgment. Over-reliance on metrics or over-emphasis on a specific metric can have the negative consequence of an indication of improvement, when none exists.

22. **NRC Question:** Provide information on how the NFS CSCII considered the nine over-arching themes in developing activities, priority and schedule to address the SCUBA report's findings.

The SCUBA report grouped findings under nine over-arching themes. Information is needed on how the NFS CSCII considered these groupings in terms of their connectedness relative to activities, priority and schedule. Or, if NFS used a different approach in handling related findings, provide information on that approach.

**NFS Response:** NFS used the NRC's 13 safety culture components to categorize NFS actions. The SCUBA Team used the nine overarching themes to provide insight into root causes and what corrective actions might be effective during the development of the NFS' Safety Culture Strategic Plan. NFS will consider evaluating safety culture performance relative to the nine themes in the upcoming 2010 independent assessment.

23. **NRC Question:** The NFS activities related to the results of the third party safety culture assessment and the action plan activities represent extensive organizational change. The SCUBA report designated an AFI in the Organizational Change Management safety culture component. Provide information on how NFS is using an improved change management process to address the activities resulting from the safety culture assessment.

**NFS Response:** NFS is committed to a robust organizational change management process. A comprehensive change management review was conducted in spring 2008 to assess the ability to manage the totality of change proposed for 2008. A comprehensive change management program is under development. In the interim as discussed in NFS' response to NRC Question #13, monthly execution meetings are used to review One-Page Plans, the adequacy of resources, performance metrics, and the effectiveness of actions taken. Exceptions to plan are identified and adjustments to One-Page Plans are made, as appropriate.

24. **NRC Question:** Provide information on how NFS is tracking all the activities to address the safety culture weaknesses (i.e., those in the crosswalk and others that are not specifically called out in the crosswalk).

**NFS Response:** All safety culture actions have been added to NFS' corrective action program and will be tracked until completed.

25. **NRC Question:** Provide any available documents referenced in the NFS CSCII. This would include the documents listed on page 14 of the CSCII and in the Action Plan column of the Crosswalk and NFS's classified response to the classified Scuba report on the NFS nuclear material security program. Provide any sub-tier documents that have been developed from those listed in the CSCII (e.g., those referenced in the one page plans). Also provide a copy of the last year's NFS Quarterly Safety index (NFS Consolidated Plan).

In order to conduct a thorough review of the adequacy of the safety culture program, NRC must have available documents that have been referenced as being relevant to the program. The NFS Comprehensive Safety Culture Improvement Initiative (p. 14) lists 21 documents that exist, are being considered for implementation, or are being planned relevant to safety culture improvements. The Action Plan column of the Crosswalk also lists a series of One Page Plans (one for each responsible manager) that would include a strategy for implementing the SCUBA team's recommendations. The Action Plan column of the Crosswalk also lists other documents that would be pertinent to NRC's review of the NFS Safety Culture program. Any other documents with the objective of implementing the NFS Safety Culture Improvement program or the recommendations of the SCUBA team that are developed from or referenced by those listed in the CSCII are also needed.

**NFS Response:** All applicable documents are available at the NFS site for review and inspection.

26. **NRC Question:** Provide an update of the information in the Action Plan column of the Crosswalk and provide information on how items that do not cite an Action Plan document will be implemented. Also update any other changes to the Crosswalk.

A number of items in the Crosswalk had either no entry in the Action Plan column or had incomplete document references.

**NFS Response:** The purpose of the crosswalk was to assist NFS management with detail and accountability of corrective actions. NFS does not intend for the crosswalk to be a “living” document. Rather, the NFS corrective action program will be used to track and report progress of safety culture items.

NFS acknowledges the usefulness of information contained in the crosswalk to assist NRC with coordinating their inspections. NFS will provide one additional update to the crosswalk. However, to avoid tracking completion dates in two systems (the corrective action program and the crosswalk), completion dates will be removed from the crosswalk. To facilitate NRC inspections, NFS will provide upon request, the same status reports used by NFS management to track the progress of safety culture improvement actions. The NFS generated report with the most current completion dates along with the crosswalk should provide NRC with sufficient information to coordinate future inspections.

27. **NRC Question:** Provide information on how NFS will ensure metrics listed in Table C-1 will not have unintended consequences. For example, the metric to reduce reportable safeguards events needs to factor self-identification and security/safeguards significance to the metric to prevent penalizing guards with questioning attitudes for reporting events.

**NFS Response:** The NFS problem reporting system is not prejudicial. On occasion, management personally thanks employees who report significant safety issues and rewards them (e.g., Good Catch Awards). Further, the key metric used by NFS employees is the Human Performance Event Clock, not specific metrics related to reducing reportable events. Nevertheless, NFS management will continue to evaluate the consequences of metrics for the identification of negative behaviors and take appropriate action as necessary.