Department of Energy
National Nuclear Security Administration
Washington, DC 20585

January 12, 2006

OFFICE OF THE ADMINISTRATOR

The Honorable A.J. Eggenberger
Chairman
Defense Nuclear Facilities Safety Board
625 Indiana Avenue, N.W., Suite 700
Washington, D.C. 20004-2901

Dear Mr. Chairman:

In your May 31, 2005, letter you requested a report describing the strategy that would lead to timely resolution of all fire protection deficiencies noted by your staff and achieve site-wide improvements in the Los Alamos National Laboratory (LANL) fire protection program for defense nuclear facilities. You suggested that the strategy should involve a multi-year project plan similar to those developed by LANL under the Operations Efficiency Project for other major institutional issues. You also requested that the report include a discussion of lessons learned at other DOE sites that have experienced similar challenges in fire protection, an estimate of engineering resources required, and a projection of when all fire protection upgrades would be completed.

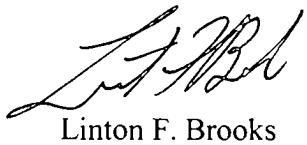
Enclosed is an interim response to your letter, which includes a proposed LANL fire protection plan and the Los Alamos Site Office's (LASO) detailed evaluation of the plan. While LASO concurs with the plan, NNSA Headquarters shares LASO concerns regarding the anticipated benefits, plan direction, and requirement expectations.

The addition of a fulltime fire protection engineer at LASO in May 2005 was an important step in increasing NNSA's oversight capability of the LANL fire protection program. In addition, LASO has assured NNSA Headquarters that fire protection oversight has not been reduced during the ongoing LASO strategic pause.

During the transition phase for the new contract, LASO will request LANL to submit an updated fire protection strategy by March 15, 2006. LASO will review the updated strategy, develop a complementary Site Office fire protection oversight strategy with resource requirements and implementation schedule, and submit the complete package to NNSA Headquarters by April 14, 2006. The complete package will be transmitted to the Board by April 28, 2006.

If you have any questions, please contact me, or have your staff contact Mike Thompson of my office at 301-903-5648 or Gerald Schlapper, Senior Safety Advisor at LASO at 505-665-7111.

Sincerely,



Linton F. Brooks
Administrator

Enclosure

cc: E. Wilmot, LASO
G. Schlapper, LASO
W. Futrell, LASO
M. Whitaker, DR-1
D. Cobb, LANL
W. S. Gibbs, LANL
C. Leasure, LANL

SEPARATION

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UNITED STATES GOVERNMENT | DEPARTMENT OF ENERGY

memorandum

National Nuclear Security Administration
Los Alamos Site Office
Los Alamos, New Mexico 87544

DATE: NOV 0 8 2005
REPLY TO ATTN OF: S&H: 6WF-001
SUBJECT: LANL Integrated Plan for Fire Protection at LANL in Response to the May 31, 2005, Defense Nuclear Facility Safety Board Letter (DNFSB 2005)

TO: Dr. Thomas D'Agostino, Acting Administrator for Defense Programs, NA-10, HQ/FORS

Attached is Los Alamos National Laboratory's (LANL) integrated plan for fire protection at LANL in response to the May 31, 2005, Defense Nuclear Facility Safety Board letter (DNFSB 2005), Attachment No. 1, along with the Los Alamos Site Office (LASO) evaluation and implementation comments (Attachment No.2) on LANL's proposed actions.

While LASO concurs with LANL's proposed overall integrated plan for fire protection, concerns remain with specific parts of the proposed plan, including anticipated plan benefits, plan direction, and requirement expectations. These concerns, and the method by which LASO will ensure that these issues will be monitored and addressed, are discussed in Attachment 2. LASO is confident that with continued oversight and management options, which will become available under the new prime contract, LANL's fire protection program will grow in effectiveness, quality, consistency, and rigor.

Also discussed in Attachment 2 are actions being taken to implement a new agreement/contract for fire department services with Los Alamos County, including planned fire service delivery enhancement proposed over three years.

Should you have questions regarding this response please contact Gerry Schlapper, Senior Safety Advisor for LASO at (505) 665-7111, or Walter Futrell, Fire Protection Engineer for LASO at (505) 665-6574.

Jan M. Chavez-Wilczynski

Edwin L. Wilmot
Manager

Attachments

cc: See page 2

cc w/ attachment:
X. Ascanio, NA-124, HQ/GTN
S. Pierpoint, NA-125.2, HQ/GTN
M. Schoenbauer, NA-12, HQ/FORS
M. Whitaker, DR-1, HQ/FORS
C. Keilers, DNFSB, LASO
A. Jordan, DNFSB
G. Schlapper, OOM, LASO
F. Bell, OFO, LASO
B.Steele, SABT, LASO
D. Winchell, PS-2, LANL, MS-C347

SEPARATION

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ATTACHMENT 1

06.0156

Los Alamos
NATIONAL LABORATORY
EST. 1943

The World's Greatest Science
Protecting America
Office of the Director

October 3, 2005

Mr. Edwin Wilmot, Manager
U.S. Department Energy/NNSA
Los Alamos Site Office
MS A316
Los Alamos, NM 87545

Subject:
Fire Protection Program at Los Alamos National Laboratory

Reference:
Defense Nuclear Facility Safety Board, letter from A. J. Eggenberger to the Honorable Linton Brooks, May 31, 2005 (DNFSB 2005)

Dear Mr. Wilmot:

This letter formally transmits to the National Nuclear Security Administration (NNSA) an integrated plan for fire protection at Los Alamos National Laboratory in response to the May 31, 2005, Defense Nuclear Facility Safety Board letter (DNFSB 2005). If you have any questions, please contact me (7-5101) or Craig Leasure, Deputy Associate Director for Security and Facility Operations (6-0000).

Sincerely,

Donald D. Cobb
Deputy Director, Acting

Attachment: a/s

Cy: Robert W. Kuckuck, DIR, MS A100
Don Cobb, DIR, MS A100
W. Scott Gibbs, ADSFO, MS A110
Craig Leasure, ADSFO, MS A110
Gerald A. Schlapper, LASO, MS A316
Charles Keilers, DNFSB/LASO MS A316
Walter Futrell, DOE/NNSA-LASO/H&S, MS A316
Bill Gall, DOE/NNSA-LASO/H&S, MS A316
Beverly Ramsey, EOO, MS C938
William Flor, Haz-Mat, MS K542

EXECUTIVE SUMMARY

In response to the memorandum from A.J. Eggenberger, Acting Chairman, to Linton Brooks, NNSA Administrator, dated May 31, 2005 regarding fire protection; Los Alamos National Laboratory (LANL) has developed a comprehensive plan that addresses DNFSB's issues, NNSA's issues, and LANL self-identified issues. The plan is an integrated, comprehensive Fire Protection Corrective Action Plan (CAP) that is similar to institutional corrective action plans developed under the Operational Efficiency (OE) Project.

Actions are incorporated within the CAP to address long-standing fire protection program issues associated with nuclear facilities and high, moderate, and low hazard facilities raised in the April 29, 2005 Staff Issue Report, as well as all other outstanding fire protection program shortcomings. The FIRE CAP's Work Breakdown Structure (WBS) consists of seven upper tier elements:

(1) Staffing,

(2) Inspection, Testing and Maintenance (ITM);

(3) Fire Hazard Analyses (FHAs);

(4) Emergency Service Baseline Needs Assessment (BNA);

(5) Los Alamos Fire Department (LAFD) Emergency Services Contract;

(6) Post-Partial-Sitewide Fire Alarm System Replacement Project; and

(7) Wildland Fire Management.

These upper tier elements coincide with the seven major issues contained in the April 29, 2005, Staff Issue Report.

Some of the immediate actions taken by the Laboratory since March 2005 include: increased FY05 funding by $250K; increased FY 2006 fire protection program funding nearly 50% above the FY 2005 target, which will provide for increased staffing; completed informal benchmarking with Lawrence Livermore National Laboratory (LLNL); participated in a formal three-day emergency operations and fire protection benchmarking visit by Westinghouse Savannah River Company (WSRC); and participated in the annual DOE/Contractor Fire Protection Conference held at Brookhaven National Laboratory to informally network with fire protection colleagues across the DOE complex and discuss current issues and concerns.

The FIRE CAP is one major element of the Emergency Operations Office (EOO) comprehensive CAP. Similar to corrective actions under the OE project, the CAP is under the Associate Director for Security and Facility Operations (ADSFO) formal change control process and tracked within the institutional and ADSFO tracking systems. LANL will routinely review CAP progress, re-assess planned actions and associated schedules, and provide quarterly status reports to the NNSA Los Alamos Site Office (LASO).

Detailed Response To
Defense Nuclear Safety Board (DFNSB) letter dated May 31, 2005
and DFNSB Staff Issue Report dated April 29, 2005

Background

The DNFSB Staff Issue Report[1,2] dated April 29, 2005 summarizes Los Alamos's immediate actions to address long-standing shortcomings associated with Los Alamos's fire protection program that directly affect not only nuclear facilities but also high, moderate, and low hazard facilities. Following the Staff's March visit, the Laboratory took the following immediate actions: [3]

(1) Increased fire protection program staffing and funding as follows:
   a. Add one additional qualified fire protection engineer.
   b. Add one additional person to support site-wide fire alarm operations.
   c. Increased FY2005 fire protection group (FIRE) funding by $250,000 to perform fire hazard analyses (FHAs) and for planning LANL response to the fire department baseline needs assessment (BNA).

(2) Established a FY2006 budget target for the Laboratory's fire protection program ("core" fire protection group) that is nearly 50% above the FY 2005 target.

(3) Provided the Laboratory Deputy Director a briefing on the status of progress toward completing corrective actions delineated in the LANL corrective action plan[4] (CAP) for the FY2004 DOE/NNSA-LASO assessment report[5] of fire protection system inspection, testing and maintenance (ITM) deficiencies and observations. Ten of the twelve deficiencies cited in the LASO assessment report resulted in LANL issuance of a Price-Anderson Amendment Act (PAAA) noncompliance report associated with the institutional fire protection maintenance program[6]. A comprehensive CAP status report was developed[7] and the requested briefing with the Deputy Director was held on April 12, 2005.

Also since March 2005, the LANL Fire Protection Group (FIRE) has completed informal benchmarking with Lawrence Livermore National Laboratory (LLNL) and participated in a formal three-day (July 12-14, 2005) emergency operations and fire protection benchmarking visit by Westinghouse Savannah River Company (WSRC) colleagues to compile fire protection resource and lessons learned information as inputs to improving the LANL fire protection program. Additionally, the Group Leader for the Fire Protection Group participated in the annual DOE/Contractor Fire Protection Conference held at Brookhaven National Laboratory in June 2005 as a means to informally network with fire protection colleagues across the DOE complex and discuss current issues and concerns.

To evaluate benchmark information, LANL performed a fire protection program "cost-rate" ratio calculation for the purposes of comparison with other DOE sites and/or operations offices. Traditionally, DOE has reported recurring fire protection program costs per $100 of property replacement value. For FY2005, the LANL fire protection program cost-rate is estimated at approximately 37.4¢ per $100 of replacement property value cost. If fire protection line item project costs are also considered, then the estimated LANL fire protection program cost-rate is approximately 51¢ per $100 of replacement property value cost (see Attachment 1).

The estimated 37.38¢ per $100 of replacement property value cost ratio for LANL exceeds the reported DOE complex-wide CY2003 average value of 19.61¢ per $100; however, this rate is below FY2003 rates reported for the DOE Carlsbad Area (53.59¢), Idaho Operations (39.88¢), Nevada Operations (42.73¢), Richland Field (181.54¢), Strategic Petroleum Reserves (89.35¢) and Yucca Mountain (109.77¢) Offices[8]. Another telling comparison is LANL FY2005 fire protection "core" group (FIRE) costs (approximately 10.3% of non-line item costs) *v.* the reported DOE complex-wide CY2003 average of 15%. Increasing the LANL Fire Protection Group's FY2006 budget by 50% will elevate this ratio to approximately 12.4% of non-line item program costs that are closer to the reported DOE complex-wide average.

The results of this analysis along with other benchmark information and industry lessons learned (discussed later) were utilized to construct a comprehensive, integrated fire protection program corrective action plan (Attachment 2). The plan was developed commensurate with Operational Efficiency (OE) Project guidelines. Issues addressed by the plan include:

- Fire Protection Engineering staffing sufficient to effectively address on-going and emergent day-to-day support of programmatic and facility operations organizations and complete needed initiatives such as policy and procedure updates, program manual updates, FHAs and related compliance documentation, etc.;
- Incomplete performance and delays in the completion of fire protection system inspection, testing and maintenance (ITM);
- Completion of needed fire hazard analyses (FHAs) and associated compliance documentation (e.g., equivalencies and exemptions);
- Implementation planning for the emergency services Baseline Needs Assessment (BNA);
- Providing input to NNSA for the long-term fire and emergency services contract with Los Alamos County;
- Fire alarm systems in several defense nuclear facilities still requiring upgrade/replacement follows after completion of the partial site-wide fire alarm replacement project (FARP) in early CY2006;
- Wildland fire management plan implementation; and
- Other NNSA and LANL self identified issues.

The plan integrates logic sequences based on safety implications, industry experience and associated priorities, current lessons learned, and anticipated resources - all necessary to create an actionable and responsive plan.

The plan is reflected in a Work Breakdown Structure (WBS) consisting of seven upper tier elements: (1) Staffing; (2) Inspection, Testing and Maintenance (ITM); (3) Fire Hazards Analyses (FHAs); (4) Emergency Services Baseline Needs Assessment (BNA); (5) Los Alamos Fire Department (LAFD) Emergency Services Contract; (6) Post-Partial Site-Wide Fire Alarm System Replacement Project; and (7) Wildland Fire Management. Changes to the plan will be controlled under the Associate Director for Security and Facility Operations (ADSFO) formal change control process. Execution of plan will be tracked using the Laboratory and ADSFO tracking systems. Los Alamos will routinely review plan progress and effectiveness, planned actions and annotated schedules, and provide quarterly status reports.

1. **Staffing, WBS Element (FIRE.01):**

Staffing is precursor activity to a number of other planned corrective actions. There are two loverarching issues that relate to the Staff's staffing concerns -- (1) LANL lacks sufficient staffing/manpower to accomplish the minimum required engineering tasks for a sufficient and effective institutional fire protection program, and (2) a lingering concern about a fire protection engineer (FPE) working within a programmatic organization (NMT) instead of the LANL Fire Protection Group (FIRE).

At the time of the March 2005 DNFSB Staff review, LANL had three FPE FTEs, 2½ fire protection specialist FTEs (performing independent facility-related assessments) and one working FPE FTE Group Leader/Fire Marshal performing the functions similar to FPE FTEs at Lawrence Livermore National Laboratory (LLNL) and SRS. LANL on the other hand, has approximately 2,300 structures encompassing in excess of 9 million square feet, plus on-going and increasing programmatic activities at NTS. LANL has to-date developed approximately 40 FHAs with another 15 in the immediate pipeline (see WBS element FIRE.03 and Attachment 1) and formally prepared and submitted 9 fire protection equivalencies and 8 fire protection exemptions.

LLNL has utilized a deployed model where 7½ FPE FTEs are assigned to ESH teams directly supporting programmatic organizations, including activities at the Nevada Test Site (NTS). One of the FPE FTEs serves as the LLNL Fire Marshal in a non-managerial role and coordinates and manages the fire protection program's policies, procedures, manual and related activities in addition to his ESH team deployment role. LLNL FPEs are responsible for approximately 800 structures encompassing 7.5 million square feet, actively manage more than 30 FHAs in support of programmatic activities, and have developed in excess of 100 fire protection equivalencies and exemptions.

Benchmarking our model with LLNL and WSRC colleagues suggests that LANL fire protection engineering (FPE) and specialist staffing are significantly below DOE sites with comparable inventories of buildings, square-footage, and hazardous facilities. For example, WSRC utilizes a combination of divested and core FPE resources to support implementation of the SRS fire protection program. Approximately 12 FPE FTEs are divested among and report to the WSRC "business units," with another 8 FPE FTEs retained in the "core" program organization responsible for large or special projects, tactical and strategic facility/program support, and coordination of the fire protection program's policies, procedures, manual and related activities. The "core" Fire Protection Services organization also manages and performs site-wide inspection, testing and maintenance (ITM) of all fire protection systems (~25 FTEs). Three additional FTEs manage the "core" Fire Protection Services organization. SRS reportedly has approximately 2,800 structures encompassing 11 million sq.ft., and has mature FHA (~250 + ~5 new project-related annually), equivalency (>100) and exemption (~68) development and maintenance processes.

In conclusion, benchmarking informally with LLNL and formally with WSRC colleagues leads to the conclusion that LANL fire protection engineering (FPE) and specialist staffing is significantly below these DOE sites with comparable inventories of buildings, square-

footage, and hazardous facilities. Having considered this benchmark information, the Emergency Operations Office (EOO) and FIRE have undertaken and included, in the comprehensive plan, the following staffing actions:

- Released LANL Job Ad #210482 for Fire Alarm Operations Specialists to augment FIRE's operation and maintenance of LANL's concurrent fire alarm receiving systems (BRASS, new DACS, legacy Digitize, and ADT remote monitoring contracts) and support completion of the Partial Site-Wide Fire Alarm Replacement System Project. Job applicants have been screened, interviews have been completed, and final candidate selection is now underway. These staff addition(s) are expected to be on-board by early FY2006.

- Released LANL Job Ad #210528 for Fire Protection Engineers to increase FIRE's cadre of fire protection expertise to on-going implementation of the laboratory program. Candidate interviews are on-going with qualified candidates. With the assistance of the LANL HR recruiting office, one new Master of Science FPE graduate from the Worcester Polytechnic University (WPI) joined the LANL Fire Protection Group in August 2005.

- Released LANL Job Ad #210529 for a FIRE Group Leader as a means to recruit and secure talented FPE staff to the Laboratory. Under this staffing strategy option, the current FPE Group Leader would assume an open FPE slot as an approach to augmenting current FPE resources.

As a result of these actions, LANL FIRE will purse a complement of FPE expertise deployed to each of the new/proposed Responsible Division Leader (RDL) operations groups to effectively support implementation of the laboratory's fire protection program within these organizations. These deployed FPEs would develop and maintain required FHAs, plan and execute corrective actions, develop fire protection equivalencies (EQs) and exemptions (EXs) for compliance issues, perform plan reviews of new facilities and modifications, review programmatic activities, review ITM performance, perform assessments, and the other functions listed in the April 2005 Staff Issue Report[2]. Ideally, an additional FPE would be retained at the "core" FIRE organization to manage lab policies, procedures, maintenance requirements, engineering standards, and similar "corporate" fire protection issues in support of on-going program implementation.

Considering the current proposed LANL restructuring of RDLs (9 distinct assignments), LANL would need to increase initial FY2005 qualified FPE staffing from three to ten ($180,000 fully burdened x 7 = $1,260,000 budget increase). A $1.26 million addition to the LANL Fire Protection Group initial FY2005 budget (+ $1.93 million = $3.2 million) would align closely with the Deputy Director's memorandum target of a 50% increase for FY2006[3], would be comparable to CY2003 DOE fire protection program reported levels for fire protection engineering (13.2% *v.* 15% complex average)[8], and would represent a 1.94¢ per $100 of replacement property value increase (to 39.32¢) "cost-rate" ratio (5.2% increase).

Finally relating to staffing, the Staff Issue Report is correct that the NMT Division authorization basis group (NMT-14) has on its staff a qualified FPE. In addition to

developing the CY2002 TA-55 Plutonium Facility FHA, this individual performs a myriad of safety analyst functions for NMT programmatic facilities above and beyond what might be considered fire protection engineering. This individual is not performing "classic" FPE support to NMT, or is making fire protection engineering "decisions" exclusive of FIRE. Based on long-standing personal relationships and a clear understanding of roles and responsibilities, conclusions relative to the fire protection compliance stance of NMT facilities and programmatic activities are reached jointly (e.g., through peer reviews of FHAs, compliance documentation, etc.) by NMT-14 and FIRE in concert with authorization basis compliance expectations.

2. **Fire Protection System, Structure and Component (SSC) Inspection/ Testing/ Maintenance (ITM), WBS Element FIRE.02.**

This WBS element addresses the ITM issues and observations resulting from the CY2004 DOE/NNSA-LASO assessment of this program element, the subsequent PAAA self-reporting of institutional fire protection maintenance program shortcomings, and perceived lack-of-progress by the Staff on issues discussed in 2003.

The Fire Protection SSC ITM Program at LANL has been evaluated through two detailed assessments during FY2005. The first[9], commissioned by the Facility Management Division Maintenance and System Engineering Group (FMD-MSE), identifies the inconsistencies and shortcomings hindering adequate and compliant implementation of fire protection SSC ITM in nuclear facilities and throughout the Laboratory. Recommendations center on the need to – (a) upgrade the fire protection SSC Master Equipment List (MEL)[10,11,12]; (b) identify needed activities and association of each fire protection system to these activities; (c) develop a schedule to bring fire protection SSC ITM activities into compliance with recognized periodicity; and (d) upgrade maintenance organization resources. FMD-MSE will be responsible for implementation of these recommendations.

The second assessment[13] was a LANL CAP[4] commitment and cited corrective action within the subsequent PAAA noncompliance report[6] resulting from the FY2004 DOE/NNSA-LASO fire protection ITM assessment report[5]. This "causal analysis" review evaluates the institutional causes contributing to the (FY2004) state of Lab-wide fire protection SSC ITM program performance. Recommendations from this report include – (a) the need to risk prioritize ITM activities and focus resources on those facilities where risk reduction is greatest; (b) improve qualifications and available resources of the fire protection ITM staff; (c) evaluate the LANL organizational structure and roles and responsibilities to determine if a centralized fire protection SSC ITM effort in lieu of a distributed facility management model could more effectively implement the ITM program; (d) upgrade and maintain current the MEL; and (e) reemphasize, Lab-wide, the importance of proper responses to fire safety and evacuation alarms. The results and recommendations of the "causal analysis" report are currently being evaluated. The LANL work management system, CMMS, will incorporate scheduling that considers risk-based priority during development. These activities are scheduled to continue throughout FY 2006.

Preceding the two above assessments, an independent review of the MEL for Nuclear Facility Vital Safety Systems (VSSs) was conducted and fire protection SSC MEL records were updated during FY2004. However, the preventative maintenance program, as defined by the Maintenance Implementation Plan (MIP) has not yet been updated using this information (see bulleted actions below). As the MEL is updated in accordance with the Management Self-Assessment (MSA) Local Corrective Action Plan (LCAP) and other facility initiatives, the updated MEL will enable the use of the Laboratory's work management system, CMMS, to schedule ITM for the nuclear facilities fire protection systems per NFPA criteria. Cognizant system engineers have been trained and qualified per DOE 420.1A for each of the fire protection VSSs to enable them to trend system conditions and identify potentially adverse conditions.

Procedures have now been developed to implement the required maintenance elements of DOE Orders 420.1A, 433.1, and national consensus codes. These procedures are being implemented in FY2006 consistent with Facility Management Division's (FMD) Local Corrective Action Plan. As part of the integrated comprehensive fire protection plan, FIRE, in conjunction with FMD, has logically linked the following actions to MIP implementation:

- Using the requirements of NFPA 25, NFPA 72 and DOE-approved EQs, and the updated MEL for nuclear facilities as the basis, LANL will perform gap analysis reviews of fire protection SSC ITM program documentation (e.g., O&M criteria, maintenance instructions) and performance for nuclear facilities to determine weaknesses in maintenance procedures and establish the backlog of delinquent ITM. FMD will complete this action by February 28, 2006.

- From the results of the gap analyses, the fire protection SSC ITM program within nuclear facilities will be updated or improved. Shortcomings in ITM program documentation will be corrected and the backlog identified by February 28, 2006.

- Previously identified delinquent/deferred preventative maintenance of fire protection SSCs will be performed to eliminate the ITM maintenance backlog. FMD will complete this action by December 22, 2006.

- Nuclear facilities will implement DOE O 433.1, *Maintenance Management Program for DOE Nuclear Facilities*, by June 30, 2006 in accordance with the site Maintenance Implementation Plan (MIP) to ensure a mature maintenance program is implemented for fire protection and other systems important to safety.

The LANL work management system, CMMS, will incorporate scheduling that considers risk-based priority during development and implementation. These activities are scheduled to continue throughout FY 2006.

3. **Fire Hazard Analyses (FHAs), WBS Element FIRE.03**

Concerns associated with FHAs can be categorized into two overarching issues -- (1) lack of progress by several LANL facilities to address and close-out deficiencies, issues and recommendations cited in FHAs in a timely manner, and (2) a lingering concern about routine (annual) review and update of FHAs in concert with the DSA review cycle for nuclear facilities. For example, the late CY2002 Revision 0 FHA for the TA-16 Weapons Engineering Tritium Facility (WETF) was not revised in conjunction the associated DSA submission to LASO in spring 2005.

The Staff Issue Report correctly summarizes previous LANL shortcomings in dealing with deficiencies, issues and recommendations resulting from FHAs. This issue was elevated by DOE/NNSA-LASO in a September 2003 memorandum[14] directing LANL to:

- develop and implement a process for preparing and submitting fire protection equivalencies as specified by DOE O 420.1A ¶ 4.2.1.11;
- develop and implement a process for preparing fire protection engineering evaluations for review and disposition of fire protection code-related deficiencies; and
- effectively manage to closure fire protection deficiencies, issues and recommendations from FHAs and other sources.

In response, FIRE has completed the following;

- Developed and implemented a procedure[15] for the preparation, review, approval and submittal of DOE O 420.1A ¶ 4.2.1.11 fire protection equivalencies (EQs).

- Developed and implemented a procedure[16] for the preparation, review, approval and submittal of DOE O 420.1A ¶ 4.2.1.11 fire protection exemptions (EXs).

- Developed and implemented a procedure[17] for the preparation, review and approval of fire protection engineering evaluations (FPEEs).

- Completed a validation review of all FHA deficiencies, issues and recommendations, and entered all outstanding items into the LANL ITRACK system for management to closure[18].

Additionally, FIRE has developed an FHA preparation guide for LANL FHAs, with the intention of formalizing the preparation guidance and direction for management of deficiencies, issues and recommendations resulting from these analyses within a new administrative procedure in FY2006. Currently deficiencies, issues and recommendations resulting from new or revised FHAs are assigned to the appropriate organization within the LANL I-TRACK system for closure, unless an FHA is directly linked to a DSA implementation such that resolution of FHA items is formally a part of DSA implementation (e.g., TA-55 PF-4, TA-16 WETF; avoids duplication of tracking).

Attachment 3 contains a complete/current listing of LANL FHAs. A total of 40 FHAs and preliminary FHAs have been developed in support of LANL nuclear, radiological, high, moderate and low hazard facilities. In addition, LANL is developing 15 new Revision 0 FHAs for several LANL facilities considered "significant" in accordance with DOE O 420.1A ¶ 4.2.1.5 expectations. The following FHA-related actions are now incorporated into the comprehensive plan (Attachment 2):

- TA-3-29 Chemistry & Metallurgy Research (CMR) facility FHA requires an update/revision to support recent BIO effort(s). This action is scheduled to be completed by March 31, 2006.

- TA-8-23 Radiography Facility FHA will require update/revision subsequent to LASO's acceptance of the proposed downgrade of hazard classification (to Radiological) as well as consideration of post March 2003 facility changes. The updated and revised FHA is scheduled to be completed 120 days after LASO formally downgrades the facility to Radiological.

- TA-16-205/450 Weapons Engineering Tritium Facility (WETF) FHA needs update/revision to support the recent DSA re-submittal to LASO and incorporation of facility changes since January 2002. The FHA is currently being revised, with an anticipated completion date of October 14, 2005.

- TA-18 Los Alamos Critical Experiments Facility (LACEF) FHA will require an update/revision to support completion of the TA-18 Early Move effort (early FY2006) and submittal of exemptions related to fire suppression and life safety non-compliances associated with the three CASAs. This FHA is scheduled to be completed by June 30, 2006.

- TA-55-355 SST Pad FHA will require an update/revision to support final resolution of ORR comments/concerns and resolution of EX request(s) associated with fire suppression. This revision of the FHA is scheduled to be completed early in CY2006.

- TA-15-312 Dual Axis Radiographic Hydrodynamics Test (DARHT) facility FHA will require an update/revision to support most recent DOE O 420.2 Safety Assessment Document (SAD) and will address post June 2002 facility changes/additions (new cable bunker, new harmonics building). This FHA is scheduled to be completed by June 30, 2006.

- TA-3-1076 Biosafety Lab (Level) 3 (BSL-3) facility preliminary FHA (pFHA) will require an update/revision to reflect the current as-built facility condition, pending DSA development and its subsequent submittal to LASO. The revision is currently scheduled for completion sometime in FY2006 as a predecessor activity for the DSA submittal scheduled in FY2006 (subject to completion of an EIS and subsequent readiness schedules).

- The FIRE-established inventory of remaining LANL "significant" facilities as defined by 420.1A ¶ 4.2.1.5 that warrant FHA treatment and current backlog of needed DOE O 420.1A compliance documents (e.g., exemptions).

Directly related to timely update of FHAs, LANL has established formal processes[19,20] for annual nuclear facility DSA review and update, which should already drive concurrent review and update of supporting FHAs for these facilities on the same annual basis. The initial failure to update the TA-16-205/450 WETF FHA in support of the recent submittal of the updated DSA was flagged by FIRE, prompting the planned FHA update effort to be completed by October 14, 2005.

LANL is aware that other DOE sites have effectively addressed legacy non-compliances associated with the property protection requirements of DOE O 420.1A ¶ 4.2.2.3 through fire protection exemptions requests (EXs). In accordance with DOE O 420.1A ¶ 4.2.1.11 and DOE M 250.1-1A, *Directives System Manual*, Chapter VII "Exemptions," (both DOE/UC contract requirements), LANL expects to submit fire protection exemption requests (EXs) in FY2006 and beyond for several facilities that lack automatic fire suppression systems yet have maximum possible fire loss (MPFL) potentials in excess of $1 million as required by DOE O 420.1A ¶ 4.2.2.3 and LANL fire protection program requirements[21]. EXs for automatic suppression systems in existing facilities for property protection appear to be acceptable under pending adoption of 10 CFR Part 851, *Worker Safety and Health Program*" ¶ 203(a)(3) rulemaking[22] (i.e. the proposed rule does not require automatic fire suppression systems for property protection objectives). In the future, compliance with DOE property protection and other fire protection program objectives will depend on both NNSA receptivity and timely reviews of EXs and equivalencies submitted by LANL.

4. **Emergency Services Baseline Needs Assessment (BNA), WBS Element FIRE .04:**

While LANL completed a new BNA for emergency services in CY2004, the Staff raised the concern that – (1) little progress has been made in addressing the 17 significant recommendations, and (2) no formal implementation plan has been developed to address the issues, deficiencies and conclusions delineated in the final report. Furthermore, LANL and LASO have yet to resolve outstanding concerns relative to hazardous materials (Haz-Mat) response capabilities, responsibilities and timeliness.

LANL has retained the services of an expert emergency management/fire protection engineering consultant to assist LANL in addressing outstanding issues associated with the CY2004 BNA. The following actions have been incorporated in the plan:

- Develop an implementation strategy for seven specific BNA recommendations. The strategy will include a prioritization scheme, estimates of resources, and suggested timeframes for completion/implementation.

- Conduct a critical technical analysis of current fire apparatus operated by the Los Alamos Fire Department (LAFD) and the appropriateness of that apparatus for response to LANL and DOE facilities and hazards. The reports will provide recommendations for an effective fleet management program that meets the fire protection requirements of LANL and DOE

- Preparation of a critical technical analysis of the BNA document with regard to staffing recommendations and the appropriateness of complying with NFPA 1710, *Standard for the Organization and Deployment of Fire Suppression, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments*, for developing staffing requirements.

- Performance of a technical review of current proposals for fire station replacements and additions in support of the proposed future development of LANL.

- Preparation of a critical task analysis of the BNA document and the appropriateness of the LANL Hazardous Materials Response Program relative to the hazards present at LANL.

- Preparation of a summary of suggestions and technical justifications or bases for EQs or EXs to DOE Order 420.1A and applicable NFPA codes and standards associated with implementation of BNA recommendations.

LANL received the consultants report on September 20, 2005, and is currently formulating the proposed BNA implementation plan for submittal to LASO in December 2005.

One of the more challenging recommendations contained within the BNA is on-shift staffing of emergency responders at LANL and Los Alamos County fire stations, which is directly linked to NFPA 1710 expectations and related DOE guidance contained with DOE G-420.1/B-0 G-440.1/E-0, *Implementation Guide for Use with DOE Orders 420.1 and 440.1 – Fire Safety Program*. In parallel, DOE/NNSA-LASO has directed LANL through a July 2005 memorandum[23] to develop an action plan to increase on-shift staffing, reduce LAFD reliance on overtime to maintain minimum staffing and make in-roads toward NFPA 1710 objectives through an approved increase in LAFD firefighter staffing from 117 to 123. LANL has provided DOE/NNSA-LASO with a proposed action plan[24] to hire 21 new LAFD firefighter personnel and execute a Firefighter Level II Training Academy beginning in early FY2006 to address the directed on-shift staffing increase, present LAFD firefighter staffing shortcomings, and account for anticipated attrition due to retirements and recruit wash-outs during the academy. LANL presently awaits LASO approval of the submitted action plan.

DOE/NNSA-LASO raised concerns about the timeliness of LANL Haz-Mat response, primarily after normal working hours and on weekends, in September 2004[25]. LANL provided an initial detailed response in December 2004[26], with a commitment to further evaluate the issue during the upcoming National Incident Management System (NIMS) implementation effort by LANL in FY2005-2006. As noted above, LANL has included a review of this issue within the scope of work issued to the emergency management and fire protection consultant retained for the recommended BNA implementation strategy as a further means of developing the appropriate resolution of this issue. LANL will include its recommendations relative to Haz-Mat response within the proposed BNA implementation plan submittal to LASO in December 2005.

5. **Fire Department Response Contract, WBS Element FIRE.05**

The DFNSB Staff observed that LANL and Los Alamos County have not been able to finalize a long-term contract for emergency services since 1997, relying on 90-day contract extensions to the 1997 agreement. The Staff also expressed concern that contract negotiations have not fully considered the issues, deficiencies and recommendations raised by the CY2004 BNA perhaps hindering BNA implementation).

DOE/NNSA-LASO has formally directed LANL to cease any further work on a request for proposal (RFP) to Los Alamos County for fire department support services to DOE and Laboratory, and to continue with the current arrangement between LANL and Los Alamos County for the remainder of the current M&O contract. DOE/NNSA-LASO indicates through this memorandum directive that it *"...will have the action to work with the County and the NNSA Service Center and begin the process that will result in an NNSA contract award to the County to provide fire services and emergency management to LANL..."*[27]

LANL understands that key aspects of compliance, including on-shift staffing levels, training and qualifications, and budget levels as well as many of the NFPA and DOE compliance expectations associated with emergency services provided by Los Alamos County will now be negotiated by DOE/NNSA. However, as indicated in the comprehensive plan, LANL will continue with its BNA-related review and implementation strategy development efforts described under Item No. 4 above through the first quarter of FY2006 and then transfer the conclusions and implementation recommendations to DOE/NNSA-LASO for consideration.

6. **Post-Partial Site-Wide Fire Alarm Replacement Project (FARP), WBS Element FIRE.06:**

While FARP is anticipated to be completed in early CY2006, some nuclear facilities will continue to rely on fire detection and alarms systems that are obsolete, antiquated and not fully compliant with NFPA 72, *National Fire Alarm Code®*. No formal project has been identified to follow-on after FARP completion to address needed facility fire alarm system upgrades.

The projected post-FARP status of fire alarm systems, and associated vulnerabilities, within LANL nuclear facilities was originally briefed to the Staff at a September 4, 2003, video teleconference (see Attachment 4). Of particular immediate interest are the following:

- Positive USQD for the proposed transition of redundant remote monitoring of fire alarms from the BRASS to the new DACS for TA-3-29 CMR has placed at-risk FARP completion of this upgrade within this facility. As a result, the proof-of-concept Digitize system currently providing primary remote monitoring of TA-3-29 CMR will remain in-service with the BRASS continuing to provide redundant remote monitoring following completion of the FARP.

- Positive USQD for the proposed transition of remote monitoring of fire alarms from BRASS to the new DACS for the TA-55 PF-4 fire alarm system has placed at-risk FARP

completion of this upgrade within this facility. The proposed FARP scope is the installation of a universal digital alarm communicator transmitter (UDACT) adjacent to the existing PF-4 fire alarm panel and monitoring the common alarm, trouble and supervisory output contacts. In this configuration, the UDACT will transmit only common alarm, trouble and supervisory signals to the DACS for initial emergency responder dispatch, relying on the PF-4 Operations Center, manned 24/7, to relay by radio more detailed zone information still provided to the Center to emergency responders. As a result, BRASS will continue to provide remote monitoring of TA-55 PF-4 following completion of the FARP.

As discussed during the September 2003 video teleconference, LANL completed three reliability/maintainability studies of the older fire alarm control panels still in-service within LANL facilities[28, 29, 30]. Post-FARP vulnerabilities in LANL nuclear facilities are as follows;

- TA-54-RANT – AutoCall CD-NA-2 fire alarm control panel (FACP) is late 1970's era equipment, and has reached the end of its useful service life. Breakdown/failure of master logic boards, producing false alarms and alarm indications, and credible failure results. Anticipated failure rates of 1 per year should be expected, with increasing frequency in the future.

- TA-16-205/450 WETF – AutoCall CD-NA-3 FACP is late 1970's era equipment, and has reached the end of its useful service life. Similar failure modes as the AutoCall CD-NA-2 FACP are expected. Anticipated failure rates of 6 per year should be expected, with increasing frequency in the future.

- TA-21-209 TSFF – AutoCall CD-NA-3 FACP is late 1970's era equipment, and has reached the end of its useful service life. Similar failure modes as the AutoCall CD-NA-2 FACP are expected. Anticipated failure rates of 6 per year should be expected, with increasing frequency in the future. Note that this facility will be placed in cold standby when the NTTL program is complete in late 2006.

- TA-18 LACEF – AutoCall CD-TXA FACP is early 1980's era equipment, but is nearing the end of its useful service life. Reliability is anticipated to be stable until 2010 – 2013.

- TA-55-4 PF-4 – AutoCall CD-TXA FACP is early 1980's era equipment, but is nearing the end of its useful service life. Reliability is anticipated to be stable until 2010 – 2013.

- Spare parts for these AutoCall FACPs is becoming increasingly problematic (availability and cost) due to age, technology changes, exhaustion of distributor inventories, and industry ownership changes. LANL is paying more than $10,000 for some individual AutoCall FACP boards and relying on the salvage of parts and networking among the DOE complex for replacement parts.

To address these vulnerabilities, LANL proposes a three-step strategy for addressing post-FARP facility fire alarm system equipment obsolescence and legacy NFPA 72 non-compliances, as follows.

- LANL will develop General Plant Project (GPP)-sized project scopes based on the original FARP conceptual design baseline information and prioritization schema, under

the DOE-HQ Facilities and Infrastructure Revitalization Program (FIRP). The first scope and proposal will be developed in FY2006 for late FY2006 implementation.

- LANL is developing a proposal for a line item project to complete a follow-on FARP-like project to complete the majority of the remaining facility fire alarm upgrades scope.
- As described in the both the LANL FY2005 TYCSP update and the FY2006 TYSP, a fire alarm system replacement project for TA-55-3/4 is currently included within the TA-55 Infrastructure Reinvestment Line Item Project #LANL-06-015 starting in FY2006.

7. **Wildland Fire Protection, WBS Element FIRE.07**

The Staff Issue Report noted that the DOE O 450.1-required Wildland Fire Management Plan for LANL has not yet been completed and needed forest thinning and management efforts were not funded for FY2005, placing nuclear facilities at unnecessary risk for wildland fire. The response includes the following status of immediate actions undertaken and a longer term approach associated with implementation of the LANL Wildland Fire Management Plan presented in Attachment 2:

- The LANL Environmental Division Ecology Group (ENV-ECO) is completing the LANL Wildland Fire Management Plan scheduled for issuance on September 30, 2005.
- The Emergency Operations Office earmarked $100,000 of available FY2005 funding to complete critical fire road maintenance at LANL.
- Limited wildland forest thinning efforts in TA-36 and TA-54 will be completed in FY2005.

Corrective Actions Resulting from LANL CY2004 Resumption Activities

The formulation of the new Emergency Operations Office (EOO) under ADSFO in November 2004 following LANL resumption efforts included the development of an EOO LCAP[31]. The LCAP included recurring or emergent institutional issues relative to the LANL fire protection program. These LCAPs are considered integral to the comprehensive fire protection comprehensive plan. The following is a status of these LCAP issues:

CA#1/EO WBS 2.2.1.3.1.1 [EO-01-FPE] - *Assure Facility Management Division (FMD) implementation of LANL freeze protection program for fire protection system operability...* This action is on schedule. FIRE will perform winterization review of ITM records and make notifications to FMD organizations in September 2005.

CA#2/EO WBS 2.2.1.3.1.2 [EO-02-FPE] - *Update LANL O&M Criterion 733, Fire Protection System Impairment Control Program, to address weaknesses (AA2-04-08 Finding 8 Recommendation)...* Originally targeted for completion by July 1, 2005, FIRE has requested this corrective action be extended to September 30, 2005; under Change Control 2 to the EO CAP to address other emergent priorities need to push to 10/30/05.

CA#3/EO WBS 2.2.1.3.1.3 [EO-03-FPE] - *Report weekly on fire protection system impairments ... to the NSEB/DCSSC quarterly...* This item was closed February 4, 2005, to reflect on-going weekly and monthly reporting to requesting organizations.

CA#18/EO WBS 2.2.1.3.1.18 [EO-18-PREP] - *Provide self-assessment process for NFPA 101 reviews by LANL managers to assure compliance, monitor reports, and use ITRACK to assure closure of identified issues...* This is on-track for completion on or before October 30, 2005, through issuance of revised MWA and STOP self-assessment guidance cards.

CA#33/EO WBS 2.2.1.3.1.33 [EO-33-FPE] - *Upgrade process for non-emergency use of fire hydrants...* The new procedure being developed through the LANL Institutional Facility Management Program (IFMP) umbrella is late (due June 15, 2005). Available technical writer support has other commitments. FIRE has requested this corrective action be extended to August 31, 2005, under Change Control 2 to the EO CAP to address lack of technical writing resources. In FY2006, this may require further revision with the awarded prime contractor. Note that FIRE has already implemented the requirements of the proposed procedure in day-to-day review of these requests.

CA#34/EO WBS 2.2.1.3.1.34 [EO-34-FPE] - *Implementation Plan for emergency services BNA...* See narrative under DNFSB Issue Nos. 4 and 5 above.

CA#35/EO WBS 2.2.1.3.1.35 [EO-35-FPE] - *Update LIR 402-910-01 (7/7/2003 is last revision) to capture new requirements, new procedures, new LANL organizational roles and responsibilities, processes for EQs and EXs, ...* The proposed revision is late (May 15, 2005), and impacted by proposed changes in LANL roles and responsibilities for facilities and programmatic activities (RDLs *v.* Facility Managers, etc.) and new Policy Office initiative to retire LIRs and replace them with new policies, procedures, etc. The LANL Policy Office will not allow quick-changes to existing LIRs; any changes must be included in new documents. FIRE has requested this corrective action be extended to September 30, 2005, under Change Control 2 to the EO CAP allow incorporation of changing LANL roles and responsibilities (assumes these will be finalized in September for an October 1, 2005, RDL roll-out) and reformat of the existing LIR into new Policy Office format(s). In FY2006, his will require further revision with the awarded prime contractor.

CA#36/EO WBS 2.2.1.3.1.36 [EO-36-FPE] - *Update '98 era Fire Protection Program Manual into new document...* This effort is at high risk for incompletion by September 30, 2005, due to lack of available qualified resources and other emergent issues. FIRE has requested relief from this commitment date in an upcoming Change Control exercise for the EO CAP when a more realistic date can be determined in concert with the awarded prime contractor.

References

[1] DNFSB Memorandum from A.J. Eggenberger, Acting Chairman, to L. Brooks, NNSA Administrator, May 31, 2005.

[2] DNFSB Staff Issue Report for J.K. Fortenberry, Technical Director, from C. March, *Fire Protection at Los Alamos National Laboratory*, April 29, 2005.

[3] LANL Memorandum No. DIR-05-114, *Fire Protection Program*, dated March 23, 2005.

[4] LANL Memorandum No. FWO-DO/04-044, *Corrective Action Plan – LASO Fire Protection Maintenance Assessment November 2003 Through February 2004*, June 18, 2004. LANL Memorandum No. FWO-DO/04-054, *Response to Corrective Action Plan – LASO Fire Protection Maintenance Assessment November 2003 Through February 2004*, July 14, 2004.

[5] DOE/NNSA-LASO Assessment Report – *Fire Protection Maintenance Appraisal of the University of California's Los Alamos National Laboratory, November 2003 – February 2004*, transmitted under DOE/NNSA-LASO Memorandum No. OFO:1RG-014, Joseph Vozella to James Holt, April 21, 2004.

[6] LANL PAAA Noncompliance Report No. NTS-ALO-LA-LANL-LANL-2004-0009, *Fire Protection Maintenance Institutional Issues*, report date 4/29/2004.

[7] LANL Memorandum No. EOO-FIRE-05-077, *Status of Corrective Actions for the CY2004 LASO Fire Protection Maintenance Assessment*, March 30, 2005.

[8] DOE Office of Nuclear and Facility Safety Policy (EH-2.1) *Summary of Fire Protection Programs for Calendar Year 2003*, pp. 12-13.

[9] ARES Corporation Report under Task Order Agreement #3-20066 000-01 CQ, *Premier Maintenance Program Fire Protection Inspection, Testing, and Maintenance – Phase I (Draft) Report*, Revision 0, February 2005.

[10] LANL LIR 230-04-01.1, *Laboratory Maintenance Management Program*, § 7.0, 6/29/2001.

[11] LANL IFMP Document No. MAN-MNT, *Maintenance Management Program Manual*, § 2.1, Revision 0, 9/25/2003.

[12] LANL Administrative Procedure No. AP-MNT-010, *Master Equipment List and Maintenance History*, Revision 2, 7/8/2005.

[13] LANL Document No. LA-CP-05-0255, *Institutional Issue Report – Fire Protection Maintenance Institutional Issues ALO-LANL-LANL-2004-0009*, April 2005 [OUO].

[14] DOE/NNSA-LASO Memorandum No. OFO:1RG-011, *Fire Equivalency Process & Closure of Open Items*, 23 September 2003.

[15] LANL Administrative Procedure No. AP-FIRE-002, *Fire Protection Equivalencies*, Revision 0, 1/26/2005.

[16] LANL Administrative Procedure No. AP-FIRE-003, *Fire Protection Exemptions*, Revision 0, 1/26/2005.

[17] LANL Administrative Procedure No. AP-FIRE-001, *Fire Protection Engineering Evaluations*, Revision 0, 1/26/2005.

[18] LANL Memorandum No. FWO-FIRE-04-189, *Validation Effort for Los Alamos National Laboratory (LANL) Fire Hazard Analysis (FHA) Findings, Deficiencies and Recommendations*, July 21, 2004.

[19] LANL LIR 300-00-06.5, *Nuclear Facility Safety Basis*, Revision 5, July 18, 2005.

[20] LANL OST 300-00-06, *Safety Basis Handbook*, Section 10: "Nuclear Facility Safety Basis Maintenance, Change, Review and Update Procedure," Revision 1, June 30, 2004. See Sub-Section 6.0 ¶ 6.1.5.e(6) for specific reference to FHA review and update.

[21] LANL LIR 402-910-01.6, *LANL Fire Protection Program*, Revision 6, § 6.1.2 "Baseline Property Protection Requirements," July 7, 2003.

[22] Federal Register, Volume 70, No. 16, January 26, 2005. Department of Energy 10 CFR Part 851 [Docket No. EH-RM-04-WSHP], RIN 1901-AA99.

[23] DOE/NNSA-LASO Memorandum No. OFO:8WF-001, *Fire Department Staffing, Contract No. W-7045-ENG*, July 14, 2005.

[24] LANL Memorandum No. EO-05-007, *Corrective Action Plan for LAFD Staffing Under Contract W-7045-ENG, REF: OFO:8WF-001*, July 26, 2005.

[25] DOE/NNSA-LASO Memorandum No. OFO:5RG-009, *Hazardous Material Response at Los Alamos National Laboratory (LANL) & the Contract for Fire Protection Services between LANL and Los Alamos County*, September 20, 2004.

[26] LANL Memorandum No. ADSFO-009 (AD-Ops:04-009), *Hazardous Material Response at LANL and the Contract for Fire Protection Services between LANL and Los Alamos County*, December 8, 2004.

[27] DOE/NNSA-LASO Memorandum No. BA-1TH-003, *Request for Proposal (RFP) for Fire Department Support Services*, June 2, 2005.

[28] LANL Report *Failure Root Cause Analysis – TA-3-34 Fire Alarm Control Panel Failure on 3 July 2002*, dated 8/1/2002.

[29] LANL Report *Maintainability Review – AutoCall Fire Alarm Control Panels*, dated 1/30/2003.

[30] LANL Report *Maintainability Review – FCI 72 Series Fire Alarm Control Panels*, dated 7/2/2003.

[31] LANL Emergency Operations Office Local Corrective Action Plan (LCAP) No. EO 00000, *This is a comprehensive CAP in response to FWO/KSL MSA [FIRE], S Division MSA [EM&R, HAZMAT], and 22 assessment/deficiency reports including PAAA NTS [12/15/2004] within the last year*, Revision 0, dated 11/1/2004. Change Control No. 2 is in process.

Attachment 1: FY05 Cost-Rate Calculation for the LANL Fire Protection Program

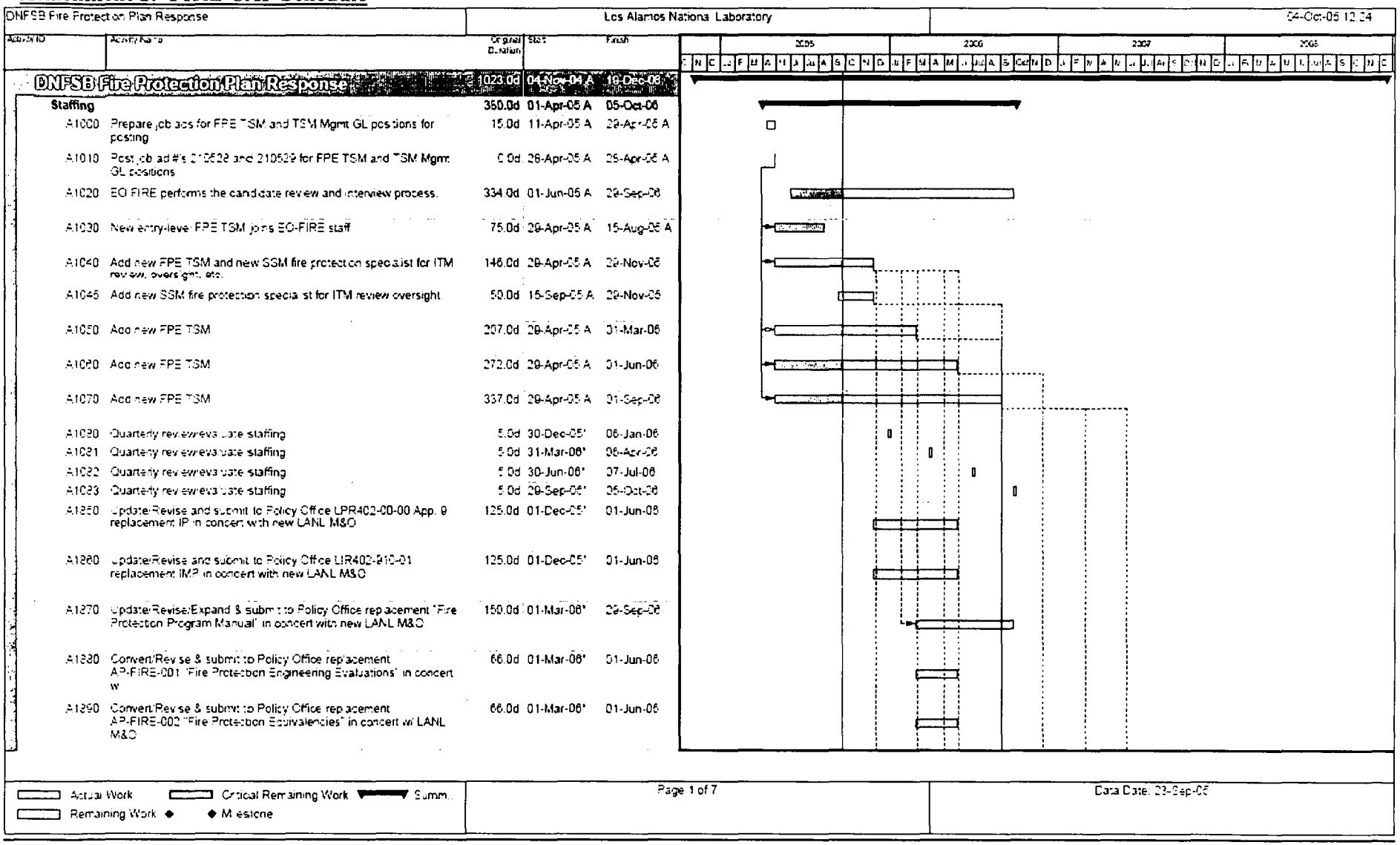
Item	FY2005 Cost(s)	FY2005 Cost %	FY2005 % (excluding PSWFASRP)
"Core" Fire Protection staffing, management, training, M&S	$ 1,150,400	3.5%	4.8%
"Core" Lab-wide Fire Alarm Operations, staffing, training, M&S	778,000	2.4%	3.2%
"Core" Fire Protection management and administration	180,000	0.5%	0.7%
March 2005 Deputy Director Memo #DIR-05-114; staffing, FHAs, BNA implementation funding influx	400,000	1.2%	1.6%
Fire Department Contract costs, labor, staffing, training, general M&S	13,500,000	41.0%	55.8%
LANL contract administration, apparatus maintenance, facility maintenance costs, other M&S in support of LAFD contract	2,000,000	6.1%	8.3%
Fire Protection SSC ITM	6,200,000	18.8%	25.6%
Sub-Total (non-line item)	$ 24,208,400	73.5%	100%
Partial Site-Wide Fire Alarm System Replacement (line item) Project (FARP)	$ 8,740,000	26.5%	
Total (including line item)	$ 32,948,400	100%	

Facility Replacement Values (RPVs)

LANL FIMS Mission Essential Facility Replacement Value ($100)	$ 37,360,000
LANL FIMS Balance of Plant Facility Replacement Value ($100)	$ 27,410,000
Total LANL FIMS RPV ($100)	$ 64,770,000

Cost per $100 RPV (non-line item)	37.38 ¢
Cost per $100 RPV (including line item)	50.87 ¢

Attachment 2: FIRE CAP Schedule



DNFSB Fire Protection Plan Response — Los Alamos National Laboratory — 04-Oct-05 12:24

Activity ID	Activity Name	Original Duration	Start	Finish
	DNFSB Fire Protection Plan Response	1023.0d	04-Nov-04 A	19-Dec-08
	Staffing	350.0d	01-Apr-05 A	05-Oct-06
A1000	Prepare job ads for FPE TSM and TSM Mgmt GL positions for posting	15.0d	11-Apr-05 A	29-Apr-05 A
A1010	Post job ad #'s 210528 and 210529 for FPE TSM and TSM Mgmt GL positions	0.0d	26-Apr-05 A	26-Apr-05 A
A1020	EO FIRE performs the candidate review and interview process.	334.0d	01-Jun-05 A	29-Sep-06
A1030	New entry-level FPE TSM joins EO-FIRE staff	75.0d	29-Apr-05 A	15-Aug-06 A
A1040	Add new FPE TSM and new SSM fire protection specialist for ITM review, oversight, etc.	146.0d	29-Apr-05 A	29-Nov-06
A1045	Add new SSM fire protection specialist for ITM review oversight	50.0d	15-Sep-05 A	29-Nov-06
A1050	Add new FPE TSM	207.0d	29-Apr-05 A	01-Mar-06
A1060	Add new FPE TSM	272.0d	29-Apr-05 A	01-Jun-06
A1070	Add new FPE TSM	337.0d	29-Apr-05 A	01-Sep-06
A1080	Quarterly review/evaluate staffing	5.0d	30-Dec-05*	06-Jan-06
A1081	Quarterly review/evaluate staffing	5.0d	31-Mar-06*	06-Apr-06
A1082	Quarterly review/evaluate staffing	5.0d	30-Jun-06*	07-Jul-06
A1083	Quarterly review/evaluate staffing	5.0d	29-Sep-06*	05-Oct-06
A1250	Update/Revise and submit to Policy Office LPR402-00-00 App. B replacement IP in concert with new LANL M&O	125.0d	01-Dec-05*	01-Jun-06
A1260	Update/Revise and submit to Policy Office LIR402-810-01 replacement IMP in concert with new LANL M&O	125.0d	01-Dec-05*	01-Jun-06
A1270	Update/Revise/Expand & submit to Policy Office replacement "Fire Protection Program Manual" in concert with new LANL M&O	150.0d	01-Mar-06*	29-Sep-06
A1280	Convert/Revise & submit to Policy Office replacement AP-FIRE-001 "Fire Protection Engineering Evaluations" in concert w	66.0d	01-Mar-06*	01-Jun-06
A1290	Convert/Revise & submit to Policy Office replacement AP-FIRE-002 "Fire Protection Equivalencies" in concert wi LANL M&O	66.0d	01-Mar-06*	01-Jun-06

Actual Work | Critical Remaining Work | Summ...
Remaining Work | Milestone

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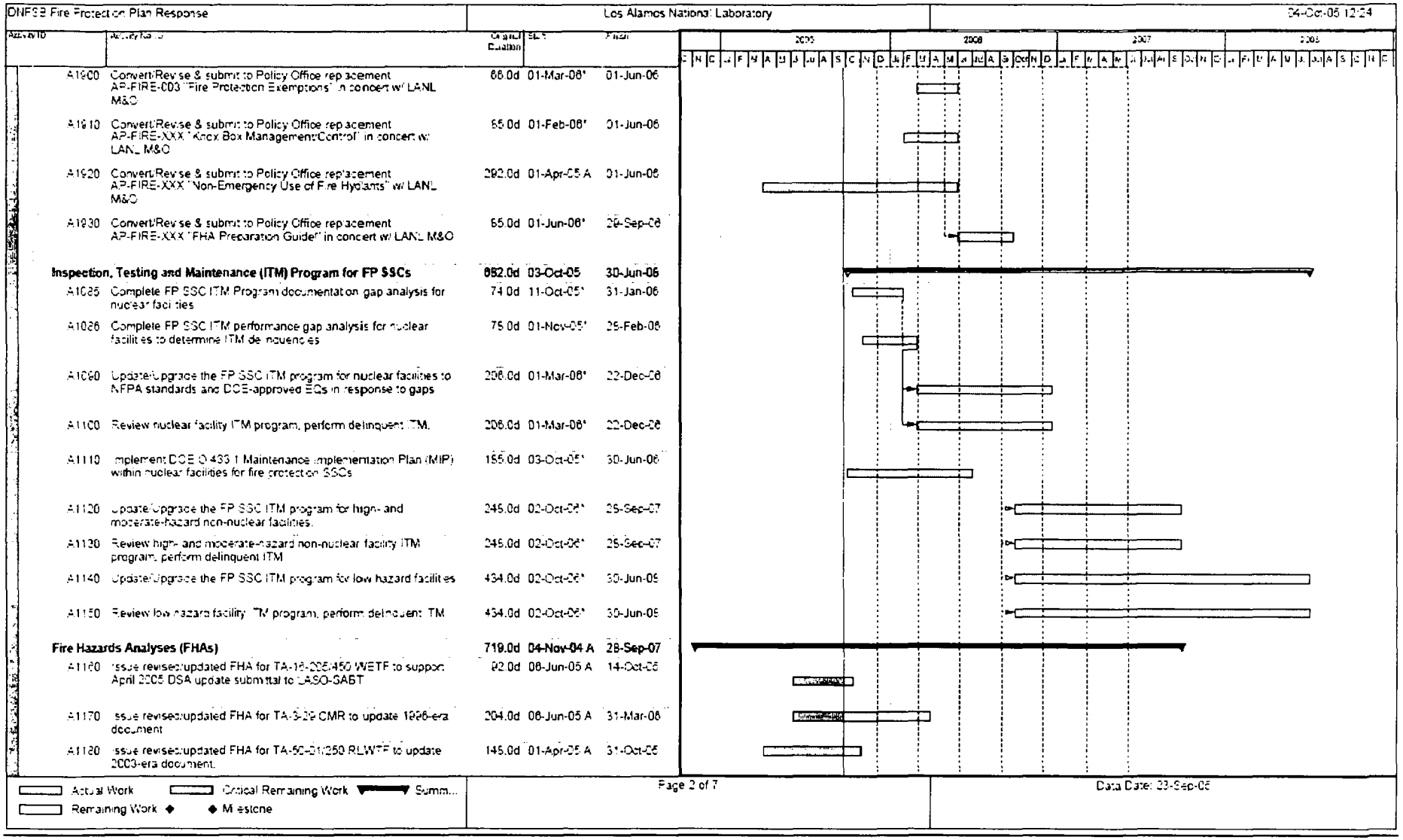
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A1910 Convert/Revise & submit to Policy Office replacement AP-FIRE-XXX "Knox Box Management/Control" in concert w/ LANL M&O 66.0d 01-Feb-06* 01-Jun-06
A1920 Convert/Revise & submit to Policy Office replacement AP-FIRE-XXX "Non-Emergency Use of Fire Hydrants" w/ LANL M&O 282.0d 01-Apr-05 A 01-Jun-06
A1930 Convert/Revise & submit to Policy Office replacement AP-FIRE-XXX "FHA Preparation Guide" in concert w/ LANL M&O 66.0d 01-Jun-06* 29-Sep-06
Inspection, Testing and Maintenance (ITM) Program for FP SSCs 652.0d 03-Oct-05 30-Jun-06
A1025 Complete FP SSC ITM Program documentation gap analysis for nuclear facilities 74.0d 11-Oct-05* 31-Jan-06
A1026 Complete FP SSC ITM performance gap analysis for nuclear facilities to determine ITM deficiencies 75.0d 01-Nov-05* 28-Feb-06
A1060 Update/Upgrade the FP SSC ITM program for nuclear facilities to NFPA standards and DOE-approved EQs in response to gaps 206.0d 01-Mar-06* 22-Dec-06
A1100 Review nuclear facility ITM program, perform delinquent ITM. 206.0d 01-Mar-06* 22-Dec-06
A1110 Implement DOE O 433.1 Maintenance Implementation Plan (MIP) within nuclear facilities for fire protection SSCs 155.0d 03-Oct-05* 30-Jun-06
A1120 Update/Upgrade the FP SSC ITM program for high- and moderate-hazard non-nuclear facilities. 246.0d 02-Oct-06* 25-Sep-07
A1130 Review high- and moderate-hazard non-nuclear facility ITM program, perform delinquent ITM 246.0d 02-Oct-06* 25-Sep-07
A1140 Update/Upgrade the FP SSC ITM program for low hazard facilities 434.0d 02-Oct-06* 30-Jun-09
A1150 Review low hazard facility ITM program, perform delinquent ITM 434.0d 02-Oct-06* 30-Jun-09
Fire Hazards Analyses (FHAs) 719.0d 04-Nov-04 A 28-Sep-07
A1160 Issue revised/updated FHA for TA-16-205/450 WETF to support April 2005 DSA update submittal to DASO-SABT 92.0d 06-Jun-05 A 14-Oct-05
A1170 Issue revised/updated FHA for TA-3-29 CMR to update 1996-era document 204.0d 06-Jun-05 A 31-Mar-06
A1180 Issue revised/updated FHA for TA-50-01/250 RLWTF to update 2003-era document. 145.0d 01-Apr-05 A 31-Oct-05
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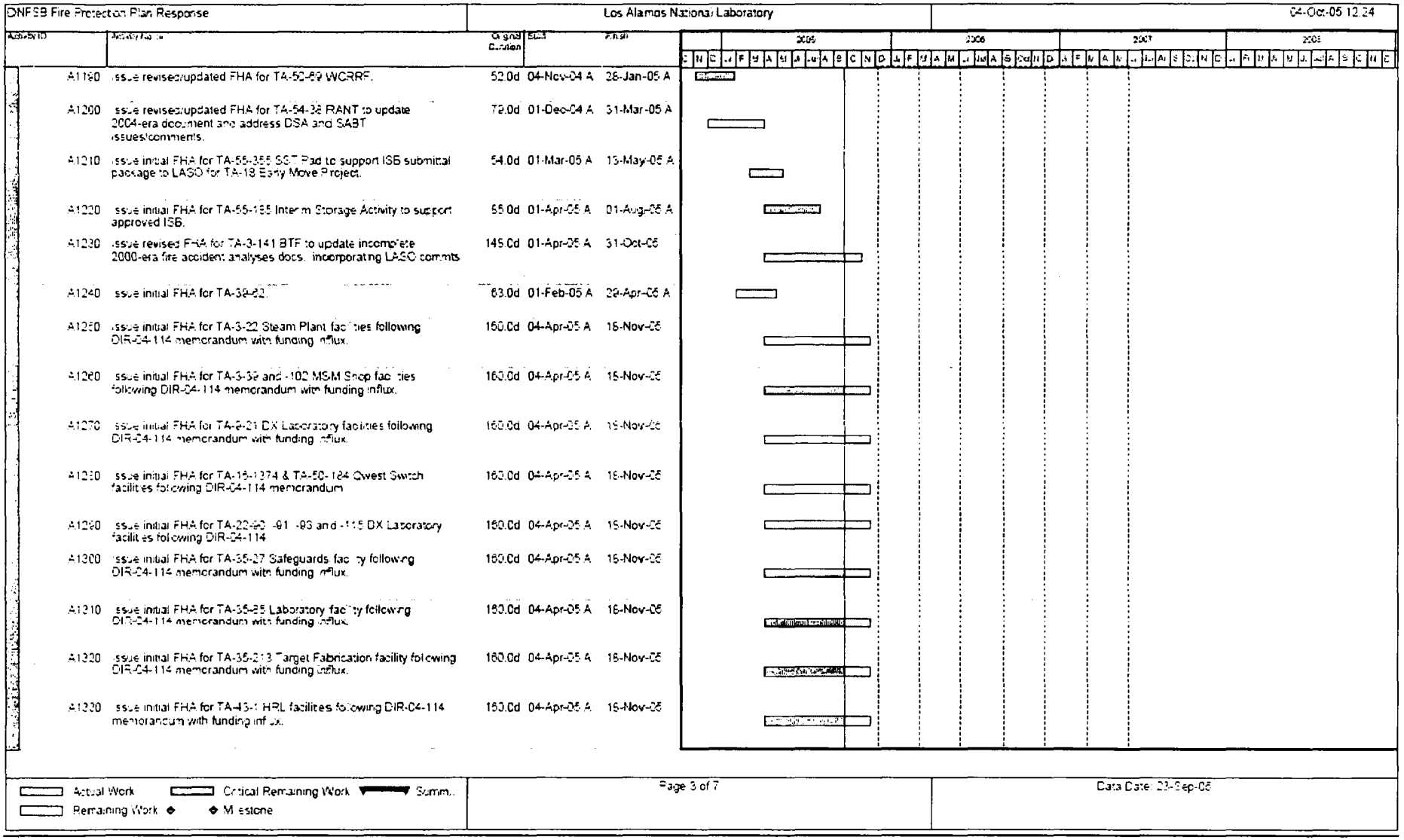
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A1200 Issue revised/updated FHA for TA-54-38 RANT to update 2004-era document and address DSA and SABT issues/comments. 79.0d 01-Dec-04 A 31-Mar-05 A
A1210 Issue initial FHA for TA-55-355 SST Pad to support ISB submittal package to LASO for TA-18 Early Move Project. 54.0d 01-Mar-05 A 13-May-05 A
A1220 Issue initial FHA for TA-55-155 Interim Storage Activity to support approved ISB. 55.0d 01-Apr-05 A 01-Aug-05 A
A1230 Issue revised FHA for TA-3-141 BTF to update incomplete 2000-era fire accident analyses docs. incorporating LASO comms 145.0d 01-Apr-05 A 31-Oct-05
A1240 Issue initial FHA for TA-39-62. 63.0d 01-Feb-05 A 29-Apr-05 A
A1250 Issue initial FHA for TA-3-22 Steam Plant facilities following DIR-04-114 memorandum with funding influx. 160.0d 04-Apr-05 A 15-Nov-05
A1260 Issue initial FHA for TA-3-39 and -102 MSM Shop facilities following DIR-04-114 memorandum with funding influx. 160.0d 04-Apr-05 A 15-Nov-05
A1270 Issue initial FHA for TA-8-21 DX Laboratory facilities following DIR-04-114 memorandum with funding influx. 160.0d 04-Apr-05 A 15-Nov-05
A1280 Issue initial FHA for TA-16-1374 & TA-50-124 Qwest Switch facilities following DIR-04-114 memorandum 160.0d 04-Apr-05 A 15-Nov-05
A1290 Issue initial FHA for TA-22-90, -91, -93 and -115 DX Laboratory facilities following DIR-04-114 160.0d 04-Apr-05 A 15-Nov-05
A1300 Issue initial FHA for TA-35-27 Safeguards facility following DIR-04-114 memorandum with funding influx. 160.0d 04-Apr-05 A 15-Nov-05
A1310 Issue initial FHA for TA-35-85 Laboratory facility following DIR-04-114 memorandum with funding influx. 160.0d 04-Apr-05 A 15-Nov-05
A1320 Issue initial FHA for TA-35-213 Target Fabrication facility following DIR-04-114 memorandum with funding influx. 160.0d 04-Apr-05 A 15-Nov-05
A1330 Issue initial FHA for TA-43-1 HRL facilities following DIR-04-114 memorandum with funding influx. 160.0d 04-Apr-05 A 15-Nov-05
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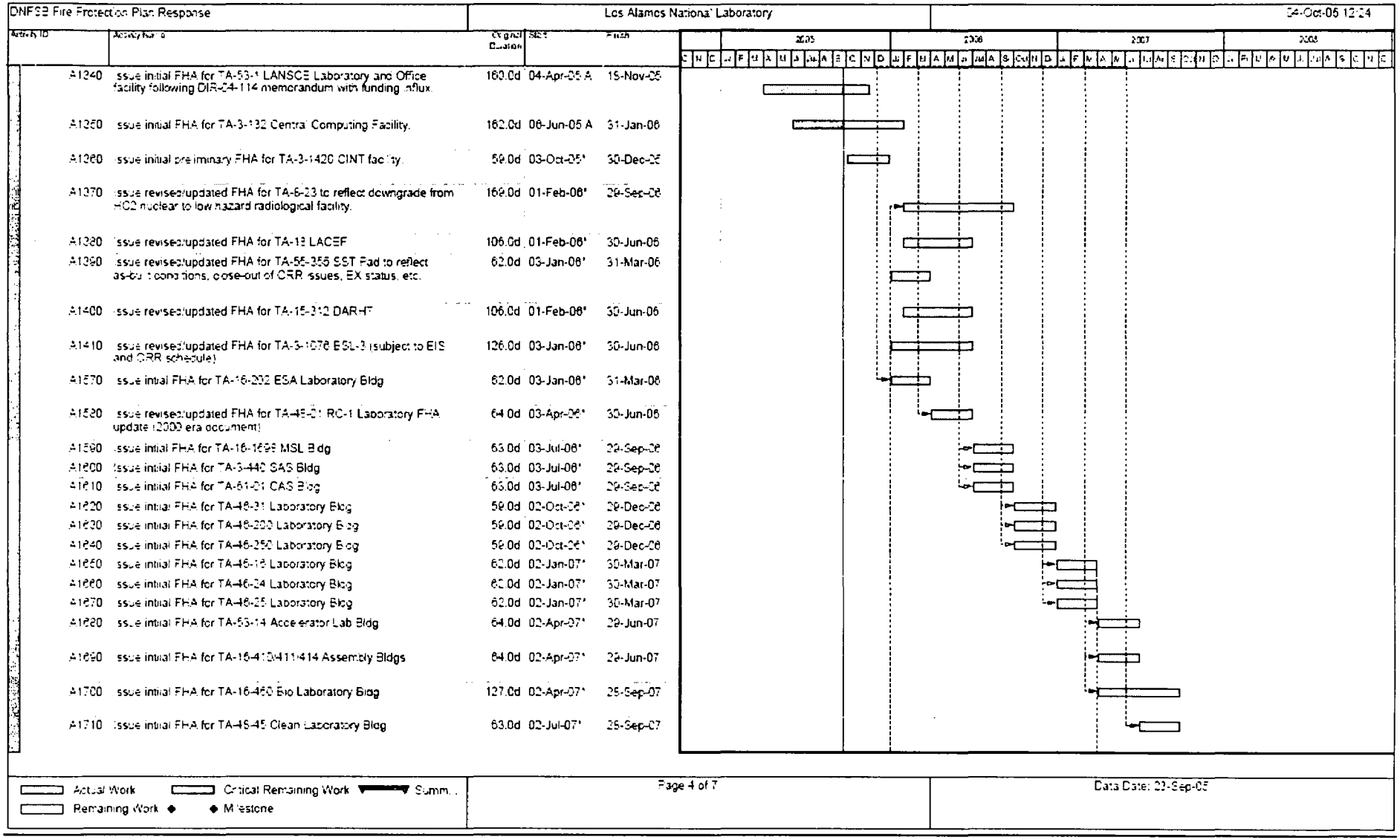
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A1350 Issue initial FHA for TA-3-132 Central Computing Facility. 162.0d 06-Jun-05 A 31-Jan-06
A1360 Issue initial preliminary FHA for TA-3-1420 CINT facility. 59.0d 03-Oct-05* 30-Dec-05
A1370 Issue revised/updated FHA for TA-6-23 to reflect downgrade from HC2 nuclear to low hazard radiological facility. 169.0d 01-Feb-06* 29-Sep-06
A1380 Issue revised/updated FHA for TA-18 LACEF 106.0d 01-Feb-06* 30-Jun-06
A1390 Issue revised/updated FHA for TA-55-355 SST Pad to reflect as-built conditions, close-out of CRR issues, EX status, etc. 62.0d 03-Jan-06* 31-Mar-06
A1400 Issue revised/updated FHA for TA-16-212 DARHT 106.0d 01-Feb-06* 30-Jun-06
A1410 Issue revised/updated FHA for TA-3-1078 BSL-3 (subject to EIS and CRR schedule) 126.0d 03-Jan-06* 30-Jun-06
A1570 Issue intial FHA for TA-16-202 ESA Laboratory Bldg 62.0d 03-Jan-06* 31-Mar-06
A1580 Issue revised/updated FHA for TA-48-01 RC-1 Laboratory FHA update (2000 era document) 64.0d 03-Apr-06* 30-Jun-06
A1590 Issue initial FHA for TA-16-1699 MSL Bldg 63.0d 03-Jul-06* 29-Sep-06
A1600 Issue initial FHA for TA-3-442 SAS Bldg 63.0d 03-Jul-06* 29-Sep-06
A1610 Issue initial FHA for TA-61-01 CAS Bldg 63.0d 03-Jul-06* 29-Sep-06
A1620 Issue initial FHA for TA-48-31 Laboratory Bldg 59.0d 02-Oct-06* 29-Dec-06
A1630 Issue initial FHA for TA-48-200 Laboratory Bldg 59.0d 02-Oct-06* 29-Dec-06
A1640 Issue initial FHA for TA-48-250 Laboratory Bldg 59.0d 02-Oct-06* 29-Dec-06
A1650 Issue initial FHA for TA-48-18 Laboratory Bldg 62.0d 02-Jan-07* 30-Mar-07
A1660 Issue initial FHA for TA-48-24 Laboratory Bldg 62.0d 02-Jan-07* 30-Mar-07
A1670 Issue initial FHA for TA-48-25 Laboratory Bldg 62.0d 02-Jan-07* 30-Mar-07
A1680 Issue initial FHA for TA-53-14 Accelerator Lab Bldg 64.0d 02-Apr-07* 29-Jun-07
A1690 Issue initial FHA for TA-16-410/411/414 Assembly Bldgs 64.0d 02-Apr-07* 29-Jun-07
A1700 Issue initial FHA for TA-16-460 Bio Laboratory Bldg 127.0d 02-Apr-07* 28-Sep-07
A1710 Issue initial FHA for TA-48-45 Clean Laboratory Bldg 63.0d 02-Jul-07* 28-Sep-07
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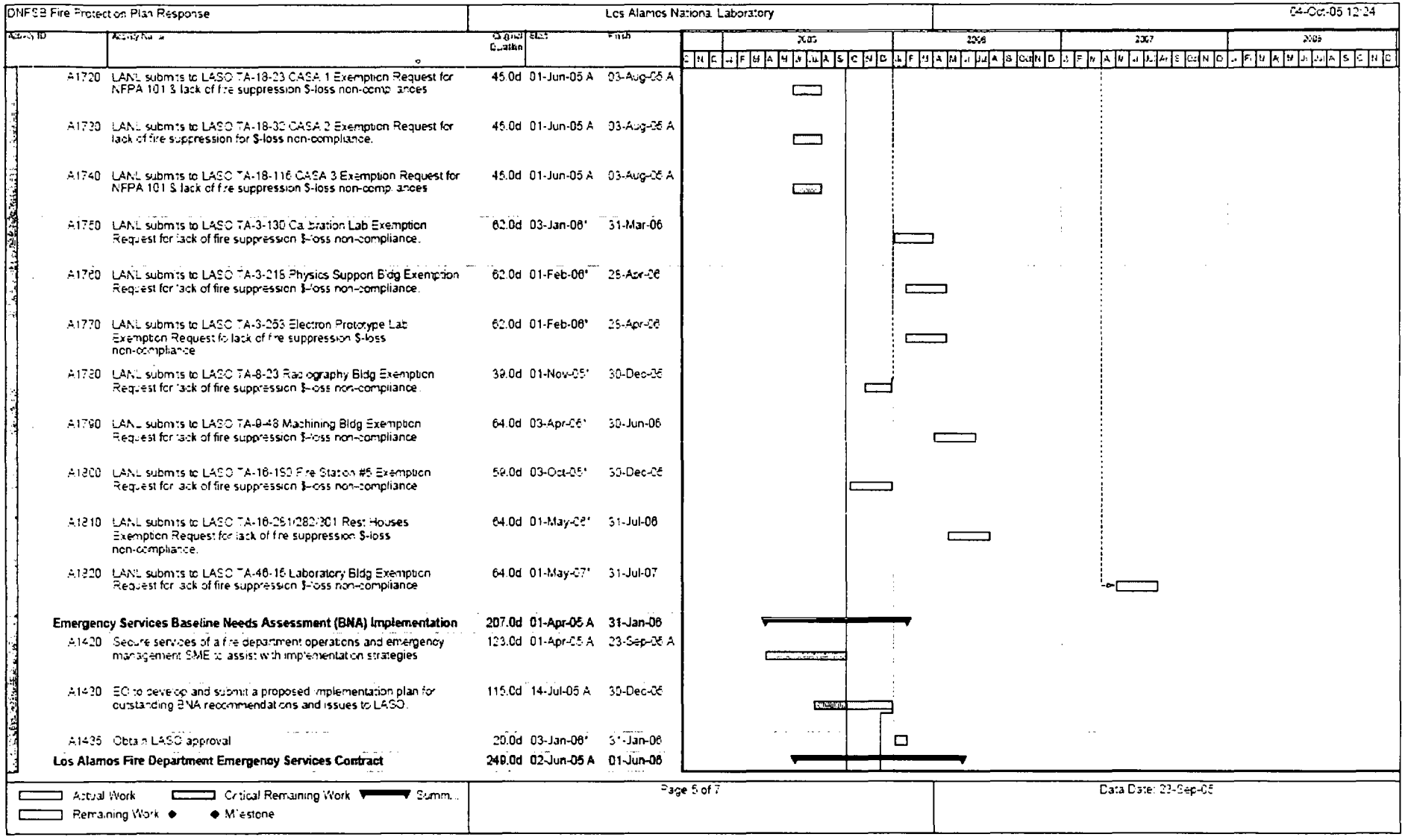
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A1730 LANL submits to LASO TA-18-32 CASA 2 Exemption Request for lack of fire suppression for $-loss non-compliance. 45.0d 01-Jun-05 A 03-Aug-05 A
A1740 LANL submits to LASO TA-18-116 CASA 3 Exemption Request for NFPA 101 S lack of fire suppression $-loss non-compliances 45.0d 01-Jun-05 A 03-Aug-05 A
A1750 LANL submits to LASO TA-3-130 Calibration Lab Exemption Request for lack of fire suppression $-loss non-compliance. 62.0d 03-Jan-06* 31-Mar-06
A1760 LANL submits to LASO TA-3-215 Physics Support Bldg Exemption Request for lack of fire suppression $-loss non-compliance. 62.0d 01-Feb-06* 28-Apr-06
A1770 LANL submits to LASO TA-3-253 Electron Prototype Lab Exemption Request for lack of fire suppression $-loss non-compliance 62.0d 01-Feb-06* 28-Apr-06
A1780 LANL submits to LASO TA-8-23 Radiography Bldg Exemption Request for lack of fire suppression $-loss non-compliance. 39.0d 01-Nov-05* 30-Dec-05
A1790 LANL submits to LASO TA-9-48 Machining Bldg Exemption Request for lack of fire suppression $-loss non-compliance 64.0d 03-Apr-06* 30-Jun-06
A1800 LANL submits to LASO TA-16-150 Fire Station #6 Exemption Request for lack of fire suppression $-loss non-compliance 59.0d 03-Oct-05* 30-Dec-05
A1810 LANL submits to LASO TA-16-261/282/301 Rest Houses Exemption Request for lack of fire suppression $-loss non-compliance. 64.0d 01-May-06* 31-Jul-06
A1820 LANL submits to LASO TA-46-16 Laboratory Bldg Exemption Request for lack of fire suppression $-loss non-compliance 64.0d 01-May-07* 31-Jul-07
Emergency Services Baseline Needs Assessment (BNA) Implementation 207.0d 01-Apr-05 A 31-Jan-06
A1420 Secure services of a fire department operations and emergency management SME to assist with implementation strategies 123.0d 01-Apr-05 A 23-Sep-05 A
A1430 EC to develop and submit a proposed implementation plan for outstanding BNA recommendations and issues to LASO. 115.0d 14-Jul-05 A 30-Dec-05
A1435 Obtain LASO approval 20.0d 03-Jan-06* 31-Jan-06
Los Alamos Fire Department Emergency Services Contract 249.0d 02-Jun-05 A 01-Jun-06
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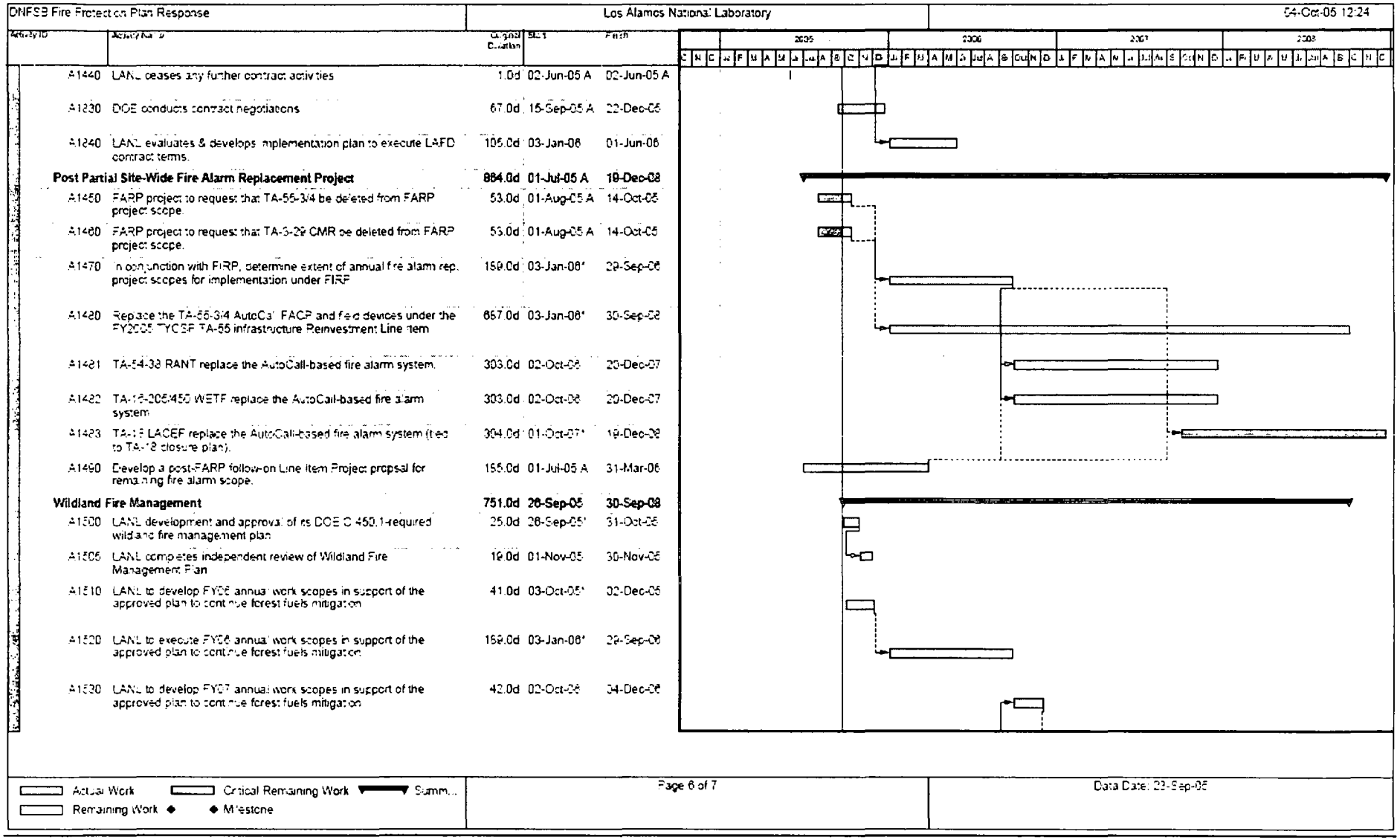
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A1440 LANL ceases any further contract activities 1.0d 02-Jun-05 A 02-Jun-05 A
A1230 DOE conducts contract negotiations 67.0d 15-Sep-05 A 22-Dec-05
A1240 LANL evaluates & develops implementation plan to execute LAFD contract terms. 105.0d 03-Jan-06 01-Jun-06
Post Partial Site-Wide Fire Alarm Replacement Project 864.0d 01-Jul-05 A 19-Dec-08
A1450 FARP project to request that TA-55-3/4 be deleted from FARP project scope. 53.0d 01-Aug-05 A 14-Oct-05
A1460 FARP project to request that TA-3-29 CMR be deleted from FARP project scope. 53.0d 01-Aug-05 A 14-Oct-05
A1470 In conjunction with FIRP, determine extent of annual fire alarm rep. project scopes for implementation under FIRP 159.0d 03-Jan-06* 29-Sep-06
A1420 Replace the TA-55-3/4 AutoCall FACP and field devices under the FY2005 TYCSF TA-55 Infrastructure Reinvestment Line Item 667.0d 03-Jan-06* 30-Sep-08
A1421 TA-54-38 RANT replace the AutoCall-based fire alarm system. 303.0d 02-Oct-06 20-Dec-07
A1422 TA-16-205/450 WETF replace the AutoCall-based fire alarm system 303.0d 02-Oct-06 20-Dec-07
A1423 TA-16 LACEF replace the AutoCall-based fire alarm system (tied to TA-16 closure plan). 304.0d 01-Oct-07* 19-Dec-08
A1490 Develop a post-FARP follow-on Line Item Project propsal for remaining fire alarm scope. 155.0d 01-Jul-05 A 31-Mar-06
Wildland Fire Management 751.0d 26-Sep-05 30-Sep-08
A1500 LANL development and approval of its DOE O 450.1-required wildland fire management plan 25.0d 26-Sep-05* 31-Oct-05
A1505 LANL completes independent review of Wildland Fire Management Plan 19.0d 01-Nov-05 30-Nov-05
A1510 LANL to develop FY06 annual work scopes in support of the approved plan to continue forest fuels mitigation 41.0d 03-Oct-05* 02-Dec-05
A1520 LANL to execute FY06 annual work scopes in support of the approved plan to continue forest fuels mitigation 169.0d 03-Jan-06* 29-Sep-06
A1530 LANL to develop FY07 annual work scopes in support of the approved plan to continue forest fuels mitigation 42.0d 02-Oct-06 04-Dec-06
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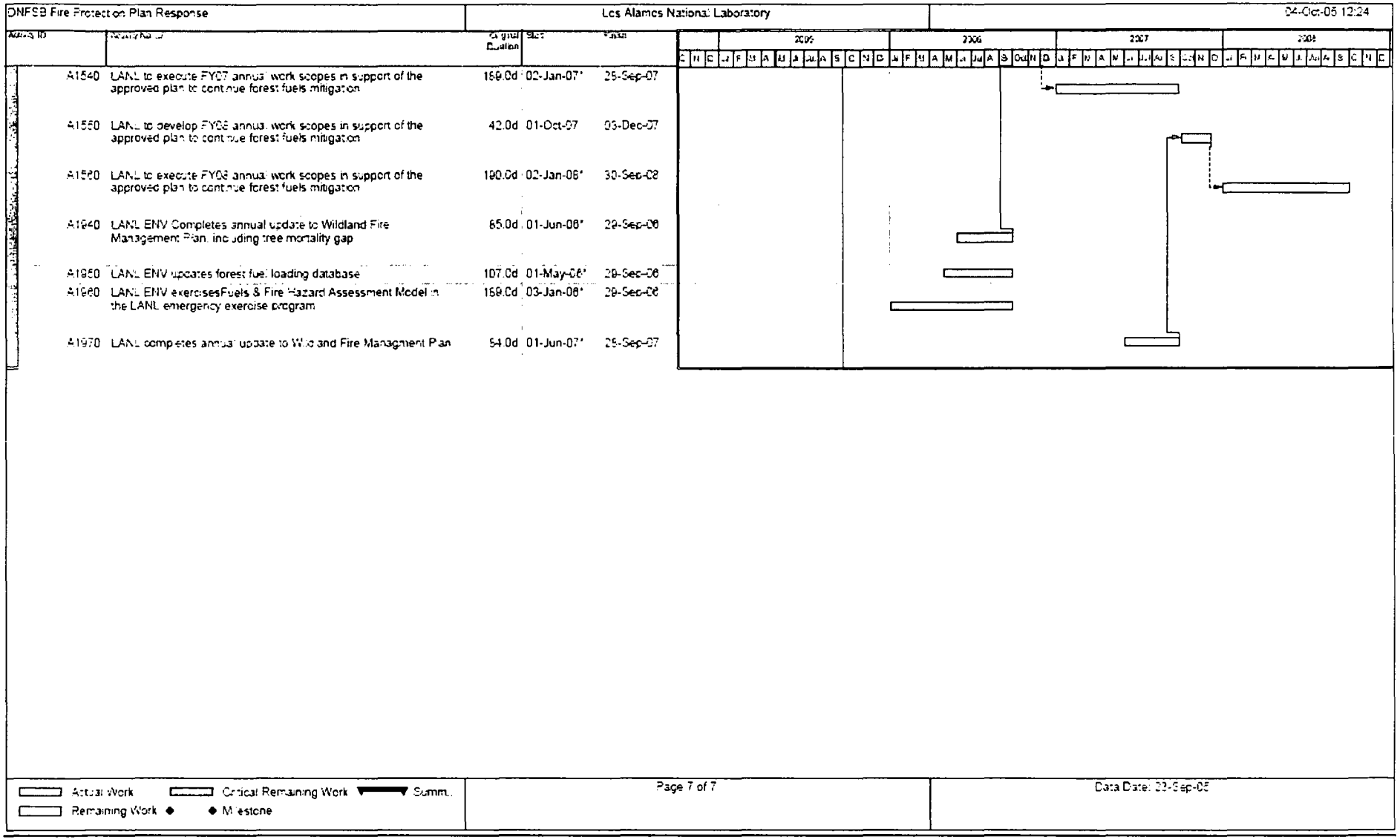
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A1540 LANL to execute FY07 annual work scopes in support of the approved plan to continue forest fuels mitigation 169.0d 02-Jan-07* 29-Sep-07
A1550 LANL to develop FY08 annual work scopes in support of the approved plan to continue forest fuels mitigation 42.0d 01-Oct-07 03-Dec-07
A1560 LANL to execute FY08 annual work scopes in support of the approved plan to continue forest fuels mitigation 190.0d 02-Jan-08* 30-Sep-08
A1940 LANL ENV Completes annual update to Wildland Fire Management Plan, including tree mortality gap 65.0d 01-Jun-06* 29-Sep-06
A1950 LANL ENV updates forest fuel loading database 107.0d 01-May-06* 29-Sep-06
A1960 LANL ENV exercisesFuels & Fire Hazard Assessment Model in the LANL emergency exercise program 169.0d 03-Jan-06* 29-Sep-06
A1970 LANL completes annual update to Wild and Fire Managment Plan 64.0d 01-Jun-07* 29-Sep-07
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Attachment 3: Fire Hazards Analysis (FHA) Status for LANL Facilities

Facility	Haz. Category	FHA Document	Comment(s)
TA-3-29 CMR	2 Nuclear	NMT-13-98-026, April 1996. NMT-14 re-evaluated this April '96 FHA in concert with the 2004 BIO update and documented the results in LANL Memo #NMT-14:04-043 (4/24/2004), which is considered the presently revised FHA.	FHA needs update to support BIO submittal. Through a LANL Director's Office initiative via existing MTOA, LANL plans a formal update/revision to the FHA in early CY2006.
TA-8-23 Radiography	2 Nuclear*	FWO-FIRE-01-061, Revision 2, March 2003.	FHA has not been revised to reflect recent upgrades (through penetration firestop systems), fire alarm system concerns, or planned fire alarm system upgrades. * ESA has proposed downgrading facility to Radiological.
TA-16-205/450 WETF	2 Nuclear	FHA, Revision 0, January 2002. FHA prepared to support early CY2002 DSA submittal.	FHA does not include facility improvements completed since 2002, submitted EQs, or support the early 2005 DSA update submittal to LASO. FHA update underway with contractor organization. FHA to be completed by 10/14/2005.
TA-18 LACEF	2 Nuclear	FWO-FIRE-02-143, Revision 0, October 2002. FHA prepared after CY2002 DSA (BIO) submittal (July 2002). DSA Revision 1 was submitted to LASO in February 2004.	FHA generally reflects facility conditions described in February 2004 DSA revision submittal, but does not reflect facility changes being made through TA-18 Early Move Project and NNSA TA-18 Closure Plan. An FHA update will be warranted upon completion of TA-18 Early Move activities (FY2006), and will reflect submittal of EXs related to fire suppression in the three CASAs.
TA-21-209 TSFF	3 Nuclear	TSFF-FHA-GEN-01, Revision 1, April 2003. FHA was revised in June 2004.	FHA aligns with current June 2004 DSA.
TA-50-01/250	2 Nuclear	REPORT-FHA-WFM-008, Revision 2, was	The Revision 3 FHA has been developed, and is

RLWTF		issued in October 2003, and included proposed TA-50-250 project scope.	currently working toward completion in November 2005 concurrently with planned DSA update and submittal.
TA-50-69 WCRRF	2 Nuclear	FWO-FIRE-02-241, Revision 1, January 2005.	FHA considered current with facility conditions and AB submittal.
TA-53 LANSCE 1L Target/Lujan	3 Nuclear	FWO-FIRE-00-523, Revision 1, May 2004. FHA updated to support DSA submittal in June 2004.	FHA considered current with facility conditions and AB submittal.
TA-53 LANSCE Lujan ER-1/2 Actinides	3 Nuclear	FWO-FIRE-00-523, Revision 1, May 2004. FHA updated to support DSA submittal in June 2004.	FHA considered current with facility conditions and AB submittal.
TA-53 LANSCE Area A East	3 Nuclear	TA-53-FHA-02-003.02, Revision 2, September 2004. FHA updated to support DSA submittal in June 2004.	FHA considered current with facility conditions and AB submittal.
TA-54 Area G & TWISP	2 Nuclear	FWO-FIRE-01-192, Revision 1, July 2004.	FHA considered current with facility conditions.
TA-54-38 RANT	3 Nuclear	FWO-FIRE-05-078, Revision 0, March 2005.	Supersedes FWO-FIRE-04-450, Revision 1, February 2004.
TA-54-412 DVRS (Q-T-W)	2 Nuclear	Document #, Revision 0, March 2004. FHA prepared to support Q-T-WIPP DSA submittal in June 2004.	Anticipate update/revision will be necessary to address readiness issues prior to start of the Q-T-WIPP campaign.
TA-55-4 PF-4	2 Nuclear	TA-55-PED-108-04.1, November 1997, is current document, aligning with 1996 SAR. LA-CP-02-113, March 2002, is updated FHA supporting March 2002 DSA – awaiting LASO review and approval.	2002 FHA prepared by NMT-14 in support of 2002 DSA submittal.
TA-55-355 SST Pad	2 Nuclear	EO-FIRE-05-108, Revision 1, May 2005, prepared to support ISB submittal to LASO for TA-18 Early Move Project.	FHA will need updating to reflect resolution of outstanding readiness comments/concerns, EX (Rev. 0 and 1) submittal(s), etc.
TA-55-185 Interim Staging	2 Nuclear	EO-FIRE-05-128, Draft Rev. 0, June 2005, prepared to support ISB approval for interim	Draft FHA prepared; staging activity cancelled.

		staging of archive and excess MOX fuel.	
Transportation	2 Nuclear	No FHA required.	
TA-3-66/451, -35, -159 & -169 Sigma Facilities	Moderate	MST-FAC-SHA-SIGMA-215.D, Revision 1, October 2004. November 2004 addendum included Press, Thorium Storage and Warehouse buildings). FHA updates prepared to support late 2004 FSA submittal.	FHA considered current with facility conditions and AB submittal.
TA-3-141, -317 BTF	High	MST-0218-AB-BTF-FHA, Revision 0, June 2005. Updated FHA replaces fire accident analyses reports MST-REPORT-03-141-FAC-5302.1 and TSA-11-00-R102 as the comprehensive FHA.	MST authorization basis group has pulled-back FHA submittal based on LASO FPE review comments; anticipate a minor update/revision will be necessary.
TA-3-170 CGPF	Moderate	FWO-FIRE-02-213, Revision 0, January 2002.	FHA considered current with facility conditions.
TA-15 PHERMEX	Moderate	REPORT-DX-FHA-020, Revision 0, August 2002.	FHA may require revision to reflect transition to S&M and subsequently D&D.
TA-15-312 DARHT	Moderate Accelerator	FWO-FIRE-01-115, Revision 1, June 2002.	FHA needs revision to reflect facility changes (new cable bunker, harmonics building, etc.) in FY2006.
TA-15-534 VPF	Moderate (?)	FWO-FIRE-03-031, Revision 0, March 2003.	FHA reflects current facility conditions.
TA-53 LANSCE Lujan Center	Moderate	FWO-FIRE-00-523, Revision 1, May 2004.	FHA considered current with facility conditions and AB submittal.
TA-53 LANSCE LINAC	Moderate Accelerator	TA-53-FHA-02-001.01, Revision 1, June 2004.	FHA considered current with facility conditions and AB submittal.
TA-53 LANSCE WNR	Moderate Accelerator	TA-53-FHA-02-002.01, Revision 1, June 2004.	FHA considered current with facility conditions and AB submittal.
TA-53 LANSCE Areas A, B & C	Moderate Accelerator	TA-53-FHA-02-003.02, Revision 2, September 2004.	FHA considered current with facility conditions and AB submittal.
TA-3-1076 BSL-3	Moderate	FWO-FIRE-02-111, Revision 1, August 2002. pFHA prepared to support project/construction.	FHA will need update/revision to reflect as-built conditions and formal DSA submittal in FY2006.
TA-3-40, -215, -502 Physics Complex	Low	Document No. REPORT-PFM-FHA-02-00, Revision 0, November 2002.	FHA considered reasonably current with facility conditions.
TA-3-1498	Low	LA-UR-00-2419, Revision 0, March 2000.	FHA considered current with facility conditions,

LDCC			recommended actions are being addressed by RDL.
TA-3-2327 SCC	Low	PID 18168, Revision 0, September 2002.	Subsequent Appendices have been added to reflect Visualization Theater, SuperCave modifications, and supporting EQ requests.
TA-16-332 Warehouse	Low	FWO-FIRE-02-181, Revision 0, November 2002	FHA considered current with facility conditions, recommended actions are being addressed by RDL.
TA-39-62	Low	EOO-FIRE-05-083, Revision 0, April 2005	New FHA document. Compliance issues need to be addressed by experimental and RDL organizations.
TA-48-1 RC-1	Radiological	CFM-RC1-FHA-001, Revision 0, October 2000	Prepared when RC-1 was a HC-3 Nuclear Facility. Revision needed to reflect facility downgrade and changes since 2000.
TA-50-37 RAMROD	3 Nuclear*	FWO-FIRE-02-142, Revision 0, September 2002	* TA-50-37 has been transferred to NMT and re-named the "ARTC" facility, no longer a HC-3 nuke.
TA-55-6	Low	FHA, Revision 0, February 2002	FHA considered current with facility conditions
TA-55-8	Low	FHA, Revision 0, February 2002	FHA considered current with facility conditions
TA-55-185	Low	FHA, Revision 0, February 2002	FHA considered current with facility conditions
TA-3-1400 NSSB	Low	Document No. *TBD*	pFHA in support of new facility construction prepared by A/E
NTS U1a Complex	SCE	DX-5-HA-001, Revision 1, May 2004	Support of Armando SCE at the U1a Complex Drift 05/05A
NTS U6c Complex	SCE	DX-5-HA-xxx, Draft Revision x, October 2003	pFHA of Unicorn SCEs at the U6c Complex
TA-3-22 Steam Plant Facilities	Low	Revision 0 FHA under development by subcontractor using DIR-05-114 FY05 funding.	Revision 0 document due 11/18/2005.
TA-3-32, -34, -1819 & -2002 MST Facilities	Low	Revision 0 FHA under development by subcontractor using DIR-05-114 FY05 funding.	Revision 0 document due 11/18/2005.
TA-3-39, -102 MSM Facilities	Low Radiological	Revision 0 FHA under development by subcontractor using DIR-05-114 FY05 funding.	Revision 0 document due 11/18/2005.
TA-9-21 DX Lab Facility	Low	Revision 0 FHA under development by subcontractor using DIR-05-114 FY05 funding.	Revision 0 document due 11/18/2005.
TA-16-1374 TA-50-184 Qwest Bldgs	Low	Revision 0 FHA under development by subcontractor using DIR-05-114 FY05 funding.	Revision 0 document due 11/18/2005.
TA-22-90, -91,	Low	Revision 0 FHA under development by	Revision 0 document due 11/18/2005.

-93 & -115 DX Lab Facilities		subcontractor using DIR-05-114 FY05 funding.	
TA-35-27	Low	Revision 0 FHA under development by subcontractor using DIR-05-114 FY05 funding.	Revision 0 document due 11/18/2005.
TA-35-85 Lab Facility	Low	Revision 0 FHA under development by subcontractor using DIR-05-114 FY05 funding.	Revision 0 document due 11/18/2005.
TA-35-213 Target Fab	Low	Revision 0 FHA under development by subcontractor using DIR-05-114 FY05 funding.	Revision 0 document due 11/18/2005.
TA-43-1 HRL Facility	Low	Revision 0 FHA under development by subcontractor using DIR-05-114 FY05 funding.	Revision 0 document due 11/18/2005.
TA-53-1 Lab Facility	Low	Revision 0 FHA under development by subcontractor using DIR-05-114 FY05 funding.	Revision 0 document due 11/18/2005.
TA-3-132 CCF	Low	Revision 0 FHA under development by subcontractor using FY05 operations and FY06 FIRE funding.	Revision 0 FHA to begin in early FY2006. FHA to be completed by 1/31/2006
TA-3-1420 CINT	Low	Document No. *TBD*	pFHA in support of new facility construction is currently under development by FIRE
TA-16-202 Lab Facility	Low	Revision 0 FHA started by FIRE in FY2005.	FIRE initiated FHA effort in early FY2005. Suspended due to other emergent issues; will re-initiate in early CY2006.

Attachment 4: Post Partial Site-Wide Fire Alarm System Replacement Project (FARP) Conditions for LANL Nuclear Facilities

TA	Bldg	Name	Account #	FACP Type	Zones	Assoc Bldgs	FARP Scope	Comments
3	29	CMR	Digitize 0211-000	FCI 7200	~200	0	Convert reporting from BRASS to DACS via DACT in new FACP provided below	Existing FCI 7200 master panel with 8 FCI 7200 slave panels on network (1 per wing). Reports via Digitize and BRASS (A/T only). System, including telecommunications link via Digitize and BRASS is safety-related. FCI-Digitize reporting to remain, A/T secondary reporting to switch from BRASS to DACS.
3	29	CMR	0222-000	AutoCall CD-NA-2	26	0	Panel replacement with DACT	FACP monitoring heat detectors in ducts for duct cool down spray systems, activate solenoids, emergency evacuation activation status, + misc. New FACP with integral DACT; to include A/T monitoring of master FCI panel above.
8	23	Radiography	5226-000	FCI 72-2	2	3*	System replacement	Complete system replacement, including separation from the AutoCall CD-TXA FACP in TA-8-21 (which also monitors TA-8-22 and -24). Heat detectors to be replaced by smoke detectors as recommended by FHA to address life safety code issues.
16	205/450	WETF	5265-000	AutoCall CD-NA-3	32	0	UDACT	AutoCall FACP and system remains in-service
18	Multiple	LACEF	3113(-1)	AutoCall CD-TXA	112	23	UDACT	AutoCall FACP remains in-service. *Complete 4 2005*
21	209	TSFF	2536(-1)	AutoCall CD-NA-3	40	5	UDACT	AutoCall FACP remains in-service. *Complete 7 2005*
50	1	RLWTF	1525-000	AutoCall CD-NA-3	16	3	Panel Replacement	Field devices to remain
50	69	WCRRF	1524-000	FCI 72-4	4	3*	System replacement	FCI 72-4 in TA-50-69 is a sub-panel monitored by AutoCall CD-NA-3 FACP in TA-50-37 (which also monitors TA-50-54 and -84). Complete system replacement, including separation from TA-50-37.
53	3M	Sector M "Area A East"	3426(-1)	EST QuickStart 4 (New)	72	9	System replacement	Combine two existing systems into one. *Complete 7 2005*
53	7	ER-1/WNR	3443-000	AutoCall CD-NA-2	32	6	System replacement	*Under construction*
53	30/622	Lujan Ctr (ER-2)	3442-000	AutoCall CD-NA-3	32	5	System replacement	*Under construction*
54	38	RANT	6144(-1)	AutoCall CD-NA-2	16	2	UDACT	AutoCall FACP remains in-service. *Complete 5 2005*
54	48	Area G	6148-000	EST IRC-3	32	7	Panel replacement	Some FACP-compatible devices to remain
54	11/302	Area G	6149(-1)	Notifier NFS-640 (New)	40	14	Panel replacement	New FACP, new UV/IR detectors for DSA SER COAs. *Complete 6 2005.*
55	3/4	Pu Facility	3225-000	AutoCall CD-TXA	200	15	UDACT	AutoCall FACP and system remains in-service

Jim Streit, EO-FIRE, MS K493
Rob Farris, EO-FIRE, MS K493
Ray Wallace, FMD, MS K492
Alverton A. Elliott, PAAA, C347
James W. Angelo, PS-DO, C347
Barbara Stine, ADTS, A104
Richard V. Bynum, ADWEM, A107
Donald Shoemaker, FMD-MSE, MS K787
Sam Loftin, ENV-ECO, MS M887
Don Winchell, PS-2, MS C347
EO-FIRE correspondence, MS K493
EO-FIRE file "DNFSB CY05," MS K493
IM-9, A150
DIR-05-352 File

SEPARATION

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Attachment 2
LASO Comments to LANL's Proposed
Integrated Plan for Fire Protection

While LANL responded to all issues raised in the referenced DNFSB letter, LASO takes exception to some elements of the proposed plan, including anticipated plan benefits, plan direction, and requirement expectations. However, LASO is confident that with continued oversight and with management options which will become available under the new prime contract, LANL's fire protection program will grow in effectiveness, quality, consistency and rigor.

The Board in its letter stated that a more comprehensive, multi-year approach fully identifying and prioritizing fire protection issues would lead to greater assurance of adequate fire protection at LANL. While LASO agrees with this statement, it is important to note that prior to January 2003 when a fire protection engineer was hired by LASO, such duties where carried out on an ad-hoc basis by fire protection engineers based in Albuquerque. This was a less than effective arrangement. From January 2003 to May of 2005 the LASO fire protection engineer was responsible for both fire protection as well as emergency management oversight. The staffing of an additional fire protection engineer in May 2005 permitted the division of duties and an opportunity to begin exploring in greater depth what was working reasonably well within LANL's fire protection program, and what was not working so well. It is also important to note that the resolution of fire protection issues, especially those identified late in a project or legacy issues may be costly to fix, and result in considerable effort being expended in order to reach an acceptable path forward to resolution.

LASO has identified weaknesses in LANL's fire protection program through its oversight role, participation in readiness and similar reviews, and the review of documents such as fire hazard analysis. LASO has begun to implement changes that will address these issues both in the short term as well as the long term. This is especially important where it is necessary to break the "endless circle" of non-conformance to mandatory standards or accepted industry practices. Example, new LASO initiatives are being put into place to ensure that all new projects are evaluated and that fire protection hazards and issues are appropriately addressed, that the rigor of fire hazard analysis is increased, and where LASO or Service Center fire protection engineers participate in readiness reviews that rigor be applied in those reviews. For years the LANL fire protection organization operated more as a service type organization, versus an oversight organization which represented the fire protection "consciousness" of the Laboratory.

LASO remains concerned that until such time as a new prime contract is in place, change to LANL's fire protection program will be slower than desired. Historically LANL's fire protection program has not been up to par with fire protection programs at other DOE sites. This is reflected by LANL FIRE's limited staffing, a failure to continuously fund fire protection upgrades/repairs in existing facilities, and the fact that in one case a key fire protection feature (fire pump) damaged by fire remains out of service two-years after the event.

LANL responded to eight issues raised in the DNFSB letter:

(1) Fire protection staffing (engineers & technicians)
(2) Fire protection system Inspection, Testing and Maintenance (ITM) program
(3) Fire Hazard Analysis (FHAs) effort
(4) Fire Department Baseline Needs Assessment (BNA)
(5) Los Alamos County Fire Department (LAFD) Fire Department Services Agreement/Contract
(6) Post-Partial-Sitewide Fire Alarm System Replacement Project
(7) Wildland Fire Management
(8) Fire Protection Program lessons learned from other sites.

LASO's concern with LANL's response to each of the above topics and LASO's plans to address these concerns are discussed below.

Item No. 1 Fire Protection Staffing

While LANL has increased funding for staffing and their long term staffing goals appear to be in line with the numbers required for an effective fire protection program, there has been little success in the hiring of fire protection engineers with the exception of a new graduate engineer. LANL reports limited progress in the recruitment of experienced fire protection engineers. The reasons why LANL cannot attract experienced fire protection engineers is unknown, but one would think that a premier national laboratory would be capable of recruiting some of the most experienced and highly qualified fire protection engineers in the country. In the short term LASO will encourage LANL to explore other options that might be employed to address the staffing issue.

LASO remains concerned that without adequate and experienced staffing LANL's fire protection program will have limited effectiveness, lack the rigor which is required to ensure fire safety, will not be able to keep pace with new projects and emerging issues while simultaneously addressing legacy issues, may result in omissions which are costly to fix "after-the-fact," and in the long term could very well result in staff "burn-out." LASO plans to bring to the attention of upper LANL management the need to promptly increase its numbers of qualified and experienced fire protection engineers so as to assure success of LANL's fire protection program.

Item No. 2 Fire Protection System Inspection, Testing and Maintenance (ITM)

A DOE/NNSA-LASO assessment of the ITM program was performed in CY 2004. This report resulted in a PAAA noncompliance report and the development of a LANL Corrective Action Plan. The "casual analysis" associated with this effort resulted in a number of recommendations. LANL is only now evaluating the "casual analysis" report's recommendations. Prior to CY 2006 and direction from DOE/NNSA Headquarters LANL funded ITM activities at less than the recommended amount of 2-4% of real property value (RPV).

The LANL response also identifies evaluation of ITM activities conducted by the Facility Management Division Maintenance and System Engineering Group (FMD-MSE). While the LANL response indicates that FMD-MSA will be responsible for implementing the recommendations which resulted from the review, the response does not indicate that LANL-FIRE or any other group will ensure that the recommendations are carried out in a timely manner.

The need to have and maintain a code compliant and reliable fire protection system ITM program and the challenges associated with a successful ITM program are not new to the DOE/NNSA complex. LASO will monitor efforts by LANL in this category to ensure continued improvement and maturing of the ITM program.

Item No. 3 Fire Hazard Analysis

LANL has proposed a plan to address the backlog of fire hazard analysis (FHA) requiring development or updating. LASO has reviewed two final FHAs and has concerns regarding the rigor and independence associated with the development of FHAs. The first final FHA reviewed was for the TA-55 SST Facility. The FHA lacked completeness and depth which resulted in project approval delay while efforts were made by LASO to both identify fire hazards and related concerns not addressed in the FHA, and to work with LANL to ensure that adequate fire-safety administrative and physical features were implemented to address the previously unidentified fire concerns associated with the facility.

The second FHA reviewed was for the Beryllium Technology Facility. The LASO Authorization Basis Office requested that the LASO fire protection engineer review this document. Upon initial review the LASO fire protection engineer found serious deficiencies within the document and suggested to LANL that the document be withdrawn for rework. The FHA lacked clarity, completeness, and there was a failure to address serious findings versus gloss over the hazard or issue. Example the need for a fire barrier was identified, but a driver, including rating required was not provided; fire water supply and its adequacy was not discussed; and the potential for fire fighting water to escape the building during a fire event was identified, but a corrective action was not proposed. Following rework the document was again reviewed by the LASO fire protection engineer. Concerns remained with the document's adequacy, especially the apparent reluctance to identify tough fix issues and to spell out corrective action. It is LASO's belief that insufficient staffing results in limited time being available to complete a detailed and factually accurate FAH.

LASO plans to continue to monitor the development of FHAs by LANL to ensure that the analysis are accurate, complete, and of sufficient rigor for the facility in question, including identifying fire protection issues requiring resolution in order to ensure safe operation of the facility.

LASO instructed LANL to develop a formalized process to address minor deviation from code requirements, i.e., the placement of a sprinkler head, as well as major code

deviations. LASO's original goal was to ensure that very minor deviations from the code, and which upon evaluation were found not to represent a concern could be addressed without unduly burdening the fire protection issues review process.

The second goal was to formalize the process by which more serious non-compliances with directives and mandatory codes and standards could be addressed when compliance was found to be of little fire-safety benefit, overly costly when compared to other projects, and/or where the concern was with facilities having a very limited life.

LASO has recently become concerned that LANL has begun to utilize the exemption proposal process without adequately considering the consequences of a fire within the facility except for property loss, i.e., risks to fire fighters when automatic suppression is not provided, especially where nuclear or hazardous materials are present, the impact on programs, or the negative public relations and congressional response that may be associated with uncontrolled fires in LANL facilities. This became apparent during the TA-55 SST fire protection review process where LANL opted out of proposing fire protection physical features while simultaneously identifying the need to address criticality, seismic and wind protection concerns associated with the SSTs.

LASO plans to perform a critical review of all exemption request submittals to ensure that exemptions requests are not based solely on economic concerns, versus the potential impact of a fire, especially fires involving nuclear facilities regardless of the facilities size.

Item No. 4 Fire Department Baseline Needs Assessment (BNA)

The responsibility for implementation of most BNA recommendations will shift from LANL through LASO to Los Alamos County upon approval of the new fire department services agreement/contract. The primary exception being the locating of, funding for, planning for and construction of two new fire stations (Stations Nos. 1 & 5) to replace outdated stations.

The need for the consultant's report discussed by LANL was originally questioned by LASO but was permitted to move forward. It was and remains LASO's contention that the primary purpose of the consultant's review was to provide a means by which compliance with the staffing requirements mandated by NFPA 1710, *Standard for the Organization and Deployment of Fire Suppression, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments* and the June 2004 BNA could be avoided.

The consultant's report takes exception to the staffing requirements of NFPA 1710.

LASO does not support this approach for the following reasons: 1) a significant percentage (39%) of the structures at LANL lack automatic fire suppression, 2) without minimal staffing and in consideration of travel distance, engine companies must await the arrival of apparatus from more remote stations prior to initiating interior fire suppression

activities, thus permitting the fire to grow larger in size and to become more difficult to contain, 3) portions of LANL are still subject to a significant wildland fire threat, 4) LANL remoteness from surrounding communities means that 30 to 60 minutes will elapse from the time fire-fighter call back and mutual requests are initiated and those persons/forces arrive and can be placed in service, thus on shift staffing is expected at a minimum to hold the fire in check until help arrives, and 5) the proposed approach does not comply with the DOE adopted mandatory requirement (NFPA 1710).

LASO proposes to increase the number of fire department personnel assigned to shifts over approximately three years to comply with the staffing requirements of NFPA 1710. LASO sees NFPA 1710 as a mandatory not voluntary requirement.

A recent small fire in a multistory facility resulted in a significant draw-down in fire fighting forces. Had the fire been significant it is realistic to assume that reserve fire fighting forces would have been drawn down to zero until such time as call-back personnel or fire department mutual aid companies would have arrived at the scene.

LANL also asked the consultant to conduct a critical technical analysis of current apparatus owned by NNSA and operated by the Los County Fire Department. Prior to procurement an outside consultant validated the apparatus purchase and acknowledged it was appropriate. LASO has concluded that apparatus employed by the Fire Department is adequate for the types of fires anticipated. If any shortcomings are discovered they will be dealt with at the time of apparatus replacement.

The new agreement/contract for fire department services will require development of a fleet (fire apparatus) management program, including scheduled apparatus replacement.

Item No. 5 Los Alamos County Fire Department (LAFD) Fire Department Services Agreement/Contract

In 1989, DOE entered into a contract with Los Alamos County for fire department services. Previous to that date the fire department had been operated by DOE using Federal employees. On December 1, 1992, DOE entered into a five-year contract with Los Alamos County for fire department services. On December 1, 1997, DOE transitioned administration of the contract to LANL with instructions to develop a new five-year contract. Since 1997 LANL has extended the contract in increments of approximately 60 days. LANL was unsuccessful in its attempts to negotiate a new contract with the County.

In May 2005, LASO became concerned with the lack of progress in both securing a new contract, as well as insufficient fire department staffing levels as required for compliance with DOE Headquarters guidance letter on fire department staffing, and the requirements of NFPA 1710. In June 2005, the LASO Manager made a decision to transition administration of the Fire Department Services Contract from LANL to LASO.

In June County officials were notified of LASO's intent to administer the fire services contract and to work towards a new 5 year contract. LASO Management also meet with County fire fighters to explain the action being taken, and to emphasize that there would be no negative impact to fire fighters regarding pay or retirement.

On July 14, 2005 the LASO Manager instructed LANL to authorize the fire department to increase total staffing from 117 fire fighters to 123, to set minimum shift staffing at 29 persons, and to immediately initiate action to hire and train personnel as fire fighters to fill the existing and new vacancies.

On August 31, a draft statement of work was forwarded to the County for review and discussion.

Fire Department Services Contract Required Actions:

- Develop statement of work
- Reach agreement between LASO and County on Statement of Work
- Develop and issue Request for Proposal for Fire Department Services
- Evaluate and modify County's proposal
- LASO and County sign new five-year contract for Fire Department Services

Goals envisioned under the new contract include fire department stability by having a five-year agreement/contract, management of the contract to ensure that specified services are provided efficiently and adequately, increased fire department efficiencies through the reassignment of fire fighters and officers from administrative to emergency response duties, increased efficiencies in the operation and management of fire department vehicles, contracting with the County for the maintenance and repair of fire stations owned by NNSA, addition of one additional engine company and one rescue company, and over 3 years to bring fire department staffing levels into compliance with NFPA 1710.

Item No. 6 Post-Partial-Sitewide Fire Alarm System Replacement Project

LASO has two concerns under this category. The first is a failure by LANL to fully scope the cost of full replacement of the site's fire alarm reporting system. This resulted in the project being seriously under funded. While LANL is proposing GPP size projects to address the replacement of some fire alarm equipment, a line item project is being developed for replacement of the remaining systems. The reality of this action is that some fire alarm equipment will not be replaced for a number of years (funding cycle, design and installation).

Second, due to USQ concerns two facilities are not being transferred to the new fire alarm system but will remain on the BRASS system. This action, once fire department dispatch is transferred from the site security contractor's operation (CASS) to the new Combined Dispatch Center, will result in a duplication of services, the potential for alarm miss-communication during alarm receipt and re-transmission to the new dispatch center,

which in turn dispatches the fire department, and finally, switchover to the new dispatch center has the potential to raise a positive USQ for the facilities in question.

While in the short-time LASO does not perceive this as a concern, it is concerned for the long term both from the standpoint of reliability as well as cost. LASO through its Project Management Office has raised with LANL the need to resolve this issue as expeditiously as possible. LASO will continue to monitor progress on this issue.

Item No. 7 Wildland Fire Management

The LANL response to the issue was limited to actions planned for 2005 and not beyond. There are three concerns related to Wildland Fire Management (1) completion of the Wildland Fire Management Plan, continued maintenance of fire roads, and continued wildland forest thinning.

LASO will use the bi-weekly meetings of the Interagency Wildland Fire Coordinating Committee to monitor the progress on these issues. Usually discussion of the issue at the bi-weekly meetings results in a positive LANL response. Where informal discussions fail to bring about satisfactory resolution other LASO contract management tools will be employed as necessary in order to seek timely resolution of the issue.

As of October 1, 2004, LANL discontinued the Cerro Grande forest thinning program. In FY 05 only limited (TA-36 and TA-54) forest thinning projects were proposed and completed. LANL did not propose a plan nor identify the need for future forest thinning projects even though wildland fire remains a threat to portions of the Laboratory.

LASO is concerned that LANL has permitted funding for the forest thinning program to lapse. LASO through the appropriate means will take steps to ensure that funding required to complete planned forest thinning operations as well as funding for thinning maintenance activities is provided.

Item No. 8 Fire Protection Program Lessons Learned From Other Sites

While LANL chose to review fire protection programs at SRS and LLNL, LASO chose to review the fire protection program at Y-12. Both Y-12 and LANL have one significant common issue, both have new and continuing missions and both have planned or are undergoing significant new construction. LLNL for the most part is stabilized, and SRS has seen a significant decline in mission over the last 15 years.

There are a number of significant differences between the way fire protection programs at Y-12 and LANL are carried out. The differences at Y-12 include an overall positive attitude towards fire protection, budgeting for continuous improvements to fire protection systems and fire protection infrastructure over time, and the implementation of required fire protection features in facility upgrades, modifications and the construction of new facilities. While LANL has taken similar steps, it has been for the most part not been consistent.

One key difference which assists Y-12's success, in addition to attitude, is the allocation of personnel resources. The Y-12 fire protection program includes three distinct and separate groups. The first is the contractor's fire protection oversight group consisting of 9 BWXT fire protection engineers and 11 contract personnel (total of 20 personnel), second is the BWXT Fire Protection Engineering group which consists of a manager, 4 fire protection engineers, 5 designers, and 1 contract person (total of 12 persons), and 3 persons, plus contractors, in the Safety Group which perform fire hazard analysis (FHAs). The Y-12 oversight group is vigorous in ensuring that projects and facility modifications comply with mandatory codes and standards, this is not the case at LANL.

In total Y-12 has some 35 persons working directly on fire protection issues. In contrast LANL has historically understaffed its fire protection group, the group is still struggling with its new oversight role versus a service on demand group, and LANL does not have a dedicated fire protection design group.

As previously discussed, LASO plans to work through the appropriate channels to ensure that LANL's fire protection program is provided with the numbers of qualified and experienced fire protection staff so as to ensure continued success of its fire protection program.

Path forward

In May 2005 a new LASO fire protection engineer was hired. The individual is a PE and has extensive fire protection experience at other DOE/NNSA sites including Argonne East & West, the Savannah River Site, the Y-12 Plant, and participation in DOE Headquarters sponsored technical safety appraisals at the former Rocky Flats Plant, Oak Ridge National Laboratory, and Los Alamos National Laboratory.

The addition of a second LASO fire protection engineer has permitted greater oversight by LASO of LANL's fire protection program, including participation in readiness reviews, assisting Facility Representatives in identifying fire protection issues and potential solutions, acting as a resource point for persons from the LASO Authorization Basis and other offices, reviewing fire hazard analysis for accuracy and completeness, reviewing exemption/equivalency requests to ensure sensibility and viability of the request, and ensuring that fire protection is adequately addressed in the design of new facilities.

LASO Goals for LANL and Fire Department Services Agreement:

- Increase the numbers of fire protection engineers and technicians, and encourage the hiring of persons with DOE/NNSA or similar experience.
- Ensure that all major new construction projects and other projects with fire protection implications receive adequate fire protection oversight and fire protection design input.
- Ensure that the LANL fire protection program moves from reactive to pro-active, and from a service organization to a truly independent oversight organization.

- Encourage the establishment of a small fire protection design group at LANL to facilitate modifications, changes, extensions to existing fire protection systems.
- Ensure that fire protection deficiencies discovered during the performance of fire hazard analysis and other reviews are tracked, funded through the use of operating funds or are budgeted for correction through the line item process on a reoccurring basis, and that corrective action is initiated on a timely basis.
- Ensure that LANL fire hazard analysis, engineering evaluations, exemption requests submittals and similar documents are accurate, complete, reflect law, regulation and NNSA directive requirements, and are realistic in assumptions and potential outcomes that may be presented by fire events.
- Annually prioritize new projects and fire protection issues to ensure that resources are made available and efficiently utilized and to ensure that resources (personnel and/or funding) are requested to insure the resolution of fire protection deficiencies in a timely manner.
- Ensure that there is continued improvement in LANL's fire protection system inspection, testing and maintenance program.
- Ensure that the wildland fuels reduction program is continued so as to ensure that all nuclear and other key facilities are protected from wildland fires.
- Enter into a new five year agreement/contract with Los Alamos County for fire protection services so as to ensure quality of service and stability within the Fire Department.
- Ensure that fire station replacement and location issues are addressed and funded.
- Phase in additional fire department staffing over approximately 3-years so as to comply with the staffing requirements of NFPA 1710.
- Within approximately one year add an additional engine company so as to ensure that at least one engine company is held in reserve and available to respond to an additional alarm in the event of a major fire. Ultimately this engine would respond in parallel with the proposed hazardous materials unit.
- Within 3-years place a fire department hazardous materials unit into service so that immediate response to hazardous materials incidents is possible.
- Initiate other changes in the fire department services agreement designed to improve overall efficiency, better utilized the uniformed staff, and reduce unnecessary costs.

The attainment of these goals by LANL will require a change in overall philosophy and attitude on the part of LANL management and most importantly an increase in fire protection engineering staffing as noted previously. At this time there is limited optimism that significant improvements will be made in the LANL fire protection program prior to award and implementation of the new prime contract.

LASO envision that under the new prime contract management oversight and financial tools will be available, which are not currently present, to bring about positive changes in LANL's overall fire protection program. LASO is also aware that diligence must be maintained between now and the time the new prime contract is implemented in order to ensure that continued progress is maintained within the fire protection program and to ensure that fire protection issues which may arise in the near term are addressed.