

U.S. Department of Energy

Office of Management, Budget and Evaluation

Human Resources



Initiated by: Office of Engineering and Construction Management

HUMAN RESOURCES

Each DOE project usually has both a project director (PD) and a contractor project manager, both of whom are responsible for the human resource aspect of their respective portion of the project.

To be effective, a project should be performed by motivated, qualified, and diverse individuals. To be successful, however, these individuals should be organized into a functioning team. Both project management and the project team, this is not the Integrated Project Team (IPT), should be totally dedicated to the project.

To ensure project personnel emphasize project planning and execution, and work together towards successful project completion, roles and responsibilities for each project participant should be clearly defined—individuals with appropriate capabilities and experience selected, appropriate training provided to develop or enhance under-represented capabilities or skills, and proactive communication established.

Project human-resource management includes the processes required to ensure selection of qualified project personnel, and effective use of those personnel. It includes project stakeholders, sponsors, customers, individual contributors, and others as appropriate. Specific processes that comprise human resource management include:

- *Organizational planning.* Identifies, documents, and assigns project roles, responsibilities, and reporting relationships.
- *Staff acquisition.* Obtains qualified human resources, assigns resources to the project, provides necessary training, and assigns work to project personnel.
- *Team development.* Develops individual and group skills to enhance project performance, promotes the teaming concepts, and provides opportunities for advancement and promotion.
- *Individual recognition.* Recognizes and rewards both individual and team performance.

Although these processes are often presented as discrete elements with well-defined interfaces, they can develop and interact in many ways. A PD/project manager (PM) should select and develop the project team members in areas/skills that can include:

- Leading, communicating, and negotiating
- Delegating, motivating, coaching, mentoring, and other activities that relate to interfacing among individuals
- Team building, dealing with conflict, and other skills that relate to interfacing among groups and organizations

- Performance appraisals, recruitment, retention, labor relations, health and safety regulations, and other subjects related to administering the human resource function
- Renumeration, promotion, awards, recognition, and other activities that relate to a performance-based rewards environment.

1.0 ROLES AND RESPONSIBILITIES

The nature of projects and project processes make all project personnel both a customer and a supplier. Therefore, individuals involved in the project must have a clear understanding of their roles and responsibilities. Projects are often divided into discrete work tasks (subprojects) with a responsible project individual assigned to manage a work task or clearly defined portion of the total project. Early in the project life cycle, the PD/PM prepares a responsibility/authority matrix that identifies a responsible individual for each project work task. The individuals involved should understand and concur with their responsibility, authority, and accountability assignment, and be aware of similar assignments among the other project team members.

Organizational planning involves identifying, documenting, and assigning project roles, responsibilities, and reporting relationships to individuals or to groups. The individuals and groups may be internal or external to the organization responsible for performing the project. The linkage between the project organization and the project's Work Breakdown Structure (WBS) is the Organizational Breakdown Structure (OBS).

The majority of organizational and work planning is done during the earlier project phases. However, the results of this process are reviewed regularly throughout the project to ensure continued applicability and proper assignment of work responsibility. Since different skill-mixes are frequently required, this review is particularly important during project execution.

1.1 Project Director/Project Manager

A PD/PM is the individual responsible for accomplishing a designated unit of work, or a group of closely related efforts, to achieve a designated objective within a certain time frame and at an agreed upon cost. The PD/PM is responsible for assuring that project goals and objectives are met, quality work is completed on time and within budget, and for making appropriate decisions.

A number of different organizations and individuals are orchestrated by the PD/PM into a team effort that ensures the project mission is achieved, and that project products and deliverables meet requirements. The PD/PM is the primary contact for all project response activities, and as such coordinates, directs, and reviews the work of all individuals involved.

Each PD should prepare formal Memoranda of Understanding with management, the user, and the PM(s) as early as possible, but prior to requesting Critical Decision-2. These Memoranda of Understanding may be included in the Project Execution Plan, and should clearly identify the responsibilities and authorities of each organizational manager associated with the project

to avoid misunderstandings and confusion. Each memorandum should be timed, dated, and signed by the involved individuals.

A PD/PM should prepare and issue a project charter that defines the project and includes a job description for each project team member. This document helps identify and clarify roles, responsibilities, and authorities, and should be included in the Project Execution Plan.

Important activities/attributes of a successful PD/PM include the following:

- Leadership

The concept of shared leadership is a very useful way for PDs/PMs to view their job, if they are to be successful in team building. Shared leadership is more than just participatory management; it involves letting the project team assume as much of the leadership role as they will accept. The PD/PM must relinquish authority and share it with the project team. The PD/PM becomes more of a team member and the team members assume more of the leadership role. This action encourages ownership and increases the willingness of the team to participate in problem solving and decision-making, and to accept responsibility for the success or failure of the project. In general, there are four situational leadership styles, characterized as:

- Directive (telling)
- Promotive (selling)
- Participative
- Delegative

If the maturity level of the individual/team is low, the PD/PM may be required to use directive leadership where the roles of the individual/team are well-defined and instructions given on what, when, where, and how to perform a task. In the case of moderate to low maturity of the individual/team, the PD/PM should utilize promotive leadership that emphasizes two-way communication and a supportive role in addition to direction. In the case of moderate to high individual/team maturity, the PD/PM may utilize participative style that includes listening and facilitating, in addition to communication, providing only nominal directions. In the case of high individual/team maturity, the PD/PM may utilize delegative leadership where roles and general task instructions are provided—with the individual/team being given the freedom to determine the specifics of what, when, where, and how. When delegating, the PD/PM should develop agreements and document the following:

- Clear statement of work, including deliverables and a completion date with intermediate measurable milestones
- Relative importance of job
- Budget for the work to be performed

— Link to the project WBS.

- Team Building

Team building is the process of influencing a group of diverse individuals, each with their own goals, needs, and perspectives, to work together effectively for the good of the project such that the team effort will accomplish more than the sum of the individual efforts.

Team building is part of the project planning process. Successful team building, however, is dependent upon the selection and development of qualified team members. When the project team has been selected, it is important to:

- Build both group and individual motivation and commitment to the project
- Help team members view themselves as a unit, with each individual contributing to the whole
- Focus the team's attention on the project and its success.

- Selection of Team Members

Once the project is clearly defined and determined, the organizational structure and the project team should be selected. The PD/PM should work diligently to obtain personnel who can become effective team members. Characteristics of effective team members include:

- Technical skills
- Problem oriented
- Goal oriented
- Self motivated
- Willingness to work with others
- Dependable and committed
- Communication skills.

- Team Attributes

Successful team-building requires that the:

- Team be an integral unit
- Team understands the project's mission, objectives, goals and strategy, and are clearly defined
- PD/PM supports the needs of the team and encourages participation
- PD/PM communicate effectively and provides feedback
- Team members effectively communicate

— Individuals be assigned primary responsibility for discrete project work packages.

- Vision

A key to improved team performance and effective project implementation is the satisfaction derived from a shared vision, shared efforts, and shared achievement. Team members frequently demonstrate high levels of enthusiasm and energy and consistently attain levels of effectiveness that could not be attained individually. The team should jointly develop a vision statement that reflects its goals and objectives.

- Partnering

Partnering can be best defined as a way of doing business with a contractor or customer that recognizes that common goals exist that can be achieved through cooperation and communication. This approach highlights the establishment of common goals, and utilizes the concept of group dynamics to achieve those goals. To be effective, partnering must be a process that both parties want and are willing to support.

The PD/PM is responsible to obtain management commitments from all involved parties, and work together towards mutual goals. To be successful, individuals from each organization must be assigned responsibility for maintaining the momentum of partnering throughout the life of the project. These individuals will provide the required administrative and logistical support.

- Conflict Management

Conflict is inevitable during a project's life cycle, and can be beneficial if effectively managed. Conflict management is the process by which the PD/PM uses appropriate managerial techniques to deal with disagreements, both technical and personal, that may develop among those working toward project accomplishment. One frequent failing of PD/PMs is to avoid dealing with conflicts until the conflict has grown to disastrous proportions, where those involved become defensive and working relationships deteriorate. The PD/PM needs to address conflicts as soon as they are recognized, including bringing parties together, listening, understanding all sides of the issue, and reaching a mutual resolution.

1.2 The Integrated Project Team

An IPT is initially organized and led by a PD. A fully organized IPT includes a number of DOE functional areas, such as budget, financial, legal, safety, and contracting. The IPT has key responsibilities in the performance of a project and remains organized and functioning throughout the project's life cycle. The earliest responsibility of the IPT is to assist the PD in developing an acquisition strategy, and in preparing and issuing an acquisition strategy document.. As a project progresses from pre-acquisition to facility operation, the members of the IPT can change to reflect changing project activities and needs. As a result, the IPT may eventually include operators, engineers, scientists, legal personnel, and a contracting officer.

The IPT may include both DOE and contractor employees. Practice 8 provides additional information on the IPT.

Selection of project team members is an important PD/PM responsibility. Team members should be skilled, experienced, self-starters, able to work with minimum supervision, possess excellent communication skills, and able to function in a team environment. As the primary contact for project activities, the PD/PM is in the best position to know what strengths and experience the project team needs. Early team organization enhances future project success by establishing group communication and a sense of ownership. Thus, the PD/PM should exert as much control as possible over the composition of the IPT. Assuring project continuity is important, and therefore as the IPT begins to function, members are cross-trained to assure a qualified project person is always available for each project position, including that of the PM.

2.0 CUSTOMER INTERFACE

For DOE projects, DOE is the ultimate “customer” for the project’s products. However, the DOE generally assigns or contracts responsibility for operating and maintaining facilities to contractors (Management and Operating/Management and Integration). Thus, the term “user” in this discussion refers to the entity that operates and maintains the completed facility; or owns, operates, uses; or benefits from the product of the project. A representative of this user organization should be a member of the IPT. The user provides an initial description of the project purpose, objective, and high-level requirements, and the PD/PM makes the user aware of their responsibilities to insure the success of the project. For example, as early as possible, the PD/PM should inform the user that failure is possible if the project cannot be clearly defined and scoped early in the process, and that changes in scope should be minimized.

Project scope changes can result in significant schedule delays and cost overruns. Therefore, continuous and intensive communication between the user and the project team is essential during the project Initiation and Definition phases. This is crucial to the development of the Project Execution Plan and to the successful completion of the project in accordance with that plan. The user is primarily concerned with product quality and function, and relies on the PM and the project team for project direction and decisions, and for schedule and cost information.

3.0 STAFFING MANAGEMENT PLAN

A Staffing Management Plan describes when and how human resources are added to and removed from the project. Based on the needs of the project, the staffing plan is a subsidiary element of the overall Project Execution Plan, and may be formal or informal, highly detailed, or broadly framed. The staffing management plan frequently includes resource matrices (Attachment 1).

PMs should give particular attention to how project team members (individuals/groups) are released when no longer needed on the project. An appropriate release and reassignment policy and effort may be to:

- Reduce costs by minimizing or eliminating the tendency to “make work” to fill the time between an individual’s present assignment and the next assignment.
- Improve morale by reducing or eliminating uncertainty about future employment opportunities.
- Identify reassignment opportunities as early as they become known.
- Assist project personnel in identifying suitable re-assignment opportunities.

4.0 ORGANIZATION CHART

A project organization chart is a graphic display of project responsibilities and reporting relationships. Based on the needs of the project, this chart may be formal or informal, highly detailed or broadly framed. For example, the organization chart for a three-to-four person internal-service project is unlikely to have the rigor and detail of an organization chart for a 3,000-person nuclear power plant outage.

An organizational chart should be created for each DOE project that identifies the project person responsible and accountable for each functional area. Customer/user interfaces should also be reflected on an organization chart (Attachment 2).

An Organizational Breakdown Structure is a specific chart that shows which organizational units are responsible for which work tasks. A project Organizational Breakdown Structure should integrate with the project Work Breakdown Structure, the authority/responsibility matrix, the baseline schedule, and the baseline cost estimate (Attachment 3).

4.1 Authority/Responsibility Matrix

A project authority/responsibility matrix (Attachment 4) is quite possibly the most important and useful document a PD/PM can develop. The purpose of the matrix is to assign project authority, accountability, and responsibility in a manner that is specific, clear, and understandable, yet sufficiently flexible to accommodate reasonable project changes.

Preparation of an authority/responsibility matrix is based on a project’s Work Breakdown Structure and its associated dictionary. And for the matrix to be effective, the Work Breakdown Structure and dictionary must be accurate, complete, and comprehensive. That is, they must accurately describe each project work task (or package), and logically relate each work task to all other project work tasks.

The authority/responsibility matrix is used as a mechanism for assigning work tasks to each project participant. Depending upon the needs of the project, these assignments can be short duration or life cycle. The work assignments can also be basic or complex and can include the

responsibility for a work package including detailed cost estimates, schedules with milestones, design, procurement, construction, testing, startup, spare parts, manuals, procedures, and training.

The overall advantages and purposes of developing and using such a matrix includes:

- Identifying and defining each project work package
- Assigning authority, accountability, and responsibility for all project work to project personnel
- Balancing/equalizing work assignments
- Matching work assignments with individual capabilities and experience
- Develop a basis for evaluating and approving/disapproving proposed project changes
- Developing and training personnel
- Instilling a feeling of ownership.

4.2 Position Descriptions

The preparation and documentation of position descriptions (Attachment 5) is a fundamental project management function. Position descriptions document the breadth and depth of each project team member's assignments, and help avoid confusion, overlapping, and impulsive decisions. A documented position description also provides each individual with a better understanding of management expectations. Job descriptions should be tailored to project needs, and when prepared, included in the project charter.

Since job descriptions are agreements/understandings between the individual and the PD/PM, they may be modified as necessary to meet individual and project needs. Project personnel should participate in preparing their position descriptions. In no case should the project job descriptions be confused with those used by human resource organizations to rank, grade, evaluate, and promote/reward. Nor should the human resource job classification be used for project position descriptions.

5.0 TRAINING

5.1 Program/Project Management Career Development Program

The Deputy Secretary of Energy has endorsed the development of the Program/Project Management Career Development Program in response to several recommendations from the National Research Council report on DOE project management. The Report recommended that DOE:

- Establish a Department-wide training program for PDs
- Establish criteria and standards for selecting and assigning PDs

- Require that all PDs be trained and certified.

The end product of the effort to develop a DOE career development program will be a multi-level certification process requiring DOE Federal project managers to be certified. The specific certification provisions/processes, including the “grandfathering” of existing PDs, will be developed by a task force under the guidance and direction of the Office of Engineering and Construction Management.

5.2 Project Personnel Training

Once project team members have been selected, the PD/PM should ensure each individual has (or receives) the training necessary to complete assigned project tasks. PD/PMs are expected to use existing training programs when possible. During the project Definition phase, the PD/PM needs to factor training into the project scheduling and cost estimating efforts. Assessing project personnel training needs involves three steps:

- Evaluating the job functions of all project personnel
- Developing essential and supplemental core competency requirements for the PD/PM and other key project personnel based upon the multidisciplinary nature of the project
- Identifying, evaluating, and providing current project management, project definition, and process-specific training offered by the DOE, contractors, regulatory agencies, and others
- Providing sufficient cross training among project members to assure each member has a qualified backup.

When properly developed and implemented, training is a project-specific program that ensures project participants have the knowledge and skills to effectively perform assigned tasks and meet position description requirements. Training includes general project indoctrination, classroom, on-the-job (performance-based), simulator exercises, reading, conferences, and workshops.

Training subject matter should include project mission, project baselines, Earned Value Management Systems, project procedures, safety, quality, procurement, engineering and management processes, communication and approval channels, identification and management of project interfaces, and definition of the end product. The training organization uses the project mission as a basis in preparing training materials and conducting training. A particularly important portion of each project’s training program should include training of project personnel (and later operations and maintenance personnel) in policies and procedures. Training assures that all involved personnel are aware of the required methods of performing projects, and operating and maintaining completed facilities.

A training program begins with the training organization working with the project to gather information and prepare a training plan that identifies specific training needs. This effort evaluates personnel needs, project needs, organizational plans, and required employee

qualifications. The project team participates in all phases of the training process. The training organization generates the training program in accordance with the training plan. Training materials are commensurate with the need to train personnel in new skills; maintain existing skills; and explain technologies, tools, methods, and procedures.

An external interface exists with the training program for the operation and maintenance phase. Interfaces may also exist in the form of conferences, workshops, and symposia, which may significantly enrich training programs with discussions on state-of-the-art training and technical systems. The training organization seeks these interfaces and promotes their use within the project organization. The training organization also maintains a continuous interface with the PM to assure project needs are being met.

With input from subject matter experts, the training organization should update training materials as needed and maintain them in an accessible repository. Also, the training organization should develop and maintain training records and ensure they remain current. Certificates, licenses, and other documentation associated with formal training is entered into, tracked, and maintained in a training file or database. One method for tracking and improving an employee's training and qualifications is to create development plans for each team member, and update them at least annually.

The PD/PM periodically reassesses training effectiveness and initiates actions to correct deficiencies and identify and implement improvements.

6.0 PROJECT TRANSITION

As a project proceeds from Execution to Transition/Closeout to the user, the PM assures that the unique capabilities, skills, and knowledge of a project team are not "lost" to the user organization. Activities that the PM should implement during this process include:

- Assuring that user personnel both witness and participate in component and systems testing, checkout, and turnover. This activity initiates operations and maintenance personnel training in facility layout, equipment design requirements, equipment location, and system and equipment operation and maintenance.
- Planning and providing (or participate in providing) on-the-job and classroom training for user personnel. This assures that the knowledge and experience of the project team is not lost over the life of the project, but is passed-on; and user personnel obtain facility knowledge before a project team is reassigned.
- Maintaining a continuing presence and provide requested support to the user organization through cold operation.

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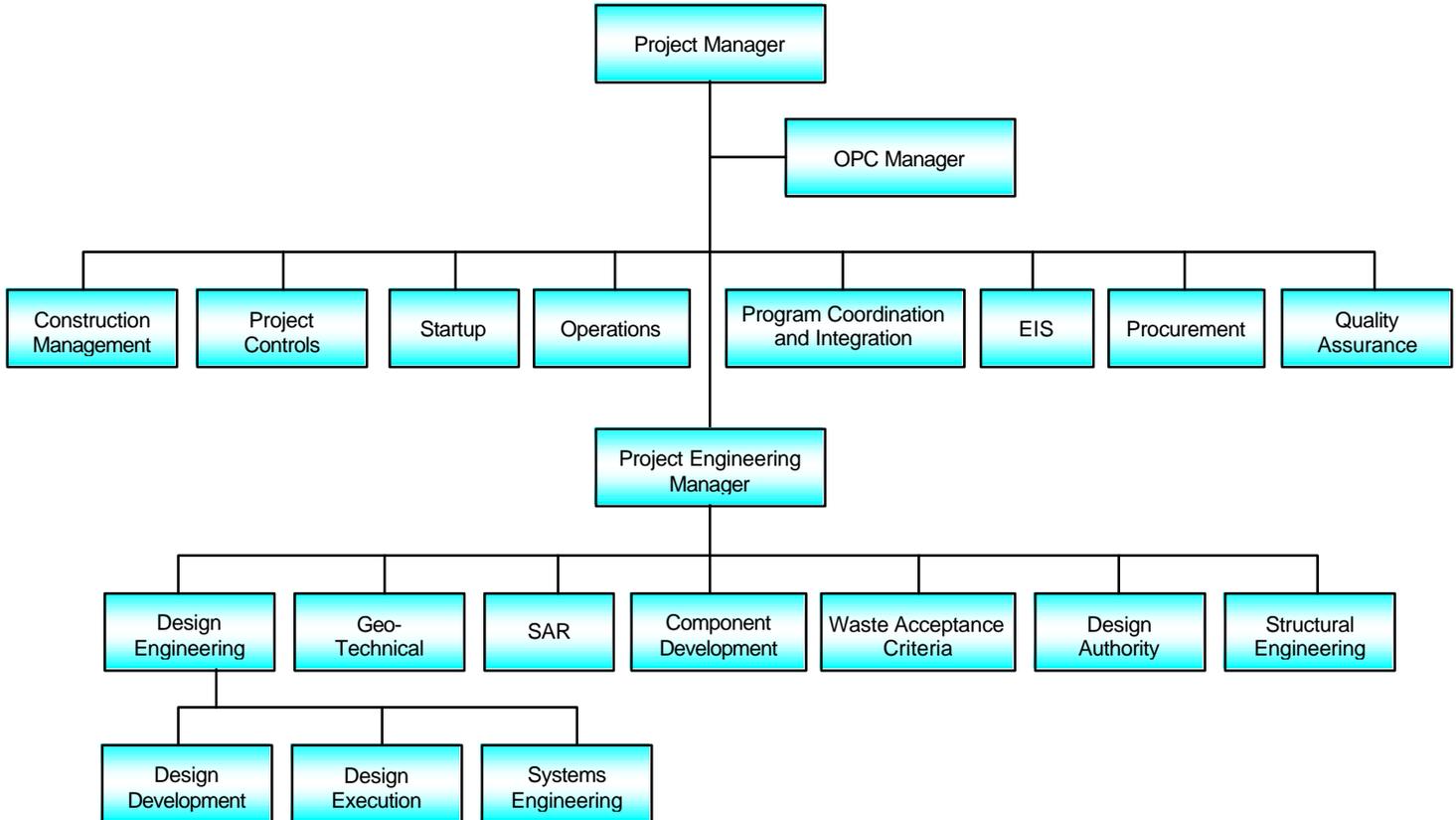
ATTACHMENT 1.

SAMPLE RESPONSIBILITY ASSIGNMENT MATRIX

Labor Category	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005
Project Managers	2	2	2	3	4	3	3	2	2	2
Secretarial & Clerical	5	5	6	6	6	6	6	3	3	3
Administrative & Other Professionals	4	4	6	6	6	6	6	6	5	4
Engineers	180	285	190	28	28	28	25	25	25	25
Scientists	4	4	4	4	4	4	4	3	3	3
Technicians	3	3	3	3	3	3	50	75	75	80
Crafts	5	5	5	280	500	500	500	475	430	100
Laborers & Other General Workers	0	0	0	25	80	85	90	80	70	35
Operators	4	4	4	4	15	20	25	30	70	100

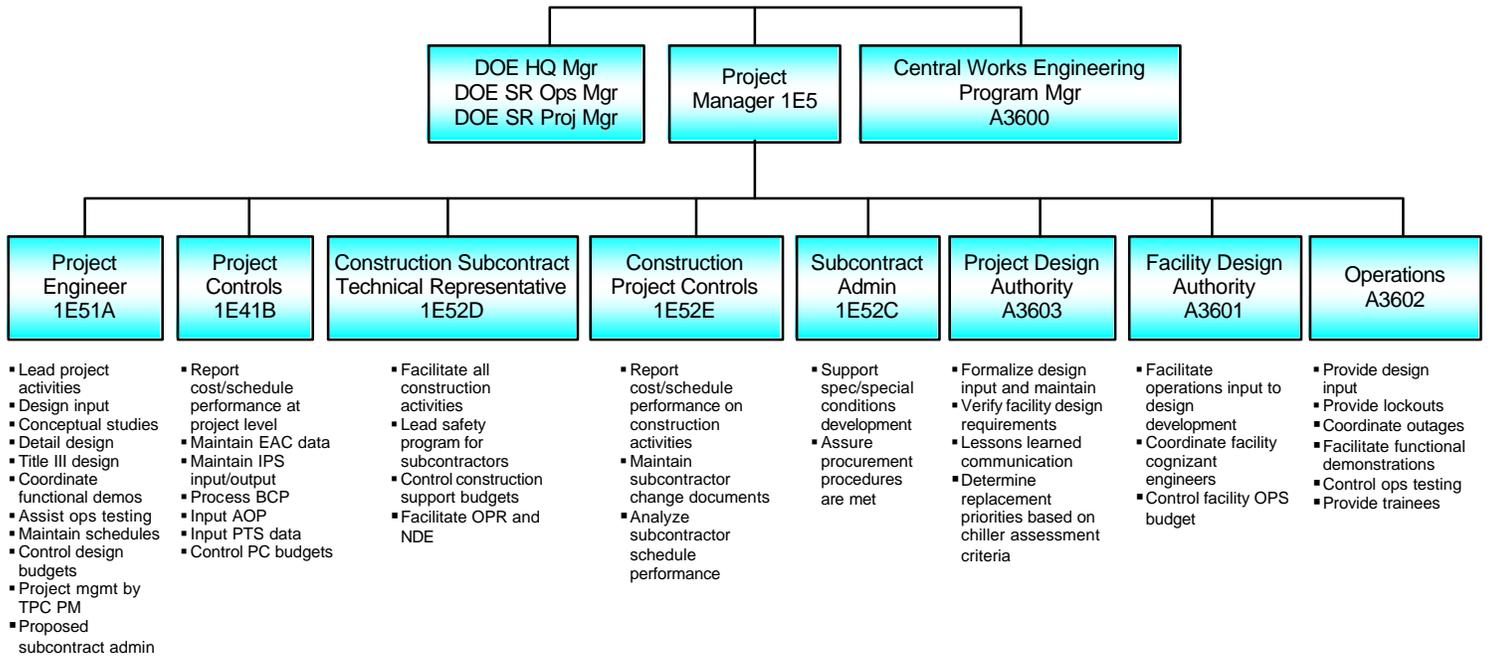
ATTACHMENT 2

SAMPLE CONTRACTOR ORGANIZATIONAL CHART— COMPLEX PROJECT



ATTACHMENT 3

SAMPLE CONTRACTOR ORGANIZATIONAL CHART— SRS PROJECT



*Configuration Management, Safety and Quality Assurance are part of the project management and are included in the organization shown.

ATTACHMENT 4

SAMPLE RESPONSIBILITY ASSIGNMENT MATRIX

Selection Criteria Element: C Hours and Total Cost

WBS ID DESCRIPTION	263A Prod. Design Review	3300 FPR Project- Indirect	3310 Project Support	3320 Project Implement	332A Instrumtn/ Electrical
111000 Conceptual Design		0 \$13,215,000			
113111 First Unit Substation					0 \$130,000
113211 M-S Manip. Wall Tubes					
113212 Shield Window Liners					
113213 Shield Doors					
113214 K-Plug Lights					
113215 Samplers					
113216 Tool Ports and Hatches					
113231 Bridge Crane					

Selection Criteria Element: C Hours and Total Cost

WBS ID DESCRIPTION	332K Civil/ Structural	332L Civil/ Structural	332N Mechanical/ Remote	332O Mechanical/ Remote	332P Mechanical/ Remote
111000 Conceptual Design					
113111 First Unit Substation					
113211 M-S Manip. Wall Tubes			0 \$76,000		
113212 Shield Window Liners			0 \$724,600		
113213 Shield Doors					
113214 K-Plug Lights			0 \$174,400		
113215 Samplers					0 \$445,200
113216 Tool Ports and Hatches				0 \$200,166	
113231 Bridge Crane					

Selection Criteria Element: C Hours and Total Cost

WBS ID DESCRIPTION	3329 Mechanical/ Remote	3330 Records Management	3340 Constr. Management	334C Construction Engineering	3350 Project Assurance
111000 Conceptual Design					
113111 First Unit Substation					
113211 M-S Manip. Wall Tubes					
113212 Shield Window Liners					
113213 Shield Doors	0 \$4,045,775				
113214 K-Plug Lights					
113215 Samplers					
113216 Tool Ports and Hatches					
113231 Bridge Crane	0 \$476,100				

Selection Criteria Element: C Hours and Total Cost

WBS ID DESCRIPTION	332K Civil/ Structural	332L Civil/ Structural	332N Mechanical/ Remote	332O Mechanical/ Remote	332P Mechanical/ Remote
1231000 Construction Inspection					
124100 Project Admin					
OBS Totals	0 \$16,077,175	0 \$1,047,971	0 \$975,199	0 \$2,201,728	0 \$1,896,829

Selection Criteria Element: C Hours and Total Cost

WBS ID DESCRIPTION	332Q Mechanical/ Remote	3300 Records Management	3340 Construction Management	334C Construction Engineering	3500 Project Assurance
123100 Construction Inspection					
124100 Project Admin					
OBS Totals	10,032 \$7,545,844	103,435 \$2,977,248	81,799 \$5,437,860	0 \$6,799	25,064 \$1,994,839

Selection Criteria Element: C Hours and Total Cost

WBS ID DESCRIPTION	336A Budget/Cost Control	336A Budget/Cost Control	420S Separations Tech	4310 Operational Safety Analysis	6100 Quality Engineering
123100 Construction Inspection					
124100 Project Admin					
OBS Totals	88,693 \$5,184,322	0 \$2,164,998	4,431 \$4,198,745	42,258 \$2,882,200	0 \$339,300

Selection Criteria Element: C Hours and Total Cost

WBS ID DESCRIPTION	6100 Proc Quality Engineering	7130 Full Storage and Support	7210 Computer Process App	721A Computer Process App	723A Software App
1231000 Construction Inspection					
124100 Project Admin					
OBS Totals	28,549 \$1,499,222	0 \$711,000	0 \$245,300	56,617 \$4,133,154	5,395 \$424,567

ATTACHMENT 5

SAMPLE POSITION DESCRIPTIONS

Westinghouse Idaho Nuclear Company Major Projects Department

General. The Major Projects Department was recently organized with the stated responsibility of effectively managing all Department of Energy (DOE) Major System projects assigned to the Idaho Chemical Processing Plant (from inception to hot operation).

Major Systems projects include those projects having a TPC greater than \$100 million, as well as those projects being designated MSs by the Secretary of the Department of Energy.

Effectively managing an MS project includes staffing, organizing, directing, and controlling all those actions and activities necessary to plan, design, procure, construct, test, and startup systems and facilities within authorized budgets and approved schedules. In order to assure successful completion of assigned responsibilities in a timely manner, the department has been organized into the several sections having the authorities and responsibilities identified in the following paragraphs.

Major Projects Department Manager. The Major Projects Department Manager has the necessary authority and responsibility as delegated by senior management to staff, organize, direct, and control the activities of the department in achieving assigned responsibilities. Activities and decisions shall be in full compliance with applicable DOE Orders, company policy directives, standard operating procedures, and guidance documents; and, MS Project-specific directives, Memoranda of Understanding, and letters of agreement.

MS Project Manager. Each MS Project Manager has the necessary authority and responsibility as delegated by the Major Projects Department Manager to manage the assigned project from inception to completion, including design, procurement, construction, test, startup, and cold operation. The breadth and depth of each project manager's authority and responsibility for the various stages of the project will vary in compliance with written agreements and understandings with the DOE Project Manager. All activities and decisions of the project manager must be in full compliance with those documents identified by the Department Manager as well as Department SOPs, procedures, and policies. Specific major responsibilities of the project manager include:

- Plan, organize, and direct a project team capable of completing an assigned project and providing operable equipment, systems, and facilities on schedule and within budget. Project support, expertise, and personnel in the areas of budget, cost, schedule, safety, environmental, construction, quality assurance, Operational Readiness Review, procedures,

and records management shall be obtained from the appropriate Section within the Major Projects Department. Additional areas of support shall be obtained as necessary from other company departments and external sources to achieve assigned responsibilities.

- Identify and plan work efforts, assign responsibilities, establish goals, and monitor progress.
- Assure inclusion of ES&H requirements in project design.
- Direct design, construction, and inspection activities (as agreed upon with the PD) including planning, scheduling, staffing, cost, and progress. Also prepare Scope of Work documents for these efforts.
- Prepare or have prepared necessary project baselines and associated documents, and maintain a documented and auditable record of project changes to approved baselines and baseline documents.
- Perform an in-depth design review of all design documents, and approve and issue completed documents.
- Prepare and approve equipment, systems, and facility checkout, testing, and startup plans and procedures based on criteria requirements; establish and train checkout and startup teams; prepare resource-loaded schedules, obtain needed supplies, materials, and equipment; perform tests, and implement needed corrective actions.
- Establish and maintain a good working relationship with the PD.
- Provide independent review (as applicable) of design documents and studies, e.g., seismic, thermal, criticality.
- Provide acceptable and operable equipment, systems, and facilities that meet established requirements along with complete as-built supporting documentation.
- Perform assigned long-lead procurements, monitor progress, resolve technical problems, and approve progress payments.
- Provide a resident engineering at the A-E's office during design.
- Provide operational documentary photography of completed facilities.

Construction Management. The construction management manager has the necessary authority and responsibility as delegated by the Major Projects Department Manager to provide construction support to each MS project and assure completion and turnover of equipment, system, and facilities that meet project criteria and requirements, within budget and on schedule. Specific major responsibilities of the construction management manager include:

- Organize, staff, direct, and maintain an effective construction management organization.
- Ensure constructibility features are included in requirements documents.

- Perform constructibility reviews of all project design documents, and assure constructibility reviews are performed by the AE, the CM, and if necessary by independent review agencies.
- Evaluate early construction planning including laydown areas, construction facilities, access, warehousing, traffic patterns, security, and construction impact upon existing facilities, and other projects.
- Participate in preparing Scope of Work documents and provide independent cost estimates.
- Plan, manage, and control force account work provided by the CM.
- Provide photographic services to document construction progress and problems.
- Provide and manage facilities for storage of long-lead equipment and materials.
- Manage/maintain Major Projects Department facilities (buildings).
- Participate in punch list activities including corrective actions, and coordinate partial and final turnovers of systems and facilities.
- Provide an in-depth review of A-E generated cost estimates of construction and procurement packages.
- Provide an in-depth review of construction schedules and identify problem areas as well as areas for improvement.
- Maintain cognizance of material and labor markets and identify trends.
- Coordinate prompt resolution of field problems and questions, nonconformance reports, stop work orders, and corrective action reports.
- Obtain necessary outages and permits for construction.
- Monitor construction activities and continually verify workmanship, quality, safety, progress, management, and construction practices.
- Provide quality coordination of all department activities including surveillances; audits; preparation, review, and approval of Quality plans; and flow down of quality requirements.
- Interface and coordinate with the inspection agency for inspection planning, inspection performance, NDE requirements, radiography, and review and acceptance of radiographs.
- Assure through inspection inclusion of required ES&H features.

Schedule/Cost Control. The schedule/cost control manager has the necessary authority and responsibility as delegated by the Major Projects Department Manager for providing the necessary support to each MS project in the areas of planning, budgeting, expenditures, and scheduling. Specific major responsibilities of the schedule/cost control manager include:

- Organize, staff, direct, and maintain an effective schedule/cost control organization.
- Assure the Major Projects Department EVMS integrates with the company system.
- Prepare and maintain a project summary schedule, sub-level schedules, and milestone lists.

- Prepare and maintain data sheets and multi-year budget and manpower plans.
- Establish and maintain an approved EVMS for tracking, reporting budget/cost data and integrating cost/schedule information.
- Prepare analyses and forecasts, and perform special budget studies as requested.
- Prepare and submit monthly project performance reports as required by DOE.
- Prepare monthly and submit cost performance reports including authorizations, obligations, expenditures, and allowances. Maintain an accurate and current baseline by continuously incorporating changes and modifications.
- Support long-lead procurements by preparing requisitions and assembling supporting documentation, preparing monthly contract status reports, continuously monitoring the status of each procurement action, and validating invoices.

Records Management. The records management manager has the necessary authority and responsibility as delegated by the Major Projects Department Manager to provide records management and documentation support to each project. Specific major responsibilities of the records management manager include:

- Organize, staff, direct, and maintain an effective records management organization.
- Establish and maintain a records management/control system including receipt, identification, reproduction, distribution, filing, and retrieval.
- Maintain equipment and facilities to reproduce and distribute project documents.
- Maintain master controlled copies of project documents, DOE Orders, project correspondence, SOPs, and DOE, company and project manuals.
- Provide and maintain a document library for each project.
- Maintain logging and tracking systems for project documents, vendor data, NDE records, and as-builts.
- Provide an orderly turnover of project documents at project completion to the user or the appropriate records center.
- Maintain computerized master lists of drawings, specifications, lines, valves, instruments, equipment, NCRs, ECRs/DCNs, and vendor data.

Project Surety. The project surety manager has the necessary authority and responsibility as delegated by the Major Projects Department Manager to provide support to each MS project in the areas of safety, human factors, environmental protection, training, DOE Order interpretation, safety documentation, permitting, and Operational Readiness Review (ORR). Specific major responsibilities of the project surety manger include:

- Organize, staff, direct, and maintain an effective project surety organization.

- Coordinate the preparation, review, and approval of safety and environmental documents including SARs, and NEPA documentation.
- Monitor construction activities for safe practices; adequate receipt, identification, handling, storage, and use of hazardous materials; disposal of hazardous wastes; and proper management of regulated substance storage tanks.
- Plan and conduct safety walkthroughs of completed facilities prior to partial or final turnover.
- Plan and support an ORR of completed projects in sufficient detail and depth to assure startup approval. Coordinate the ORR efforts with the DOE to assure necessary support.
- Plan and safely perform all shield wall source testing; retain custody of and maintain the test source.
- Provide project procedures and documents, coordinate preventive maintenance procedures and operating and maintenance procedures.
- Continuously monitor and evaluate project site radiography operations for safety, license and regulatory compliance, and technician training.
- Plan and provide support and assistance for independent reviews.
- Establish and implement a documented self-assessment program.
- Plan, staff, organize, and prepare operating and maintenance procedures for new facilities.

Administrative Support. The Major Projects Department Manager's senior administrative assistant has the necessary authority and responsibility as delegated by the Department Manager to provide guidance and direction to other department administrative assistants (secretarial) to assure commonality of efforts, and efficient and effective efforts. Specific major responsibilities of the senior administrative assistant include:

- Prepare the monthly department progress report.
- Coordinate all travel.
- Train other administrative assistants (secretarial) in company and project policies, methods, and procedures.
- Prepare emergency plans and procedures, serve as department personnel warden, identify and train assistant wardens, and coordinate evacuations with the company.
- Identify the need for and coordinate the use of temporary administrative support personnel.
- Identify and initiate corrective actions in the areas of correspondence control, distribution, format, etc.
- Coordinate and present monthly Department safety meetings.

Approved: _____

_____, Manager
Major Projects Department