IN THE UNITED STATES COURT OF FEDERAL CLAIMS
Claim

CB&I AREVA MOX SERVICES, LLC Plaintiff, v. THE UNITED STATES, Defendant.	REDACTED VERSION Case No. 17-2017C [redacted]

APPENDIX

TABLE OF EXHIBITS

Exhibit Number	Description
1	**GAO Report** 10-378: Nuclear Nonproliferation: DOE Needs to Address Uncertainties with ad Strengthen Safety Oversight of Its Plutonium Disposition Program dated March 2010 (Excerpt)
2	Review of the DOE Mixed Oxide (MOX) Fuel Fabrication Facility **Report dated January 23, 2002**
3	External **Independent Review** of the Mix Oxide Fuel Fabrication Facility (MFFF) Project Critical Decision (CD) 2/3 Baseline dated June 2006
4	**Memorandum dated July 9, 2006** RE Mixed Oxide Fuel Fabrication Facility Contingency Analysis
5	**Letter and Report** RE Contract No. DE-AC02-99CH10888; MOX Fuel Fabrication Facility (MFFF) Review of Supporting CP20 Releases 2 and 3 Civil-Structural Design Dated May 9, 2007
6	**Tolling Agreement** and Amendments to same between National Nuclear Security Administration and CB& I AREVA MOX Services dated February 22, 2017 – September 28, 2017
7	**Draft Report**: US DOE NNSA Performance Audit of CB&I AREVA MOX Services, LLC's First Year Ended August 31, 2010 Incurred Cost Submission; Performance Audit Report No. 0220970-2380-10 Dated June 12, 2017
8	CBI AREVA MOX Services **Response to Draft Report** dated July 28, 2017
9	**FINAL REPORT**: US DOE NNSA Performance Audit of CB&I AREVA MOX Services, LLC's First Year Ended August 31, 2010 Incurred Cost Submission; Performance Audit Report No. 0220970-2380-10 Dated August 17, 2017

10	**Letter to L. Nyman** (NNSA) from P. Whittingham (CBI AREVA MOX Services) dated August 30, 2017 RE Contract No. DE-AC02-99CH10888, MOX Fuel Fabrication Facility Project Tolling Agreement Second Amendment
11	Letter to R. Norton, CB&I AREVA MOX Services, LLC from L. Nyman, CO, NNSA dated December 4, 2017 RE: **Contracting Officer's Final Decision**

EXHIBIT 1

EXCERPT

United States Government Accountability Office

Report to the Subcommittee on Strategic Forces, Committee on Armed Services, U.S. Senate

September 2017

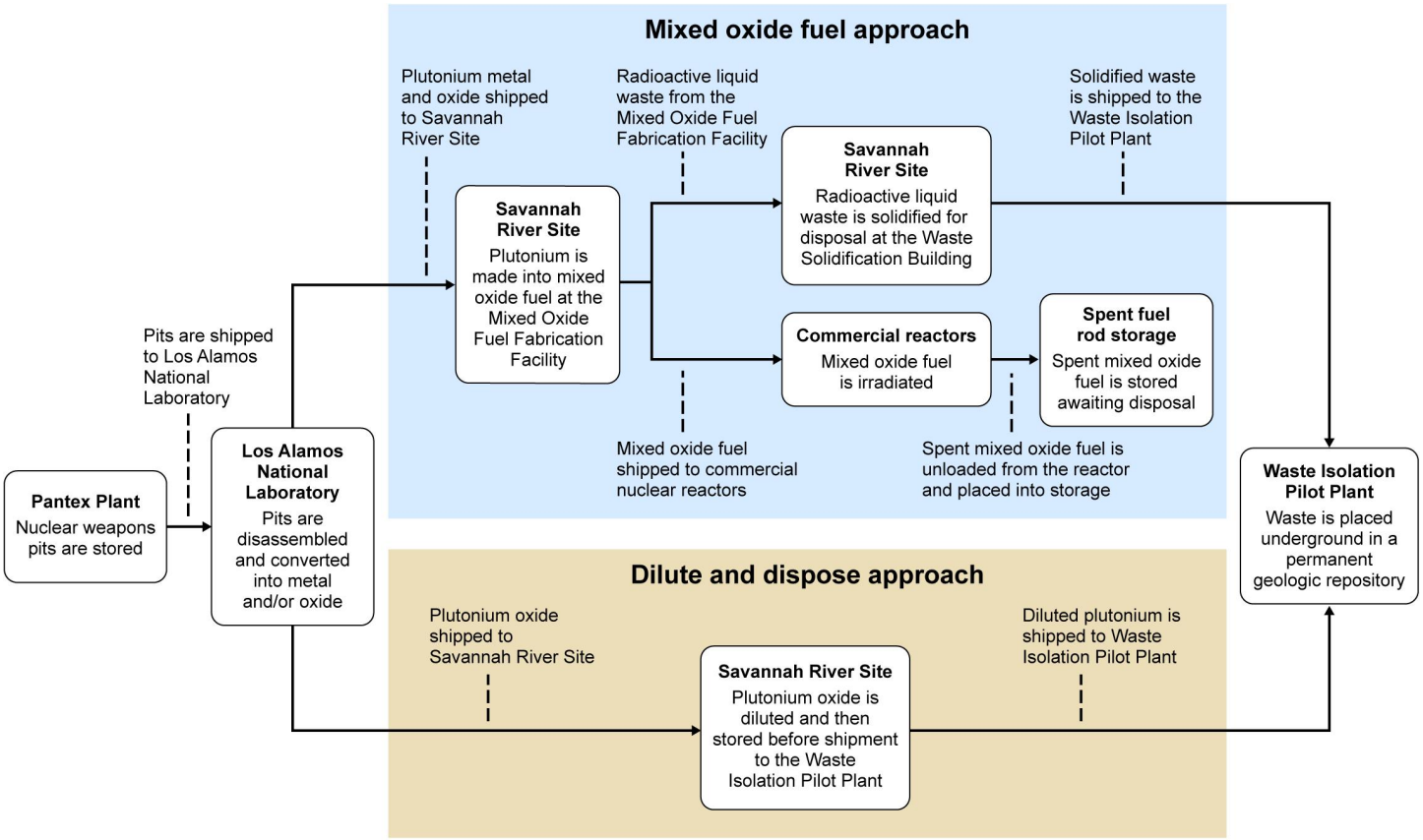
PLUTONIUM DISPOSITION

Proposed Dilute and Dispose Approach Highlights Need for More Work at the Waste Isolation Pilot Plant

Accessible Version

GAO-17-390

Figure 1: Proposed Approaches for Disposing of U.S. Surplus Plutonium from Nuclear Weapons Pits



Sources: GAO; National Nuclear Security Administration. | GAO-17-390

Note: The approaches outlined above only apply to plutonium currently contained in the pit (core) of nuclear weapons. The disposal process for non-pit plutonium would follow a modified version of the above for both the mixed-oxide approach and the dilute and dispose approach.

The MOX facility is designed to remove impurities from plutonium feedstock obtained from pits, form the plutonium into MOX fuel pellets, and fabricate these pellets into fuel assemblies for use in a reactor. The facility is designed to be a reinforced concrete structure measuring about 600,000 square feet (including support buildings) and, when complete, would include about 300 separate process systems using approximately 23,000 instruments; 85 miles of process piping; 500,000 linear feet of conduit; 3,600,000 linear feet of power and control cable; and 1,000 tons of heating, ventilation, and air conditioning duct work. As part of the Plutonium Disposition Program, NNSA in 2015 completed construction of the Waste Solidification Building, which is located near the MOX facility and is designed to process and dispose of liquid waste from the MOX

EXHIBIT 2

REVIEW OF THE DOE MIXED OXIDE (MOX) FUEL FABRICATION FACILITY (MFFF)

CONDUCTED DECEMBER 2-7 2001

January 23, 2002

INTRODUCTION:

This review was initiated by Edward j. Siskin, Director, Office of Fissile Material Disposition of

REPORT OF THE REVIEW OF THE DOE MIXED OXIDE FUEL FABRICATION FACILITY BY DOE SENIOR CONSULTANTS CONDUCTED DECEMBER 2-7, 2001.

EXECUTIVE SUMMARY:

This review was initiated by Edward J. Siskin, Director, Office of Fissile Material Disposition of the US Department of Energy (DOE). The purpose was to independently evaluate the activities underway by Duke, Cogema, Stone & Webster,(DCS) to manage, design and later construct and operate the US Mixed Oxide (MOX) Fuel Facility Project (MFFF). This Project will convert surplus weapons grade plutonium to mixed oxide fuel for use in specific water cooled, commercial reactors. It will be based on proven European technology of Cogema and Belgonucleaire.

The reviewers found that DOE personnel were knowledgeable of DCS activities and that they participate in important decisions. There is open communication between the DOE staff and DCS personnel. Cogema is the French organization responsible for the Melox plant, which is used as the basis for the USA/DOE design. Cogema personnel participate actively in the project design activities with full time personnel at DCS offices and with a dedicated staff at Cogema in France.

The reviewers found no "show stoppers" and DCS personnel interviewed were cooperative and competent. The MFFF project is complex and challenging, requiring substantial technology transfer. While the project's intent is to duplicate the existing French design, there are many potential changes, which could seriously impact design, construction, performance and schedule goals. This would compromise the benefit of using the French plant as a prototype. The minimization and management of changes therefore, are of utmost concern and require close management attention. The importance of nuclear safety is recognized, both nuclear and the prevention of plutonium contamination. Several important management and technical decisions still require resolution and could have significant impact on the nature and progress of the work.

The reviewers highlighted 21 items and provided specific recommendations to DOE. In summary these recommendations cover the following issues: Minimize changes, purchase equipment from original suppliers, assign a full time resident, evaluate remaining design work for potential schedule improvements, resolve "Americanization", resolve security requirements, conduct in-depth safety reviews, obtain on-going Cogema information, include constructability requirements, expand the procedure list, expand efforts on failure analyses, obtain Defense Nuclear Facility Safety Board (DNFSB) agreement on seismic requirements, optimize remaining design work, improve construction schedule, simplify fire protection designs, improve information flow between MFFF and Pit Disassembly and Conversion Facility , use more automation experienced personnel, resolve DNFSB involvement in MFFF, consider present DCS Risk Management effort to be sufficient and review the completeness of Cogema assistance.

The most important recommendations are: (1) Minimize changes from the Cogema design for USA requirements, (2) procure important components and systems from the original suppliers to the Melox plant to the extent possible, (3) assign a DOE full time resident at DCS offices and later at the construction site and (4) expedite closure of outstanding decisions

INTRODUCTION:

This review was initiated by Edward j. Siskin, Director, Office of Fissile Material Disposition of the US Department of Energy (DOE). The purpose was to independently evaluate the activities underway by Duke, Cogema, Stone & Webster,(DCS) to manage, design and later construct and operate the US Mixed Oxide (MOX) Fuel Facility Project (MFFF). This Project will convert surplus weapons grade plutonium to mixed oxide fuel for use in specific water cooled, commercial reactors. It will be based on proven European technology of Cogema and Belgonucleaire.

The reviewers were Robert S.Brodsky of Nuclear Power Technology,Inc., James M Broughton of Applied Engineering Services, Inc. and Henry E. Stone of H. E. Stone, Inc. Resumes, describing education and work experience of the reviewers are in attachment A.

The review consisted of three phases: (1) A review of background documents provided by DOE personnel. (2) A briefing by DOE personnel followed by three days of discussions with DCS personnel including review of material presented by DCS during the discussions. A list of attendees is in attachment B. (3) A meeting on December 7, 2001 at DOE, NNAS offices with senior DOE personnel discussing conclusions and recommendations. DOE personnel in attendance included, E. Siskin, D. Nulton, J. Johnson, D. Albertstein and P. Rhoads
Based on (2) above, the reviewers developed an agenda (attachment C), consistent with the limited available time, which was used during the following three days. DCS personnel were very cooperative and provided all requested information and made responsible personnel available, as needed.

The quality and scope of the presentations and discussions were good. The conclusions of the reviewers and their recommendations were reviewed with senior DCS personnel at the end of the review .

THE MFFF PROJECT:

The major effort at this time is related to the design of the MFFF. It will receive weapons grade plutonium oxide from the nearby Pit Disassembly and Conversion Facility (PDCF) to be constructed under different auspices. Aqueous polishing (AP) will be employed at the beginning of the process to remove impurities (gallium and americium). The MOX fuel fabrication process includes some blending of the Plutonium (Pu) powder with depleted and /or recycled uranium, followed by production of fuel pellets with the desired fissionable material content. These pellets will then be inserted into standard fuel rods and assembled into complete fuel assemblies, suitable for use in the specified commercial nuclear reactors to produce electricity. The technology, components and processes will be patterned prototypically after the existing European MELOX Facility, using the A-MIMAS Process. This process has been developed over several years by Cogema and Belgonucleaire and is operating satisfactorily. The USA facility will be licensed by the Nuclear Regulatory Commission (NRC).

SUMMARY OF KEY CONCLUSIONS AND RECOMMENDATIONS:

The DCS/DOE personnel relationship is professional, DOE personnel are involved in key decisions, both DOE headquarters and Savannah River Site (SRS, the selected location for the facility) field office personnel are involved and participate in the direction and decision making process. Involved DCS and DOE persons were knowledgeable and familiar with all important

aspects of the project. There was close involvement by experienced Cogema personnel both at the DCS offices and in the European home offices, enhancing good communications and technology transfer.

The reviewers identified 21 items warranting recommendations, which are listed. The following four key items deserve particular attention:

1. While it is intended to "copy" the process, components and systems of an existing operating Plant, there are plans to "Americanize" (suitable for USA power, USA dimensions, USA standards, etc.) the facility and adapt it to the USA capacity requirements. Changes, even small ones, can have unexpected and deleterious effects on the performance of previously satisfactory equipment and processes. Therefore changes should be minimized and be thoroughly reviewed by appropriate processes (independent reviews, tests etc.) to ensure that the process, operation and end products are not deleteriously affected.

2. Consistent with (1) and to minimize opportunities for unforeseen problems it is important that components and to the extent possible, systems, are procured from the original suppliers of the operating European equipment wherever possible. It is recognized that the "Buy American" philosophy may have to be re-evaluated on a case by case basis to derive the benefits implied by this recommendation.

3. While DOE personnel are following the design work at fairly frequent intervals and are thoroughly involved in important decisions, it is considered important to have an essentially full time resident at the DCS facility. This person, a DOE employee or a dedicated contractor, should be experienced in project management and should be technically qualified for such an assignment. This resident should ensure that the design activities and preparations for construction proceed efficiently and that required actions and decisions are made in a timely and expeditious manner. He/she should not interfere with the existing DCS responsibilities. The resident should report in writing to DOE management his/her assessment and recommendations for actions at frequent intervals (biweekly or monthly). At a later date a similar resident should be considered for the construction site.

4. The reviewers considered the design and construction schedules extremely optimistic. At this time there are still several important decisions to be made. Resolutions of open issues and decisions are required at the earliest possible date.

CONCLUSIONS AND RECOMMENDATIONS

1. Overconfidence on Cogema Design

The design and operation of the Aqueous Polishing (AP) and Mixed Oxide Process (MOX) facility of MFFF is based on the proven design, developed in France and Belgium. DCS depends on technology transfer by Cogema personnel, some of whom are working in Charlotte, NC. and the majority are located in France. However many changes are expected primarily because of "Americanization" to adopt US units rather than metric units, to use US standards in material, welding and other manufacturing methods and for consistency with US electric power systems. Other changes are due to the reduced throughput requirement of the US plant. Changes, even small ones, can have unexpected and deleterious effects on the performance of previously satisfactory equipment and processes. Changes detract from the confidence of successfully duplicating an existing facility and its performance.

Recommendations:

Changes should be restricted to an absolute minimum and all changes, no matter how small, should receive very careful and formal evaluations to preclude decrease in the probability of success. Success is defined as timely completion, trouble free, reliable operation, a high capacity factor and achieving the product requirements from the very beginning and throughout the life of the plant.

2. **Optimum Design and Procurement.**

While the facility design will be based upon the European facility, components and systems may be purchased from new suppliers. This introduces the possibility of subtle changes, which could adversely affect system performance.

Recommendations:

To ensure high confidence of success, important equipment and systems should be procured, to the extent possible, from original manufacturers of the equipment used in the French and Belgian plants. A review should be performed to determine the best way to procure the components and systems. This review should cover the entire spectrum of alternatives.

3. **Need for DOE Resident.**

The reviewers recognize that DOE has followed the DCS activities closely and that DOE personnel are cognizant of the design activities. However, the remaining design effort is extensive and a great deal of information is flowing from Cogema as part of technology and data transfer. It is expected that the level and pace of the design activities will increase. In addition delays and/or improper priority assignments can have deleterious impact on the design, construction, budget and schedule.

Recommendations:

It is considered important to assign a DOE resident at the DCS facility on an essentially full time basis. This person, a DOE employee or a dedicated contractor, should be experienced in project management and should be technically qualified for such an assignment. The resident should ensure that the design activities and preparations for construction proceed efficiently and that required actions and decisions are made in a timely and expeditious manner. He/she should not interfere with the existing DCS responsibilities. The resident should report in writing to DOE management his/her assessment and recommendations for actions at frequent intervals (biweekly or monthly). At a later date a similar resident should be considered for the construction site.

4. **Optimistic Schedule.**

The reviewers believe that the design and construction schedules are very optimistic and that it is unlikely these schedules can be achieved, unless additional actions are taken.

Recommendation:

DOE should arrange for an independent review of the remaining design work and its prioritization, the progress on resolution of outstanding issues and planned activities to ensure efficient and trouble free construction. This review should identify areas where improvement can be achieved. In addition the review should identify a realistic schedule.

5. **"Americanization"**

"Americanization" drives component and system changes and has a large impact on resources, schedule, design, product quality, etc. It is therefore essential to arrive at a clear understanding and agreement by DOE/DCS what "Americanization" changes are in the best interest of the Project, considering the status of the work.

Recommendations:

To supplement the recommendation (2) DOE/DCS should develop a clear definition of the scope of "Americanization". Based on this definition a specific list of changes, no matter how small, should be developed and documented with specific actions to ensure that the Project requirements will not be jeopardized by these changes.

6. **Security Requirements.**

Security Requirements are not only changing at this time, but there are differences between DOE and NRC requirements.

Recommendation:

DCS should analyze in detail all security requirements by DOE and NRC and the impact (cost, schedule, performance, etc.) on the Project. This should include changes presently being considered by DOE and NRC. The Project should obtain a formal agreement with NRC and DOE on the details of the security requirements.

7. **Safety.**

Safety is a primary concern in this project. During the review "Integrated Safety. Analyses (ISA)" were mentioned, but were not reviewed in detail. DCS management expressed concern about the large number of detailed safety related questions raised by the DCS staff during their preliminary safety reviews.

Recommendations:

Because of the importance of safety, particularly criticality, radiation exposure, fire, etc. in depth safety design reviews conducted at appropriate intervals by experienced project personnel are necessary. In addition the Project should assure that the design activities consider all safety issues and incorporate into the design necessary features to ensure safety. Assistance of selected and experienced independent, personnel should be obtained for these reviews. The reviews should be particularly sensitive to changes from the European prototypes. The design should deterministically consider "worst case" scenarios, wherever

possible (i.e. deterministic evaluations). This will facilitate answers to questions raised by Project, DOE and NRC safety assessments.

8. **The Cogema Information Interchange with DCS.**

A great deal of information passes from Cogema to DCS by residents, by visiting personnel and by documents. The review did not uncover a lack of information transfer, but there is a concern about the degree of formality and timeliness. There was no evidence of formal, ongoing and prompt transmission of information of (a) any unusual operating experience, (b) current issues relating to the operation of the European facilities, (c) concerns by the French regulator, if any and (d) of day to day communication of events, their impact and their resolution.

Recommendations:

There is a need for formal, written documentation of operational, maintenance and potential design issues as they are discovered in the European facilities, together with an analysis on the applicability to the ongoing DCS work for the US design. These items should be reviewed by senior management at appropriate intervals and tracked to satisfactory resolution.

9. **Constructability, Maintainability and Operability.**

DCS personnel discussed how Constructability, Maintainability and Operability reviews are conducted by DCS personnel during the 30% design reviews. The reviewers noted that there were no specific design requirements to stress the importance of these items.

Recommendations:

DOE should include specific constructability, maintainability and operability requirements into the design requirements documents and specific reviews of these design elements should be performed with formally documented findings, recommendations and actions. DCS personnel should become familiar with the planning and construction activities at the SRS Tritium Extraction Facility for potential application to DCS/MFFF..

10. **List of Procedures.**

The list of procedures is a good start in the development of a complete set of procedures; however, it is not complete.

Recommendation:

DSC personnel should expand the list to include procedures, which will be required at a later date, including procedures for construction, testing, operations, etc.

11. **Failure Analysis-Safety.**

It is evident that DCS has conducted some safety evaluations; however the reviewers concluded that additional safety analyses are required.

Recommendations:

Interfaces from geometrically "safe" to geometrically "unsafe" systems in the MFFF should be thoroughly evaluated for the provisions provided to prevent criticality and/or for the release of plutonium. Specific safety issues and features should be identified and evaluated. Also the automation systems should be evaluated for potential failures which could result in criticality issues or hazardous material release.

12. **Seismic Requirements.**

The seismic requirements are important in the design of the facility. The requirements are not identical to the design bases of other DOE facilities at the SRS.

Recommendation:

Although the facility will be licensed and hence be subject of NRC requirements and review, it is considered that the Project should obtain the Defense Nuclear Facilities Safety Board's (DNFSB) agreement with the seismic criteria used for the facility design.

13. **Design schedule (this supplements items 4 and 5 above)**

The reviewers did not evaluate the status of the design and the remaining work in detail. However based on discussions of the present status and the issues discussed in this report, in particular items 1 and 2, the amount of work to be completed in less than one year appears to be inconsistent with ability of DCS to complete same in a quality manner.

Recommendations:

A detailed review of the remaining work should be performed by experienced personnel with a mission to identify actions, which could optimize the efficiency of the remaining work. Examples are implementation of the recommendations in this report, assignment of work packages to Cogema or contractors, additional resources, consideration of methods to finalize important decisions and resolve issues more promptly, etc.

14. **Construction Schedule (this supplements item 4 above)**

The reviewers considered the construction schedule as optimistic, even considering the Project's emphasis on modular construction.

Recommendations:

A detailed review by experienced personnel should be conducted to determine practical methods to include margins in the schedule. Increased use of modular construction, of modular construction, recommendations 9,12,13 and 15 of this report and early design release of long lead items are suggested approaches by the reviewers.

15. **Fire Protection.**

DCS personnel expressed concerns about the practicability of meeting all perceived fire protection requirements. DOE and NRC requirements are not identical. In addition the design incorporates 360 different, independent fire areas.

Recommendations:

A review should be conducted of the approach being used to provide fire protection. Experts from DOE, NRC, Industry and Cogema should participate is this review. The objective of this review is to determine if the approach meets DOE and NRC requirements and if the concept can be simplified. Reducing the number of individual fire areas could possibly improve constructability and maintainability. NRC requirements must be met for licensing. However DOE should concur in the eventual design.

16. **Waste Handling.**

The specific requirements for waste handling have not been established. An off-site storage tank may be required. The resolution of waste handling issues may impact the schedule.

Recommendation:

DOE should finalize the waste handling requirements. The reviewers consider it important that the resolution of the waste handling issue should not, to the extent practical, impact the Environmental Impact Statement (EIS) schedule.

17. **Pit Disassembly and Conversion Facility (PDCF) Interface.**

There was evidence of delays in information transfer and/or decisions between PDCF and MFFF that could impact the MFFF design and schedule.

Recommendation:

DOE should improve the flow of information and ensure that PDCF is more responsive to MFFF project in defining feed stock specifications and provide other supporting information.

18. **Automation.**

The MFFF facilities are highly automated and the Project does not have personnel available with broad automation experience in addition to Cogema personnel. Therefore it is important that the Project has available personnel with experience in this field. This is also impacted by the potential use of equipment and systems, which are different from the European facilities.

Recommendations:

One or more outside consultant(s), experienced with a similar, automation project should be tasked to review the proposed automation systems and equipment. They should determine if the proposed systems can be procured, installed, maintained and operated effectively in the proposed applications.

19. **Interactions with DOE Defense Nuclear Facilities Safety Board (DNFSB).**

It is not clear to what extent the DNFSB has to be involved in DCS/MOX activities.

Recommendation:

To avoid confusion and potential delays, DOE should obtain an agreement with the DNFSB on the extent of the DNFSB involvement in the activities relative to DCS/MFFF design, construction and operations.

20. **DCS Risk Management.**

The DCS Risk Management activities have been focused on increasing the likelihood of meeting schedule, performance requirements, safety objectives, etc.

Recommendation:

The reviewers consider the process adequate for its intended purpose. No major refinements are needed at this time.

21. **Cogema Information related to MFFF.**

Successful duplication of an existing facility in another country with a different language, culture, measurement units, material standards, electrical grid values, etc. is very difficult. In recognition of these problems DOE arranged for the formation of a consortium, staffed with personnel to address these problems. Technology transfer is by documents and by the assignment to the DCS Project of knowledgeable Cogema individuals experienced in the design and operation of their facility. It is not clear if the staffing, location of personnel, supervision, documentation and communication are optimum for the success of this project. The next 12 months are particularly important to ensure the success of the project

Recommendations:

DOE should evaluate, with outside assistance, if required, (a) whether the Cogema personnel distribution between France and US is the proper one, (b) whether the Cogema assigned personnel are the best with appropriate experience and qualification for design and technology transfer, (c) whether all pertinent information is being made available to DCS in a timely and formal manner, (d) whether Cogema top management provides necessary and timely overview of the entire effort and (e) to what extent the Cogema recommendations are reviewed and implemented.

ATTACHMENT A

Reviewer's Resumes

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RESUME

Mr. Brodsky is President and founder of Nuclear Power Technology, Inc., a consulting firm specializing in all aspects of nuclear power application, including design, safety, operation, maintenance, and management. The firm's activities are primarily associated with utility applications, however, Mr. Brodsky also provides consulting services to the US Department of Energy. Activities include participation in engineering assessments at PWR and BWR reactor plants, participation in a number of nuclear plant upgrade programs, and serving on corporate nuclear safety boards for a number (7) of nuclear power plants. The upgrade activities include diagnostic assessments, corrective program development, and program follow. He has been Chairman of two corporate safety boards and in addition Chairman of Engineering, Quality, and Operations and Maintenance subcommittees of these boards. Other nuclear power activities have included membership in the Three Mile Island-2 (TMI-2) Technical Advisory Group, which was formed to provide guidance to GPU on issues related to defueling the damaged TMI-2 reactor, participation in a number of management and technical reviews of nuclear power plants, and membership on the B&W Owners Group Safety and Performance Improvement Program's Independent Advisory Board. He also served on Jason and the National Research Council Committees. DOE activities include participation in a safety review of the Russian satellite reactor power plant TOPAZ and Chairmanship of the Peer Review Group for the US Department of Energy's Plutonium Disposition Study. Activities also included serving as technical advisor to the DOE's New Production Reactor (NPR) Program and participating in an in-depth safety review of DOE-owned reactors after the TMI-2 incident. He is a member of an external technical advisory panel at Los Alamos National Laboratory.

He was a member of the Department of Energy's Naval Reactors Program from 1953 through August 1979. He held the position of Assistant Director for Reactor Safety and Computation. In that position he was responsible to the Director, Division of Naval Reactors for matters relating to safety in the design and operation of the Navy's shipboard nuclear propulsion plants, the Department of Energy's naval prototypes, and the Shippingport Atomic Power Plant. These responsibilities included the safety of design, core fabrication, operation, testing, maintenance, refueling, new and spent fuel shipping, and laboratory operations involving fissile materials. In carrying out these responsibilities he worked closely with the Nuclear Regulatory Commission, the Advisory Committee on Reactor Safeguards, and other federal and state agencies. In addition to these specific duties, he administered the Program's computing activities and was involved in the selection and advanced qualification of the Navy's reactor engineering personnel. Additional responsibilities included safety audits of contractors' facilities, operating ships, prototypes, and the Shippingport Atomic Power Plant.

Mr. Brodsky is a graduate of the Massachusetts Institute of Technology, where he majored in physics. 6/01

James M. Broughton
President

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Phone: 301-873-3287 or 301-258-1178

Professional Qualifications

Mr. Broughton is President of Applied Engineering Services, Inc, located in Gaithersburg, MD. Mr. Broughton provides technical, project management, and marketing and proposal development consulting services to industry and the Department of Energy. Mr. Broughton has more than 30 years of experience in developing, planning and executing nuclear programs for DOE and NRC, and in marketing and business development to the DOE and its site management contractors. The scope of his responsibilities have included strategic planning and analysis; resource planning and allocation; change control; systems engineering and project management; ensuring worker and public safety and environmental compliance; and simultaneously managing multiple Government and international programmatic interfaces while executing large, complex nuclear programs. In addition, he has had corporate responsibility for DOE market strategies and implementation, and teaming strategies and proposal development.

Education

BS/MS Mechanical Engineering, Colorado State University, 1970/1972

Experience

Mr. Broughton is currently providing technical, safety and management consulting support to the Nuclear Weapons Directorate (NW) at LANL, the DOE Office of Tritium Production, and Argonne National Laboratory - West. In this capacity at LANL, he was Chairman of the Technical Advisory Group (TAG) for the Materials and Manufacturing Program from 1997 to 1999, and is currently the Executive Secretary and member of a Blue Ribbon Safety Review Panel. He provides advice and consultation on (1) programmatic and project planning, and baseline assessment and validation, (2) establishing project management systems and infrastructure, (3) independent project design and/or readiness review and assessment, (4) independent safety review, (5) assessment of conduct-of-operations, and (6) mentors technical and project management staff.

Mr. Broughton founded and is President of Applied Engineering Services, Inc. providing engineering and project/technical management consulting support services primarily to the DOE complex. In addition to the LANL activities, he was a member of Peer Review Group for DOE's Office of Nuclear Energy's Nuclear Energy Security Program. He also provides project management and technical consulting services to DOE's CLWR Tritium Production Project including management and readiness assessments, and design reviews.

For approximately five years from 1992 until 1997 he was a senior manager and/or executive of several prominent Engineering and Construction Companies that provide environmental, engineering, construction, and technical support services to DOE and its contractors.

James M. Broughton

Experience *(Continued)*

At various times, he was responsible for developing and implementing the corporate DOE market strategy, teaming strategies and agreements, proposal win strategies and themes, and proposal development and orals preparation. This experience includes numerous technical support service and environmental remediation contracts for Halliburton NUS/ Brown & Root Environmental, the DOE's first Integrating Management Contract (IMC) at Rocky Flats with Parsons, and the Hanford IMC with ICF Kaiser.

Mr. Broughton is the former Deputy Director and Chief Engineer for DOE's New Production Reactors Program. The scope of this program included the design, construction, testing and startup, and requisite technology development to provide tritium production capability on a fast track with two different reactor types designed and constructed to NRC licensing standards. The Program also included the production of tritium using commercial light water reactors as a third alternative. In this capacity, Mr. Broughton developed and managed the life cycle cost, schedule, and milestone baseline for this $6-billion effort. He also had primary responsibility for the design of the NPR's systems and technology development, qualification, and integration; as well as the advanced safety, nuclear fuel, tritium targets, and operational concepts incorporated into the reactor designs. He ensured that technology development, design engineering, and construction elements were fully integrated. Mr. Broughton, also chaired the change control board; performed program and project management assessments; and technical progress and performance reviews to ensure the Program's technical and management excellence.

Mr. Broughton had numerous assignments at the INEL starting in 1972 through 1990 ranging from Engineer through Group Manager. He was Group Manager, Nuclear Reactor Research and Technology with responsibility for development and management of nuclear reactor safety programs including DOE Severe Accident Research Program, TMI-2 Accident Evaluation Program, OECD/LOFT Extended Analysis Program and Power Burst Facility (PBF) nuclear fuels safety research projects and tests. Responsibilities included program development and planning; establishing technical, cost, schedule, and milestones baselines; and test conduct, analysis and documentation of test/project results. Directed the technical activities of up to 100 senior scientists and engineers including foreign scientists and engineers. Managed budgets up to $26 million. Major accomplishments included; 1) design, fabrication, and qualification of specialized tools to de-fuel the core of TMI-2 reactor, 2) developed the TMI-2 accident scenario, 3) supported TMI-2 de-fueling and D&D operations, 4) completed all baseline milestones for the TMI-2 and LOFT extended analysis on schedule/within budget, 5) completed 20 NRC safety tests on schedule and within budget, 6) documented test results addressing NRC safety and regulatory concerns and issues, and 7) integrated activities between hot cells, reactor operations, and technical support efforts

James M. Broughton

Professional Development and Achievements

Author/Co-author of 60 technical papers and reports.
Special Training: Courses/seminars/workshops include - Managing Interpersonal Relationships, Quality Education System for the Individual, Self-Perception - A Profile Analysis, Creating High Performance Teams, The EG&G Manager, Personnel Management for Supervisors, Managing Quality Improvement, Two-Phase Flow Measurements, Equal Employment Opportunity, Management Skills, Two-Phase Flow and Heat Transfer, Experimental Methods in Thermoscience, Two-Phase Flow Phenomena, Management Work Conference Training, Precision in Technical Prose, LWR Fuel Rod Behavior, Government Program Management, Contract Administration for Technical Representatives, and Communication Under Pressure

Memberships: American Nuclear Society and the American Society of Mechanical Engineers

Security Clearance

DOE "Q"

BIOGRAPHICAL SKETCH OF HENRY E. STONE

(6805 Castlerock Drive, San Jose, CA 95120)
(Phone 408-268-4374, Email Hstone5190@aol.com)

Mr. Stone served 3 years during World War II with the US Army Engineers. He graduated summa cum laude with a BS degree in Mechanical Engineering from the University of Buffalo (now SUNY). He also obtained an MS degree in Engineering from Union College.

He joined GE in 1948 in the Engineering Test program and had training assignments in Aircraft Engines and High Speed Bearing Testing He joined the Knolls Atomic Power Laboratory in fluid flow, heat transfer and reactor shielding work. He held several supervisory positions in reactor safeguards and shielding of nuclear submarines. In 1958 he was appointed to a managerial position related to Power Plant Engineering and held this and similar positions until 1960. From 1960 until 1962 he was Manager of Plant Analysis and Mechanical Systems on an advanced submarine project. In 1962 he became Project Manager in charge of design, construction and testing of a land based prototype and a nuclear submarine plant of this advanced design. In 1968 he became General Manager of the Knolls Atomic Power Laboratory, responsible for the design, construction and testing of several naval reactor plant projects, including operation of full scale prototype naval nuclear plants and training of Naval personnel. In 1974 he was appointed Manager Nuclear Energy Operational Planning at the GE Nuclear Energy Division. In 1975 he was appointed General Manager Boiling Water Reactor Systems Department, responsible for development and design engineering activities. In 1977 he was appointed General Manager Nuclear Energy Engineering Division, responsible for boiling water reactor engineering, engineered equipment procurement and operation of the Vallecitos Nuclear Center. He was elected GE Vice President in April 1978. In 1984 he became Vice President and Chief Engineer.

Since March 1987 he has been a consultant to Electric Utilities (TVA, Boston Edison, Centerior Energy, Commonwealth Edison, Illinois Power and Southern California Edison). He did consulting work for Government Agencies (Super Collider, Department of Energy). He also served on Nuclear Safety Committees of Pressurized and Boiling Water Reactors (Sequoyah, Three Mile Island, Watts Bar, Browns Ferry, Pilgrim, Peach Bottom, Quad Cities, Clinton and Oyster Creek).

Mr. Stone is a Fellow of ASME and a member of ANS. He is also a member of the Tau Beta Pi Honorary Society. He was a licensed professional Engineer in New York State and California until late (2001) and in 1981 he was elected a member of the National Academy of Engineering. He received the Dean's Award for Engineering Achievement from the School of Engineering, University at Buffalo, State University of New York in 2001.

12/01.

ATTACHMENT B

ATTENDANCE LIST (part time)
DECEMBER 3-7, 2001

Name	Title	Organization
DCS*		
Bob Ihde	Project Manager	DCS / Cogema
Tommy Touchstone	Deputy Project Manager	DCS / Duke Engineering
Ed Brabazon	Deputy Project Manager	DCS / Stone & Webster
Alden Segrest	Equipment Design Manager	DCS / Duke Engineering
Michel DeDonder	Asst Process Design Manager	DCS / Belgonuclaire
Jean-Francois Weiss	Technical Advisor to FDG Mgr	DCS / Cogema-SGN
Bill Hennessy	Lead Nuclear Tech Engr.	DCS / Stone & Webster
Bob Foster	Criticality Engineer	DCS / Duke Engineering
Keyes Neimer	Asst Lead Nuclear Safety Engr	DCS / Duke Engineering
Charles Hinkel	Criticality Engineer	DCS / Duke Engineering
Joe King	Construction Manager	DCS / Stone & Webster
Jim Brackett	QA Manager	DCS / Duke Engineering
Frank Kania	Project Controls Manager	DCS / Stone & Webster
Mitch Laney	Procurement Manager	DCS / Stone & Webster
Gary Bell	Software Design Group Manager	DCS / Stone & Webster
Kenneth Bristol	Safeguards & Security Engineer	Nuclear Fuel Services
DCS* Duke Cogema Stone & Webster		
DOE OFFICE OF FISSILE MATERIAL DISPOSITION		
Joseph Francis	Field Office Engineer	DOE Savannah River Site
David Nulton	Director, Office of Reactors	DOE Headquarters.
Jamie Johnson**	MOX Engineer	DOE Headquarters
** Full time		

ATTACHMENT C.

AGENDA- DOE SENIOR CONSULTANTS REVIEW-DECEMBER 4-6, 2001.

Tuesday

Introduction – DCS Organization	RHI
Facility and Process, incl. Film	EJB, MDD, JFW
Americanization	EJB, AMS, WH
Lunch- Safety Discussions, Criticality, etc.	PSH, WMH
NRC Licensing	PSH
Program Status	EJB
Commonality	EJB

Wednesday

Construction/Modularization	JK
Project Management incl. Project Controls	RHI, FK
Design Process and Controls	EJB
Lunch – MC&A, Software QA	GAB
Independent Reviews DOE &DCS	RHI, EJB, AMS

Thursday

Issues and Approach to Resolution	
Risk Management Process	RHI, EJB
Design Questions	EJB
Safety and Licensing	TET, PSH
Operations and Misc. Questions	RHI
Exit Debrief	RHI, EJB

EJB (Ed Brabazon), RHI (Robert Ihde), MDD (Michael DeDonder), JFW (Jeff Weiss), AMS (Alden Segrest), WH (Bill Hennessy), PSH (Peter Hastings), FK (Frank Kania), GAB (Gary Bell), TET (Tommy Touchstone), JK (Joe King)

EXHIBIT 3

BREI-LSP-R-06-03

External Independent Review of the Mixed Oxide Fuel Fabrication Facility (MFFF) Project Critical Decision (CD) 2/3 Baseline: Performance Baseline (CD-2) and Start of Construction (CD-3) Review

for the

U.S. Department of Energy
Office of Engineering and Construction Management

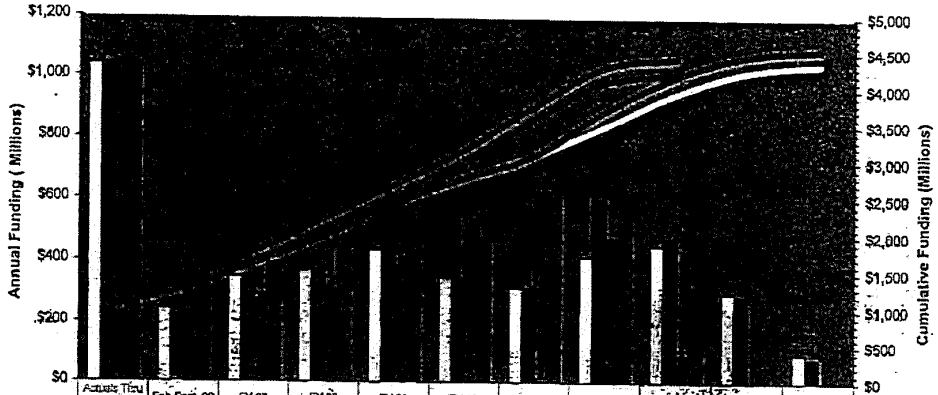
and

National Energy Technology Laboratory
Contract Order Number: DE-AD26-05NT42571

Submitted by
Burns and Roe Enterprises, Inc.
800 Kinderkamack Road
Oradell, NJ 07649
(201) 986-4254

Final Report
June 2006

Figure ES-1
MOX Fuel Fabrication Facility Funding Analysis (Millions)



	Actuals Thru Jan 06	Feb-Sept. 06	FY 07	FY 08	FY 09	FY 10	FY 11	FY 12	FY 13	FY 14	FY 15
85% Constr. Annual	$1,039	$244	$347	$369	$435	$345	$312	$414	$449	$296	$94
95% Constr. Annual	$1,039	$244	$347	$369	$435	$344	$312	$613	$473	$284	$78
85% Unconstr. - Annual	$1,039	$349	$290	$347	$404	$351	$624	$491	$108		
95% Unconstr. - Annual	$1,039	$349	$392	$450	$457	$475	$610	$525	$121		
85% Constr. Total	$1,039	$1,283	$1,630	$1,999	$2,434	$2,779	$3,091	$3,505	$3,954	$4,250	$4,344
95% Constr. Total	$1,039	$1,283	$1,630	$1,999	$2,434	$2,778	$3,090	$3,703	$4,176	$4,460	$4,537
85% Unconstr. - Total	$1,039	$1,388	$1,678	$2,025	$2,429	$2,981	$3,604	$4,095	$4,202		
95% Unconstr. - Total	$1,039	$1,388	$1,780	$2,230	$2,687	$3,163	$3,773	$4,298	$4,419		

Top-down estimate - The top-down estimate was developed for the seven units using industry guidance, Cogema experience, and DCS estimators with experience in the manufacturing process. DCS developed the crew mix and applied durations from the Integrated Project Schedule (based on the reference plant) and percent engagement for each craft to arrive at an estimated work-hour per discipline and estimate totals.

Validation – The top-down estimated labor hours were then compared to the bottoms-up estimated labor hours for the seven process units to establish they were within budgetary range.

Extrapolate the labor hours from the simplest units to the remaining units -
Following industry practice for estimating labor hours, three of simplest units (from the seven) were chosen to develop the total labor hours for all the remaining process units. The units chosen best represented a cross section of process units and are the Pellet Repackaging (PAD), Assembly Dry Cleaning (TCK), and Calibration (LET). Complexity factors (footprint or volume, quantity of PLCs, etc.) and weightings were applied to the units to extrapolate the labor hours for the other process units.

Findings and Observations
The EIR Team had one finding and three observations.

Findings

- **Finding BOC-1**
  Because no budgetary quotations were developed for the equipment, and the extrapolation methods were based on many designs that were less than 50% complete, the estimate methodology and approach poses some risk to the project.

  Recommendations:
  (1) Budgetary quotes should be obtained for a number of process units representing the entire population, to validate the DCS estimate, or

  (2) In light of the design complete status of process equipment, the cost estimates should be considered conceptual, instead of budgetary, and appropriate contingency applied.

Observations
The methodology appears comprehensive and detailed to arrive at the assembly cost for the craft and non-craft labor hours. However the following issues are noted that may pose some risk to the project:

- **Observation BOC-10**
  Much of the cost estimate information for the process units was limited with drawings and specifications not uniformly complete and not in advanced stage of design. For example, PAD, LET and TCK were only 10-50% complete. Also, some of the drawings required translation from the French.

- **Observation BOC-11**
  The estimate for the process units is heavily dependent on the estimators with experience and knowledge with these types of procurements (and inputs from others with manufacturing experience) and, as such, is subjective and may pose some risk to the project due to the design complexity and variation in the process unit designs.

licensing requests before submission to NRC. These reviews are in-depth and constitute independent external reviews.

The EIR Team concludes that the DCS hazards analysis process fully meets the requirements for performing hazards analyses and integrating hazards analysis into the design process. Although the DCS hazard analysis process does not include independent internal or external reviews, the DCS hazard analysis process does meet the requirements of its NRC-approved QA program. Furthermore, the NNSA review of documents submitted by DCS to NRC constitutes an appropriate level of independent external review.

The EIR Team identified no findings, two observations (HA-2 and HA-3), and one noteworthy practice related to this line of inquiry.

- **Review of Defense Nuclear Facilities Safety Board and/or Nuclear Regulatory Commission Interface and Issue Resolution**

The EIR Team found that there is not a direct DNFSB-MFFF project interface and there are no DNFSB issues related to hazards analysis to be addressed by the MFFF project. The NRC-DCS interface is one of regulator-license applicant, and DCS has resolved NRC review comments related to the Construction Authorization Request submission to the satisfaction of the NRC. The cognizant NNSA Safety and Licensing Engineer has indicated that DCS is responsive to NRC requests and issues. The EIR Team did not have any findings or observations regarding this line of inquiry.

The EIR Team discussed DNFSB and NRC interfaces with DCS and NNSA personnel to identify such interfaces. The results of these interviews indicated that there is no direct DNFSB interaction with DCS and no issues raised by DNFSB. However, DCS and NNSA personnel did indicate that DNFSB personnel had expressed interest in the MFFF and had raised questions with NNSA regarding DCS awareness of DNFSB findings at other DOE/NNSA sites. This evidence of DNFSB interest and/or questions about the MFFF was informally transmitted to DCS by NNSA, and DCS personnel indicated that they are familiar with DNFSB recommendations.

There is a regulator-license applicant relationship between NRC and DCS. Formal meetings have been held between DCS and NRC to discuss requirements and to resolve issues related to DCS submissions, and these meetings are typically attended by NNSA personnel. DCS personnel reported that the NRC has maintained an appropriate detachment from DCS personnel. Because the NRC has never licensed a MOX fuel fabrication facility, there is a need on the part of both the NRC and DCS to explore new regulatory ground. This "new ground" includes NRC regulation of chemical safety for hazardous chemicals derived from licensed materials as well as NRC requirements related to worker dose limits. NRC issues to date have come in the form of review comments on DCS submissions, and DCS has satisfied NRC issues as is evidenced by NRC approval of the DCS Construction Authorization Request.

The NRC-NNSA interface is primarily focused on safeguards and security issues, and the NNSA Safety and Licensing Engineer (NA261) is developing a Memorandum of Understanding between NNSA and NRC for this issue.

NNSA is forming a review team to review DCS submissions to the NRC – especially to ensure that the safety systems meet NRC requirements, to ensure consistency among the various tiers

Discussion

- **Reasonableness of Procurement Plans for Domestic Purchases and Foreign Supplied Equipment**

The EIR Team found the DCS plans for procuring equipment, materials, and systems to be reasonable and the approach for near-term (2006 – 2007) domestic purchases reasonable for the planned competitive procurements. DCS plans to award several sole source Basic Ordering Agreements (BOAs). A sole source is defined as the only supplier capable of meeting specified requirements within the time available, including emergency and other situations which preclude conventional planning and processing. The BOAs are contract vehicles that are set up to carry multiple task orders for specified items. Once awarded, the sole source BOAs will be designated as mandatory sources for DCS and its subcontractors to use in acquiring specified items. DCS has prepared justifications for the sole source BOAs. However, the recipients of sole source BOAs should be contractually required to verify favorable rates on a routine basis to ensure continued best value over the life of the agreements.

The EIR Team reviewed the estimating approach for the planned purchases and recommends that DCS obtain quotes where none have been used for the estimate. The EIR Team also found the approach and basis of the estimates for foreign supplied equipment to be reasonable, however, DCS uses an exchange rate of 1.08 Euros to the dollar and the exchange rate on May 19, 2006 was 1.275.

DCS has prepared and issued a procurement plan, MFFF Project Procurement Plan, Revision 2, March 2006, which addresses Process Unit procurement and Process Equipment procurement. DCS has documented its pricing model and has also prepared a market analysis of potential U.S. process equipment suppliers and subcontractors, "Market Analysis of Potential U.S. Process Equipment Suppliers/Subcontractors, Recommendation on Acquisition Strategy."

The DCS pricing model calculates estimated cost as the unit cost pricing multiplied by unit quantities. For labor, this becomes labor rates (burdened) multiplied by estimated hours and for materials, it becomes unit price multiplied by estimated quantity. There are four classifications of labor rates used to compute MFFF costs which are 1) construction labor, 2) process equipment manufacturing labor, 3) process equipment installation labor, and 4) professional services or management/oversight labor. The DCS lead estimator indicated that approximately 30% of the $1 billion cost estimate for the Option 1 construction estimate is supported by quotes from vendors and fabricators provided for estimating purposes.

This EIR Review Plan line of inquiry anticipated communication with domestic suppliers to determine the reasonableness of the estimates for planned domestic purchases. During the EIR process, the EIR Team was instructed not to contact any vendors because it could potentially "compromise the procurement process."

For Process Unit acquisitions, DCS has grouped process units by similarities which results in nine groupings of similar type units. The DCS plan is to have one Process Unit Group "self-performed" in France and the remaining eight to be competitively procured. For the self-performed acquisition, DCS will manage the planning, procurements, process unit assembly, testing, and delivery work. Based on the 2005 market survey, there are approximately 36 firms available to support the project, 15 of which were visited by DCS. The total cost of all nine Process Unit Groups is currently estimated to be $283 million ($257 million for hardware and

$26 million for Program Management). The Self Performed Process Unit Group cost is estimated to be $40 million ($38 million for hardware and $2 million for Program Management).

Process Unit Groups equipment and material were estimated using the following steps:

- A set of process units for each group in the procurement strategy was identified.
- For these reference process units, supplier budgetary estimate information was pursued for subassemblies, glove box frames and shells, fabricated parts, purchased parts, and other required components (i.e., equipment and material) that make up the process unit.
- This budgetary estimate information was utilized to establish the equipment and material cost for the reference process unit.
- This budgetary estimate information was also utilized to extrapolate, to the maximum extent possible, the equipment and material cost for other similar process units. This extrapolation was accomplished recognizing that other process units in that same functional area contain either identical equipment, similar equipment, or unique equipment.
- For identical equipment, the cost was established by multiplying cost by the adjusted equipment quantities; for similar equipment, the cost was established by comparison to the reference by multiplying cost by the adjusted equipment quantity and by an established multiplier (called extrapolation ratio) to reflect complexity and difficulty compared to the reference; and for unique equipment, the cost was established by a specific budgetary estimate solicitation.

Utilization of the DCS "Pricing Model" provides confidence that the cost estimates are reasonable.

A "make versus buy" analysis was conducted in 2005 that concluded, "It is in the best interest of the Government to take advantage of partner company experience to assemble the 13 process units [1 Process Unit Group]." The factors cited in the conclusion are: costs are less, risks are mitigated, DCS' core competency is fully utilized, transfer of experience from DCS in France to DCS in the U.S. is effective, and lessons learned will be effectively shared with US assemblers. Another reason cited by DCS to self-perform a Process Unit Group is to contractually bind the experienced and knowledgeable workers in France so that they will be available to train and consult to the other eight process unit group manufacturers in the U.S.

The equipment and long-lead items that support the process unit efforts are procured on competitive and sole source bases. The determination of sole source justification is based on DCS Procedure PP10-4, Single/Sole Source Justification. There are 22 sole source equipment long-lead procurements planned and five competitive long-lead procurements planned. The reason for the single/sole source procurements is that, to the extent possible, the Cogema designs are being replicated to ensure that the MFFF produces quality fuel assemblies and the DCS design team has identified the critical equipment and components in the process. For example, the single/sole source justification for the Osterwalder Pellet Press for homogenizing and palletizing process units was reviewed. Sixteen press manufacturers were identified and evaluated using the vendors' respective web sites. The Osterwalder presses were justified for a number of engineering and operational reasons including "proprietary data" and "exclusive/unique capability." The DCS procurement representative indicated that a cost/price analysis is prepared for every sole source procurement to ensure that the cost is fair and reasonable. A sampling of these analyses indicates the process is reasonable.

EXHIBIT 4

July 9, 2006

MEMORANDUM FOR: Linton F. Brooks
Administrator

FROM: Bruce Scott
Associate Administrator
Infrastructure and Environment

SUBJECT: Mixed Oxide Fuel Fabrication Facility
Contingency Analysis

As requested, I have conducted an analysis of contingency for the Mixed Oxide Fuel (MOX) Fabrication Facility. Although the initial contingency issue (a MOX Project proposal of 15% versus a recommendation by the Office of Engineering and Construction Management (OECM) of 25%) is resolved, there remains significant project risk. I am most concerned that incomplete project planning could lead to an unintended design-build-design process similar to that experienced by the Waste Treatment Plant and the Highly Enriched Uranium Materials Facility

The following table shows the recent improvements in contingency and management reserve which address your specific concern. This substantial increase is the result of acceptance and implementation by the MOX Project of the findings and recommendations of the recent OECM External Independent Review (EIR)..

Summary of Mixed Oxide Fuel Fabrication Facility Contingency

	Original DCS (MOX Contractor) Baseline	OECM EIR	New DCS Baseline
Management Reserve	$350M	$410M	$682M
Total Contingency	$514M	$780M	$874M
Total Project Cost	$4,345M	$4,697M	$4,592M
Management Reserve and % Contingency	13.4%	19.9%	23.5%
Total Project Cost to Go from March 2006	$3,720M	$4,072M	$3,967M
Management Reserve and % Contingency to Go from March 2006	16%	23%	28%

Contingency and management reserve for the design completed to date are now at an acceptable level, as shown by a comparison with similar NNSA/DOE projects in the attached table. MOX project contingency is higher than all but four of the projects listed. This contingency is based upon to-go costs for the MOX project at an 85% confidence level of successful project completion. Since project contingency is generally plotted as Probability versus Cost and results in an S-curve, buying confidence past the current 85% level would require a substantial increase in funding. It is noteworthy to remember, however, that several of the listed projects experienced significant increases from the baseline (CD-2) estimate. The Waste Treatment Plant cost change was over 100% and the Highly Enriched Uranium Materials Facility will be almost that.

The 1992 Rand Report "Improving Project Management in the Department of Energy" recommended that "DOE should establish contingency levels for each project based on acceptable risk, degree of uncertainty, and confidence levels for meeting baseline requirements" (1992 Rand Report, page 57). The MOX project has met this recommendation by developing the Estimate To Complete based on an 85% completed design, use of existing proven technology, completing a detailed Risk Assessment, and developing the contingency estimate corresponding to an 85% confidence level of completion for the design completed to date. There is a general contingency caveat, however, as the Report stated: "...not only did DOE projects cost roughly 40 percent more than comparable industrial projects (the "DOE tax"), they also overran their initial cost estimates by about 45 percent, indicating that DOE either has a problem controlling costs or a problem estimating costs."(1992 Rand Report, page 101). First-of-a-kind, new technology complex large scale projects typically carry contingency estimates in the 50%-100% range of the to-go cost.

While the MOX project has developed a seemingly adequate contingency estimate, this is strictly for the design completed to date and not the full MOX project. As the recent OECM External Independent Review states: "The 85% design review was not conducted on the complete (MOX project) design. An 85% design review was performed on the CP-20 package (only – see Design Review Schedule in attachment for the list of design packages/sub-projects not yet complete). Consequently, the DCS (contractor) and NNSA reviews conducted *do not meet the requirements of DOE Manual 413-1 ... and has high risk potential of increasing downstream costs and schedule*" (my italics). Resolution appears straightforward. An analysis should be conducted of each incomplete design to determine the critical integration aspects as it relates to the project as a whole. These aspects must then be carried to a level of maturity to clearly understand and mitigate any potential construction impacts from each incomplete design package/sub-project. Once identified and mitigated, this must be formally managed as a continuing process by both the Federal Project Director and Acquisition Executive.

Additionally, I have three significant observations from my review: Firstly, "Hot Startup" is not included as a requirement for project completion. Thus, we will spend some $5 billion to achieve a technically complex nuclear facility which can operate in a cold standby condition. Discussions with experienced federal Contracting Officers indicate that this situation is typical of federal procurement. Secondly, the current plan for

distribution of contingency/management reserve funds to the contractor differs from sound project management practices. Specifically, when the contingency estimate was increased by $360 Million, $332 Million was allocated to the DCS Contractor as Management Reserve even though there is no additional scope increase. A more appropriate allocation of the contingency would be something like a 50-50 split of the additional estimated amount between the DCS contractor's Management Reserve and the NNSA held Contingency. Finally, risk mitigation for the project's exposure to appreciation of the Euro for its foreign purchases and labor appears contrived. A review of the proposed approach by a Senior Procurement Executive experienced in such matters would seem appropriate fiscal diligence.

Should MOX go to Critical Decision 2? My counsel is that NNSA should not until these issues are adequately addressed.

Cc: Ken Baker, Principal Assistant Deputy Administrator
for Defense Nuclear Nonproliferation

1.08 $42 Million
1.26

May 1.275

Nuclear Facilities (footnotes in attachment)

Dollars in Millions

Project	Hot Start-up Included in TPC?	Contract Type	Data Source	Cost: Total Estimated Cost (TEC)	Cost: Other Project Cost (OPC)	Cost: Total Project Cost (TPC)	Contingency (Percent): TEC	Contingency (Percent): OPC	T
Mixed Oxide Fuel Fabrication Fac, SRS	No	CPIF	Initial Baseline: CD-2 (Proposed) [1]	$3,848	$744	$4,592	$781 (25%)	$93 (14%)	$ ($
Tritium Extraction Facility, SRS	Yes	M&O (WSRC)	Initial Baseline: Conceptual Design [2]	$323	$78	$401	$22 (7%)	$10 (15%)	$ (
			BCP #302: Title II [3]	$408	$98	$506	$48 (13%)	$12 (14%)	$ (1
			Estimate at Completion (CD-4 July '07) [4]	$408	$98	$506	-	-	
Highly Enriched Uranium Materials Facility, Y-12	N/A	M&O (BWXT)	Initial Baseline: CD-2 (Oct 2003) [5]	$212	$39	$251	$32 (16%)	$2 (5%)	$ (1
			Pending Revision: NA-10 IP/CR (May '06) [6]	$434	$56	$490	$67 (18%)	$8 (17%)	$ (1
Waste Treatment Plant, Hanford	Yes	BNI, WGI (CPIF)	Approved Baseline: 40% Design (Mar '03) [7]	-	-	$5,406	-	-	$ (1
			Estimate at Completion: 66% Design, 28% Construction (Dec '05) [8]	-	-	$10,538 [9]	-	-	$2 (3
Zheleznogorsk, Russia	N/A	CPA&IF	Initial Baseline: CD-2 (Feb 2006) [10]	-	$571	$571	-	-	$ (1
Seversk, Russia	N/A	CPA&IF	Initial Baseline: CD-2 (Dec 2004) [11]	-	$387	$387	-	-	$ (1
Spallation Neutron Source, ORNL, TN	N/A	M&O (ORNL)	Initial Baseline: Conceptual Design (1998) [12]	$1,160	$200	$1,360	$186 (19%)	-	
			Estimate at Completion: CD-4 (June 2006) [13]	$1,193	$219	$1,412	-	-	(
Defense Waste Processing Fac, SRS	Yes	M&O	Initial Baseline: Title I, 1982 (Estimated) [14]	$927	$423	$1,350	$162 (24%)	-	

Non-Nuclear Facilities (footnotes in attachment)

Project	Hot Start-up Included in TPC?	Contract Type	Data Source	Cost: Total Estimated Cost (TEC)	Cost: Other Project Cost (OPC)	Cost: Total Project Cost (TPC)	Contingency (Percent): TEC	Contingency (Percent): OPC	T
Superconducting Supercollider, Waxahachie, Texas	N/A	M&O (URA)	Initial Estimate: Conceptual Design Report, 1986 [15]	$5,913	$1,924	$7,837	$783 (15%)	$0 (0%)	$ (1
			Site specific Conceptual Design, 1990 [16]	$7,170	$4,652	$11,822	$1,215 (20%)	$507 (12%)	$1 (1
Microsystems and Engineering Sciences Applications Complex, SNL	N/A	FFP	Initial Baseline: CD-2 (Oct 2002) [17]	$463	$56	$519	$46 (11%)	$6 (12%)	$ (1
National Ignition Facility including, NIF Demonstration Program, LLNL	N/A	M&O (LLNL)	FY 2000 Budget Request: Title I Baseline [18]	$1,046	$153	$1,199	$79 (8%)	-	
			FY 2008 Budget Request: Rebaseline (Sep 2000) [19]	$2,095	$153	$2,248	$224 (12%)	-	
			NIF Quarterly Project Review, (Feb 2006) [20]	$2,095	$1,407	$3,502	$38 (2%)	$101 (8%)	$ (

Prepared 06/28/06

Design Review Schedule

Construction Package	Estimated Value (Millions)	Scheduled NNSA 85% Design Review	Recommend EIR Review (after NNSA)
CP 9 MP and BSR piping	$58.9	December 19, 2007	√
CP 10 Secured warehouse	$ 3.1		
CP 12 Electrical power and yard lighting	$ 4.7	April 19, 2007	√
CP 13 Landscaping	$ 0.3		
CP 14 Admin building	$ 6.4		
CP 15 Material receipt warehouse	$ 1.6		
CP 16 Tech support building	$ 5.4	November 16, 2006	√
CP 17 Diesel Generator Building	$ 2.8	September 25, 2006	√
CP 18 Emergency Diesel Generator Building, Including Standby Power	$11.4	October 2, 2006	√
CP 19 Reagent Building	$15.1	November 30, 2006	√
CP 21 Electrical	$59.2	September 26, 2007	√
CP 22 BMP Instrumentation	$78.8	November 20, 2008	
CP 23 MFFF HVAC	$44.3	October 31, 2006	√
CP 24 Glovebox installation	$45.6		√
CP 26 Fire Protection	$21.9	November 15, 2007	√
CP 27 AP Piping	$97.5	September 25, 2006	√
CP 28 AP instrumentation	$52.0	January 10, 2008	√
CP 30 PIDAS	$ 7.0	January 26, 2009	
CP 31 Security features II	$46.3	January 31, 2007	√
CP 32 Security integration	$25.8	January 31, 2007	
CP 37 Fork lifts	$ 0.5		
CP 45 HVAC Long lead	$14.2	July 14, 2006	√
CP 5 Roads and Parking	$ 6.7		
CP 6 Radwaste lines	$ 1.2		
CP 7 Underground electrical ductbanks	$ 6.8		
CP 8 Underground mechanical utilities	$ 3.6	October 2, 2007	

Prepared 06/28/06

Nuclear Facilities

[1] Sources: Summary of Mixed Oxide Fuel Fabrication Facility (MFFF) Revised TPC Baseline and Contingency, June 14, 2006 (Ref #1A) and Draft DCS Summary Cost Plan, June 12, 2006 (Ref #1B). Actual costs through March 2006: $625 million.

[2] Source: TEF Baseline Change Proposal #302, March 2003 (Ref #2A).

[3] Sources: TEF Baseline Change Proposal #302, March 2003 (Ref #2A) and data provided by Clay Ramsey (Ref #2B), Federal Project Director on June 14, 2006. The baseline change was due to scope additions (E-Area vault and seismic monitor scope), problems with extraction furnace development, higher than expected construction bids for the Rest of Plant (resulting in change to construction strategy), and delays in completing the Civil/Structural construction. Actual costs through March 2003: $190 million. The TEF contingency of $60M was developed at the end of Title II with some equipment prices and construction subcontract prices known.

[4] Source: Data provided by Clay Ramsey (Ref #2B), Federal Project Director on June 14, 2006. TEF is currently forecast to complete approximately $20M below the TPC baseline.

[5] Sources: FY 2005 Congressional Budget Request Construction Project Data Sheet (Ref #4A) and ESAAB briefing for Approval of Critical Decision 2, October 1, 2003 (Ref #4B). Actual costs through 2003: $43 million.

[6] Sources: FY 2007 Congressional Budget Request Construction Project Data Sheet (Ref #4C) and 2nd Quarter FY 2006 Quarterly Performance Review briefing, May 3, 2006 (Ref #4D). TPC increase due to approval of BCP-05-151 (facility bids higher than planned, critical foundation and safety issues) and changes identified in recent bottoms-up estimate-to-complete (incomplete design, Design Basis Threat, concrete/rebar, door manufacturer, testing/startup, and staffing). Actual costs through 2006 (estimated): $282 million.

[7] Source: December 2005 Estimate at Completion, Bechtel National, Inc. and Washington Group International, January 30, 2006 (Ref #5).

[8] Source: December 2005 Estimate at Completion, Bechtel National, Inc. and Washington Group International, January 30, 2006 (Ref #5). TPC increase due to regulatory changes (seismic and fireproofing requirements); technology issues; changes in labor rates and plant equipment and material pricing; changes in material quantities; lower than planned productivity; constrained funding levels, and comprehensive risk assessment. The EAC review team recommends DOE maintain an additional allowance of $1,760 million to address risks outside the current scope of this project. Actual costs through December 2005: $2,743 million.

[9] The total program cost of $10,538 million includes the EAC review team's recommended allowance of $1,760 million for technical and programmatic risks outside the current scope of the project.

[10] Sources: Approved Critical Decision 2 performance baseline data provided by NA-23, June 14, 2006 (Ref #6A) and DOE Project Assessment and Reporting System (PARS), July 1, 2006 (Ref #6B). Actual costs reported through May 2006: $61 million.

[11] Sources: Approved Critical Decision 2 performance baseline data provided by NA-23, June 14, 2006 (Ref #6A) and DOE PARS, July 1, 2006 (Ref #6C). Actual costs reported through November 2004: $19 million.

[12] Source: FY 2000 Congressional Budget Request Construction Project Data Sheet (Ref #10A). Contingency for Other Project Costs not identified. Cost To Go is based on TEC, not TPC. Actual TEC costs reported through 1998: $39 million.

Prepared 06/28/06

[13] Sources: FY 2006 Congressional Budget Request Construction Project Data Sheet (Ref #10B) and PARS, July 1, 2006 (Ref #10C). Actual costs reported through April 2006: $1,382 million.

[14] Source: FY 1984 Congressional Budget Request Construction Project Data Sheet (Ref #11). Contingency for Other Project Costs not identified. Cost To Go is based on TEC, not TPC. Actual TEC costs reported through 1983: $30 million.

Non-Nuclear Facilities

[15] Source: Independent Cost Estimate of the Superconducting Supercollider Project, September 1990 (Ref #3). The 1986 Conceptual Design Report cost estimate based on an average cost of representative site geologies (soft ground tunnel, hard rock tunnel, and cut and cover), not site specific. Universities Research Associates (URA) was the selected M&O contractor.

[16] Source: Independent Cost Estimate (ICE) of the Superconducting Supercollider Project, September 1990 (Ref #3). The ICE TPC includes several costs excluded from the previous estimate: prior years costs, costs associated with the DOE on-site project office, pre-operational costs, land costs, costs associated with initial spares, full costs associated with initial complement of detectors and the initial planning budget. Prior year costs (through 1990): $434 million.

[17] Sources: ESAAB Briefing for Critical Decision 2, Approve Performance Baseline, August 2002 (Ref #7A); DOE PARS, July 1, 2005 (Ref #7B); and the FY 2006 Congressional Budget Project Data Sheet (Ref #7C). Actual costs reported through October 2002: $65 million.

[18] Source: FY 2000 Congressional Budget Request Construction Project Data Sheet (Ref #8A). Contingency for Other Project Costs not identified. Cost To Go is based on TEC, not TPC. Actual TEC costs reported through 1999: $522 million.

[19] Sources: FY 2003 Congressional Budget Request Construction Project Data Sheet (Ref #8B) and GAO report: "National Ignition Facility, Management and oversight Failures Caused Major Cost Overruns and Schedule Delays", August 2000. The increase in the cost baseline was due to several factors: DOE's estimate did not include all research and development costs from other programs, inadequate budget construction cost contingency, and poor laboratory management and inadequate DOE oversight. Contingency for Other Project Costs not identified. Cost To Go is based on TEC, not TPC. Actual TEC costs reported through 2001: $1,033 million.

[20] Source: FY 2007 Congressional Budget Request Construction Project Data Sheet (Ref #9). Actual costs reported through FY 2005: $2,775 million.

Prepared 06/28/06

EXHIBIT 5

Department of Energy
National Nuclear Security Administration
MOX Integrated Project Division
Savannah River Site
P.O. Box A
Aiken, South Carolina 29802

MAY 09 2007

Mr. Walter Elliott
Vice President and Engineering Manager
Shaw AREVA MOX Services, LLC
Aiken, SC 29802

09-05-07 P03:38 IN

Dear Mr. Elliott:

Subject: Contract No. DE-AC02-99CH10888; MOX Fuel Fabrication Facility (MFFF); Review of Supporting CP20 Releases 2 and 3 Civil-Structural Design

Enclosed is the report documenting the recent NNSA review of the MFFF civil-structural design supporting CP20, releases 2 and 3. There were no findings from this review and the design packages were considered sufficiently complete to support the release 2 and 3 procurement actions. However, the report does note several areas where ongoing attention may be needed to minimize cost and schedule risk during construction.

The action taken herein is considered to be within the scope of the existing contract and does not authorize the contractor to incur any additional costs (either direct or indirect) or delay delivery to the Government. If the Contractor considers that carrying out this action will increase contract costs or delay any delivery, the Contractor shall promptly notify the Contracting Officer orally, confirming and explaining the notification in writing within ten (10) working days. Following submission of the written notice of impacts, the Contractor shall await further direction from the Contracting Officer.

If you have any questions, do not hesitate to contact Allison Blackmon at 803-952-5862.

Sincerely,

C. H. Ramsey

Clay H. Ramsey, PMP
Federal Project Director
MOX Fuel Fabrication Facility

NA-07-055

Enclosure

cc:
Butch Huxford, NA-262.1
Cindy Brizes, NA-262.1
James Stefanakos, NA-262.1
James Adair, MOX Services
Phil Kasik, MPR

NNSA Review Report
of
The MOX Fuel Fabrication Facility
CP20, Release 2 and 3 Civil-Structural Design

Approved by: Allison A. Blackmon
Allison A. Blackmon
NNSA Review Team Lead, NA-262.1

Table of Contents

1. Purpose

The purpose of this follow-up review of the final MOX Fuel Fabrication Facility (MFFF) civil-structural design was to:

- determine completeness of CP-20 design package
- review limited set of Release 2 and 3 design products for quality and completeness
- verify that actions from previous reviews were implemented in the design products as agreed to by NNSA and MOX Services

Emphasis was placed on the four areas where multiple comments were generated during the previous CP-20 package reviews.

- Grouping of small penetrations, and associated reinforcement
- Adequacy of reinforcement in short wall sections
- Constructability, with particular concern regarding glovebox embedment plate tolerances
- Adequacy of structural interfaces with other engineering areas (site, equipment, fire, etc.)

This review will also serve as the technical review to support the planned requests for subcontract consent for Release 2 and 3 procurement packages.

Second

2. Summary of Review Results

There were no findings from the review. However, there are areas that may add cost and schedule risk during title III and construction. MOX Services should continue to closely manage these areas to minimize the potential risk. Below is a summary of the primary conclusions from the NNSA Review Team.

1. Increased attention from management on detail and quality, better interface with other MOX Services construction and procurement organizations and a cultural shift focusing on the construction phase resulted in a "cleaner" design than seen in previous reviews.
2. The design package is sufficiently complete to support of the CP20 Release 2 and 3 procurement actions.
3. Additional design changes are anticipated as the equipment designs are finalized and the equipment is fabricated, primarily resulting in changes to penetrations and embedments. A large number of changes to embedment plates have been occurring and will continue to occur as the equipment group finalizes the design of gloveboxes, tanks, and process equipment. These changes are anticipated to occur until the time the equipment is installed.
4. A number design documents with the CP20 package contain items that need to be confirmed (TBC's), many of which are associated with loads that affect structural calculations and placement of embedments. Many are tied to the equipment design and will remain open until the equipment designs are finalized. MOX Services indicated that they have addressed this by applying a conservative equipment load during analysis and design.
5. The design contains areas with congestion of reinforcements associated with penetrations near walls or other penetrations. The review team is concerned that the items below will create additional risk related to constructability, inspections, and field changes within the project.
    a. If the design is constructed as indicated on the drawings, there could be issues associated with sufficient room for the concrete potentially creating a honeycomb effect and decrease in wall strength. To mitigate this issue and avoid rework during construction, MOX Services plans to create a test wall in the field to simulate these areas prior to construction.
    b. MOX Services' drawings lack rebar placement details. These details will be reviewed as the shop drawings are received. MOX Services has indicated that they intend to allow the CP-20 contractor flexibility to determine how these areas will be constructed. Additionally, MOX Services intends to have Title III engineers available to approve the field changes and process Engineering Change Requests. Where necessary, MOX Services engineers will assess these changes through use of their submodels to assure the construction is adequate for the facility design basis.
    c. The QA inspectors may have difficulty in conducting their inspections when the drawing detail doesn't reflect the actual construction, potentially resulting in additional delays to the CP-20 subcontractor. MOX Services plans to mitigate this by having Title III engineers available in the field.

3. Background

Construction Package #20 (CP20) is the primary structural subcontract for the MOX Fuel Fabrication Building (BMF), which includes the MOX Processing Area (BMP), Aqueous Processing Area (BAP) and Shipping and Receiving Area (BSR). The construction package has been divided into three sections, or releases, as described below:

- Release 1 -- BMF slabs plus BAP and BSR walls below ground level
- Release 2 – BPA and BSR slabs at ground level, BAP walls and slabs to 17'-6", BSR and BMP Level 1 and Level 2 slabs, and BSR walls below Level 2
- Release 3 -- Remainder of the building to structural roof slab

In early 2006, NNSA performed a review of the CP20 package as part of the CD2/3 reviews. This review was primarily focused on Release 1 products and related materials that affect the design of Release 1 structures and was documented in the *NNSA Review Report of the MOX Fuel Fabrication Facility CD2/3 Package, March 24, 2006.*

4. Design Review Process

The review team was composed of individuals whom had participated in previous NNSA design reviews. MOX Services provided the NNSA Review Team access to an eRoom containing the design products (drawings, specifications, calculations) associated with the CP20 release 2 and 3 packages. The review took place primarily over a two week period that culminated with a two day review team meeting at the MOX Services Silver Bluff office on March 21 and 22. The NNSA Review team recorded their comments in a database as they were generated. MOX Services was requested to provide responses to the comments which were accepted by NNSA. The specific comments generated from this follow-up review are included in Appendix A, Review Comment Table. Additionally, the review team validated whether or not comment responses from the previous March 2006 were implemented as agreed. If not, then a new comment was included in the set from this review. The design review process was documented in the MOX Fuel Fabrication Facility Design Review Plan and is included in Appendix B of this report.

5. Appendices

A. Review Comment Table

B. MOX Fuel Fabrication Facility Design Review Plan

MOX Fuel Fabrication Facility
Construction Package 20 Release 2&3
Design Review Comments

Comment ID	Document No	Document Title	Document Rev	Reviewer Initials	Section/Page	Comment	Resolution	Mandatory (Y/N)	Response Accepted (Y/N)	Confirm Req (Y/N)	Confirm Complete (Y/N)	Code
2	DCS01-BMF-DS-PLF-B-01352 SHT 1	General Notes Concrete	7	DJH	Note 10	Note 10 requires the equipment anchorage loads to be checked against the embedded plate load capacities before anchoring the equipment. If MOX Services is purchasing the equipment and reviewing the equipment for acceptability, it is not understood why the Constructor doing the installation has to check the equipment anchorage loads against the embedded plate load capacities. Checking of the equipment anchorage loads against the embedded plate load capacities sounds like MOX Services responsibility. The Constructor may not have all of the information unless it is provided by MOX Services.	MOX Services concurs and will remove the note from the drawing.		Y	Y		Comment Accepted – AAB
4	DCS01-BMF-DS-PLF-B-01353 SHT 1	Typical Details - Concrete	6	DJH	Additional Reinforcement at Openings	"c" is defined for the vertical and horizontal reinforcement from the face of the rectangular opening which is the critical section. "c" is not defined for the diagonal additional reinforcement from the critical section.	The length of the diagonal is defined on the drawings as L=2c such that a distance of 'c' is provided on each side of the potential crack.		Y	N	N/A	Comment Accepted- AAB
5	DCS01-BKA-DS-SPE-B-09325	Construction Specification Section 03051 Mixing and Delivering Quality Level QL-1a(IROFS) & Ql-2 Concrete	3	DJW	General	The specification for concrete mixes is not included in the set of documents given in the CP20 Release 2/3 bid package. Even though operation of the batch plant will be done by someone other than the CP20 contractor, the CP20 contractor still needs to be familiar with the specification because he is doing the concrete placement, and needs to be aware of the concrete mixes used on the job. The specification defines the concrete mixes - Type A (large aggregate) Type B (Normal), Type C (pea gravel), and Type D (Electrical Duct Bank) concretes.	Concrete spec 09325 for QL-1 & 2 concrete is referenced in note 1, Drawing BMF-01352, Rev 7. Both the spec and the drawing are provided in your review package.		Y	N	N/A	Comment Accepted - AAB

Comment ID	Document No	Document Title	Document Rev	Reviewer Initials	Section/Page	Comment	Resolution	Mandatory (Y/N)	Response Accepted (Y/N)	Confirm Req (Y/N)	Confirm Complete (Y/N)	Code
6	DCS01-BMF-DS-PLF-B-01353 SHT 1	Typical Details - Concrete	6	DJH	Section S3	The intent of the section is to show the additional reinforcement along the face of the openings. If the main wall reinforcement is placed or located such that it is in the additional reinforcement locations, clarify if the same amount of additional reinforcement is required. i.e. Two (2) corner bars are main reinforcement and the main reinforcement is #7@6" EF in a 48" thick wall. The additional amount of reinforcement is t/s = 48/6 = 8. The total number of #7's along the face of the opening is 8 + 2 = 10. OR i.e. Two (2) corner bars are main reinforcement and the main reinforcement is #7@6" EF in a 48" thick wall. The total amount of reinforcement is t/s = 48/6 = 8. The total number of #7's along the face of the opening is 8.	The additional reinforcing is indicated in Section S3 on drawing BMF-01353, Rev 6, sh 1 of 2 and is intended to be distributed at equal spacings, not to exceed the spacing of the main reinforcing, across the section of the wall. The corner diagonal bars are not shown for clarity in Section S3.		Y	N	N/A	Comment Accepted - AAB
7	DCS01-BMF-DS-PLF-B-0230 Sheet 2	MFFF BAP Area Concrete and Reinforcement Elevation 1	3	DJW	General	Mox Services has indicated that the 6.5 foot thick basemat will be constructed using two pours, with a horizontal construction joint between the pours. The concrete volumes on the pour schedules indicate that the first pour will be 4 feet, with a second pour will be 2.5 feet thick. This construction joint is not shown on the basemat drawings. Also, Mox Services indicated that dowels will be used between the pours. The dowels are not shown on the drawings. Note 1 - This is a general comment which affects many drawings besides the example listed above. Note 2 - This comment affects Release 1, rather that Release 2 & 3.	The detail for the horizontal joint is shown on drawing BMF-01352, Rev 5, sheet 2 of 2 included in your package. A section through the slab is shown on Section B-B as part of detail titled Partial Plan Standee/Dowel Placement.	Y	Y	N	N/A	Comment Accepted - AAB
8	Drawings	Concrete		DJH		Many of the penetration openings still appear to have minimal spacing for placement of reinforcement. This comment is a continuation of the previously performed review.	MOX Services recognizes the comment regarding the penetrations. The penetrations, like so many other items, are tied to the equipment size and location. As such, the penetrations are still somewhat evolving with the progression of the equipment design. Once the equipment design becomes locked-in, the penetrations will be adjusted accordingly.	Y	Y	N/A	N/A	Comment Accepted - AAB

Comment ID	Document No	Document Title	Document Rev	Reviewer Initials	Section/Page	Comment	Resolution	Mandatory (Y/N)	Response Accepted (Y/N)	Confirm Req (Y/N)	Confirm Complete (Y/N)	Code
9	General	N/A	N/A	DJW	N/A	During the CP20 reviews performed under the CD 2/3 assessment, DCS had indicated that painting the BMF structure, including floor coatings, were within the scope of CP20. During discussions with Mox Services (G.Sheppard & J.Adair), Mox Services stated that paintings & coatings of the CP20 structure were no longer within the scope of CP20. The basis for removing paintings and coating of the CP20 structure should be documented.	MOX Services believes it is in the best interest of the project to hold the painting until all of CP20 is complete and some of the larger equipment is in-place. Therefore, the painting was removed from the CP20 package.		Y	N/A	N/A	Comment Accepted-AAB
10	General	N/A	N/A	DJW	N/A	During the CP20 reviews performed under the CD 2/3 assessment, DCS had indicated that the Shipping & Receiving Dock Levelers were within the scope of CP20. During recent discussions with Mox Services (G.Sheppard & J.Adair), Mox Services stated that dock levelers are no longer within the scope of CP20. The basis for removing the dock levelers from the CP20 scope should be documented.	MOX Services is providing a blanket QA Program for all the CP20 subcontract to be accomplished under. This means that the subcontractors do not have their own NQA -1 program, and are prohibited from purchasing NQA-1 items. i.e. MOX Services will provide all NQA-1 items. The dock levelers are NQA-1 and therefore must be purchased by MOX Services. The dock levelers are to be installed in release 2 and there is ample time for its procurement.		Y	N/A	N/A	Comment Accepted-AAB
11	General	N/A	N/A	DJW	N/A	During the CP20 reviews performed under the CD 2/3 assessment, DCS had indicated that the Vent Stack, vent stack air mixers, and security barriers in the vent stack and HVAC intakes were within the scope of CP20. During recent discussions with Mox Services (G.Sheppard & J.Adair), Mox Services stated that the security barriers have been moved from CP20 to CP31 . The basis for removing the Vent Stack, air mixers, and security barriers from the CP20 scope and confirmation that they are within the CP31 should be documented.	The vent stack rests upon a raised pad at the roof level of the BMP near the SAS. The stack has been removed from CP20 and placed into CP31. This was done such that the CP31 subcontractor would then be totally-responsible for the stack and the placement of the gabion stones as well as the security roof slab and SAS.		Y	N/A	N/A	Comment Accepted - AAB

Comment ID	Document No	Document Title	Document Rev	Reviewer Initials	Section/Page	Comment	Resolution	Mandatory (Y/N)	Response Accepted (Y/N)	Confirm Req (Y/N)	Confirm Complete (Y/N)	Code
12	General	N/A	N/A	DJW	N/A	Mox Services has indicated that there will be a large number of embedment plate drawings for the CP20 structure. The eRoom contains 333 drawings, which are in-process drawings for Release 1 only. Mox Services (G. Sheppard and J.Adair) have indicated that many changes to embedment plates have been occurring as the equipment group finalizes the design of gloveboxes, tanks, columns, and other specialty equipment. They also indicated that they expect that changes will continue until the last minute (i.e. until the equipment is installed). The schedule for completing the Release 2 and 3 embedment plate drawings should be documented. It is recognized that changes to these drawings may become necessary to address equipment changes outside the scope of CP20. Mox Services has indicated that wherever possible, they are trying to design supports from available embedment plates already located on the wall to the equipment. This is generally the case for piping, cable trays, and other "standard" equipment. This approach may involve adding an extra support in some cases, but it reduces the number of design changes. It is more difficult to use this approach with specialty equipment. NNSA notes that the number of late changes increases costs and schedule risk.	MOX Services recognizes the concerns expressed by NNSA and is continuing to work towards providing accurate design information on the drawings such that the installation of the equipment and required connection can be accomplished. Whenever possible, MOX Services will use existing plates such that the addition of plates will be minimized.		Y			Comment Accepted - JHS

Comment ID	Document No	Document Title	Document Rev	Reviewer Initials	Section/Page	Comment	Resolution	Mandatory (Y/N)	Response Accepted (Y/N)	Confirm Req (Y/N)	Confirm Complete (Y/N)	Code
13	General	N/A	N/A	DJW	N/A	During the CP20 reviews performed under the CD 2/3 assessment, DCS had indicated that site dewatering and implementation of the site erosion & sediment control plan were within the scope of CP20. During recent discussions with Mox Services (G.Sheppard & J.Adair), Mox Services stated that this work has been removed from the scope CP20, because these functions will now be done by people within the Shaw group. This work will now be part of a site - support package that includes road maintenance, refuse removal, as other administrative tasks. DCS has indicated that one reason for this change is the fact that these site support services will continue not only through CP20 release 1, 2, and 3, but also through CP31 and other work packages until turnover. Since CP20 Release 1, 2, and 3, and the follow-on work packages could be performed by separate organizations, it seems more appropriate to have a single group perform these duties that continue until turnover. The basis for removing the site erosion & sediment control plan from the CP20 scope and confirmation that they are part of a site - support package should be documented.	MOX Services recognized the services would be on-going and required for the duration of the construction of the project. In order to provide the continuity required, MOX Services has negotiated an MOA with the Construction Support Services, a part of SHAW GROUP. The Construction Support Services was established just for this type of work and is more than capable to maintain the site dewatering system and erosion & sediment control plans.		Y			Comment Accepted - JHS
14	DCS01-XGA-DS-CAL-B-01106-1	Amplification Factors and Additional Design Considerations for Bending and Shear on Walls due to Door Openings and Penetrations	1	DJH		This calculation has been superceded by calculation DCS01-XGA-DS-CAL-B-01064-1 in it's entirety and previous revisions are applicable as referenced in other calculations. Calculation DCS01-XGA-DS-CAL-B-01064-1 provides the methodology and assumptions for the BMF finite element analysis and in Attachment D provides information about the explicit review of walls with openings. Amplification factors and design considerations are assumed to be in each submodel analysis of the walls based upon Attachment D. A review of calculation DCS01-XGA-DS-CAL-B-01078-1 shows only the results for the global reinforcement requirements. Based upon the calculation review, the submodel analysis does not appear to support the typical additional reinforcement details provided on drawing DCS01-BMF-DS-PLF-B-01353, Sheet 1.	The additional reinforcement shown on drawing BMF-01353 is not provided for strength. It is provided for crack control. MOX Services evaluated the submodel analysis versus the global analysis and found very good correlation between the two. This enabled MOX services to confirm the wall design with the actual openings represented in the submodel analysis (Reference DCS01-XGA-DS-CAL-B-01064-1 page D2 Explicit Review of Walls With Openings).		Y			Comment Accepted - JHS

Comment ID	Document No	Document Title	Document Rev	Reviewer Initials	Section/Page	Comment	Resolution	Mandatory (Y/N)	Response Accepted (Y/N)	Confirm Req (Y/N)	Confirm Complete (Y/N)	Code
15	General	N/A	N/A	DJW	N/A	NNSA has noted that a number of calculations and other documents within the CP 20 work package contain "TBC"s, or items that need to be confirmed. Many of these items are associated with loads that affect structural calculations. Even though these calculations often include margin on the preliminary loads, these items that need to be confirmed constitute risk to the design.	MOX Services' QA program requires a 'TBC' to be identified on all design documents requiring information to be confirmed as it becomes available. As in the case of the calculations, most of the 'TBC's are related to equipment information which is currently being developed. As 'TBCs' are identified, they will be entered into the ED-024 Confirmation Required Tracking Database for tracking resolution. MOX Services has taken steps to minimize the affect of the 'TBC' by applying a rather conservative uniform equipment load during the analysis and design of the facility. Much of the equipment has been developed to such a point that both the intensity and location of specific equipment loads are known. The embedments have been designed for these loads with a conservative margin of 10%, and are slightly oversized to account for slight variations in the placing of the attachment. The 'TBC' however, must remain in-place until such time that the actual loads are confirmed by the review of equipment shop drawings. MOX Services believes this approach minimizes the design risk to both the embedments and the placement of equipment attachments.	Y	Y	y		Comment Accepted - JHS

Appendix 2
Design Review Plan

MOX Fuel Fabrication Facility
DESIGN REVIEW PLAN

Construction Package CP20 (Release 2-3)
Structural Design of the MOX Fuel Fabrication Facility Building (BMF)

PREPARED: Allison Blackmon
Allison Blackmon, CP20 Review Team Lead

APPROVED: C. H. Ramsey
Clay Ramsey
Federal Project Director

February 20, 2007

CP20 RELEASE 2&3 DESIGN REVIEW PLAN
Structural Design of the MOX Fuel Fabrication Building (BMF)

1. Background:
Construction Package #20 (CP20) is the primary structural subcontract for the MOX Fuel Fabrication Building (BMF), which includes the MOX Processing Area (BMP), Aqueous Processing Area (BAP) and Shipping and Receiving Area (BSR). The construction package has been divided into three sections, or releases, as described below:

- Release 1 - BMF slabs plus BAP and BSR walls below ground level
- Release 2 - BPA and BSR slabs at ground level, BAP walls and slabs to 17'-6", BSR and BMP Level 1 and Level 2 slabs, and BSR walls below Level 2
- Release 3 - Remainder of the building to structural roof slab

During the period of February-March 2006, NNSA performed a review of the CP20 package as part of the CD2/3 reviews. This review was focused on Release 1 products and related materials that affect the design of Release 1 structures.

1. Purpose:
The focus of this follow-up review will be on design products associated with CP 20 Releases 2 and 3 and not included in previous reviews. The detailed objectives of this review are to confirm that:

- The design meets the requirements as established in the contract Statement of Work, Construction Authorization Request, Design Requirements Document, applicable Basis of Design Documents, and other requirements documents,
- The design is functionally and technically complete and correct,
- Key interfaces with other engineering areas (site, equipment, fire etc.) have been addressed,
- Previously identified technical issues are resolved,
- The design will function as intended, and
- IROFS are correctly identified.

Emphasis will be placed on the four areas where multiple comments were generated during the previous CP-20 package reviews.

- Grouping of small penetrations, and associated reinforcement
- Adequacy of reinforcement in short wall sections
- Constructability, with particular concern regarding glovebox embedment plate tolerances
- Adequacy of structural interfaces with other engineering areas (site, equipment, fire, etc.)

2. Scope:
The design review will consist of sample and vertical slice reviews of drawings, calculations, specifications, and supporting documents associated with CP20. MOX Services will be asked to provide to NNSA the complete CP-20 Release 2 and 3 design packages and supporting documents.

3. Design Review Process:
This design review will build on previous reviews, and shall consist of a "vertical slice" sampling approach rather than a detailed review of each design document. If potential areas of concern arise during the review, focused reviews to determine the extent of condition will be performed.

All comments will be reviewed and approved by the team lead or designee and recorded in a database. The database will include unique comment identifiers, the reviewer's name, the document reviewed, the comment, and an indication of whether comment resolution is mandatory or not.

MOX Services will provide a written proposed resolution for all mandatory comments. After DOE approval, MOX Services will implement the accepted resolution. Resolution of non-mandatory comments is optional, and does not require DOE acceptance.

4. Review Team:
The Review Team will consist of the following members.

Allison Blackmon, NA 262.1, Review Team Lead
James Stefanakos, NA 262.1
Dave Werder, MPR
Dave Huizenga, WSRC

5. Review Schedule:
The Design review will be conducted according to the following schedule.

Complete package available to reviewers	February 21
Preliminary comments to MOX Services	February 26
Convene 2-day review at SRS	February 28 – March 1
Final report	March 9

6. Design Review Report

Upon completion of the design review, a report will be prepared consisting of an executive summary, description of the review approach and process, an overall summary and conclusions, and any recommendations resulting from the review. In addition, the review comments will be attached to the report. All unresolved comments will require written response from MOX Services.

EXHIBIT 6

TOLLING AGREEMENT

This TOLLING AGREEMENT ("Agreement") is made and entered into this 22nd day of February 2017, (hereinafter, the Effective Date of this Agreement) by and between the National Nuclear Security Administration ("NNSA"), and CB&I AREVA MOX Services, LLC ("MOX Services"), through the undersigned. Collectively, the NNSA and MOX Services are referred to as the "Parties."

WHEREAS, MOX Services is aware that the NNSA contracted with CohnReznick LLP to perform an incurred cost audit for all costs incurred by MOX Services for its fiscal year 2010;

WHEREAS, the NNSA has informed MOX Services of the NNSA's view that CohnReznick is not able to form an opinion (or qualify its opinion) as to the allowability of certain costs for fiscal year 2010 at this time;

WHEREAS, the NNSA and MOX Services in connection with the 2010 incurred cost audit wish to allow CohnReznick additional time to analyze data and to obtain additional information relevant to the incurred cost audit from MOX Services;

NOW, THEREFORE, in order to allow the Parties sufficient time to address any potential claims or any questioned costs, whether currently known or unknown, arising from or relating to all costs incurred by MOX Services during its fiscal year 2010 and the audit of such costs ("Potential Claims and/or Questioned Costs"), and in consideration of the mutual covenants herein, the NNSA and MOX Services agree as follows:

1. All limitations periods or repose periods which may be applicable to the Potential Claims and/or Questioned Costs, including but not limited to that of the Contract Disputes Act of 1978 (41 U.S.C. §7103(a)(4)) and that of the False Claims Act (31 U.S.C. 3731(b)), are hereby tolled from the Effective Date of this Agreement through August 31, 2017 ("Tolling Expiration Date").

2. It is expressly understood and agreed that MOX Services does not hereby waive any defenses, including but not limited to statute of limitations, laches, or other similar defense,

relative to the Potential Claims and/or Questioned Costs or any legal proceeding that may arise therefrom, except that, as set forth in paragraph 1 herein, in computing the running of time for any such defense, MOX Services will not assert or rely upon in any way the period described in paragraph 1.

3. MOX Services shall have 60 days to respond to the final draft audit report ("MOX Services Draft Audit Response Period"), which time period shall commence to run following the later of the completion of the audit exit conference and Cohn Reznick's delivery to MOX Services of a final draft audit report. NNSA shall have 30 days ("NNSA Evaluation Period") to complete its evaluation of MOX Services response following MOX Services Draft Audit Response Period. In no event shall the Contracting Officer's Final Decision be issued until the later of the Tolling Expiration Date, or the expiration-in-time of both the MOX Services Draft Audit Response Period and NNSA Evaluation Period. The Parties agree that if the Tolling Expiration Date has elapsed before the expiration-in-time of the MOX Services Draft Audit Response Period and NNSA Evaluation Period, then the Tolling Expiration Date shall be that date on which the NNSA Evaluation Period expires.

4. This Agreement may be modified only by a writing signed by both the Parties.

5. The undersigned represent they are authorized to enter into this Agreement.

DATE: 22 Feb 17

By: Paul Whittingham

Paul Whittingham

Its: Contracts Manager

ON BEHALF OF CB&I AREVA MOX SERVICES, LLC

DATE: 2/22/17

By: Lance Nyman

Lance Nyman

Its: Lead Administrative Contracting Officer

DATE: 2/22/17

By: M. Noone

Mary-Ellen Noone

Its: Site Counsel

ON BEHALF OF THE NATIONAL NUCLEAR SECURITY ADMINISTRATION

FIRST AMENDMENT TO TOLLING AGREEMENT

This FIRST AMENDMENT to the TOLLING AGREEMENT, executed February 22, 2017, (hereinafter the "First Amendment") is made and entered into this 17 day of April 2017, (hereinafter, the Effective Date of this First Amendment) by and between the National Nuclear Security Administration ("NNSA"), and CB&I AREVA MOX Services, LLC ("MOX Services"), through the undersigned (collectively, the NNSA and MOX Services are referred to as the "Parties") and sets forth the Parties agreement to amend the Tolling Agreement as follows:

The following language from the 22 February Tolling Agreement shall be deleted:

"3. MOX Services shall have 60 days to respond to the final draft audit report..."

The deleted text shall be replaced with the following:

"3. MOX Services shall have 46 days to respond to the final draft audit report..."

All other terms and conditions of the Tolling Agreement remain the same and continue to be in full force and effect, including the Expiration Date of the Tolling Agreement of August 31, 2017.

The undersigned represent they are authorized to enter into this Agreement.

DATE: 17 Apr 17

By: Paul Whittingham R. Norton

Its: Contracts Manager

ON BEHALF OF CB&I AREVA MOX SERVICES, LLC

DATE: 4/17/17

By:

Lance Nyman

Its: Lead Administrative Contracting Officer

DATE: April 17, 2017

By:

Mary-Ellen Noone

Its: Site Counsel

ON BEHALF OF THE NATIONAL NUCLEAR SECURITY ADMINISTRATION

SECOND AMENDMENT TO TOLLING AGREEMENT

This SECOND AMENDMENT to the TOLLING AGREEMENT, executed February 22, 2017 and as amended April 17, 2017, is made and entered into this 28th day of August 2017, by and between the National Nuclear Security Administration ("NNSA"), and CB&I AREVA MOX Services, LLC ("MOX Services"), through the undersigned (collectively, the NNSA and MOX Services are referred to as the "Parties") and sets forth the Parties agreement to further amend the Tolling Agreement as follows:

The following language from the Tolling Agreement shall be deleted:

> "1. … are hereby tolled from the Effective Date of this Agreement through August 31, 2017 ("Tolling Expiration Date")."

The deleted text shall be replaced with the following:

> "1. … are hereby tolled from the Effective Date of this Agreement through October 4, 2017 ("Tolling Expiration Date")."

All other terms and conditions of the Tolling Agreement remain the same and continue to be in full force and effect, including the language in paragraph 1 that was not deleted.

The undersigned represent they are authorized to enter into this Agreement.

DATE: 30 August 2017

By: Paul Whittingham

Paul Whittingham
Its: Contracts Manager

ON BEHALF OF CB&I AREVA MOX SERVICES, LLC

DATE:_____

By:_____

Lance Nyman
Its: Lead Administrative Contracting Officer

DATE:_____

By:_____

Mary-Ellen Noone
Its: Site Counsel

ON BEHALF OF THE NATIONAL NUCLEAR SECURITY ADMINISTRATION

THIRD AMENDMENT TO TOLLING AGREEMENT

This THIRD AMENDMENT to that TOLLING AGREEMENT, executed February 22, 2017 and as amended by the First and Second Amendments thereto, is made and entered into this 28th day of September 2017, by and between the National Nuclear Security Administration ("NNSA"), and CB&I AREVA MOX Services, LLC ("MOX Services"), through the undersigned (collectively, the NNSA and MOX Services are referred to as the "Parties") and sets forth the Parties' agreement to further amend the Tolling Agreement as follows:

The following language from the Tolling Agreement as Amended by the Second Amendment shall be deleted:

> "1. … are hereby tolled from the Effective Date of this Agreement through October 4, 2017 ("Tolling Expiration Date")."

The deleted text shall be replaced with the following:

> "1. …are hereby tolled from the Effective date of this Agreement through December 4, 2017 ("Tolling Expiration Date")."

All other terms and conditions of the Tolling Agreement remain the same and continue to be in full force and effect, including the language in paragraph 1 that was not changed.

The undersigned represent they are authorized to enter into this Agreement.

DATE: 28 Sept 17

By: Paul Whittingham

Paul Whittingham

Its: Contracts Manager

ON BEHALF OF CB&I AREVA MOX SERVICES, LLC

DATE: 9/28/17

By: Lance Nyman

Lance Nyman

Its: Lead Administrative Contracting Officer

DATE: 9/28/17

By: M. Noone

Mary-Ellen Noone

Its: Site Counsel

ON BEHALF OF THE NATIONAL NUCLEAR SECURITY ADMINISTRATION

EXHIBIT 7

[REDACTED]

EXHIBIT 8

[REDACTED]

EXHIBIT 9

[REDACTED]

EXHIBIT 10

CB&I | AREVA
MOX SERVICES, LLC

Mr. Lance Nyman
Lead Contracting Officer
US Department of Energy, NNSA
Savannah River Site Office
P.O. Box A
Aiken, SC 29802

30 August 2017

DCS-DOE-005825

Response Required: No
Response Required By: N/A

SUBJECT: **Contract No. DE-AC02-99CH10888, MOX Fuel Fabrication Facility Project, Tolling Agreement Second Amendment**

Reference:
(1) NNSA Letter NA-APM-17-0288, dated 29 August 2017
(2) MOX Services Letter DCS-DOE-005812, dated 17 August 2017
(3) Norton to Nyman e-mail dated 28 August 2017 @9:35 A.M. (2010 ICA Tolling Agreement Extension)

Dear Mr. Nyman:

CB&I AREVA MOX Services, LLC ("MOX Services") responds to your letter [(Reference (1)]. While MOX Services will execute the tolling agreement extension through 4 October 2017 (attached), MOX Services reiterates its concern that the Contracting Officer (CO) is not fairly considering all the factors affecting a reasonable time to negotiate and resolve the questioned costs.

In NNSA's letter and presumably for those same reasons mentioned at the meeting on 28 August 2017 between the parties, you disagree with the Department of Defense's belief that a six (6) month timeframe is reasonable for the CO and Contractor to negotiate the conclusion of an incurred cost audit following the auditor's final report.

The DoD's instruction on this issue states, "The DoD contracting officer, consistent with the authority and responsibilities described in section 1.602 of the Federal Acquisition Regulation, resolve reportable audit reports within 6 months of report issuance unless another regulation or policy provides for a shorter timeline…The Contracting Officer shall, in accordance with FAR 1.602-2(b), ensure that Contractors receive impartial, fair and equitable treatment."[1] FAR 1.602-2(b) requires NNSA and those who work at NNSA's direction to treat MOX Services fairly, impartially and equitably. CohnRenzick's final audit report is ambiguous as to the total costs ultimately under question. In fact, at the 28 August 2017 meeting NNSA implied that it would consider additional costs not questioned in the final audit report. Therefore, the costs actually under question remain unknown to MOX Services prior to the parties engaging in a negotiation that, by NNSA's edict, must conclude on 4 October 2017. MOX Services questions whether

[1] Department of Defense Instruction 7640.02, Policy for Follow-Up on Contract Audit ReportsDefense Contract Management Agency Instruction (DCMA-INST 125), Final Overhead Rates states in Chapter 3, Procedures: 3.6.2.1. The ACO shall not make a final decision on any questioned costs until obtaining adequate documentation from the contractor. Pursuant to FAR 42.705-1(b)(4), the ACO shall obtain DCAA's follow-up opinion on the allowability of the costs after their review of the additional documentation provided by the contractor.

P.O. Box 7097, Aiken, SC 29804-7097 – Savannah River Site, 706-5F, Aiken, SC 29808
Phone 803-819-2000, Fax 803-819-2461

NNSA is compliant with FAR 1.602-2(b) in threatening a CO Final Determination on unknown questioned costs unless MOX Services agrees to an unreasonable negotiation deadline that MOX Services has stated is inadequate [see Reference (1)].

CohnReznick began its FY2010 audit in November 2016 and concluded with a draft "preliminary" audit report that they did not have sufficient time to complete their audit before the statute of limitations would run on any claims arising from those costs. MOX Services agreed to the initial Tolling Agreement in consideration for, among other things, adequate time to discuss questioned costs and resolve any potential claims. The parties established 31 August 2017 as the presumptive end of that time. CohnReznick's draft audit report issued to MOX Services four months later increased significantly to ~$83M in questioned costs or roughly one third of all costs submitted to NNSA for FY2010. The bulk of the newly identified costs arose in areas not previously addressed by CohnRezick in its expeditiously prepared preliminary report. Throughout this process, MOX Services has timely and fully responded to the auditor's requests for information and any questions or concerns in an effort to assist both NNSA and the auditor to conclude the audit. At the time that MOX Services agreed to a the 31 August 2017 date MOX Services fully expected that the issues raised in the preliminary audit report would be resolved given the extension of time as indicated by NNSA. MOX Services would again remind NNSA that the prior incurred cost audits for FY2003, 2008 and 2009 resulted in zero ($0.00) questioned costs for the same audit scope. For FY2004-2007 DCAA conducted a risk assessment and concluded that these years were considered low risk periods given past performance. This analysis was accepted by NNSA and no audits were conducted.

Thus, when the initial tolling agreement was negotiated in February 2017 and established 31 August 2017 as the presumptive end of that period—MOX Services forewent the protection of an extraordinary defense in consideration for the opportunity to resolve any questioned costs or potential claims that may arise from the audit.

CohnRenzick returned a final audit report (dated 17 August 2017) to NNSA who did not deliver it to MOX Services until 28 August 2017, the date NNSA unilaterally expected to start negotiations; and only three days prior to the date NNSA stated, regardless of negotiations, it would issue its final determination. Again, MOX Services was not afforded the opportunity to prepare or even understand what the issues were for negotiation and could not have predicted the final audit report outcome based on its experience in the prior FY2003, FY2008 and 2009 audits—performed by a Federal audit agency.

In addition to CohnReznik's audit reports, NNSA has informed MOX Services that it intends to not only delve into those areas identified by the auditor in its final report, but also will independently review other costs outside the auditor's final report. MOX Services respectfully reminds NNSA that the tolling agreement only tolls the statute of limitations relating to questioned costs included in the FY2010 incurred cost audit.

MOX Services provided in Reference (2) & (3) reasonable grounds to assist NNSA in setting an adequate negotiation period which would allow the parties to attempt to resolve the many issues raised in the final audit report. The Contracting Officer summarily dismissed MOX Service's

reasonable attempt to set an adequate negotiation timeframe and issued his Reference (1) which expressly limits the parties to 34 calendar days to: understand the issues; negotiate the questioned costs; allow NNSA's consideration of those negotiations, including additional information the Contractor may provide and any additional review NNSA may seek from the auditor of additional information; and, for NNSA to prepare a FAR compliant Final Contracting Officers Decision on any unresolved questioned costs.

Finally, NNSA's inability to resolve short-pay matters or provide approval to issue subcontract awards in six months or less, is further evidence that NNSA has not left itself adequate time to resolve the 2010 incurred cost audit pursuant to established practice and compliant with NNSA's obligation to treat MOX Services in good faith.

In the context of the foregoing, and reserving any and all rights, MOX Services encloses herewith the executed tolling agreement extension as demanded by Reference (1). In an effort to assist NNSA in its obligations and compressed timeframe, MOX Services requests that NNSA immediately, but no later than 5:00 p.m. EDT 5 September 2017, provide MOX Services the identity of NNSA's negotiation team, any additional information that NNSA intends to consider in negotiations that are not listed in the CohnReznik Final Audit Report and agenda for negotiations to commence and conclude before 4 October 2017.

If you have any questions or need any additional information regarding this subject please don't hesitate to contact the undersigned at 803-819-8654

Sincerely,

Paul Whittingham
Contracts Manager
CBI AREVA MOX Services, LLC

Attachment: Second Amendment to 2010 ICA Tolling Agreement

cc:

NNSA	MOX
S. Cannon	D. Del Vecchio
S. Hamlett	G. Rousseau
A. Rischbieter	L. Wylie
M. Noone	C. Hicks
MOXPMODCA@srs.gov	R. Norton
	K. Saunders
	EDMS

P.O. Box 7097, Aiken, SC 29804-7097 – Savannah River Site, 706-5F, Aiken, SC 29808
Phone 803-819-2000, Fax 803-819-2461

SECOND AMENDMENT TO TOLLING AGREEMENT

This SECOND AMENDMENT to the TOLLING AGREEMENT, executed February 22, 2017 and as amended April 17, 2017, is made and entered into this 28th day of August 2017, by and between the National Nuclear Security Administration ("NNSA"), and CB&I AREVA MOX Services, LLC ("MOX Services"), through the undersigned (collectively, the NNSA and MOX Services are referred to as the "Parties") and sets forth the Parties agreement to further amend the Tolling Agreement as follows:

The following language from the Tolling Agreement shall be deleted:

> "1. … are hereby tolled from the Effective Date of this Agreement through August 31, 2017 ("Tolling Expiration Date")."

The deleted text shall be replaced with the following:

> "1. … are hereby tolled from the Effective Date of this Agreement through October 4, 2017 ("Tolling Expiration Date")."

All other terms and conditions of the Tolling Agreement remain the same and continue to be in full force and effect, including the language in paragraph 1 that was not deleted.

The undersigned represent they are authorized to enter into this Agreement.

DATE: 30 August 2017

By: Paul Whittingham

Paul Whittingham
Its: Contracts Manager

ON BEHALF OF CB&I AREVA MOX SERVICES, LLC

DATE:_____

By:_____

Lance Nyman
Its: Lead Administrative Contracting Officer

DATE:_____

By:_____

Mary-Ellen Noone
Its: Site Counsel

ON BEHALF OF THE NATIONAL NUCLEAR SECURITY ADMINISTRATION

EXHIBIT 11

Department of Energy
National Nuclear Security Administration
MOX Project Management Office
Savannah River Site
P.O. Box A
Aiken, South Carolina 29802

December 4, 2017

Mr. Rex Norton
Vice President, Contracts and Supply Chain Management
CB&I AREVA MOX Services, LLC
Savannah River Site
P.O. Box 7097
Aiken, SC 29804-7097

SUBJECT: Contract No. DE-AC02-99CH10888, Fiscal Year 2010 Incurred Cost Claim—Contracting Officer's Final Decision (COFD)

REFERENCE:
(1) CohnReznick, LLP Performance Audit Report No. 0220970-2380-10, Performance Audit of CB&I AREVA MOX Services, LLC's Fiscal Year Ended August 31, 2010 Incurred Cost Submission, dated August 17, 2017
(2) CB&I AREVA MOX Services, LLC correspondence from K. Saunders to K. Soles, CohnReznick Performance Audit of CB&I AREVA MOX Services, LLC Fiscal Year Ended August 31, 2010 Incurred Cost Submission Preliminary Draft Performance Audit Report No. 0220970-2380-10, dated 28 July 2017
(3) NNSA Letter NA-APM-17-0297, Contract DE-AC02-99CH10888, MOX Fuel Fabrication Facility (MFFF); 2010 Incurred Cost Audit, dated September 15, 2017

Dear Mr. Norton:

The National Nuclear Security Administration (NNSA or Government) awarded Contract number DE-AC02-99CH10888 (the Contract) to a predecessor of CB&I AREVA MOX Services, LLC, an unpopulated joint venture, on March 15, 1999. At the time of Contract award in 1999, the contractor was called Duke, COGEMA, Stone & Webster, LLC. The parties modified the Contract in October 2006 to recognize the name change to Shaw AREVA MOX Services, LLC. Subsequently, the parties modified the Contract a second time in October 2014 to recognize another name change to CB&I AREVA MOX Services, LLC. During the relevant time-period for this incurred cost submission, the contractor was known as Shaw AREVA MOX Services, LLC (MOX Services). For ease of reference, this COFD refers to the contractor as MOX Services irrespective of the time-period being discussed.

MOX Services submitted its Fiscal Year (FY) 2010 incurred cost submission (ICS) on February 28, 2011, but did not certify its FY 2010 ICS until over six years later, on May 2, 2017. MOX Services' 2010 fiscal year ran from September 01, 2009 through August 31, 2010. According to MOX Services' disclosure statement, all costs incurred by MOX Services are classified as direct costs. Nonetheless, each of the joint venture partners (Shaw Environmental & Infrastructure and AREVA

Federal Services) pass through a portion of their indirect costs to the joint venture, which – in turn – are submitted to the Government as incurred costs. The costs purportedly relate to construction of the MOX Fuel Fabrication Facility (MFFF), which is contract line item number (CLIN) 0002 under the Contract[1].

NNSA engaged CohnReznick, LLP (CohnReznick), a public accounting firm, to audit MOX Services' FY 2010 ICS. The scope of the audit was to provide an independent opinion in accordance with Generally Accepted Government Auditing Standards (GAGAS), Federal Acquisition Regulation (FAR) Part 30 Cost Accounting Standards (CAS), and other applicable professional standards, as to whether the costs claimed were allowable, allocable, and reasonable in accordance with the Contract, the FAR, and the Department of Energy Acquisition Regulation (DEAR).

On June 13, 2017, CohnReznick held an exit conference with MOX Services and NNSA to discuss the details of its draft audit report. As explained by CohnReznick's draft audit report (and specifically detailed in Appendix C to the draft audit report), MOX Services either did not provide or did not provide on a timely basis all requested information that CohnReznick needed to ascertain that the claimed costs were allowable, allocable and reasonable.

On July 28, 2017, MOX Services submitted its response to the draft audit report (Reference (2)). MOX Services' response included significant supplemental information and documentation that CohnReznick had requested previously during the field work stage of the audit. MOX Services refused to provide the information when it was requested originally. MOX Services' refusal caused CohnReznick to continue under the reasonable presumption MOX Services either did not have the information or would not provide it. CohnReznick's review of the supplemental information resulted in extensive rework and several significant adjustments to the draft questioned amounts. On August 17, 2017, CohnReznick submitted its final audit report to NNSA (Reference (1))[2].

On February 22, 2017, the parties executed a tolling agreement, which the parties later amended three times. The agreement tolled the statutory time limitations (e.g., the Contract Disputes Act of 1978 and the False Claims Act) for the 2010 ICS to December 4, 2017.

Between September 5, 2017 and November 29, 2017, the parties met 24 separate times with the express goal of negotiating final settlement of the allowable FY 2010 incurred costs. Based on the audit report and additional independent analysis, NNSA questioned $70,529,958 across multiple cost elements as unallowable and communicated that fact to MOX Services on September 5, 2017 (see also, Reference (3)). MOX Services' initial response was that only $32,285 was unallowable. Over the course of the negotiation, it increased that amount modestly to $46,648, but still less than 0.1%

[1] The costs in question here relate predominately to CLIN 0002, however MOX Services incurred cost under other CLINs during 2010. The determinations herein apply irrespective of which CLIN a particular cost was incurred under.

[2] The independent CohnReznick audit report contains three categories of audit findings to be resolved in reaching settlement of the 2010 ICS: (i) Questioned costs not allowable, allocable, and/or reasonable in accordance with the contract; (ii) Qualifications that affected the Audit and that CohnReznick recommended "should be considered in closing [the Contract]." The Qualifications were not included in the draft audit presented at the exit conference, but instead appear for the first time in the final Audit report and often arise directly out of the massive volume of information and documents produced by MOX Services in response to the draft audit; and (iii) Control Deficiencies related to issues identified by CohnReznick within MOX Services' accounting system and internal controls.

of the $70,529,958 originally identified unallowable costs)[3]. That meager amount consisted of legal, travel, and advertising costs. During the November 15, 2017 negotiation session, MOX Services' President and Project Manager made the declaration that MOX Services' official position is that all costs (aside from the small amount conceded) were allowable because MOX Services did not want to create future liabilities by "admitting" that any costs were unallowable. During the same meeting, he also contended that MOX Services' representatives for the previous negotiation sessions did not have authority to settle the claim on behalf of MOX Services[4].

Over the course of more than five months, beginning with its review of the draft audit report on June 13, 2017 through the 24 negotiation sessions concluding November 29, 2017, NNSA provided MOX Services with ample opportunity to demonstrate the reasonableness of its FY 2010 costs questioned as being unreasonable in the independent audit report and supplemental government analysis. Ultimately, as of the date of the tolling agreement expiration, the parties did not reach a negotiated settlement, and the parties' respective positions were not close enough for settlement through negotiation to be reasonably foreseeable. During the negotiation period, MOX Services substantiated some of the costs claimed, and in such cases, NNSA agreed to reduce the amount of cost questioned as unallowable by a corresponding amount.

MOX Services was not able to establish that the remaining questioned costs were reasonable because MOX Services either did not have or was unwilling to provide adequate supporting documentation[5]. Accordingly, NNSA determined that the remaining questioned costs, as discussed below, are unallowable because: (1) NNSA was able to determine from the information provided by MOX Services that the costs were unreasonable or did not comply with the applicable cost principles, or (2) MOX Services failed to meet its burden of proof by providing sufficient information to demonstrate that the costs are allowable. In cases where NNSA has challenged the reasonableness of the incurred costs and MOX Services has either refused to justify the costs as reasonable or failed to meet its burden of establishing the reasonableness of the costs, NNSA has no choice but to determine the costs are unallowable.

MOX Services' position throughout the audit and negotiation process has been that all costs incurred (regardless of how inefficiently incurred or poorly documented) must be paid by NNSA so long as MOX Services did not commit fraud or bad faith and the costs are not expressly unallowable. NNSA finds this position to be an alarming mischaracterization of the Contract, federal law, all parties' duties to one another, and to taxpayers. Moreover, this position reflects a careless attitude toward the expenditure of federal funds and is likely one of the main drivers of the enormous cost overruns which MOX Services has experienced on this contract.

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[3] There were subsequent bottom-line settlement discussions between the parties where MOX Services proposed higher amounts.

[4] If the President and Project Manager's contention is true, then MOX Services needlessly subjected the Government to 21 futile negotiating sessions (i.e., those sessions that occurred before November 15, 2017) that could not result in any resolution of the ICS.

[5] See for example, letter NA-APM-17-0129, dated February 14, 2017, which documents MOX Services' refusal to provide data requested by the auditor. Throughout the audit period (commencing November 1, 2016 with the kick-off meeting and concluding November 29, 2017) MOX Services consistently failed to produce data, failed to produce data in a timely manner, and otherwise impeded NNSA's attempts to validate cost allowability.

MOX Services has pointed to the "best efforts" language of the Contract to support its untenable position. The Contract refers to "best efforts" in several contexts, but never provides or suggests that all incurred costs (regardless of MOX Services' failure to support its costs or control costs) are reasonable and allowable so long as MOX Services puts forth its "best efforts" toward performance and/or refrains from committing fraud or bad faith[6].

The Government is not the insurer of any business decision, regardless of how unreasonable or ill advised, that the contractor chooses to implement. Instead, the contractor has the burden to show that a prudent business would have acted similarly given the context. NNSA finds that MOX Services has failed to meet its burden. Furthermore, NNSA does not agree that MOX Services devotes its "best efforts" toward performance when MOX Services fails to undertake reasonable efforts to support its costs or control its costs. For these reasons, NNSA does not find that MOX Services' reliance on the "best efforts" language of the Contract in any way resolves the issue in MOX Services' favor.

NNSA issues this Contracting Officer's Final Decision (COFD) in accordance with Federal Acquisition Regulation (FAR) 42.705-1 and contract clause FAR 52.216-7 (Allowable cost and Payment, December 2002). The COFD is that total allowable costs for fiscal year 2010 under the contract total $214,778,749[7] of the $426,037,291 claimed. NNSA finds $34,195,190 to be

[6] The "best efforts" language is used in the following sections of the Contract:

B.1 ITEMS BEING PROCURED

(a) The Contractor shall, in accordance with the terms of this contract, provide the personnel, facilities, equipment, materials and services (except as may be furnished by the Government), and otherwise do all things necessary for, or incident to providing its best efforts so as to carry out in an efficient and effective manner the necessary and related work to accomplish [the Contract requirements].

H.13 AVOIDANCE OF DUPLICATION OF EFFORT

The Contractor shall use its best efforts to utilize existing information . . . to fulfill the deliverables required in the Statement of Work.

H.14 RESPONSIBILITY OF THE CONTRACTOR FOR ERRORS OR DEFICIENCIES

(a) The Contractor shall use its best efforts to ensure the professional quality, technical accuracy, and the coordination of all designs, drawings, specifications, and other services furnished under this contract.

(b) The Contractor shall use its best efforts to ensure the correction or revision of any errors or deficiencies in the designs, drawings and other services furnished under this contract, and making any necessary replacements. Except as provided in paragraph (c) below, the allowability of the cost of any such correction, revision or replacement shall be determined as provided in the clause of this contract entitled "Allowable Costs and Payment, DEAR 952.216-7 Alternate II, and FAR 52.216-7," but no additional fee shall be payable with respect thereto. . .

In summary, the Contract provides that MOX Services shall devote its best efforts to performance and that the allowability of any resulting costs shall be determined under DEAR 952.216-7 (Alternate II) and FAR 52.216-7. The Contract's "best efforts" language in no way modifies or lessens MOX Services' duty to adequately support its costs or establish that its costs were incurred reasonably.

[7] Note, this excludes Affiliated Subcontractors as described below.

unallowable. In addition, NNSA assesses a penalty of $66,499 due to the inclusion of expressly unallowable advertising and legal costs, as described further in the Materials and Supplies and Legal Expenses sections below. This constitutes final settlement of MOX Services' fiscal year 2010 incurred costs, as described further below[8].

Summary by Cost Element

The final settled amount by cost element is shown in the table below.

Cost Element	Claimed Amount	Settled Amount	Unallowable Amount
Subcontracts	$140,231,650	$116,537,722	$23,693,928
Subcontracts Excluded from Certification	$6,367,411	$0	$6,367,411
Non-Expendable Items	$79,091,684	$78,530,266	$516,929
Materials and Supplies	$6,997,219	$6,963,005	$34,214
Other Direct Costs	$6,291,531	$6,249,178	$42,353
Travel Expenses	$4,237,289	$4,228,360	$8,929
Legal Expenses	$554,864	$363,850	$155,387
NRC Fees	$3,692,542	$3,692,542	$0
Affiliated Subcontractors – Shaw E&I	$115,001,512	See Section X, below	See Section X, below
Affiliated Subcontractors – AREVA Federal Services	$62,061,841	See Section X, below	See Section X, below
Other Affiliated Subcontractors	$1,509,749	$1,509,749	$0
Associated Unallowable Costs	$0	($3,376,053)	$3,376,053
TOTAL	**$426,037,291**	**$214,778,749**	**$34,195,190**

[8] NNSA is aware that MOX Services alleges that the cumulative effect of certain NNSA actions and inactions caused delays to MOX Services performance to rationalize MOX Services' failure to complete the project on time or on budget. NNSA disagrees with MOX Services' position, as further explained in the COFD in response to MOX Services' separate claim for cumulative impacts. To the extent that NNSA later determines that MOX Services has included costs attributable to these alleged cumulative impacts in any ICS, NNSA reserves the right to seek remittance of those costs from MOX Services.

I. Subcontracts

The final settlement for subcontracts is $108,132,061 of $140,231,650 claimed; thus $23,693,928 is unallowable. The final unallowable amounts are comprised of the following:

Unreasonable Modifications – Baker and Intermech	$11,405,131
FY 2009 Out of Period Costs	$6,494,460
BOAs – RCS Corp, Ascendent Engineering, and Aerotek	$5,471,863
Subcontract Billing Terms Noncompliance – Brass Tactics	$321,900
Subcontract Noncompliance	$574
TOTAL	**$23,693,928**

Unreasonable Modifications – Baker and Intermech:

NNSA finds that $14,236,726 of costs related to the Baker and Intermech subcontracts[9] are unreasonable (and thus, unallowable) due to: (a) MOX Services' decision to issue the subcontracts despite the immaturity of MOX Services' design (which resulted in unnecessary and unreasonable modifications, and may have been exacerbated by MOX Services' issuance of the subcontracts on a Fixed Price basis) and (b) MOX Services' failure to properly administer the subcontracts after award.

The following table presents the overall review results related to RFCPs caused by immature design:

Subcontractor	Subcontract No.	FY 2010 Modifications	Associated RFCPs	FY 2010 Invoices Associated to RFCPs Caused by Immature Design	Associated Unallowable Cost
Baker Con. Const.	10888-C-1609	9-10	122-135	121-132, 134	$ 494,522
Baker Con. Const.	10888-C-1935	7-17	61-141	23, 26, 28, 29, 30, 31, 32, 33	9,367,799
Baker Con. Const.	10888-C-2697	2-6	1-16	13, 15, 18	1,248,363
Intermech	10888-B-4024	1-5	1-9	1-9	294,447
Total					**$ 11,405,131**

The Government reviewed the content of each subcontract modification where costs were incurred in FY 2010 to determine the underlying reason for the modification and underlying request for change proposal (RFCP)[10]. The Government reviewed each RFCP included in each modification and all other associated documentation provided by MOX Services. Through this review, the Government determined that nearly all the RFCPs included in modifications to the three Baker subcontracts and all the RFCPs included in modifications to the Intermech subcontract made during the 2010 period were caused by design changes resulting from MOX Services' inadequate design[11]. Because the prime

[9] The Baker subcontract scope was for constructing of the concrete structure for the MFFF; the Intermech subcontract scope was for fabrication of HVAC duct.

[10] RFCPs were submitted by the subcontractor to MOX Services. Modifications typically incorporated multiple RFCPs.

[11] NNSA carefully reviewed each modification and underlying RFCP and excluded from its calculations those caused by factors other than design immaturity. NNSA did not question any portion of the base Baker or Intermech subcontracts, which were competitively awarded (albeit based on an inadequate design).

contract is a design-build contract, and because MOX Services is the project design authority, MOX Services was solely responsible for furnishing an adequate and implementable design to each subcontractor working on the Project. Consequently, any deficiencies in the design are attributable to MOX Services and were within MOX Services' control.

MOX Services was also solely responsible for selecting an appropriate subcontract type and exercised its sole discretion in choosing to award the four subcontracts[12] as Fixed Price subcontracts. The FAR provides that Fixed Price contract vehicles should only be used to acquire supplies/services based on reasonably definite functional or technical detailed specifications. Given the volume of design changes, it is apparent that MOX Services issued Fixed Price subcontracts without first developing reasonably definite functional or technical detailed specifications (in violation of the FAR). This decision, coupled with and exacerbated by MOX Services' failure to act on design changes in a timely manner, caused unreasonable cost increases and schedule delays as subcontract work was repeatedly re-planned and re-performed to accommodate design and scope changes after the subcontractor had mobilized and begun performing, and throughout subcontract performance. In fact, because MOX Services eventually recognized its inability to administer these subcontracts in a cost-effective manner as a result of the ongoing design changes, MOX Services later terminated the Baker subcontracts for convenience and replaced them with time and material subcontracts performed by another subcontractor[13].

Further, MOX Services' design immaturity and corresponding incompatibility with Firm Fixed price subcontracts contributed to its own poor negotiating position for purposes of issuing modifications to those same subcontracts. Said another way, instead of issuing subcontracts based on adequate price competition in response to a sufficient design, MOX Services issued subcontracts based on flawed design information and was subsequently forced to issue a multitude of modifications to previously executed subcontracts without price competition. This granted the previously selected subcontractors (Baker and Intermech) a superior bargaining position to set their own prices for modifications (understanding that it would be infeasible for MOX Services to select a new subcontractor mid-performance, even if the change order pricing was higher than market prices). Baker's and Intermech's subcontracts were changed so significantly as to result in the fixed price contracts effectively being converted to Time & Material subcontracts (nullifying any risk sharing benefits of Fixed Price subcontracts). MOX Services' apparent decision not to negotiate the price of modifications, as further explained below, further evidences MOX Services' weakened bargaining position.

[12] I.e., three Baker subcontracts for various portions of the concrete structure construction, and one Intermech subcontract.

[13] Although this change in subcontract type may have reduced some contract administration efforts relating to contract modifications, it would not have reduced construction costs since T&M subcontracts provide absolutely no incentive for subcontractors to perform in an efficient and cost effective manner. For this reason, T&M contracts are disfavored in the FAR, and FFP subcontracts were the stated preference in MOX Services' Prime Contract. Moreover, late design changes would have continued to cause inefficiencies, rework, and delays regardless of the contract type.

The associated unreasonable cost increases incurred by MOX Services can be categorized broadly as: (i) additional scope, (ii) rework, and (iii) impact costs (including production loss, delays, and other inefficiencies).

The additional scope was caused by MOX Services' decision to award of the subcontracts in question prior to ensuring the MFFF design (including the concrete and HVAC scope, and other interrelated design elements) had reached a level of maturity sufficient to preclude unnecessary and unreasonable subcontract modifications. In particular, most of the additional scope in the Baker subcontracts related to additional penetrations and embed plates. During the negotiation period and discussion of associated documentation (including discussion with MOX Services' Director of Engineering), MOX Services was not able to explain or demonstrate why additional scope was necessary to fulfill the Contract requirements, or that the prices paid for the additional scope were fair and reasonable. In short, MOX Services has failed to establish that: (a) the added scope benefitted the Project; (b) the added scope could not be incorporated into the design earlier (saving wasted effort and resulting in more accurate subcontractor bids); or (c) that the pricing for the added scope (or the associated inefficiencies resulting from these changes) was fair and reasonable.

While NNSA has grounds to determine all of the additional scope costs are unreasonable and therefore unallowable, NNSA expended considerable efforts to sustain a portion of the incurred amounts. Specifically, NNSA recognizes that it may have derived some benefit from work which is purely additional scope performed on a fixed unit price basis. Accordingly, NNSA conducted a thorough review of all of the contract modification documents provided by MOX Services with the intent of identifying and segregating, to the extent possible, any costs associated only with the purely added scope items, as opposed to rework or impact costs.

Each Baker subcontract contained a schedule of pre-established fixed unit prices which MOX Services and Baker agreed to use for the addition or deletion of scope. The subcontracts included unit prices for such items as a cubic yard of concrete, a pound of embed plate, or a particular size wall penetration, and these prices were inclusive of labor, material, profit, and overhead. Thus, when design changes resulted in the addition or deletion of scope items for which fixed unit prices were established in the subcontracts, Baker's change order pricing proposals multiplied the number of each added or deleted item by the agreed-upon unit price to determine the net price change for those items. By totaling the additive and deductive fixed unit price items, NNSA determined purely added scope increased the subcontract prices by $3,126,042. The remaining cost increases consist of rework or impact costs resulting from the late design changes. As discussed further below, NNSA does not consider the rework costs or impact costs to be reasonable or allowable. However, because it is reasonable to assume that the Government derived some benefit from the added scope, NNSA determined that the portion of the total Subcontract price increase attributable to the purely added scope using the fixed unit prices is allowable.[14]

[14] Note that this determination rests on the assumption and MOX Services' assertions that the fixed unit prices were fair and reasonable because the subcontracts were competitively awarded, and on the assumption that the added scope of work was necessary for the project. While NNSA believes these assumptions are reasonable based on the

Nevertheless, because the MFFF design, and therefore the subcontract scope, changed extensively after award of the Fixed Price subcontracts in question, MOX Services incurred substantial additional costs to re-plan and re-work the subcontracts[15]. Baker's and Intermech's RFCPs evidence that MOX Services' decision to initiate changes later in the design and engineering process resulted in unnecessary rework and inefficiencies. For example, Baker submitted RFCPs specifically for "extended general conditions, hoisting, equipment costs and inefficiencies due to delays in the schedule by late design and engineering changes." Although the subcontract files which MOX provided did not include any documentation whatsoever explaining why MOX Services was legally obligated to pay these costs under Firm Fixed Price subcontracts, MOX Services apparently believed it was responsible for the delays, production losses, and inefficiencies and paid the full amounts requested by Baker without attempting to negotiate different amounts.

The Intermech subcontract experienced similar issues. Even though Intermech's performance began in late September 2009 (and thus should not have been as severely affected), Intermech reported experiencing delays and inefficiencies for MOX Services-initiated design changes in FY 2010. For instance, Intermech notified MOX Services of the following as part of a RFCP (granted by MOX Services) less than a year into its performance: "[a]lthough the project design (HVAC) was to have been finalized prior to award, almost 100% of the project drawings, for the areas that Intermech has been released to work, have been revised with many of them being revised multiple times, impacting hundreds of Intermech duct drawings."[16]

These types of costs (i.e. rework and impact costs) could have been avoided had MOX Services engaged in a reasonable amount of pre-acquisition planning and matured the design to the point that it was reasonable to allow the Baker and Intermech to proceed.

In order to determine the FY 2010 dollar amount associated with rework and impact costs resulting from the immature design modifications/RFCPs, NNSA evaluated all documentation submitted by the contractor associated with the identified RFCPs. NNSA found a total of $11,110,684 in unallowable Baker subcontract costs pursuant to FAR 31.201-3, Determining Reasonableness, because those costs were not a result of the purely added fixed unit rate scope of work. Rather, contemporaneous daily work logs included in the modification files demonstrate that those costs were the result of work done primarily on a time and materials basis for rework or other work not included as part of the fixed unit

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Government's review, these assumptions benefit the Contractor. This determination shall not create a precedent of making such assumptions for purposes of future incurred costs settlements or other cost allowability determinations. Accordingly, NNSA reserves its rights to question the need for added work-scope and the reasonableness of the associated prices/costs in the future.

[15] Also, MOX Services' documentation suggests (or, at the very least, does not rule out the potential) that some additional, re-work and re-planning costs were due to subcontractor poor performance. To the extent that MOX Services issued modifications increasing the price of subcontracts for defects and deficiencies within the control of its subcontractors, MOX Services did not act reasonably in administering the subcontracts.

[16] On October 6, 2011, Intermech sent letter IM-500105-00045 Rev 1, to MOX Services requesting an equitable adjustment for cumulative impacts. MOX Services incorporated this request for equitable adjustment into the Intermech contract in modification #019, adding $2,365,216 "for full compensation for all costs as a result of cumulative impacts for the period 1 Jan 10 through 30 Jun 11."

rate added scope. A few illustrative examples of such rework as noted in the daily logs are:

- "Had to remove meva gang forms, wall ties, anchors, and embeds so Iron workers can fix the rebar. Then reinstall the meva gang forms, wall ties, anchors and embeds." See Baker 1935, Mod A017, RFCP 136.

- "Remove scaffolding two gang forms near side and far side or 10.2. Had to remove all wall ties and three blockouts. This allowed the ironworkers to rework the rebar. Then we had to reinstall the two gang forms blokouts, embed, misc. ties and anchors and reinstall the scaffolding." See Baker 1935, Mod A017, RFCP 136.

- "Remove lentons put in per ECR 1163 + add 1 more lenton per side + install Ubands + Added steel around both blockouts." See Baker 1935, Mod A015, RFCP 124

- "ECR requires bands with seismic hooks to replace existing band. The bands are to be removed and replaced with 5K bars at doorway & blockout on "H" line at southside of "10" line." See Baker 1935, Mod A014, RFCP 117

The daily logs are replete with entries such as these demonstrating that the additional work performed on a time and materials basis was not added scope, but was rework or other work necessary to resolve problems created by the late design changes. NNSA has therefore determined that these costs are unreasonable and unallowable because they could have been avoided by MOX Services providing sufficiently mature designs to its subcontractors in a timely manner.

Additionally, Baker requested price increases for "inefficiencies," consisting of production losses, as well as extended general conditions, which MOX Services paid. For example, RFCP 119 for Baker 1935, Modification A014 is described as "Production inefficiencies for March 2010 for C-1935 Release-2." This RFCP includes a spreadsheet showing Baker and Titan (a 2nd tier subcontractor) actual "ManHours" for March 2010 versus "Period Earned Hours" and the "Period Earned Hours Less Period Manhours." The spreadsheet further identifies the number of hours associated with various abbreviated impact types and identifies a percentage of the Baker and Titan hours which are attributed to MOX Services. 5,770 Baker hours and 1,777 Titan hours are identified as being attributed to MOX Services. And these hours are the basis of the amounts requested in the Baker proposal. Weighted labor rates for Baker and Titan were applied by MOX Services to the subcontractor-proposed hours, yielding a requested price increase of $343,455.65. MOX Services agreed to the price increase without questioning the need for it, apparently acknowledging that MOX Services' actions had caused the "inefficiencies." There are numerous RFCPs such as this for inefficiencies and/or extended general conditions resulting from delays. NNSA has therefore determined that the inefficiency and extended general conditions costs (i.e impact costs) are unreasonable and therefore unallowable

because they could have been avoided by MOX Services providing sufficiently mature designs to its subcontractors in a timely manner.

The subcontract modification costs resulting from rework and impacts are also unallowable because of the grossly negligent manner in which MOX Services administered the subcontracts and evaluated these costs. During the negotiation period, NNSA conducted further analysis and held detailed discussions with the contractor regarding the justification for the subcontract modifications and RFCPs. It was evident that MOX Services did not perform administration of the Baker or Intermech subcontracts at a level adequate to support cost reasonableness. MOX Services' poor oversight compounded the cost and schedule impact of the design immaturity matter discussed above. However, even as a stand-alone issue, the inadequate subcontract administration is sufficient to demonstrate that MOX Services did not justify reasonableness of the costs incurred.

MOX Services did not negotiate with the subcontractor in most instances. Instead, it merely passed along the cost increases requested by the subcontractor. This typically occurred after the subcontractor had already performed the work and MOX Services merely filled out the paperwork necessary to ratify the subcontractor's proposed costs.

The price reasonableness analyses included in the subcontract files were perfunctory in nature and lacked substance or depth. The analyses consisted of unsupported assertions and boilerplate language that was nearly identical from one modification to the next. For instance, nearly all of the Baker modification price reasonableness analyses included the following rote and unsupported statement:

> "Most of the costs are based on negotiated fixed unit rates that were established in the original subcontract, except for form rental and OH & G&A. The OH and G&A rates were established by audit for Baker. Titan's overhead rate of… and Profit of… on direct costs only was reviewed and determined to be fair and reasonable and has remained consistent through the life of the subcontract. The price for form rental was established under Mod A007. Baker's rates used for cranes, equipment, and framework are the same charges that they have charged throughout this subcontract and are determined to be fair and reasonable."

However, MOX Services provided no documentation to substantiate its assertion that the price was "fair and reasonable", that an adequate review by the technical staff had occurred, or that the Baker rates were in fact audited. MOX Services stated during negotiations that substantiation was unnecessary because the author of the analysis was an experienced professional. However, MOX Services provided no documentation establishing the extent of this "experienced professional's" review or support for his conclusions and MOX Services failed to substantiate that any audit of Baker rates occurred. Instead, MOX Services only produced an email with a conclusory assertion as to the reasonableness of the aforementioned rates.

Moreover, aside from the fact that the verbatim repetition of the aforementioned statement for every contract modification suggests that MOX Services failed to actually perform a price reasonableness analysis, the assertion that "[m]ost of the costs are based on negotiated fixed unit rates that were established in the original subcontract" is inaccurate. Although the modifications did include some costs which were based on fixed unit prices pre-established in the subcontracts, these costs were not the majority of the costs. Most of the costs in fact consisted of labor costs and material costs plus overhead and profit charged by 2nd tier subcontractors for rework and inefficiencies rather than fixed unit price work.

Additionally, it is clear from the subcontract files that MOX Services did not actually negotiate subcontract price increases with the subcontractors. Rather, MOX Services directed the subcontractors to perform the work first, and then to submit their numerous change order proposals later. Almost without exception, MOX Services then simply agreed to the exact price increases requested by the subcontractor with virtually no independent price analysis or negotiation. In fact, although MOX Services included spreadsheets in the subcontract files purporting to be analyses of the requested price increases, most of the individual purported price analysis spreadsheets showed nothing more than the exact amounts requested by the subcontractors for each line item and an exactly equivalent negotiated amount. This practice is not consistent with FFP contracting and essentially converts firm fixed price contracts into cost reimbursement or time and materials contracts which are widely known to be less cost-effective.

Moreover, because no cost/price analysis was actually performed, MOX Services unreasonably assumed that all costs incurred were reasonable and allowable. Accordingly, it is clear that MOX Services failed to exercise prudent business judgment in administering these subcontracts. Not only does this defy common business sense, but this conflicts with MOX Services' contractual obligations to comply with its approved purchasing system and purchasing policies, which require the performance of robust cost/price analyses and negotiation for sole-source actions such as subcontract modifications[17]. MOX Services' poor oversight compounded the cost and schedule impact of the design immaturity matter discussed above. However, even as a stand-alone issue, the Contractor's grossly negligent subcontract administration is sufficient to demonstrate that the contractor did not justify the reasonableness of the costs incurred.

All told, the nature and extent of contract administration did not approach the level of sufficiency to support reasonableness of the increased costs incurred in the modifications. In essence, MOX Services did not act as a reasonably prudent business in boxing itself into a poor bargaining position and then failing to exercise any leverage it did have to negotiate a more favorable price with the subcontractor. This failure to negotiate and substantiate change order prices constitutes a separate failure that cannot be excused, even if MOX Services can demonstrate its decision to proceed with Fixed Price subcontracts despite the immature nature of MFFF design was somehow reasonable.

[17] As MOX Services own procurement policy acknowledges, compliance with the MOX Services' Procurement/subcontract System Policy was required for purchasing system approval. The cover page of the policy states: "This approval is contingent upon MOX Services complying with the Policies and Procedures referenced in the accompanying document. No deviation to these policies and procedures is authorized unless agreed to in writing by the MOX Services Procurement Director."

For these reasons, the conclusory assertions and perfunctory contract file documentation provided by MOX Services do not establish that the modification prices were subject to a reasonable review and negotiation process. Therefore, NNSA has no choice but to find the modification costs unreasonable and thus, unallowable.

An additional aspect of the inadequate subcontract administration relates to Truth in Negotiation Act, 10 U.S.C. 2306a, 41 U.S.C. ch. 35, (TINA) certifications. MOX Services did not require Baker to submit TINA certifications when modifications exceeded the TINA threshold. Instead, MOX Services asserted that each RFCP is a stand-alone action[18], and were grouped into modifications for administrative convenience. MOX Services, however, has failed to provide any support for its conclusory statement that each RFCP was a stand-alone action unrelated to other RFCPs. TINA certifications and associated cost or pricing data facilitate a prime contractor ensuring price reasonableness of its subcontractors, and provides the prime contractor remedy if the subcontractor does not provide current, accurate, and complete cost or pricing data. Therefore, NNSA considers MOX Services' failure to obtain (or even request) TINA certifications and associated cost or pricing data from subcontractors additional evidence of MOX Services' unreasonable subcontract administration.

FY 2009 Out of Period Costs:

See Section VIII, below.

Basic Ordering Agreements (BOA) – RCS Corp, Ascendent Engineering, and Aerotek:

NNSA finds that $5,471,863 of the $21,745,999 related to the BOAs are unallowable because: (a) at least a portion of each agreement is a prohibited cost-plus-percentage-of-cost type subcontract; (b) NNSA's review reveals other issues with MOX Services' administration of the BOAs; and (c) MOX Services failed to provide all requested documentation necessary to NNSA's complete review or substantiate reasonableness of the associated costs.

The BOAs in question were issued to three first tier subcontractors (RCS Corp, Ascendent Engineering, and Aerotek), and include the following language with respect to labor provided by "teammates" of first tier subcontractors:

> If final personnel selected by [MOX Services] include personnel from [RCS Corp/ Ascendent/ Aerotek] subcontractor teammates, those personnel will be invoiced at our actual costs from the subcontractors plus a 5% [RCS Corp/ Ascendent/ Aerotek] handling fee . . .

[18] MOX Services did require TINA certifications for individual RFCPs that exceeded the TINA threshold.

At least this portion of each BOA violates the prohibition on cost-plus-percentage-of-cost contracting and, consequently, should not be paid by the Government. Other portions of each subcontract are otherwise unreasonable and/ or inadequately supported by MOX Services, as further explained below. Although NNSA would be justified in disallowing the full audit questioned amount of $21,745,999, NNSA made considerable efforts to sustain a portion of the incurred amounts to MOX Services' benefit.

During negotiations, MOX Services stated that its human resources (HR) department was primarily responsible for determining base rate reasonableness. However, MOX Services failed to provide all documentation requested by NNSA to support rate reasonableness despite receiving ample time to fulfill the request. MOX Services only provided 22 of the 64 requested documents. Even with this partial information, NNSA identified a number of problematic issues, aside from the cost-plus-percentage-of-cost issue noted above. Examples include:

- Base labor rates awarded exceeded the rates requested by the companies (16 instances out of a sample of 64 with an average of $5/hour higher than requested);
- Base labor rates awarded significantly exceeded the contractor's established "Up-to" ceiling salaries which were used as reasonableness benchmarks (17 instances out of the 22 requisitions provided and an average amount of $24,235 higher than the up-to ceilings);
- Base labor rate increases that were not in accordance with the terms of the basic ordering agreement (15 instances out of a sample of 64 with an average increase of 9.8 percent);
- Base labor rates awarded that were considered unreasonable when compared to competitive rates in the region for similar business size and industry;
- Instances of affiliated subcontractor (Shaw E&I and AREVA Federal Services) employees being shifted to work on the contract through a staff augmentation company at increased rates plus an associated fee; and
- Cost ceilings that were so excessive they effectively were unreachable and therefore had no influence on cost control.

Although NNSA would be justified in disallowing <u>all</u> costs as inadequately supported and unreasonable, NNSA made considerable efforts to sustain some costs. To do so, NNSA used the HR requisitions (where available) and employee resumes to determine a reasonable base labor rate (using ERI survey data) for each sampled employee. The survey rates were compared to the rates employed by MOX Services to compute a difference that was applied to the corresponding hours incurred. The resulting difference and associated direct labor multiplier was $1,297,835 of unreasonable costs for the 64 sampled items. The error rate was then projected to the universe of the BOA costs and resulted in an unallowable amount of $5,471,863.

Subcontract Billing Terms Noncompliance – Brass Tactics:

NNSA finds that $321,900 of costs related to the Brass Tactics subcontract are unallowable due to MOX Services' failure to properly administer the subcontract or provide all requested supporting information necessary to NNSA's complete review. The final settlement for the Brass Tactics subcontract is $0 of $321,900 claimed; thus $321,900 is unallowable.

The fixed-price subcontract terms required the subcontractor to submit with each invoice (i) a schedule of values; and (ii) an allocation of the work completed during the invoice period to either the total lump sum or percentage of completion of the subcontractor's work. During negotiations, MOX Services acknowledged the subcontract was not administered in accordance with the billing terms. Additionally, MOX Services was unable to provide documentation showing the services were received, reviewed, or accepted for approval. MOX Services stated several times during negotiations that it was creating a "storybook"[19] to explain the services provided by Brass Tactics during the FY2010 period, but ultimately did not provide the information to NNSA.

Because MOX Services failed to properly administer the subcontract per its own terms and failed to provide documentation demonstrating that Brass Tactics performed the required services, NNSA has no choice but to find $321,900 unreasonable, unallowable and (possibly) not incurred.

Subcontract Noncompliance:

$574 represents subcontract costs that were noncompliant with subcontract terms. MOX Services conceded these costs during negotiations. Because there is no dispute, NNSA is disallowing this $574.

Costs Resolved During Negotiations:

NNSA initially questioned $1,149,266 in costs associated with the Keller Technology Corporation subcontract as unreasonable. During negotiations, these costs were resolved when MOX Services provided supporting documentation in the form of Material Receipt Reports (MRRs) for all subcontract line items, a sample of four Receiving Inspection Reports (RIRs) (acceptance documents) based on the MRRs received, a screenshot of the status for each line item from MS' purchasing system (Asset Suite), the modification showing the final negotiated contract price, and the final payment voucher.

$145,875 in costs associated with the Pantheon subcontract were initially questioned by NNSA as unreasonable. During negotiations, these costs were resolved when the contractor provided supporting documentation demonstrating the services were received and accepted.

[19] "Storybook" is MOX Services' verbiage.

II. Subcontracts Excluded from Certification

NNSA finds that $6,367,411 of the $6,367,411 in costs related to the subcontractors Wise Services and Carolina Sodding are unallowable due to MOX Services' failure to certify the costs as part of its FY 2010 ICS or submit documentation sufficient to support the allowability of the costs. The final settlement for subcontracts excluded from certification is $0 of $6,367,411 claimed; thus $6,367,411 is unallowable.

MOX Services' certification of its FY 2010 incurred cost submission excluded all costs for subcontractors Wise Services and Carolina Sodding due to an investigation by the Department of Energy Office (DOE) Office of Inspector General (OIG). As the contractor declines to certify the allowability of the costs in question, the costs are unallowable in accordance with FAR 31.201-2 (Determining Allowability), which requires contractors to "maintain[] records, including supporting documentation, adequate to demonstrate that costs claimed have been incurred, are allocable to the contract, and comply with applicable cost principles".

III. Non-Expendable Items

The final settlement for non-expendable items is $78,574,755 out of the claimed amount of $79,091,684; thus $516,929 is unallowable. Unallowable costs in this cost element consist only of FY 2009 Out of Period Costs, which are discussed in Section VIII, below.

IV. Materials and Supplies

NNSA finds that $34,202 of costs for materials and supplies are unallowable because the costs: (a) appear to be expressly unallowable costs under FAR 31.205-1 (Public Relations and Advertising Costs) and (b) MOX Services has failed to provide all requested documentation necessary to determine that the costs are allowable. The final settlement for materials and supplies is $6,963,005 of $6,997,219 claimed; thus, $34,202 is unallowable. Because the costs appear to be expressly unallowable, NNSA also assesses a $34,202 penalty against MOX Services for including these costs in its ICS.

Costs Resolved During Negotiations:

NNSA initially questioned $39,784 in costs associated with the purchase of Materials and Supplies for advertising purposes as unreasonable and unallowable. During negotiations, MOX Services conceded $6,202 of the Materials and Supplies costs. Additionally, some of the questioned costs were resolved when the contractor provided supporting documentation in the form of the purchase description, project scope and payment vouchers. Specifically, NNSA initially questioned $3,194 in costs associated with Safeguards & Security, and $2,388 in costs associated with Environmental Safety & Health in accordance with FAR 31.205-1, Public Relations and Advertising Costs. During negotiations, these costs were resolved when the contractor provided supporting documentation demonstrating the items purchased were allowable under the Contract. Therefore, NNSA removed $5,582 from the initial $39,784 figure, resulting in $34,202 in costs associated with the purchase of Materials and Supplies for advertising purposes questioned by NNSA as unreasonable and unallowable. Of this $34,202, the parties did not reach agreement on $28,000 (i.e., $34,202 settled herein less $6,202 agreed by the contractor during negotiations).

MOX Services has failed to provide supporting documentation requested by the Government to substantiate MOX Services' contention that the remaining disputed costs are allowable under FAR 31.205-1 (which disallows most advertising and public relations costs), despite receiving ample time to furnish the documentation. Therefore, NNSA has no choice but to disallow $34,202 as unallowable under FAR 31.205-1.

The $34,202 is expressly unallowable under FAR 31.205-1 and therefore, subject to penalty. Consequently, NNSA assesses a $34,202 penalty against MOX Services as permitted by FAR 52.242-3(c) and (d) (Penalties for Unallowable costs)[20]. Please note that interest is not included for purposes of administrative efficiency.

V. Other Direct Costs

NNSA finds that $42,353 in other direct costs are unallowable due to their association with other unallowable costs. The final settlement for other direct costs (ODCs) is $6,249,178 of $6,291,531 claimed.

$37,004 is directly associated with the unallowable advertising costs identified and discussed in the Materials & Supplies cost element. Pursuant to FAR 31.201-6, Accounting for Unallowable Costs, "…When an unallowable cost is incurred, its directly associated costs are also unallowable."

$3,284 are FY 2009 Out of Period Costs, which are discussed in Section VIII, below.

$2,065 represents advertising or public relations activities that are unallowable in accordance with FAR 31.205-1, Public relations and Advertising Costs. MOX Services conceded these costs during negotiations.

NNSA initially questioned $36,755 related to the BOAs described in Section I (Subcontracts), above. For the purposes of administrative efficiency, and given the refined NNSA methodology NNSA applied to these BOAs, NNSA no longer considers the $36,755 as unallowable.

VI. Travel Expenses

The final settlement for travel expenses is $4,228,360 of $4,237,289 claimed; thus $8,929 is unallowable.

$7,521 lacked sufficient evidence of a valid purpose for the trip as required by FAR 31.205-46, Travel Costs. MOX Services conceded these costs during negotiations.

$1,408 are FY 2009 Out of Period Costs, which are discussed in Section VIII, below.

[20] Please note that FAR 52.242-3 (c) and (d) prohibit a contractor from including any expressly unallowable costs in a cost proposal and permit the Government to charge a penalty equal to the amount of the disallowed cost plus interest for violations. These subparagraphs apply to all expressly unallowable costs and not just indirect costs. Paragraph (a) of the clause is the only portion of FAR 52.242-3 limited to indirect costs.

VII. Legal Expenses

The final settlement for legal expenses is $399,477 of $554,864 claimed; thus, $155,387 is unallowable. Additionally, NNSA assesses the contractor a penalty of $32,285.

$32,285 is expressly unallowable in accordance with FAR 31.205-47, Costs Related to Legal and Other Proceedings. This cost was associated with an Alternative Dispute Resolution matter where the contractor was required to take corrective action. The contractor agreed in its response to the audit report that this cost is unallowable[21].

As NNSA has determined this cost is expressly unallowable, it is subject to penalty in accordance with contract clause FAR 52.242-3 (Penalties for Unallowable Costs). Therefore, NNSA assesses MOX Services a penalty of $32,285. Note this figure excludes interest for administrative efficiency.

$123,102 are FY 2009 Out of Period Costs, which are discussed in Section VIII, below.

VIII. Fiscal Year Reconciliation Differences and Out of Period Costs

The Government initially questioned $14,369,843 of costs claimed in FY 2010 but apparently incurred in FY 2011. These apparently out of period costs were self-identified by MOX Services in Schedule G of its ICS, which was required to reconcile the claimed costs to the FY 2010 financial statement expense amounts. After further explanation and documentation provided by MOX Services during the negotiation period, NNSA no longer questions the allowability of these costs.

The Government initially questioned $7,219,299, and now disallows $7,139,183[22] of costs claimed in FY 2010 but apparently incurred in FY 2009. During the negotiation period, MOX Services provided documentation that demonstrated $80,116 of the initial questioned costs were incurred and allocable to its FY 2010 and therefore NNSA reduced the questioned amount to $7,139,183. For the disallowed amount, although MOX Services appears to have recorded its expenses in accordance with GAAP for financial statement purposes, its FY 2010 incurred cost claim was not prepared using its financial statements. While MOX Services claims to have reversed its FY 2009 expense accrual in its FY 2010 general ledger, its incurred cost submission specifically excluded all FY 2009 accrual reversals. Additionally, MOX Services was unable to substantiate its assertion that any of the questioned amounts related to FY 2009 expense accruals. Accordingly, NNSA finds that the 2009 out of period costs are not allocable to FY 2010 in accordance with CAS 406, FAR 31.201-2, and FAR 52.216-7(d)(2) (Dec 2002) (Allowable Cost and Payment) [23].

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[21] However, MOX Services does not agree the costs are expressly unallowable.

[22] This figure is comprised of costs across several cost elements. Specifically, $6,494,460 in Subcontracts, $516,929 in Non-Expendable Items, $3,284 in Other Direct Costs, $1,408 in Travel, and $123,102 in Legal.

[23] Note that NNSA previously addressed the 2009 out of period costs matter via letter NA-APM-18-0024, dated November 21, 2017. This letter directed MOX Services to submit a complete and compliant 2009 ICS, which, at a minimum, includes the out of period costs incorrectly included in MOX Services' 2010 ICS. To date, MOX Services has failed to comply with NNSA's request.

IX. NRC Fees

The final settlement for NRC Fees is the same as the claimed amount of $3,692,542.

X. Affiliated Subcontractors (Shaw E&I, AREVA Federal Services, and Other Affiliated Subcontractors)

The ICS includes costs for several affiliated subcontractors – Shaw E&I, AREVA Federal Services, and several other affiliated subcontractors.

Shaw E&I:

MOX Services claimed $115,001,512 for Shaw E&I. NNSA initially questioned $5,574,053 based on the results of a DCAA assist audit of the subcontractor and a reconciliation variance between the respective MOX Services and Shaw E&I ICSs. During negotiations, NNSA reduced its questioned amount to $4,323,647 based on a review of the DCMA settlement with Shaw E&I[24]. These costs are not settled in the instant COFD. The parties agreed during negotiation that settlement of these costs (i) shall be adjusted to reflect and incorporate the final determination(s) of the appropriate Corporate Administrative Contracting Officer (CACO) for the incurred cost submissions of Shaw E&I and (ii) MOX Services shall include a timely and appropriate credit or debit in a future invoice to reflect the adjustment. Although NNSA intends to abide by the final determination(s) of the CACO, to the extent that the parties' tolling agreement requires a COFD on or before December 4, 2017 concerning this item, NNSA denies the questioned $4,323,647.

AREVA Federal Services:

MOX Services claimed $62,061,841 for AREVA Federal Services. NNSA questioned $3,642,134 based on the results of a DCAA assist audit of the subcontractor and a reconciliation variance between the respective MOX Services and AREVA Federal Services ICSs. These costs are not settled in the instant COFD. The parties agreed during negotiation that settlement of these costs (i) shall be adjusted to reflect and incorporate the final determination(s) of the appropriate CACO for the incurred cost submissions of AREVA Federal Services and (ii) MOX Services shall include a timely and appropriate credit or debit in a future invoice to reflect the adjustment. Although NNSA intends to abide by the final determination(s) of the CACO, to the extent that the parties' Tolling Agreement requires a COFD on or before December 4, 2017 concerning this item, NNSA denies the questioned $3,642,134.

Other Affiliated Subcontractors:

The final settlement for other affiliated subcontractors[25] is the same as the claimed amount of $1,509,749.

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[24] The Defense Contract Management Agency (DCMA) is the cognizant CACO for Shaw E&I during the time period in question.

[25] The "other" affiliated subcontractors are Duke Power, AREVA NP, NFS, and SPSG AREVA CLT.

XI. Associated Unallowable Costs

The final settlement for associated unallowable costs is $3,376,051.

Under a conventional indirect rate structure, unallowable costs are includable in the allocation bases of indirect rates to ensure the unallowable costs bare an equitable share of the costs incurred to administer them. Because MOX Services lacks an indirect rate structure, any unallowable costs incurred do not bear their respective administrative burden. As MOX Services is an unpopulated joint venture, NNSA relied on the company's operating agreement to identify the roles and responsibilities of its managing members. Accordingly, NNSA verified that Shaw E&I and Shaw Project Services Group, Inc. were identified as the lead members for roughly all indirect type functions. In order to protect the Government from the associated risk, NNSA calculated associated indirect costs using a composite rate made up of Shaw E&I's settled FY 2010 G&A rate (including facilities capital cost of money) and its FY 2010 MOX Overhead rate (including facilities capital cost of money)[26]. That composite rate was applied to select questioned costs (all questioned amounts excluding out of period costs and SEI and AFS questioned costs) to arrive at an associated questioned amount of $3,376,051.

Demand for Payment:

For the foregoing reasons, this letter constitutes the Contracting Officer's Final Decision that the amount of $34,261,689 constitutes a debt to the Government in accordance with the contract terms, and repayment of this amount in full to NNSA within 30 calendar days of the date of this Contracting Officer's Final Decision is hereby demanded. In accordance with FAR 32.604, the contractor is notified of the following:

1. The contractor may contact the undersigned if it believes the debt is invalid or the amount is incorrect.[27]

2. If the contractor agrees the debt is valid, remit a check payable to the payment office annotated with the contract number along with a copy of this letter to:

   United States Department of Energy
   Oak Ridge Office
   Oak Ridge Financial Service Center
   200 Administration Road
   Oak Ridge, TN 37830

[26] Throughout the negotiation period, NNSA requested information (i.e., processes or policies) regarding how MOX Services identified and segregated associated/allocable unallowable costs, but MOX Services declined to provide such information. Eventually, MOX Services provided an analysis identifying and recognizing that some associated/allocable unallowable costs exist. However, MOX Services' analysis (i) did not account for associated costs such as human resources and contract administration accounting costs, and (ii) did not clearly account for associated engineering or construction costs. Based on these inconsistencies and lack of detailed information regarding how it was developed, NNSA did not rely on MOX Services' analysis to support settlement of associated unallowable costs.

[27] However, note that this Contracting Officer's Final Decision as to the validity and amount of the debt is final for purposes of appealing this decision under the Contract Dispute Act.

Also, please provide the undersigned a copy of the check for the contract file.

3. Any portion of the $34,261,689 not paid within 30 calendar days from the date of this letter will bear interest. Interest shall be computed from the date of this demand for payment until full repayment by the contractor. The interest rate is provided in 41 U.S.C. 7109, which is applicable to the period in which the amount becomes due, and then at the rate applicable for each six-month period as established by the Secretary of Treasury until the entire amount is paid.

4. The Government may initiate procedures, in accordance with the applicable statutory and regulatory requirements, to offset the debt against any payments otherwise due the contractor.

5. The amount due is subject to administrative charges in accordance with the requirements of 31 U.S.C. 3717(e) and the Debt Collection Improvement Act of 1996.

6. The contractor may submit a request for installment payments or deferment of collection if immediate payment is not practicable or if the actual amount is disputed.

Please also note that FAR 32.607-2(a)(2) states, "Actions filed by contractors under the Disputes Clause shall not suspend or delay collection."

This is the final decision of the Contracting Officer. MOX Services may appeal this decision to the agency board of contract appeals. If MOX Services decides to appeal, it must, within 90 calendar days from the date MOX Services receives this decision, mail or otherwise furnish written notice to the agency board of contract appeals and provide a copy to the undersigned Contracting Officer. The notice shall indicate that an appeal is intended, reference this decision, and identify the contract by number.

With regard to appeals to the agency board of contract appeals, MOX Services may, solely at its election, proceed under the board's—

(1) Small claim procedure for claims of $50,000 or less or, in the case of a small business concern (as defined in the Small Business Act and regulations under that Act), $150,000 or less; or

(2) Accelerated procedure for claims of $100,000 or less.

Instead of appealing to the agency board of contract appeals, MOX Services may bring an action directly in the United States Court of Federal Claims (except as provided in 41 U.S.C. 7102(d), regarding Maritime Contracts) within 12 months of the date MOX Services receive this decision.

If you have any questions or comments please contact the undersigned at 803-952-2020.

Sincerely,

Lance Nyman
Lead Administrative Contracting Officer

NA-APM-18-0050

cc:
S. Cannon, NA-APM-1.4
J. McCullough, NA-APM-1.4
K. Buchanan, NA-APM-1.4
S. Hamlett, NA-APM-1.4
A. Rischbieter, NA-APM-1.4
M. Noone, SRFO
T. Park, DOE CF-10
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