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U.S. DEPARTMENT OF ENERGY ACQUISITION STRATEGY GUIDE FOR CAPITAL ASSET PROJECTS

[*This Guide describes suggested nonmandatory approaches for meeting requirements. Guides are not requirements documents and are not to be construed as requirements in any audit or appraisal for compliance with the parent Policy, Order, Notice, or Manual.*]

U.S. Department of Energy
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FOREWORD

This Department of Energy Guide is for use by all DOE elements. This Guide provides acceptable approaches for implementing the Acquisition Strategy requirements and criteria required by DOE O 413.3A, Program and Project Management for the Acquisition of Capital Assets, dated 7-28-07, related to the development and implementation of a quality Acquisition Strategy for the project. This Guide describes suggested non-mandatory approaches for meeting requirements. DOE Guides are part of the DOE Directives System and provide supplemental information regarding the Department's expectations of its requirements as contained in rules, Orders, Notices, and regulatory standards. Guides may also provide acceptable methods for implementing these requirements. Guides are not substitutes for requirements, nor do they replace technical standards used to describe established practices and procedures for implementing requirements.

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Purpose

This guide serves as a tool for federal project directors (FPDs) and the Integrated Project Team (IPT) for developing a project acquisition strategy document. An acquisition strategy is a comprehensive high-level technical and business management approach designed to achieve project objectives within specified resource constraints. It is also considered the framework for the next phases of planning, organizing, staffing, controlling, and leading a project. In sum, the acquisition strategy provides an approach for activities essential for project success and for formulating functional strategies and plans. The DOE O 413.3A requires the development and approval of the acquisition strategy for projects with total project cost (TPC) of $20M or greater, as part of the Critical Decision-1 (CD-1), Approve Alternative Selection and Cost Range Milestone.

Scope

This guide discusses the process for formulating an acquisition strategy for DOE projects using as the basis the Federal Acquisition Regulations (FAR) for acquisition planning in general. The guide will include discussions with application examples on the following main topics that should be covered in an acquisition strategy document for a project (the FPD and the IPT have wide latitude in tailoring the presentation of the acquisition strategy document as long as the topics identified here are addressed in a coherent manner):

1. Desired outcome, requirements, and major applicable conditions
2. Cost and schedule range
3. Alternatives (technical and location) and risk analysis
4. Business and acquisition approach
5. Management structure and approach

An appendix to the guide includes an example of an acquisition strategy document for a case project that meets the requirements for content and format following the recommendations in this guide. This example can be used as a template for development of an acquisition strategy document for a DOE project.

Development

The project FPD leads the acquisition strategy development with the assistance of the Federal team members of the IPT. Project stakeholders among DOE service centers, DOE-HQ’s program offices, site offices, laboratories and industry are often consulted during acquisition strategy development. A Contracting Officer is typically part of the IPT and is often the best resource for developing the business and acquisition approach (section 4.0 of this document). However, care should be taken to avoid discussing or releasing pre-procurement sensitive information, directly or indirectly, especially to current contractors, that could be construed as giving or appearing to give a potential offerer a competitive advantage, the appearance of competitive advantage, or result in those contractors being unable to propose on the new work.

The objective in preparing the acquisition strategy is to describe and integrate the high level technical and management approaches, to guide top-down alignment of all project team activities, and enhance the ultimate goal of a successful project.

The FAR is the basis for acquisition planning in general. The acquisition strategy document precedes the acquisition plan document but does not contain the details of implementation or procurement sensitive information appropriate to the acquisition plan. The FAR allows for tailoring an acquisition strategy and plan with specific content based on the size and complexity of the project. The information provided to respond to the FAR and using the guidelines provided in Office of Management and Budget (OMB) Circular No. A-11, *Preparation, Submission, and Execution of the Budget*, ensure the Government receives the best value and that agency business processes focus on optimizing performance at the lowest cost.

Five characteristics are found in a comprehensive acquisition strategy: realistic, credible, durable, flexible, and risk management.

An acquisition strategy is realistic when the programmatic, functional, operational objectives are attainable.

An acquisition strategy is credible when reasonable and/or innovative technical and location alternatives are given due consideration and critical thinking is demonstrated in evaluating the alternatives.

Acquisition strategy durability discourages disruption from negative external or internal choices by concentrating on strategy rather than detailed planning. For durability, an acquisition strategy only includes a high-level view, or approach, and does not include detail that may change based on later operational or tactical decisions.

A flexible acquisition strategy is related to the effort made to keep the project description at the strategy level so that operational details can be better incorporated within that vision without changes or redirection to the strategy or without significant disruption to project resources or project baselines.

Risk management in an acquisition strategy is concerned with the identification, analysis, management, and tracking of potential impacts to the project.

Thus the characteristics of realism, credibility, durability, flexibility, and managed risk are used to guide the development and execution of an acquisition strategy. An acquisition strategy meets the five characteristics through a comprehensive and integrated depiction of the technical and business management issues at the strategic level**.**

The acquisition strategy conveys the IPT’s approach for the successful acquisition of the project and rationale for that approach. The approach should include the alternatives analyzed; market conditions, competition considerations, and performance based contracting opportunities. The acquisition strategy incorporates those considerations to develop business and management approach(es) the project anticipates to integrate and coordinate contractor efforts.

Approvals of mission needs and acquisition strategies do not constitute approvals required by the Office of Acquisition and Supply Management (OPAM) for business clearance purposes, including acquisition plans. The acquisition strategy is approved by the Program Secretarial Officer (PSO) as part of CD-1. The strategy may or may not anticipate a procurement contract that requires an acquisition plan as delineated in FAR 7.1.

The IPT has wide latitude in tailoring the presentation of the acquisition strategy as long as the topics identified in the *Acquisition Strategy Format and Content* section are addressed in a coherent manner. A combination of narrative and tables is common, keeping emphasis on brevity and integrating key points across the document. For example, major risks identified for a technical/location alternative reasonably affects the business and management approach in most cases. For the recommended alternative, the business and management approach should reflect how the IPT intends to address those risks.

It is recommended that during the process of ranking alternatives the IPT should have conducted an analysis with defined criteria to support the precision indicated by the ranking. For example, rankings of high, medium and low are common from structured discussions of the alternatives with subject matter experts, while ranking 1 through 10 indicates significant discrimination and analysis to delineate between a particular rank, and the rank one increment above and one below. Do not imply unsupportable precision in your alternatives by applying arithmetic operations to ordinal rankings, e.g., averaging rankings to create additional decimal places of ranking, without having developed criteria to support additional granularity among alternatives.

Requirements and Approval

Per DOE O 413.3A, all projects with a TPC of $20M, or greater, require an acquisition strategy approved by the Program Secretarial Officer (PSO). For Major System projects with a TPC of $750M or greater, the Office of Engineering and Construction Management (OECM) reviews the acquisition strategy and provides recommendations to the PSO prior to acquisition strategy approval.

An electronic version of the acquisition strategy for a Major System project should be submitted to (preferably in MS Word) ESAAB.SECRETARIAT@hq.doe.gov at least three weeks prior to any scheduled CD-1 decisional briefings. OECM will then coordinate the review of the acquisition strategy and will provide a recommendation memo to the appropriate PSO or Deputy Administrator. Approval of the acquisition strategy does not imply approval of CD-1.

The acquisition strategy is a durable vision of the high level technical and business management approach. The strategy is based on assumptions, facts and circumstances existing at the time of development and may be changed when additional information becomes available or conditions change. Changes should make good business sense and be documented. Material changes to the acquisition strategy, such as changes in contract type consideration, approach to competition, or changing major milestones are documented and approved at the same approval level as the original. Administrative or acquisition planning level of detail should be saved for future acquisition planning products to avoid the acquisition strategy document becoming a procurement sensitive document or containing decisions reserved for the contracting officer later in the acquisition planning process.

Acquisition Strategy Format and Content

The strategy should be a logical extension from the approved mission need narrowing the range of technical alternatives to the one or group best suited for the project. The depth and breath of the alternative analysis is tailored to the size, risk, and complexity of the project. When an element from the below suggested format is not applicable, include a brief explanation of why the element is not relevant to facilitate the review process.

The acquisition strategy should be a concise document where the focus is on quality of content and supporting the recommended alternative, rather than the maximum quantity of words or pages that may impair the durability of the acquisition strategy by including too much detail. For very large or complex projects, the acquisition strategy document may reference supporting analyses or materials pertinent to the conclusions.

The following format and explanation of content are common across DOE acquisition strategy documents (the FPD and the IPT have wide latitude in tailoring the flow of the information of the acquisition strategy document to the particular project/program in question as long as the topics identified in bold letter headings are addressed in a coherent manner): [Note: Italics are used to emphasize the suggested content under each heading. Tables shaded gray are examples of summary tables under each section and are not case project related to each other. The Sample Acquisition Strategy in Appendix D is a case integrated approach of how information could be provided in an acquisition strategy document following the format below.]

Cover Page

Project Title: *Should be the same as was presented in the mission need statement or if the title has changed, reference the former title.*

Lead Program and Project Office: *Identify the primary DOE program office responsible for this acquisition and the DOE site office or laboratory responsible for this project.*

Total Project Cost Range: *State the project TPC range as will be presented for CD-1 approval.*

CD-0 Approval Date, Approving Official and Any Material Changes: List the mission need approval date, the approving official, and summarize any material changes from the approved mission need. If there have been no material changes since CD-0, state “No material changes since CD-0.”

1.0 Desired Outcome, Requirements, and Major Applicable Conditions Definition

1.1 Summary Project Description and Scope. Describe how the project fits within the mission of the program office and how it is critical to the overall accomplishment of the DOE mission, including the benefits anticipated.

1.2 Performance Parameters Required to Obtaining Desired or Expected Outcome. This section summarizes the major technical and performance parameters for the project, including the proposed location(s). For each new facility, show the square footage and address the

elimination by transfer, sale, or demolition of excess buildings and facilities (Reference: FY 2002 Energy and Water Development Appropriations Bill Conference Report (H. Rept. 107-258), commonly referred to as the one-for-one rule whereby construction of new facilities requires elimination of space equal to the amount of new space being constructed). Include important laws, agreements, or other factors that significantly influence the project. If this is decontamination and decommissioning (D&D) project, identify the planned end use.

This section should also summarize the characteristics of the project and address the following questions utilizing results from the conceptual design report. If a question is not applicable for the project, include a brief explanation as to why it is not applicable.

- *What is the purpose of the proposed acquisitioning?*
- *If applicable, what items or services will be produced?*
- *What are the estimated quantities of products or services?*
- *What is the proposed location of the new asset?*
- *For a facility, what is the required square footage?*
- *What excess buildings or facilities will be eliminated as a result of this new acquisition?*
- *What specific laws, regulations, agreements or other factors will significantly influence the project?*
- *Is this a hazard category 1, 2 or 3 nuclear facility or other hazardous facility?*
- *Is the facility required to comply with the DOE requirement for Leadership in Energy and Environmental Design (LEED) Green Building Rating System certification?*

1.3 Major Applicable Conditions

1.3.1 Environmental, Regulatory, Technology Development, Security and Political Sensitivities, Others. Identify major applicable conditions and factors that may affect the operational, design, or execution requirements, such as those regulated by the U.S. Environmental Protection Agency, State and other legal entities. Workforce issues, economic factors, technology development, security, and political sensitivities and conditions should each be discussed. For example: discuss the applicability of and expected major milestones for the environmental assessment or environmental impact statement, and the proposed resolution of any environmental-related requirements that affect the project. If the IPT identifies a range of possibilities in any major condition [e.g., a CERCLA (Comprehensive Environmental Response, Compensation and Liability Act) versus a RCRA (Resource Conservation and Recovery Act) regulatory framework], then identify the risks associated with each option. See the following example:

EXAMPLE OF MAJOR APPLICABLE CONDITIONS

Environmental, Regulatory, and Political Sensitivities

The proposed action includes surface disturbance, new construction activities, and a new emissions source that are not sufficiently addressed in the Final Y-12 Site-Wide Environmental Impact Statement (SWEIS) (DOE/EIS-0309, September 2001). The SWEIS is under contract as of August 2005 to Tetra Tech, Inc., directly to YSO for complete development that will address the Uranium Processing Facility (UPF) as well as other modernization plans.

NNSA has identified the need for a modern and efficient nuclear weapons complex to ensure continued reliable maintenance of the nuclear weapons stockpile. This modern and efficient nuclear weapons complex is being called Complex 2030. A Complex 2030 programmatic EIS (PEIS) is being developed and scheduled for completion in FY 2008. UPF is included in the Complex 2030 PEIS alternatives. UPF will continue with preliminary design while the Complex 2030 PEIS is being developed; however, a Record of Decision on the PEIS will be issued prior to the start of final design and construction.

Security

Anticipated security requirements for this project have been coordinated with the Y-12 Safeguards and Security Directorate. The IPT will continue to coordinate with the Safeguards and Security Directorate as the acquisition proceeds from strategy approval to acquisition planning to incorporate necessary requirements into the pre-award planning, such as for industry day and site tours, as well as for the contracts and subcontracts and/or to implement appropriate mitigating controls. However, once the design of record is established (i.e., at approval, issue of design criteria, and award of Title I design), any changes will be handled through formal baseline change control procedures.

Technology Development

As part of the overall modernization strategy for Y-12, a Technology Development Plan [The Technology Development Plan for the Uranium Processing Facility (UPF), PL-PJ-801768-A003] identified all reasonable technologies that the complex would like to incorporate within the UPF and other future projects. This plan was developed by a team composed of key members of the UPF IPT, contractor project team, and members from both design agencies. The plan was approved by all involved NNSA Site Managers (i.e., YSO, Los Alamos Site Office, and Livermore Site Office). This plan was forwarded and agreed to by NA-12 associate administrators as a complex-wide agreement. The objectives of this initiative are to validate technologies that can be developed to a point to be included in the UPF and other projects, but also to establish specific critical dates for closure should the technology not reach adequate maturity by the appropriate time. As part of risk management planning, alternative technologies will be used should development of current technologies fail to meet planning needs.

2.0 Cost and Schedule Range

2.1 Total Project Cost Range. Identify the projected TPC expressed as a cost range. The TPC includes the total estimated cost (TEC) and other project costs (OPC) as defined in DOE O 413.3A.

Provide a table with the lower and upper cost estimate range for each of the major work breakdown structure (WBS) elements and the summary totals. Explain the basis for the lower and upper range of the cost estimates and identify major elements or products not included, but necessary to implement the acquisition strategy. See the example below for the table:

Table 1: Example--Estimated Cost Range Basis for the Project

	Low Range	High Range
Total Estimated Cost (TEC)		
Preliminary & Final Design	$101,354,299	$173,750,227
Project Support	$143,792,038	$246,500,636
Construction (Including Equipment and Title III)	$584,584,621	$1,002,145,065
TEC Contingency	$294,773,678	$505,326,304
Subtotal TEC	$1,124,504,636	$1,927,722,232
Other Project Cost (OPC)		
OPC	$235,411,743	$403,562,989
OPC Contingency	$40,083,621	$68,714,779
Subtotal OPC	$275,495,364	$472,277,768
Total Project Cost (TPC)	**$1,400,000,000**	**$2,400,000,000**

It is noted that the Cost and Schedule Range should be compatible with the selected acquisition alternative under this document (point estimate and schedule for the selected alternative should be within this established range). If a more detailed estimate by WBS element is required a reference should be made to the Preliminary Project Execution Plan or any other available document.

2.2 Funding Profile.

Include a funding profile for the selected acquisition alternative that distributes the cost by fiscal years and the funding sources, including those from outside. See the suggested Table 2 below for presenting the budget point estimate funding profile (at CD-1 a cost range is presented but for budget planning purposes a target point estimate is required). It should be clearly noted that at CD-1 the project has not been baselined and the presented funding profile is for planning purposes but not definitive.

2.3 Key Milestones and Events.

Identify key milestones and events in the acquisition, development, and implementation process of the project. Examples include dates for Critical Decisions, project reviews, start of construction, start of operations, etc. See the suggested Table 3 below.

Table 2: Example--Required Target Funding Profile ($M)

	Prior FY	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Out-Years	Total
Line Item					**37**	**169**	**225**	**276**	**275**	**272**	**216**	**1,470**
NNSA					30	95	100	125	137	136	108	731
SC					7	74	125	151	138	136	108	739
PED		**10**	**19**	**86**	**120**	**50**	**12**					**297**
OPC	**20**	**9**	**12**	**14**	**19**	**19**	**56**	**57**	**57**	**57**	**113**	**433**
TOTAL	**25**	**14**	**31**	**100**	**176**	**238**	**293**	**333**	**332**	**329**	**329**	**2,200**

PED = Project Engineering and Design; OPC = Other Project Costs

Table 3: Example--Key Milestones and Events

Description	Planned Dates (A=Actual)
Complete conceptual design	02/2006 A
Independent Project Review	01/2006 A
Technical Independent Project Review	03/2007 A
Approve CD-1 and Acquisition Strategy Document	05/2007 A
Complete preliminary design	Sep-09
Approve performance baseline CD-2	Mar-10
Complete final design	Mar-12
Approve start of construction CD-3 (multiple)	Jun-10
Complete construction	Feb-16
Approve start of operations/project closeout	Aug-18

3.0 Alternatives (Technical and Location) and Risk Analysis

This section presents an analysis of alternatives for acquiring the required capability, including technical approaches, safety risks, alternative sites, and location-specific issues. By exploring a wide range of alternatives, there is greater likelihood of evaluating all potentially worthwhile options.

Market analysis of local, national or worldwide factors that could affect project objectives and shape the technical components of the acquisition strategy precedes writing the acquisition strategy document. In addition, the process of highlighting the advantages and disadvantages of

each alternative may lead to new ideas and better approaches for acquiring contracted support. As a result of this analysis, the acquisition strategy should logically support a recommended alternative.

3.1 Technical Alternatives Analysis.

List and describe the alternatives reasonably used to meet the required capability and the primary advantages and disadvantages of each. Reasonable alternatives should include innovations; not only the solutions used previously. The narrative or comparative tables used should provide sufficient detail to discriminate one alternative from another while maintaining the level of granularity or detail at the strategy level.

Identify and consider at least three viable alternatives such as renovating existing facilities or use of other facilities, a proposed new facility, and the current baseline, i.e., the status quo. Consider a range of alternatives to bridge a performance gap, including noncapital alternatives, before choosing to purchase or construct a capital asset or facility. These noncapital options include contracting out, privatizing the activity, non-ownership options such as leasing, or engaging in joint venture projects with other organizations to minimize the amount invested and reduce the organization's risk. Also, consider the use of exiting assets before choosing to purchase or construct new assets. If the IPT proposes to combine critical decision milestones or implement other "fast-tracking" of projects, those alternatives should be presented as technical alternatives and related risks should be recognized in the risk analysis.

To develop discriminators among alternatives, consider the following discriminators that may influence the technical alternative.

- Scope and definition
- Environment, safety and health[including any Defense Nuclear Facilities Safety Board (DNFSB) issues]
- Cost and schedule
- Workforce issues (cost, availability, legacy transitions)
- Funding and budget
- Technology and engineering
- Interfaces and integration requirements
- Safeguards and security
- Location and site conditions
- Legal and regulatory

- Stakeholder issues

Table 4 is a sample matrix of how risk items may be consolidated in the ranking scheme for evaluating technical alternatives. Risk or related issues should also be a criterion for evaluating alternatives. The details of it should be done in a separate working document but presented in the tables at the summary level. For conciseness of this document the risk evaluation details and supporting narrative is presented for the recommended alternative in Section 3.5.

Table 4: Example--Technical Alternative Analysis

No.	Alternative Title and Description	Risk Adjusted LCC Estimate ($M)	Risk Adjusted Lifecycle Benefit Estimate	Schedule	Funding/ Budget Management	Technical and Engineering	Interface & Integration	Safeguard & Security	Legal & Regulatory	ES&H	Stakeholder	Summary of Ranking
1	Status Quo/No Action	$100	10	10	1	10	10	8	10	10	10	5
2	Renovate Existing Facility	$89	7	10	4	10	10	8	8	8	5	4
3	Construct New Facility	$85	1	5	6	2	1	5	6	6	1	1
4	Renovate and Construct	$80	2	3	5	5	1	6	7	7	2	2
5	Use Similar Capabilities at Another Site	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6
6	Lease Facility from other organizations/Alt. Financing	$85	10	6	10	4	5	10	7	4	2	3

On a scale 1 to 10: 1 provides most benefit or advantage; 10 represents least benefit or advantage.

In addition to the discriminators listed above, there could be other project specific criteria that may need to be evaluated. See Table 5 as an example. Present the risks and alternatives in table form as well as in narrative text describing the trade-offs.

Table 5: Example Tailored Alternative Analysis (One Location, LANL, TA-55 Area)

Alternative	LCC ($M)	Meet Mission Need	Impact to Operations during Construction	Impact to Operations Post Construction	Authorization Basis Risk	Rank
1. Do nothing	$1,986	No	Low	Low	Low	6
2. PIDAS only	$2,075	No	Medium	Low	Low	5
3. TAIZ Plus	$1,216	Yes	Medium	Low	Low	1
4. TA-55 Security Configuration	$1,023	Yes	Medium	Low	High	3
5. Modified TA-55 Security Configuration	$889	Yes	Medium	Low	Medium	2
6. TA-55 Security Configuration with MAA	$1,080	Yes	High	Medium	High	4

3.2 Location Alternatives Analysis.

List the potential locations for the selected technical alternative and discuss the relative risks (For example: for a nuclear facility there could geotechnical/seismic risks at a particular location). If there are no location alternatives, indicate why none reasonably exists. If alternate locations exist, discuss or compare the costs and other advantages and disadvantages of the potential locations. State the rationale in selecting the preferred site. A table such as Table 6 may be used to summarize the narrative of location analysis. If rankings are used, the rankings should be traceable to the location analysis narrative, so that the reader might reasonably reach the same conclusion.

Table 6: Example--Summary Location Alternative

No.	Location Alternative	Cost	Schedule	Funding/ Budget Management	Technical and Engineering	Interface and Integration	Safeguard and Security	Legal and Regulatory	ES&H	Stake-holder	Summary of Ranking
1	LANL	1	1	1	3	3	1	1	1	4	2
2	Y-12	1	2	1	1	1	1	2	1	2	1
3	ANL	4	4	1	5	9	5	6	1	6	3
4	BNL	5	4	1	10	7	5	8	1	7	4

On a scale 1 to 10: 1 provides most benefit or advantage; 10 represents least benefit or advantage.

3.3 Total Lifecycle Costs (LCCs).

Discuss and/or summarize the LCC of the alternatives such as operations and maintenance cost, and costs of dismantling and demolition at project completion (the summary costs obtained from LCC analysis can be moved to the summary tables used for technical and location analysis for summary integration purposes and down-selection of best alternatives). Lifecycle costs are not only facility costs. For example, for environmental clean-up projects include the legacy workforce costs and projections associated with each alternative if applicable to the acquisition strategy. Also discuss the benefits of the alternative as described in OMB Circular A-94, Guidelines and Discount Rates for Benefit Cost Analysis of Federal Programs.

Summarize in tabular form the LCC of the alternative approaches.

See the suggested Table 7 and Table 8 for displaying the summaries for total LCCs (the tables below present numbers with no correlation to the samples presented in the other tables in the preceding sections). Note that the numbers in Tables 7 and 8 should be comparable and consistent (i.e., all should be either in present day dollars, or all should have the same time period of analysis.)

Table 7: Example Comparison of Alternative Case Capital Costs and LCCs

NMSSUP Alternatives	Capital Cost ($M)	Project LCC ($M)
1: Do nothing	$0	$1,986
2: PIDAS only	$104	$2,075
3: TAIZ Plus	$208	$1,216
4: TA-55 Security Configuration	$239	$1,023
5: Modified TA-55 Security Configuration	$230	$889
6: TA-55 Security Configuration with MAA	$314	$1,080

Table 8: Example Lifecycle Cost of Alternatives ($M)

Activity	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6
Capital Investment	$0.0	$104.0	$208.0	$238.9	$229.7	$314.0
Demolition	Included Above	Included Above	Included Above	Included Above	Included Above	Included Above
Utilities (power)	$1.3	$0.8	$4.9	$5.5	$4.9	$5.6
Materials (campaign replacements)	$4.0	$2.0	$4.3	$6.6	$4.3	$8.8
Maintenance & Support (on-call maintenance)	$20.1	$8.2	$30.2	$31.7	$30.2	$37.7
Maintenance Cost Avoidance (preventative maintenance)	$10.1	$4.0	$15.4	$16.9	$15.4	$17.7
Protective Force	$1,950.7	$1,950.7	$942.6	$689.3	$604.9	$661.2
Total Life Cycle Cost	**$1,986.**	**$2,074.7**	**$1,216.4**	**1,023.2**	**$889.4**	**$1,079.5**

3.4 Recommended Alternative. State the final recommended alternative based on the preceded analysis in an integrated form. Summarize why this is the preferred alternative; support the recommendation with facts from the analysis.

3.5 Risk Analysis. For the recommended alternative, this section represents a preliminary assessment of risks that could jeopardize the ability of the project to meet scope requirements within the budget and the proposed schedule (risks were also taken into consideration when evaluating the other alternatives above; they used the same approach as discussed here for the selected alternative). This effort leads to a preliminary risk management strategy that serves as a starting point for a formal Risk Management Plan for the recommended alternative. The risk analysis also identifies risk mitigation approaches for which the costs need to be included in the project cost range at CD-1.

At the summary level identify risks and possible mitigation strategies for the recommended alternative. If critical decisions have been combined or other project acceleration is proposed, identify the risks of the project as well as for combining or accelerating the work.

This section should address the following questions, at a minimum:

- What are the major acquisition management, technical, cost and schedule risks that jeopardize the successful completion of the project on time and within the budget?
- What areas of significant and/or high risk are being transferred to the contractor for management or mitigation during contract administration?
- For each of the following categories, identify what risks exist. Describe mitigating actions recommended or planned to address these risks. Classify risks in each category as low, medium, or high.
    - Scope and definition
    - Functional as it relates to the facility, technology, or system to perform or meet the project requirements
    - Environment, safety and health [including any Defense Nuclear Facilities Safety Board (DNFSB) issues].
    - Cost and schedule
    - Workforce issues (cost, availability, legacy transitions)
    - Funding and budget
    - Technology and engineering
    - Interfaces and integration requirements
    - Safeguards and security

- Location and site conditions
- Legal and regulatory
- Stakeholder issues
- Existence of metrics for performance measurement
- Required Government-furnished property/information and its availability
- Expertise and human resources--from DOE's perspective and the management expertise required to perform the work.

Table 9 is a partitioned example of risks identified in the above categories. The table should evaluate all of the categories above, or more if so identified.

Possible risks in four categories are shown in the example below with some possible mitigating actions, and evaluation factors or criteria that might be utilized for selecting a preferred acquisition strategy.

Table 9: Example Risk Analysis Summary Table

Category	Risk Definition	Mitigating action(s)	Criteria for Acquisition Strategy
Funding & Budget	Congressional appropriations may be less than annual resource requirement in the project plan	Define contingency plan describing project approach with reduced funding levels	Contractor with ability to adjust activity and work force levels
Technology & Engineering	Chemical process not fully developed	Funded Research and Development (R&D) program with results available prior to required design decision points	R&D and engineering capabilities are available through integrated contract arrangements
Legal & Regulatory	Regulatory process often results in delays	Regulatory compliance plan	Contractor with experience in regulatory issues
	Changing regulatory environment	Top-level communications and relationships	Ability to consult with regulators
Stakeholder Issues	Party with capability to impact project raises issues during project implementation	Early identification and communication with all stakeholders who can affect project. Required stakeholder communication plan. Required stakeholder communication plan	Proven federal and/or contractor capability to communicate with stakeholders

4.0 Business and Acquisition Approach

For the selected technical alternative and location, discuss the general approach to the acquisition, including managing pre-award activities and executing the project. Provide an overview of what the IPT anticipates for the pre-award and post-award management of business and acquisition issues. Identify whether government or industry resources or some mix are anticipated to meet management need, both pre-award and post-award. Indicate how funding is matched to or requests are in process for the recommended alternative over the lifecycle, inclusive of how the IPT will secure appropriate resources for developing the Statement of Work and the Independent Government Estimate, issuing the Request for Proposals, and conducting evaluations.

If the acquisition strategy proposes bundling, the Contracting Officer must perform the analysis and develop the justification required by FAR Part 7. Details required in the Acquisition Plan (FAR Part 7) should not be included in the acquisition strategy document; information that is procurement sensitive under FAR 2.101 and 3.104. Further, specific decisions reserved for the Contracting Officer (contract type, fee type, etc.) and appropriate to acquisition planning should not be included in the strategy level discussion of this section, Business and Acquisition Approach. DOE often needs to release the acquisition strategy to vendors as part of pre-award industry involvement or market research. Having procurement sensitive information in the acquisition strategy prevents that from occurring, or requires redacting the acquisition strategy prior to release.

The Acquisition Strategy is required at the critical decision milestone that includes conceptual design. The business and management approach must also be conceptual to accommodate further refinement of the chosen technical alternative in subsequent decision-making and planning.

4.1 Contract Alternatives.

Describe the potential contract approaches, including the use of a prime contractor, integrating, or multiple contractors and the rationale for the recommended alternative. Discuss the rationale of using an existing prime contract, if that is proposed [among the alternatives could be going directly to a management and operating (M&O) contractor and having them make whatever award is necessary or a Federal managed contract; provide a high-level rationale and justification of how that is in best interest of DOE].

Indicate if the selected alternative will result in new or follow-on contracts. If this is a follow-on contract, describe how previous competition, or lack thereof, is expected to affect the current acquisition.

4.2 Major Contracts Contemplated.

- Discuss the methods of competition (full and open, sole source, set-aside) anticipated throughout the course of the project for major contracts. Indicate if this alternative will result in new or follow-on contracts. If this a follow-on contract, describe how previous competition, or lack thereof, is expected to affect the current acquisition.

- Discuss the contract types contemplated (e.g., fixed-price, cost-plus, etc. or options under each) and why this general type is contemplated, including potential incentive and fee arrangements and the rational for each based on features of the proposed acquisition, and/or DOE experience with that type of fee arrangements.

- Discuss why the risk/benefit of the contract type or mix of contract types planned is appropriate for the proposed action. The risks and mitigations identified in the previous section (section 3.5) should logically lead into the current contract alternatives considered to support that type or requirement and risk. For example,

  > *"Based on the uncertainty of the remediation effort and the technical risks reasonably present over the life of the project, the IPT anticipates that the contract to support this effort meets the requirements of FAR 16.3 for a cost-reimbursement contract because the uncertainties involved in contract performance do not permit costs to be estimated with sufficient accuracy to use any type of fixed-price contract."*

  This type of response identifies the general contract type without including the certainty that would make the document procurement sensitive.

4.3 Special Acquisition Procedures.

Identify the use of special acquisition procedures (e.g., design-build or design-negotiate-build) or activities planned to reduce risk or risk levels, and provide rationale and justification of how that is in best interest of DOE. If the acquisition is substantially for Architect Engineer (A-E) services, indicate so. Discuss whether sealed bidding or best value evaluation are anticipated and why.

4.4 Performance Incentives.

At the strategy level (without going into contract specifics), describe the performance incentive approach(es) and how performance incentives for each major acquisition are contemplated to promote performance. What areas has the IPT identified as potentially responsive to incentive payments? Performance incentives planning should be based on consideration of major risks as well as critical needs and outcomes required by the Government. Support the proposed approach based on the unique technical features of the recommended alternative.

4.5 Small Business Approach.

Each acquisition strategy should clearly state the approach to actively identifying small businesses for the project. Discuss small business prime award to small businesses and small business subcontracting. What past contracts (large or small) are relevant to the new requirements? Does the work support a mentor protégé arrangement? Are there perceived concerns or benefits to subcontracting some or all of the work? Do not indicate subcontracting percentages or dollars to be subcontracted. A general statement that the project plans to meet current DOE small business goals and a description of how meeting DOE small business goals

will be addressed by the IPT as the project moves from acquisition strategy to acquisition planning may be sufficient as the small business approach.

5.0 Management Structure and Approach

5.1 Identify the FPD, IPT, Organization Structure, and Staffing Skills.

Discuss the management approach to managing the project, and supporting program and project interrelationships. Identify the IPT, organization structure, and staffing skills. Describe the relationships and interfaces between organizational elements. Discuss the required skills and staffing levels needed to successfully manage the project and administer the contract vehicles during the various phases of the project, as well as the anticipated availability of project management resources.

5.2 Approaches to Performance Evaluation and Validation.

Describe the approaches to performance evaluation, verification, and validation. Describe how project management and control systems such as the Earned Value Management System (EVMS) or the quality assurance program are proposed to monitor progress and successful execution of the project. Describe how the organization anticipates Government personnel will collect, validate, and evaluate contractor performance?

5.3 Interdependencies and Interfaces.

Summarize the interfaces with other DOE organizations, national laboratories, or outside stakeholders relevant to the acquisition strategy. If a site is subject to the requirements of DOE Acquisition Letter 2006-11 of August 18, 2000, requiring a site utilization and management plan (SUMP), state that the acquisition strategy is consistent with the SUMP or when the SUMP will be updated. Discuss the impact of this project and proposed contracts upon existing programs/projects at the site for mutual attainment of the project and the site's mission.

SIGNATURE PAGE. Insert names, titles, and dates of approving authority and concurring officials.

Insert the following paragraphs as the basis for signatures (preceding the signatures):

> *This report accurately represents the best thinking and efforts of the project FPD and the IPT to understand the full range of project risks and alternatives available to accomplish the project mission.*
>
> *All reasonable risks and mitigations to executing this acquisition strategy have been included, at this time, and the IPT believes the recommended acquisition strategy is in the best interest of DOE.*
>
> *If new information or facts arise that could have a significant impact on the project's cost, schedule, or performance, the FPD will make the PSO and the*

Office of Engineering and Construction Management (OECM) aware of this in a timely manner.

The acquisition strategy may be revised when it makes good business sense to do so. Any changes will be justified and documented. Material changes to the acquisition strategy such as changes in recommended alternative(s), risk profile, contract or competition approach, or major milestones, are adequately documented and approved at the same approval level as the original document.

(NOTE: Approval of this acquisition strategy does not constitute approvals required by DOE Headquarters Office of Acquisition and Supply Management for specific contract clearance purposes, including contract acquisition plans under Federal Acquisition Regulation Part 7.)

APPENDIX A: GLOSSARY

1. Acquisition. The act of acquiring by contract with appropriated funds supplies or services (including construction) by and for the use of the Federal Government through purchase or lease.

2. Acquisition planning. The process by which the efforts of all personnel responsible for an acquisition are coordinated and integrated through a comprehensive plan for fulfilling the agency need in a timely manner and at a reasonable cost. It includes developing the overall strategy for managing the acquisition.

3. Acquisition strategy. A comprehensive high-level business and technical management approach designed to achieve project objectives within specified resource constraints; the plan for satisfying the mission need in the most effective, economical, and timely manner; the framework for the next phases of planning, organizing, staffing, controlling, and leading a project. It provides an acquisition approach for activities essential for project success and for formulating functional strategies and plans.

4. Acquisition plan. The more detailed procurement strategies and supporting assumptions by which a system, project or product is obtained by the Government and/or its contractors. The plan, after approvals, becomes the guidance document to the Field Contracting Officer for future contracting and procurement actions. When separate acquisition strategy and acquisition plans are prepared, the acquisitions may not be approved until the acquisition strategy has been approved by the Critical Decision authority.

5. Acquisition program or project. Acquisitions of capital assets, equal to or greater than $5 million, regardless of the funding source, that deliver a product or capability, with a specified beginning and end, stated cost, and expected performance objectives. They are directed with the purpose of providing a useful material capability in response to a validated mission or business need.

6. Acquisition streamlining. Any effort that results in more efficient and effective use of resources to design and develop, or produce quality systems, which meet stated performance requirements. This includes ensuring that necessary and cost-effective requirements are included, at the most appropriate time in the acquisition cycle, in solicitations and resulting contracts for the design, development, and production of new systems, or for modifications to existing systems that involve redesign of systems or subsystems.

7. Competition. An acquisition strategy whereby more than one contractor is sought to bid on a service or function; the winner is selected on the basis of criteria established by the activity for which the work was performed. The law and DOE policy require maximum competition throughout the acquisition lifecycle.

8. Competitive proposals. A procedure used in negotiated procurement that concludes with awarding a contract to the offerer whose offer is most advantageous to the government.

9. Lifecycle cost. The total cost to the Government of acquiring, operating, supporting, and (if applicable) disposing of the items being acquired.

APPENDIX B: REFERENCES

1. Acquisition Letter 2000-08, Site Utilization and Management Planning, August 18, 2000.

2. FAR Part 7, Acquisition Planning.

3. FAR 3.104, Procurement Integrity.

4. FAR 16.3, Cost Reimbursement Contracts.

5. FAR Part 19, Small Business Programs.

6. FAR 34.004, Acquisition Strategy (Major System).

7. FAR 37.6, Performance-Based Contracting.

8. DOE Acquisition Guide (August 2006).

9. DOE Exhibit 300 Guidance.

10. DOE O 413.3A, Program and Project Management for the Acquisition of Capital Assets, dated 7-28-06.

11. DOE M 413.3-1, Project Management for the Acquisition of Capital Assets, dated 3-28-03.

12. DOE 413-Series Guides.

13. DOE-STD-1189-2008, Integration of Safety into the Design Process, April 2008.

14. OMB A-11, Preparation, Submission and Execution of the Budget.

15. OMB A-94, Guidelines and Discount Rates for Benefit-Cost Analysis of Federal Programs.

16. MOPAS 2, Dec 2006, Department of the Navy, Management & Oversight Process for the Acquisition of Services.

APPENDIX C: ACRONYMS

CD	Critical Decision
DNFSB	Defense Nuclear Facilities Safety Board
EVMS	Earned Value Management System
FAR	Federal Acquisition Regulation
FPD	Federal Project Director
FY	Fiscal Year
IPT	Integrated Project Team
LCC	Lifecycle Cost
OECM	Office of Engineering and Construction Management
OMB	Office of Management and Budget
OPC	Other Project Cost
PED	Project Engineering and Design
PSO	Program Secretarial Officer
TEC	Total Estimated Cost
TPC	Total Project Cost

APPENDIX D: SAMPLE ACQUISITION STRATEGY

ACQUISITION STRATEGY SAMPLE AND GUIDANCE TOOL

PROJECT TITLE

Acquisition Strategy

Revision X
September 200X

EXECUTIVE SUMMARY (Optional)

Table of Contents

Change Log

Rev. No.	Date	Change Description	Pages Modified
Rev. A	10/0X	Initial Draft	N/A

SUMMARY PROJECT INFORMATION

Project Title:
Lead Program and Project Office:

Facilities and Infrastructure Recapitalization Program (FIRP)

Total Project Cost (TPC) Range:

- $7.80 to $10.21 Million (M)

CD-0 Mission Need Approved:

- November 19, 2003

CD-0 Approving Official:

- John Doe, Program Secretarial Office

CD-0 Material Change:

- 44,405 Linear Feet (LF) offsite gas line in CD-0 changed to 47,000 LF.
- Added re-seed of construction easement.
- Added three-strand barbed wire fence on both sides of the easement for construction.
- Planned acquisition altered from Design-Bid-Build to Design-Build strategy
- National Environmental Policy Act (NEPA) strategy changed from Categorical Exclusion to Environmental Assessment (EA)

1.0 Desired Outcome, Requirements, and Major Applicable Conditions

1.1 Project Description

The purpose of the project is to provide reliable natural gas service to support Manufacturing and Infrastructure operations. The project addresses those areas of the gas main and distribution system that are of questionable reliability due to aging, incompatible materials, and antiquated technologies. Additionally, the project will minimize risks to the government associated with failures both onsite and offsite, eliminate the deferred maintenance for the system, and provide a design life of 25 years. Specific areas to be addressed are:

- Pipeline replacement/upgrade
- Upgrade of appurtenances
- Cathodic protection installation

Pipeline replacement/upgrade includes approximately 47,000 LF of steel piping offsite (installed in the early 1950s) and approximately 27,445 LF of steel piping onsite (installed in the early 1940s).

Instrumentation required to meter the flow of natural gas from the supplier will be upgraded with the latest technological devices. New flow regulators and isolation valves will be installed, and a motor operated isolation valve (MOIV) with remote-control capability will be installed at the Plant property line where the gas main enters the site, for enhanced safety and control.

Utilization of high density polyethylene (HDPE) in place of steel piping for the underground portions of the system eliminates the need for impressed ground beds for cathodic protection. Metallic valves, regulations, and metering components will be cathodically protected using sacrificial anodes and test stations.

1.2 Performance Parameters Required to Obtain Desired Outcome

This project will revitalize the system to meet NNSA mission for project parameters, will assure facility infrastructure reliability, and NNSA mission expectations.

Ruptures in the current gas system affect various manufacturing and infrastructure operations at the plant. Gas distribution failures have increased over the past several years. Most gas interruptions are minor, since the Steam Plant and other critical items have the capability of switching to an alternate fuel source (diesel). The use of diesel however, becomes an environmental air quality permit issue. The plant carefully monitors all usage of the alternate fuel source to ensure that the environmental air quality permit is not violated.

Replacement and upgrade of the gas system will minimize potential violation of the air quality permits, and reduce impacts to the following critical facilities and processes:

- Steam for environmental controls for mission essential bays and cells.
- Steam for process equipment.
- Steam for heat in buildings and ramps.
- Direct gas fired heating and water heating.
- Plant water well pump operations.
- Emergency generator for medical facility.
- Sanitization of classified material (incinerator).
- Metal treating for Tooling Operations.

NNSA's nuclear facilities require a reliable and safe infrastructure. Natural gas utilities are an essential part of ensuring reliable facilities. The project will require modern materials and appurtenances that promote safety and longevity at low cost. These materials will have to be able to resist damage due to mechanical means or natural occurrences. A modern, well-designed gas main and distribution system will reduce or eliminate maintenance costs over its design life and provide the reliability that the plant needs.

Operational requirements reflect the core functions that the current system lacks. The current system is potentially unreliable, unsafe, and does not provide for future needs. Operational requirements will be the same for each alternative considered.

The final requirement for the upgrade is that it must provide for the Plant's current and future needs as noted above, and have a design life of 25 years as reflected in the DOE Accounting Handbook, Chapter 10, attachment 10-1, "Standard Service Lives" and is consistent with the DOE Conditions Assessment Survey (CAS) Manual. Note that this design life is below the expected life of HDPE piping, a conservative 40 years (estimated by HDPE manufacturer Polypipe).

1.3 Major Applicable Conditions

The project is the replacement and upgrade of existing infrastructure at the plant. Natural gas is a required utility service that supports mission essential and mission support facilities on the plant.

The goals of the project are reflected in the Facilities and Infrastructure Recapitalization Program (FIRP) within NNSA. The goals were established to "extend facility lifetimes, reduce the risk of unplanned facility system and facility equipment failures and/or increase operational efficiencies and effectiveness."

1.4 Environmental, Regulatory, Technology Development, Security and Political Sensitivities; Others

Environmental and Regulatory

No environmental issues have been identified to date that would significantly impact this project. The project entails the upgrade of the natural gas distribution system onsite and the gas main offsite. Preliminary NEPA analysis during the pre-conceptual phase indicated that the project is categorically excluded as applicable within 10 CFR 1021, Subpart D, Appendix B.1, however, due to the sensitivities involved with offsite landowners, and potential NNSA vulnerabilities, the project has prepared an Environmental Assessment (EA). A pre-decisional EA for this project was completed and made available to the public for review and comment. The Finding of No Significant Impact (FONSI) and final EA were issued on September 15, 2005.

The project area cuts across three different land uses: cultivated ground, native grass or pastureland, and land in the Conservation Reserve Program (CRP). The United States Department of Agriculture has confirmed that CRP payments to landowners will not be impacted as long as ground cover is re-established within two years of the construction. The project scope

entails reseeding all areas affected by construction utilizing the appropriate ground cover material (seed mix).

Terrestrial habitats may be disturbed by construction. Shortgrass prairie (buffalo grass, blue grama, and, in mestic sights, western wheatgrass) represents the primary habitat for species of concern (e.g.,.Texas horned lizards, ferruginous hawk, western burrowing owls, song birds) in the area. The Natural Resource Coordinator of the Regulatory Compliance Department will be contacted if a nest of any bird is encountered prior to or during the project. The project documents will require that the Plant's wildlife biologist be notified well in advance to any planned construction across these specific areas of concern.

The project does involve construction in or across Solid Waste Management Units (SWMUs). These areas have been assessed and do not pose a hazard. The crossing of the SWMUs will be coordinated with the construction contractor and the Regulatory Compliance Department, SWMU Management Section. The Regulatory Compliance Department and Environmental Remediation Services will evaluate the work within the SWMUs and the construction contractor will be provided with instructions on how to manage these areas.

Use of the alternate fuel source (diesel) could be a risk for air quality management, but the project is working to mitigate this usage by performing tie-ins/cutovers of the new system on weekends when natural gas demand to support mission critical programs is at its lowest.

Pollution Prevention Plans

The construction contract will require the contractor to protect the environment. Throughout construction, storm-water management techniques will be used to prevent erosion and contain storm water while the site is disturbed. Dust control measures will be implemented to minimize air pollution during site preparation and construction. The Design-Build firm will be required to conform to the requirements of the plant's Master Specification Division 1, Section 01557, "Environmental Protection" and Section 01558, "Storm Water Pollution Prevention".

Security

The project scope has been coordinated with the site technical security office, and there are no technical security issues that need to be captured in the design. Access to the Plant for design or construction activities will be by a security escort where applicable. Any changes in security requirements will be addressed upon official notification by NNSA, and will be factored into the project as applicable. Possible security issues are heightened security levels and commensurate restrictions on work at the site. Contingency measures are available to mitigate impacts if these conditions occur.

Technology and Research and Development

No technology issues have been identified.

Funding

No funding issues have been identified.

Operational Including Shutdown and Start Up Planning

No operational issues have been identified.

2.0 Cost and Schedule Range

2.1 Total Project Cost Range

The preliminary total project cost (TPC) range at CD-0 was $5.340 - $7.540M.

The current total project cost estimate is $8.856M as outlined in Table 1, below.

Total project cost range is $8.107M - $9.640M.

Table 1 – Total Project Cost Range

Task	WBS Level	Estimate ($K)	Minimum Cost ($K)	Maximum Cost ($K)
1.01 Pre-conceptual/Mission Need	2	126	113	138
1.02 Conceptual Design	2	624	562	686
1.03 Title I/Title II Design	2	733	669	806
1.04 Construction	2	6,116	5,529	6,728
1.05 GFE Equipment	2	0	0	0
1.06 Acceptance / Start-up	2	257	232	282
Total Project Cost		7,856	7,107	8,640
Program Contingency*		1,000	1,000	1,000
Total Project Cost		8,856	8,107	9,640

NOTE: Program Contingency (risk contingency) established for potential Land and Livestock losses.

2.2 Funding Profile

Table 2 – Funding Profile ($K)

FY	Prior Years (03-04)	2005	2006	2007	2008	TOTAL
PED		1,091				1,091
Construction			3,700	3,145		6,845
Other Project Costs	323	202	100	100	195	920
Total Project Costs						8,856

The Budget Department, in accordance with NNSA budget guidance, manages the budgeting and funding. The funding for the Title I and Title II Design Phase is to be funded from the Project Engineering and Design (PED) funds. Total funding requirements are defined in the Construction Project Data Sheet (CPDS), which has been updated to reflect the funding profile utilized in the development of this document. The Integrated Construction Program Plan (ICPP) will also need to be modified to reflect this profile.

2.3 Key Milestones and Events

The following are the milestones planned for this project:

Table 3 – Key Milestones

Milestone	Date	Milestone	Date
Approval for CD-0 (Completed)	11/20/03	NTP Construction – offsite	1Q FY07
Approval for CD-1	10/05	NTP Construction - onsite	3Q FY07
Approval for CD-2	06/06	Acceptance/ Start-Up Complete	3Q FY08
Approval for CD-3	06/06	Approval for CD-4	3Q FY08
Award Design-Build Contract	4Q FY06		

3.0 Alternatives (Technical and Location) and Risk Analysis

3.1 Technical Alternatives Analysis

Alternatives that cover the range of available technical approaches for future service are identified as follows:

Alternative 1 Do nothing defined as retaining the existing system and performing repairs as required.

Alternative 2 Replace only onsite distribution system and relinquish ownership of the offsite main to existing natural gas provider.

Alternative 3 Replace the existing DOE owned offsite gas main and onsite distribution system.

The advantages and disadvantages for each of these three alternatives are summarized in Table 4, below.

Table 4 – Alternative Advantages/Disadvantages Summary

ALTERNATIVE ANALYSIS		
Alternative	**Advantages**	**Disadvantages**
1 – Do Nothing	• No construction cost • No impact on users or interruptions in plant operations during upgrade of system • No construction risks • No immediate public relations concerns with offsite landowners • No Environmental Assessment required	• Lifecycle Cost PV is $13,216,552 • Unacceptable environmental risk • Unacceptable personnel safety risk • Unacceptable risk of system failure, particularly to those portions of pipeline currently located in the SWMU, Radiological Controlled Areas, Confined Space, and congested plant areas • Fails to eliminate $3.1M deferred maintenance backlog • Does not comply with DOE useful life requirements • Does not update the deteriorating, obsolete, and inadequate system • Potential unacceptable loss of natural gas from aging pipeline • Minimal system reliability

ALTERNATIVE ANALYSIS		
Alternative	**Advantages**	**Disadvantages**
		• Dedicated line for NNSA service to site is not available • Remote operation for shut-off in the event of a leak is not available
2 – Replace only onsite distribution system and relinquish ownership of offsite main	• Lifecycle Cost PV is $8,228,206 • Minimal impact on plant-wide users • No impact to offsite users • Eliminates the $3.1M deferred maintenance backlog • Reduces preventative maintenance cost • Utilizes latest equipment technologies • Reduces risk of personnel safety issues • Complies with DOE useful life requirements • No immediate public relations concerns with offsite landowners • No Environmental Assessment required • Improves reliability of distribution system (onsite) • Reduces risk of system failure for portions of pipeline currently located in the SWMU, Radiological Controlled Areas, Confined Space, and congested plant areas	• Repair costs over 25 years would have to be “accepted” by Atmos as part of the ownership transfer agreement for the offsite portion of the main line • Construction risks • Unacceptable environmental risk • Unacceptable personnel safety risk • Risk of site impact during distribution system replacement • Continued unacceptable risk of system failure from deteriorating gas main supply • Does not update the deteriorating, obsolete, and inadequate system • Potential unacceptable loss of natural gas from aging pipeline • Minimal system reliability • Eliminates NNSA’s control over gas main taps, sizing, reliability, and replacement schedule for supply line, jeopardizing site’s ability to meet future needs for natural gas demand • Eliminates NNSA’s ability to negotiate with other natural gas providers to achieve better gas prices • Dedicated line for NNSA service to site is not available • Remote operation for shut-off in the event of a leak is not available

ALTERNATIVE ANALYSIS		
Alternative	**Advantages**	**Disadvantages**
3 – Replace Gas Main & Distribution System at Plant (offsite & onsite)	• Excellent system reliability • Eliminates the $3.1M deferred maintenance backlog • Significantly reduces preventative maintenance cost (approximately $130K operating and maintenance cost over next 25 years) • Utilizes latest equipment technologies • Reduces risk of unplanned outages • Efficient use of capital resources • Complies with DOE useful life requirements • Reduces the risk of system failure for portions of the pipeline currently located in the SWMU, Radiological Controlled Areas, Confined Space, and congested plant areas • Eliminates confined space entries for valve access • Eliminates maintenance work in radiological area associated with pipeline • Reduces environmental risk • Reduces personnel safety risk • Reduces probability of natural gas loss from pipeline • Dedicated line for NNSA service to site • Improved safety conditions due to remote operation for shut-off in the event of a leak	• Moderate construction cost estimated at $5.5M-$6.7M • Construction risks • Risk of site impact during replacement • Public relations concerns with offsite landowners • Environmental Assessment is required

3.2 Location Alternative Analysis

The location alternatives for this project are limited. The distribution system is located on the Plant site to serve the existing equipment, and buildings that are in fixed locations, so there were no other practical location alternatives available for consideration.

Several location alternatives for the gas main supply to serve the plant were considered. In addition to the existing main line that currently supplies the gas main, three alternative transmission lines were researched for their ability to meet the plant needs relative to this project. Options identified were:

- 24” line owned by Transwestern Pipe Line Company, which grazes the southeast corner of the Plant on the opposite side of Highway XX.
- 12.75” line owned by Oneoke Westex Transmission, also at the SE corner of the plant on the opposite side of Highway XX, in the same location.
- 12.75” line owned by Oneoke Westex Transmission, located at the closest point about 8000’ from the west, northwest side of the Plant.

The two 12.75–in. lines owned by Oneoke were considered unacceptable location alternatives because the plant requires at least a 10” line to meet its natural gas requirements. It was assumed that Oneoke could not meet its current demand on these lines with such a large, new tap.

The gas distributor was contacted regarding capacity of the 24” line. The distributor stated that it had already tried to tap into the 24” line with a tap smaller than that required by the plant, and had been rejected due to insufficient capacity. Therefore, this location alternative was also deemed unacceptable.

As a result, the remaining gas main supply location—the existing supply line for the plant—was considered the only viable alternative.

3.3 Total Lifecycle Costs

In addition to analyzing the advantages and disadvantages for each alternative, the project team completed a lifecycle cost (LCC) analysis as summarized in Table 5, below.

Table 5 – Lifecycle Cost Analysis Summary

	Alternative 1- Do Nothing	Alternative 2- Replace Onsite Only	Alternative 3- Replace Onsite & Offsite
Total Project Cost	$0	$4,700,000	$8,856,000
Total Maintenance & Operations Cost (25 yrs)	$4,597,650	$4,597,650	$4,597,650
Total Failure Repair Cost (25 yrs)	$17,634,946	$671,232	$671,232
Total Lifecycle Cost Summary	$22,232,596	$9,968,882	$14,124,882
Present Value, Discounted 2.95%	$13,216,552	$8,228,206	$12,132,574

Assumptions used to develop the LCC for each alternative are as follows:

- Discount rate of 2.95 percent, per OMB Circular A-94.
- Useful life of 25 years.
- Total project cost of $8.856M for replacing on-site and off-site gas distribution.
- Total project cost of $4.700M for replacing on-site gas distribution.
- $94K per year for on-site gas distribution operations ($80K) and maintenance costs ($14K). It is assumed this cost will remain constant for all alternatives.
- $83K per year for off-site gas distribution operations ($63K) and maintenance cost ($20K). It is assumed this cost will remain constant for all alternatives.
- Maintenance and Operations costs for all alternatives were based upon HDPE pipe replacement (see Additional Alternatives Considered below, on page 13)
- Cost of failures is assumed to be approximately $300,000 per failure.
- Projection failures for Alternative 1, Do Nothing, were estimated using information from a previous HPFL LCC analysis that was based on information from the book “Control of Pipeline Corrosion,” by A. W. Peabody, and statistical software, TableCurve. TableCurve has different methods for determining the best fit line of logarithmic data using different equations: y=ae(bx), lny=a+bx, and weighted lny=a+bx. The most conservative projected failures line (weighted lny=a+bx) was used for this LCC analysis.
- For Alternative 2, it is assumed that when DOE/NNSA relinquishes ownership of the off-site main, DOE/NNSA would not be responsible for repair costs.

3.4 Recommended Alternative

All of the alternatives were evaluated against the LCC analysis, risk analysis, and major functional and operational requirements. The team chose to use a three-step process that develops selection criteria, weighs each criterion against each other, and then evaluates each alternative against each criterion. The resulting weights and relative scores are shown in Tables 6 and 7, below.

Table 6 – Alternatives Analysis Matrix

	Monitoring (2.6%)	Maintainability (11.7%)	Environmental (5.2%)	Efficiency (3.9%)	Reliability (11.7%)	Safety (13%)	Risk (11.7%)	Life Cycle Cost (9.1%)	Control (10.4%)	Security (9.1%)	Meets Requirements (11.7%)	Total
	a	b	c	d	e	f	g	h	i	j	k	
Criteria Weight	2	9	4	3	9	10	9	7	8	7	9	Total
Alternative 1 Do Nothing	4 / 8	1 / 9	4 / 16	3 / 9	1 / 9	1 / 10	1 / 9	1 / 7	4 / 32	10 / 70	1 / 9	188
Alternative 2 Replace Only On-Site Distribution Lines	4 / 8	8 / 72	6 / 24	6 / 18	4 / 36	5 / 50	3 / 27	3 / 21	1 / 8	1 / 7	5 / 45	316
Alternative 3 Replace Gas Main & Distribution Lines at Pantex (On-Site & Off-Site)	8 / 16	9 / 81	7 / 28	10 / 30	10 / 90	10 / 100	8 / 72	2 / 14	9 / 72	10 / 70	10 / 90	663

These results are also expressed graphically in Table 7, below.

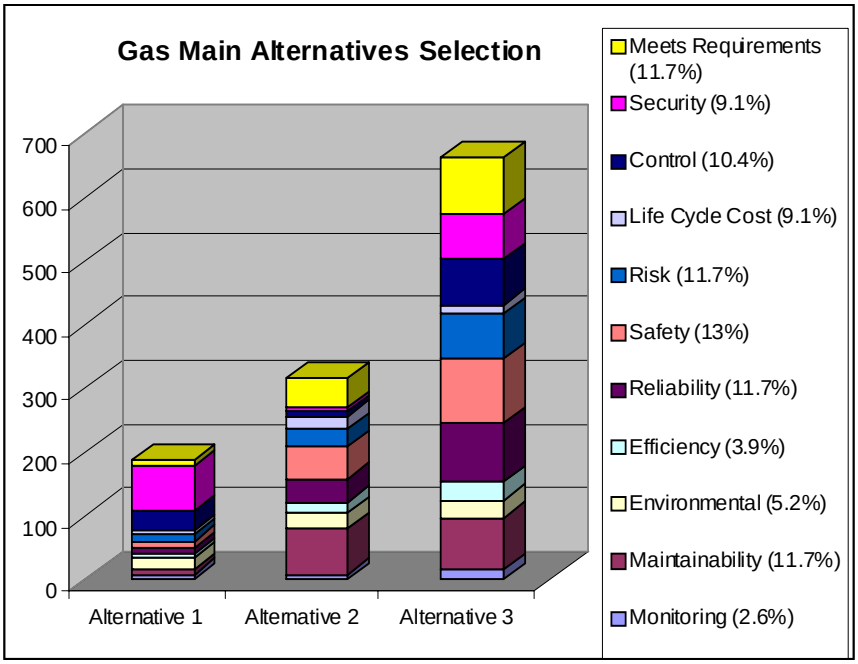
All values assigned to the alternatives selection matrix were derived by project team consensus and reviewed and approved by PXSO.

- **WEIGHT**: The number in the colored box is the weight assigned to the criteria. The weight was assigned on a 1:10 basis, 1 being the lowest and 10 being the highest. The percentage derived for each weighted criteria was calculated based on the individual criteria weight divided by the total of all criteria weights. For example: Safety was assigned a criteria weight of 10 by the team. The total of all criteria weights is 77, so Safety is 10/77 or 13% of the overall decision weight.

- **IMPACT VALUE**: The number in the upper triangle is the impact value. This is the score assigned to the impact the alternative has on the criteria. The impact value was assigned on a 1:10 basis, 1 being the lowest (does not meet criteria) and 10 being the highest (fully meets criteria/need).

- **SCORE**: The weight multiplied by the impact value equals the score assigned for each criteria for each alternative. This number is shown in the lower triangle. These scores then make up the values used in the stack chart, so that each "stack" equals the TOTAL score for each alternative.

Table 7 – Alternatives Analysis Graphic



Based upon the information evaluated, as presented above, the project team elected to develop Alternative 3. The overall benefit to the government was the basis of this decision, rather than cost alone.

Alternative 1 was deemed unacceptable due to the number and severity of unacceptable risks associated with a pipeline failure that would be an increasing possibility as the pipeline continued to age and deteriorate. Additionally, this alternative does not meet the goals to reduce the deferred maintenance backlog, reduce preventive maintenance costs, increase system reliability, and does not comply with DOE useful life requirements for the gas main and distribution system; this system has already exceeded the 25-year service life (DOE Accounting Handbook) by approximately 25 years. Furthermore, this option would not allow the plant to meet increased natural gas demand for future needs, nor would a dedicated line with isolation capability be available. The project also had the highest LCC of the three alternatives considered.

Alternative 2 was deemed unacceptable due to the number and severity of unacceptable risks associated with a pipeline failure that would be an increasing possibility as the offsite gas main pipeline continued to age and deteriorate. This alternative does not significantly increase system reliability because the offsite portion would continue to deteriorate and NNSA would no longer have control over gas main taps, sizing, reliability, and replacement schedule for supply line. This would virtually eliminate the possibility of NNSA locating a dedicated pipeline with isolation capability of sufficient size to meet future needs for natural gas demand for the Plant. Additionally, NNSA would lose the ability to negotiate with other natural gas providers to achieve better gas prices in the future. This alternative also relies heavily upon the assumption that the current natural gas provider would be willing to accept ownership of and liability for an

aging asset with little forecast service expansion. Although this alternative does provide the lowest LCC, it does not provide the best value to the government.

Alternative 3 is recommended as the preferred alternative because it is the most efficient use of capital funds that also meets the safety and technical objectives required by plant operations. The recommended approach in this project meets the requirements to address all identified concerns in the gas main and distribution system at the plant. The estimated initial investment/construction cost of $5.5M-$6.7M is based on the updated detailed cost estimate as validated by an Independent Cost review conducted in January, 200X. This alternative places the entire burden of construction cost for a new line on site. In addition, the Plant would maintain liability for any problems that arise. Even though this alternative does not have the lowest LCC, it is considered the best option because it provides the most value to the government. NNSA could negotiate for better gas prices in the future, as it has done in the past, saving money in the long run. In addition, NNSA would not have to place any taps on this line, leaving it completely dedicated to the plant. Furthermore, a new motor operated isolation valve (MOIV) would provide the capability of remotely operating the valve to quickly isolate the natural gas supply onsite in the event of a leak or other incident.

Additional alternatives that were evaluated include the following alternative studies:

Alternative methods for replacing the gas main and distribution lines were explored. The use of a graded approach to replace the most critical or deteriorated lines was explored. This alternative would allow replacement of the worst portions of the lines and deteriorated lines that provide natural gas to the most critical areas. The remainder of the system not selected for replacement would continue to age and be replaced on a “replace when fails” basis. At present, this alternative is not advisable due to the continuing safety risks and maintenance needs for sections not replaced; this alternative does not improve the reliability of the system and the risk of unplanned outages to plant operations is unacceptable.

Alternate pipeline materials were also explored. The current gas main is constructed of steel, and it has proven to be a durable, long-lasting material. However, steel is heavy, expensive to purchase and install, and expensive to maintain because it requires the use of a cathodic protection system. The Plant gas main and distribution system operates in the low- to mid-pressure range, so a material as strong as steel is not required. High density polyethylene (HDPE) is a modern material that is lightweight, durable, non-reactive, and easy to work with. HDPE works well in low- to mid-range transmission and distribution systems, such as the one under consideration. HDPE is currently used for all new gas distribution projects on the plant. HDPE is currently considered the best material option for this project, but this alternative will be further evaluated for lifecycle cost and value engineering during the design process.

Other Acquisition Alternatives Considerations

Various alternatives have been considered with respect to this project. The alternatives considered are Federal led or utilizing the current management and operating contractor. The Federal led alternative consists of the site office relying on either the U.S. Army Corps of Engineers (USACE), directly contracting with a qualified architect-engineering (A-E) firm and qualified construction company, or directly contracting with a design-build (D-B) firm to

perform the required services. Due to the simplicity of the design and the relatively advanced level of development of the construction scope requirements, the site office recommends the use of a D-B firm through a Federal led acquisition.

3.5 Risk Analysis

An essential part of the project planning will be to ensure the risks associated with the project have been identified, analyzed, and determined to be either avoidable or manageable. Risk identification and analyses will be continued throughout the planning process, including the acquisition strategy and the project execution plan (PEP). Each of the identified risks will be monitored at each critical decision and review point to ensure they have been satisfactorily addressed, eliminated, or managed.

The risk assessment process was started before CD-0. Risk analysis process and conclusions were reviewed and revised during both the independent cost review (conducted in January 2005) and the CD-1 preparation.

A formal risk management plan has been prepared for this project that includes strategies for mitigating risks. For additional risk assessment detail, refer to the current version of the Risk Assessment Plan. In the assessment, a total of 10 risks were identified. Of the active risks, there were no High risks, 5 are Moderate, and 5 are Low, based on the mathematical database (5X5 Risk Level Matrix).

Table 8 – Risk Summary

Category	High	Moderate	Low
Interface		1	1
Budget		3	1
Design			1
Security		1	
Safety			1
Environmental Health and Safety			1

The general conclusion of this analysis is that the predominant consequence of the identified risks is a potential for cost and schedule increases.

Based on this analysis and conclusion, the following activities are recommended:

Risks continue to be monitored and managed throughout the project.

- Continue to monitor and coordinate potential security risks.

- Coordinate with operations and maintenance to minimize the effect of outages.
- Evaluate lessons learned and stress the importance of safe work practices.
- Monitor contractor performance to ensure safe work practices are followed.
- Inspect all work and material being installed for compliance.
- Ensures all adequate resources are available to implement those mitigation strategies that have been identified as Moderate and support alternative work locations in the event of a security event.
- Quantify any cost impact of the residual risks and include them in the project cost estimate. Once a baseline is approved, monitor and trend all deviations.

4.0 Business and Acquisition Approach

4.1 Contract Alternatives

Various alternatives have been considered with respect to this project. The alternatives considered are Federal led or utilizing the current management and operating contractor. The Federal led alternative consists of the site office relying on either the U.S. Army Corps of Engineers (USACE), directly contracting with a qualified architect-engineering (A-E) firm and qualified construction company, or directly contracting with a design-build (D-B) firm to perform the required services. Due to the simplicity of the design and the relatively advanced level of development of the construction scope requirements, the site office recommends the use of a D-B firm through a Federal led acquisition.

Contract Administration

The site office will manage and administer the D-B, and/or other service type contracts and have the following responsibilities:

Develop the request for proposal (RFP) for the design and construction with the project management team and submit to NNSA service center for issue.

Attend project team and construction progress meetings.

Conduct pre-proposal meetings.

Conduct price negotiations.

4.2 Major Contracts Contemplated

The NNSA service center will award and the site office will administer and manage the prime contract for this project with technical support from the USACE and the Managing and operating (M&O) contractor. Construction and technical management of the D-B project will be performed by the USACE. Critical components of the project will be subject to M&O review and support

during construction. A memorandum of understanding (MOU) will be initiated between all parties. The MOU will outline roles and responsibilities for each participating party to include submittal reviews, quality assurance, contracting officer duties, contract administration, construction administration, and oversight, at a minimum.

A competitive selection of the design-build (D-B) firm for the project will be based on demonstrated technical expertise, qualifications, capability, and resource availability to meet schedule requirements. Price will be considered, but it is expected that technical criteria will be weighted more than cost. The final solution may use price as a consideration from finalist firms, as determined appropriate in the acquisition planning. Due to uncertainty of the requirements, a firm fixed price (FFP) is contemplated. The FFP D-B contract will include all design, materials, equipment, and services necessary to achieve a complete and functional utility meeting all required criteria.

The D-B contract will provide preliminary design, detailed design, construction services and engineering support, as well as closeout and post-construction services.

4.3 Special Acquisition Procedures

No special acquisition procedures will be used for the acquisition contracts.

4.4 Performance Incentives

The D-B contract will be competitively solicited and awarded to the Small Business Administration Contractor Community first with other contracting entities considered if Small Business Administration contracting is not successful. Historically, construction contracts in this range do not attract architect/engineer and general contractors beyond the local area. Solicitation of general contractors will be made within the region, with consideration for small business, veteran-owned small business, service-disabled veteran-owned small business, HUB Zone small business, and small disadvantaged business and women-owned small business concerns. The award will be based on the best value determined from an evaluation of technical criteria such as technical qualifications, past performance and experience, as well as cost considerations.

The site is located in an area where subcontractor resources are limited in some trades and competitive bidding in this area has been increasingly difficult. Due to this fact, the site office and the USACE will be working with the local and regional Association of General Contractors (AGC) and Construction Specifications Institute (CSI) affiliates as well as the Panhandle Regional Planning Commission (PRPC) in order to solicit and develop contractors from outside the area.

4.5 Small Business Approach

The site office, in conjunction with the NNSA service center, NA-50, and NA-63, and support from the USACE, will actively search for prospective small business contractors by using electronic sourcing to include the U.S. Small Business Administration’s Central Contractor Registration Database and Pro-Net. It is anticipated that the D-B project will be openly competed to both small and large business firms, with the large business firms being considered if not

successful with small business firms. Awards to a large business above $500,000 ($1,000,000 for construction) require a Small Business Subcontracting Plan. The plan must include goals for the utilization of small business, veteran-owned small business, service-disabled veteran-owned small business, HUB Zone small business, small disadvantaged business, and women-owned small business concerns as subcontractors. The goals, if necessary, shall be negotiated by the site office contracting officer, with support from the USACE, and approved by NA-52 and NA-63.

5.0 Management Structure and Approach

5.1 Identify FPD, IPT, Organization Structure and Staffing Skills

The project organization chart is shown below with Table 9 which identifies the DOE/NNSA Integrated Project Team members.

Project Organizational Structure

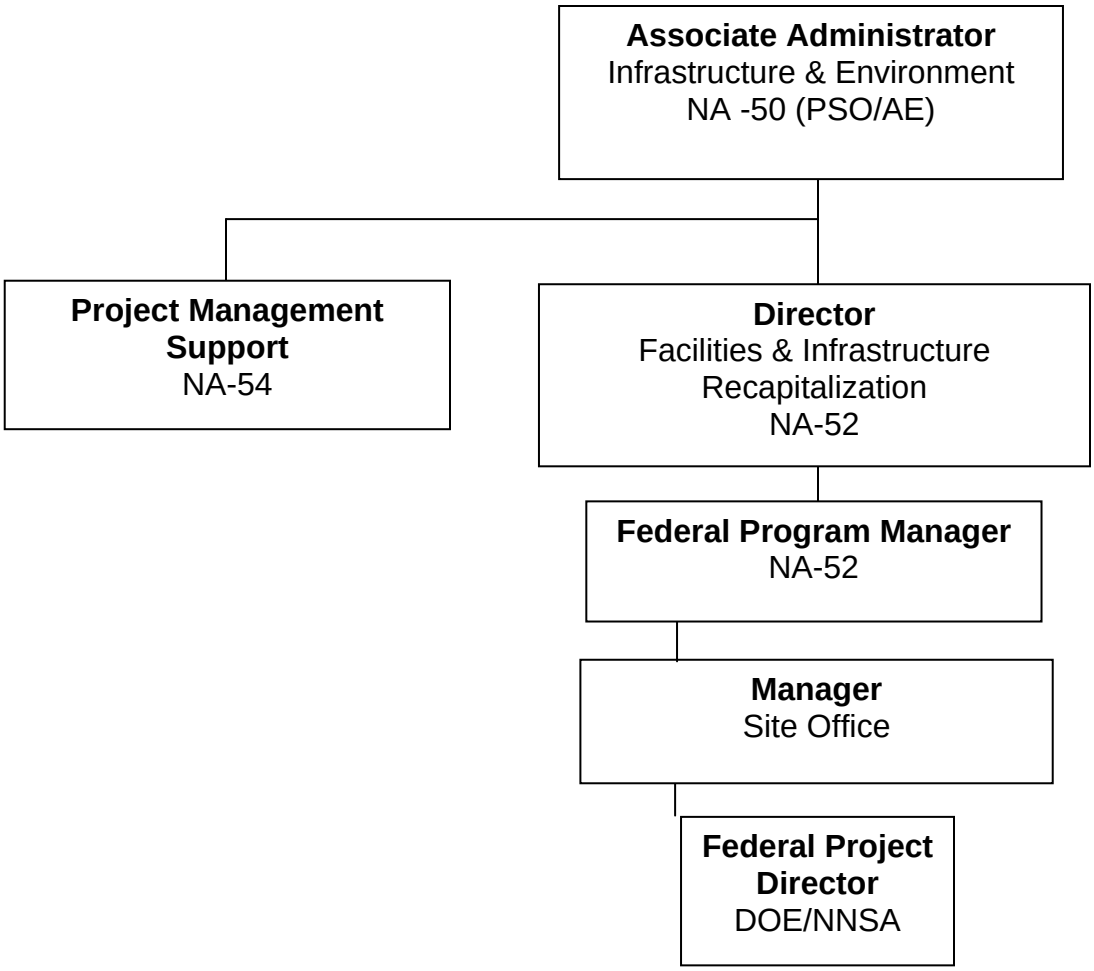


Table 9 – DOE/NNSA IPT Team Members

DOE/NNSA IPT Team Members			
Position	**Name**	**Telephone**	**Organization**
Program Sponsor	•		
Program Manager	•		
Technical Director	•		
Site Office Manager			
Federal Project Director			
Site Office AB Staff Member			
Contracting Officer			
SS Team Member			
Order 420.1 Team Member			
NEPA Team Member			
Safety & Health Team Member			

The government's role relating to acquisition is summarized as follows:

- The NNSA Associate Administrator for Infrastructure & Environment approves the acquisition strategy.

- The Associate Administrator for Infrastructure & Environment chairs the Equivalent Energy Systems Acquisition Advisory Board and approves critical decisions for the project.

- The federal project director acts as the single point of contact with the Plant organization and NNSA. He oversees the design, construction, and ES&H efforts performed by the M&O and the USACE and any subcontractors relating to the project.

The M&O contractor under the DOE prime contract dated February 1, 200X, will provide activities as described herein and in accordance with the Memorandum of Understanding (MOU) to be established between M&O, the Site Office, and the USACE.

5.2 Approach to Performance Evaluation and Validation

Project Controls

DOE O 413.3A, *Program and Project Management for the Acquisition of Capital Assets*, will be used as the primary management tool and guideline to execute the project.

The site office and M&O are implementing a certifiable EVMS that is in compliance with ANSI/EIA-748-A-1998. This EVMS will be certified in the XX quarter of FY 200X, and will be

implemented and used to monitor and evaluate project progress and performance for the duration of the project.

An activity based Network Analysis System (NAS) including estimated costs and resources will be utilized to manage this proposed project. Throughout the various phases of this project, the NAS will be updated and refined to reflect the sequence of activities required to be accomplished within specified milestone completion dates and planned costs. The NAS will be updated monthly to document progress with respect to performance durations and cost. The site office will coordinate the preparation and submittal of any status reports required by DOE/NNSA Headquarters.

Change Control

The site office has an established change control process. This process will be utilized to manage any required changes to cost, scope, or schedule.

Project Reporting

Monthly reporting will be accomplished through the DOE Project Assessment and Reporting System (PARS). This project is below the $20 million threshold but the project management system used by the contractor is based on earned value (EV), calculated by PARS.

PXSO will use the FIRP monthly/quarterly reporting system and all projects will be reviewed monthly and quarterly as prescribed by DOE/NNSA Headquarters guidelines.

Project Meetings

The FPD will conduct regularly scheduled meetings and reviews to discuss project technical scope, schedule, and cost status, and any emerging issues that may have an adverse impact on technical scope, schedule, or cost. Participants will include the integrated project team representatives as deemed appropriate.

5.3 Interdependencies and Interfaces

The site office will utilize the M&O contractor and the USACE to coordinate any required interdependencies or interfaces required with other contractors at the plant.

SIGNATURES

This report accurately represents the best thinking and efforts of the project FPD and the IPT to understand the full range of project risks and alternatives available to accomplish the project mission.

All reasonable risks and mitigations to executing the acquisition strategy have been included, at this time, and the IPT believes the recommended acquisition strategy is in the best interest of DOE.

If new information or facts arise that could have a significant impact on the project's cost, schedule, or performance, the FPD will make the PSO and the Office of Engineering and Construction Management (OECM) aware of this in a timely manner.

The acquisition strategy may be revised when it makes good business sense to do so. Any changes will be justified and documented. Material changes to the acquisition strategy such as changes in recommended alternative(s), risk profile, contract or competition approach, or major milestones, are adequately documented and approved at the same approval level as the original document.

(NOTE: Approval of this acquisition strategy does not constitute approvals required by DOE Headquarters Office of Acquisition and Supply Management for specific contract clearance purposes, including contract acquisition plans under Federal Acquisition Regulation Part 7.)

APPROVALS
DOE/NNSA:

Submitted for Approval:

Federal Project Director, NNSA Date

Recommended for Approval:

Contracting Officer Date

Concurrence:

Director, Office of Acquisition Date
and Supply Management, NNSA/NA-63

DOE NNSA Approval:

Associate Administrator, Date
Infrastructure and Environment, NNSA/NA-50