U. S. Department of Energy

STRATEGIC PETROLEUM RESERVE PROJECT MANAGEMENT OFFICE

New Orleans, La.

PAGE CHANGE

SPRPMO O 433.1B Chg 1

Approved: 12/20/11

SUBJECT: MAINTENANCE MANAGEMENT PROGRAM

1. PURPOSE. This page change implements an update to References, Page 3, 6.a, 6.b, and 6.f of the referenced Order.

2. EXPLANATION OF CHANGES.

   a. DOE O 430.1B, Change 2, Real Property Asset Management, Section 4d, Maintenance and Recapitalization, dated 4/25/11.

   b. DOE O 414.1D, Quality Assurance, Performance/Criterion 5, Work Processes, dated 4/25/11.

   f. SPR Level III Design Criteria, Section 16.3.1, Maintenance, dated November 2001. Revised 10/10/06.

3. FILING INSTRUCTIONS.

Remove Page	Dated	Insert Pages	Dated
Page 3	09/27/07	Page 3	12/20/11

[redacted]

[redacted]
Project Manager
Strategic Petroleum Reserve

DISTRIBUTION: APMs, Directors, SSRs, DM Directors, DM Site Mgrs, DM Site Ops Mgrs, Mgr OCC, Administrator OCC

INITIATED BY: APM, Maintenance and Operations, Site Operations and Maintenance Division

U. S. Department of Energy

STRATEGIC PETROLEUM RESERVE PROJECT MANAGEMENT OFFICE

New Orleans, La.

ORDER

SPRPMO O 433.1B

APPROVED: 09/27/07
CHANGE 1: 12/20/11

SUBJECT: MAINTENANCE MANAGEMENT PROGRAM

1. PURPOSE. To establish a maintenance management program which:

   a. Ensures compliance with maintenance management requirements promulgated in References 6a through 6f.

   b. Is efficient, cost effective, and responsive to short-range and long-range operating plans to assure that equipment is maintained to the required state of readiness in support of drawdown and is reliable in order to achieve all operational requirements in the most safe manner possible

   c. Improves maintenance of equipment to meet readiness goals and objectives by standardizing maintenance practices and enhancing Strategic Petroleum Reserve (SPR) maintenance capabilities through effective personnel management, including cross-training and technical training.

2. CANCELLATION. SPR Project Management Office (PMO) Order 433.1A, Maintenance Management Program, dated 09/29/03. Cancellation of a directive does not, by itself, modify or otherwise affect any contractual obligation to comply with the Directive. Contractor Requirements Documents (CRDs) that have been incorporated into or attached to a contract remain in effect until the contract is modified to either eliminate requirements that are no longer applicable or substitute a new set of requirements.

3. APPLICABILITY.

   a. SPRPMO Elements. Except for the exclusions in Paragraph 3c, this Order applies to SPRPMO organizational elements.

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b. Contractors. Except for the exclusions in Paragraph 3c, the Contractor Requirements Document (CRD), Attachment 1, sets forth the requirements of this Order that will apply to contracts that include the CRD. The CRD must be included in the management and operating contract.

c. Exclusions. None.

4. REQUIREMENTS.

a. Maintain real property assets (as defined in Reference 6g) in a manner that promotes operational safety, worker health, environmental protection and compliance, property preservation, and cost-effectiveness while meeting SPR mission requirements.

b. Develop and implement a maintenance management program that complies with the requirements in References 6a through 6f.

5. RESPONSIBILITIES.

a. SPRPMO Project Manager has overall responsibility and authority for the maintenance and operational availability and reliability of facilities and equipment.

b. Assistant Project Manager (APM) for Maintenance and Operations.

(1) Manages the SPR Maintenance Management Program with specific responsibility for establishing, monitoring, and evaluating maintenance policy.

(2) Ensures that the contractor fully implements the requirements set forth in the Contractor Requirements Document (Attachment 1).

(3) Develops M&O performance indicators for the SPR Maintenance Management Program.

c. APM for Systems and Projects.

(1) Ensures that maintainability aspects of the SPR Maintenance Program are incorporated into all engineering projects (new, existing, and changes), and that initial spare parts, special tools and test equipment, support

documentation, training requirements, and logistics data are supplied with all equipment deliveries.

(2) Ensures that root cause analyses are conducted on failures associated with all items identified as critical must-operate equipment.

d. APM for Technical Assurance.

(1) Provides quality assurance, environmental, safety and health oversight of maintenance activities and procedures.

(2) Provides technical guidance on required maintenance for security equipment and systems.

6. REFERENCES.

a. DOE O 430.1B, Change 2, Real Property Asset Management, Section 4d, Maintenance and Recapitalization, dated 4/25/11.

b. DOE O 414.1D, Quality Assurance, Performance/Criterion 5, Work Processes, dated 4/25/11.

c. Title 29, Code of Federal Regulations, Part 1910.119(j), Mechanical Integrity.

d. SPR Level I Technical and Performance Criteria, Section 3.4.4, Maintenance Management, dated June 29, 1999.

e. SPR Level II Performance Criteria, Section 4.4.1.2.2, Maintenance Management, dated December 2, 1999.

f. SPR Level III Design Criteria, Section 16.3.1, Maintenance, dated November 2001, Revised 10/10/2006.

g. Title 41, Code of Federal Regulations, Chapter 101-47, Utilization and Disposal of Real Property.

7. CONTACT. Questions concerning this Order should be addressed to the Office of the APM for Maintenance and Operations at [redacted].

[redacted]
Project Manager
Strategic Petroleum Reserve

Attachment:
Attachment 1 – Contractor Requirements Document

CONTRACTOR REQUIREMENTS DOCUMENT
SPRPMO O 433.1B, MAINTENANCE MANAGEMENT PROGRAM,
Dated 09/27/07

Regardless of the performer of the work, the contractor is responsible for complying with the requirements of this contractor requirements document (CRD). The contractor is responsible for flowing down the requirements of this CRD to subcontractors at any tier to the extent necessary to ensure the contractor's compliance with the requirements.

The contractor shall:

1. Maintain real property assets in a manner that promotes operational safety, worker health, environmental protection and compliance, property preservation, and cost-effectiveness while meeting Strategic Petroleum Reserve (SPR) mission requirements.

2. Develop and implement a maintenance management program that complies with the requirements in References 6a through 6f and, as a minimum, incorporates the following components.

3. Organization/Staffing.

    a. A clearly defined maintenance organization with specific lines of authority, responsibility, and accountability shall be established.

    b. Requirements for communication and interface with other facility organizations shall be determined.

    c. A sufficient number of properly trained management, supervision, and craft personnel shall be utilized to perform the required maintenance activities.

4. Administration. The administration of the maintenance function shall ensure that a high level of performance is achieved through effective implementation and control of maintenance activities by establishing written performance standards, periodically observing and assessing the performance of maintenance personnel and systems, and holding personnel accountable for their performance.

5. Policies, Goals, and Objectives.

   a. Maintenance policies, goals, and objectives shall be documented and communicated to all maintenance personnel.

   b. Maintenance shall be conducted based on these goals and objectives.

6. Training and Qualification.

   a. Training and qualification programs shall develop and maintain the knowledge and skills required by maintenance personnel to effectively perform maintenance activities.

   b. Employees involved in maintaining equipment shall be trained in an overview of the applicable process, its hazards, and applicable procedures to ensure that maintenance tasks can be performed in a safe manner.

7. Facility Condition Inspections by Management. Periodic inspections of equipment and facilities shall be conducted, ensuring that proper condition, cleanliness, and housekeeping are maintained to support safe and reliable facility operations.

8. Condition Assessment Surveys. All real property and installed equipment shall be inspected at predetermined frequencies to ensure that these facilities are maintained in a condition consistent with assigned missions or long-range planning.

9. Site Maintenance Plan. The contractor shall develop a Site Maintenance Plan that provides a clear understanding of the total maintenance program.

10. Work Request (Order) System.

   a A formal, well-defined work request (order) system shall be in place to cover work performed, regardless of whether the jobs are repetitive or one-time tasks.

   b. The work request system shall ensure that jobs are identified, logged, planned, and scheduled, performed, tested, formally accepted, and documented in a “user-friendly” manner.

11. Formal Job Planning and Estimating.

    a. A system of formal job planning and estimating shall be used to identify the required support, permits, hold points, work procedures, and material requests that determine the total scope of work and address task sequencing and steps to completion.

    b. Outage planning shall promote optimum outage performance by providing integration and coordination of all work elements.

12. Work Performance (Time) Standards. Work-hours required to perform a planned job through the utilization of estimating the application of engineered standards, the use of job slotting techniques, or other industry-recognized methods shall be established to allow the determination of cost estimates, establishment of reasonable schedules, and measurement of productivity.

13. Priority System. A system for determining job priority or the importance of the work item to be performed shall be established based upon safety, environmental, and facility concerns.

14. Maintenance Procedures and Other Work-Related Documents. Maintenance procedures and other work-related documents (e.g., drawings and instructions) shall be used to provide appropriate work direction and to ensure that maintenance is performed safely and efficiently.

15. Scheduling System.

    a. Scheduling and coordinating of corrective and preventive maintenance and modifications shall be performed in such a way that maintenance activities are conducted in the proper sequence, efficiently, and within prescribed time limits.

    b. An outage schedule shall provide for work element completion and testing, and provide management with information necessary to control outage activities.

16. Post-Maintenance Testing.

    a. Post-maintenance testing shall be performed to verify that equipment, systems, and components fulfill their design function when returned to service following maintenance.

b. The tests performed shall be commensurate with the maintenance work performed and the importance of the equipment to facility safety and reliability.

17. Backlog Work Control. Maintenance backlog shall be monitored to ensure that the condition of the property is maintained consistent with the facility's mission.

18. Equipment Repair History and Vendor Information. An equipment repair history and vendor information program shall be established and maintained to provide historical information for maintenance planning and to support the maintenance and performance trending analysis of facility systems and components.

19. Maintenance Facilities, Equipment, and Tools. Maintenance facilities, equipment, and tools shall be periodically reviewed for adequacy in supporting facility maintenance and maintenance training.

20. Requisitioning/Procurement. Parts, materials, and services required to perform maintenance activities shall be available when needed.

21. Materials Control. All phases of receiving, inspecting, handling, storing, retrieving, and issuing of equipment, parts, and materials for maintenance shall be covered by effectively implemented policies and procedures from the time an item is received until it is installed at the facility.

22. Control and Calibration of Measuring and Test Equipment. A program for control and calibration of measuring and test equipment shall be instituted to ensure the availability of tools and equipment necessary for maintenance, repair, and calibration of installed equipment and instruments.

23. Maintenance Tools and Equipment Control. Methods shall be established to provide for the storage, issue, and maintenance of an adequate and readily available supply of tools and equipment and also for the development of special tools and equipment needed in the maintenance program.

24. Surveillance and Preventive Maintenance.

a. Surveillance, inspecting, and testing activities shall provide assurance that the equipment needed for safe and reliable facility operation performs within required limits and that Preventive Maintenance is utilized to maintain a piece of equipment within design operating conditions and to realize its maximum reasonable useful life.

b. The potential impact of seasonal variations shall be considered.

25. Predictive Maintenance. A Predictive Maintenance program shall be established and utilized to monitor; determine trends; and analyze parameters, properties, and performance characteristics or signatures of equipment in order to forecast equipment degradation so that "as-needed" planned maintenance can be performed prior to equipment failure.

26. Corrective Maintenance.

a. Corrective Maintenance shall be performed in a manner ensuring that quality repairs are performed and that equipment failing or malfunctioning during service is restored in a timely manner.

b. Deficiencies in equipment operating outside acceptable limits shall be corrected before further use or in a safe and timely manner when necessary means are taken to ensure safe operation.

27. Modification Work. Modifications and temporary modification work shall be accomplished under the same basic administrative controls as those applied to maintenance activities so that there are no increases in risk to facility, equipment, environment, or personnel because of the modification work.

28. Analysis of Root Causes of Problems.

a. A systematic analysis methodology shall be used to determine and correct root causes of problems, unplanned events, and occurrences related to maintenance.

b. Adequate maintenance engineering support shall exist at the sites to handle day-to-day maintenance engineering activities such as failure analysis.

29. Periodic Review and Analysis. Standardized procedures, methodologies, and systems shall be developed and utilized for the review and analyses of the efficiency of maintenance programs.

30. Performance Measurement and Improvement. Maintenance organizations shall have a quantitative means of measuring performance and effectiveness to improve the maintenance system.

a. Develop a Maintenance Performance Appraisal Report (MPAR) index that incorporates the following components and weights.

(1) Quality of maintenance (5 percent of total MPAR score).

(2) Maintenance support (10 percent of total MPAR score).

(3) Equipment readiness (20 percent of total MPAR score).

(4) Corrective maintenance scheduling effectiveness by jobs (5 percent of total MPAR score).

(5) Corrective maintenance scheduling effectiveness by man-hours (5 percent of total MPAR score).

(6) Corrective maintenance productivity (20 percent of total MPAR score).

(7) Preventive maintenance work order completions (15 percent of total MPAR score).

(8) Workable corrective maintenance work order backlog (20 percent of total MPAR score).

b. Measure performance, as a minimum, of the following additional maintenance program parameters.

(1) Maintenance direct labor overtime (monthly and cumulative).

(2) Total corrective maintenance work order backlog.

(3) Corrective maintenance work orders.

31. Management Involvement. To enhance the safety of facility operations, maintenance managers shall be sufficiently involved with facility operations and maintenance to be technically informed and personally familiar with conditions at the operating facility.

32. Work Sampling. A work sampling program for the purpose of determining the extent of various craft activities and their related delay times shall be established such that they may be used to measure the utilization of craft personnel in performing work in a maintenance management program.

33. Cost Identification and Control. Cost accumulation and reporting systems shall be established to facilitate the work control system utilized to evaluate maintenance performance.

34. Audits and Lessons Learned. External and internal audits, such as self-assessments, lessons learned, and experience from other Department of Energy (DOE) sites, shall be evaluated and considered for utilization for making appropriate changes to systems, procedures, and management concepts to obtain needed improvements and/or to delete nonessential, non cost-effective or redundant activities.

35. Level of Repair (LOR) Objectives.

    a. The most cost-effective and timely method of accomplishing maintenance at the SPR shall be established as the LOR.

    b. The LOR shall specify the SPR maintenance to be accomplished by one of the following maintenance methods:

        (1) Contractor personnel on site.

        (2) Subcontractor personnel on site.

        (3) Subcontractor personnel off site.

    c. Work not accomplished per the LOR shall be supported by a written justification stating rationale for deviation and approved by DOE.