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Project Execution Plan

Project Number: 26636

Materials and Fuels Complex Radiochemistry Laboratory

Idaho National Laboratory

The INL is a U.S. Department of Energy National Laboratory operated by Battelle Energy Alliance.

Materials and Fuels Complex Radiochemistry Laboratory

PLN-2575

Project File No. 26636

Approved by

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BEA Approved Cost/Schedule Data

REVISION LOG

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EXECUTIVE SUMMARY

In order to meet Department of Nuclear Energy, Science, and Technology programmatic needs for a bench-scale facility to conduct basic research and proof-of-principle testing using low levels of radioactive materials, a Radiochemistry Laboratory is required.

Department of Nuclear Energy, Science, and Technology tenants are currently using areas at the Materials Test Reactor (MTR) complex as laboratories; offices; material receiving, storage, and shipping; test and assembly space; records storage; and the Advanced Test Reactor and landlord maintenance support. The Idaho National Laboratory must vacate Department of Energy Office of Environmental Management-owned MTR facilities to allow their demolition by the Idaho Cleanup Project to be initiated in FY 2008.

The Radiochemistry Laboratory will house portions of the radiochemistry and radiation measurements laboratories currently housed in the MTR-604 complex. The Radiochemistry Laboratory will be designed and constructed as a light commercial building with radiochemistry laboratory capability to be operated as a Less than Hazard Category 3 radiological facility.

Project acquisition strategy uses design/build services, as necessary, to construct a complete Radiochemistry Laboratory. The work will be competitively bid to an outside subcontractor as construction work with associated subtier design.

A firm, fixed-priced contract with fixed milestone completion dates will be used. A competitive request for proposal will be issued. Qualified general construction companies will be solicited, who, in turn, will be expected to obtain the services of, and be fully responsible for, a qualified design company.

A "best-value" selection process will be conducted where both pricing and functionality will be considered for award purposes to optimize facility size and capability within general plant project funding limitations.

CONTENTS

1. OVERVIEW 9

1.1 Introduction 9

1.2 Mission Need 9

1.3 Project Description 10

2. SCOPE, SCHEDULE AND COST (PERFORMANCE MEASUREMENT BASELINE) 11

2.1 Scope 11

3. RESEARCH AND DEVELOPMENT AND ENGINEERING 13

3.1 Approach and Strategy 13

3.2 Validation and Verification 13

4. PROJECT ORGANIZATION AND INTERFACES 14

4.1 Project Interfaces: External and Internal 14

4.2 Integrated Project Team 14

4.3 Idaho Facilities Management 16

4.4 Facilities and Site Services 16

4.5 Radiological Controls 16

4.6 Tenant Contacts 16

4.7 Personnel Training and Qualification 16

5. PROJECT CONTROL AND REPORTING 16

5.1 Project Authorization 16

5.2 Activity Work Authorization 16

5.3 Performance Baseline 16

5.4 Performance Baseline Measurement 16

5.5 Work Breakdown Structure 16

5.6 Work Breakdown Structure Dictionary 16

5.7 Reporting 16

5.8 Baseline Change Control and Management 16

6. RISK 16

6.1 Risk Management Approach and Process 16

7. QUALITY 16

7.1 Quality Assurance 16

8. SUPPLY CHAIN 16

8.1 Procurement 16

9. HEALTH AND SAFETY 16

10. RECORDS AND CONFIGURATION MANAGEMENT 16

11. NUCLEAR SAFETY 16

12. ENVIRONMENTAL COMPLIANCE 16

13. RADIOLOGICAL CONTROLS 16

14. CONSTRUCTION/FIELD WORK 16

15. FACILITIES, UTILITIES, AND EQUIPMENT 16

16. OPERATIONAL READINESS AND TURNOVER 16

17. PROJECT CLOSURE 16

18. REFERENCES AND APPENDIXES 16

18.1 References 16

18.2 Appendixes 16

Appendix A—Acronyms 16

Appendix B—Equipment List 16

FIGURES

1. Radiochemistry Laboratory organizational chart 15

2. Work breakdown structure 16

1. OVERVIEW

1.1 Introduction

The purpose of this project is to provide a new Less than Hazard Category 3 facility to house portions of the Radiochemistry Laboratory (RCL) that currently resides in the Materials Test Reactor (MTR)-604 complex, located at the Reactor Technology Complex (RTC). Design and construction of the facility provides laboratory space for a minimum of measurement laboratories; two wet chemistry laboratories; one glove box lab; a counting lab, instrument development area, chemical and source storage and supporting space for mechanical, electrical, and communication equipment. Design/build activities are scheduled to commence in August 2007 with the facility being fully operational in March 2009.

This project execution plan (PEP) defines administrative baseline documentation and sets forth plans, organizations, and systems to be employed for managing the project. In accordance with the intent of U.S. Department of Energy (DOE) O 413.3A, "Program and Project Management for the Acquisition of Capital Assets," this project is structured as a general plant project, using a tailored approach commensurate with the total project cost of approximately $5M. The mission need document has been approved, establishing Critical Decision (CD)-0. During the project development phase, the development of the acquisition strategy resulted in the determination to approach the procurement as a design/build project. Consequently, in keeping with the DOE O 413.3A approval sequence for design/build projects, the baseline approval supported by this PEP constitutes approval of CD-1, -2, and -3, with CD-4 withheld for approval action after construction is underway. By adopting this approval sequence, the project is appropriately aligned with the DOE order, and the execution phase is authorized so that final design and construction may proceed.

Baseline approval constitutes approval of capital and supporting operating funding for the execution phase (i.e., final design and construction).

The PEP also establishes the methods and controls for management of the project and for work scope deliverables and project performance methods.

The current conceptual design describes a one story, steel–framed, and stucco exterior facility along with defined building layout and features. The conceptual design describes one facility concept and is not necessarily what will be determined as the final facility concept, which will be established during final design by the design/build subcontractor.

The current conceptual design will be used for development of the pre-decisional draft cost estimate to be used during the bid evaluation cycle.

1.2 Mission Need

In order to meet Department of Nuclear Energy, Science, and Technology (NE) programmatic needs for a bench-scale facility to conduct basic research and proof-of-principle testing using low levels of radioactive materials, a radiochemistry laboratory is required.

NE tenants are currently using areas at the MTR complex as laboratories; offices; material receiving, storage, and shipping; test and assembly space; records storage; and the Advanced Test Reactor and landlord maintenance support. The Idaho National Laboratory must vacate Department of Energy Office of Environmental Management (EM)-owned MTR facilities to allow their demolition by the Idaho Cleanup Project to be initiated in FY 2008.

The RCL will house portions of the radiochemistry and radiation measurements laboratories currently housed in the MTR-604 complex. The RCL will be designed and constructed as a light commercial building with the radiochemistry laboratory capability to be operated as a Less than Hazard Category 3 radiological facility. The RCL will provide for support to nuclear programs including the Advanced Fuel Cycle and Global Nuclear Energy Partnership (GNEP), Counter Proliferation/Signatures, and Partnering with Nuclear Power Industry and other laboratories, universities, and international organizations.

The RCL will house functions for separation science and technology, actinide chemistry, radiochemistry research, and metals and isotopic analysis.

The RCL will include a counting room, wet chemical laboratories for alpha-emitting radionuclide and actinide studies, wet chemical laboratories for handling of higher levels of radionuclides, wet chemical laboratories for inorganic analyses, and wet chemical laboratories for associated activities.

EM owns the MTR facilities; however, almost all of the occupants and functions performed in the buildings are NE related. Use of existing facilities at RTC was evaluated and no acceptable facilities are available to perform these functions. Unless new space is procured, the EM demolition schedule will be impacted. The Project Mission Need was approved by reference Letter, R. F. Wilbur to C. Johnson, dated May 19, 2006.

1.3 Project Description

The RCL will be a capital acquisition under general plant project funding that is available in FY 2007. The RCL will be a stand-alone facility, located inside the Materials and Fuels Complex (MFC) at INL.

A new laboratory building for housing the radiochemistry laboratories will be designed and constructed. The building must be compliant with applicable regulations for light chemical laboratories and be operated as a Less than Hazard Category 3 radiological facility

The building will include adequate space for housing RCL associated laboratory equipment, personnel, and associated activities. Currently, this space includes; actinide labs, glove box lab, instrument technologies lab, chemical and source storage, counting lab, and mechanical, electrical, and communication system support areas. Location of the facility inside MFC was identified through a siting study. Support utilities are located nearby with tie-in points identified.

2. SCOPE, SCHEDULE AND COST (PERFORMANCE MEASUREMENT BASELINE)

2.1 Scope

2.1.1 Technical Baseline

The technical baseline for this project is contained in the technical and functional requirements (T&FR) and design requirements documents. The scope contained in these documents will be defined in depth and contained in the design requirements documents to be issued in the design/build request for proposal (RFP).

2.1.2 Work Scope

The project will deliver a laboratory building to house radiochemistry laboratories. Activities include low background counting, wet chemistry for determination of radionuclides, inorganic analyses, and associated support functions. The building must be compliant with applicable regulations for light chemical laboratories and operated as a Less than Hazard Category 3 radiological facility.

2.1.3 Schedule

Activity		Funding year
Initiation (Mission Need)		2nd quarter of FY06
Design Description	Start	2nd quarter of FY06
	Complete	1st quarter of FY08
Design/Construction	Start	1st quarter of FY08
	Complete	4th quarter of FY08
Startup	Complete	1st quarter of FY09
Closeout	Complete	2nd quarter of FY09

Schedule milestones for this design/build project will be established in the RFP and confirmed upon award of the subcontract. If warranted, this PEP will be revised post-award to reflect changes to the schedule baseline. Performance against milestones will be measured based on the subcontractor's critical path schedule and detailed schedule of values required by the RFP. The Performance Measurement Baseline Level 3 schedule will be developed and statused as required by LWP-7330, "Baseline Development and Management."

The project utilities tie-in and start-up activities are dependent on the MFC operating (outage) schedule for new utility tie-ins of those utilities that cannot be interrupted during MFC facility operations.

For the purpose of the design/construction milestone, the industry standard for substantial completion of construction work is defined as when the work is sufficiently completed, in accordance with subcontract documents, that the owner may "occupy" the work area for the intended use. "Occupy" is defined as when the Battelle Energy Alliance, LLC (BEA) facility organization is allowed access into the area where construction is sufficiently completed to allow startup activities under the operating funded portion of the project to perform system operability tests, hang safety or other operational signs, write and walk down maintenance work orders, perform plant drawing updates, and close the facility change forms (FCFs). Substantial completion occurs when the walkthrough of the work is complete, the final punch list is generated, and the partial transfer section of INL Form 432.04, "Inspection Project Transfer," is signed by the BEA project manager and the facility manager.

2.1.4 Cost Baseline

The cost estimate shown below is a rough-order-of-magnitude estimate. The estimate will be refined at completion of the project definition phase. The refined estimate will be used to evaluate bids contained in the design/build RFP. The performance measurement baseline will be established and maintained in accordance with INL project management procedures. If warranted, this PEP and cost baseline will be revised post-award to reflect cost baseline changes.

Funding for this project will be provided by the Idaho Facilities Management Program.

Design and construction subcontract	$3,834,000
Construction support	$512,000
Construction testing and acceptance	$29,000
Management reserve	$419,000
Total capital budget	**$4,794,000**
Design description	$190,000
Execution support	$205,000
Turnover/closeout	$338,000
Total operating budget	**$733,000**
Total project budget	**$5,527,000**

Operating funded activities include development of the design requirements for the RFP; non-dedicated support during procurement of the design/build subcontract, design, construction, and facility system acceptance and closeout. The capital portion of this project commences with CD-1, -2, and -3 approval, followed by bidding and award of the design/build subcontract and ends after completion of construction component testing and acceptance.

In accordance with the DOE Accounting Handbook, Chapter 10, Plant and Capital Equipment, Section 2.h.(3), General Plant Projects (GPPs), funding for this project includes the initial complement of equipment required for the facility to meet its intended purpose. See Equipment List in Appendix B.

The initial level of planned management reserve was established through an evaluation of the planning estimate. This management reserve amount is based on the confidence level of the details used to produce the estimate and the risks associated with the project.

2.1.5 Life-Cycle Cost

Current facilities housing laboratory activities and personnel are scheduled for decommissioning and demolition starting in FY 2008. There is no existing facility suitable for RCL functions. The remaining option is to build a new facility in order to relocate the laboratory equipment and personnel. The Life Cycle Analysis will be completed after the final design is received from the Design Build Subcontractor. This PEP will be updated to include the Life Cycle Analysis after receipt of the approved design.

3. RESEARCH AND DEVELOPMENT AND ENGINEERING

3.1 Approach and Strategy

Engineering will be performed by the design/build subcontractor. Design requirements, codes and standards, and BEA drawing and specification requirements will be provided to the subcontractor through the project RFP and statement of work. The subcontract formation group, comprised of members from BEA support organizations with input into the RFP, establishes the documents required that flow down BEA procedural requirements to be included in the RFP.

3.2 Validation and Verification

Design verification will be via external contractor review and internal subcontractor design review processes.

The contractor will review the subcontractor's design against the design requirements found in the statement of work document and contractual requirements contained in the RFP to ensure those requirements have been incorporated into the final design drawings and specifications.

The subcontractor will review design drawings and specifications to confirm project design requirements and contractual requirements that are contained in the RFP are met, and to ensure constructability.

4. PROJECT ORGANIZATION AND INTERFACES

4.1 Project Interfaces: External and Internal

The BEA IFM project manager will be responsible for the administration and management of all project activities. The project will be managed, controlled, and reported per the BEA project management system requirements, processes, and guidance documents. A general list of the responsibilities of the project team members is provided in the following section. Individual names are listed; however, if personnel changes occur, the new person in the position listed, or their designee, will be assigned the project responsibility without revising this plan.

4.2 Integrated Project Team

The project team members, or designees, will be organized as indicated in the following list:

IFM Sitewide Program	
Director Project Management/IFM	Robert P. Miklos
IFM Sitewide Program Manager	Lisa E. Wolford
Project Manager	Robert J. Waters
Facilities and Site Services	
Operations and Maintenance	David B. Lively
Construction Services	Randell E. Strong
Construction Field Representative	Chris J. Duncan
Project Engineer	Tracy A. Langenwalter
Construction ES&H	G. Lynn Holt
Project Support	
Procurement	Claudia L. Dains
Planning and Controls	Linda L. Hergesheimer
Cost Estimating	John W. Lundblade
Quality Engineering	Evert R. Mouser
Laboratory Manager	
RCL	Terry A. Todd

Reference Figure 1, RCL organizational chart.

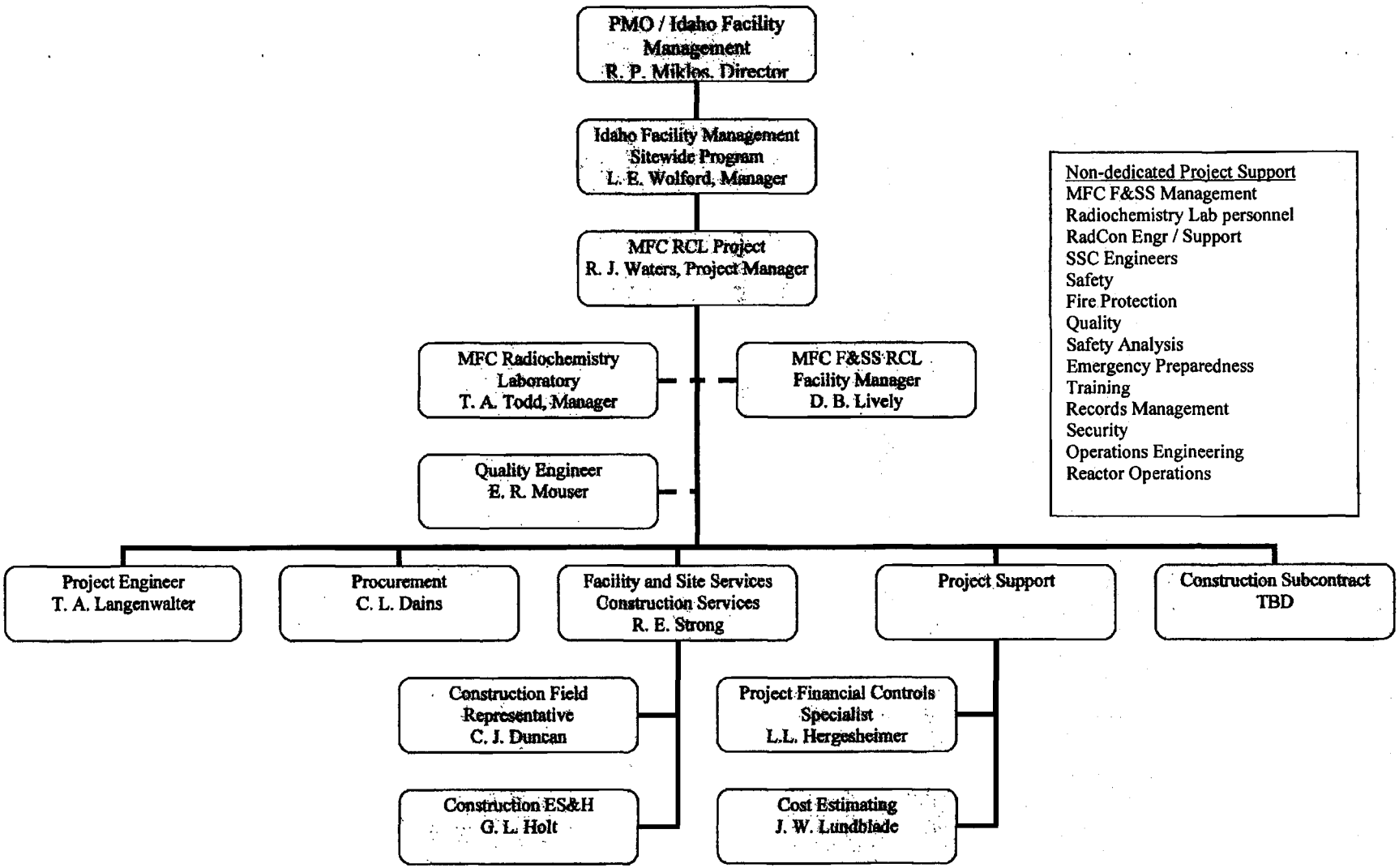

Figure 1. Radiochemistry Laboratory organizational chart.

4.3 Idaho Facilities Management

4.3.1 PMO/Idaho Facilities Management

The PMO/IFM Program Manager is responsible for defining and executing IFM/PMO vision and mission strategies. Facilitates implementation of INL IFM and Project Management Office strategic mission objectives and supports achievement of INL strategic mission objectives.

4.3.2 Program Manager

The program manager is responsible for providing management support and interface with the project and defining and coordinating interfaces with other affected programs.

4.3.3 Battelle Energy Alliance, LLC Project Manager

The project manager is responsible for overall execution of the project and compliance to the PEP and approved baseline scope, schedule, and budget per LWP-7330. The project manager will authorize funding and approve changes to the baseline in accordance with the change control process contained in this PEP.

4.4 Facilities and Site Services

4.4.1 F&SS Facility Manager

The facility manager is responsible for providing maintenance craft support as required for outages or tie-ins required to support the construction of the project work scope. Facilities and Site Services is responsible for ensuring maintenance requirements are met during construction and at the start of operations, including all maintenance work orders, schedules, training, and necessary drawing updates for the systems they own. Outage schedule coordination will be provided by the facility point of contact for construction as required for system lockout and tagout and for system tie-ins. The facility manager is also responsible for interface and coordination with the laboratory manager for utility and building systems identification required to meet the maintenance and operational needs of the facility.

The RML integrated project team is responsible for management and oversight of all activities conducted within the construction boundary. The construction site will be isolated from the remainder of RTC using construction ropes or barricades. Facilities and Site Services involvement is required to support the isolation of the construction site and to support utility tie-ins and project testing and turnover activities.

4.4.2 F&SS Construction Services

The construction field representative communicates with the subcontractor and construction forces for jobsite and field work associated with the project in compliance with this PEP, ES&H and quality assurance requirements, and LWP -7201, "INL Construction;" LWP-7202, "Subsurface Investigation;" and LWP-7203, "Vendor Data Process." The

construction field representative is responsible for the interface between facility operations and the subcontractor. The construction field representative communicates with the subcontractor and construction forces for jobsite and field work-related issues.

The construction ES&H point of contact is responsible for monitoring construction activities to ensure they are executed in compliance with prescribed ES&H requirements.

Safety and industrial hygiene are responsible for monitoring construction activities to ensure they are executed in compliance with prescribed ES&H requirements

Construction environmental engineering is responsible for ensuring the project work scope and performance is in compliance with all applicable environmental laws and requirements.

4.4.3 Procurement

The procurement subcontract administrator is responsible for accomplishing all procurement activities. The subcontract administrator is responsible for soliciting, awarding, and administering the subcontract. Administering the subcontract will include monitoring, tracking, communication, change management, and acceptance and closeout.

4.4.4 Project Engineer

Design engineering is responsible for preparation of design requirements documents that communicate the work scope sufficiently for solicitation and execution of a design/build subcontract. Design engineering will review subcontractor design documents to ensure work scope is accurately reflected by those documents and provide vendor data review during design/construction.

4.4.5 Project Financial Controls Specialist

The planning and financial controls specialist is responsible for assisting the project manager in monitoring, tracking and reporting progress with respect to project baselines through requirements contained in LWP-7330, 7410, 7430, and 7440. Also, the planning and financial controls specialist assists the project manager in preparing formal change control against the project baseline in accordance with LWP-7400.

4.4.6 Cost Estimating

Cost estimating is responsible for providing a cost estimate with sufficient detail to evaluate subcontractor design/build proposals in accordance with LWP-7342. The cost estimator will work closely with planning and controls to establish the cost baseline and to estimate the effects of any changes. The cost estimator is also responsible for project closeout support.

4.4.7 Quality Engineering

Quality engineering will be responsible for assisting the project team in defining the quality level(s) of the project work scope. The quality engineer will write the surveillance plans for monitoring design/build subcontractor performed tests and inspections. The engineer will ensure required surveillances are performed as scheduled

4.5 Radiological Controls

4.5.1 Radiological Control

MFC radiological control will be responsible for providing radiological control requirements for design and construction. Radiological control will supply design input and review and will provide field support during construction for surveys and monitoring as required.

4.6 Tenant Contacts

4.6.1 Radiochemistry Laboratory

The RCL point of contact is responsible for identifying the utilities, equipment, and building features required to meet the operational needs of the laboratory. The RCL point of contact will provide technical guidance for clarification of requirements during the transition phase to operations (partial transfer of the constructed facility).

4.7 Personnel Training and Qualification

Trained and qualified personnel will perform all work under controlled conditions. Submittal of vendor data certifying qualifications for the individuals performing critical work will be required as indicated in the project Special Conditions. Training will include security site access training, MFC access training, and job-specific training through the job safety analysis that will be produced to control the work. Any training for specific hazards will be identified in the subcontract Special Conditions.

Building-access-only clearances will be required. Employees will be badged to access the INL Site through the main gates. Personnel access to MFC will be through the main security gates at MFC. Site access training will be required for subcontractor personnel and MFC security access escort training will be required for subcontractor supervision personnel. Access for construction vehicles will be through the security vehicle access at the MFC main security gate.

5. PROJECT CONTROL AND REPORTING

5.1 Project Authorization

Project authorization will be in accordance with LWP-7380, "Project Work Authorization."

5.2 Activity Work Authorization

Work authorization in support of the project will be through e-mail followed immediately by INL Form 415.09, Project Work Authorization Document," which will provide the appropriate charge number and authorization to proceed with the work scope identified. Budget and schedule performance will be tracked and controlled by the project manager. Work authorization will be in accordance with LWP-7380.

5.3 Performance Baseline

The performance baseline will be presented at the end of the definition phase and monitored throughout the execution phase. The performance baseline will be updated as required to reflect changes resulting from subcontract award price and any transfer of management reserve to the total estimated cost. Performance baseline development and management will be in accordance with LWP-7330.

5.4 Performance Baseline Measurement

Performance baseline measurement will be as described in each of the work breakdown structure (WBS) dictionary elements. Performance baseline measurement will be in accordance with LWP-7430 and 7440.

5.5 Work Breakdown Structure

Figure 2 shows the WBS graphically, including the relationship between capital and operating funds, and the WBS element number, along with the person responsible for delivering each WBS element.

5.6 Work Breakdown Structure Dictionary

5.6.1 C.R.30.20.11.01.01 OPS—Design Requirements

This WBS element develops design requirements, which provide the basis for development of the cost estimate, schedule, and scope of work for the project. Included are the T&FRs, design requirements and drawings, PEP, safety evaluations, quality level determination, cost estimate, schedule, and approvals. Progress will be measured by weighted milestone method and reported as percent complete.

5.6.2 C.R.30.20.11.01.02 OPS—Execution Support

This WBS element provides non-dedicated project support during the conceptual and turnover/closeout phases from multiple organizations for vendor data review, outage and scheduling support, and safety or technical reviews. Other non-dedicated project support includes, but is not limited to, security support, document control, ES&H oversight, quality oversight, RadCon engineering and support, startup planning and coordination, and preparation of as-built essential and master drawings. Progress will be measured by level of effort.

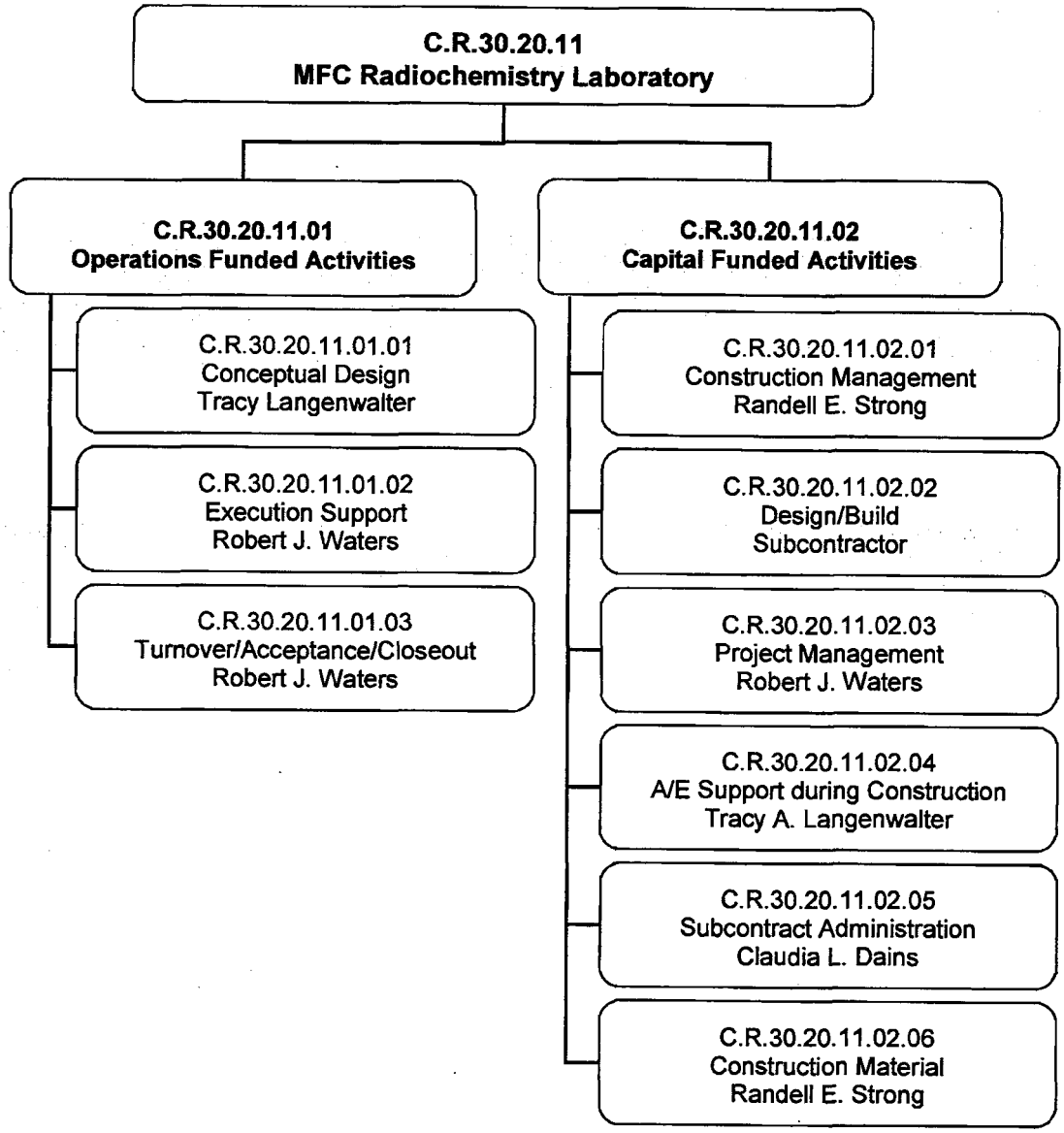

Figure 2. Work breakdown structure.

5.6.3 C.R.30.20.11.01.03 OPS—Turnover/Acceptance/Closeout

This WBS element will provide transition planning, acceptance and turnover, and closeout and final documentation. Punch lists from project walkthroughs will be completed; system operations tests will be completed and documented; plant drawing updates, periodic maintenance work orders, spare parts lists, and operations training will be completed; and financial closeout and the Final Project Report will be completed. Progress will be measured by weighted milestone method and reported as percent complete.

5.6.4 C.R.30.20.11.02.01—Construction Management

This WBS element will provide construction management support during the procurement, design, and construction execution phase of the project. Construction Management will deliver safe and successful completion of all field work associated with the project in compliance with this PEP and ES&H and quality assurance requirements. The construction manager is responsible for interface between facility operations and the subcontractor. The construction manager will provide evaluation of bids, construction oversight and problem resolution, support for construction testing, vendor data reviews, and acceptance reviews. The construction manager will also monitor and track the progress of the subcontractor and will approve progress payments. Progress will be measured by apportioned effort proportional to the design/build subcontractor progress after the subcontract is awarded through construction completion.

5.6.5 C.R.30.20.11.02.02 CAPS—Design/Build Subcontractor

This WBS element provides the design/build-subcontractor-executed design in accordance with subcontract requirements. The design/build subcontractor will provide the final design, which will include technical specifications, drawings, design calculations and analysis, surveying, field investigation, vendor data schedule, testing requirements, the construction inspection plan, and inspections in accordance with subcontract requirements. The subcontractor will also provide operating and maintenance manuals, recommended spare parts list, and recommended training.

The subcontract requirements prepared by the contractor's design staff include, but may not be limited to, utility interface drawings, preliminary surveying, RFP vendor data schedule, government-furnished equipment schedule, and the construction inspection requirements.

The subcontractor will provide support during final testing and acceptance to include correction of deficiencies.

Progress will be measured by weighted milestone method and reflected as percent complete.

5.6.6 C.R.30.20.11.02.03 CAPS—Project Management

This WBS element provides project management support for the design, construction, and close-out phases of the project. General project administration will consist of providing for funding determinations, Davis-Bacon case record, coordination of the design and design reviews, procurement requisitions, coordination of the construction effort, project status reporting, development and revisions of the project execution plan, baseline change control, and earned value tracking and reporting. Progress will be measured by level of effort. The Project Manager, or designated representative(s), will serve as the overall point of contact for the project and will serve as the sole point of contact for technical design information or communication of design information requests.

5.6.7 C.R.30.20.11.02.04 CAPS—Architectural Engineering Construction Support

This WBS element will provide for dedicated design engineering, system engineering, and facility technical support resources during the procurement and construction execution phase of the project. Engineering will provide construction oversight and problem resolution for those issues that arise related to existing area and facility systems and the design requirements' document. Engineering will provide a review of subcontractor design documents and vendor data to ensure design requirements are incorporated into the final design. Progress will be measured by apportioned effort proportional to design/build subcontractor progress after the subcontract is awarded through construction completion.

5.6.8 C.R.30.20.11.02.05 CAPS—Subcontract Administration

This WBS element will provide for dedicated subcontract administration resources to support design/build subcontract procurement and proper management of the subcontract. The subcontractor administrator will lead the interface between the project and the subcontractor, preparing documentation, executing change control, enforcing the provisions of the subcontract on behalf of the Contractor, monitoring technical interaction with the subcontractor, and controlling interaction with the subcontractor regarding contractual commitments. Progress will be measured by apportioned effort proportional to design/build subcontractor progress after the subcontract is awarded through construction completion.

5.6.9 C.R.30.20.11.02.06—Construction Material

These WBS elements will provide for a subcontract to design/construct the work scope contained in the RFP documents. The Design/Build subcontractor will provide all labor, equipment, the plant, and materials to design and construct the subcontract work scope, including all required submittals, test reports, and final documentation, which includes as-built drawings and specifications. Progress is measured based on units in place converted to percent complete for each activity contained on the subcontractor's critical path schedule and schedule of values. The sum of the progress of all work activities will provide an overall percent complete for each progress period.

5.7 Reporting

Tracking and reporting will be accomplished through management systems in accordance with LWP-7410. Costs will be tracked and reported through BDSIS and the schedule will be tracked through P3 and COBRA. All project baseline data, including monthly variance narratives will be input into IPS.

Earned value reporting will be used to track and report progress (see Subsection 5.6 for details). Monthly reports will be published that report scope, accomplishments, schedule variance, cost variance, issues, and a look ahead. A variance reporting threshold of +10% and -5% will be used.

Subcontractor performance will be measured using their critical path method schedule (time) tied to a detailed schedule of values (dollars) with established milestones (e.g., final design submittal, completion of underground utilities, footing and foundations, building shell erection, HVAC, and piping).

5.8 Baseline Change Control and Management

Changes to the project baselines are controlled in accordance with the IFM Program Management Plan (PLN-2454) and LWP-7400. Refer to Table 4-1 in PLN-2454 for definition of Change Type Levels 1, 2, and 3.

5.8.1 Cost, Schedule, and Technical Changes

Level 3 changes will require approval by the INL IFM Project Manager and the INL IFM Sitewide Program Manager.

Level 2 changes will require approval by the INL IFM Project Manager, the INL IFM Sitewide Program Manager, the INL IFM/PMO Director, and the INL Deputy Laboratory Director for Operations/Manager of Projects.

Level 3 changes will require the same approvals as Level 2 and, in addition, the approval of the DOE Idaho Operations Office Assistant Manager for Infrastructure Support.

6. RISK

6.1 Risk Management Approach and Process

The risk management strategy has been developed using the Proposal Risk Evaluation and Preparation System. Potential risks will be identified, mitigation strategy will be established as required in a separate Risk Management Plan, and the project team will track and manage risks during execution. Mitigations will include contingencies or alternative plans. Owners will be assigned to significant risk items with triggers defined and monitored as required. The Proposal Risk Evaluation and Preparation System evaluation will be revisited as required to maintain a current assessment of risks resulting from changing, budget, funding, schedule or conditions.

7. QUALITY

7.1 Quality Assurance

Quality engineering will be responsible for defining the quality level(s) of the project work scope. The quality engineer will write surveillance plans to monitor design/build subcontractor performed tests and inspections. The engineer will ensure required surveillances are performed and will coordinate all work with construction management. MFC quality engineering and system engineering will define quality processes that must be in place to comply with the facility safety basis if applicable. The design and proposed modifications will be screened through the

unreviewed safety question process; resultant safety basis documentation will be completed if required

The design/build subcontractor will be required to submit a Subcontractor Quality Assurance Program as defined in RD-5000, "Subcontractor Quality Assurance Program Requirements." First-line inspection responsibility for all activities related to the design and construction of the facility will be the responsibility of the subcontractor.

The Facility and Site Services quality engineer will prepare the surveillance oversight inspection plan and surveillances will be performed accordingly.

8. SUPPLY CHAIN

8.1 Procurement

The project acquisition strategy will be acquisition of turn-key design and construction services, as necessary, to construct a complete RCL. The work will be competitively bid to an outside subcontractor for Davis-Bacon covered construction work (i.e., Davis-Bacon Case Number INL-07-016).

A firm, fixed-priced contract with fixed milestone completion dates will be awarded. A competitive RFP will be used. Qualified general construction companies will be solicited, who, in turn, will be expected to obtain the services of and be fully responsible for a qualified design firm. The list of prospective subcontractors will be subject to BEA Small Business Officer review and approval.

A "best-value" selection process will be used where pricing, appearance, and functionality will be considered for award purposes. The best value determination will be based on best-value criteria prepared to evaluate functionality, appearance, and price reasonableness.

9. HEALTH AND SAFETY

Safety and health protection during construction will be in accordance with the requirements of 29 CFR Part 1926, "Safety and Health Regulations for Construction;" applicable sections of 29 CFR 1910, "Occupational Safety and Health Standards;" and construction management subcontract documents. Construction activities will be covered under a task-specific job safety analysis, which will be approved by construction management. The construction hazards are of a routine nature and the type covered by existing codes, standards, and permits.

Chemical hazards associated with operations of the facility will be evaluated as part of the Preliminary Hazards Analysis Report (defined in Section 11).

10. RECORDS AND CONFIGURATION MANAGEMENT

Records management will supply support for controlling records throughout the project by providing a project number, establishing project file numbers, and entering all records into the records management system. Records management will also aid in assembling the documents required for final project transfer and closeout.

11. NUCLEAR SAFETY

The MTR-604 complex housing the Radiation Measurements Laboratory and RCL is operated under an approved Hazards Analysis Document, HAD-166, "Reactor Technology Complex Material Test Reactor Laboratory Facilities." Portions of both laboratory functions will be transferred to the new laboratory when the facility is completed and turned over for occupancy. BEA's safety analysis has been requested to review HAD-166 to identify nuclear safety requirements that will support development of a Preliminary Hazard Analysis Report.

The Preliminary Hazard Analysis Report will be prepared to identify and evaluate all potential hazards and establish a preliminary set of safety controls.

12. ENVIRONMENTAL COMPLIANCE

An Environmental Checklist, EC-07-017, has been generated and is being reviewed. Project activities are consistent with the categorical exclusion B3.6 related to siting, constructing, and operating facilities for indoor bench-scale research project and conventional laboratory operations. An Air Permit Applicability Determination is being conducted. Results are expected prior to the planned start of construction. No special permits or clearances are anticipated.

13. RADIOLOGICAL CONTROLS

The area under construction will be surveyed prior to the start of construction and monitored during construction. The area is a previously disturbed area and no radiological contamination is anticipated that will reach action levels.

14. CONSTRUCTION/FIELD WORK

Evaluation of risks associated with construction activities is based on the following 9-Block analysis:

- The general construction work for the building has been determined to be Block 8, except for critical tie-ins, requiring full-time surveillance, lockout/tagout training, and implementation of the Subcontractor's Requirements Manual, and work authorization through the plan of the day and plan of the week

- Construction management will control the work area/areas identified by construction boundaries. All interfaces within construction boundaries will be coordinated by the construction field representative or a designated point of contact.

The 9-Block evaluation will be completed and documented prior to issuance of the RFP.

15. FACILITIES, UTILITIES, AND EQUIPMENT

A FCF will be generated to document and track project work. Design drawings will be incorporated into the plant drawing system as interim drawings. When construction is completed, as-built drawings will be converted to required essential and master facility drawings. Turnover will be to the Facilities and Site Services designated building manager for MFC.

16. OPERATIONAL READINESS AND TURNOVER

Planning for acceptance testing, transfer, and closeout will be in accordance with current project management procedures.

Requirements for closeout of the subcontract will be contained in Special Conditions Section SC-25, Project Completion, Punch List, Transfer and Acceptance. The final project transfer will be signed for acceptance by the Project Manager, Robert J. Waters, and the Facility Manager, David B. Lively, or his representative.

17. PROJECT CLOSURE

Facility documentation produced will be as-built drawings, master and essential drawings, labels, maintenance work orders, and the closed and signed FCF. After all documents are finalized, outstanding commitments paid, all support costs are accrued, charge number has been closed, and then the project will be closed.

A final project report will be produced that will document project final results and lessons learned.

18. REFERENCES AND APPENDIXES

18.1 References

29 CFR 1910, "Occupational Safety and Health Standards"

29 CFR 1926, "Safety and Health Regulations for Construction"

DOE Order 413.3A, "Program and Project Management for the Acquisition of Capital Assets"

HAD-166, "Reactor Technology Complex Material Test Reactor Laboratory Facilities"

INL Form 415.09, "Project Work Authorization Document"

INL Form 432.04, "Inspection Project Transfer"

LWP-7201, "INL Construction"

LWP-7202, "Subsurface Investigation"

LWP-7203, "Vendor Data Process"

LWP-7330, "Baseline Development and Management"

LWP-7342, "Formal Cost Estimating of Projects"

LWP-7380, "Project Work Authorization"

LWP-7400, "Baseline Change Control"

LWP-7410, "Reporting"

LWP-7430, "Variance Analysis"

LWP-7440, Estimate At Completion"

PLN-2454, "Idaho Facilities Management Program Management Plan"

RD-5000, "Subcontractor Quality Assurance Program Requirements"

18.2 Appendixes

Appendix A, Acronyms

Appendix A

Acronyms

Acronym	Description
ATR	Advanced Test Reactor
BEA	Battelle Energy Alliance, LLC
CD	critical decision
DOE	U.S. Department of Energy
EM	Office of Environmental Management
ES&H	environmental, safety, and health
FCF	facility change form
GNEP	Global Nuclear Energy Partnership
IFM	Idaho Facilities Management
INL	Idaho National Laboratory
MTR	Materials Test Reactor
NE	Office of Nuclear Energy, Science, and Technology
PEP	project execution plan
PMO	Project Management Office
RFP	request for proposal
RML	Radiation Measurements Laboratory
RTC	Reactor Technology Complex
WBS	work breakdown structure
T&FR	technical and functional requirements
WBS	work breakdown structure

Appendix B

Equipment List

RCL Contractor Provided Equipment/Furnishings Summary

Room	Item	Estimated Labor	Estimated Material	Estimated Total
RADIOCHEMISTRY LABORATORY No. 1	42 lineal feet of base cabinets	$ 3,864.00	$ 15,456.00	$ 19,320.00
	Acid resistant epoxy counter tops	$ 2,240.00	$ 8,960.00	$ 11,200.00
	10 feet of center island base cabinet	$ 1,840.00	$ 7,360.00	$ 9,200.00
	31" deep epoxy counter tops on each side	$ 1,080.00	$ 4,320.00	$ 5,400.00
	24 feet of wall cabinets	$ 3,672.00	$ 14,688.00	$ 18,360.00
	One epoxy sink	$ 400.00	$ 464.00	$ 864.00
	3 feet of counter space on each side of Epoxy sink	$ 500.00	$ 1,100.00	$ 1,600.00
	Radiological fume hoods, 6'- 0" in length and 3'- 6" deep	$ 18,700.00	$ 74,800.00	$ 93,500.00
RADIOCHEMISTRY LABORATORY No. 2	42 lineal feet of base cabinets	$ 3,864.00	$ 15,456.00	$ 19,320.00
	Acid resistant epoxy counter tops	$ 2,240.00	$ 8,960.00	$ 11,200.00
	10 feet of center island base cabinet	$ 1,840.00	$ 7,360.00	$ 9,200.00
	31" deep epoxy counter tops on each side	$ 1,080.00	$ 4,320.00	$ 5,400.00
	24 feet of wall cabinets	$ 3,672.00	$ 14,688.00	$ 18,360.00
	One epoxy sink	$ 400.00	$ 464.00	$ 864.00
	3 feet of counter space on each side of Epoxy sink	$ 500.00	$ 1,100.00	$ 1,600.00
	Radiological fume hoods, 6'- 0" in length and 3'- 6" deep	$ 18,700.00	$ 74,800.00	$ 93,500.00
ICPMS TECHNOLOGIES LABORATORY	6' x 3'- 6" radioisotope fume hood	$ 4,675.00	$ 18,700.00	$ 23,375.00
	36 lineal feet of acid resistant base cabinets.	$ 3,312.00	$ 13,248.00	$ 16,560.00
	Acid resistant epoxy counter tops	$ 1,920.00	$ 7,680.00	$ 9,600.00
	12 lineal feet of wall cabinets	$ 1,836.00	$ 7,344.00	$ 9,180.00
	One epoxy sink	$ 400.00	$ 464.00	$ 864.00
	3 feet of counter space on each side of Epoxy sink	$ 500.00	$ 1,100.00	$ 1,600.00
GLOVE BOX LAB	Radiological Fume Hood	$ 4,675.00	$ 18,700.00	$ 23,375.00
	20 lineal feet of base cabinets	$ 1,840.00	$ 7,360.00	$ 9,200.00
	Acid resistant epoxy counter tops	$ 540.00	$ 2,160.00	$ 2,700.00
	10 feet of center island base cabinet	$ 1,840.00	$ 7,360.00	$ 9,200.00
	31" deep epoxy counter tops on each side	$ 1,080.00	$ 4,320.00	$ 5,400.00
	8 feet of wall cabinets	$ 1,224.00	$ 4,896.00	$ 6,120.00
HEPA HOUSING & EXHAUST SYSTEM	HEPA Housing , Exhaust System & Stack Monitoring	$ 82,713.75	$ 248,141.25	$ 330,855.00
	TOTAL COST	$ 171,147.75	$ 595,769.25	$ 766,917.00