

NRC Reactor Oversight Program

Substantive Cross-Cutting Issues
2011 Mid-Cycle Assessment Letters

September 1, 2011 Data



Prepared as a Service to the Industry by

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Review Highlights

A Reactor Oversight Program (ROP) substantive cross-cutting issue (SCCI) requires accumulating more than three NRC inspection findings sharing a cross-cutting “theme” from one nuclear safety culture “aspect” (see Inspection Manual Chapters 0305 and 0310). NRC may defer imposing the SCCI if the agency sees early licensee recognition and has confidence in the station’s ability to turn the issue around.

Most commonly, SCCIs are in the cross-cutting areas of Human Performance (HU) and Problem Identification and Resolution (PI&R). NRC also has the ability to declare an SCCI in Safety Conscious Work Environment (SCWE). See the NRC references for complete details.

New Substantive Cross-Cutting Issues

The September 2011 NRC mid-cycle assessment letters (January 1 – June 30) reported two new substantive cross-cutting issues, both in PI&R. This compares with six new SCCI announced last March, five of which had been in HU:

- Susquehanna: NRC described one white and four green findings sharing the cross-cutting aspect P.1(c), evaluation of identified problems. NRC had previously identified a P.1(c) theme, and while two of those NCVs had “dropped off” the 12-month interval of record, NRC had identified three new ones, all associated in some way with chillers. Trend evaluation, extent of condition/cause, and operability impact evaluation were of particular NRC interest, according to individual inspection reports. NRC mentioned a concern with progress to mitigate the SCCI and delayed implementation of some SCCI-related corrective actions.
- Wolf Creek: Four findings in the Mitigating Systems cornerstone, previously noted in the March annual assessment letter, enabled NRC to declare a new SCCI for the theme P.1(a) – threshold for problem identification. The mid-cycle letter acknowledged a broad PI&R-related root cause evaluation in June 2011 whose actions have yet to be demonstrated as effective.

Closed Substantive Cross-cutting Issues

Only one station was able to shed SCCIs at the mid-cycle, but it closed four of five themes:

- San Onofre: The station notified NRC of its readiness for inspection in five Human Performance themes: H.1(b) – conservative assumptions in decision making; H.2(c) – documents, procedures, and work instructions; H.4(a) – human error prevention techniques; H.4(b) – procedure compliance; and H.4(c) – supervisory and management oversight. NRC then conducted a focused PI&R inspection, finding a “significant reduction” in HU-related findings and “sustained and measurable performance” in all of the themes except H.1(b), which will remain open.

Continuing Substantive Cross-Cutting Issues

Eight stations retained SCCIs in one or more themes, seven human performance and five PI&R:

- Browns Ferry: Two PI&R themes remained in place, P.1(c) – problem evaluation and P.1(d) – appropriate and timely actions. The station had responded in writing to the first SCCI theme, indicating that they were unready for NRC’s review. Regarding the second, appropriate and timely actions, NRC determined that a reasonable time had passed, but that the range of actions had not yet proven effective.
- Cooper: In March, NRC opened an SCCI related to the theme H.1(b) – conservative assumptions in decision making. NRC noted that sustainable performance improvements were not yet demonstrated and that the number of associated findings had grown from six to eleven. NRC requested discussion of this SCCI at a public meeting.
- Diablo Canyon: NRC acknowledged licensee actions to improve the 10CFR50.59 process, the corrective action program, operability determinations, and CARB. The station also had begun to validate plant licensing basis and to promote engineer access to the information. Also, there was a comprehensive safety culture improvement plan. However, the P.1(c) theme, problem evaluations, persisted, with six green NCVs and one Severity Level IV non-cited violation. While the station had performed a “comprehensive and thorough” root cause evaluation, NRC was not yet satisfied with corrective action run time and results. NRC also noted a weakness in corrective actions associated with leadership team reinforcement of appropriate staff behaviors.
- Oconee: The station developed approximately 30 corrective actions for the theme H.4(b) – procedure use after NRC initiated an SCCI in March. More than half the actions were still open at mid-cycle, so NRC will conduct a focused evaluation during the next biennial PI&R inspection.
- Perry: NRC had intended to perform IP 92702, “Followup on Corrective Actions for Violations and Deviations.” Perry requested additional time to prepare for that inspection. NRC decided to leave the two current themes open: H.3(a) – work planning and H.2(c) – documentation and procedures.
- Robinson: This SCCI, H.2(c) – documentation, procedures, and work packages first appeared in March based on four inspection findings. NRC expressed satisfaction with the ensuing root cause evaluation and procedure upgrade project, but will evaluate progress after Robinson implements a new emergency operating procedure format in early 2012.
- San Onofre: While four human performance SCCI themes were cleared (see above), San Onofre’s cross-cutter in H.1(b) – conservative assumptions in decision making remained open. NRC noted five relevant findings and the eighth consecutive assessment with at least one human performance SCCI theme.
- Wolf Creek: Inspection efforts and communications with management indicated that the station was not yet ready for inspection under Section 13.03 of IMC 0305, “Operating Reactor Assessment Program.” Therefore NRC kept three SCCI themes open: P.1(c) – effective problem evaluation, P.1(d) – timely and appropriate corrective actions, and H.2(c) – documentation, procedures, and work packages.

Avoided Substantive Cross-Cutting Issues

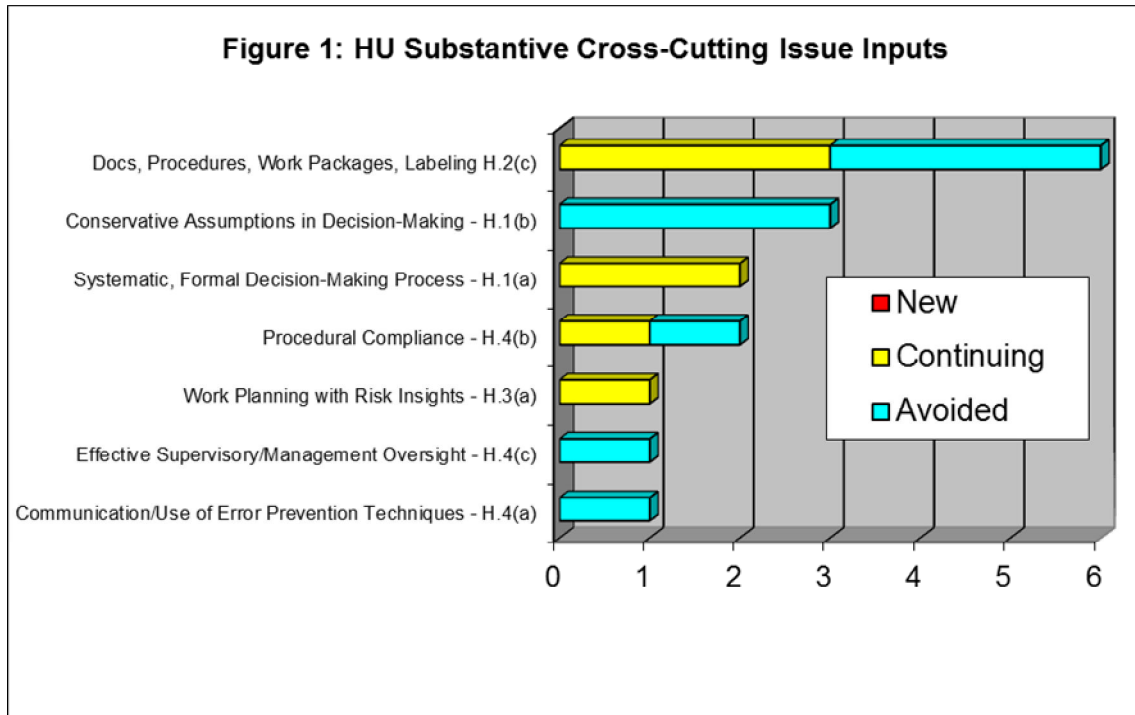
Avoiding a substantive cross cutting issue provides no guarantee of “immunity,” but it can gain a finite window for a licensee to demonstrate understanding of an issue and to prove the effectiveness of its corrective actions. All eight stations below accumulated the necessary number of issues under IMC 0305 to qualify for an SCCI in one or more themes, but NRC had confidence in their action plans, was willing to consider issue timing, or believed some corrective action run time was acceptable before making a final decision:

- Arkansas Nuclear One: The station had accumulated enough examples of H.1(b) – conservative assumptions in decision making and H.4(c) – supervisory and management oversight to warrant mention in the March 2011 assessment letter. However, the station took effective actions and only one new H.4(c) finding arose in the next six months.
- Browns Ferry: NRC noted four green inspection findings associated with H.4(b) – error prevention tools. NRC considered the station’s scope of effort and progress, including a common cause root cause analysis and a range of actions that seemed reasonable. Two of the most recent examples also involved corporate, not station staff.
- Cooper: This station had closed an SCCI based on H.4(a) – human error prevention tools at the end of 2010, but the cross-cutter almost returned from four associated findings. NRC noted that the earlier corrective actions “bound” the cause of the new findings and that the human performance improvement plan “is a living document.” There also were six findings related to P.1(c) – thorough problem evaluations, but NRC described them as a “recent performance trend.”
- Diablo Canyon: NRC mentioned four findings in the aspect of H.1(b) – conservative assumptions in decision making. There was only one related finding following corrective action implementation and none in the current calendar year.
- Millstone: NRC described timeliness of corrective actions as the most significant contributor to four green findings they tagged sharing the P.1(d) aspect. Dominion had recognized the theme and initiated action to develop an improvement plan.
- Oyster Creek: Five H.2(c) findings – procedure adequacy arose during the 12-month assessment period, but Exelon recognized the cross-cutting theme, and NRC will perform a focused review of the associated action plan.
- Palisades: NRC recognized prompt theme recognition and entry into the corrective action program in two areas otherwise vulnerable to an SCCI: H.2(c) – document, procedure, and work package quality and H.1(b) – conservative assumptions in decision making. Those cross-cutting aspects had accumulated five and four findings, respectively.
- Susquehanna: There were four findings with the theme H.2(c) – document, procedures, and work package quality, evenly distributed in the preceding four quarters. PPL recognized the potential theme early in 2011 and had ongoing analyses, including a root cause investigation at the end of the assessment period.

Most Frequent Aspects

As in all earlier periods, certain nuclear safety culture components contributed more new, continuing, and avoided HU and PI&R issues than others. Thirteen of the 22 possible aspects did not apply often enough at any station to produce an SCCI.

Figures 1 and 2 below illustrate all new, continuing, and “avoided” SCCIs.

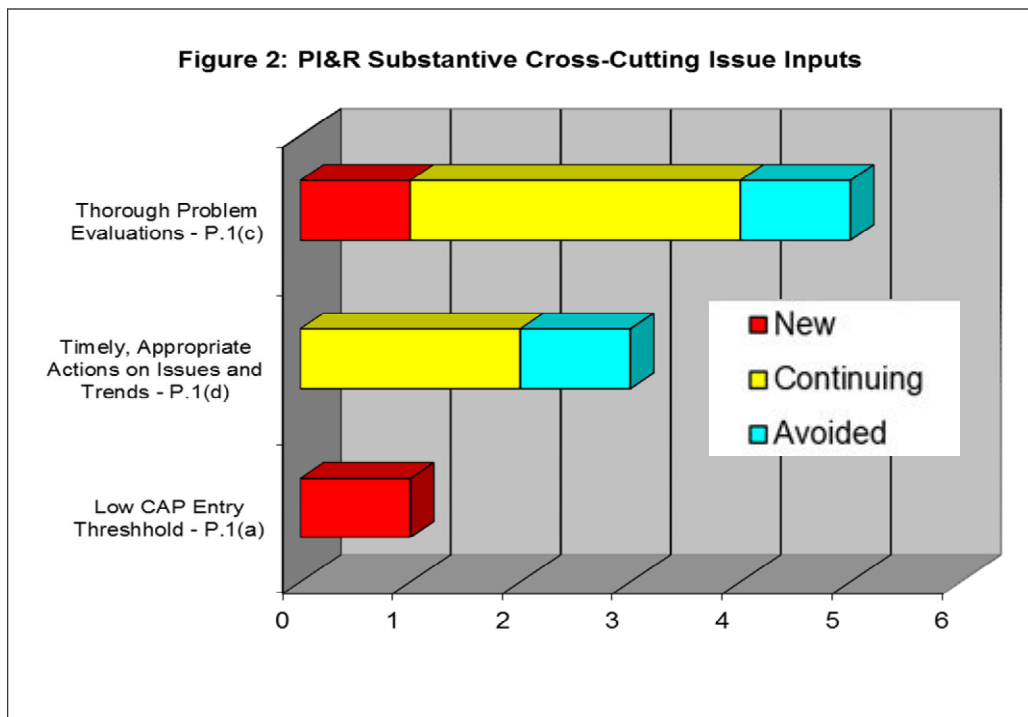


Human Performance

Theme H.2(c) continues in the dominant spot among new, continuing, and avoided human performance SCCIs. It has seldom been out of first place. Inspection Manual Chapter 0310 describes this aspect as:

“The licensee ensures that personnel, equipment, procedures, and other resources are available and adequate to assure nuclear safety, specifically, those necessary for: complete, accurate and up-to-date design documentation, procedures, and work packages, and correct labeling of components.”

The lesson is clear. Capturing knowledge from departing staff, task performance feedback, trainee comments, and operating experience in crystal-clear, user-friendly formats should be a top priority for every plant, even if there happen to be zero current findings with an H.2(c) connection. It is very easy for a plant to accumulate them and suddenly find itself in a catch-up mode.



Problem Identification and Resolution

The most frequent and persistently recurring shared PI&R aspect is P.1(c). NRC's definition:

"The licensee thoroughly evaluates problems such that the resolutions address causes and extent of conditions, as necessary. This includes properly classifying, prioritizing, and evaluating for operability and reportability conditions adverse to quality. This also includes, for significant problems, conducting effectiveness reviews of corrective actions to ensure that the problems are resolved."

As Figure 2 shows, four stations are now confronting the P.1(c) theme, while a fifth came close to receiving it:

Plants with this SCCI have learned that root and apparent cause evaluations are only a piece of the puzzle. P.1(c) findings can arise from narrow or shallow operability determinations, non-recognition of adverse trends, failure to consider internal operating experience, and even ineffective elective/corrective maintenance.

One might argue that alternative aspects like P.1(b), P.2(a), and P.2(b) should come into play, but P.1(c) seems to be the theme of choice. In toss-ups between P.1(c) and P.1(d), effective problem evaluation seems to be favored.

The prudent station will uphold corrective action as absolute core business, extending the enthusiasm to fix it now (FIN) initiatives, troubleshooting processes, test results interpretation, and technical evaluations. Any activities deferred for "business" reasons need compelling justification.

Almost anything seems fair game for the P.1(c) bin.

Inspection Procedures 92723 and 92702

These NRC supplemental/infrequent inspections have a cross-cutting flavor to them, and so we mention them briefly here.

IP 92723: Follow up for three or more Severity Level IV violations when all occur within a single traditional enforcement area of willfulness, impeding the regulatory process, or actual consequence during any 12-month period. NRC's expectation is that such multiple issues will be evaluated for their commonalities and that the reasons for them not being noted at an earlier or precursor stage will be determined.

Inspection Objectives:

- To provide assurance that the cause(s) of multiple SL IV traditional enforcement violations are understood by the licensee.
- To provide assurance that the extent of condition and extent of cause of multiple SL-IV traditional enforcement violations are identified.
- To provide assurance that licensee corrective actions for traditional enforcement violations are sufficient to address the cause(s).

NRC notified four stations of plans to conduct a 92723 inspection: Braidwood, Byron, Callaway, and Cooper.

IP 92702: To determine that adequate corrective actions have been implemented for traditional enforcement actions including violations, deviations, Confirmatory Action Letters (CALs), Confirmatory Orders, and Confirmatory Orders associated with the Alternative Dispute Resolution (ADR) process.

NRC notified three stations of plans to conduct a 92702 inspection: Browns Ferry, Limerick, and Perry.

SCWE

No station received a safety conscious work environment substantive cross-cutting issue. However, one mid-cycle assessment letter included SCWE-related remarks:

- San Onofre: NRC determined that the station made reasonable progress addressing SCWE issues in 2010 and 2011. There were new programs and processes aimed at improving SCWE and monitor progress. NRC did not open a SCCI in SCWE but will continue to monitor activities and their sustainability through the baseline inspection program.

Substantive Cross-Cutting Issues – Mid-Cycle Assessment Letters – September 2011

| Plant (Units) | Affiliation | Human Performance | SCWE | PI&R | Next 71152B Inspection | Other Related Inspection(s) | NRC Reference |
|--------------------------|------------------|------------------------|-----------|-------------------|------------------------|-----------------------------|------------------------------------|
| Arkansas Nuclear One (2) | Entergy | Avoided H.1(b), H.4(c) | | | None Scheduled | None Scheduled | 9/1/2011 letter to C. Schwarz |
| Beaver Valley (2) | FirstEnergy | | | | 8/29/11 | None Scheduled | 9/1/2011 letter to P. A. Harden |
| Braidwood (2) | Exelon | | | | 6/11/12 | 92723 TBD | 9/1/2011 letter to M. J. Pacilio |
| Browns Ferry (3) | TVA | Avoided H.4(b) | | Continuing P.1(c) | 10/1/11 | 95003 TBD | 8/29/2011 letter to R. M. Krich |
| | | | | Continuing P.1(d) | | 92702 TBD | |
| Brunswick (2) | Progress (CP&L) | | | | None Scheduled | None Scheduled | 9/1/2011 letter to M. J. Annacone |
| Byron (2) | Exelon | | | | 8/15/11 | 92723 TBD | 9/1/2011 letter to M. J. Pacilio |
| Callaway (1) | Ameren UE | | | | 6/10/12 | 92723 TBD | 9/1/2011 letter to A. C. Heflin |
| Calvert Cliffs (2) | Constellation | | | | 10/24/11 | None Scheduled | 9/1/2011 letter to G. H. Gellrich |
| Catawba (2) | Duke | | | | 10/29/12 | None Scheduled | 9/1/2011 letter to J. R. Morris |
| Clinton (1) | Exelon | | | | None Scheduled | None Scheduled | 9/1/2011 letter to M. J. Pacilio |
| Columbia (1) | Energy Northwest | | | | 8/29/11 | None Scheduled | 9/1/2011 letter to M. E. Reddemann |
| Comanche Peak (2) | Luminant | | | | None Scheduled | None Scheduled | 9/1/2011 letter to R. Flores |
| Cooper (1) | NPPD (Entergy) | Avoided H.4(a) | | Avoided P.1(c) | None Scheduled | 95001 10/17/11 | 9/1/2011 letter to B. J. O'Grady |
| | | Continuing H.1(b) | 92723 TBD | | | | |
| Crystal River (1) | Progress | | | | 1/17/12 | None Scheduled ¹ | 9/1/2011 letter to J. A. Franke |
| D. C. Cook (2) | AEP | | | | None Scheduled | None Scheduled | 9/1/2011 letter to L. Weber |

¹ Crystal River 3 has been shut down since October 2009, affecting the usefulness of NRC performance indicator data.

| Plant (Units) | Affiliation | Human Performance | SCWE | PI&R | Next 71152B Inspection | Other Related Inspection(s) | NRC Reference |
|-------------------|------------------|-------------------|------|-------------------|------------------------|-----------------------------|------------------------------------|
| Davis-Besse (1) | FirstEnergy | | | | None Scheduled | None Scheduled | 9/1/2011 letter to B. Allen |
| Diablo Canyon (2) | PG&E | Avoided H.1(b) | | Continuing P.1(c) | 1/22/12 | None Scheduled | 9/1/2011 letter to J. T. Conway |
| Dresden (2) | Exelon | | | | 4/2/12 | None Scheduled | 9/1/2011 letter to M. J. Pacilio |
| Duane Arnold (1) | NextEra | | | | None Scheduled | None Scheduled | 9/1/2011 letter to P. Wells |
| Farley (2) | Southern Nuclear | | | | None Scheduled | None Scheduled | 9/1/2011 letter to L. M. Stinson |
| Fermi (1) | DTE Energy | | | | 9/19/11 | None Scheduled | 9/1/2011 letter to J. M. Davis |
| FitzPatrick (1) | Entergy | | | | 2/27/12 | None Scheduled | 9/1/2011 letter to K. H. Bronson |
| Fort Calhoun (1) | OPPD | | | | 11/7/11 | 95002 TBD 95003 TBD | 9/1/2011 letter to D. J. Bannister |
| Ginna (1) | Constellation | | | | 4/9/12 | None Scheduled | 9/1/2011 letter to J. Pacher |
| Grand Gulf (1) | Entergy | | | | 10/3/11 | None Scheduled | 9/1/2011 letter to M. Perito |
| Harris (1) | Progress (CP&L) | | | | None Scheduled | None Scheduled | 9/1/2011 letter to W. Jefferson |
| Hatch (2) | Southern Nuclear | | | | 9/12/11 | None Scheduled | 9/1/2011 letter to D. R. Madison |
| Hope Creek (1) | PSEG Nuclear | | | | None Scheduled | None Scheduled | 9/1/2011 letter to T. P. Joyce |
| Indian Point (2) | Entergy | | | | None Scheduled | None Scheduled | 9/1/2011 letter to J. E. Pollock |
| Kewaunee (1) | Dominion | | | | 9/10/12 | None Scheduled | 9/1/2011 letter to D. A. Heacock |
| LaSalle (2) | Exelon | | | | None Scheduled | None Scheduled | 9/1/2011 letter to M. J. Pacilio |
| Limerick (2) | Exelon | | | | 10/22/12 | 92702 TBD | 9/1/2011 letter to M. J. Pacilio |
| McGuire (2) | Duke | | | | 8/13/12 | 92723 under consideration | 9/1/2011 letter to R. T. Repko |
| Millstone (2) | Dominion | | | Avoided P.1(d) | 7/16/12 | 95001 TBD | 9/1/2011 letter to D. A. Heacock |

| Plant (Units) | Affiliation | Human Performance | SCWE | PI&R | Next 71152B Inspection | Other Related Inspection(s) | NRC Reference |
|---------------------|-------------------|------------------------|------|------|------------------------|-----------------------------|---|
| Monticello (1) | Xcel Energy (NSP) | | | | 9/10/12 | None Scheduled | 9/1/2011 letter to T. J. O'Connor |
| Nine Mile Point (2) | Constellation | | | | 10/3/11 | None Scheduled | 9/1/2011 letter to T. Lynch |
| North Anna (2) | Dominion | | | | None Scheduled | None Scheduled | 9/1/2011 letter to D. A. Heacock |
| Oconee (3) | Duke | Continuing H.4(b) | | | 11/28/11 | None Scheduled | 9/1/2011 letter to T. P. Gillespie, Jr. |
| Oyster Creek (1) | Exelon | Avoided H.2(c) | | | 8/13/12 | None Scheduled | 9/1/2011 letter to M. J. Pacilio |
| Palisades (1) | Entergy | Avoided H.1(b), H.2(c) | | | 1/30/12 | None Scheduled | 9/1/2011 letter to A. Vitale |
| Palo Verde (3) | APS | | | | 10/21/12 | None Scheduled | 9/1/2011 letter to R. K. Edington |
| Peach Bottom (2) | Exelon | | | | 7/25/11 | None Scheduled | 9/1/2011 letter to M. J. Pacilio |
| Perry (1) | FirstEnergy | Continuing H.2(c) | | | 1/9/12 | 92702 TBD 95002 TBD | 9/1/2011 letter to M. Bezilla |
| | | Continuing H.3(a) | | | | | |
| Pilgrim (1) | Entergy | | | | None Scheduled | None Scheduled | 9/1/2011 letter to R. Smith |
| Point Beach (2) | NextEra | | | | None Scheduled | None Scheduled | 9/1/2011 letter to L. Meyer |
| Prairie Island (2) | Xcel Energy | | | | 7/23/12 | 95001 TBD | 9/1/2011 letter to M. A. Schimmel |
| Quad Cities (2) | Exelon | | | | 8/13/12 | None Scheduled | 9/1/2011 letter to M. J. Pacilio |
| River Bend (1) | Entergy | | | | None Scheduled | None Scheduled | 9/1/2011 letter to E. Olson |
| Robinson (1) | Progress (CP&L) | Continuing H.2(c) | | | 5/7/12(?) | None Scheduled | 8/18/2011 letter to R. J. Duncan II |
| Saint Lucie (2) | FPL | | | | (?) | None Scheduled | 9/1/2011 letter to M. Nazar |
| Salem (2) | PSEG Nuclear | | | | 6/27/11 | None Scheduled | 9/1/2011 letter to T. P. Joyce |

| Plant (Units) | Affiliation | Human Performance | SCWE | PI&R | Next 71152B Inspection | Other Related Inspection(s) | NRC Reference |
|-----------------------|------------------|---------------------------------------|----------|---------------------------|------------------------|-----------------------------|----------------------------------|
| San Onofre (2) | So Cal Edison | Closed H.2(c), H.4(a), H.4(b), H.4(c) | See Text | | 3/25/12 | None Scheduled | 9/1/2011 letter to P. Dietrich |
| | | Continuing H.1(b) | | | | | |
| Seabrook (1) | NextEra | | | | 6/11/12 | None Scheduled | 9/1/2011 letter to P. Freeman |
| Sequoyah (2) | TVA | | | | None Scheduled | None Scheduled | 9/1/2011 letter to R. M. Krich |
| South Texas (2) | STP | | | | 9/16/12 | None Scheduled | 9/1/2011 letter to E. D. Halpin |
| V. C. Summer (1) | SCANA (SCE&G) | | | | 9/10/12 | None Scheduled | 9/1/2011 letter to T. D. Gatlin |
| Surry (2) | Dominion | | | | None Scheduled | None Scheduled | 9/1/2011 letter to D. A. Heacock |
| Susquehanna (2) | PPL | Avoided H.2(c) | | New P.1(c) | 1/30/12 | 95002 TBD | 9/1/2011 letter to T. S. Rausch |
| Three Mile Island (1) | Exelon | | | | 5/7/12 | None Scheduled | 9/1/2011 letter to M. J. Pacilio |
| Turkey Point (2) | FPL | | | | 6/18/12(?) | None Scheduled | 9/1/2011 letter to M. Nazar |
| Vermont Yankee (1) | Entergy | | | | None Scheduled | None Scheduled | 9/1/2011 letter to M. Colomb |
| Vogtle (2) | Southern Nuclear | | | | None Scheduled | None Scheduled | 9/1/2011 letter to T. E. Tynan |
| Waterford (1) | Entergy | | | | 7/15/12 | None Scheduled | 9/1/2011 letter to J. Kowalewski |
| Watts Bar (1) | TVA | | | | 10/9/12 | None scheduled | 9/1/2011 letter to R. M. Krich |
| Wolf Creek (1) | WCNOC | Continuing H.2(c) | | Continuing P.1(c), P.1(d) | 5/6/12 | None scheduled | 9/1/2011 letter to M. W. Sunseri |
| | | | | New P.1(a) | | | |

Note: Three posted NRC letters did not include Inspection/Activity Plans: Turkey Point, St. Lucie, and H. B. Robinson.