

memorandum

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

DATE: JAN 22 2014
REPLY TO:
ATTN OF: William White
SUBJECT: Los Alamos Field Office Work Force Analysis and Staffing Plan Report for Calendar Year 2013

TO: Karen L. Boardman, Chairperson, Federal Technical Capability Panel

Reference:

- 1.) Memorandum from Karen L. Boardman, Chairperson, Federal Technical Capability Panel, to Distribution, Subject: *Annual Workforce Analysis and Staffing Plan Report for Calendar Year 2013*, dated October 11, 2013

Attached please find the Los Alamos Field Office (NA-LA) Work Force Analysis and Staffing Plan Report for Calendar Year 2013. Authorized Full Time Equivalent (FTE) allocation remains less than the number of FTEs required to perform the oversight identified necessary by the analysis results reported. Staffing shortages are compensated for through support service contract support, headquarters personnel support, and increased reliance on Contractor Assurance System products.

If you have any questions or comments regarding this memorandum and the included attachment, please contact Fred Bell at (505) 664-4856.



William I. White
Acting Manager

Attachment

cc w/attachment:

M. Lempke, NA-00

J. McConnell, NA-00

D. Chaney, NA-SH-2

J. Yarrington, HS-10

W. White, NA-LA

M. Duvall, NA-LA

AMs, NA-LA

F. Bell, FO/SET, NA-LA

R.T. Davis, DNFSB, NA-LA

J. Plaue, DNFSB, NA-LA

R. Verhaagen, DNFSB, NA-LA

Records Center, NA-LA

FO:40FB-556296

**Annual Workforce Analysis and Staffing Plan Report
as of December 31, 2013
Reporting Office: Los Alamos Field Office, NA-LA**

Section One: Current Mission(s) of the Organization and Potential Changes

The Los Alamos Field Office provides contract management and oversight of the Los Alamos National Laboratory (LANL), a large complex multi-program Laboratory supporting diverse DOE and other government agency missions. Facility statistics and ongoing work activities include:

- Approximately \$1.962 billion annual budget;
- Thirteen major operating Category II and III nuclear facilities, 237 radiological facilities, 16 high and moderate hazard facilities, and 909 low hazard facilities including 2 large accelerators, numerous explosive facilities and firing sites, and science facilities supporting lasers, chemicals, physics/material science and biological work;
- 40 square miles (size of Washington, DC), 100 miles of roads, 34 miles of 115KV transmission lines, and 63 miles of gas transmission lines;
- Line Item Construction Projects replacing or upgrading Nuclear Facilities totaling over \$500 Million;
- Production mission supporting Pit and Detonator Manufacturing, Pu Oxide, and Medical Isotope Production;
- Research and Development supporting Materials and Particle Physics, Medical Isotope Research, Stockpile Stewardship, Nuclear Nonproliferation, Hydrodynamic Testing, Explosive Research, Plutonium Operations, Radiological Waste Processing, Homeland Security Work, and Work for Others;
- Approximately 1104 buildings;
- 8.6 Million gross square feet of facilities;
- 43% of facility square footage is more than 40 years old;
- \$1.1 Billion infrastructure deferred maintenance;
- \$12.6 Billion replacement plant value;
- Approximately \$6.0 Billion in environmental liability;
- Over \$600 Million spent annually to maintain and improve these assets;
- NNSA owns and operates electric and generation facilities at LANL (37 MW); and
- Allocation of hydroelectric power (35 MW) from Western Area Power Administration.

LANL conducts a wide variety of radiological activities in the following areas:

- research, development, production, and testing associated with nuclear weapons;
- radiochemistry and metallurgy with radioactive materials;

- fabrication of radioisotope thermoelectric generators and heat sources;
- accelerator-based nuclear physics research and applied technologies;
- mixed fission and activation product production and analysis, including hot cell work;
- materials science and testing involving radioactive materials and accelerators;
- dynamic testing with radioactive materials;
- tritium research and applications;
- use of radiation generating devices and radioactive sealed sources;
- biomedical research using radiotracers and irradiators;
- nuclear criticality experimentation;
- research, development, and applications in support of nuclear fuels;
- work in support of nonproliferation, counterterrorism, and homeland security;
- emergency response;
- transportation of radioactive material;
- radioactive and mixed waste treatment, storage, and disposal;
- decontamination and decommissioning of facilities;
- environmental sampling and restoration; and
- other miscellaneous research, development, and operations involving ionizing radiation and/or radioactive materials.

The Los Alamos National Laboratory (LANL) is one of three designated NNSA laboratories supporting plutonium operations, nuclear weapons design, stockpile stewardship, nuclear energy research, nuclear forensics, nuclear safeguards, and counterterrorism. LANL is the only DOE/NNSA facility designated for the manufacturing of plutonium weapons components. As a Security Category 1B facility within the Nuclear Weapons Enterprise, LANL sets the standard in providing the optimal balance of personnel and technologies necessary to provide a highly effective and efficient security posture over approximately 40 square miles of DOE-owned land that contains approximately 1100 buildings/facilities, over 60 designated Security Areas, over 800 designated Property Protection Areas and approximately 9,900 employees plus Security staff.

The Los Alamos Field Office manages a variety of Construction Line Item projects, which are significant within the Construction Working Group (CWG) and are all critical within the NNSA projects portfolio; these projects are at different stages of development and range in value from \$25M to \$150M, and are listed below:

- TA-55 Reinvestment (TRP) II, Phase C, Total Project Cost (TPC) range is \$75 - 99 Million (CD-2/3 pending)
- TA-55 Reinvestment (TRP) III, TPC Forecast is TBD (Forecast as a FY15 new start)
- TRU Waste Facility, TPC range \$74 - \$124 Million (CD-3 pending)

- Radioactive Liquid Waste Treatment Facility Upgrade (RLWTF-UP), Current Estimated TPC of \$100-\$150 Million (revalidated CD-1, CD-2 pending ESAAB approval)
- Nuclear Materials Safeguards and Security Project (NMSSUP), Phase II, TPC of \$239 Million (CD-4 pending)
- TA-3 Substation Replacement, estimated TPC \$25 Million, (CD-0, forecast as FY15 New Start).

Major programs fiscal year 2014 Presidential Budget Request:

NNSA - Weapons Activities (WA)	\$1,415,994,000
NNSA - Nuclear Nonproliferation (NN)	\$217,512,000
DOE - Environmental Management	\$215,686,000
DOE - Other DOE Programs	\$113,192,000
Work for Others (WFO)	\$222,000,000
Total	\$2,184,384,000

Potential or probable changes to the mission that may significantly affect technical staffing needs:

Continued escalation in the number of products submitted for Los Alamos Field Office Quality Assurance verification for support to the MOX/ARIES program, RPS program, and NNSA weapon and weapon related materials will require additional FTEs above current allocations to ensure succession planning and the availability of trained and qualified individuals.

Large line-item construction portfolio requires fluctuating FTE needs. The portfolio currently includes TRU Waste Facility, TRP II, and RLWTF projects – all involving Hazard Category 2/3 facilities. Federal Project Directors (FPDs) transition in and out of Acquisition and Project Management (NA-APM) to meet line item project needs.

Off-site independent oversight (e.g., DNFSB, DOE-HS, CDNS, DOE-IG) creates a continuing demand on on-site federal staff to service their information requirements.

There is an increasing demand for sustained on-site federal oversight of radiation protection and integrated work management, as evidenced by:

- the Deputy Secretary’s commitments to the Defense Nuclear Facilities Safety Board (DNFSB) to strength oversight on activity-level work control (Dep Sec letter to the DNFSB, 11/30/12, Attachment, page 7-10) and
- the Los Alamos Neutron Science Center (LANSCE) Tc-99 accident investigation report (NA-1 letter, 10/18/12, Conclusions 10 and 11)

Section Two – Site Characteristics¹

Number of Hazard Category 1, 2, or 3 Nuclear Facilities:

HC1 0 HC2 10 HC3 3

Number of Radiological Facilities²: 237

Number of High or Moderate Hazard Non-Nuclear Facilities: 16

Number of Low Hazard Non-Nuclear Facilities: 909

Number of Documented Safety Analyses:
9⁴

Number of Safety Systems³: 91

Number of Site Contractor FTEs: 9,909 plus a Security Force of approximately 400

Number of Federal Office FTEs: 111 (91⁵/90 NNSA, 22/21 EM authorized/on-board)

Notes:

1. Sites accountable to multiple Headquarter Program Offices should list FTE needs by each Cognizant Secretarial Office, e.g. Total 22 FTEs (EM – 20, SC-2)) NE – SC - 2).
2. Radiological Facilities are defined in 10 CFR 830 as below Hazard Category 3 Facilities. Hazard Category 1, 2 or 3 Nuclear Facilities should not be double counted as Radiological Facilities.
3. Safety Systems must be credited in a Documented Safety Analysis.
4. Each safety basis commonly has multiple versions under review and approval with staggered implementation strategies. Several Environmental Sites are captured under a single safety basis.
5. The NNSA authorized number of staff is currently defined as the number on-board at any given time plus the vacancies approved to be filled. Previously the approved staffing level was 109 FTEs.

Section 3 - Technical Staffing Summary Table

Technical Capability	For All Facilities		Comments
	Number of FTEs Needed	Number of FTEs Onboard	
Senior Technical Safety Managers	8	6	Site Manager in process of being filled, STA not yet authorized
Safety System Oversight Personnel	4	4	3NNSA, 1EM.
Facility Representatives	16	13	Oversight prioritized by facility risk.
Other Technical Capabilities:			
Aviation Safety Manager			
Aviation Safety Officer			
Chemical Processing			
Civil/Structural Engineering			
Construction Mgmt	2	2	
Criticality Safety	2	1	An NSS FTE is working towards criticality safety qualification and supports the existing FTE as a collateral duty.
Deactivation and Decommissioning			
Electrical Systems/Safety Oversight	0.5	0	Oversight previously provided by NA-SH. That support is no longer available.
Emergency Management	1	1	
Environmental Compliance	3	3	2 NNSA, 1 EM
Environmental Restoration	2	2	1 NNSA, 1 EM
Facility Maintenance Mgmt	1	1	
Fire Protection Engineering	2	0	1 FTE lost due to attrition; not currently authorized to backfill. Limited coverage provided by SSO, NA-SH and HSS staff as available.

Industrial Hygiene	1	1	
Instrumentation and Control			
Mechanical Systems	0.5	0	NA-SH provides limited pressure safety and explosives safety oversight.
Nuclear Explosive Safety			
Nuclear Safety Specialist	12	10	Additional FTEs required for succession planning due to multiple anticipated retirements.
Occupational Safety	2	1	Oversight graded based on evaluated risk and Order requirements.
NNSA Packaging Cert. Engineers			
Quality Assurance	2	1	Overall need for 6 QA FTEs (2 Weapons QA, 2 SQA and 2 QA). Back filling for attrition from the past several years has not been authorized. Previously assigned details and Future Leader assignments are no longer in place.
Radiation Protection	3	2	2 NNSA, 1 EM. Oversight graded based on evaluated risk and Order requirements.
Safeguards and Security	10	10	
Safety Software Quality Assurance	2	1	See comment under Quality Assurance.
Technical Program Manager	8	7	
Technical Training	1.5	1	1 FTE supports TQP & FTCP. 0.5 FTE for Contractor Training oversight is vacant and supported as a collateral duty by the Criticality Safety SME.
Transportation & Traffic Mgmt	0.5	0	Limited oversight provided by Rad. Protection SME as a collateral duty.
Waste Management	1	1	
Weapons QA	2	1	See comment under Quality Assurance.
Totals:	87	69	
Federal Project Directors	10	10	2 NNSA, 8 EM. Four NNSA FPDs assigned to APM but deployed to this field office are not included in the needed or onboard FTEs.

Section Three: Current TQP shortages and plans for filling them

Vacancies authorized to be filled and within staffing allocations are advertised and filled through the OPM hiring process. Senior positions are filled through details until positions are permanently staffed. Currently there are no NNSA vacancies authorized to be filled at the Los Alamos Field Office except for the Field Office Manager.

The Field Office Manager (STSM) position is currently vacant and being filled by an acting STSM on detail to Los Alamos. The position is expected to be filled by January 27, 2014. The Field Office Deputy Manager is on detail to the State of New Mexico. The Deputy Manager (STSM) position is being filled by the Assistant Manager for Safeguards and Security on detail to the Deputy Manager position. The Senior Science, Technology and Engineering Advisor (STSM) position is not currently being recruited due to staff ceiling limitations though an expression of interest for a detail to this position is being prepared.

Several needed critical discipline areas are being staffed by other technical SMEs as collateral duties. This arrangement results in reduced coverage in the SME's primary assignment and very limited coverage in the collateral duty discipline.

The Los Alamos Field Office needs succession planning for critical skills, such as the Nuclear Safety Specialists (NSS) who maintain safety bases for 13 nuclear facilities and two large accelerators; support three major projects (TWF, TRP, RLWTF-UP); have a high mandatory continuing training workload (Safety Basis Academy) and are expected to have an increase in workload to accommodate the long-term Plutonium Strategy and site stewardship initiatives.

The workforce analysis does not reflect the true challenges in this area. Of the on-site ten NSS, five are 62 years old or older. All five are currently eligible to retire, and several retirements and transfers in the next few years are anticipated. It takes about 1.5 years to train and qualify a nuclear safety specialist and an additional two years or more before they are fully effective. Training and qualification is best done under the supervision of an experienced on-site NSS, but this also detracts from performance of other duties. As these experts retire or transfer, this situation will be exacerbated. Prudence dictates over-hiring in this critical area. It is recommended that hiring actions include four NSS, preferably fully-qualified, within the next one to two years.

The same challenges exist for many of the critical technical capabilities, particularly where staffing is only one FTE deep.

The Safety SMEs are essentially responsible for personnel safety across the site. Off-site independent oversight (e.g., DNFSB, DOE-HS, CDNS, DOE-IG) creates a demand on on-site federal staff to service their information requirements. There is also an increasing demand for sustained on-site federal oversight of radiation protection and integrated work management, as evidenced by:

- the Deputy Secretary's commitments to the Defense Nuclear Facilities Safety Board (DNFSB) to strengthen oversight on activity-level work control (Dep Sec letter to the DNFSB, 11/30/12, Attachment, page 7-10) and
- the Los Alamos Neutron Science Center (LANSCE) Tc-99 accident investigation report (NA-1 letter, 10/18/12, Conclusions 10 and 11)

The need for additional SME support in each of the following is dictated by the above and the scale of site operations:

- **Criticality Safety** – There is a need for two FTEs. LANL operates PF-4, an enduring Plutonium Facility with about 60,000 square feet of lab space, as well as a number of other significant fissile material operations. There is currently one FTE on staff supporting NA-LA criticality safety who also conducts oversight of technical training as a collateral duty.
- **Radiation Protection** – Radiation Protection is fundamental to safe operations in the 13 nuclear and 237 radiological facilities. The NA-LA radiation protection SME currently also conducts oversight of transportation.
- **Occupational Safety** – There is a need for two FTEs; there is currently one FTE staffed. The site workforce is on the order of 10,000 people.
- **Electrical Engineer** – There is no on-site staff; previous oversight support provided by NA-SH is no longer available. The scope of the site's operation (\$2.0B annual budget, nearly 9 M square feet of structures with over \$1Billion deferred maintenance) warrants dedicated oversight in the electrical safety and electrical system maintenance.
- **Mechanical Engineer** – There is no on-site staff; part-time support is provided by NA-SH. The scope of the site's operation (\$2.0B annual budget, nearly 9 M square feet of structures, and greater than \$1B deferred maintenance) warrants dedicated oversight in the mechanical system safety (e.g., pressure safety), mechanical system maintenance, and explosive safety.
- **Fire Protection** – There is a need for two FTEs; there are no Fire Protection Engineer SME positions staffed. Fire is the dominant nuclear safety hazard. LANL also has over 1,000 structures with a total replacement value in excess of \$12 B, constituting significant safety and fire-loss liabilities. Limited oversight is being provided by SSO, NA-SH and HSS staff as available.

Approval has been requested to fill the one vacant technical management Environmental Management (EM) position.

Since FY2013, there have been three vacancies within the Quality Assurance Organization including the Quality Assurance Manager position; filling these positions will return Quality Assurance Organization to the minimum required six FTEs.

The 18 FTE technical personnel shortages that cannot be filled due to the ceiling in FTE allotments or because positions have not been authorized to fill are compensated for through a variety of methods including:

- Reduced oversight
- Details within the Field Office
- NNSA Office of Safety and Health (formerly Albuquerque Complex) personnel support
- Headquarters personnel support
- Support Service Contracts
- Collateral duty assignments to current staff
- Utilization of NNSA Graduate Program Interns
- Oversight prioritized to greater risk activities
- Overtime
- Postponement of planned activities
- Additional reliance on the Contractor's Assurance System

Section Four: Projected shortage/surplus over next five years

Approximately 23% of Los Alamos Field Office staff is currently eligible for retirement. Approximately 42% of staff will be eligible to retire within the next five years.

Budget uncertainty discourages hiring to anticipate and prepare for future workloads. FTE reallocations sometimes prevent recovery from attrition. The same concerns minimize the number of positions filled by younger graduates who would be groomed to fill voids due to future retirement and attrition.

Expectations upon Field Office technical staff are increasing in areas including but not limited to:

- operational oversight, not only in the nuclear facilities but also in lower hazard operations (e.g., Deputy Secretary commitments to sustained oversight of activity-level work planning and control and recommendations in the LANSCE Accident Investigation Report)
- safety basis quality and timeliness

This situation is increasingly exacerbated by the laboratory pace of improvements not keeping up with aging infrastructure; by federal on-site technical hiring not keeping pace with losses; and by the local high-cost of living and relatively remote location of the laboratory complicating federal hiring.

Section Five: General concerns or recommendations related to the TQP Technical Staffing

Expectations for continuing and increasing nuclear safety oversight:

- such as specified in NA-1 SD 226.1A, *NNSA Line Oversight and Contractor Assurance System Supplemental Directive*, and DOE G 226.1-2, *Federal Line Management Oversight of Department of Energy Nuclear Facilities*,
- as required by oversight organizations' recurring finding that NNSA oversight is inadequate whenever an event occurs in contractor managed facilities, and
- to support detailed reporting requirements through the chain of command for all facility operations anomalies

drive an increasing technical staffing need. This is in conflict with the NNSA move towards reduced federal staffing and greater reliance on Contractor Assurance Systems being implemented through staff ceiling reductions and hiring restrictions.

Continuing efforts to develop methods to support efficient and timely achievement of initial technical qualification are necessary to promote technical staff earliest availability to perform oversight. This requires improved commitment to technical qualification by the Field Office chain of command and availability of technical training complex wide.

The FTCP must remain vigilant in minimizing the increase in size of functional area qualification standards (FAQS). The FAQS cannot become a document that perfectly suits all sites' needs. Technical competencies that do not specifically support most sites should be left to site specific standards. Requiring all staff to qualify to lesser used competencies delays deployment to field oversight, creates difficulties in finding qualifying officials at sites where the competency is not utilized, and is minimally effective for portability since skills not used are difficult to maintain.

Methods to cost effectively develop subject matter experts to the expert level need to be developed. The challenge is that there are many areas where there is only one SME (1 FTE or less) at a site for a specific subject area. When allowed, we effectively hire qualified staff and facilitate initial TQP qualification but have limited methods to further develop staff to the expert level. When staffing is inadequate, there is no opportunity to develop that greater level of expertise since the incumbent is fully committed to performing assigned functions and meeting required commitments.

Technical positions should be filled prior to the date of technical need to allow time for achieving TQP interim qualification prior to performing technical field oversight.

A single technical workforce analysis analogous to this report should be completed for the full NNSA to determine minimum enterprise-wide technical staff need and to promote sharing of technical resources across NNSA.

FTCP reported statistics should be modified to accurately distinguish between shortages in qualified staff to perform oversight due to TQP deficiencies and due to staffing gaps.