

Reactor Oversight Process Resources

Summary of 2008 Reactor Oversight Process Resources

Table 1¹ summarizes the U.S. Nuclear Regulatory Commission (NRC) staff resources expended for the Reactor Oversight Process (ROP) during the past 3 fiscal years (FYs). Overall staff effort in FY 2008 decreased by 4.3 percent compared with FY 2007 for the activities listed in Table 1.

Baseline inspection hours include direct inspection effort, baseline inspection preparation and documentation, and plant status activity. Baseline inspection hours decreased in 2008. Since plant status hours remained relatively constant and baseline inspection preparation and documentation track proportionally with direct inspection hours, the staff looked at the hours charged to baseline direct inspection effort to understand the causes for the decrease.

The decrease was primarily the result of the reduced frequency in performing inspection procedure (IP) 71111.21, "Component Design Bases Inspection," which changed from biennial to triennial starting in 2008, and fewer hours charged to IP 71152, "Identification and Resolution of Problems." The regions conducted fewer of both of these major inspections in 2008, and the two account for almost 70 percent of the reduction in direct baseline inspection hours. IP 71152 is conducted on a biennial frequency, and 2007 is the first year of the biennial cycle. More IP 71152 inspections were performed during 2007 (the first year of the biennial cycle) than during 2008 (the second year of the cycle). As a result, the hours charged to IP 71152 were higher in 2007, and the lower number of hours in 2008 is consistent with the biennial frequency of the inspection. Overall, the average number of hours charged to IP 71152 for the 2005-2006 biennial inspection cycle was comparable to the 2007-2008 inspection cycle. The hours charged to other baseline procedures remained relatively unchanged. IP 71152, IP 71111.21, and the remainder of the baseline inspection procedures will be reviewed for appropriate resource allocation during the ROP realignment effort in CY 2009.

As in previous years, all four regions completed the required baseline inspections in 2008.

Plant-specific inspections include supplemental inspections conducted in response to greater-than-green inspection findings and performance indicators, reactive inspections such as augmented inspection teams and special inspections performed in response to events, and the infrequently performed inspections listed in Appendix C of NRC Inspection Manual Chapters (IMC) 2515, "Light-Water Reactor Inspection Program -- Operations Phase," and IMC 2201, "Security and Safeguards Inspection program for Commercial Power Reactors," which are not part of the baseline or supplemental inspection program.

Plant-specific inspection effort increased in FY 2008 compared with FY 2007 primarily because of the IP 95003, "Supplemental Inspection for Repetitive Degraded Cornerstones, Multiple Degraded Cornerstones, Multiple Yellow Inputs, or One Red Input," inspection at the Palo Verde site and because of an increase in IP 95002 inspections at several sites. Additional contributors to the plant-specific effort include reactive inspections at several sites and other significant inspections conducted in FY 2008 including those for the Security cornerstone.

¹ The staff implements the ROP on a calendar year (CY) basis; however, it obtains and reports resource data on an FY basis.

Generic safety issue (GSI) inspections are typically one-time inspections of specific safety and security issues with significant variability in effort possible from year to year. The increased effort related to GSI inspections in FY 2008 reflects the conduct of several temporary instructions (TI) including TI 2515/166, "Pressurized Water Reactor Containment Sump Blockage;" TI 2515/171, "Verification of Site Specific Implementation of B.5.b Phase 2 & 3 Mitigating Strategies;" TI 2515/172, "Reactor Coolant System Dissimilar Metal Butt Welds;" and TI 2515/176, "Emergency Diesel Generator Technical Specification Surveillance Requirements Regarding Endurance and Margin Testing."

The effort reported for "other activities" including inspection-related travel, Significance Determination Process (SDP), and routine communication (which now encompasses regional support, enforcement support, and review of technical documents) also decreased slightly in 2008. The effort for these activities typically tends to respond in concert with baseline inspection effort.

The regional effort for licensee performance assessment continued to decline in 2008. This continuing trend is most likely indicative of the increasing staff familiarity with the performance assessment process. The decreasing rate of decline during the past 3 years also suggests that the performance assessment effort may be reaching its steady-state value.

Reactor Oversight Process Resource Model and Regional Inspection Budget

The review of issues related to inspection resources is part of the ongoing ROP self-assessment and baseline procedure realignment process, and budgeted inspection resources are adjusted as required by program needs.

In 2006, Region I piloted a resource model that included a "unique site" designation in addition to single-, dual- and triple-unit sites. This "unique site budget model" (USBM) concept was piloted at Beaver Valley, Nine Mile Point, and Millstone during the 2006 inspection cycle. Based on an assessment of the results the staff concluded that overall the pilot implementation in Region I demonstrated that the concept of the USBM was valid and allowed for an equivalent level of confidence in the NRC's oversight of licensee performance at unique dual-unit sites when compared to the previous inspection and assessment of these sites. Previously, the NRC treated Millstone as two single units and treated Nine Mile Point as a normal dual-unit model with additional regional resources applied.

The staff approved implementation of the USBM model at Millstone and Nine Mile Point with the allocation of the corresponding resources. The staff also concluded that the USBM is not applicable to Beaver Valley since the difference between the Beaver Valley units are less significant and primarily relate to organizational and procedural differences. Implementing the USBM for Millstone and Nine Mile Point results in an overall resource savings since the reduction in inspection resources in going from two single-unit sites at Millstone offsets the increase in resources associated with going from a dual-unit site to the USBM in the case of Nine Mile Point. The USBM was fully implemented at Nine Mile Point and Millstone during the 2008 inspection cycle. The USBM is effective and provides appropriate resources for these unique sites.

For budget considerations in general, USBM nominal values equal the dual-unit maximum values for sample size and inspection hours with a ± 15 percent range, which is consistent with

the variance used for ROP inspection procedures. Resources at this level have been included in the FY 2009 and 2010 Office of Nuclear Reactor Regulation (NRR)/regional baseline inspection budget to implement the USBM and inspect Millstone and Nine Mile Point as unique dual-unit sites.

Reactor Oversight Process Improvement Initiatives

Since the formation of the Office of Nuclear Security and Incident Response (NSIR), the legacy activity codes used to report inspection-related effort charged to the ROP made it difficult to identify and separate the specific ROP effort attributable to NSIR and NRR individually. As a way to eliminate this difficulty, the staff revised the inspection-related time-reporting codes in FY 2007 to allow precise identification of the hours charged to ROP inspection-related activities. Time-reporting activity codes were established for those inspection-related activities that are funded by NSIR. These new NSIR codes parallel the existing NRR activity codes. In addition, several of the NRR inspection activity codes were also revised and renamed to more accurately identify the work to which the activity code refers. These changes have improved the accuracy of ROP time reporting.

A number of initiatives are currently underway to improve program efficiency and effectiveness and these may reduce inspection resource requirements. These initiatives include a realignment of resources allocated to the individual baseline inspection procedures (including design engineering inspections), regional best practice initiatives, continued SDP improvements, and implementation of the performance indicator improvements. Enclosure 1 of this paper discusses these initiatives.

**Table 1
Resources Expended¹
(Inspection-Related Staff Effort Expended at Operating Power Reactors)**

	52 weeks FY 2006 <u>09/25/05-09/23/06</u>	52 weeks FY 2007 <u>09/24/06-09/22/07</u>	52 weeks FY 2008 <u>09/23/07-09/20/08</u>
Baseline Inspections			
Direct Inspection Effort	144,117	156,547	147,396
Inspection Prep/Doc	107,042	111,770	99,522
Plant Status	<u>51,488</u>	<u>48,804</u>	<u>49,481</u>
Subtotal	302,647	317,130	296,399
Plant-Specific Inspections			
Direct Inspection Effort	16,709	12,278	14,063
Inspection Prep/Doc	<u>11,130</u>	<u>8,174</u>	<u>9,909</u>
Subtotal	27,839	20,452	23,972
Generic Safety Issues Inspections	8,295	11,212	13,492
Performance Assessment (Regional Effort Only)	16,885	14,349	13,517
Other Activities ²	66,156	68,493	65,754
Total Staff Effort	421,822 hr	431,636 hr	413,134 hr
Total Staff Effort/Operating Site ³	6,296 hr/site	6,540 hr/site	6,260 hr/site

¹ Resources expended includes regional, NRR, and NSIR hours.

² Other activities include inspection-related travel, SDP, and routine communication (which encompasses regional support, enforcement support, and review of technical documents).

³ In prior years, Millstone was treated as two single-unit sites. Starting in 2007, the NRC inspected Millstone as one dual-unit site. Therefore, the number of sites decreased from 67 to 66 in FY 2007. The FY 2007 increase in total staff effort/operating site resulted, in part, from the use of a smaller denominator for this calculation.