DUKE ENERGY®

Kelvin Henderson
Vice President
Catawba Nuclear Station
803-701-4251

Duke Energy
CNO1VP | 4800 Concord Rd.
York, SC 29745

CNS-13-007
December 2, 2013

10 CFR 50.54 (f)

ATTN: Document Control Desk
U. S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Duke Energy Carolinas, LLC (Duke Energy)

Catawba Nuclear Station, Units 1 and 2
Docket Nos. 50-413 and 50-414
Renewed License Nos. NPF-35 and NPF-52

Subject: Response to Request for Additional Information Regarding the Seismic Hazard Walkdowns Associated With Near-Term Task Force Recommendation 2.3, Seismic Walkdowns

References:

1. NRC Letter, *Request for Information Pursuant to Title 10 of the Code of Federal Regulations 50.54(f) Regarding Recommendations 2.1, 2.3, and 9.3, of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident*, dated March 12, 2012, ADAMS Accession No. ML12053A340

2. Electrical Power Research Institute (EPRI) *Seismic Walkdown Guidance, For Resolution of Fukushima Near-Term Task Force Recommendation 2.3: Seismic, EPRI Report 1025286*, dated 2012, ADAMS Accession No. ML12188A031

3. Duke Energy Letter, *Duke Energy Carolinas, LLC (Duke Energy) Catawba Nuclear Station (CNS), Units 1 and 2, Docket Nos. 50-413 and 50-414, Renewed License Nos. NPF-35 and NPF-52, Response to NRC Request for Information Pursuant to Title 10 Code of Federal Regulations 50.54(f) Regarding the Seismic Aspects of Recommendation 2.3 of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi-Accident*, dated November 27, 2012

4. Duke Energy Letter, *Duke Energy Carolinas, LLC (Duke Energy) Catawba Nuclear Station (CNS), Unit 1, Docket No. 50-413, Response to NRC Request for Information Pursuant to Title 10 Code of Federal Regulations 50.54(f) Regarding the Seismic Aspects of Recommendation 2.3 of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident*, dated March 28, 2013, ADAMS Accession No. ML13162A092

5. NRC Letter, *Request for Additional Information Associated with Near-Term Task Force Recommendation 2.3, Seismic Walkdowns* dated November 1, 2013, ADAMS Accession No. ML13304B418

Ladies and Gentlemen:

On March 12, 2012, the Nuclear Regulatory Commission (NRC) staff issued a letter requesting information per Title 10 to the *Code of Federal Regulations*, Section 50.54(f) (i.e., Reference 1).

A001
NRR

The letter requested licensees to conduct seismic hazard walkdowns to verify current plant configuration with the current licensing basis (CLB).

Duke Energy Carolinas, LLC (Duke Energy) conducted the requested walkdowns using the NRC endorsed, Electric Power Research Institute (EPRI) guidance (i.e., Reference 2). Duke Energy submitted seismic walkdown reports for Catawba Nuclear Station (CNS) by letters dated November 27, 2012, and March 28, 2013, (i.e., References 3 and 4). By letter dated November 1, 2013, (i.e., Reference 5) the NRC has requested additional information related to the seismic walkdowns. The Duke Energy response for CNS is enclosed.

This letter contains no new regulatory commitments.

If you have any questions regarding this submittal, please contact Phil Barrett at (803) 701-4138.

I declare under penalty of perjury that the foregoing is true and correct. Executed on December 2, 2013.

Sincerely,

CHRIS KAMILAKIS for KELVIN HENDERSON

Kelvin Henderson
Vice President, Catawba Nuclear Station

Enclosure: Catawba Nuclear Station Response Units 1 and 2 to the NRC Request for Additional Information Regarding Seismic Walkdowns

xc (with enclosures):

V. M. McCree, Regional Administrator
U.S. Nuclear Regulatory Commission – Region II
Marquis One Tower
245 Peachtree Center Ave., NE Suite 1200
Atlanta, Georgia 30303-1257

J. C. Paige, Project Manager (CNS & MNS)
U.S. Nuclear Regulatory Commission
11555 Rockville Pike
Mail Stop 8 G9A
Rockville, MD 20852-2738

G. A. Hutto
NRC Senior Resident Inspector
Catawba Nuclear Station

J. Folkwein
American Nuclear Insurers
95 Glastonbury Blvd., Suite 300
Glastonbury, CT 06033-4453

Enclosure

Catawba Nuclear Station Units 1 and 2

Response to the NRC Request for Additional Information

Regarding Seismic Walkdowns

Enclosure

Catawba Nuclear Station Units 1 and 2

Response to the NRC Request for Additional Information

Regarding Seismic Walkdowns

NRC Question 1: Conduct of the walkdowns, determination of potentially adverse seismic conditions (PASCs), dispositioning of issues, and reporting

As a result of the audits and walkdown report reviews, the NRC staff noted that licensees' interpretations of the seismic walkdown guidance varied, which resulted in meaningful differences in the process used to disposition identified issues and in the documentation that was provided to the NRC staff. In particular, the application of engineering judgment in determining what constituted a potentially adverse seismic condition (PASC), the threshold for conducting licensing basis evaluations (LBEs), and determining what information was to be reported to the NRC staff varied.

The NRC staff intended that conditions initially marked No (N) or Unknown (U) in the field by the seismic walkdown engineers (SWEs) for which an analysis or calculation was performed would be considered as PASCs and that an analysis or calculation constituted an LBE. The walkdown guidance allows for analysis as part of engineering judgment; however, the intent was to allow for only simple analyses that could be readily performed in support of engineering judgment. Further, the walkdown activities were intended to allow for transparency in the licensee's process to demonstrate that PASCs were appropriately identified, that they were addressed in an appropriate manner, and the basis documented such that the current condition of the plant was clearly consistent with the CLB with regard to seismic capability.

During the audits, the NRC staff identified examples of field observations that were deemed not to be PASCs. However, the basis for the determination was not clearly recorded. In some cases, the field checklists were amplified by noting that the basis was engineering judgment. During site audit discussions, the staff was able to trace the basis for the engineering judgments and found that in many cases they were appropriate. It is expected that these situations would not be included in the walkdown report.

There were other situations that a PASC and LBE were not reported; however, the NRC staff found during the audit that a calculation, analysis (more than just simple), or evaluation was conducted but informally. An example is a confirmatory calculation performed to demonstrate that six anchor bolts out of eight was not a seismically adverse condition. Another example would be an analysis to demonstrate that an existing, slightly short weld was as seismically sound as the prescribed weld length in the plant design documentation. The staff expected these types of conditions and evaluations to be captured in the licensee's normal plant processes (e.g., condition report or corrective action program (CAP)), and also reported in the walkdown report, since they were potentially adverse seismic conditions that required more than applying judgment or simple analysis to address.

The NRC staff also found that the process that was used to deal with a field observation that was deemed to be a PASC was also not completely described or captured in the report. In many cases, the licensee reported that an LBE was not performed. However, during the audits, it was clear that an LBE (or an equivalent determination method) was performed and used in

determining whether a PASC should be entered into the CAP. The staff expects that these conditions would be reported in the walkdown report.

On the whole, through the audits, the NRC staff found that it was able to conclude that the intent of the guidance was met when the licensee's overall process was completely explained, the information was updated to reflect the actual process, and results were updated. The self-assessments conducted by the licensees of the audited plants also identified the lapse in the description of the process used by the licensee to identify a PASC and disposition it.

Therefore, in order to clarify the process that was followed, please provide a description of the overall process used by the licensee (and its contractors) to evaluate observations identified in the field by the SWEs. The process should include how a field observation was determined to be a PASC or not and how the bases for determinations were recorded. Once a determination was made that an observation was a PASC, describe the process for creating a condition report (or other tracking mechanism), performing the LBE (or other determination method), and the resultant action, such as entering it into the CAP, or documenting the result and basis.

Also, in order to confirm that the reported information supports concluding that the plant meets the CLB, please follow one of the following three acceptable alternatives:

(a) Provide a supplement to the table or text from the original walkdown report, if needed, to include similar conditions as the above examples and situations and for conditions for which a calculation, analysis (if more than a simple analysis), or evaluation was used for a determination. The supplement should include a short description of each condition, how it was dispositioned and the basis for the disposition, as follows: 1) for each condition that was entered into the CAP, provide the CAP reference number, initiation date, and (if known) the planned completion date, or 2) for all other conditions, provide the result of the LBE (or other determination method), the basis for the result, and how (or where) the result was captured in the plant's documentation or existing plant process.

(b) Following the plant's standard procedures, confirm that a new CAP entry has been made to verify if appropriate actions were taken when reporting and dispositioning identified PASCs (including conditions for which a calculation, analysis (if more than a simple analysis), or evaluation was used for a determination). The eventual CAP closeout, including the process followed and actions taken, should be in sufficient detail to enable NRC resident inspectors to follow up.

(c) If no new conditions are identified for addition to the supplement or the CAP entry mentioned above is deemed not necessary, provide a statement of confirmation that all potentially seismic adverse conditions (including conditions for which a calculation, analysis (if more than a simple analysis), or evaluation was used for a determination) identified during the walkdowns and walk-bys were addressed and included in the report to the NRC.

Catawba Nuclear Station Units 1 and 2

Response to the NRC Request for Additional Information

Regarding Seismic Walkdowns

Response to Question 1:

After reading the NRC's question, and reviewing the Duke Energy submittals, this response is in accordance with NRC Question 1(c), therefore, there are no new Potentially Adverse Seismic Conditions (PASC) to report because all PASC items were addressed and included in the prior submittals.

The following is the description of the process, as discussed in Section 4.0 of the Duke Energy March 28, 2013, submittal (i.e., Reference 4) and is applicable to the process used in both units:

- "The seismic walkdowns and area walk-bys were conducted in accordance with the guidance outlined in EPRI Report 1025286. The EPRI Seismic Walkdown Checklists (SWC)s were completed for each equipment item on the SWEL. The EPRI Area Walk-By Checklists (AWC)s were completed for areas/rooms associated with SWEL equipment."

- "The component seismic walkdown inspections were primarily focused on the identification of potentially degraded component anchorage conditions, and potentially adverse seismic interactions with surrounding SSCs. For the non-line mounted components, the visual inspections assessed whether the anchorage was degraded (e.g. bent, loose, broken, missing, corroded, localized concrete cracks). Additionally, for at least 50% of the non-line mounted components, the as-built field anchorage was verified to be consistent with design documentation."

- "The area walk-by inspections were performed for SWEL equipment areas. The area walk-bys assessed whether other surrounding equipment in the area/room (up to either 35' radius around SWEL component or the entire room containing the SWEL component) had potentially degraded anchorage, or whether the potential for adverse seismic interactions were present."

- "If the Seismic Walkdown Engineers (SWEs) determined a potentially adverse seismic condition existed, [using engineering judgment based on their experience and training with the EPRI Guidance (Section 5)], then the issue was entered into the corrective action program (CAP) to allow further engineering evaluation. The CAP engineering evaluation determined whether the potentially adverse seismic condition was degraded, unanalyzed, or non-conforming to the design and licensing bases."

Catawba Nuclear Station Units 1 and 2

Response to the NRC Request for Additional Information

Regarding Seismic Walkdowns

Section 5.0 of the Duke Energy March 28, 2013, submittal (i.e., Reference 4) contained the following paragraph. While the number of PASC varied, the following wording is also representative the information provided in Section 5.0 of the plant specific reports submitted in Reference 3:

- "As shown in Table 4-1 [of the submittal], a total of 40 potentially adverse seismic conditions were identified by the seismic walkdowns and area walk-bys. Also, one issue with the anchor bolts for 0YCPUCW1 was identified during the TI-188 walk-down inspection with the regional NRC inspector. All of the potentially adverse seismic conditions were entered into the Corrective Action Program (CAP). Engineering evaluation of each potentially adverse seismic condition concluded that the condition was in conformance with the current licensing bases. In some cases work requests or CAP ACTIONS were initiated to correct minor issues and/or to enhance field equipment clearances."

- "The potentially adverse seismic conditions and their individual Problem Investigation Process (PIP) tracking numbers are listed in the Unit 1 NTTF 2.3 Seismic Walkdown Summary Reports (Attachment 5A and Attachment 7A [Reference 4])."

NRC Question 2: Conduct of the Peer Review Process

As a result of the walkdown report reviews, the NRC staff noted that some descriptions of the peer reviewers and the peer review process that was followed were varied and, in some cases, unclear. In some cases, the staff could not confirm details of the process, such as if the entire process was reviewed by the peer review team, who were the peer reviewers, what was the role of each peer reviewer, and how the reviews affected the work, if at all, described in the walkdown guidance.

Therefore, in order to clarify the peer review process that was actually used, please confirm whether the following information on the peer review process was provided in the original submittal, and if not, provide the following.

(a) Confirmation that the activities described in the walkdown guidance on page 6-1 were assessed as part of the peer review process.

(b) A complete summary of the peer review process and activities. Details should include confirmation that any individual involved in performing any given walkdown activity was not a peer reviewer for that same activity. If there were cases in which peer reviewers reviewed their own work, please justify how this is in accordance with the objectives of the peer review efforts.

Also, if there are differences from the original submittal, please provide a description of the above information. If there are differences in the review areas or the manner in which the peer reviews were conducted, describe the actual process that was used.

Catawba Nuclear Station Units 1 and 2

Response to the NRC Request for Additional Information

Regarding Seismic Walkdowns

Response to Question 2:

The Peer Review Team was independent of the seismic walkdown-related activities.

Section 7.0 of References 3 and 4 contain a description of the peer review process. Additionally, these submittals included a separate peer review report organized to emphasize activities identified in Section 6 (Page 6-1) of Reference 2 and was given as Attachment 6 of Reference 3 and Attachment 8 of Reference 4. A complete summary of the peer review activities is contained in those attachments.

While reviewing the reports (References 3 and 4) it was noted that Table 2-1 and Section 7.0 of each report contained information that was inconsistent with the full peer report. Attachment 1 to this enclosure provides revised pages for each of the walkdown reports.

Table 2-1 of each report is being corrected to show that Mr. Robert N. Pryce was not a member of the Peer Review Team. The full peer review report lists the four members of the team and does not include Mr. Pryce.(Attachment 1, pages 1 and 3)

Table 2-1 is also being corrected to show that Mr. Tom Baumgardner was not part of SWEL development. The full peer review report shows that Mr. Baumgardner only performed the peer review of the SWEL, not its development.(Attachment 1, pages 1 and 3)

The second paragraph of Section 7.0 is revised to show there were four members of the peer review team, not three. The full peer review report list the names of the four members.(Attachment 1, pages 2 and 4)

Attachment 1

Fukushima Near-Term Task Force (NTTF) Recommendation 2.3:
NRC Submittal report for Seismic Walk-downs
Catawba Unit 1

2.0 Personnel Qualifications

The personnel involved in the Catawba NTTF Recommendation 2.3 Seismic Walkdown effort satisfactorily met the qualification requirements of EPRI 1025286. The personnel responsibilities and qualifications are outlined in TABLE 2-1 below. Additional Peer Review Team experience is outlined within the Peer Review Summary Report (ATTACHMENTS 6A and 8A).

TABLE 2-1
Personnel Qualifications

Personnel	Degree	Years of Experience	Relevant Qualifications	SWE	SWEL Development	CLB Reviews	IPEEE Vulnerability Resolution	Peer Reviews
Mark Eli (ARES)	BS/Civil Engineering	32	SQUG [1] SWE [2][3]	X				
David Kulla P.E. (Duke)	BS/Civil Engineering	37			X	X		
Bryan Hanna, P.E., (ARES)	BS/Civil Engineering	12	SWE [2][3]	X				
Kevin Rubright, (ARES)	BS/Civil Engineering	30	SWE [2][3]	X				
John North, P.E., (ARES)	BS/Civil Engineering	28	SWE [2]	X				
Anthony Fazio, (Shaw)	BS/Chemical Engineering	>40	SWE [2]	X				
Philip Berdos, (Shaw)	BS/Mechanical Engineering	6	SWE [2]	X				
James Pappas, P.E., (Shaw)	MS/Energy Engineering	31	SWE [2]	X				
James Adam, P.E., (Shaw)	MS/Nuclear Engineering	45	SWE [2]	X				
Tom R Leitch, P.E., (Duke)	BS/Civil Engineering	35	SWE [2]	X	X	X	X	
J David Kennedy (Duke)	B/Civil Engineering	22	SWE [2]	X				
Michael F Medlin, P.E. (Duke)	BS/Civil Engineering	31	SWE [2]	X		X		
Raymond C Fung, P.E., (Duke)	MS/Civil Engineering	32	SWE [2]	X	X	X	X	
Robert L. Keiser P.E., (Duke)	MS/Civil Engineering	>20	SQUG [1] SWE [2]					X
Charles M. Conselman, P.E. (ARES)	BS/Civil Engineering	28	SWE [2][3]	X				
Paul Baughman P.E., (ARES)	BS/Civil Engineering	>40	SQUG [1] SWE [2]					X[3]
Robert N Pryce (Duke)	BS/Mech Engineering	28	PSRO [4]		X	X		
Tom Baumgardner (Duke)	n/a	45	PSRO [4]					X
Fred Willis P.E., (Duke)	BS/Civil Engineering	32				X		
Mark Shutt P E., (Duke)	BS/Civil Engineering	32				X		
George Bushnell P.E., (Shaw)	BS/Civil Engineering	40+	SQUG [1] SWE [2]					X

NOTES:
1) SQUG Seismic Capability Engineers (SCEs) have successfully completed SQUG training.
2) Seismic Walkdown Engineers (SWEs) have successfully completed EPRI 1025286 2 day walkdown training course.
3) Senior Team Member
4) Prior Senior Reactor Operator (SRO).

The potentially adverse seismic conditions and their individual Problem Investigation Process (PIP) tracking numbers are listed in the Unit 1 NTTF 2.3 Seismic Walkdown Summary Reports (Attachment 5A and Attachment 7A).

6.0 IPEEE Vulnerabilities

The Catawba IPEEE NRC submittal of 6/21/94 (Reference 8) concluded that there were no seismic vulnerabilities from external events. Thus, there were no identified plant changes which would significantly reduce the risk from seismic external events. Table 3-3 of the IPEEE NRC submittal identified one enhancement to resolve minor field walk-down issues. This enhancement is described in Table 6-1.

TABLE 6-1
IPEEE Enhancements

Equipment Deficiency Identified	Resolution	Date Resolved
Unit 1 EDG battery racks were missing spacers.	Installed missing spacers, added dummy batteries, stiffened side rails. Later replaced batteries and racks with new design. (EC12956)	09/28/2005

7.0 Peer Review

Duke Energy (Duke) contracted with the Shaw Group (Shaw) / ARES Corporation (ARES) Team to perform the NTTF 2.3 peer review at the Catawba Nuclear Station (CNS). The Peer Review Report is contained in ATTACHMENT 6A.

The Peer Review Team consisted of four individuals, three of whom have seismic engineering experience as it applies to nuclear power plants. These individuals participated in the peer review of each of the activities. The peer review team is identified in Table 2-1 and their qualifications are provided in ATTACHMENT 6A.

The Shaw/ARES methodology conforms to the guidance in Section 6 of EPRI 1025286. The peer review covered the following:

- The selection of the SSCs included on the Seismic Walkdown Equipment List (SWEL).
- A sample of the checklists prepared for the seismic walkdowns and area walk-bys.
- The licensing basis evaluations.
- The decisions for entering the potentially adverse conditions in the Corrective Action Program (CAP) process.
- The submittal report.

The peer review process for the SWEL development and the seismic walkdowns consisted of the following:

2.0 Personnel Qualifications

The personnel involved in the Catawba NTTF Recommendation 2.3 Seismic Walkdown effort satisfactorily met the qualification requirements of EPRI 1025286. The personnel responsibilities and qualifications are outlined in TABLE 2-1 below. Additional Peer Review Team experience is outlined within the Peer Review Summary Report (ATTACHMENT 6B).

TABLE 2.1
Personnel Qualifications

Personnel	Degree	Years of Experience	Relevant Qualifications	SWE	SWEL Development	CLB Reviews	IPEEE Vulnerability Resolution	Peer Reviews
Mark Eli (ARES)	BS/Civil Engineering	32	SQUG (1) SWE (2)(3)	X				
David Kulla P.E.(Duke)	BS/Civil Engineering	37			X	X		
Bryan Hanna, P.E., (ARES)	BS/Civil Engineering	12	SWE (2)(3)	X				
Kevin Rubright, (ARES)	BS/Civil Engineering	30	SWE (2)(3)	X				
John North, P.E., (ARES)	BS/Civil Engineering	28	SWE (2)	X				
Anthony Fazio, (Shaw)	BS/Chemical Engineering	>40	SWE (2)	X				
Philip Berdos, (Shaw)	BS/Mechanical Engineering	6	SWE (2)	X				
James Pappas, P.E., (Shaw)	MS/Energy Engineering	31	SWE (2)	X				
James Adam, P.E., (Shaw)	MS/Nuclear Engineering	45	SWE (2)	X				
Tom R Leitch, P.E., (Duke)	BS/Civil Engineering	35	SWE (2)	X	X	X	X	
J David Kennedy (Duke)	B/Civil Engineering	22	SWE (2)	X				
Michael F Medlin (Duke)	BS/Civil Engineering	31	SWE (2)	X		X		
Raymond C Fung, P.E., (Duke)	MS/Civil Engineering	32	SWE (2)	X	X	X	X	
Robert L. Keiser P.E. (Duke)	MS/Civil Engineering	>20	SQUG (1) SWE (2)					X
Charles M. Conselman, P.E. (ARES)	BS/Civil Engineering	28	SWE (2)(3)	X				
Paul Baughman P.E. (ARES)	BS/Civil Engineering	>40	SQUG (1) SWE (2)					X(3)
Robert N Pryce (Duke)	BS/Mechanical Engineering	28	PSRO(4)		X	X		
Tom Baumgardner (Duke)	n/a	45	PSRO(4)					X
Fred Willis P.E. (Duke)	BS/Civil Engineering	32				X		
Mark Shutt P.E. (Duke)	BS/Civil Engineering	32				X		
George Bushnell (Shaw)	BS/Civil Engineering	40+	SQUG(1) SWE (2)					X

NOTES:
1) SQUG Seismic Capability Engineers (SCEs) have successfully completed SQUG training.
2) Seismic Walkdown Engineers (SWEs) have successfully completed EPRI 1025286 2 day walkdown training course.
3) Senior Team Member.
4) Prior Senior Reactor Operator (SRO).

TABLE 6-1
IPEEE Enhancements

Equipment Deficiency Identified	Resolution	Date Resolved
Unit 2 EDG battery racks were missing spacers.	Installed missing spacers, added dummy batteries, stiffened side rails. Later, replaced Batteries and racks with new design. (CN-21447)	• 09/2008 (CN-21447)
Rod hung (non-QA Condition) pipe in contact with electrical connection to instrument 2CFLT5560.	Minor modification implemented to relocate the instrument. (Prior to June 1994)	Prior to June 1994. Seismic walkdown planned for 2013 refueling outage.
Potential seismic spatial interaction between valve 2RN225B and nearby Spent Fuel Cooling (KF) line	Problem eliminated by replacement of valve.	September 2012 Seismic Walkdown found no issues with this valve.

7.0 Peer Review

Duke Energy (Duke) contracted with the Shaw Group (Shaw) / ARES Corporation (ARES) Team to perform the NTTF 2.3 peer review at the Catawba Nuclear Station (CNS). The Peer Review Report is contained in ATTACHMENT 6B.

The Peer Review Team consisted of four individuals, three of whom have seismic engineering experience as it applies to nuclear power plants. These individuals participated in the peer review of each of the activities. The peer review team is identified in Table 2.1 and their qualifications are provided in ATTACHMENT 6B. 2

The Shaw/ARES methodology conforms to the guidance in Section 6 of EPRI 1025286. The peer review covered the following:

- The selection of the SSCs included on the Seismic Walkdown Equipment List (SWEL).
- A sample of the checklists prepared for the seismic walkdowns and area walk-bys.
- The licensing basis evaluations.
- The decisions for entering the potentially adverse conditions in the Corrective Action Program (CAP) process.
- The submittal report.

The peer review process for the SWEL development and the seismic walkdowns consisted of the following:

- Reviewing the activity guidance in EPRI 1025286, the NEI Q&A bulletins, the NEI first-mover reports, and NRC Temporary Instruction 2515/188.
- Conducting an in-process review at the plant site, including interviews with the personnel performing the activity and reviewing in-process documentation.
- Performing an in-plant surveillance (for the walkdown activity) of a seismic walkdown and an area walk-by.
- Providing in-process observations and comments to the personnel performing the activities.

 2