RECLAMATION

Managing Water in the West

Coordination and Oversight Group (COG) Annual Report for Fiscal Year 2012

U.S. Department of the Interior
Bureau of Reclamation

June 2013

Mission Statements

The U.S. Department of the Interior protects America's natural resources and heritage, honors our cultures and tribal communities, and supplies the energy to power our future.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

Coordination and Oversight Group (COG) Annual Report for Fiscal Year 2012

U.S. Department of the Interior
Bureau of Reclamation
Coordination and Oversight Group

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Acronyms and Abbreviations

ARRA	American Recovery and Reinvestment Act of 2009
Board	Change Management Board
BRC	Budget Review Committee
CFOC	Chief Financial Officer Council
CIO	Chief Information Officer
COG	Coordination and Oversight Group
D&S	Directives and Standards
DCO	Deputy Commissioner - Operations
DC-PAB	Deputy Commissioner - Policy, Administration, and Budget
ESAM	Electronic Service Agreement Module
FBMS	Federal Business Management System
FCCO	Four Corners Construction Office
FFA	Family Farm Alliance
FIST	Facilities Instructions, Standards and Techniques
FO&M	Facilities Operation and Maintenance
FTE	Full-Time Equivalent
FY	Fiscal Year
GP Region	Great Plains Region Engineering Design, Geology and Exploration Services, and Construction Services
Interior	U.S. Department of the Interior
IDIQ	Indefinite Delivery/Indefinite Quantity
LC Region	Lower Colorado Region
LC ESO	Lower Colorado Region Engineering Services Office
MP Region	Mid-Pacific Region
MPCO	Mid-Pacific Construction Office
MP Region	Mid-Pacific Region
MP-150	Mid-Pacific Region, Division of Environmental Affairs
MP-200	Mid-Pacific Region, Division of Design and Construction
MP-700	Mid-Pacific Region, Division of Planning
NewMIS	New Management Information System
NWRA	National Water Resource Association
O&M	operation and maintenance
PM Framework	Project Management Framework
PN Region	Pacific Northwest Region
PN-RTS	Pacific Northwest Region - Resource and Technical Services
PAO	Provo Area Office
PMIT	Project Management Implementation Team
PRO	Power Resources Office
RAX	Replacements, Additions, and Extraordinary Maintenance
RDCCT	Reclamation Design and Construction Coordination Team
Reclamation	Bureau of Reclamation
RLT	Reclamation Leadership Team

SA	Service Agreement
SPO	Service Provider Organization
TSC	Technical Service Center
UC-ESG	Upper Colorado Region Engineering Services Group
UC Region	Upper Colorado Region
WMS	Workload Management System

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Executive Summary

The Coordination and Oversight Group (COG) is responsible for helping implement the Bureau of Reclamation's (Reclamation) business model for managing technical services. In addition, the COG is tasked with assisting the Deputy Commissioner - Operations (DCO) to retain an appropriate level of expertise in mission-critical technical services. Implementing the business model and ensuring that the agency maintains the minimum necessary technical expertise are essential tasks that enable Reclamation to deliver water and generate power, while executing program and project requirements within scope, budget, and schedule. As part of that effort, the COG proposes to do so in a manner that fosters Reclamation-wide collaboration, coordination, and sharing of technical resources in an accountable and transparent manner. The COG's activities, report of findings, and recommendations for fiscal year (FY) 2012 are contained in this report.

In order to measure performance in FY 2012 as effectively and objectively as possible, a large volume of data related to the delivery and use of technical services in and by Reclamation was collected and analyzed. The data included: budget, schedule, client feedback, control of decisions for managing programs, employee utilization, advanced work planning, outsourcing, and capabilities.

While the implementation of the business model is relatively recent, many of its principles have been in practice for some time. Reclamation shows areas of strength and high competency, as well as some areas of concern where it should closely monitor and work to maintain potentially endangered technical capabilities and work with its Service Provider Organizations (SPO) and customers to improve processes to make the delivery of technical services more efficient.

Areas of strength:

- Reclamation's overall technical expertise, with a few notable areas of concern, is sustainable and capable of supporting the agency's mission. Further, in its analysis of Reclamation's technical capabilities, the COG determined that no new technical capabilities were identified as endangered. The COG, in collaboration with the appropriate managers, continues to work to implement the action plans that were developed in previous years to address identified areas of concern. The number of active service agreements (SA) during FY 2012 was 2,950. There were 1,322 SAs completed in FY 2012 (up from 1,049 in FY 2011). The value of these SAs was approximately $48 million, which is an increase of $5 million over FY 2011. Of the 1,322 SAs completed in FY 2012, 97 percent (%) of them were completed within the agreed-upon schedule, and 95% were completed within the estimated budget.

- In FY 2012, the percentage of technical staff who direct billed to projects and/or program support ranged from 70% to 99%, with the majority above the industry standard of 85%. Overall, this suggests that the SPO's staff resources are being utilized appropriately, which is comparable with industry utilization rates.

- Feedback received from completion reports continues to indicate that, on the whole, the timeliness and quality of the work provided by Reclamation's SPOs continues to meet the needs of their customers. On a scale from 1 (lowest) to 5 (highest), the average overall rating was calculated to be 4.4, the same level identified in FY 2011.

- Program offices continue to decide where technical services are performed. No appeals of the workflow process were filed with the DCO; therefore, the COG concludes that any associated issues were successfully resolved at the program or Regional Director's office level and that the "empowerment of the regions" objective is being met.

Areas of concern:

- Reclamation's ability to measure and evaluate the cost effectiveness and timeliness of technical services has been hampered by delays in deployment of the Electronic Service Agreement Module (ESAM) and by some technical problems since deployment (see status for recommendation 2010-COG-1 in appendix B). The delay in both deployment, as well as development of the ESAM's reporting module, resulted in a physical data call for FY 2012 data, rather than relying on the ESAM to produce the data for the annual report. This resulted in slightly inconsistent data responses for certain performance data, including percent utilization of services. However, with full implementation of the ESAM for FY 2013, the COG believes improvements will be made.

- On a Reclamation-wide basis, there is concern that the quality of the data collected through the Advanced Planning process is less meaningful and helpful than it should be to the SPOs for long-term planning.

- The COG is concerned that the travel restrictions are having a negative impact on Reclamation's ability to maintain its technical capabilities. The COG's analysis indicates that the alternatives that have been developed to carry out mission-critical work may be more costly than the savings realized from reduced travel. The COG is also deeply concerned about the potential impact to the safety of the construction and operation and maintenance (O&M) workforce.

COG Recommendations: As a result of the analysis performed for the preparation of the FY 2012 Annual Report, the COG is proposing the following recommendations. A list and status of all previous COG recommendations are displayed in table B-2 in appendix B.

(1) **Advanced Planning:** While the COG previously provided improved instructions and information regarding the level of detail to include in the Budget Review Committee (BRC) Notebook Advance Planning Table (see Recommendation No. 2011 – COG – 10), the effects of this additional guidance will not be available for review until 2014. The COG recommends that, in order to improve the relative utility of the Advanced Planning effort, the COG should establish a subteam to evaluate both the data collection and the data distribution processes. (Recommendation No. 2012 – COG – 1)

(2) **Impacts of Travel Restrictions:** The COG recommends that steps be taken to track and report examples when travel restrictions caused an impact on how Reclamation conducted operations. Future reports will provide examples of the type of impacts that were encountered due to travel restrictions. A potential consequence of these restrictions is the reduction in the billability percentage in disciplines that rely on travel to perform work efforts like O&M, construction management, or drilling. Another consequence could be an increase in contracts for field support for either construction or project planning efforts. The COG will also evaluate the benefit of compiling travel data by cost authority. The COG will include a summary of findings related to this effort in the FY 2013 Annual Report and recommend other tracking measures that could assist decisionmakers. For the immediate term, the COG recommends that Reclamation give priority consideration to mission critical field operations and then mitigate impacts to other mission critical activities to the extent possible. (Recommendation No. 2012 – COG – 2)

(3) **Evaluation of Annual Report and Data Collection Process:** The COG recommends that an analysis of the Annual Report related to the usefulness of the Technical Capability Report, the Report itself and the action plans for endangered capabilities be completed. That analysis should include an effort to seek feedback from regional resource managers and managers of Technical Services providers and should include recommendations for improving the processes and utility of the COG. (Recommendation No. 2012 – COG – 3)

(4) **Implementation of Project Management:** With the publication of the Project Management Implementation Framework (PM Framework) at the end of FY 2012, the COG should work with those who prepared the PM Framework (the leaders and members of the Project Management Implementation Team) to provide support and guidance to the regions and program offices to help develop objectives and performance

measures. A part of implementation of the processes articulated in the PM Framework, future annual reports should include performance measurements of project management implementation within Reclamation. Additionally, in order to serve as a resource, and to assist regions/directorates in facilitating their progress towards project management process maturity, the COG recommends that the PMIT review, analyze, identify gaps, advise, and recommend actions for improving consistency and utilization of the PM Framework's best practices and related training. The COG will request the PMIT to provide annual assessment results and status, along with recommendations to be included in the COG Annual Report, and as otherwise appropriate. (Recommendation No. 2012 – COG – 4)

(5) **Service Agreement Completion Reports:** The COG continues to believe that delivering high-quality and timely technical service is a central tenet to Reclamation's mission. In doing so, obtaining completion report feedback from its customers is the single best means of understanding their needs. While the SPOs fell short of the 75% goal in FY 2012, the COG recommends increased outreach from the COG and the SPO to their customers on the value of the completion reports. With increased outreach, along with full implementation of the ESAM in FY 2013, the COG further recommends that the 75-percent goal for returning completion reports remain in place for FY 2013. (Recommendation No. 2012 – COG – 5)

(6) **Arc Flash:** In response to a request from Reclamation's Power Resources Office, the COG completed an analysis of Reclamation's capabilities to perform arc flash hazard analyses at Reclamation facilities. The COG recommends that *Facilities Instructions, Standards and Techniques Manual, Volume 5-14, Electrical Safety Program*, which is currently under revision, should address:

- Data that must be included in a comprehensive arc flash analysis
- Definition of persons qualified to perform arc flash analyses
- Use of the Technical Service Center (TSC) as the preferred provider for arc flash analyses
- TSC peer review of arc flash analyses performed by others
- Scheduling of arc flash analyses (the Power Resources Office and TSC have developed a schedule for arc flash analyses at Reclamation facilities)

- Reclamation must ensure that qualified engineers are available to perform and peer review arc flash analyses when needed by the agency. (Recommendation No. 2012 – COG – 6)

Status of Prior Year Recommendations: In addition to the new recommendations referenced above, the COG continues to make progress and track those recommendations that were developed in previous years. Recommendations 2011-COG-1, 2, 3, 4, and 7 are a result of the COG's analysis of drill crew workload issues. Recommendations 2011-COG-14 and 2011-COG-15 are a result of the COG's FY 2011 Annual Report, including the COG's analysis of FY 2011 performance and technical capability data. An in-depth table is provided in appendix B.

1. Introduction

This Coordination and Oversight Group (COG) Annual Report for Fiscal Year (FY) 2012 is a comprehensive accounting of FY 2012 COG activities, summary of data collected, findings, and recommendations for consideration by the Deputy Commissioner - Operations (DCO). It is anticipated that the information contained in this report will be made available both within the Bureau of Reclamation (Reclamation) and externally.

2. Background

As a result of the *Managing for Excellence* initiative, Reclamation formed the COG to develop and oversee the implementation of a business model to provide agency-wide processes and procedures for obtaining and managing technical services. This business model was developed to improve the overall business practices that guide the management of technical services work within Reclamation's decentralized organizational structure. The goal of the business model is to maintain a balance between the desirable attributes of Reclamation's empowered, decentralized structure and our appropriately disciplined, agency-wide workload planning, scheduling, and workflow processes to efficiently use and manage a dispersed technical workforce. The business model is also intended to ensure that Reclamation's necessary technical capabilities are maintained to accomplish the agency's mission.

The business model was developed based on several important objectives:

- Empowerment of the regions
- Cost-effective and quality services
- Transparency and accountability
- Predictability of workload
- Maintenance of core technical capability
- Strategic determination of outsourcing/contracting

These objectives, developed by the COG and endorsed by the Reclamation Leadership Team (RLT), provide the foundation for the business model. Establishing an appropriate balance between these objectives is essential to successful implementation of the business model because the potential exists for achieving one objective at the expense of another. The COG was formed to facilitate this balance and to assist the DCO in ensuring that Reclamation maintains the technical capabilities to fulfill all of its responsibilities for delivering water and generating power, while executing program and project requirements within scope, budget, and schedule. The COG proposes to do so in

a manner that fosters Reclamation-wide collaboration, coordination, and sharing of technical resources with accountability and transparency.

COG Membership: The COG consists of eight members and seven alternates, including a member who also serves as the COG Chair. The COG membership represents the diversity of Reclamation interests, roles, and responsibilities, which can include, but is not limited to, Regional Directors, Area Managers, Program Leads, Project Management Leads, Assistant/Deputy Directors, and leads in technical fields such as design, construction, environmental compliance, planning, and geology. Each of the five Regional Directors; the Director, Technical Resources; and the Deputy Commissioner - Policy, Administration and Budget (DC-PAB) has one member and one alternate. While all members serve as a collateral duty, the member appointed by the DCO is a permanent COG member, whereas the others serve on a rotational basis. See appendix C for the FY 2012 COG membership roster.

Policy and Guidance: In September, 2010, the COG completed the development of a Policy and three Directives and Standards (D&S) to guide the COG, Service Provider Organizations (SPO), and customers in implementing the business model for managing technical resources in Reclamation. These documents are publicly available at http://www.usbr.gov/bp/process.html. In 2012, the COG re-evaluated these documents and concluded that they continue to provide the necessary and appropriate guidance to Reclamation's SPOs and to their internal customers.

Short descriptions of the Policy and D&S follow:

- **Policy CMP P10 - Bureau of Reclamation's Business Model for Managing Technical Resources** outlines the major components of the business model, including a graphic illustration of the business model process, and defines responsibilities and requirements for implementation.

- **D&S CMP 10-01 - Advance Planning for Technical Services Work** directs a process for communicating future plans for the use of service providers in accomplishing Reclamation's technical services work. This D&S acknowledges the link between advance planning of technical services work and implementation of fee-for-service practices.

- **D&S CMP 10-02 - Fee-for-Service Business Practices for Technical Services Work** directs the use of standardized, fee-for-service business instruments associated with the business model and acknowledges the link between advance planning of future technical services work and implementation of fee-for-service practices. These fee-for-service practices will follow a consistent format that will generate standardized data to achieve transparency and accountability.

- **D&S CMP 10-03 - Workload Distribution Practices for Technical Services Work** directs key business practices associated with workload distribution processes for the new business model. The workload distribution practices described in this D&S are the link between advance planning of future technical services work and fee-for-service practices in using Reclamation's technical resource capabilities.

Service Provider Organizations: When the business model was established, Reclamation identified which offices and organizations that provide specialized technical services would be covered by the operating procedures and the business model. Nine SPOs were identified as follows:

1. Great Plains Region Engineering Design, Geology and Exploration Services, and Construction Services (GP Region)

2. Pacific Northwest Region Resource and Technical Services (PN-RTS)

3. Mid-Pacific Region Division of Environmental Affairs, Division of Design and Construction, and Division of Planning (MP-150, -200, and -700)

4. Upper Colorado Region Engineering Services Group (UC – ESG)

5. Lower Colorado Region Engineering Services Office (LC – ESO)

6. Technical Service Center (TSC)

7. Four Corners Construction Office (FCCO)

8. Provo Area Office (PAO)

9. Mid-Pacific Construction Office (MPCO)

Service Agreements: For every technical service that the SPOs provide, an individual Service Agreement (SA) is developed on a job-by-job basis. This agreement is intended to clearly identify the tasks to be carried out, as well as the timeframe and the estimated costs for that job. Several thousand SAs are developed each fiscal year, with some spanning multiple years. Each SA has a scope of work, budget, and schedule. Work performed under the SA is then charged to the customer on a fee-for-service basis.

Electronic Service Agreement Module (ESAM): In the spring of 2009, the COG approached the Chief Information Officer (CIO) to pursue development and implementation of a software application to help collect pertinent cost and schedule data in an efficient and consistent manner. After evaluating multiple

alternatives, the CIO and COG chose to use the New Management Information System (NewMIS) application as a model. NewMIS was the SA tracking system the TSC used to collect similar data. At that time, the COG contracted with the CIO's office to develop the ESAM. In order to monitor how well the SAs are carried out, the COG developed performance measures to compare actual performance against the proposed schedule and estimated budget. The ESAM has the following tracking features:

- Develops and maintains budgets and schedules for SAs
- Tracks both labor and nonlabor costs incurred
- Produces completion reports for Reclamation SPOs
- Produces the necessary financial data and files to support an optional billable rate methodology for charging labor costs

A two-phase approach for this Web-based software module was originally planned for accomplishing the development of the ESAM: (1) Phase 1 user interface (input) development, and (2) Phase 2 database (output) optimization. During production of Phase 1, several technical problems occurred, which prevented the deployment of the application in the timeframe originally envisioned. In fall 2009, the decision was made to refocus production efforts combining Phases 1 and 2 into a single deliverable. During the past year, ESAM was deployed by the SPOs in stages, beginning with MPCO in February and ending with LC ESO in November, just after the fiscal year ended. As such, the data analyzed by the COG for FY 2012 was a mixture of information provided through ESAM, as well as a separate manual data call to capture information not entered into the ESAM system. This made analysis difficult in 2012. However, the COG anticipates that the FY 2013 Annual Report will be developed using data from the SPOs generated from ESAM because all SPOs will have been using the system for the entire year, and the data should be consistent.

3. FY 2012 COG Activities

In FY 2012, the COG held three face-to-face meetings and three conference calls that substituted for face-to-face meetings in order to save travel funds. The primary COG activities during FY 2012 were:

- **Review of Business Model Policy and Guidance:** In FY 2012, the COG completed a comprehensive review of the Policies and D&S that guide the COG, the SPOs, and their customers on implementing the business model. The COG concluded that these governing documents still provide the appropriate level of direction and guidance; therefore, they did not need to be revised.

- **Technical Capability Analysis:** The COG performed the FY 2012 evaluation of Reclamation's technical capability and maintenance thereof. Appendix A, "Technical Capabilities Within Reclamation," contains the summary status report for FY 2012.

- **ESAM:** The COG oversaw the development and deployment of ESAM. Development of the system was determined to be substantially complete in January 23, 2012, and the system deployed in stages to the SPOs. Three of the SPOs have opted to utilize a billable rate structure to recoup all of their operating expenses. The remaining SPOs continue to operate using overhead multipliers on the labor and benefit costs to recoup their various operating costs. The decision on whether or not to utilize a billable rate approach is made by each office and depends upon the size of the technical staff and the makeup of their workload. The billable rate approach requires the office to operate within a working capital fund with a range of controls and oversight. The billable rate approach offers several benefits to the larger SPOs with high percentages of project work.

  The main benefit from a project management perspective is the ability for the project manager to accurately estimate the labor costs for each day of work projected at a specific skill level. Hourly and daily rates are broken out at three or more skill levels depending upon grade (e.g., GS 1-9 = skill level 1, GS 11-12 = skill level 2, GS 13+ = skill level 3). Project managers input estimated staff days into the ESAM, along with any anticipated nonlabor costs, and the total cost of the project is developed based on the appropriate skill level rates. Most importantly, as the work is performed, time is also charged using these rates. The nonbillable rate offices independently develop average rates by individual or group, and these are used to input the labor costs into the ESAM. These are often spreadsheet based calculations that are used to develop estimated total labor costs for the project.

  The other main benefit of the billable rate approach is the daily calculations. The ESAM provides for time entered into the Electronic Time and Attendance System (ETAS) for jobs in the current pay period. Current data are very important to help the project manager keep the costs within budget, especially near the end of the job.

  Challenges persisted with verification of billable rate information, so nonbillable SPOs were brought online first:

  MPCO: February 2012
  UC-ESG: July 2012
  GP Region: July 2012
  MP-150 and MP-200: July 2012
  PAO: June 2012
  FCCO: July 2012
  PN - RTS: July 2012

Subsequently, the billable rate SPOs were deployed after verification issues were addressed:

TSC: August 2012 LC ESO: November 2012

Additionally, MPCO converted from nonbillable to billable rate in November 2012.

- **Financial Business Management System (FBMS):** In FY 2012, ESAM was also identified as one of Reclamation's legacy systems that would require integration into the FBMS, a U.S. Department of the Interior (Interior) initiative to consolidate business systems into a unified and consistent application across the agency. The COG, system developers, and users continue to provide support to integrate ESAM with the FBMS. It is anticipated that this integration will be completed prior to deployment of the FBMS within Reclamation, which is scheduled for November 2013.

- **Workload Management System (WMS):** In support of its use of Project Management tools, the MP Region was granted permission to integrate its internally developed WMS with the ESAM. WMS is an interactive tracking of the full project life cycle with emphasis on project scope, schedule, and budget. Work on linking WMS to the ESAM will proceed once the ESAM and FBMS integration has been completed. In addition, the UC Region is planning to implement the WMS in 2013.

- **Project Management Implementation Framework (PM Framework):** As a followup to the 2006 *Managing for Excellence* decision document entitled "Project Management Implementation, Action Items 20 through 23, Managing for Excellence," and the 2009 Policy on the use of project management practices within Reclamation, the COG established and oversaw the Project Management Implementation Team (PMIT). The PMIT was established to develop a plan for consistently implementing project management tools and techniques in Reclamation. Of particular importance, the PMIT developed performance metrics to assess the application of project management across Reclamation and to set minimum standards and requirements to support the practice. The PMIT is comprised of COG members and other Regional and Denver Directorate representatives. In September 2012, after significant review within Reclamation of its drafts, followed by discussion and approval by the RLT and the Commissioner, the PMIT finalized the *Reclamation Project Management Framework and Implementation Plan* for use in Reclamation, and then Deputy Commissioner Murillo

distributed it in a memo dated September 28, 2012.[1] The PM Framework is available at www.usbr.gov/pm. Implementation of the PM Framework will happen in two phases. First, in FY 2013, each Reclamation directorate will individually develop and establish a governance structure to fully implement the tools and techniques associated with project management and track its progress against the performance measures established in the PM Framework. In Phase II, beginning in FY 2014, the directorates will fully implement the governance structure that they established in Phase I and fully track its activities against the project management performance measures.

- **ESAM Change Management Board (Board):** In late 2012, the Board was established to act as: (1) an advisory group to the ESAM Executive Sponsor and Business Owner on the implementation of the ESAM, and (2) a "configuration management board" to review proposed changes to the application. Therefore, when users identify structural changes to the system, they submit those to the Board to determine whether or not such changes are appropriate and cost effective. The Board will also prioritize acceptable changes and determine how the development and implementation of system changes should be funded. Board membership consists of at least two current COG members, a representative from the TSC, a representative of the DCO, and a representative from Reclamation's Information Resources Office.

- **Arc Flash Capability:** While it was not identified as an "endangered capability," in FY 2011, Reclamation's Power Resource Office (PRO) requested that the COG evaluate and make recommendations on Reclamation's capabilities to perform arc flash hazard analyses at its facilities. Arc flash hazard analyses are performed to provide information so that plant personnel will understand the potential dangers and proactively limit exposure to serious electrical hazards that can result in permanent injury or fatalities while performing routine and nonroutine plant maintenance. In response, the COG conducted an evaluation, in consultation with the Reclamation Design and Construction Coordination Team (RDCCT), and developed a set of recommendations which are discussed further in the document and are being implemented.

3.1 COG Outreach

In FY 2012, the COG and the DCO carried out a number of outreach activities to provide information and greater clarity on the use and importance of the business

[1] See http://www.usbr.gov/pm/docs/PM-Framework-Memo.pdf.

model and to provide updates on the progress of its implementation. Outreach activities included the following:

- **Facilities Operation and Maintenance (FO&M) Team:** COG representatives provided regular updates to the FO&M Team on both the ESAM functionality and schedule and on the status of Reclamation's technical capabilities, particularly as they relate to the agency's ability to address FO&M issues.

- **Advanced Planning:** In an effort to assist the SPOs with workload planning, the COG consolidated and transmitted the Advance Planning tables that were prepared for collecting data for Reclamation's Budget Review Committee (BRC) process. The worksheets transmitted in March 2012 were for FY 2014 and FY 2015.

- **Business Practices Web Site:** Reclamation's Business Practices for Technical Services Web site, http://www.usbr.gov/bp/, contains extensive information on its business model and practices for technical services, including the FY 2011 Annual Report, success stories, and examples. The COG membership and contact information are also posted.

- **Reclamation Leadership Team:** The DCO provided the RLT with regular updates on implementation of the business model, the state of Reclamation's technical capabilities, and the status of ESAM implementation. In addition, individual COG members frequently provided briefings to their respective directors and to leadership groups on the various aspects of COG activities.

- **Chief Financial Officer Council (CFOC):** The COG coordinated with the CFOC in its efforts to develop consistent accounting practices for working capital fund accounts and to help define the advantages and applications of advance funding agreements.

- **Family Farm Alliance:** During his presentation at the Family Farm Alliance's (FFA) Annual Meeting and Conference in February 2012, Deputy Commissioner Murillo provided an overview and status report on the business model.

4. Business Model Assessments

Reclamation's technical services business model is designed to meet six specific objectives. These objectives, and an assessment of Reclamation's performance in meeting each objective, are presented in the following sections.

4.1 Business Model Objective – Empowerment of the Regions

As a central tenet of the business model, Reclamation's construction and program managers retain the authority to determine where they obtain technical services work (see D&S CMP 10-03, "Workload Distribution Practices for Technical Services Work"). However, in doing so, the program offices must maintain a corporate perspective and use the workload distribution flowchart shown in appendix A of D&S CMP 10-03 when making these decisions. If a program office decides to distribute workload outside the approach prescribed in the workload distribution flowchart, written documentation is required for that decision to ensure that the corporate perspective is considered. In such an instance, the director of a SPO may appeal the program office's decision using the appeal path outlined in the D&S.

To track the implementation of this objective, two performance measures were developed:

(1) The number of formal appeals by SPOs
(2) The number of appeals sustained, per DCO decisions

In FY 2012, there were no formal appeals filed by an SPO; thus, there were no appeals to be sustained.

Based on anecdotal evidence and informal observations by the COG, this workload distribution process has resulted in improved communications between program offices and SPOs which may not have otherwise occurred. Since no appeals to the DCO were filed, the COG concluded that any associated issues were successfully resolved at the program office or by the directors. Therefore, the COG concludes that the "empowerment of the regions" objective is being met.

4.2 Business Model Objective – Cost-Effective and Quality Services

To maintain a sustainable and high-quality internal technical capability, Reclamation must understand how well it is meeting its customers' needs. As such, the COG developed three performance measures to track and monitor Reclamation's SPOs in the area of cost-effective and quality services. These performance measures are:

(1) Product delivery
(2) Customer satisfaction (both internal and external)
(3) Percent utilization of services

It is important to look at the first and second measures together to fully evaluate overall SPO performance.

It is the COG's plan that in the long term, most of the data for these performance measures will be gathered through the ESAM. Unfortunately, the ESAM was not fully operable in FY 2012 because it was not brought into use for all the SPOs until very late in the year. As such, the COG continues to rely on manual methods of accounting that may result in differing approaches to collecting data and differing interpretations. To minimize the potential variances in reporting by the SPOs, the COG developed a spreadsheet to serve as a consistent tool that all COG members and SPOs populated with their individual data. That information was then manually collated, and Reclamation-wide trends and results were calculated. The spreadsheet data are summarized in the tables and graphs in appendix D, and a copy of the data is available for reference at: http://www.usbr.gov/bp/tr.html.

4.2.1 Product Delivery

To measure product delivery, data were gathered to: (1) calculate the percentage of SAs completed within the agreed-upon schedule; (2) calculate the percentage of SAs completed within the agreed-upon budget; and (3) document the number of SAs with completion reports.

Service Agreements: In FY 2012, there were 2,950 active SAs, which is an increase of 97 SAs (or 3% from FY 2011); however, not all of the work in these SAs was programmed to be completed within FY 2012. In FY 2012, there were 1,322 SAs completed, with a value of about $48 million. This is an increase of approximately $5 million over FY 2011. Also noteworthy is that approximately 82% of all active SAs and 82% of completed SAs in FY 2012 were with the TSC, making it the largest SPO in Reclamation.

Among the SPOs, SAs completed within schedule and budget range from 50% to 100%. Overall, the percentage of SAs that the SPOs completed within schedule was 97%, and the percentage within budget was 95%. While there may be individual cases that were not within this parameter, based on its review of the data, the COG sees this as a positive result. Therefore, the COG recommends no further additional action.

Completion Reports: In FY 2012, the raw number of completion reports that were completed by SPO customers increased to 499 from 406 in FY 2011. However, the raw number of SAs rose at a higher rate. Therefore, the overall percentage of SAs with completion reports declined slightly from 53% in FY 2011 to 51% in FY 2012. In FY 2012, there were 499 completion reports collected from 976 completed SAs over $10,000. Completion reports are not required for SAs less than $10,000. In FY 2012, the TSC completed 1,141 SAs, and only 795 of them were greater than $10,000. Therefore, the TSC only requested completion reports for 795 SAs.

The FY 2011 Annual Report recommended that the goal for completed completion reports increased to 75% for FY 2012. Unfortunately, that goal was not reached. The COG identified two main reasons. First, one of the most important features of the ESAM is that after the SA is closed, ESAM should prompt the service provider to request that the customer submit a completion report for each job carried out. Unfortunately, because of delays in implementation of ESAM, and subsequent problems with the completion report module, these requests were not always made. Second, from anecdotal evidence, it seems that customers do not fully understand the relevance or importance of completing those reports. Therefore, with full implementation of the ESAM in FY 2013, along with increased outreach by the COG and the SPOs on the value and importance of this feedback, the COG believes that the 75% goal is achievable and recommends that it be retained for FY 2013.

The COG continues to believe that delivering high-quality and timely technical service is a central tenet of Reclamation's mission. In doing so, obtaining feedback through the completion reports is the single best means of understanding the needs of the customers. Completion reports also provide crucial data on the quality of services and help the COG and SPOs to better understand where needs are changing and where capability must evolve to meet that need.

4.2.2 Customer Satisfaction (Internal and External)

Despite not reaching the goal, the COG believes that the completion report data it received is still meaningful, both on a Reclamation-wide basis and by SPO. Feedback from the completion reports was gathered in the following areas: cost effectiveness, coordination, timeliness, technical knowledge, responsiveness, quality of service, and overall performance. The Reclamation-wide average rating from the 499 completion reports received in FY 2012, on a scale from 1 (lowest) to 5 (highest), was 4.4. This is the same score received in FY 2011. While the COG believes this is a good overall rating, the COG and the SPOs aspire to continuously improve the quality of their service. Therefore, the COG recommends that the SPO carefully evaluate the feedback from each completion report in order to improve the quality of service provided. More detail regarding customer satisfaction results is provided in appendix E.

In 2012, the COG received no requests to investigate a specific case or work products from a customer. In addition, no electronic comments were received through the COG's Business Practices Web site.

Another related COG practice is to publicize lessons learned and best practices in the spirit of continuous improvement. Success stories and reports on implementation of the business model appear on the Business Practices Web site at: http://www.usbr.gov/bp/tr.html. The COG will continue to post additional articles and reports in future years.

4.2.3 Percent Utilization of Services

To measure the technical workload versus staffing levels, the COG must gauge how much time is spent working on technical service activities (that are directly billable to a program office or customer) versus providing program support (overhead). To do so, the percent utilization of services is measured. To achieve this, data were gathered showing the percentage of time spent under the different categories of work: SAs, program accounts, and overhead.

To gauge Reclamation's performance against the industry norm, in 2009, the TSC conducted a benchmarking study using private sector data published by the *Professional Services Management Journal*. Some adjustments were made to ensure a reasonable comparison between the *Professional Services Management Journal* "chargeable ratio" data for private sector firms and the TSC's billability (utilization). This study concluded that the upper quartile of large firms (350 to 500 employees) had a chargeable ratio that equated to about 85% billability.

For Reclamation in FY 2012, the utilization of services data was gathered manually because the ESAM was not fully available. Review of the utilization of services data indicates a range from 70% to 99%, with the majority above the 85% benchmark. The variance is attributed to different business practices and measurement methods among the SPOs. Based on the analysis, the COG considers this a high utilization level. Overall, this suggests that the SPOs' staff resources are being appropriately utilized and that this rate is comparable with industry utilization rates.

4.3 Business Model Objective – Transparency and Accountability

The COG developed three performance measures for evaluating its transparency and accountability: (1) percent of time COG reporting is available to Reclamation managers in a timely manner; (2) percent of COG recommendations to DCO with documented decisions; and (3) usefulness of COG reporting in decisionmaking.

To meet these goals, COG members should proactively and regularly brief the directors and leadership of the organizations that they represent on the activities of the COG, the status of business model implementation, and the findings of this FY 2012 Annual Report. The COG further recommends that the DCO provide regular updates to the RLT on the activities of the COG and the SPOs, as well as general implementation of the business model. Further, the COG should explore additional outreach opportunities with internal groups (such as the CFOC, RDCCT, FO&M Team) and with external customer groups (such as the FFA).

4.3.1 Percent of Time COG Reporting is Available to Reclamation Managers in a Timely Manner

To evaluate this performance measure, the COG maintains a list of reports it is required to produce, the due dates, and the date the reports are actually completed or transmitted.

In FY 2012, the due dates were self-imposed, either in accordance with COG procedures or as established by the COG as a sound business practice. The COG has met nearly all of its deadlines, and it believes it has produced quality products in a timely manner. The COG will continue to focus on achieving its goals in this area. The supporting data for this discussion are contained in appendix F.

4.3.2 Percent of COG Recommendations to DCO with Documented Decisions

To evaluate this performance measure, the COG maintains a list of the formal recommendations from the COG to the DCO and the decisions made by the DCO on those recommendations.

The COG recommendations from FY 2011 (listed in table B-2 of appendix B) were accepted by the DCO as follows:

- Recommendations 2011-COG-1 through 2011-COG-13 pertain to the analysis of PN Drill Crew operations, and these recommendations were transmitted by letter in October 2011.

- The COG's PMIT completed its recommendations, which were circulated, approved by the DCO and the RLT, and are now being scheduled for phased implementation beginning in FY 2013.

4.3.3 Usefulness of COG Reporting in Decisionmaking

With the publication of this report, the COG will have prepared three annual reports. Until now, the COG was focused on establishing the format and processes for the annual reports. Now, however, the COG has enough experience to step back and evaluate the relative value of the exercise and the annual report itself. Therefore, the COG recommends that in FY 2013, an evaluation should be made of the annual report and how it is developed, including the data collection and analysis processes. In addition, the analysis should examine the role that the COG plays in overseeing the business model implementation. The purpose for the analysis should be to better understand the value that the annual report and the COG's activities contribute toward decisionmaking, managing Reclamation's technical resources, and implementing the business model. In particular, the COG will request feedback from regional resource managers and managers of technical services providers related to the usefulness of the Technical Capability Report, the Advance Planning process and results, and the action plans for Endangered

Capabilities. The COG will also solicit feedback from those managers and Reclamation leadership on the usefulness of the annual report.

4.4 Business Model Objective – Predictability of Workload

To better allocate its technical capabilities, Reclamation established a process for predicting its future technical needs (referred to as "Advanced Planning"). In developing this process, the assumption was made that if Reclamation had a better understanding of the long-term needs for technical work, it could better plan for the efficient allocation of its resources. This would allow managers to hire and contract for staff, and allocate for services, in a way that both protects the agency's technical capabilities and does so in a cost-effective manner. Consequently, one of the business processes that the COG put in place is an effort to effectively track the predictability of our technical workload. Every year, each region and program office is asked to compile its Advanced Planning Table, which is its list of the technical work that it anticipates needing from the SPOs in the budget year under consideration by the BRC. It is important to note that while it is circulated with the BRC materials, this data is not used by the BRC to develop Reclamation's budget proposal.

Performance Measures: In order to effectively track and monitor Reclamation's efforts on advanced planning, the COG developed two performance measures:

(1) Percent of SA work that was advance planned
(2) Percent of advance-planned work that resulted in SAs

Each of these measures tracks different aspects of workload predictability. The first measure assesses the volume of work that is carried out that was planned in advance (i.e., it was reported by the program offices or customers on the Advance Planning Table for that fiscal year). SAs that are not included on the Advance Planning Table are referred to as "walk-in" work, as opposed to work that is "advanced planned."

The second measure assesses the reliability and accuracy of the advanced planning process by looking at the percentage of SAs that were actually carried out and were included on the Advance Planning Table for a given year. Both measures require extensive effort to calculate if it is done manually.

In anticipating its work for the FY 2012 Annual Report, the COG expected that the first measure would be easily calculated with the deployment of ESAM, as that system contains a data field that allows the SPO to indicate whether the SA covers work that was reported on the Advance Planning Table for that fiscal year based upon Program Office input. However, because the ESAM deployment was rolled out in a staggered manner during FY 2012, the COG discovered that

the data was inconsistent. They found a mix of electronic data available through either the ESAM or through local databases that were maintained by individual SPOs or through older manual systems employed before the ESAM was developed. This mix of data types limited the utility of the data for detailed analysis. As such, the COG cannot make firm determinations or reach conclusions about Reclamation's effectiveness in advanced planning based on this measure.

Regardless of the implementation of the ESAM, the second measure will continue to require a degree of manual calculation, which in FY 2012 did not produce statistically significant results. Similarly, the COG is not confident in these data or the results; therefore, it cannot make generalizations or reach conclusions based on these data.

In summary, the COG is not able to provide meaningful data on a Reclamation-wide basis for these two advance-planning measures for FY 2012. However, the COG believes that with some further clarification of the measures and the availability of the ESAM for the entirety of FY 2013, it will be able to fully report data on these measures for FY 2013.

Test Case: Although the COG was unable to complete a comprehensive analysis of the two performance measures for FY 2012 on a Reclamation-wide basis, it conducted a test case using a limited manual analysis of data from the PN Region. The test case was carried out to help the COG evaluate the usefulness of the Advance Planning Table in the advance planning of workload for the SPOs, but it avoided the mix of data types.

In FY 2012, the PN Region had 102 active SAs, and 5 of them were completed and closed out. When comparing these active SAs to the FY 2012 Advance Planning Table, only 9 of the 102 SAs (9%) could be clearly and positively identified as activities that were listed in the Advance Planning Table. This means that under the criteria listed for performance measure (1) above, 91% of the FY 2012 SAs in the PN Region would be considered walk-in work. Most of the nine SAs tied to the Advance Planning Table were related to Replacements, Additions, and Extraordinary Maintenance (RAX) activities.

Note: The COG believes that this number of SAs may be an underestimate of the actual number of SAs that met the criteria because it was difficult in the manual analysis to definitively match actual SAs with the specific items listed on the Advance Planning Table. This was because the information supplied for the activities on the Advance Planning Table was limited. For example, one office in the PN Region combined all SPO work into a single line item in the Advance Planning Table, but there were 34 individual SAs that were active for that office in FY 2012. This example further highlights how important it is for customers and program offices to include a high level of detail and use consistent language in the Advance Planning Table. It also highlights the need for program offices to

inform the SPOs that the work was identified earlier on the Advance Planning Table so they can enter this information into the ESAM SA.

Drill Crew Advanced Planning: In completing the PN Region's test case, described above, the COG took a specific look at advanced planning for the PN Drill Crew, which was analyzed in depth by a COG subteam in FY 2011. This review revealed that the PN Drill Crew had no advanced planning activities. While the Commissioner's Office listed $2 million in drill crew activities for Dam Safety, it did not provide a region-specific breakdown of this estimate. The actual workload for the PN Drill Crew in FY 2012 was at the highest level in more than a decade; however, based on this review, all of this work would likely be classified as walk-in work under the definition for performance measure (1), listed above. This review clearly shows the need for continued attention toward improving the accuracy and integrity of the advanced planning data and reporting process.

A number of the recommendations from the 2011 Drill Crew subteam report focus on the need for more effective advance planning of drilling work, and a specific recommendation was included to improve the effectiveness of advance planning in Reclamation. The outstanding recommendations from that report and their status are presented in table B-2 of appendix B. Implementation of these recommendations must continue.

The Advance Planning Table will be re-examined in FY 2013, following the full deployment of the ESAM, to evaluate its effectiveness in the advance planning of workload for the drill crew technical capability. Further, the COG members must continue to work with their program offices to improve the reporting shown in the Advance Planning Table for the out years.

On a Reclamation-wide basis, the COG is also concerned that the quality of the data collected through the Advanced Planning process is less meaningful and helpful than it should be for the SPOs to plan long-term staffing and long-term allocation of resources. It is unclear whether the program offices that are asked to provide the data are given sufficient time to collect and analyze the information during the BRC process.

There is also concern that data in the Advance Planning Table are not current because they are collected 2 years prior to the need for the service; therefore, data may not be sufficiently useful to the SPOs. In response, some of the regions have developed their own advanced planning processes with a shorter timeframe (for example, projecting 6 months to 1 year in advance, rather than the 2 years currently used for the COG's Advanced Planning process).

To make the Advanced Planning effort more useful, the COG recommends that it establish a subteam to evaluate both the data collection and the data distribution

processes in order to improve the relative utility of the data to better meet the SPO and customer needs.

4.5 Business Model Objective – Maintenance of Core Technical Capability

One of the most important functions of the COG is to track Reclamation's technical services business practice and monitor its technical capability. Accordingly, the COG developed a comprehensive listing of all the technical functions or capabilities that currently exist within Reclamation's nine SPOs. Each year, since 2009, the COG has asked each SPO to report on the number of staff with specific technical capabilities, the experience level of those staff, whether or not their organizations were "self sufficient" with regard to each technical capability, and whether or not their organization can sustain that capability.

After compiling this information, the COG analyzed the data and obtained clarification from the SPOs as necessary. The COG's FY 2012 review of technical capability is included in appendix A. The findings for FY 2012 are summarized below, and the FY 2009, FY 2010, FY 2011, and FY 2012 data are presented in the "Summary Table of Functional Areas and Technical Capabilities," included in appendix A.

In general, Reclamation's broad range of technical expertise is sustainable and capable of supporting its ability to perform its mission. While some areas of serious concern remain that were identified in previous years, no new technical capabilities were identified as endangered during the FY 2012 review. Further, because these capabilities must remain sustainable over the long term, the action plans that were identified in the FY 2009-2011 reviews will continue to be implemented as planned. To date, the COG is overseeing action plans to address the following potential endangered skill sets:

(1) Structural analysis and design of plant facilities (powerplants)

(2) Design and analysis of temperature control/selective withdrawal structures

(3) Analysis of hydraulic transients in power system waterways

(4) Design and analysis of tunnels

(5) Static analysis, evaluation, and design of underground excavations in rock

(6) Dynamic analysis, evaluation, and design of underground excavations in soil

(7) Dynamic analysis, evaluation, and design of underground excavations in rock

(8) Grouting designs

For each endangered capability action plan identified above, a COG member has been assigned as a team leader to oversee Reclamation's progress in developing and implementing them. The action plans further analyze the issue from a corporate perspective, including analysis of any related business practices, advance planning data, outsourcing advantages and disadvantages, human resource options, long-term corporate need, organizational options, etc. Subject matter experts and managers are engaged in this process as appropriate. An update on implementation of these five action plans is provided in appendix B.

Arc Flash Capability: While it was not identified as endangered in FY 2011, Reclamation's PRO requested that the COG evaluate and make recommendations on its capabilities to perform arc flash hazard analyses at Reclamation facilities. Arc flash hazard analyses are performed to provide information that will help plant personnel understand potential dangers and proactively limit exposure to serious electrical hazards that can result in injuries or fatalities while performing routine and nonroutine plant maintenance. In its review, the COG evaluation focused on the following questions:

(1) What constitutes an arc flash analysis?

(2) What are the qualifications of those performing the analyses?

(3) What steps or activities does Reclamation need to take to maintain this technical capability?

The COG worked with the RDCCT and developed the following recommendations to ensure the continued safety of plant personnel:

- Reclamation needs to ensure that qualified engineers are available to perform and peer review arc flash analyses when needed.
- Arc flash analyses should be performed by qualified persons that perform this function on a regular (frequent) basis to maintain proficiency in this field of expertise.
- In order to ensure the accuracy and consistency of arc flash analyses, the TSC should be the preferred provider for this service. Arc flash analyses performed by others should be peer reviewed by TSC.

In order to capture all of these issues, the COG recommends that *Facilities Instructions, Standards and Techniques* (FIST) *Manual, Volume 5-14, Electrical Safety Program*, which is currently under revision, address:

- Data that must be included in a comprehensive arc flash analysis
- Definition of persons qualified to perform arc flash analyses
- Use of TSC as the preferred provider for arc flash analyses
- TSC peer review of arc flash analyses performed by others
- Scheduling of arc flash analyses (PRO and TSC have developed a schedule for arc flash analyses at Reclamation facilities)

4.5.1 Impact of Travel Restrictions to Core Capabilities

On June 13, 2011, President Obama signed an Executive Order establishing the Campaign to Cut Waste to help Federal agencies improve their performance and reduce waste. Over the last 2 years, Interior has made a concerted effort to cut costs in a variety of areas. One of these areas has been in discretionary travel within the Water and Related Resources funding account. Total travel costs have been tracked by compiling expenses against budget object code 21. FY 2010 and 2011 were selected as the base years, and an average was taken from them. Then, a 10% cut of the average was set as the target for FY 2012. For FY 2013, the average of 2010, 2011, and 2012 is being used, and an additional 10% reduction will be taken. These reductions are resulting in several very serious impacts, primarily on construction management and O&M work, but also on design. In addition, these constraints could have significant consequences to construction of safety of dam modifications.

To cope with these constraints and the need to proceed with mission-critical construction, design, safety of dams, and O&M work, managers seek ways to continue carrying out these mission-critical and public safety activities. In some cases, the “work around” option has been to contract for Construction Management (CM) activities because contractor travel is not attributable to object code 21. However, while this saves costs attributable to object code 21 and complies with the requirement, contractors and the costs associated with procurement can be greater than the costs saved by not having Reclamation employees perform the work.

Another work around is to use overtime combined with “out-and-back” travel, rather than authorizing overnight travel. This also reduces travel costs associated with object code 21, but O&M and construction staff must then work 12-hour (or longer) days to accomplish O&M work, construction inspection, construction equipment operations, and drilling work. Although this practice reduces travel expenses attributable to object code 21, the offsetting costs of overtime pay and additional vehicle mileage are potentially greater than the travel cost savings. This practice also creates potentially serious safety issues due to employees driving long distances to and from remote work sites in addition to working a 10- to 12-hour day. Because the object codes that cover contracting for

construction management and labor costs are not tracked for reductions, travel ceiling targets encourage using contract personnel and overtime in lieu of underutilized personnel within Reclamation. This practice runs counter to Reclamation's policies, both from the RDCCT and the COG's workflow process documented in *Reclamation Manual* Policy CMP P10 and Directive and Standard CMP 10-03.

In FY 2012, Reclamation was able to lessen the impacts of this travel restriction on mission-critical activities by prioritizing mission-critical travel above administrative travel, such as conference and meeting attendance. Although the COG supports this prioritization effort in the short term, it is concerned that funds diverted from training and conferences will not be sufficient to support mission-critical work that is being adversely impacted by these travel restrictions. The COG is also concerned about the long-term impacts of not training Reclamation staff, not participating in national conferences, and not participating on national committees that develop standards that guide Reclamation's work.

Although issues related to travel restrictions were lessened somewhat in FY 2012, the COG anticipates that travel cost may be further restricted in FY 2013. Consequently, travel restrictions will likely influence managers to hire contractors or authorize "out-and-back" travel. While the COG recognizes the need to reduce costs, it is very concerned about the consequences of these practices. The COG recommends that steps be taken to track and report examples where travel restrictions caused an impact on how Reclamation conducted operations. Future reports will provide examples of the type of impacts that were encountered due to travel restrictions. A potential consequences of these restrictions is the reduction in the billability percentage in disciplines that rely on travel to perform work efforts like O&M, construction management, or drilling. Another consequence could be an increase in contracts for field support for either construction or project planning efforts. The COG will also evaluate the benefit of compiling travel data by cost authority. The COG will include a summary of findings related to this effort in the FY 2013 Annual Report and recommend other tracking measures that could assist decisionmakers. For the immediate term, the COG recommends that Reclamation give priority consideration to mission critical field operations and then mitigate impacts to other mission critical activities to the extent possible.

The COG understands that all the consequences of travel restrictions will be difficult to capture because many combine with other factors to create impacts to the organization. For instance, the impacts caused by deferring O&M are not immediately realized but can lead to failures that incur greater life cycle costs to the organization. In addition, designing modifications to facilities becomes much more difficult without adequately understanding site conditions. By performing adequate assessment of the travel restriction impacts, Reclamation will work to minimize the risk of impacts to the organization.

4.6 Business Model Objective – Strategic Determination of Outsourcing/Contracting

In addition to evaluating the technical services that are carried out by Reclamation's SPOs, the COG is also required to evaluate the technical services work that is outsourced or contracted out to private consultants. This analysis provides critical data that contribute to the goal of ensuring that Reclamation is appropriately using contractors and its own staff to maximize the cost effectiveness and quality of the technical services that it uses to carry out its core mission. This effort also provides insights into whether the COG's goal of maintaining "in-house" core technical capability is being met.

To perform this analysis, the COG developed two performance measures:

(1) The amount of technical services contracted or outsourced through individual contracts and task orders under Indefinite Delivery/Indefinite Quantity (IDIQ) contracts greater than $100,000 (approximately $35 million in FY 2012).

(2) The dollar value of work contracted or outsourced in endangered technical capabilities ($0 in FY 2012).

The purposes of this review are to better understand: (1) what work was completed by outside resources, (2) the reason outside resources were used, and (3) which, if any, of the identified endangered technical capabilities were outsourced. Because Reclamation's workload distribution practices have been in place for a relatively short time, and may not be universally understood, there could be occasions when work is contracted out and Reclamation personnel should have been considered instead and the proper documentation prepared. However, as the workload distribution practice is better understood, those occurrences are decreasing. This is the first year that a consistent process was used that can easily be duplicated in future annual evaluations; therefore, a trend analysis could not be performed this year. The process used this year is provided in the COGs Standing Operating Procedure No. 6, *Annual Review of Technical Services Procurements*. The COG will continue to track this issue, and it believes that with a clearer and more consistent process now in place, an opportunity exists for longer-term trend analysis in the future.

Of the $35 million worth of technical service activities that were contracted in FY 2012, over 95% (including IDIQ task orders), or about 110 contracts over $100,000, were examined. Last year, only 60% of the contracts were examined, and a somewhat different methodology was used. Even so, the total value of contracts in FY2011 was $65 million, or $30 million greater than in FY 2012. The cause of this somewhat dramatic change is unclear, although several possibilities exist, such as: (1) more Reclamation offices are considering Reclamation first; (2) more work performed in 2010 and 2011 required being

contracted out due to the inflow of funds resulting from the American Reinvestment and Recovery Act of 2009 (ARRA) and some of the unique contracting requirements of that Act; or (3) the work had a higher dollar value because of ARRA. If the latter is true, it was an anomaly. Now that ARRA funds are expended, Reclamation's FY 2012 figures are more the norm. Another possible explanation for the dramatic change in the value of contracts may be due to changes in the way data were gathered and collected.

While the COG cannot accurately determine the rationale behind this change, based on the analysis of the data, it determined that only a few isolated cases exist where the workload distribution practice was not appropriately followed. Additional information on outsourcing of technical services is provided in appendix G.

In evaluating the second performance measure that relates to the dollar value of work contracted or outsourced in endangered technical capabilities, there were no cases identified within the contract and task order sample where work in an endangered capability was outsourced.

The evaluation for FY 2012 indicates that Reclamation is, in general, properly applying the established protocol. Where minor deviations were identified, COG members have discussed and resolved issues with the program offices. The COG will continue to work with the program offices to ensure that all are educated in the workload distribution practices.

5. Summary, Conclusions, and COG Recommendations

While the implementation of the business model is relatively recent, many of its principles have been in practice for some time. Reclamation shows areas of strength and high competency, as well as some areas of concern where it should closely monitor and work to maintain potentially endangered technical capabilities and work with its SPOs and customers to improve processes to make the delivery of technical services more efficient.

Areas of strength:

- Reclamation's overall technical expertise, with a few notable areas of concern, is sustainable and capable of supporting the agency's mission. Further, in its analysis of Reclamation's technical capabilities, the COG determined that no new technical capabilities were identified as endangered. The COG, in collaboration with the appropriate managers, continues to work to implement the action plans that were developed in previous years to address identified areas of

concern. The number of active SAs during FY 2012 was 2,950. There were 1,322 SAs completed in FY 2012 (up from 1,049 in FY 2011). The value of these SAs was approximately $48 million, which is an increase of $5 million over FY 2011. Of the 1,322 SAs completed in FY 2012, 97% of them were completed within the agreed-upon schedule, and 95% were completed within the estimated budget.

- In FY 2012, the percentage of technical staff who direct billed to projects and/or program support ranged from 70% to 99%, with the majority above the industry standard of 85%. Overall, this suggests that the SPO's staff resources are being utilized appropriately, which is comparable with industry utilization rates.

- Feedback received from completion reports continues to indicate that, on the whole, the timeliness and quality of the work provided by Reclamation's SPOs continues to meet the needs of their customers. On a scale from 1 (lowest) to 5 (highest), the average overall rating was calculated to be 4.4, the same level identified in FY 2011.

- Program offices continue to decide where technical services are performed. No appeals of the workflow process were filed with the DCO; therefore, the COG concludes that any associated issues were successfully resolved at the program or Regional director's office level and that the "empowerment of the regions" objective is being met.

Areas of concern:

- Reclamation's ability to measure and evaluate the cost effectiveness and timeliness of technical services has been hampered by delays in deployment of the ESAM and by some technical problems since deployment (see status for recommendation 2010-COG-1 in appendix B). The delay in both deployment, as well as development of the ESAM's reporting module, resulted in a physical data call for FY 2012 data, rather than relying on the ESAM to produce the data for the annual report. This resulted in slightly inconsistent data responses for certain performance data, including percent utilization of services. However, with full implementation of the ESAM for FY 2013, the COG believes improvements will be made.

- On a Reclamation-wide basis, there is concern that the quality of the data collected through the Advanced Planning process is less meaningful and helpful than it should be to the SPOs for long-term planning.

- The COG is concerned that the travel restrictions are having a negative impact on Reclamation's ability to maintain its technical capabilities. The COG's analysis indicates that the alternatives that have been

developed to carry out mission-critical work may be more costly than the savings realized from reduced travel. The COG is also deeply concerned about the potential impact to the safety of the construction and O&M workforce.

COG Recommendations: As a result of the analysis performed for the preparation of the FY 2012 Annual Report, the COG is proposing the following recommendations:

(1) **Advanced Planning:** While the COG previously provided improved instructions and information regarding the level of detail to include in the BRC Notebook Advance Planning Table (see Recommendation No. 2011 – COG – 10), the effects of this additional guidance will not be available for review until 2014. The COG recommends that, in order to improve the relative utility of the Advanced Planning effort, the COG should establish a subteam to evaluate both the data collection and the data distribution processes. (Recommendation No. 2012 – COG – 1)

(2) **Impacts of Travel Restrictions**: In response to its analysis of the impact and alternatives related to the travel restrictions, the COG recommends that Reclamation and Interior consider a broader set of options for reducing costs -- looking not just at the annual cuts but at the long-term consequences – and identify alternative areas where savings would be sustainable. Until this long-term review is completed, the COG recommends that mission-critical activities (namely base O&M, construction, and construction management) be exempt from the travel ceilings. (Recommendation No. 2012 – COG – 2)

(3) **Evaluation of Annual Report and Data Collection Process**: The COG recommends that an analysis of the annual report that is prepared each year related to the usefulness of the Technical Capability Report, the Report itself and the action plans for endangered capabilities be completed. That analysis should include feedback from regional resource managers and managers of Technical Services providers and recommendations for improving the processes and utility of the COG. (Recommendation No. 2012 – COG – 3)

(4) **Implementation of Project Management:** With the publication of the PM Framework at the end of FY 2012, the COG should work with those who prepared the PM Framework (the leaders and members of the PMIT) to provide support and guidance to the regions and program offices to help develop objectives and performance measures. As part of implementation of the processes articulated in the PM Framework, future annual reports should include performance measurements of project management implementation within Reclamation. Additionally, in order to serve as a resource, and to assist regions/directorates in facilitating their progress towards project management process maturity, the COG recommends that

the PMIT review, analyze, identify gaps, advise, and recommend actions for improving consistency and utilization of the PM Framework's best practices and related training. The COG will request the PMIT to provide annual assessment results and status, along with recommendations to be included in the COG Annual Report, and as otherwise appropriate. (Recommendation No. 2012 – COG – 4)

(5) **Service Agreement Completion Reports:** The COG continues to believe that delivering high-quality and timely technical service is a central tenet to Reclamation's mission. In doing so, obtaining completion report feedback from its customers is the single best means of understanding their needs. While the SPOs fell short of the 75% goal in FY 2012, the COG recommends increased outreach from the COG and the SPO to their customers on the value of the completion reports. With increased outreach, along with full implementation of the ESAM in FY 2013, the COG further recommends that the 75-percent goal for returning completion reports remain in place for FY 2013. (Recommendation No. 2012 – COG – 5)

(6) **Arc Flash:** In response to a request from Reclamation's PRO, the COG completed an analysis of Reclamation's capabilities to perform arc flash hazard analyses at Reclamation facilities. The COG recommends that *FIST Volume 5-14, Electrical Safety Program*, which is currently under revision, should address:

- Data that must be included in a comprehensive arc flash analysis
- Definition of persons qualified to perform arc flash analyses
- Use of the TSC as the preferred provider for arc flash analyses
- TSC peer review of arc flash analyses performed by others
- Scheduling of arc flash analyses (the PRO and TSC have developed a schedule for arc flash analyses at Reclamation facilities)
- Reclamation must ensure that qualified engineers are available to perform and peer review arc flash analyses when needed by the agency. (Recommendation No. 2012 – COG – 6)

Status of Prior Year Recommendations: In addition to the new recommendations referenced above, the COG continues to make progress and track those recommendations that were developed in previous years. Recommendations 2011-COG-1, 2, 3, 4, and 7 are a result of the COG's analysis of drill crew workload issues. Recommendations 2011-COG-14 and 2011-COG-15 are a result of the COG's FY 2011 Annual Report, including the

COG's analysis of FY 2011 performance and technical capability data. An in-depth table is provided in appendix B

Appendix A

Technical Capabilities Within Reclamation – Summary Status Report for FY 2012

Technical Capabilities Within Reclamation

Summary Status Report for FY 2012

U.S. Department of the Interior
Bureau of Reclamation
Coordination Oversight Group

June 2013

Executive Summary

One of the most important responsibilities of the Coordination Oversight Group (COG) is to track the Bureau of Reclamation's (Reclamation) technical services business practices and monitor its technical capability. Accordingly, the COG developed the Summary Table of Functional Areas and Technical Capabilities (Table) (located at the end of this report). This is a comprehensive listing of each technical capability that exists within Reclamation's nine Service Provider Organizations (SPO). When developing the Table, the COG focused on "critical" capabilities that Reclamation must have either in-house to accomplish the necessary technical services, or else Reclamation must possess sufficient technical expertise to be a "smart buyer" when procuring this technical services. The COG considers the Table to be a dynamic document, and it will add to and/or eliminate technical capability categories during future updates to reflect Reclamation's changing needs and capabilities.

Each year since 2009, the COG has asked each SPO to report on the number of staff with specific technical capabilities, the experience level of those staff, and whether or not their organizations were: (1) "capable" of completing necessary technical work in house or as a smart buyer: (2) "sustainable," if the technical capability can be maintained in the long term given the workload projections, funding, attrition, staffing, and succession plans; and (3) "self sufficient" with regard to each technical capability, and whether or not their organization can sustain that capability. Those capabilities that are determined to be at risk in any of these categories are then classified as "potentially endangered." In response, the COG develops an "Action Plan" for how Reclamation will address the endangered capability. The goal of each action plan is to strengthen that technical capability so that it is capable, self sufficient, and sustainable, thereby enabling Reclamation to remove that capability from the list. For each endangered capability action plan that is developed, a team has been established with a COG member as team leader.

After compiling this information for fiscal year (FY) 2012, the COG analyzed the data and obtained clarification from the SPOs as appropriate. The data reported for FY 2009-FY 2012 are presented in the attached Table.

For FY 2012, the COG concluded that, in general, Reclamation's broad range of technical expertise is sustainable and capable of providing the necessary technical services that support Reclamation to fulfill its mission. While some areas of serious concern remain that were identified in previous years, no new technical capabilities were identified as endangered during the FY 2012 review. Further, because of the long-term nature of ensuring that these capabilities remain sustainable, the action plans that were identified in the FY 2009-2011 reviews will continue to be implemented as planned. Currently, the COG is overseeing implementation of action plans to address the following skill sets identified as potential "endangered" capabilities:

(1) Structural analysis and design of plant facilities (powerplants)

(2) Design and analysis of temperature control/selective withdrawal structures.

(3) Analysis of hydraulic transients in power system waterways

(4) Design and analysis of tunnels

(5) Static analysis, evaluation, and design of underground excavations in rock

(6) Dynamic analysis, evaluation, and design of underground excavations in soil

(7) Dynamic analysis, evaluation, and design of underground excavations in rock

(8) Grouting designs

(See appendix B, table B-1 for an update on the progress and status of implementation of each action plan established in previous years.)

The team overseeing each action plan is continually analyzing the capability from a corporate perspective, including analysis of any related business practices, advance planning data, outsourcing advantages and disadvantages, human resource options, long-term corporate needs, organizational options, etc. Subject matter experts and managers will be engaged in this process as appropriate. When each action plan team determines that its effort is complete, the team will recommend to the Deputy Commissioner - Operations that the item be removed from the endangered capabilities list and will recommend how that item will continue to be monitored to ensure that its status does not change.

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Background

One of the principal responsibilities of the Coordination and Oversight Group (COG) is to monitor the Bureau of Reclamation's (Reclamation) corporate and business processes for technical services by gathering data to track workload distribution and maintenance of its technical capability. To this end, the COG has developed the attached Summary Table of Functional Areas and Technical Capabilities (Table) (located at the end of this report). In addition, the COG has evaluated capability data reported each year for fiscal year (FY) 2009-2012 by Reclamation's Service Provider Organizations (SPOs) to identify possible "endangered capabilities" within the agency.

When it started this effort, the COG's goal was to make the process simple, transparent, consistent, and repeatable so that data across years could be comparable. The COG considered a number of automated approaches to identify these endangered capabilities, and each approach had its own limitations and shortcomings. Ultimately, the COG, in consultation with Reclamation's Chief Information Officer's office, developed the Electronic Service Agreement Module (ESAM) to serve this purpose. The ESAM is anticipated to be fully operational in 2013. In the interim, because there is no viable automated approach to obtain this information, the COG has determined that the most reliable way to gather this data is to solicit input from managers of SPOs regarding their technical capabilities and the workforce planning of their respective organizations.

To obtain this data in a consistent manner, the COG developed a comprehensive listing of technical capabilities that currently exist within Reclamation's technical resources, specifically within the SPOs. Since FY 2009, the COG has issued data calls at the close of each fiscal year for each of the SPOs to complete. After compiling and consolidating this information, the COG has been monitoring Reclamation's technical resources to identify areas where it appears to be at risk for losing expertise. When developing the Table, the COG focused on "critical" capabilities that Reclamation must have in-house to accomplish its mission, or else it must have sufficient technical expertise to be a "smart buyer" when procuring technical services. The COG considers this Table to be a dynamic document, and it will add to and/or eliminate technical capability categories during future updates to reflect Reclamation's changing needs and capabilities.

As each SPO completes its annual update to the Table, it is asked to suggest the appropriate changes to the Table. In addition to adding and deleting technical capabilities, more specialized technical capability "subcategories" may be added. The criticality of a capability to Reclamation's mission will be a key consideration as the COG evaluates requests to modify the Table.

Process

On August 24, 2012 a data call, as defined in Reclamation's CMP P10 (Reclamation's Business Model for Managing Technical Services), was sent to each of the SPOs through their respective COG team members and alternates with a due date of October 3, 2012. The SPOs are:

- Great Plains Region Engineering Design, Geology and Exploration Services, and Construction Services (GP Region)
- Pacific Northwest Region Resource and Technical Services (PN-RTS)
- Mid-Pacific Region Division of Environmental Affairs, Division of Design and Construction, Division of Planning (MP-150, -200, & -700)
- Upper Colorado Region Engineering Services Group (UC ESG)
- Lower Colorado Region Engineering Services Office (LC ESO)
- Technical Service Center (TSC)
- Four Corners Construction Office (FCCO)
- Provo Area Office (PAO)
- Mid-Pacific Construction Office (MPCO)

The COG recognizes that some of Reclamation's technical capability resides outside of these SPOs in program offices such as area offices; Security, Safety, and Law Enforcement; and non-SPOs within the regional offices. However, these non-SPO program offices are typically only retaining the technical staff needed to service the programs and projects for which they are responsible. They generally do not have highly specialized technical capability or the capacity to support other Reclamation offices; therefore, they are not classified as SPOs and are not included in Table. However, during the COG's analysis, if a technical area appears to be losing capability before an action plan to restore the capability is developed, the COG makes an effort to determine whether the capability under consideration is sufficiently available outside of the SPOs so that it can meet the agency's need.

Discussion of Data

In response to the data call, each SPO is asked to identify the number of staff with specific technical capabilities within their organization, the level (entry level, journeyman level, or senior level) at which these capabilities exist, whether or not

their organization is "self-sufficient" with regard to the capability, whether there is sufficient workload in the organization to justify retaining the capability, and whether or not they expect to sustain the capability for a longer term (i.e., replace retiring employees, etc.).

Prior to FY 2011, managers were asked to use their professional judgment when determining the skill level of their employees. However, based on data received and discussion with the SPOs, the COG determined that further guidance was needed to ensure consistency of data reported Reclamation-wide. To that end, starting in FY 2011, the COG included the following classification guidance to identify senior, journeyman, and entry level employees:

Senior Level

- Has 15 years or more of experience specific to the capability on projects of at least moderate scope with complex features
- Works independently on projects, at least in terms of the specific capability
- Associated experience is current, having produced or collaborated on designs and technical work products related to the specific capability over the preceding 10 years
- Uses advanced techniques and theories in developing designs and technical work products related to the specific capability
- Applies knowledge and expertise acquired through progressive experience associated with the specific capability
- Individual's work is accepted as authoritative

Journeyman Level

- Has 5 to 15 years of experience specific to the capability on conventional projects with few complex features
- Is able to apply standard engineering techniques specific to the capability for conventional projects with few complex features
- Has prepared complete designs and technical work products specific to the capability under the guidance of a senior level engineer
- Has experience working independently on small projects or components of larger complex projects associated with the capability

- Associated experience is generally current, having produced or collaborated on designs and technical work products related to the specific capability within the last 3 years **or** having substantial experience but not current (i.e., functioned at a high journeyman level or senior level with regard to the specific capability no more than 5 years ago)

Entry Level

- Has less than 5 years of experience specific to the capability
- Performs routine technical work on projects or components of projects related to the capability that do not require previous experience
- Applies standard techniques, procedures, and criteria to perform assigned tasks as part of a broader assignment (project) associated with the specific capability
- Performs basic tasks specific to the capability under the guidance of senior or journeyman level staff

Inclusion of this definitional guidance in FY 2011 resulted in several substantial changes in the number and level of employees reported by SPOs. Unless otherwise noted in this report, large changes in staffing levels (either increases or decreases) can be attributed to clarifications in reporting instructions, better definition of technical capabilities, and subsequent reinterpretation of organizational capability by the SPO managers.

Note: The number of employees reported in the Table does not relate in any way to the number of full-time equivalents (FTEs) in an organization. One FTE may be capable of performing a wide range of technical work and would, therefore, be counted multiple times in the table.

The data presented in the Table show totals for each of the SPOs individually and collectively for each year since FY 2009. For the purposes of this report, the following definitions are provided:

Capable: An organization is considered “Capable,” as determined by the appropriate manager, if it can complete identified work in-house to accomplish its mission and/or remain a “smart buyer" when procuring technical services.

Sustainable: An organization’s technical capability is considered “sustainable,” as determined by the appropriate manager, if it can be maintained in the long term given its workload projections, funding, anticipated attrition, and staffing and succession plans.

Self Sufficient: An organization, as determined by the appropriate manager, is considered "self-sufficient" if it is fully capable of performing technical work of standard complexity (reports, analyses, designs, etc.) to develop implementable plans, other final technical work products, or technical conclusions without regularly soliciting outside assistance. This definition assumes that intermittent collaborative outreach may be required due to an organization's resource availability or developmental needs, and/or due to the need for specific subject matter expertise.

Possible Endangered Capability: An identified work category, as determined by the COG's analysis, is considered to be a possible endangered capability when Reclamation is either not self-sufficient or the existing capability is not sustainable, or both.

The "**Sum**" columns in the Table present the combined number of capable employees at each skill level for all Reclamation SPOs, and the "**Reclamation Total**" column presents the total number of capable employees at all skill levels within Reclamation's SPOs by fiscal year.

Table cells are color coded to identify capability and sustainability. Cells highlighted in green indicate that the SPO is self-sufficient in a particular technical capability and expects to sustain that capability in the long term. Yellow highlighting indicates that the SPO is not considered self-sufficient in a particular technical capability but expects to sustain their current level of technical capability in the long term. Red highlighting indicates that the SPO, regardless of the degree to which they are currently self-sufficient, does not expect to sustain a technical capability in the long term.

Analysis

After compiling the FY 2012 data, the COG performed a comprehensive review. Based on that review, the COG identified several capabilities that appeared endangered and/or required further clarification. These capabilities are highlighted in orange in the "*Reclamation Total*" column of the Table to indicate that further investigation and analysis were required. The results of this further investigation are presented in the following paragraphs.

Note: While there are technical capabilities that were identified as endangered by this analysis, there were no endangered capabilities identified in the FY 2012 review that had not been identified previously. In other words, there were no new endangered technical capabilities identified in this year's analysis.

Numbers marked with a "$*$" in the "*Reclamation Total*" column indicate situations where a significant change in the reported number of capable employees does not actually reflect a change in capability but, rather, a

reinterpretation of capability resulting from the COG refining instructions to improve reporting consistency between offices. The COG will further refine definitions to improve consistency of reporting between offices in future data calls.

Based on the FY 2012 data review, the COG determined that the following capabilities required additional explanation to clarify the reported data and significant changes from previous years:

a) **1.1.5a – Risk Analysis (facilitator), 1.1.5.b – Risk Analysis (estimator).** In FY 2012, the risk analysis capability was divided into two subcategories to distinguish between "Risk Analysis Facilitators" and "Risk Analysis Estimators." Previous year estimates for the broader risk analysis category coincide well with this year's reported number of risk analysis estimators. However, risk analysis capability in Reclamation is highly dependent on availability of trained risk analysis facilitators. The reported FY 2012 capacity for facilitators is sufficient to meet current workload, and there is journeyman capacity identified to support succession planning. The COG will continue to monitor the risk analysis facilitator capability in the future, but no further action is planned at this time.

b) **1.2.2 – Advanced Downstream Consequence Analysis (Life Loss).** This capability exists in several SPOs, but at low staffing levels. In FY 2012, this capability was changed from "Downstream consequence analysis including life loss" to "Advanced downstream consequence analysis (Life Loss)" because the old definition was too broad to accurately track this expertise. The reduction in capacity from FY 2011 to FY 2012 is a result of this refinement. This capability is currently sustainable, and no further action is planned at this time.

c) **1.2.3 – Design of Early Warning Systems (EWS).** Design, installation, and maintenance of EWS capabilities have not changed in the TSC over the past year. The EWS workload is primarily for other Government Agencies (OGAs), and TSC has adequate capability for any Reclamation requests for support in this area. Although the number of individuals with these capabilities is small, the TSC believes that the current and future workload will be sufficient to sustain the capability and train new staff. This capability is self-sufficient and sustainable at the current staffing levels, and no further action is planned by the COG at this time.

d) **3.1.1 – Architectural Design of Buildings and Other Structures.** This capability exists in several SPOs, but at low staffing levels. The TSC reports that the capability is not sustainable because it has only two registered architects, and one is eligible for retirement. The current TSC workload for architectural design does not justify adding staff at this time,

and this is a capability that can be contracted if the need arises. The COG will continue to monitor this capability in the future, but no further action is planned at this time.

e) **3.1.2 – Landscape Architectural Design.** This capability exists in several SPOs, but at low staffing levels. The TSC reports that the capability is not sustainable because its only registered landscape architect retired in January 2013. The TSC is planning to backfill this position in order to maintain at least one registered landscape architect within the organization to perform work in-house and maintain "smart-buyer" capabilities. Until the position is advertised and filled, the recently retired registered landscape architect will be brought on as a part-time rehired annuitant. TSC workload for landscape architectural design does not justify staff in excess of 1.5 FTEs at this time, and this capability can be contracted if additional capacity is needed. The COG will continue to monitor this capability in the future, but no further action is planned at this time.

f) **3.2.2.c – Structural Analysis and Design of Plant Facilities (Power Plants).** The COG identified this as an endangered capability in FY 2010 and developed an action plan to ensure that Reclamation does not lose this capability. Since that time, in-house powerplant design work has enabled TSC to train its newer staff on powerplant design work. A COG team leader has been assigned to monitor Reclamation's progress in implementing the action plan. Included in the September 2010 action plan is the recommendation to update design standards for powerplant design work. It is expected that Design Standard No. 9, *Buildings*, Chapter 1, "General Structural Design Procedures and Standards," will be completed in FY 2013. The COG will continue to monitor this capability until the design standard is complete and until the COG and the SPOs are comfortable that this capability is no longer endangered.

g) **3.2.4.a/b/c – Hydraulic Analysis, Evaluation, and Design of Spillways, Outlet Works, and Concrete Dams.** These categories were added in FY 2012 to distinguish between those employees capable of performing structural analysis (3.2.3.a/b/c) and those who perform hydraulic analysis because they are entirely different skill sets. This capability is currently sustainable, and no further action is planned at this time.

h) **3.2.4.h – Design and Analysis of Tunnels.** In response to the FY 2011 data call, the COG identified this as an endangered capability and developed an action plan (along with 4.1.1.c(2), 4.1.2.b(1), and 4.1.2.b(2)) to ensure that Reclamation does not lose this capability. Tunnel work in Reclamation is sporadic, which makes it difficult to keep tunnel expertise 100-percent billable. Maintaining Reclamation's ability to be a "smart buyer" and informed owner is necessary to ensure quick

response to concerns with our existing tunnel inventory and to provide assistance with future planning studies. While the TSC continues to report this capability as not sustainable, current workload for tunnels does not justify adding additional staff at this time. A COG team leader has been assigned to monitor Reclamation's progress in implementing the action plan.

i) **4.1.1.c(2) – Static Analysis, Evaluation, and Design of Underground Excavations in Rock.** In response to the FY 2011 data call, the COG identified this as an endangered capability and developed an action plan (along with 3.2.4.h, 4.1.2.b(1), and 4.1.2.b(2)) to ensure that Reclamation does not lose this capability. Most geotechnical engineers are capable of performing static design and analysis of underground excavations in soil, and the COG does not view this capability as endangered. However, Reclamation's capability to perform static design and analysis of underground excavations in rock is limited, primarily because there is less workload and fewer engineers who have the expertise to perform this type of work. To maintain the static rock mechanics capability, TSC is training additional engineering staff; however, without a steady workload for underground excavations, it will be difficult to maintain this expertise. A COG team leader has been assigned to monitor Reclamation's progress in implementing the action plan.

j) **4.1.2.b(1) – Dynamic Analysis, Evaluation, and Design of Underground Excavations in Soil, and 4.1.2.b(2) – Dynamic Analysis, Evaluation, and Design of Underground Excavations in Rock.** In response to the FY 2011 data call, the COG identified this as an endangered capability and developed an action plan (along with 3.2.4.h and 4.1.1.c(2)) to ensure that Reclamation does not lose this capability. Dynamic design and analysis of underground excavations in soil and rock are performed by a subset of Reclamation's geotechnical engineering staff. Several TSC geotechnical engineers are capable of dynamic design and analysis, but the number of engineers experienced in such design is declining. Reclamation's capability to perform dynamic design and analysis of underground excavations is limited primarily by the availability of workload. To maintain the dynamic soil and rock mechanics capabilities, TSC is training additional engineering staff; however, without a steady workload for underground excavations, it will be difficult to maintain this expertise. A COG team leader has been assigned to monitor Reclamation's progress in implementing the action plan.

k) **4.1.5 – Geotextiles/Geosynthetics Analysis and Design.** This is a new category for FY 2012 and was included to differentiate this capability from the research and testing capability noted in 9.3.1.c. While the TSC Geotechnical Services Division has several engineers who have used

geotextiles in design and construction for embankment dams and other facilities, these individuals typically do not perform research or testing of geotextiles or geosynthetics. The TSC is reporting that it is not self-sufficient in this capability and is currently not sustainable. However, the TSC has identified staff to maintain this capability and is providing appropriate training. The COG will continue to monitor this capability in the future, but no further action is planned at this time.

l) **4.2.4 – Blasting Analysis and Design.** This capability exists in several SPOs. The TSC reports that it is not self-sufficient and the capability is not sustainable because there is limited work to maintain this expertise. The TSC is bringing in consulting expertise, as needed, when required for design. This has allowed Reclamation to maintain its ability to be a "smart buyer" and an informed owner, which is necessary to ensure safety of our structures during construction. Since this expertise is available in SPOs, the COG will monitor this capability, but no further action is planned at this time.

m) **4.2.5 – Grouting Designs.** This capability exists in several SPOs but at low staffing levels. The TSC reported that this capability is not sustainable due to lack of workload, and it is currently working with a retired Reclamation expert to develop a design standard for grouting design. The COG has identified this as an endangered capability and has developed an action plan. A COG team leader has been assigned to monitor Reclamation's progress in developing and implementing the Action Plan.

n) **5.2.4 – Arc Flash Analysis.** The COG determined that this technical capability should be added to the matrix in FY 2011 to address concerns that the TSC does not have adequate staff to address the workload that exists. The TSC has hired and trained engineers in arc flash analysis to cover the expected workload. The reported FY 2012 capability is similar to the data collected in FY 2011. In FY 2011, data collected by the COG indicated that some of Reclamation's capability in arc flash analysis resides outside of the SPOs (i.e., in area or power offices). Since the technical capability data call goes only to identified SPOs, the non-SPO capability is not captured in the Table. The COG has been working with the Power Resource Office (PRO) and TSC and has developed a series of recommendations that are reflected in the FY 2012 Annual Report. Specifically, the PRO and TSC are collaboratively developing agency scheduling and general guidance, as well as a peer review process. Upon completion of the guidance, the COG will re-evaluate the capability.

o) **5.3.1, 5.3.2, and 5.3.3 – Other Renewable Energy: Design and Analysis (Electrical Engineering) of Wind Turbines (5.3.1), Solar Power Systems (5.3.2), and Geothermal Generation Systems (5.3.3).**

Reclamation does not currently have sufficient workload in these areas to justify hiring or recruiting this expertise specifically. It does, however, have the potential to develop these capabilities, including the ability to be a "smart buyer." This category was included in the COG study to allow evaluation of Reclamation's capability considering the U.S. Department of the Interior's (Interior) emphasis on the renewable energy development needs of the Nation. While this expertise could be further developed within Reclamation, the COG is simply presenting these findings, and no further action is planned by the COG at this time.

p) **6.1.6 – Analysis of Hydraulic Transients in Power System Waterways. T**he COG identified this as an endangered capability in FY 2010 and developed an action plan. A market search was performed in FY 2011 for suitable current software to replace the in-house developed software (WHAMO). WHAMO was developed jointly by the U.S. Army Corps of Engineers and Reclamation in the 1970s and updated in the 1990s. The available software evaluated was more user friendly but did not have the full capabilities of WHAMO. The WHAMO software has the capabilities to perform the analyses that Reclamation needs, but its implementation will require intensive training for junior engineers. The goal of the TSC Hydraulic Equipment Group is to complete training in FY 2013. A COG team leader has been assigned to monitor Reclamation's progress in implementing the action plan.

q) **6.2.4 – Design and Analysis of Temperature Control/Selective Withdrawal Structures.** There is not sufficient workload to sustain an FTE or train new employees specifically in this field. However, the TSC currently maintains the individual skills and capabilities required to properly analyze and design temperature control/selective withdrawal structures. The COG identified this as an endangered capability in FY 2010 and developed an action plan to ensure that Reclamation does not lose this capability. The proposed recommendation is to develop a design standard that documents the procedures, design considerations, and other factors required to perform design and analyze temperature control/ selective withdrawal structures. The TSC plans to develop this chapter to Design Standard No. 9, *Buildings*, in 2013. A COG team leader has been assigned to monitor Reclamation's progress in implementing the action plan.

r) **6.3.1, 6.3.2, and 6.3.3 – Other Renewable Energy: Design and Analysis (Mechanical Engineering) of Wind Turbines (6.3.1), Solar Power Systems (6.3.2), and Geothermal Generation Systems (6.3.3).** Similar to the capabilities described in 5.3.1, 5.3.2, and 5.3.3, Reclamation does not have workload in these areas but does have the potential to develop these capabilities, including the ability to be a "smart buyer."

This category was included in the COG study to allow evaluation of Reclamation's capability considering Interior's emphasis on renewable energy development. While this expertise could be further developed within Reclamation, no further action is planned by the COG at this time.

s) **8.1.10 – Water Quality Modeling.** This capability exists in several SPOs but at low staffing levels. The TSC reports that while it has this capability, there is limited water quality modeling workload. Consequently, sustaining this capability is difficult, and self-sufficiency is questionable. The COG will monitor this capability in the future, but no further action is planned at this time.

t) **8.2 – Economics.** The COG will continue to monitor the balance of economics capabilities and resources to workload in Reclamation. At current staffing levels, economics resources in Reclamation are fully obligated at an early point in the fiscal year with no reserve capacity to accommodate unscheduled work or scope increases for scheduled projects. In addition, the potential attrition in this functional area could at any time create a resource shortage at the expert level. Staffing plans in this functional area are being implemented on a Reclamation-wide basis with success. The potential for a shortage of critical economic capabilities with the required expert knowledge of Reclamation contract and repayment issues remains and could have a significant negative impact to mission accomplishment. The COG will continue to monitor the progress of SPOs as they implement staffing plans required to supplement the resources for this capability, as well as continue to monitor the balance of resources to the needs of Policy and Administration; Security, Safety, and Law Enforcement; and the regional offices.

u) **9.3.1.c – Research, Testing, and Specifications for Geotextiles.** TSC has one expert in the materials properties of geotextiles and geosynthetics located in the Materials Engineering and Research Lab. This position is responsible for testing and research and has been fully billable for many decades. The position works on a wide variety of issues, including canal linings, containment structures, waterstop, joint sealants, concrete dam repair, and roofing materials. This position works closely with TSC geotechnical design engineers on a number of these issues. This capability is currently sustainable, and no further action is planned at this time.

Conclusions

While no new technical capabilities were identified as endangered during the FY 2012 review, Reclamation continues to have capabilities that the COG considers to be endangered. For each of these endangered capabilities, Action Plans are being implemented, and a COG member serves as the team leader for each:

(1) Structural analysis and design of plant facilities (powerplants) - Item No. 3.2.2.c.

(2) Design and analysis of temperature control/selective withdrawal structures - Item No 6.2.4

(3) Analysis of hydraulic transients in power system waterways - Item No. 6.1.6

(4) Design and analysis of tunnels - Item No. 3.2.4.e.

(5) Static analysis, evaluation, and design of underground excavations in rock - Item No. 4.1.1.c(2)

(6) Dynamic analysis, evaluation, and design of underground excavations in soil - Item No. 4.1.2.b(1)

(7) Dynamic analysis, evaluation, and design of underground excavations in rock - Item No. 4.1.2.b(2)

(8) Grouting designs- Item No. 4.2.5

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SUMMARY TABLE OF FUNCTIONAL AREAS AND TECHNICAL CAPABILITIES
FOR ALL RECLAMATION SERVICE PROVIDER ORGANIZATIONS

NUMBER OF CAPABLE EMPLOYEES — ENTRY LEVEL / JOURNEYMAN LEVEL / SENIOR LEVEL (offices: GP, PN, MP, UC, LC, TSC, FCCO, PROVO, MPCO, SUM) — RECLAMATION TOTALS

Data edits must be entered on the respective region tab - Do not edit on the Summary table

HIDE FY09 | HIDE FY10 | HIDE FY11 | HIDE FY12 | HIDE FY13 | HIDE FY14 | HIDE FY15
SHOW FY09 | SHOW FY10 | SHOW FY11 | SHOW FY12 | SHOW FY13 | SHOW FY14 | SHOW FY15

FUNCTIONAL AREAS		TECHNICAL CAPABILITY	Entry SUM FY09	Entry SUM FY10	Entry SUM FY11	Entry SUM FY12	Journeyman SUM FY09	Journeyman SUM FY10	Journeyman SUM FY11	Journeyman SUM FY12	Senior SUM FY09	Senior SUM FY10	Senior SUM FY11	Senior SUM FY12	Reclamation Totals FY09	Reclamation Totals FY10	Reclamation Totals FY11	Reclamation Totals FY12
1.0 GENERAL																		
1.1 Dam Performance Monitoring (Read me)	1.1.1	Design of performance monitoring instrumentation	5	1	0	0	10	5	8	8	6	8	13	13	21	14	21	21
	1.1.2	Installation of performance monitoring instrumentation	1	5	5	4	15	12	13	13	13	16	21	20	29	33	39	37
	1.1.3	Maintenance of performance monitoring instrumentation	2	6	6	7	16	17	17	13	13	16	20	20	31	39	43	40
	1.1.4	Analysis and evaluation of performance monitoring data	12	10	6	5	11	9	18	17	16	17	24	29	39	36	48	51
	1.1.5	Risk Analysis (2009-11 definition)	10	6	12		15	15	19		29	25	27		54	46	58	
	1.1.5.a	Risk Analysis (facilitator)				0				5				14				19
	1.1.5.b	Risk Analysis (estimator)				17				24				27				68
1.2 Early Warning and Hazard Classification	1.2.1	Downstream hazard classification assessment	8	6	5	5	16	6	6	7	12	7	6	3	36	19	17	15
	1.2.2	Advanced downstream consequence analysis (life loss)	7	6	10	6	17	18	23	4	43	37	15	2	67	61	48 *	12
	1.2.3	Design of early warning systems	4	0	0	0	7	2	0	0	10	6	6	6	21	8	6	6
	1.2.4	Installation of early warning systems	4	0	0	0	3	3	2	2	7	4	5	5	14	7	7	7
	1.2.5	Maintenance of early warning systems	4	0	0	0	3	3	2	2	7	4	5	5	14	7	7	7
1.3 Examinations	1.3.1	On-site safety of dams examinations (CFR, PFR, ASI)	13	10	19	22	23	10	13	19	56	39	39	36	92	59	71	77
	1.3.2	Senior Engineer for Dam Safety CFR	1	5	7	5	16	13	20	29	44	36	39	39	61	54	66	73
	1.3.3	On-site mechanical examinations	6	6	11	17	11	10	9	13	15	15	12	13	32	31	32	43
	1.3.4	Examination of inaccessible features using remote equipment	0	4	3	2	4	3	3	5	6	6	8	8	10	13	14	15
	1.3.5	Underwater examination of inaccessible features by dive team	0	0	1	2	4	6	6	5	3	6	6	7	7	12	13	14
	1.3.6	High scale examination of inaccessible features by climb team	4	6	5	6	7	6	13	11	8	6	8	7	19	18	26	24
	1.3.7	On-site O&M examination	13	13	27	29	23	27	31	32	36	37	47	45	72	77	105	106
	1.3.8	On-site examination of canals	13	19	17	22	29	23	35	37	33	31	30	33	75	73	82	92
	1.3.9	On-site examination of bridges	8	9	8	10	10	7	13	14	14	11	13	11	32	27	34	35
	1.3.10	Site security assessments	8	9	12	11	14	19	12	13	10	9	6	5	32	37	30	29
	1.3.11	Power O&M reviews	6	4	7	9	5	3	7	6	23	23	28	28	34	30	42	43
1.4 Site Security	1.4.1	Physical barrier analysis design	1	5	6	6	11	10	12	11	0	3	3	3	12	18	21	20
	1.4.2	Intrusion detection systems	5	6	6	2	3	2	3	1	1	3	2	2	9	11	11	5
	1.4.3	Design and analysis of security systems	3	5	3	3	6	7	6	7	1	6	8	9	10	18	17	19
1.5 Cost Estimating	1.5.1	Preparation of government cost estimates	10	14	20	21	44	43	47	58	28	23	25	22	82	80	92	101
1.6 Emergency Management	1.6.1	Emergency Action Plans	9	4	6	6	11	8	12	14	11	8	9	6	31	20	27	26
	1.6.2	Emergency management exercises	5	0	2	3	7	6	10	12	11	8	6	3	23	14	18	18
1.7 Value Engineering	1.7.1	Value Engineering Facilitation				0				2				3				5
2.0 Hydrology and River Hydraulics																		
2.1 Hydrology	2.1.1	Development of inflow design hydrographs	11	6	9	9	19	12	16	15	11	12	13	13	41	30	38	37
	2.1.2	Cross-drainage analysis	15	10	12	12	23	19	20	20	11	13	9	9	49	42	41	41
	2.1.3	Water supply forecasting	2	1	4	5	7	6	11	11	5	10	11	12	14	17	26	28
	2.1.4	Climate change impacts	2	1	8	11	6	3	6	6	7	4	7	7	15	8	21	24
	2.1.5	Snow (runoff) and precipitation estimating	5	2	4	4	13	9	10	10	13	12	14	14	31	23	28	28
	2.1.6	Flood frequency and statistical hydrologic analysis	11	7	11	12	29	28	18	18	23	23	11	11	63	58	40 *	41
	2.1.7	Extreme precipitation and flood event analysis up to the PMF	10	4	5	5	10	7	3	3	11	8	4	4	31	19	12 *	12
	2.1.8	Paleo-hydrologic flood analysis	1	0	0	0	1	3	2	2	3	3	4	4	5	6	6	6
	2.1.9	Flood inundation mapping	5	5	10	9	22	11	14	14	9	9	7	7	36	25	31	30
	2.1.10	Groundwater modeling	4	1	5	4	3	4	2	2	6	5	10	10	13	10	17	16
	2.1.11	Reservoir yield analysis (2009-11 definition)	5	4	6		10	9	7		8	6	5		23	19	18	
	2.1.11a	River and Reservoir Operations Modeling including Water Demand Analysis (post-2012)				2				4				6				12
	2.1.12	Water Conservation Planning				3				9				1				13
	2.1.13	Irrigation drainage analysis and design	8	6	6	4	13	3	4	2	3	2	2	5	24	11	12	11
	2.1.14	Groundwater and Drainage Field Exploration				1				1				3				5
2.2 Sedimentation & River Hydraulics	2.2.1	1D river hydraulic modeling	12	11	17	17	27	20	12	10	11	18	21	22	50	49	50	49
	2.2.2	2D & 3D river hydraulic modeling	8	7	11	11	18	16	7	7	5	9	13	13	31	32	31	31
	2.2.3	River and reservoir numerical simulation	7	4	10	10	23	18	10	10	17	17	16	17	47	39	36	37
	2.2.4	Sediment transport numerical modeling and analysis	3	1	5	6	14	12	7	6	9	14	12	12	26	27	24	24
	2.2.5	River restoration analysis & design	5	3	9	9	20	15	8	8	12	20	21	20	37	38	38	37
	2.2.6	Geomorphologic analysis of river systems	2	1	3	3	7	4	7	6	10	11	19	19	19	16	29 *	28
3.0 ARCHITECTURE AND CIVIL ENGINEERING																		
3.1 Architecture	3.1.1	Architectural design of buildings and other structures	4	1	1	1	7	8	7	7	1	2	3	2	12	11	11	10
	3.1.2	Landscape architectural design	10	6	7	7	1	2	2	3	3	3	2	1	14	11	11	11
3.2 Civil Engineering	3.2.1	Structural design of buildings and other structures	15	19	18	18	27	27	19	22	20	15	9	7	62	61	46 *	47
	3.2.2	Structural analysis and design of plant facilities:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3.2.2.a	water and wastewater treatment systems	9	4	3	4	9	8	12	11	7	6	5	6	25	18	20	21
	3.2.2.b	pumping plants	12	16	12	12	8	5	8	9	10	7	5	5	30	28	25	26
	3.2.2.c	power plants	7	8	9	9	4	2	5	5	7	5	2	2	18	15	16	16
	3.2.2.d	switchyards	6	4	6	6	3	3	4	5	5	2	4	4	14	9	14	15
	3.2.3	Structural analysis, evaluation, and design of:																
	3.2.3.a	spillways	11	14	19	13	25	18	25	16	23	24	27	18	59	56	71	47
	3.2.3.b	outlet works	11	14	20	13	19	20	19	13	23	23	21	17	53	57	60	43
	3.2.3.c	concrete dams (basic structural analysis)	8	12	16	12	16	10	10	13	15	12	12	15	39	34	38	40
	3.2.3.d	concrete dams (non-linear structural analysis)	0	1	3	1	0	5	5	5	0	2	4	2	0	8	12	8
	3.2.3.e	Roads	15	11	6	6	22	17	19	15	4	5	9	12	41	33	34	33
	3.2.3.f	Bridges	15	15	18	17	12	7	7	6	6	3	7	7	33	25	32	30
	3.2.4	Hydraulic analysis, evaluation, and design of:																
	3.2.4.a	spillways				14				19				24				57
	3.2.4.b	outlet works				15				17				19				51
	3.2.4.c	concrete dams (basic)				13				14				20				47
	3.2.4.d	fish facilities	16	15	13	13	17	13	11	14	7	9	13	16	40	37	37	43
	3.2.4.e	diversion structures	12	8	8	11	16	18	14	20	8	10	11	22	36	36	33	53
	3.2.4.f	canals	11	10	16	17	20	20	21	23	8	8	6	10	39	38	43	50
	3.2.4.g	pipelines	11	15	19	19	26	20	19	23	12	13	16	14	49	48	54	56
	3.2.4.h	tunnels	4	9	9	4	4	3	1	1	2	2	6	8	10	14	16	13
	3.2.5	Process design of water and wastewater treatment systems				2				3				3				8
4.0 GEOTECHNICAL/GEOLOGICAL ENGINEERING SERVICES																		
4.1 Geotechnical Engineering	4.1.1	Static analysis, evaluation, and design of:																
	4.1.1.a	embankment dams	16	16	22	21	13	23	25	26	25	25	25	25	54	64	72	72
	4.1.1.b	foundations	20	15	22	23	37	36	36	34	28	28	28	29	85	79	86	86
	4.1.1.c	underground excavations:																
	4.1.1.c(1)	soil	12	6	12	12	16	10	11	9	3	8	11	14	31	24	34	35
	4.1.1.c(2)	rock	0	0	3	3			3	4			11	13			17	20
	4.1.1.d	soil and rock slopes	16	11	17	17	26	30	30	31	26	27	34	35	68	68	81	83
	4.1.2	Dynamic analysis, evaluation, and design of:																
	4.1.2.a	embankment dams	7	5	14	11	10	17	16	16	23	20	19	18	40	42	49	45
	4.1.2.b	underground excavations:																
	4.1.2.b(1)	soil	6	2	2	2	5	4	2	2	2	4	4	5	13	10	8	9
	4.1.2.b(2)	rock	0	0	0	0			1	1			7	8			8	9
	4.1.2.c	foundations	10	7	11	10	12	20	18	18	23	22	22	22	45	49	51	50

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HIDE FY09 | SHOW FY09 | HIDE FY10 | SHOW FY10 | HIDE FY11 | SHOW FY11 | HIDE FY12 | SHOW FY12 | HIDE FY13 | SHOW FY13 | HIDE FY14 | SHOW FY14 | HIDE FY15 | SHOW FY15

Data edits must be entered on the respective region tab - Do not edit on the Summary table

NUMBER OF CAPABLE EMPLOYEES (Entry Level, Journeyman Level, Senior Level by region: GP, PN, MP, UC, LC, TSC, FCCO, PROVO, MPCO, SUM; Reclamation Totals)

FUNCTIONAL AREAS	TECHNICAL CAPABILITY		Entry SUM FY09	FY10	FY11	FY12	Journeyman SUM FY09	FY10	FY11	FY12	Senior SUM FY09	FY10	FY11	FY12	Reclamation Totals FY09	FY10	FY11	FY12
	4.1.2.d	soil and rock slopes	12	5	9	8	15	22	16	16	24	23	24	23	51	50	49	47
	4.1.3	Numerical modeling of seepage	9	7	14	13	13	18	21	21	19	25	15	13	41	50	50	47
	4.1.4	Dewatering evaluation and design	8	7	16	16	16	11	22	23	13	17	12	12	37	35	50	51
	4.1.5	Geotextiles/Geosynthetics analysis and design				1				1			2					4
4.2 Engineering Geology	4.2.1	Field mapping	7	6	5	5	13	16	14	13	24	22	22	15	44	44	41	33
	4.2.2	Field Exploration by:																
	4.2.2.a	Hard rock drilling and sampling (2009-10)	5	5			13	18			18	21			36	44		
	4.2.2.a(1)	Hard rock drilling and sampling (Geologist/Geotech)			5	5			9	9			20	21			34	35
	4.2.2.a(2)	Hard rock drilling and sampling (Drilling Staff)			6	6			6	9			6	9			18	24
	4.2.2.b	Augering (2009-10)	11	6			22	19			42	21			75	46		
	4.2.2.b(1)	Augering (Geologist/Geotech)			3	3			11	10			20	21			34	34
	4.2.2.b(2)	Augering (Drilling Staff)			6	6			6	9			6	9			18	24
	4.2.2.c	SPT's (2009-10)	11	6			22	18			41	21			74	45		
	4.2.2.c(1)	SPT's (Geologist/Geotech)			6	6			10	10			20	21			36	37
	4.2.2.c(2)	SPT's (Drilling Staff)			6	6			6	9			6	9			18	24
	4.2.2.d	CPT's (2009-10)	4	2			7	13			25	14			36	29		
	4.2.2.d(1)	CPT's (Geologist/Geotech)			4	4			7	8			8	7			19	19
	4.2.2.d(2)	CPT's (Drilling Staff)			3	3			1	1			0	0			4	4
	4.2.3	Geologic logging and analysis of soil and rock	7	4	5	5	21	15	13	13	42	20	20	21	70	39	38	39
	4.2.4	Blasting analysis and design	4	2	4	4	3	6	5	6	8	11	9	13	15	19	18	23
	4.2.5	Grouting designs	4	2	3	3	5	6	4	4	12	18	15	14	21	26	22	21
	4.2.6	Borrow material investigations	9	4	7	7	23	11	15	15	48	22	20	24	80	37	42	46
	4.2.7	Groundwater investigations	5	4	6	6	12	19	14	15	17	21	21	25	34	44	41	46
	4.2.8	Foundation modeling (2-D and 3-D)	6	2	0	6	9	7	3	4	14	12	16	16	29	21	19	26
4.3 Seismotectonics & Geophysics	4.3.1	Earthquake loadings, ground motions, response spectra, and probabilistic hazard analysis	3	0	0		5	2	2		4	0	0		12	2	2	
	4.3.1.a	Fault source characterization	0	2	2	2	0	2	2	4	0	3	3	3	0	7	7	9
	4.3.1.b	Probabilistic seismic hazard assessment	0	3	2	1	0	1	1	3	0	2	4	5	0	6	7	9
	4.3.1.c	Earthquake time histories and response spectra	0	1	0	0	0	1	1	3	0	5	3	4	0	7	4	7
	4.3.2	Geophysical site characterizations	4	2	3	4	4	3	4	4	4	2	3	3	11	8	10	10
5.0 ELECTRICAL ENGINEERING																		
5.1 Electrical Design	5.1.1	Electrical design for rotating machinery (generators and motors) and appurtenant equipment	3	3	3	2	4	1	3	5	3	3	2	2	10	7	8	9
	5.1.2	Design and analysis for electrical features of mechanical equipment	4	5	6	6	8	7	5	3	6	6	9	8	18	18	20	17
	5.1.3	Design and analysis of Plant electrical equipment	3	4	5	5	8	8	6	8	7	6	9	9	18	18	20	22
	5.1.4	Design and analysis of electrical distribution systems				3				4				8				15
	5.1.4	Design and analysis of outdoor electrical distribution systems (2009-2011)	3	2	3		5	5	3		6	5	8		14	12	14	
	5.1.5	Design and analysis of substations, switchyards, transformers and circuit breakers	5	6	6	7	6	7	4	3	6	5	8	7	17	18	18	17
	5.1.6	Factory inspections of major electrical equipment	3	3	3	6	10	11	14	14	9	7	10	12	22	21	27	32
5.2 Hydropower Technical Services	5.2.1	High voltage insulation testing (AC, DC, Doble) of winding, bus, and cable systems	3	3	4	7	9	9	8	9	4	4	5	8	16	16	17	24
	5.2.2	Analysis, condition assessment, trouble-shooting, diagnostics, and testing associated with generators and appurtenant electrical components	3	5	5	5	6	5	5	6	4	4	5	9	13	14	15	20
	5.2.3	Analysis, condition assessment, trouble-shooting, diagnostics, and testing associated with power apparatus	3	2	3	3	3	2	3	3	1	3	6	7	7	7	12	13
	5.2.4	Arc flash analysis	0	0	4	4			1	3			1	1			6	8
	5.2.5	SCADA system design and analysis	3	2	5	5	3	4	6	10	3	5	4	3	9	11	15	18
	5.2.6	Analysis, condition assessment of mechanical components of pumping and hydroelectric powerplants	3	3	5	8	10	6	6	6	6	8	8	6	19	17	19	20
	5.2.7	Analysis, condition assessment of penstocks and outlet works	5	3	4	5	3	2	6	7	2	3	2	7	10	8	12	19
5.3 Other Renewable Energy	5.3.1	Design and analysis of wind turbines	1	0	0	0	1	0	0	0	0	0	0	0	2	0	0	0
	5.3.2	Design and analysis of solar power systems	3	3	3	4	4	3	3	2	1	2	2	1	8	8	8	7
	5.3.3	Design and analysis of geothermal generation systems	1	0	0	0	1	0	0	0	0	0	0	0	2	0	0	0
6.0 MECHANICAL ENGINEERING																		
6.1 Hydraulic Equipment	6.1.1	Design and analysis of hydraulic control systems	4	4	4	4	4	3	3	3	4	5	3	3	12	12	10	10
	6.1.2	Design and analysis of pumps, turbines	5	8	6	7	11	8	9	8	8	4	3	3	24	20	18	18
	6.1.3	Design and analysis of gates and valves	9	10	12	13	18	15	14	13	9	5	5	5	36	30	31	31
	6.1.4	Design and analysis of penstocks and manifolds	6	4	5	5	2	1	2	1	2	2	1	1	10	7	8	7
	6.1.5	Design and analysis of steel tanks (air chambers, surge tanks, etc.)	8	5	5	4	3	1	3	2	6	3	2	2	17	9	10	8
	6.1.6	Analysis of hydraulic transients in power system waterways	0	0	0	0	0	0	2	2	2	2	2	1	2	2	4	3
6.2 Mechanical Equipment	6.2.1	Design of heating, ventilation, and air conditioning systems	3	3	3	4	7	6	6	5	0	1	2	1	10	10	11	10
	6.2.2	Design analysis of stoplogs, gatehoists, trashracks, etc.	7	10	11	9	11	12	10	10	2	2	3	3	20	24	24	22
	6.2.3	Design and analysis of fire detection and suppression systems	3	4	6	5	4	1	1	3	1	1	1	1	8	6	8	9
	6.2.4	Design and analysis of temperature control/selective withdrawal structures	8	6	5	5	8	6	4	5	2	3	5	5	18	15	14	15
	6.2.5	Design and analysis of cranes	5	4	4	3	5	3	3	3	2	3	4	4	12	10	11	10
	6.2.6	Design and analysis of fish screens	4	7	8	8	11	4	6	6	1	6	8	7	16	17	22	21
	6.2.7	Turbine/pump performance and uprate analysis	0	0	1	2	5	4	4	3	1	1	3	3	6	5	8	8
	6.2.8	Factory inspections of mechanical equipment	4	3	11	11	10	8	11	11	7	8	9	9	21	19	31	30
	6.2.9	On-site testing/inspection and assessments for startup and performance of:																
	6.2.9.a	pumps and turbines	4	11	11	11	5	4	5	5	6	7	9	9	15	22	25	25
	6.2.9.b	penstocks	4	5	5	3	3	5	6	5	4	5	5	4	11	15	16	12
	6.2.9.c	outlet works	4	4	5	3	4	7	8	7	5	6	5	4	13	17	18	14
	6.2.9.d	pressure vessels	4	5	4	1	1	0	2	1	3	3	3	3	8	8	9	5
6.3 Other Renewable Energy	6.3.1	Design and analysis of wind turbines	1	0	0	0	1	0	0	0	0	0	0	0	2	0	0	0
	6.3.2	Design and analysis of solar power systems	2	3	2	3	2	1	1	0	0	0	0	0	4	4	3	3
	6.3.3	Design and analysis of geothermal generation systems	1	0	0	0	1	0	0	0	0	0	0	0	2	0	0	0
7.0 CONSTRUCTION AND OTHER SERVICES																		
7.1 Construction Management	7.1.1	Resident Engineer	9	9	16	14	13	10	13	14	6	9	9	9	28	28	38	37
	7.1.2	Field Engineer	7	8	13	10	15	12	16	16	8	9	11	11	30	29	40	37
	7.1.3	Construction inspection of:																
	7.1.3.a	Grouting	8	7	15	16	17	15	15	16	18	18	13	9	43	40	43	41
	7.1.3.b	Rapid Tunneling	11	12	14	12	15	11	8	8	7	9	9	6	33	32	31	28
	7.1.3.c	Controlled Blasting	10	12	16	15	13	13	17	15	7	9	9	6	30	34	42	36
	7.1.3.d	Dam Embankment Const.	19	21	25	27	39	24	25	21	35	18	22	20	93	63	72	68
	7.1.3.e	Dam Concrete Const.	21	21	26	25	26	20	19	20	10	7	12	17	57	48	57	62
	7.1.3.f	Rock Bolts/Tendon Install	15	13	17	14	26	17	16	16	23	15	16	21	64	45	49	51
	7.1.3.g	Large Pump/Turbine Install	14	15	18	16	16	10	11	11	11	11	11	9	41	36	40	36
	7.1.3.h	Generator Rewinds	7	4	8	11	8	6	5	5	3	3	5	5	18	13	18	21
	7.1.3.i	Medium/High Voltage Equipment Install	14	13	15	16	12	8	10	11	6	4	6	6	32	25	31	33
	7.1.3.j	Electrical Control System Install	16	19	20	22	13	9	9	14	8	7	6	6	37	35	35	42
	7.1.3.k	Plant Startup	12	11	12	17	11	8	8	6	9	6	10	10	32	25	30	33
	7.1.3.l	NACE Coatings Inspect.	11	10	13	17	15	10	10	17	10	4	7	10	36	24	30	44
	7.1.3.m	Steel NDT Inspect.	5	0	2	5	12	6	8	10	6	3	5	5	23	9	15	20
	7.1.3.n	Structural Concrete	22	22	30	27	23	23	20	24	13	15	20	28	58	60	70	79
	7.1.3.o	Pipelines	0	0	11	12	0	0	5	13	0	0	13	23	0	0	29	48
	7.1.3.p	Pipeline Factory Inspection	0	0	6	7	0	0	7	5	0	0	4	4	0	0	17	16
	7.1.4	Construction claims analysis	15	16	24	22	14	20	16	22	19	18	23	24	48	54	63	68

Green = Self sufficient and sustainable. Yellow = Not self sufficient, but sustainable. Red = Capability is not sustainable. Orange = Possible endangered capability - See report.

FUNCTIONAL AREAS		TECHNICAL CAPABILITY		ENTRY LEVEL SUM FY09	FY10	FY11	FY12	JOURNEYMAN LEVEL SUM FY09	FY10	FY11	FY12	SENIOR LEVEL SUM FY09	FY10	FY11	FY12	RECLAMATION TOTALS FY09	FY10	FY11	FY12
		7.1.5	Construction Contract administration	14	23	28	28	14	15	12	20	21	23	21	24	49	61	61	72
		7.1.6	Construction scheduling	13	27	27	27	12	19	16	21	15	13	11	14	40	59	54	62
		7.1.7	Constructability reviews and guidance	13	17	17	21	17	20	22	25	21	22	23	28	51	59	62	74
		7.1.8	Field Testing of:																
		7.1.8.a	soil	19	9	17	21	25	19	20	25	32	19	20	17	76	47	57	63
		7.1.8.b	concrete	13	9	16	20	14	15	16	21	13	13	16	14	40	37	48	55
7.2	Surveys, Mapping, &GIS/Remote Sensing	7.2.1	Land Surveys (GPS)	7	6	15	14	23	28	14	15	13	11	25	25	43	45	54	54
		7.2.2	Land Surveys (LiDAR)	6	3	3	3	3	4	8	7	7	7	10	11	16	14	21	21
		7.2.3	Construction surveys	7	15	9	8	11	13	13	23	7	8	14	12	25	36	36	43
		7.2.4	Photogrammetry	6	4	4	4	5	9	12	14	3	2	9	9	14	15	25	27
		7.2.5	Reservoir sedimentation surveys	6	6	1	1	2	9	4	5	5	8	12	11	13	23	17	17
		7.2.6	Bathymetric surveys of rivers and reservoirs	7	8	5	5	3	9	6	7	7	8	15	14	17	25	26	26
		7.2.7	Hydro-acoustic surveys	6	6	2	2	6	9	2	2	6	4	3	3	18	19	7	7
		7.2.8	GIS	3	5	8	9	19	11	9	11	15	11	15	14	37	27	32	34
		7.2.9	Remote Sensing	2	1	2	2	3	3	5	4	6	6	7	7	11	10	14	13
8.0	ENVIRONMENTAL AND ECONOMIC SERVICES																		
8.1	Environmental Studies	8.1.1	Limnological studies	2	1	1	0	3	3	1	2	8	8	9	6	13	12	11	8
		8.1.2	Aquatic habitat analysis	3	3	3	2	8	6	5	5	14	15	13	10	25	24	21	17
		8.1.3	Fish and wildlife population analysis	0	0	2	3	11	9	2	2	10	12	12	10	21	21	16	15
		8.1.4	Field bio-assessments	1	1	3	2	9	7	5	5	5	15	14	11	15	23	22	18
		8.1.5	Fish hatchery evaluations	0	0	3	3	2	2	2	2	2	4	0	0	4	6	5	5
		8.1.6	Invasive species research and management	2	1	4	3	8	7	5	6	5	6	7	6	15	14	16	15
		8.1.7	Aquatic ecology research	2	2	3	2	15	10	4	2	14	14	12	12	31	26	19	16
		8.1.8	ESA Consultation	0	0	2	2	8	8	8	8	8	12	16	15	16	20	26	25
		8.1.9	NEPA (EA/EIS Preparation)	3	2	4	2	13	4	6	7	8	15	18	19	24	21	28	28
		8.1.10	Water quality modeling	0	1	1	0	2	2	7	6	1	7	8	8	3	10	16	14
		8.1.11	Water quality studies	0	7	13	14	5	9	13	13	9	15	24	22	14	31	50	49
		8.1.12	Cultural resource assessments	2	2	2	2	4	4	9	10	4	7	8	8	10	13	19	20
		8.1.13																	
8.2	Economics	8.2.1	NEPA economic impact analysis	1	0	0	1	9	7	4	4	6	8	6	6	16	15	10	11
		8.2.2	Cost/Benefit analyses for project planning	1	2	1	3	6	5	9	8	10	6	7	7	17	13	17	18
		8.2.3	Payment capacity determinations	1	0	0	1	5	4	5	5	7	3	3	3	13	7	8	9
		8.2.4	Cost allocation analysis and computation	1	0	0	1	5	4	5	5	8	4	4	4	14	8	9	10
9.0	LABORATORY SERVICES																		
9.1	Water Quality	9.1.1	Research and development for water desalination processes	1	1	1	1	6	7	9	9	6	5	5	5	13	13	15	15
		9.1.2	Research and development of other impaired water treatment processes	1	1	1	1	6	7	9	9	6	5	5	5	13	13	15	15
		9.1.3	Lab analysis of substances in soil, sediment and water	0	4	5	4	4	5	3	4	4	6	10	9	8	15	18	17
		9.1.4	Field Sampling	3	2	6	6	12	14	15	14	16	12	21	20	31	28	42 *	40
9.2	Hydraulic Laboratory Services	9.2.1	Hydraulic research, testing, analysis using:																
		9.2.1.a	Computational modeling	2	2	4	4	13	10	2	2	9	9	16	16	24	21	22	22
		9.2.1.b	Physical modeling	1	3	3	3	3	4	4	3	7	7	7	7	11	14	14	13
		9.2.1.c	Erosion and sediment deposition modeling	2	1	3	3	14	10	3	3	8	10	13	12	24	21	19	18
9.3	Materials Research and Engineering	9.3.1	Research, testing and specifications for:																
		9.3.1.a	Concrete	4	4	7	6	7	4	3	3	4	4	4	5	15	12	14	14
		9.3.1.b	Soils/rock	9	5	7	5	10	3	5	6	20	4	5	5	39	12	17	16
		9.3.1.c	Geotextiles	1	0	0	0	2	0	0	0	5	1	2	2	8	1	2	2
		9.3.1.d	Coatings	1	1	1	1	2	2	1	2	1	1	1	1	4	4	3	4
		9.3.1.e	Corrosion	1	1	1	1	1	1	1	2	1	1	1	1	3	3	3	4
9.4	Environmental Laboratories	9.4.1	Fish toxicology analysis laboratory	1	1	1	0	0	0	2	2	0	0	2	1	1	1	5	3
		9.4.2	Greenhouse (2009-2011)	1	1	0		0	0	0		0	0	2		1	1	2	
		9.4.3	Invasive species detection analysis	0	0	4	0	1	0	1	0	0	3	3	0	1	3	8	0

Green = Self sufficient and sustainable. Yellow = Not self sufficient, but sustainable. Red = Capability is not sustainable. Orange = Possible endangered capability - See report.

Appendix B

Status of Action Plans and Outstanding COG Recommendations

Appendix B

Status of Action Plans and Outstanding COG Recommendations

Table B-1 provides an update on the incomplete Endangered Capability Action Plans sorted by the fiscal year (FY) in which they were identified. The action plans for those capabilities identified as endangered in FY 2011 follow the table.

Table B-2 provides an update on the recommendations made in previous Coordination and Oversight Group (COG) annual reports and in the FY 2011 Drill Crew report prepared by a COG subteam.

Table B-1. Update on Incomplete Endangered Capability Action Plans

Fiscal Year	Endangered Capability	Action Plan	Implementation Status
2009	Structural Analysis and Design of Plant Facilities (Powerplants)	FY 2010 Annual COG Report	On June 11, 2012, the DCO transmitted a memorandum to the RLT that identified this technical capability as possibly endangered and requested that program and project managers consider using Reclamation's expertise in the SPOs prior to outsourcing. Workload and recruitment in the TSC has provided an opportunity to obtain and train staff in powerplant designs. TSC staff, including rehired annuitants, will complete updates/revisions to the design standards for powerplants by the end of calendar year 2013.
2009	Design and Analysis of Temperature Control/Selective Withdrawal Structures	FY 2010 Annual COG Report	On June 11, 2012, the DCO transmitted a memorandum to the RLT that identified this technical capability as possibly endangered and requested that program and project managers consider using Reclamation's expertise in the SPOs prior to outsourcing. The proposed recommendation is to develop a design standard that documents the procedures, design considerations, design stresses and codes, and other factors required to perform the design and analysis of Temperature Control/Selective Withdrawal Structures. The TSC has identified personnel with the appropriate expertise to prepare this document; however, this task has not started due to workload constraints. The TSC, Civil Engineering Services Division, has funding and is tentatively planning to complete this work in calendar year 2013.

Table B-1. Update on Incomplete Endangered Capability Action Plans

Fiscal Year	Endangered Capability	Action Plan	Implementation Status
2010	Analysis of Hydraulic Transients in Power System Waterways	FY 2010 Annual COG Report	In FY 2011, the TSC conducted a survey of available hydraulic transient analysis software, assuming the vendors would offer training in the use of their product. The evaluation of the available software determined it to be more user-friendly; however, it did not have the full capabilities of Reclamation's existing software and could not perform the analyses needed by Reclamation. Therefore, training in Reclamation's existing software is the recommended course of action. The TSC recently hired an additional employee with some experience performing hydraulic transient analyses. This employee and others are being trained in the use of Reclamation's existing software. The TSC, Hydraulic Equipment Group, goal is to complete training in FY 2013.
2011	Underground Excavation and Tunneling	FY 2011 Annual COG Report	On June 11, 2012, the DCO transmitted a memorandum to the RLT that identified this technical capability as possibly endangered and requested that program and project managers consider using Reclamation's expertise in the SPOs prior to outsourcing. The proposed recommendation is to develop a design standard that documents the procedures and design considerations in the design of tunnels and other underground excavations to maintain smart buyer capability. The TSC has identified personnel with the appropriate expertise to prepare this document; however, this task has not started due to workload constraints. The TSC is tentatively planning to begin this work in calendar year 2013.
2011	Grouting Designs	See implementation status for action plan.	1) No grouting design work has been pursued outside of Reclamation. The expertise can be adequately maintained without actually performing grouting design work outside of Reclamation. 2) The design standards will be compiled under three major headings, which include: Foundation Grouting for Concrete Dams, Foundation Grouting for Earthen Embankment Dams, and a General Backfill Grouting. The COG strongly recommends the grouting standards be completed as soon as possible, preferable within the next 12 months. 3) The grouting team is available; however, no grouting design reviews or field mentoring of apprentice staff have occurred because of limited foundation grouting work occurring at Reclamation facilities.

Table B-2. Status of Outstanding COG Recommendations

Number	Recommendation	Status
2010-COG-1	Closely monitor the development and implementation of Electronic Service Agreement Module (ESAM). This system is a critical element of the business model, and success is the only option. In order to make the business model more meaningful, full implementation of ESAM is required. 100 percent participation by the Service Provider Organizations (SPO) is required by the start of FY 2012. While this is a significant departure from most SPO's current business practices, it is recommended that the DCO make this a senior management priority.	Complete. ESAM was deployed in 2012, and all SPOs were online by November 2012.
2010-COG-2	Participate in developing strategies to address the loss of Reclamation dam safety and risk management staff to other agencies, outside companies, and retirement. It is recommended that the DCO directly engage with targeted staff and all levels of the impacted managers to explore available opportunities, including innovative methods, to maintain this expertise. These strategies must ensure that Reclamation is able to maintain its ability to accomplish its mission-related workload and its smart buyer capabilities.	Complete. The DCO met with leadership and management in the Technical Resources organization on succession planning. The TSC addressed the points requested by the DCO in their succession plan.
2010-COG-3	Each SPO reported their cost and schedule performance with the data contained herein. Although the performance is considered good, it is important that the DCO challenge senior management to ensure consistent and credible cost and schedule data reporting.	Complete. The DCO had this conversation with the Regional Directors.
2010-COG-4	Encourage program offices and SPOs to perform project closeout work, including completion reports. Performance of project closeout work in FY 2010 was exceptionally low. It is recommended that the DCO challenge senior management to set SPO goals of achieving 50 percent of finished service agreements with completion reports in FY 2011. This will require project follow-up but very little staff time to accomplish. It should be stressed in setting these goals that the SPO's clients are critical in this activity.	Complete. The SPOs achieved 53 percent of finished service agreements with completion reports in FY 2011.
2010-COG-5	Make efforts to ensure the transparency of Reclamation's business model practices and the self-assessment results made herein by discussing in key stakeholder forums (i.e., National Water Resource Association, Family Farm Alliance, etc.).	Complete. The DCO communicated this during conferences he attended and in one-on-one discussions.

Table B-2. Status of Outstanding COG Recommendations

Number	Recommendation	Status
2011-COG-1	All three regional drill crews should work with their respective Human Resources representatives to develop formalized succession plans.	Ongoing. Great Plains (GP) Region: The GP Region will complete its succession plan over the next year as it prepares for the retirement of its drill crew supervisor. In the interim, opportunities are being provided to existing staff to learn business practices of the GP Region Drill Crew. A formal succession plan will be completed by September 30, 2013. Pacific Northwest (PN) Region: The PN Region completed a succession plan for the PN Drill Crew as part of a Region-wide effort; the final succession plan was submitted to the PN Region's Human Resources Office on May 21, 2012. Upper Colorado (UC) Region: A draft succession plan has been prepared and is under review. The UC Region will develop a final succession plan by September 30, 2013.
2011-COG-2	The PN Region should review their drill crew staffing levels, particularly in terms of supervision and administrative support, to determine if the workload supports this level of staffing. Methods of reducing staffing levels that do not negatively impact succession planning and sustainability should be considered. Staffing levels for GP Region and UC Region drill crews appear appropriate, but should be closely monitored to ensure adequate succession planning.	Complete. The PN Drill Crew eliminated two positions following hiring of the new Drill Foreman III in August 2012. The PN Region will continue to monitor workload and staffing to maintain a right-size staffing level for the PN Drill Crew.
2011-COG-3	Program offices should be encouraged to utilize a Field Exploration Request (FER) process similar to that required by the DSO. This includes current year as well as out-year planning. In addition, Directives and Standards (D&S) FAC 03-03 Design Activities should be revised to include more specific language regarding the FER process and incorporating that process into Design Activity Plans and Design Data Collection. The revisions should incorporate a FER request process similar to that used for the Safety of Dams (SOD) program for Reclamation's non-SOD work.	Complete. Changes have been incorporated into the D&S, and they are going through the review process. D&S FAC 03-03 revisions will be complete by October 31, 2013. All Reclamation drilling SPOs have implemented use of the FER process, including non-SOD drilling activities, where a FER-style process is appropriate.

Table B-2. Status of Outstanding COG Recommendations

Number	Recommendation	Status
2011-COG-4	The COG recommends that all regional drill crew service providers and their respective finance representatives work together with the Management Services Office to standardize, unless compelling reasons justify otherwise, the structure of their working capital funds and to establish standard billing practices and procedures. Following implementation, the COG should be advised in order for the recommendation to be closed out.	Ongoing. In November 2011, Reclamation's Chief Financial Officer initiated a business process assessment of the Working Capital Fund that is to be completed as part of the implementation of the Financial Business Management System (FBMS). In the memorandum informing of this assessment, he requested that no changes be made to the WCF. Final products of this assessment were due to Reclamation by June 30, 2012. Thus, no decisions should be implemented until the Management Services Office concurs and the assessment is complete. As of February 13, 2013, this discussion is ongoing in regard to the FBMS rollout, and no final decision has been reached.
2011-COG-5	PN Region should consider alternatives to maintain a higher WCF balance to ensure they can sustain the crew through unforeseen situations.	Complete. The PN Region Drill Crew management reviewed the WCF balance and the way costs were recovered. Through that review, and at the recommendation of the Regional Finance Officer, a decision was made to maintain the daily shift rate at $3,300 per shift due to the current budget climate, but to add a surcharge of $300 per day to account for variations in commercial airfare, fuel prices, non-CONUS travel costs, etc., beginning in FY 2012. The surcharge will be evaluated periodically throughout the fiscal year to determine the need for adjustment due to economic constraints. The PN Region Drill Crew management also increased rates for work shifts that did not involve the use of drilling equipment to ensure an adequate recovery of appropriate costs.
2011-COG-6	The COG recommends that drill issues and coordination become part of the Reclamation Design and Construction Coordination Team's (RDCCT) regular agenda.	Complete. Drilling issues have become a standing agenda item for the RDCCT.

Table B-2. Status of Outstanding COG Recommendations

Number	Recommendation	Status
2011-COG-7	Allow the Regional Directors, working with the Management Services Office, to create a limited Advanced Funding Agreement (AFA) process for drill crews. This should begin with a plan of how the AFA would be created and take into account lessons learned from the TSC and Lower Colorado (LC) Region's pilot AFA program. The plan should also provide for a trial period.	On hold. Reclamation's Leadership Team made the decision that until further notice, use of annual funding agreements will be limited to the TSC.
2011-COG-8	The COG should revise the table of functional areas and technical capabilities to ensure future annual evaluations of technical capability consider drill crew staffing levels.	Complete. Beginning in FY 2011, the table of functional areas and technical capabilities has separate categories for geologist/geotechnical versus drilling staff.
2011-COG-9	For the FY 2014 Budget Review Committee (BRC) notebook, the COG will modify the advance planning tables to align the drill crews with Regional Offices and include a tab within the table file to provide offices with consistent, clear instructions of the information being requested and details to be included. For BRC notebooks beyond FY 2014, the COG will reevaluate this process.	Complete. The COG modified the advance planning tables as described for the FY 2014 BRC notebook and will reevaluate in future years.
2011-COG-10	The COG will revise the FY 2014 BRC Notebook Guidance for development of the advance planning tables to provide offices improved instructions and information regarding the level of detail to include in their advance planning tables. The Notebook Guidance will also emphasize drill crew work and need for programs to include estimates for that work.	Complete. The COG improved the BRC notebook guidance related to the advance planning tables by revising the instructions and information regarding the level of detail to be included and adding emphasis to providing estimates for drill crew work.
2011-COG-11	The COG should review advance planning tables each year and compare to the previous year's to ensure activities are being detailed further in each program area. The COG will work with the offices to ensure errors are corrected and data gaps are filled.	Complete. The COG revised the Advance Planning Standing Operating Procedure to include the reviews of advance planning tables and followup communication.
2011-COG-12	Appropriate representatives from individual SPOs and Drill Crews should formally meet annually with individual offices (i.e., DSO, Area Offices, etc.) to review activities identified in the advance planning tables, identify activities not included, and begin planning/scheduling drilling work for upcoming FY. The appropriate regional COG member should ensure these meetings are scheduled and participate in the discussions.	Complete. The COG revised the Advance Planning Standard Operating Procedure to include a requirement for the COG members to ensure that these meetings and the review and coordination activities occur.

Table B-2. Status of Outstanding COG Recommendations

Number	Recommendation	Status
2011-COG-13	COG members should work with their respective budget and program offices to ensure systems used in budget formulation/activity planning include drill crews as a service provider that can be specifically identified with a budget as part of an activity or work plan.	Complete. Regional databases and systems used for planning work were reviewed and, where necessary, revised to ensure that drill crew services could be specifically identified.
2011-COG-14	The DCO encourages the COG to remain engaged in the Project Management Implementation Team (PMIT) to ensure the development of objectives and performance measures align with the existing Business Model. As part of implementation of the PMIT processes, the COG's annual reports should include performance measurements of project management implementation within Reclamation.	Complete.
2011-COG-15	It is recommended that the DCO continue to challenge senior management to set SPO goals of achieving 75 percent of finished service agreements with completion reports in FY 2013. This will require project follow-up but with very little staff time to accomplish. The SPO's clients are critical in achieving this goal as is the implementation of the ESAM. In furtherance of this recommendation, the SPOs with the support of the COG should reach out to their customers to explain the value and importance of the feedback received through the completion reports.	Ongoing.

Appendix C

COG Membership

Appendix C

COG Membership

The Coordination and Oversight Group (COG) consists of eight members, including a chairman. The COG membership is intended to represent the diversity of Reclamation interests, roles, and responsibilities, which can include, but is not limited to, Regional Directors, Area Managers, Program Leads, Project Management Leads, Assistant/Deputy Directors, and leads in technical fields such as design, construction, environmental compliance, planning, and geology. Each of the five Regional Directors; the Director - Technical Resources; and the Deputy Commissioner - Policy, Administration and Budget has one member and one alternate. The member appointed by the Deputy Commissioner – Operations is a permanent member of the COG, whereas the other members serve on a rotational basis and as a collateral duty. The commitment for serving as a COG member is generally expected to cover 2 years, and as much as 3 years, to allow for continuity and transfer of knowledge.

The FY 2012 membership of the COG was as follows:

Region/Office	Primary	Alternate
Chairman	Roxanne Peterson	
Deputy Commissioner – Policy, Administration and Budget	John Baals	Chris Perry
Technical Service Center	Richard (Dick) LaFond	George Girgis
Great Plains Region	Roxanne Peterson	Jeff Nettleton
Upper Colorado Region	Kent Kofford	Pat Page
Pacific Northwest Region	Richard (Dick) Link	Sharon Parkinson
Mid-Pacific Region	David Gore	Richard Welsh
Lower Colorado Region	Scott Tincher	Brent Esplin
Deputy Commissioner - Operations	James Hess	

Appendix D

Cost-Effective and Quality Services

Appendix D

Cost-Effective and Quality Services

Tables D-1 and D-2 were developed to give a general overview of the magnitude of service agreements (SAs) by Service Provider Organizations (SPOs). Table D-1 provides data related to the number of SAs, whereas table D-2 provides data related to the dollar value of the SAs. Figure D-1 displays the percentage of SAs completed within the agreed-upon schedule and budget by fiscal year (FY). Figure D-2 displays the percentage of SAs completed within the agreed-upon schedule and budget by SPO in FY12. The Technical Service Center is Reclamation's largest SPO, with the largest number and dollar value of SAs; therefore, its data heavily influences the overall results.

Figure D-3 displays the data collected from the SPOs for percentage utilization. The Electronic Service Agreement Module (ESAM) was not yet available, so the SPOs were asked to manually provide the percentage of time billed to service agreements, program accounts, and overhead, with the total of these three categories equal to 100 percent. The Technical Service Center does not receive any program funding; therefore, it does no program work. All work in the TSC is either by SA or is overhead.

Table D-1. Measure Cost Effectiveness and Quality of Services (Numerical Data)

SPO	Total Number of Active SAs in FY 2012	% of Total SAs	Total Number of SAs Completed in FY 2012	Total Number of SAs Completed Within Completion Date	Total Number of SAs Completed Within Budget	Number of SAs With Completion Reports
MP Region	70	2.4	60	48	49	51
PN-RTS	102	3.5	5	5	5	4
GP Region	96	3.3	27	27	16	26
TSC	2,425	82.2	1,141	1,121	1,099	339
LC ESO	81	2.7	43	36	37	36
UC Region	2	0.1	2	1	2	2
FCCO	42	1.4	0	0	0	0
PAO	73	2.5	27	27	27	23
MPCO	59	2.0	17	16	17	17
Total	2,950	100	1,322	1,281	1,252	*498

* 346 of the TSC's SAs were less than $10,000 and do not require completion reports. Therefore, the percentage of SAs with completion reports is calculated as: 498/(1,322-346) = 498/976 = 51%.

Note: MP Region = Mid-Pacific Region, PN-RTS = Pacific Northwest Region Resource and Technical Services, GP Region = Great Plains Region, TSC = Technical Service Center, LC ESO = Lower Colorado Region Engineering Services Office, UC Region = Upper Colorado Region, FCCO = Four Corners Construction Office, PAO = Provo Area Office, MPCO = Mid-Pacific Construction Office.

Table D-2. Measure Cost Effectiveness and Quality of Services (Dollar Data)

SPO	Value of SAs Completed in FY 2012 ($)	Value of SAs Completed by Completion Date ($)	Value of SAs Completed Within Budget ($)
MP Region	5,388,975	4,635,010	4,826,675
PN-RTS	1,616,993	1,616,993	1,616,993
GP Region	1,103,000	1,103,000	815,100
TSC	32,918,626	32,464,423	31,775,837
LC ESO	4,154,326	3,727,885	3,956,065
UC Region	59,360	50,000	59,360
FCCO	-	-	-
PAO	2,030,000	2,030,000	2,030,000
MPCO	1,216,104	1,117,200	1,216,104
Total	$48,487,384	$46,744,511	$46,296,134

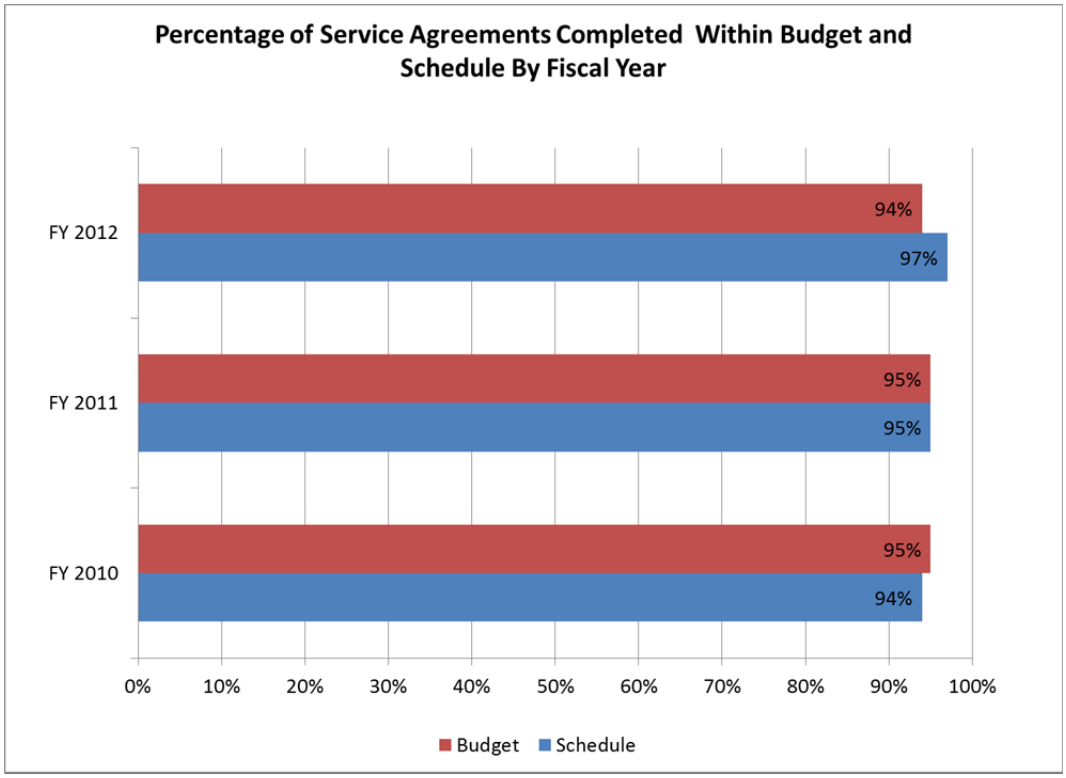

Figure D-1. Percentage of SAs completed within budget and schedule by FY.

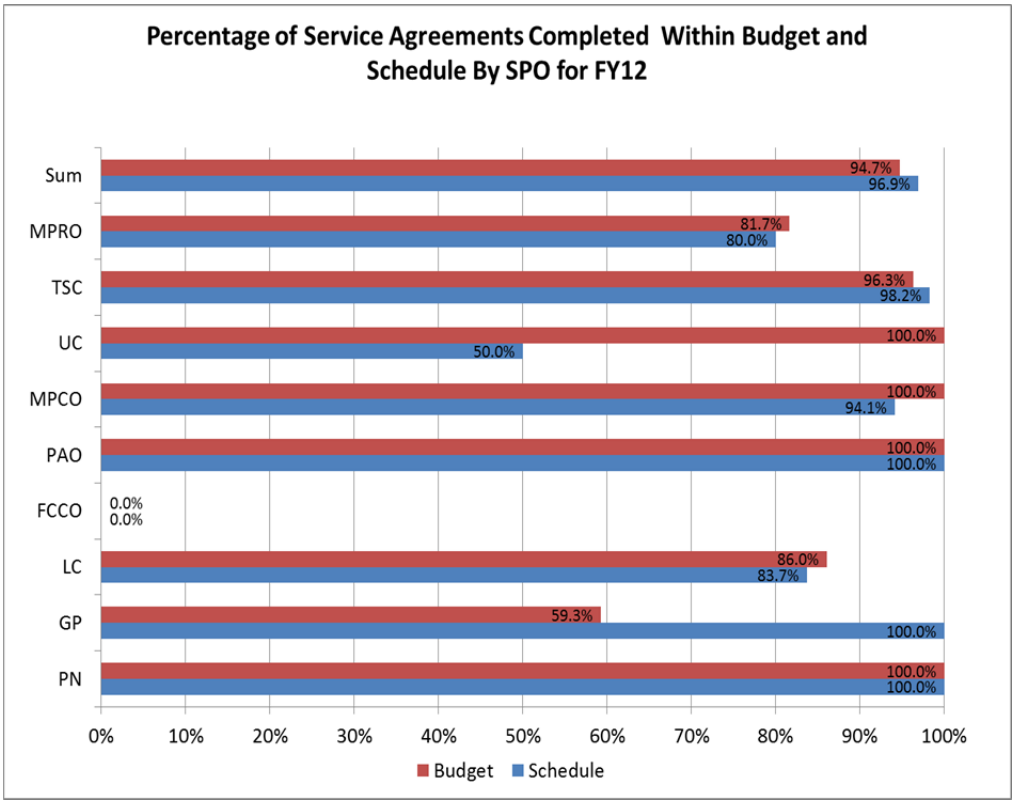

Figure D-2. Percentage of SAs completed within budget and schedule by SPO for FY 2012.

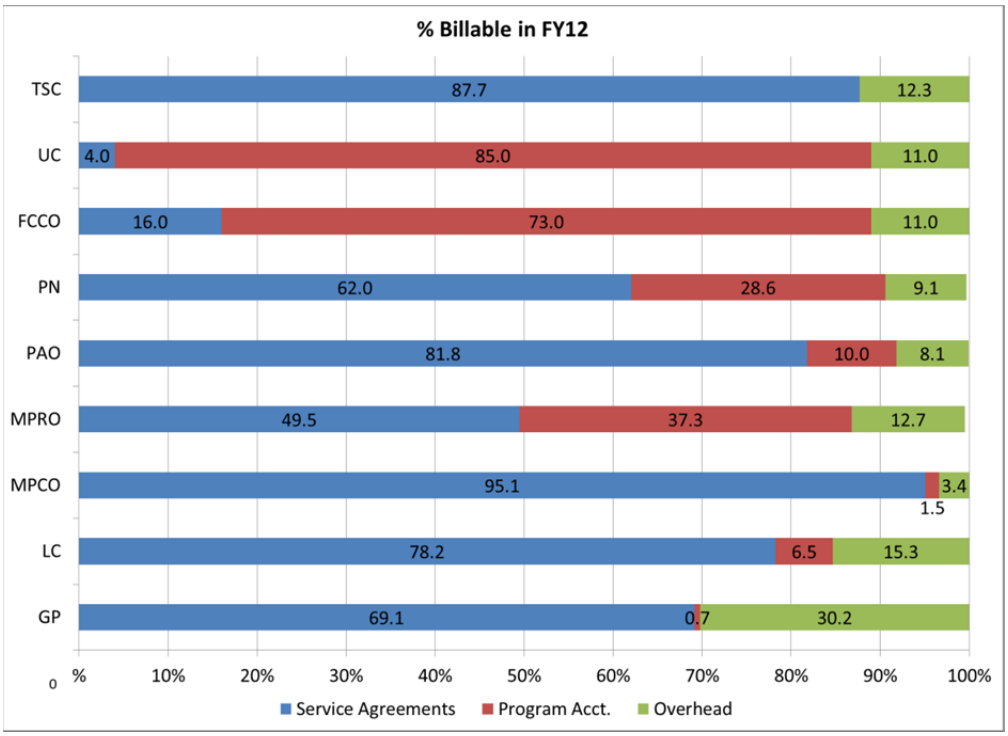

Figure D-3. Time billable in FY 2012 for SPOs.

Appendix E

Customer Satisfaction

Appendix E

Customer Satisfaction

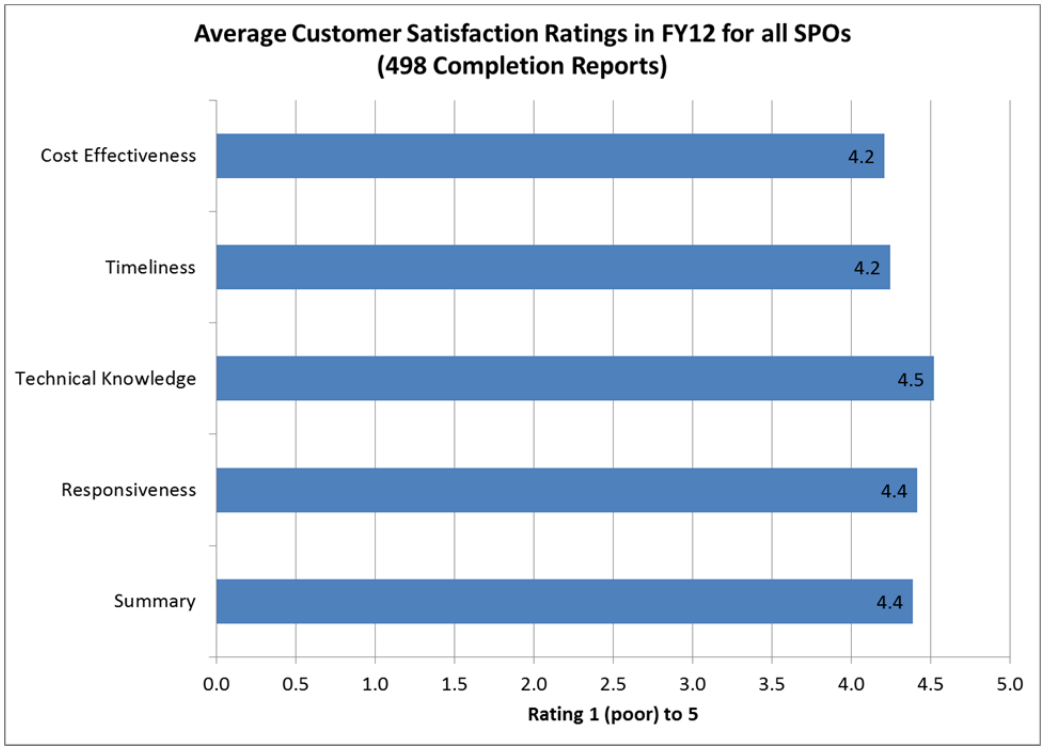

Figure E-1. Average customer satisfaction ratings in fiscal year 2011 for all Reclamation service provider organizations.

Figure E-1 shows a weighted average summary of the results from the 498 completion reports returned to the Service Provider Organizations (SPO) in fiscal year (FY) 2012. The Mid-Pacific Region used slightly different rating criteria than the other eight SPOs in FY 2012. Therefore, figure E-1 shows the overlapping categories with all nine SPOs. The majority of the completion reports were from the Technical Service Center (TSC); therefore, table E-1 provides this breakdown.

Table E-1. Summary of the TSC FY 2012 Completion Report Surveys

Customer Group	Number of Surveys Sent	Number of Responses	Cost Effectiveness of the Service	Coordination with Client and Other SPOs	Timeliness of Assistance	Knowledge of Technical Areas	Responsiveness of Staff	Quality of Product	Overall Performance	Summary Value
Great Plains Region	145	44	4.36	4.52	4.45	4.80	4.59	4.75	4.73	4.60
Lower Colorado Region	37	8	4.50	4.00	4.50	4.75	4.50	4.38	4.38	4.43
Mid-Pacific Region	94	42	4.12	4.35	4.14	4.53	4.49	4.40	4.33	4.34
Pacific Northwest Region	45	23	4.52	4.65	4.52	4.61	4.57	4.61	4.57	4.58
Upper Colorado Region	79	29	4.17	4.54	4.21	4.55	4.48	4.52	4.45	4.42
Dam Safety (with Bureau of Indian Affairs)	76	22	4.23	4.32	4.41	4.50	4.32	4.50	4.64	4.42
Security	75	69	3.74	3.94	3.84	3.93	3.90	3.97	3.93	3.89
Research Office	64	1	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
Program Analysis Office	58	22	4.50	4.64	4.64	4.55	4.70	4.76	4.77	4.65
Reclamation – Other	55	29	4.24	4.31	4.29	4.76	4.34	4.55	4.50	4.43
International Affairs	10	4	5.00	5.00	4.75	5.00	5.00	5.00	5.00	4.96
Other Government Agencies	57	46	4.48	4.65	4.46	4.85	4.59	4.85	4.65	4.65
Totals/Averages	795	339	4.22	4.38	4.28	4.52	4.40	4.49	4.44	4.39

Appendix F

Reports Developed or Transmitted by the COG in FY 2012

Appendix F

Reports Developed or Transmitted by the COG in FY 2012

Table F-1 presents a list of annual reports and One-Time or "As Required" Reports that the Coordination and Oversight Group (COG) developed and/or transmitted in fiscal year (FY) 2011. Reports with shading in the far-right column indicate that the report was delivered by the due date. In FY 2011, the due dates were self-imposed, either in accordance with COG procedures or as a sound business practice.

Table F-1. FY 2012 COG Reports

Reports Assigned/Required	Report Due Date	Actual Date Report Provided
Annual Reports		
Transmit Advance Planning Worksheets for FY 2013 and FY 2014 to the Service Provider Organizations	March 2012	March 27, 2012
Transmit Draft COG FY 2011 Annual Report to the Deputy Commissioner – Operations (DCO) (includes the Technical Capability Report)	January 28, 2012	February 10, 2012
Transmit Final COG FY 2011 Annual Report to the DCO	Final report due within 30 days of receipt of DCO's comments	April 23, 2012
Transmit Final COG FY 2012 Annual Report to Reclamation Leadership Team and Post on Web Site		April 25, 2012
One-Time or "As Required" Reports		
action plans for endangered capabilities	See table B-1	
Project Management Framework	September 2012	September 28, 2012

Appendix G

Outsourcing of Technical Services

Appendix G

Outsourcing of Technical Services

The annual review of technical services work outsourced or contracted provides critical data that contribute to the goal of ensuring that the Bureau of Reclamation's is using cost-effective and quality services, as well as the maintenance of core technical capability. The Coordination and Oversight Group (COG) collected data, maintained records, and provided reports on the total amount of technical services contracted or outsourced annually. A copy of the data can be found at: http://www.usbr.gov/bp/tr.html.

The COG members reviewed over 110 contracts that were initiated during fiscal year (FY) 2012 for technical related services. These data were reviewed to verify that Reclamation's workload distribution practices were being followed. According to this analysis, Reclamation is doing a very good job following the workload distribution practices. Very few instances were found where the practices were not being followed.

The one issue identified in a few isolated cases was that the Technical Service Center (TSC) was not contacted to verify whether they had the capability or capacity to perform technical support efforts.

In three cases, the Upper Colorado Region's (UC Region) area office personnel contracted for hydrographic surveying services. This is a technical capability the COG is tracking, and the TSC and some regions have a hydrographic surveying capability. It is unknown at this time whether Reclamation has the type of equipment required to do this particular survey, or if it had the capacity to perform the work during the timeframe that the UC Region needed the assistance. The UC Region's COG representative will work with the area office to consider Reclamation resources in the future and will discuss this particular issue with the UC Region's senior management if necessary. This capability is not considered endangered; therefore, no additional action will be required.

Two COG members were aware of a handful of other contracts that should have shown up in the Denver Management Services Office data pull. The COG will investigate whether or not the contracts were missed during this reporting cycle and, if so, determine how best to correct the process to ensure that all contracts and Indefinite Delivery/Indefinite Quantity task orders are considered during the annual analysis next year. It is anticipated that the number of contracts missed is small and will not affect future year trend analysis.

New contracts and task orders under product service codes that are typically used for technical service support were obtained and reviewed. However, this report

does not include the line item summary of these contracts or the evaluation of those contracts that appeared to be for a core/critical technical service.