Integration of Multiple Contractors with Performance Type of Contracts

Prepared for the U.S. Department of Energy
Assistant Secretary for Environmental Management

CH2MHI
Hanford Group, Inc.
Richland, Washington

Contractor for the U.S. Department of Energy
Office of River Protection under Contract DE-AC06-99RL14047

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CHG - 7102 - FP

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7. Charge Code

F. Complete for a Journal Article

1. Title of Journal

Integration of Multiple Contractors with Performance Type of Contracts

2. Group Sponsoring American Nuclear Society/Spectrum

3. Date of Conference 9/24-29/00  4. City/State Chattanooga, TN

5. Will Information be Published in Proceedings? ☐ No  ☑ Yes

6. Will Material be Handed Out? ☐ No  ☑ Yes

H. Author/Requestor

Larry Burdige
(Print and Sign)

I. Reviewers

☐ Yes  Print  Signature  Public Y/N

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A-6001-401 (02/98)
Integration of Multiple Contractors with Performance Type of Contracts

Prepared by:
L. Burdge
CHG2MHILL Hanford Group, Inc.

J. Navarro
U.S. Department of Energy

Date Published
September 2000

To Be Presented at
Office of River Protection—Simplifying Project Management Tools
Chattanooga, Tennessee
September 24, 2000

Sponsor
American Nuclear Society/Spectrum

Prepared for the U.S. Department of Energy
Assistant Secretary for Environmental Management

CH2MHLII
Hanford Group, Inc.

P. O. Box 1500
Richland, Washington

Contractor for the U.S. Department of Energy
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ABSTRACT

The management practices, procedures, and processes that are suited to managing Management and Operation (M&O) type of contracts at Department of Energy (DOE) sites, which were cost reimbursement with award fee, are not well suited to managing contracts where fee is determined by performance metrics. Thus a different style of management, requiring substantial revamping of the management process, is needed. This shift in philosophy also requires a dramatic shift in culture. This paper will describe how these changes are being managed at the River Protection Project (RPP), located at the DOE’s Hanford Site in Washington State, one of DOE’s largest and highest risk environmental clean-up project.

BACKGROUND

Since 1944, highly radioactive waste from the chemical processing of irradiated reactor fuel has been stored in underground tanks at the Hanford Site. Approximately 53 million gallons of caustic liquid, salt cake, and sludge wastes are stored in 177 underground tanks that range in size from 55,000 gallons to one million gallons. Of the 177 tanks, 146 have only a single carbon steel liner and the remaining 28 have two carbon steel liners. Approximately 10 feet of soil cover all tanks.

In 1986, regulators from the U.S. Environmental Protection Agency (EPA) and State of Washington Department of Ecology (Ecology) began to examine how best to bring the Hanford Site into compliance with the Resource Conservation and Recovery Act of 1976 (RCRA), and the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA). These regulatory agencies and DOE developed a compliance agreement that established milestones for cleaning up hazardous substances across the Hanford Site. The three agencies signed the Hanford Federal Facility Agreement and Consent Order also known as the Tri-Party Agreement or TPA) on May 15, 1989. The agreement was revised in 1994 and 1996 to accommodate changes in the RPP (formerly
known as the Tank Waste Remediation System (TWRS). In 1998, as directed by congress in the Strom Thurmond National Defense Authorization Act of 1999, Public Law 105-261, DOE established the Office of River Protection (ORP) to manage the RPP.

INTRODUCTION

The RPP is managed and integrated by the Office of River Protection (ORP), which reports directly to the Department of Energy’s Assistant Secretary for Environmental Management. The ORP was established in 1998 as directed by Congress in the Strom Thurmond National Defense Authorization Act of 1999, Public Law 105-261. The ORP was not a fresh start. The project had a long history as the Tank Waste Remediation System (TWRS) and was an integral part of the Richland Operations Office. During its early history, there were hundreds of studies, many scenarios developed, several loosely integrated line item projects, and an on-going tank farm operations activity. In addition, there was a “privatization” contractor developed the preliminary design for a waste treatment (vitrification) plant. The ORP had planned for the “privatization” contractor to build the plant using private sector funds, and then the cost would be recovered on a price per unit output of the plant. This concept did not work out, and currently the ORP is soliciting for a contractor to continue this effort under a government owned, contractor operated, facility. Through all this history, the line item construction projects, operation activities, and the treatment plant design were only loosely integrated through Interface Control Documents, and an integrated project baseline did not exist.

The ORP currently has under contract the Tank Farm Contractor, CH2M Hill Hanford Group (CHG) which is responsible for: 1) safe operation of the tank farms, 2) construction of the facilities and infrastructure required to retrieve the waste and deliver it to a yet to be built, waste treatment (vitrification) plant and, 3) to receive and store or dispose of the treated waste. CHG is also managing the design effort for the treatment plant, on an interim basis, until the treatment plant contractor is selected.

KEY ELEMENTS

The key elements for the effective management and integration of the RPP are:

- The scope of the work must be well defined, understood, and agreed to by both the integrator and its contractors.
- A well constructed Baseline that integrates the work of both contractors must be established by which progress will be measured against.
- The integrated Baseline must be detailed enough to capture all important interfaces between contractors, DOE, and its regulators.
- The key assumptions necessary to construct the Baseline must be complete and explicit.
- Substantial contract incentives to achieve enhanced performance must be included.
- The desired performance goals and the associated incentives must be explicit and completion criteria must be unambiguous.
• Reporting must be at a low enough level to assure that the integrator has a good understanding of the problems and progress of the work.
• Control by the integrator must be established at a higher and consistent level to avoid processing excessive change requests, which would be a major impediment to work progress.
• The integrator/client defines the “What” not the “How” for mission work, however the integrator must define standards and processes for the gathering of project data to assure consistency and accuracy of the project control system outputs.
• Integrator/client and contractor roles and responsibilities must be clearly established and followed.

APPROACH

So how did the new ORP go about implementing the above key elements?

The Office of River Protection is an unusual organizational structure for DOE in that ORP is a Field Office level organization that is focused on a single project AND is also the project integrator. The ORP will execute the project utilizing two prime contractors; one for tank farm operations (CHG), and one to design, procure, build, and commission a treatment plant. Cost reimbursable, performance fee, contracts will be used to incentivize contractor innovation that results in schedule acceleration and cost savings. Another aspect that is somewhat unique for a specific project is that the term of the project is so long, i.e. 40+ years, that a robust long range planning function is required. This long range planning is focused on utilizing better technology and approaches to reduce the cost and schedule in the out-years of the project.

The current Tank Farm Contractor already had a performance incentive contract. The “privatization” contractor also had incentives built into the contract, so the performance fee concept was already established. The primary effort in this regard will be to align the performance goals with the activities on the critical path of the integrated baseline that has been developed.

A substantial and coordinated effort involving ORP and its two contractors was undertaken to develop or assure the following:

• A scheduling specification such that the schedules of the two contractors could be integrated electronically. Fortunately both contractors used the same scheduling software, which made this a reasonably simple task. The specification identified the level in the WBS that would be integrated. This level was selected such that all important interfaces were captured.

• All interfaces were identified, documented, and agreements reached between involved parties.

• Standards and processes for the gathering of project data were established to assure consistency and accuracy of the project control system outputs.
A common risk assessment process was established such that risks associated with individual contractors could be put into a common perspective to allow evaluation of overall project risks and "risk balancing" between work elements of different contractors.

The Work Breakdown Structures (WBS) were taken from each contractor and aligned with logic flow charts that defined the logical sequence of work to achieve the project objectives.

The existing Basis of Estimate (BOE) was aligned with the work elements in the WBS.

Key planning assumptions were developed, identified, and issued which included anticipated funding levels.

Previously developed strategic goals and mission analyses were reviewed and updated.

Clean up commitments to the State of Washington regulators had already been established through the Tri-Party Agreement.

These then guided the baseline development the process for which is illustrated in Figure 1.

The planning process starts with a "vision". The RPP vision is based on achieving the commitments in the Tri-Party Agreement between the Department of Energy, State of Washington and the U.S. Environmental Protection Agency. This agreement defines the desired end state for the clean up and identifies milestone dates for key events.

The RPP Strategic Plan is a top down driven plan that identifies alternatives to achieve the vision using an integrated health risk-based strategy for completion of the RPP mission and identifies mission objectives. This plan is based on a systems approach that accounts for programmatic, technical, and financial uncertainty and identifies the primary mission drivers. As the time horizon for the project is so long, the project focuses first on achieving substantial worker and public health risk reduction goals, and then on the Balance of Mission which ends with the closure of the tanks.

The Mission Analysis Report (MAR) analyzes the selected alternative from the Strategic Plan. This analysis establishes mission objectives and develops key planning assumptions, opportunities, and risks and includes the top level logic chart for completion of the mission.

From the Mission Analysis Report, the ORP Functions, Requirements, and Authorities Manual (FRAM), and the Critical Success Criteria, a work plan of all activities is
developed. This work plan is combined with the contractors work plans to generate the integrated Baseline for the project described below.

The ORP Project Management Plan was written to describe the philosophy, methods, systems, and processes to develop, manage, and control a RPP Baseline, including the key element of a common Work Breakdown Structure (WBS).

Each contractor’s execution plan is rationalized to this process and a resource loaded work plan was developed. This contractor work plan identifies the work activities and the logic sequence in which they must be performed to achieve the contractors RPP mission objectives. The contractors’ work plans plus the ORP work plan are then merged together.

This process, after several iterations, resulted in Project Baseline that included an integrated, life cycle, critical path, resource loaded schedule. This Baseline includes all work activities of the RPP performing organizations, fully considers management and operating parameters, and is focused on the critical activities required to achieve the TPA milestones and the defined end state.

The work plans are Life-Cycle, however the project is funded on an annual basis. Therefore once a year the work for the upcoming year is pulled out of the Life-Cycle Baseline, reconciled with progress in the current year and to the funding that is projected for the next fiscal year. This is then submitted to DOE Headquarters to identify the scope of work that will be accomplished for the anticipated funding and the Baseline is updated accordingly.

Organizationally, the ORP established the Program Office for integration & control, which developed, implements, manages, and controls the integration processes above. This organization functions as an umbrella over the entire ORP organization and prevents “stove piping” in the line organizations.

A cultural shift, both within the DOE and contractor organizations, has been necessary. The dominant culture was based on a Management & Operating type of contract. Under such contracts much contractual direction is informally provided under a general statement of work. The contractor then performs the work, and then DOE on a mostly subjective basis evaluates performance and awards fee. This allows many different priorities to be pursued, rather than a focus on the incentivized work associated with a critical path. Federal and contractor personnel are in the process of being trained and educated to work only to specific negotiated statements of work that are focused on the critical path in an integrated project work plan.

A related issue is change control discipline. It is all too common in an M&O environment for underruns or funds from deferred work to be verbally redirected to activities that are not directly associated with a performance goal that is incentivized. This effectively reduces the ability of the contractor to earn fee in a performance based contract, and for the DOE, this tendency reduces progress along the work path that is on
the critical path. A high level of management attention has therefore been given to this activity.

The integration of the project is complete but many opportunities exist to make the conduct of the project more efficient. That work is on-going.