## ROP Resources

### Summary of 2007 Reactor Oversight Process Resources

Table 1[1] summarizes 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 2007 increased by 2.3 percent compared with FY 2006 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 increased in 2007 primarily because of increased direct inspection effort with a corresponding increase in baseline inspection preparation and documentation. The inspection procedures (IPs) that account for the bulk of the increase are IP 71111.21, "Component Design Bases Inspection," IP 71152, "Identification and Resolution of Problems," and IP 71153, "Followup of Events and Notices of Enforcement Discretion." The increase related to IP 71152 also reflects accounting changes implemented in the middle of CY 2006, in which effort related to daily reviews of licensee corrective action is charged to IP 71152 instead of to "plant status." As such, "plant status" effort continued the corresponding reduction seen initially in FY 2006. The direct inspection effort for the baseline inspections funded by the Office of Nuclear Security and Incident Response (NSIR) in FY 2007 remained essentially unchanged from FY 2006 levels. The staff plans to evaluate the baseline inspection expenditures in CY 2008 to further understand this increase. As in the 2006 inspection cycle, all four regions completed the required baseline inspections in 2007.

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 (AITs) and special inspections (SIs) performed in response to events, and the infrequently performed inspections listed in Appendix C of NRC Inspection Manual Chapters (IMC) 2515 and IMC 2201, "Security and Safeguards Inspection program for Commercial Power Reactors," that are not part of the baseline or supplemental inspection program.

Plant-specific inspections noticeably decreased in FY 2007 compared with FY 2006. The decrease was evident in all the components of plant-specific inspections. The effort for supplemental inspections (IP 95001, IP 95002, and IP 95003) decreased in FY 2007 compared with FY 2006. A decrease was also reported in reactive inspection effort (AITs and SIs) and for the infrequently performed inspections. Since the staff conducts these inspections in response to operational events and inspection findings, significant variability in effort is possible from year to year. This paper reports resource data for the period September 24, 2006, through September 22, 2007, and several significant inspections took place after this time period. The FY 2008 results will capture those expenditures, and the staff expects a significant increase in resources spent on plant-specific inspections, including those for the security cornerstone (e.g., safeguards information control and Exelon contracted security force transition, etc.).

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

An increase in effort related to generic safety issues (GSI) inspections reflects the growing activity in this area. GSI inspections are typically one-time inspections of specific safety issues, with significant variability in effort possible from year to year.

The effort reported for "other activities," including inspection related travel, significance determination process, and routine communication (which now encompasses regional support, enforcement support, and review of technical documents) also increased slightly in 2007. The effort for these activities tends to respond in concert with baseline inspection effort

The regional effort for licensee performance assessment continued to decline in 2007. This continuing trend is most likely indicative of the maturing staff familiarity with the performance assessment process.

**ROP Resource Model and Regional Inspection Budget**

The regional inspection budget for FY 2007 and beyond was increased slightly to reflect ROP resource requirements. Issues related to inspection resources are reviewed as part of the ongoing ROP self-assessment and budget resources are adjusted as required by program needs.

In 2006, Region I piloted a resource model that includes 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 (BV), Nine Mile Point (NMP), and Millstone (MS) 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 is valid and allows for an equivalent level of confidence in the NRC's oversight of licensee performance at unique, dual-unit sites as compared to how these sites were previously inspected and assessed. Previously, MS was treated as two single units, and NMP was treated as a normal dual-unit model with additional regional resources applied.

The staff approved, going forward, implementation of the USBM model at MS and NMP with allocation of the corresponding resources. The staff also concluded that the USBM is not applicable to BV since the difference between the BV units are less significant and primarily relate to organizational and procedural differences. The USBM is appropriate for MS and NMP since these sites have significant design, organizational structure, and physical differences. Implementing the USBM at MS and NMP provides a net efficiency given that MS was previously budgeted as two, single-unit sites under the ROP. Implementing the USBM for MS and NMP results in an overall resource savings as the reduction in FTE in going from two, single-unit sites at MS offsets the increase in FTE associated with going from a dual-unit site to the USBM in the case of NMP.

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 2008 and 2009 NRR/Regional baseline inspection budget to implement the USBM and inspect MS and NMP as unique dual-unit sites.

As a result of its assessment, the staff also concluded that the USBM is suitable for consideration for other dual-unit sites with design, organizational, physical, regulatory, and procedural differences, and proposed a protocol for other regions to consider and adopt the USBM, as appropriate. Basically, a regional office would evaluate the differences between site units against previously identified criteria. If it determined that the site was unique, the regional office would provide justification for approval to adopt the USBM for that site.

**Reactor Oversight Process Improvement Initiatives**

Since the formation of 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, in FY 2007, the staff revised the inspection-related time-reporting codes 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. The changes that have been implemented should improve the accuracy of ROP time reporting.

A number of initiatives are currently underway that may improve program efficiency and effectiveness and 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 significance determination process improvements, and implementation of the performance indicator improvements. These initiatives are discussed in other sections of this paper.

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

| | 52 weeks FY 2005 9/26/04-9/24/05 | 52 weeks FY 2006 9/25/05-9/23/06 | 52 weeks FY 2007 9/24/06-9/22/07 |
|---|---|---|---|
| Baseline Inspections | | | |
| Direct Inspection Effort | 145,042 | 144,117 | 156,547 |
| Inspection Prep/Doc | 110,837 | 107,042 | 111,770 |
| Plant Status | 55,394 | 51,488 | 48,804 |
| Subtotal | 311,273 | 302,647 | 317,130 |
| Plant Specific Inspections | | | |
| Direct Inspection Effort | 14,818 | 16,709 | 12,278 |
| Inspection Prep/Doc | 9,149 | 11,130 | 8,174 |
| Subtotal | 23,967 | 27,839 | 20,452 |
| GSI/SI | 10,011 | 8,295 | 11,212 |
| Performance Assessment (Regional effort only) | 19,284 | 16,885 | 14,349 |
| Other Activities[2] | 59,290 | 66,156 | 68,493 |
| Total Staff Effort | 423,825 hrs | 421,822 hrs | 431,636 hrs |
| Total Staff Effort/Operating Site[3] | 6,326 hrs/site | 6,296 hrs/site | 6,540 hrs/site |

1 Includes regional, NRR, and NSIR hours.

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

3 In prior years, MS was treated as two single-unit sites. Starting in 2007, the NRC inspected MS 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 resulted, in part, from the use of a smaller denominator for this calculation.