Appendix F – Root Cause Analysis of Process Improvements

Introduction

The project team conducted a root cause analysis as part of the gap analysis' study of the current state of processes and in response to SRM-M141120. Since 2007, the agency has conducted 42 Business Process Improvement (BPI) projects. Each BPI included a root cause analysis with recommended solutions to enhance business processes. The projects represented a wide variety of processes across the agency, including about three times as many corporate processes as regulatory processes. The attached spreadsheet indicates the lead office, the process studied, fiscal year, summary of root cause(s), and the benefits that were a result of the project. The Project Team analyzed these results to determine why some of the agency's processes are cumbersome and how we may improve efficiency. As stated earlier in the report, this analysis identified the following five recurring root causes:

- **Processes not documented or the documentation is not accurate** – Processes that were not well-documented or were not updated caused the process to be less predictable, perform poorly, decrease in quality, frustrate stakeholders, and negatively affect other associated processes. Poor documentation made it difficult and more time consuming to train new participants in the process. For example, the fuel cycle licensing actions project (11/9/2010) found a lack of guidance on how to conduct a kick-off meeting and how to conduct a site visit for a licensing review, detracted from the overall efficiency, effectiveness, and consistency of the licensing review process.

- **Unclear roles and responsibilities** – Processes that did not have clearly defined roles and responsibilities caused significant delays in the implementation of the processes. Undefined roles and responsibilities caused disruptions in the workflow and the concurrence process. For example, the construction scheduling project (10/1/13) found that unclear roles and responsibilities were causing communication challenges in managing the construction projects, which were detracting from the overall efficiency and effectiveness of scheduling and conducting oversight of new reactor construction.

- **Processes are not standardized** – Many processes lacked a standardized process resulting in non-value add process steps, unpredictable outcomes, process time delays, and difficulty in automating or inhibiting adopting a standardized centralized model. The lack of standardized processes impeded training and added expenses when process participants moved from one office to another. For example, the Enterprise Wide Contract project (12/1/10) found that by not having a standard process, the agency spent excessive time and effort in processing invoices, staff experienced less job satisfaction, offices could not achieve key metrics, and multiple and unnecessary re-work cycles occurred.

- **Process participants are not adequately trained** – In addition to the previously mentioned process training challenges, new participants to a process did not receive adequate training from experienced staff. Poor communication of process changes and a lack of training by the process owner on the changes resulted in poor process performance. For example, the Department of Energy (DOE) labs procurement process project (5/31/10) found that training was outdated, too short, and not specific to the office.

- **Competing priorities** – Other work, emergent work, or inconsistent management direction reduced the amount of time staff hours dedicated to maintaining a high-performing process. For example, the FOIA process improvement project (10/4/12) found that due to competing priorities, subject matter experts were challenged to provide requested redacted documents in a timely and efficient manner.

Attachment: Root Cause Analysis of Business Process Improvements

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Appendix F - Root Cause Analysis of Process Improvements
Results of NRC Business Process Improvement (BPI) Projects 2007 -14

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#	Lead Office/Process	FY	Root Cause	Explanation of Benefits
1	ADM-NRO Task Orders Under Existing Contracts	07	Lack of process documentation, training, inexperienced staff, rework cycles, and quality initiatives. No automated workflow.	This is the total number of staff-hrs saved as of November 2010, as reported by NRO, as the result of streamlining the process.
2	HR-The Hiring Process (from announcement closing to offer)	07	Heavy workload with inconsistent use of technology and office poor planning to perform the process.	The average number of process days _per hire_ was reduced from 105 days to 55 days as reported by HR.
3	OI-Investigative Process	08	Recording of time spent on follow up efforts.	Determined that the process is too subjective for a BPI effort but did recommend adjustments to how hours are recorded for any follow-up efforts to avoid skewing timeliness data.
4	NRO-Rulemaking for Nuclear Reactor Design Certification	08	Lengthy OMB approval and Commission and EDO involvement. Lack of standardized procedures, inability to integrate and track concurrence comments, paper process, and limited staff.	Recommended improvements reduced the process time for nuclear reactor design certification rulemaking from 24 months to 12 months.
5	NRR-Rulemaking for 10 CFR 50.55a	08	Lack of documented and standardized process; unclear roles and responsibilities; emergent issue add scope, and excessive number of reviews and concurrences.	Reduced process cycle time from 1,460 days to 625 days (57%). This was an overall process improvement of 270%.
6	NRR-Relief Request Review	09	Higher priority work; lack of licensees' use of EIE; unclear roles and responsibilities, and too many formal memos vs. email.	SAVINGS: 2,250 hours/year (NRR ~1,500 hours/year and OGC ~750 hours/year).
7	RES-Internal Contracting Process	09	Technical content - Lack of connection to regulatory needs; Standard clauses/ administrative requirements changing, and Inattention to administrative details. Budget/financial complication of financial details (CR, APP, project Spending Plan, 189 proposal, project realities, labor rates, etc.). Changes in execution of budget: Schedule/deliverables; Overly optimistic schedule;, and Delay & uncertainty. Turnover of Staff and Management.	Process time was reduced from 50 days to 18 days, based on data from the first 180 actions, per RES.
8	ADM-Financial Assistance (Grants) Project	09	Lack of standardized procedures, defined roles and responsibilities, knowledge transfer, and work flow issues.	The Competitive Grants process observed a 20% time reduction from FY 2008 to FY 2011
9	OCFO-Invoice Payment Process	09	Invoices not directed to the right PO or CS; Email overload; Technical monitors have other priorities; Lack of backup, and No oversight.	Process improvements resulted in significant improvements in the number of invoices paid within 30 days.
10	OEDO-Response to Congressional Correspondence	10	See Commission Level project #9	The average time per letter was reduced from 21 to 17 days/letter. Also, reduced percentage of letters requiring significant edits by the Commission from 50% to 10%.

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11	OEDO-Commission Level Document Development – SECY Papers	10	(1) Lack of upfront alignment; (2) lack of an efficient concurrence process; (3) ineffective communication; (4) multiplicity of, and inconsistency in, guidance and procedures; (5) wide variation in writing quality; and (6) the nature of the business -- the difficulties inherent in developing positions on complex issues.	The average total time per paper was reduced from 276 days to 200 days. Other projected benefits: (1) Increased on-time document completion rate from 69% to 90%; (2) Increased paper acceptance rate by the OEDO (not returned for rework) from 66% to 90%.
12	OIS-Enterprise Wide Contracts (EWC)	10	Accountability; Lack of clear Roles & Responsibilities; Planning/APP; Info Sharing/Communication; Security clearance process time; Billing/Invoices; Burden of Lead Project Officer	Recommended improvements are estimated to reduce the process time to have contractors begin work by a range of 30 to 60 days.
13	CSO-Multi-Sector Workforce study on Computer Security Office	10	Lack of resources to effectively manage internal and external capacity and capability; outsourceable functions; and revision needed on policies, procedures, and guidance.	CSO was the subject of an OMB mandated Multi-Sector Workforce study. The project conducted the study and met OMB's requirements.
14	NMSS-Fuel Cycle Licensing Streamlining	10	Management role in the license review process; Scope and depth of review to determine adequate safety or security; Inconsistent documentation of staff's findings; Lack of understanding of OGC's role in the concurrence process; Level of detail in the licensing procedures, and Staff training necessary to perform licensing reviews effectively.	Recommended improvements are estimated to reduce the process time for licensing reviews by 25 hours per review by improving guidance and eliminating rework. Between 80 and 90 licensing actions are issued per year.
15	OIS-Software Acquisition & Control	10	Unclear and not standardized process; labor intensive process for unapproved software (See BPI on IT Coordinator).	Recommended improvements are estimated to reduce the process time to review and approve software requests from 23 to 15 business days. Staff have also observed a reduction in the number of staff hours required to process requests.
16	OE-Alternate Dispute Resolution	11	Insufficient detailed guidance on the process and roles and responsibilities; Skills needed to support ADR activities not formally developed or routinely maintained; Insufficient and misaligned resources, and differing priority for ADR leading to inconsistent workloads for those involved.	Recommended improvements reduced ADR-case close-out time from an average of 307 days to 190 days. Actual average time is 200 days. Recommendations are also expected to result in improving and enhancing process transparency.
17	NMSS-Part 72 General License Review Process	11	(1) Outdated or unclear guidance and (2) ineffective communications among staff as the major root causes of most of the process issues.	Recommended improvements are estimated to reduce the process time for cask "Certificate of Compliance" reviews by 25 hours per review by improving guidance and eliminating rework. The division averages 10 applications per year.

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18	OCFO-Budget Formulation	12	Offices must begin formulating budgets prior to receipt of formal guidance, and multiple points of feedback lead to changes in direction and re-work.	The project team mapped out the budget formulation process and identified several sub-processes; identified issues and root causes associated with each sub-process; revamped the Program Consideration and Priority (PC&P) process and developed the revised Projected Budget Drivers (PBD) process. The team also implemented the revised PBD process which led to the issuance of the Chairman's High Level Planning Guidance. Budget instructions were streamlined and the budget book format revised to meet current agency needs.
19	ADM-DOE Labs Procurement Processes	12	Insufficient training and guidance, excessive forms, IT systems do not support office needs, service agreements inadequate; lack of accountability of DOE Labs and DOI (payment vendor).	The new process for Pre-award/Award/Out of Scope Changes as reduced from 259 days to 228 days (12%); Admin Mod/Incremental Funding was reduced from 44 days to 14 days (69%); In Scope Change was reduced from 191 days to 177 days (8%).
20	ADM-Small Office Procurement Processes	12	Staff not specifically assigned to perform acquisition function; Infrequent and lack of experience in executing the processes; Lack of available guidance and resources to assist in executing the processes; No central repository of existing contracts or historical information.	Supported the recommendations on the DOE Lab BPI and provided feedback to ADM regarding the type of support they need in the procurement process. ADM created a business advisory center to support all offices with the procurement process.
21	OIS-Intranet Posting Consolidation	12	Duplication of effort - each office had to have someone trained and experienced to perform this function.	The team successfully consolidated intranet posting activities through a phased implementation approach. This will result in efficiencies gained through a reduction in contract costs and fewer full-time (federal) staff.
22	OEDO-Add/Shed Process	12	Lack of documented and standardized process; unclear roles and responsibilities.	OEDO issued procedure Nov 2012.
23	NRO/RII-Construction Inspection Scheduling	12	Unclear roles and responsibilities, and lack of a well-defined process.	BBs restructured & fully documented a new CIS process as well as comprehensive roles & responsibilities for all key players.
24	OIS-FOIA Process and Liaison Activities	12	Competing priorities; complexity of the review; and insufficient staff, and lack of training of FOIA Coordinators.	Streamlined OE's FOIA Process, reinstated performance goals, recommended that the FOIA Coord. not be centralized. Centralization would be possible when able to fully automate the process. Management centralized the function.
25	OEDO-Senior Performance Official (SPO)	12	Labor intensive manual process and outdated method of reporting on metrics.	Termination of Senior Performance Official (SPO) Process in lieu of Quarterly Performance Review.

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#	Lead Office/Process	FY	Root Cause	Explanation of Benefits
26	OEDO-Performance measures	12	Lack of clarity in the process and measures; Lack of guidance; and an excessive number of measures.	Recommendations included the adoption of the "logic Model" development of a performance management MD, enterprise-wide tool.
27	OIS-IT Coordinator Centralization	13	Labor intensive manual process and inconsistent customer support.	Centralized function provides customer support.
28	OCFO-Baseline Budget	14	New process: Define the new process; determine the level of detail for decision-making; develop guidance; quantitative performance metrics.	Defined baseline budgeting and outlined a new process for identifying resource needs; modified budget materials and drafted new budget instructions beginning with the FY 2015 budget formulation effort.
29	NRR-Significance Determination Process (SDP)	13	Enforcement guidance, roles and responsibilities, and peer review not well-defined. Training of decision-makers. Templates request redundant information. Long lead time to receive information from licensee.	The BPI Team presented 15 recommendations divided into 4 overarching categories: Communication, Coordination, Management, and Policy. The recommendations sought to clarify expectations by management and improve efficiency associated with developing, reviewing, and executing the Significance and Enforcement Review Panel (SERP) packages and conducting the SERP.
30	OCHCO-Onboarding	13	Unclear roles and responsibilities, hiring manager interview errors, office onboarding websites with incorrect information.	Reduced the amount of manual processes by applying technology solutions that improved access to records/forms, identity management, process workflow, and streamlined the ordering of work space, equipment, and system access. Created work groups to revise and enhance new employee orientation, the agency's new employee website, and the hiring manager's resources and training. Initiated changes in the personnel and facilities security onboarding processes to streamline and improve the new employee's experience.
31	OCHCO-Training Centralization	13	Inconsistent approach across offices to prioritize training needs and application of agency and government policies. External training management is decentralized.	Developed documentation of the centralized processes: Training Formulation Data Call; External Training Requests; and Training Plan Change Mgmt. Processes to centralize training.
32	OEDO-Green Ticket Closeout	12	Unclear processes, roles, and responsibilities.	Developed graphic process map with stakeholder input from corporate and program offices; documented roles & responsibilities.
33	OCFO Accounting Process Documentation	13	Outdated and limited process documentation.	Created staff process documentation of eight processes.
34	OCFO-Fee Billing	14	Verification is not being done properly; Information errors; Process is tedious and cumbersome, and Technology systems have functionality issues.	Implementation of recommendation underway.

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35	OE-Differing Professional Opinion Process	14	The process in the management directive was difficult to follow; panel participants struggled with additional workload to review and to write a well-documented final report; and DPO submitter need more communication in the process.	Developed recommendations to improve the guidance, communications, and resource planning.
36	OEDO ACS Staff's Implementation of OEDO STAR System	14	Outdated process documentation and handbooks.	This project succeeded in streamlining and documenting the processes for the ACS and assisting with the successful implementation of the new OEDO STAR system that replaced the ETS. The new system went live on 1/22/14.
37	NRR-ROP Feedback Form Process	14	Timeliness: no metric; lengthy discussions on contentious issues; lack of agreement on issues; Communication: unclear guidance on the process; no tracking of submission; not all issues discussed at monthly calls; lack of feedback to originator; Guidance: unclear framework; unclear decision making; Database: insufficient detail entered; limited capability.	Improved communication reduced the need to enter the formal process; Regions comment on draft issues to resolve contention in the process; and improved the SharePoint site to provide improved management of documents.
38	NRR's Review of NFPA 805 License Amendment Applications	14	Workload management issues; lengthy requisition process; duplicate efforts in some areas; IT infrastructure could not support full implementation of eRAI; Licensee not following guidance; guidance is lacking in some areas; project managers don't keep accurate documentation of contact with licensee, and unclear roles and responsibilities.	Ad hoc support being provided; BPI has worked with team to develop graphic process map, project tracking chart, and documented and weighted process challenges.
39	OEDO Administrative Processes (reopened)	14	Unclear roles and responsibilities; undefined processes, and lack of performance standards.	New desk guides prepared and RACI chart to define roles and responsibilities.
40	OCHCO-International Agency Assignments Process	14	Process not well documented.	Clarified process and identified policy and procedure issues.
41	OEDO-SES Appraisals and Performance Plans	14	Unclear roles and responsibilities; scheduling issues, and lack of standard process.	Awaiting outcome of OCHCO pilot of new SES Appraisal process before moving forward. Expected to receive results in late May, 2014.