White Paper
National SAFER Response Centers

US Response to Fukushima Accident

Following the accident at the Fukushima Dai-ichi Nuclear Power Plant, a Near Term-Task Force (NTTF) was established to conduct a systematic and methodical review of U.S. Nuclear Regulatory Commission processes and regulations to determine whether the agency should make additional improvements to its regulatory system and to make recommendations to the Commission for its policy direction. Recommendation 4.2 from the NTTF states, “The Task Force recommends that the NRC strengthen SBO mitigation capability at all operating and new reactors for design-basis and beyond-design-basis external events.” Subsequently, NRC Order EA-12-049 was issued and NEI 12-06, “Diverse and Flexible Coping Strategies (FLEX) Implementation Guide” was endorsed by the NRC providing a way for licensees to comply with the Order.

Per the guidance of NEI 12-06, each site determines the applicable extreme external hazards from five classes of events: (1) Seismic Impact (all sites); (2) External Flooding; (3) Severe Storms with High Winds (Hurricanes, Tornados, etc.); (4) Snow, Ice and Extreme Cold Temperatures; and (5) Extreme High Temperatures.

Three phases of mitigation are identified in the FLEX guidance documents which are intended to maintain or restore key safety functions for core cooling, containment integrity and spent fuel pool cooling.

These phases include:

Phase 1 – (Initial Response Phase) Initially cope by relying on installed plant equipment.

Phase 2 – (Transition Phase) Transition from installed plant equipment to on-site FLEX equipment.

Phase 3 – (Final Phase) Obtain additional capability and redundancy from off-site equipment until power, water, and coolant injection systems are restored or commissioned.

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SAFER Organization Support of the National SAFER Response Centers

In late 2011, the industry committed to establish the needed off-site capabilities to support FLEX Phase 3 capability. The industry developed a request for proposal and selected the Strategic Alliance for FLEX Emergency Response (SAFER) team. The industry selected the SAFER Team, consisting of Pooled Equipment Inventory Company (PEICo) and AREVA Inc., to provide the FLEX Phase 3 management and deployment plans through contractual agreements with every nuclear operating company in the United States. All licensees relying on SAFER and the National SAFER Response Centers (NSRCs) have executed contractual agreements with PEICo that allows for the offsite capability discussed herein. PEICo is a membership corporation with no owners, registered in the state of Delaware with a President, who is also PEICo's legal counsel. By contract, the Program Manager Organization (PMO) acts as an agent of PEICo for designated activities. The PMO manages the nuclear industry sponsored, joint inventory storage and maintenance facility for capital spares (referred to collectively as Pooled Inventory Management or "PIM"). PEICo established an Engineering and Procurement Services (EPS) contract with AREVA to perform equipment procurement support, engineering, project management, and field team support activities for the NSRCs. The relationship between the industry, PEICo and AREVA is shown in Figure 1. PEICo is the single entity through which the SAFER program is ensured.

PEICo's experience in the nuclear industry includes 30 years of supporting emergent needs of the industry through acquisition, long term storage, maintenance, and expedited shipping of critical components. Prior to selection in support of FLEX, half of the nuclear utilities were already participating in the PIM program. Additionally PEICo maintains a 10 CFR 50, Appendix B quality assurance program.

AREVA Inc. is a world-wide organization with vast expertise in nuclear engineering, emergent issue response, and outage support across the U.S. nuclear industry. AREVA has been a leader in the nuclear industry for over 40 years and is the only company with expertise in every step of nuclear power generation, from uranium mining and reactor design and construction to fuel fabrication and recycling used fuel. AREVA employs almost 5,000 employees at 34 sites across the US.

The vast experience of the two companies forming this alliance led to the industry selection of the SAFER team and in October 2012, the NEI Nuclear Strategic Issues Advisory Committee (NSIAC) endorsed the selection.

The SAFER team has contracted with Federal Express (FedEx) Custom Critical for their service which guarantees transport resources 24 hours a day, 7 days a week, 365 days a year on demand for fixed wing or trucking carriage of equipment to any site in the United States. FedEx Custom Critical is supplying a control tower approach which is a transportation management program that has been in place at FedEx for several decades. FedEx Custom Critical utilizes experience in this field and has created a tailored solution for the SAFER project. The control tower utilizes airframe assets and tractor capacity across the entire FedEx fleet as well the ability to broker assets outside of the FedEx fleet. FedEx Custom Critical also subcontracts with owner-operators which provide additional confidence that FedEx Custom Critical will not be prevented from providing timely transportation services by labor relations issues.

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There is a tiered approach to helicopter availability and operations if a nuclear site cannot be reached by ground transportation. The first tier includes PEICo contracts established with multiple commercial helicopter companies for first call out of services. As documented in the licensee Response Plans (4.2.1.3 through 4.2.1.6), the helicopter vendors shown in Appendix 4E would be called by the Logistics & Transportation (L&T) coordinator in the SAFER Control Center (SCC) to determine availability and their Estimated Time of Arrival (ETA) to an off-site staging area.

In commercial helicopter companies, the helicopters are normally based out of their home operations area. However, at any given time they could be physically located anywhere in North America. The maximum/normal utilization rate varies greatly in that each company works to keep their helicopters contracted each and every day. As a result of this fact, the decision was made to work with multiple providers. The Oregon Heavy Lift Helicopter Consortium was contacted and a list of vendors which provide commercial lift capabilities was provided. PEICo has pre-established contracts with some of these commercial vendors. SAFER will maintain a list of vendors which can provide these capabilities and it will be updated annually. Although PEICo intends to maintain contracts with some vendors, PEICo will also contact the other providers on the list as a part of the first tier. If the vendor has helicopters available and a contract is not in place, the vendor's standard commercial terms and conditions could be used at the time of the event.

The second tier involves notification of need to the affected nuclear utility's/site's state resources (National Guard, State Emergency Management Agencies, etc.) through the utility's/site's existing protocols and support agreements with the state emergency management departments or agencies. These protocols and support agreements are already in place in accordance with established and documented Emergency Plans.

The third tier involves coordination by the utility/site with the NRC for federal aviation support through one or more of the national resources (which may include FEMA and/or the Department of Defense).

The Site Point of Contact (SPOC) will work through their site's Emergency Planning Organization to interface with State Agencies for medium lift helicopter support and request the NRC coordinate with Federal Agencies for the same support. As shown in Figure 2, the second and third tier actions are not the responsibility of SAFER.

If helicopter support is necessary, these three tiers are activated simultaneously. Commercial vendors are the preferred option and they will continue to be pursued for the duration of the event. If the simultaneous activation of all three tiers results in the availability of multiple helicopters, coordination of the helicopters will be on an ad hoc basis.

Strategy

The overall deployment strategy consists of deploying emergency equipment from one of two Response Centers by a combination of truck, fixed wing and helicopter services, as necessary. The generic timeline for deployment is shown in Figure 2. This timeline serves as the basis for deployment and drives the deployment strategy (i.e. aircraft vs truck delivery). This timeline was built to maximize margin for 24 hour delivery of the first component to the site. The timeline is generic and does not provide hard requirements; however; site specific plans are developed to support this general timeline. The basic sequence below is detailed in this section.

- Request from Nuclear Site
- Staffing of SAFER Control Center (SCC) and NSRC
- Deployment of equipment
- Deployment of SAFER staff to affected site
- Delivery of equipment to site

An industry standard template for SAFER Response Plans has been developed to serve as the guiding document for emergency equipment deployment. Each nuclear site has a site specific SAFER Response Plan that is utilized by the SAFER team for deployment. Pilot programs with two sites, Callaway and Diablo Canyon, were performed to support the development and validation of the industry template. The SAFER Response Plan is comprised of seven chapters covering the functional areas of deployment. This includes defining roles and responsibilities between SAFER and the site during deployment of Phase 3 capabilities. The SAFER Response Plans are transmitted and accepted into each licensee's records management system as a vendor document. This acceptance is transmitted to the SAFER team to be entered into both PEICo and AREVA records management system.

The Phase 3 strategy consists of deploying equipment from one of two NSRCs capable of delivering required equipment to any site in the country within 24 hours of notification of a request for equipment. Two Response Centers are established to ensure redundancy such that either Response Center can deploy to any site in the country within the specified timeframe. The locations in Phoenix (Tolleson) and Memphis were selected such that a single beyond design basis external event (BDBEE) would not impact both centers.

Equipment is delivered to various "staging areas" both off and on-site for preparation and operation. These staging areas are designated as A, B, C, and D as defined below.

- Staging Area(s) "A" – Final Deployment Location(s) of Equipment On-site
- Staging Area "B" – Interim Holding Area On-site (preferred if NSRC trucks can directly access the site)
- Staging Area "C" – Primary Off-site Staging Area
- Staging Area "D" – Optional Off-site Location

Each nuclear site establishes an off-site staging area "C" and an optional alternate staging area "D" for initial delivery of the equipment and ensures its long term availability. Considerations for off-site staging area selection (C and D) include being nominally greater than 25 miles distance from the site but within 35 miles straight line distance. These distances allow for reasonable assurance that normal communications outside the affected area will be available (per NEI 12-01 guidance) and also that a helicopter has sufficient fuel to deliver equipment.

Helicopter range varies with such factors as wind patterns, altitude, specific aircraft responding and routes flown (including the use of congested area flight plans). Refueling locations are identified to support delivery and sustained operations. Driving routes from off-site Staging Area(s) to Staging Area "B" are documented in the response plan and approved by the licensee. Additional Staging Area criteria include the capability to support helicopter operations, accessibility, infrastructure to support operations, and access control. Exceptions to these criteria are allowed and dispositioned as appropriate.

Upon request from the site the SAFER team will deliver the first piece of specified equipment to the on-site staging area "B" within 24 hours of being notified. The request comes into a 24/7 duty officer staffed by AREVA and the process is initiated to deploy all site predefined Phase 3 equipment. Upon receipt of the request and basic site information, the duty officer initiates an automated call out system and tracks both receipt of messages and confirmation of availability. Duty section personnel arrive at the SAFER Control Center (SCC) within one hour. Additionally NSRC staff responds within one hour and a decision is made which NSRC will ship equipment. The SCC organization is shown in Figure 3. All SCC, Response Center, and deployment personnel receive both initial and refresher training which is documented per respective companies training procedures. This training is both generic and position specific and includes hands on training, classroom based, and computer based training – depending on position. Training plans and training records are maintained in accordance with AREVA's or PEICo's training program. A training plan is developed in accordance with respective training programs outlining required training for response staff. Prior to declaring the NSRCs operational, all on-call SCC personnel, NSRC Leads, and Staging Area (SA) Leads will have completed training. All on-call SA Technicians will have completed initial equipment practical training, with a minimum complement receiving detailed operator training on the equipment to be operated. All training records are documented and maintained per the training plan.

The SCC staff includes three primary positions comprised of: (1) SCC Lead, (2) Staging Area Coordinator, and (3) Logistics and Transportation Coordinator. The SCC is capable of managing demands at multiple sites. The SCC Lead provides overall command and control of the response team, resolving any priority and resource issues as needed. The SCC Lead is the initial communicator with the nuclear facility until the Staging Area is operational. The Staging Area Coordinator activates staging area team members, coordinates resource needs and provides direction to the Staging Area team until the Staging Area is operational. The Logistics and Transportation Coordinator is responsible to work with the transportation providers to coordinate all aspects of the equipment delivery. This includes assessing road conditions, shipment tracking, and support if necessary through state emergency management agencies outside of the affected state. The site (utility) coordinates emergency management agency needs in their home state.

Upon activation of SAFER staff, the Logistics and Transportation Coordinator makes a preliminary fly or drive determination based on distance from the NSRC to the affected plant in accordance with predefined criteria in the Site Response Plan (SRP). Subsequently, following an assessment of conditions with the site and FedEx Custom Critical, a decision is made to either ship the equipment solely via truck or through a combination of fixed wing aircraft and truck. The trucking timeline allows for approximately 16 hours of over the road transit. An assumed travel speed of 45 mile per hour yields a travel distance of approximately 720 miles. For plants beyond 720 miles fixed wing transport is used to ensure 24 hour delivery. Road conditions and distance from the selected Response Center are reviewed at the time of the event with transportation providers (FedEx Custom Critical). Concurrent with the equipment

deployment, staging area personnel (Staging Area Lead and equipment technicians) are deployed. Upon arrival of the staging area personnel to the affected staging area and completion of the activation checklist per the SAFER Response Plan, the Staging Area is declared operational. At this point the Staging Area Lead becomes the primary communications point with the site and becomes the overall lead of the SAFER response. A formal turnover with the SCC Lead is held and the SCC remains staffed to support.

The SA Lead coordinates with the site to deliver equipment to the site. Contingencies are in place for delivery of equipment by helicopter in the event that the site is not accessible over the road. The process for identification of the helicopter capability includes identification of available helicopter assets prior to an assessment of road conditions. If it later becomes known that roads are accessible, the helicopter is placed in a standby status. FLEX Phase 3 equipment has a design limit of approximately 8,000 lbs. to ensure each component can be lifted by a Sikorsky S-61 (or equivalent) helicopter. Actual lifting capability varies by aircraft with an overall maximum capacity of about 10,000 lbs. (for S-61); however, the flight range is reduced for loads above 8,000 lbs., potentially requiring refueling locations along the return flight route. Congested area flight plans are prepared in advance for expedited approval by the Federal Aviation Administration consistent with requirements in the Code of Federal Regulation (14 CFR). These flight plans are referenced in the SAFER Response Plan and maintained for emergency use. Components are accompanied by approved rigging for helicopter use.

If equipment is to be offloaded at Staging Area C(D), SAFER offloads the components for delivery to the site. If the equipment is to be offloaded at Staging Area B, SAFER offloads equipment per the site's direction. Once the equipment is delivered to the site, it is deployed and made ready for operation (if not previously performed offsite). The SAFER technicians provide "just-in-time-training" for standard operation of the SAFER equipment to site personnel. The operational training provided with the equipment include monitoring requirements and normal operating conditions to ensure equipment is operating reliably once connected for use. The SAFER technicians remain with the equipment until the site releases the technician back to the SAFER SA.

Proof of Concept demonstration activities have been performed and have validated the deployment strategy. A Proof of Concept demonstration plan was developed including objective and evaluation criteria. The Proof of Concept demonstration objectives were evaluated as being met. These demonstrations involved activation of the SAFER response team, simulated activation of the SAFER Phase 3 equipment by road transport to the Three Mile Island (TMI) plant and by air transport to the Surry Nuclear Plant. The SAFER Control Center and the National SAFER Response Center were activated and equipment movement to the respective site was simulated by having a high pressure pump pre-staged at staging area "C" for TMI and staging area "B" for Surry. The equipment was trucked to the on-site staging area "B" during the TMI demonstration. Simulated turnover of the equipment was performed during both demonstrations. Additionally, timed activities were performed independent of the Surry and TMI activities to validate critical elements of air and ground transportation. This included departure of a set of equipment from the NSRC to the airport, clearing equipment through airport security, off-load of equipment from the trucks, buildup and loading an airplane, and subsequent offload and return to the NSRC. Several enhancements and lessons learned were documented which will be implemented to support the 24 hour delivery goal.

National SAFER Response Center Current Capabilities – Equipment

In December 2012 a survey was performed to identify unit specific equipment parameters needed to meet Phase 3 requirements. In January 2013 the industry met to evaluate the survey results and establish both an industry led equipment committee and an industry led steering committee for the effort. The SAFER equipment committee consists of representatives from all the operating units in the United States. The steering committee was selected from within the SAFER equipment committee. After the initial submittal of the unit specific responses, an additional survey was performed to establish the bounding parameters for equipment that could be shared. This formed the basis of the industry "generic" equipment, applicable to greater than 70 percent of the units that would be provided in Phase 3 and was validated by review of the FLEX integrated plans submitted to the NRC. Equipment which did not meet the 70 percent threshold but was still required for off-site response was procured through formation of smaller "non-generic" equipment committees. Through the licensees participation contract with PEICo a committee can be formed any time an equipment need is identified and each licensee has an opportunity to participate.

To ensure equipment capabilities adequately bound the site's needs, participants review and or vote at key milestones during the procurement process including: procurement specification, request for proposal (bid), supplier recommendation, and finally issuance of the purchase order. This provides licensees several opportunities to validate that their equipment needs are satisfied. At any point in the process, changes to the procured equipment may be made such that licensees' requirements are met. The functional capability of each piece of equipment procured for FLEX Phase 3 response is documented in an "Equipment Technical Requirements Document." In addition to the required site function, transportation and handling requirements were applied including: weight restrictions, center of gravity markings, overhead lifting points, and size restrictions consistent with standard airfreight dimensions.

Each NSRC maintains adequate generic Phase 3 equipment to support up to 4 units following an event. Active equipment (e.g., pumps and generators) also include one additional component of the type to allow for routine maintenance activities. Natural hazards including hurricanes, tornadoes, earthquakes, and regional flooding were reviewed for impact on likelihood of regional impact. Nuclear sites were grouped into the following hazard regions: New England, New Jersey/Eastern Pennsylvania, Mid-Atlantic, Southeast, Florida, Michigan/Ohio/Western Pennsylvania, Upper Midwest, Gulf Coast/Texas, Pacific Northwest, and the Southwest. The likelihood of multiple sites being impacted by a single BDBEE was reviewed to determine that 4 reactor units was the highest number impacted and was the basis for the number of units to be simultaneously supported. In addition, each NSRC will stock any additional equipment specified by a site, or group of sites, in their plant-specific response plan(s). As existing plants are decommissioned and as new plants are completed and begin participating in the NSRCs, the SAFER program requirements will be revisited to ensure the proper amount of equipment is procured and stored at both Response Centers. New plants may need different equipment which will be viewed as non-generic equipment. The SAFER equipment committee will also consider equipment obsolescence or evolving strategies and ensure that the NSRCs continue to be able to support the nuclear industry.

Generic NSRC current capabilities include:

- 4kV Turbine Generators with non-integral fuel tanks
- 4kV Distribution Panel
- 480V Turbine Generator with non-integral fuel tanks
- High Pressure Pump (2000 PSI / 60 GPM)
- Low Pressure – Medium Flow Pump (300 PSI / 2500 GPM)
- SG/RPV Makeup Pump (500 PSI / 500 GPM)
- Low Pressure – High Flow Pump (150 PSI / 5000 GPM)
- Diesel Fuel Transfer (fuel storage, pump and hoses)
- Standard Hoses and Connections (suction, discharge, strainers)
- Standard Generator Connection Cables
- Portable Lighting
- SAFER Team Equipment (Communications, Material Handling, and Habitability)
- Limited spare parts

Non-Generic NSRC current capabilities include:

- Transformer - 480V to 600V
- Mobile Boration Unit
- Water Treatment
- Additional 4kV Turbine Generator
- Submersible Pump
- Portable Air Compressor
- Water Storage
- Suction Booster Pump
- Ventilation Fan

The non-generic equipment design as well as the quantity purchased was determined by each non-generic equipment committee's participants to bound their specific needs or provide defense-in-depth. The quantity of non-generic equipment procured as well as the basis for that decision is documented in the Equipment Technical Requirements Document (AREVA document number 51-9199717). Ultimately, each participating plant determined how the piece of non-generic equipment purchased will be utilized at their stations.

As stated above, the National SAFER Response Centers are redundant and, each by itself, has sufficient equipment to support the needs of the nuclear industry.

Compliance with EA-12-049

The establishment of the two National SAFER Response Centers and the Proof of Concept demonstrations were designed to adequately support the industry's commitment to implement the FLEX strategy endorsed by the NRC. The following table addresses the capabilities of the SAFER Team to meet the minimum offsite capability guidance provided in NEI 12-06. All licensees relying on SAFER and the NSRCs have executed contractual agreements with PEICo which allows for the below capability:

NEI 12-06 Section 12.2 Minimum Capabilities for Offsite Resource	Capability Met
1) A capability to obtain equipment and commodities to sustain and backup the site's coping strategies.	All licensees relying on SAFER and the NSRCs have executed contractual agreements with PEICo. The contracts between the member utilities, called Participants, and the Program Manager Organization (PMO) are with PEICo (i.e., a membership corporation with no owners, registered in the state of Delaware with a President, who is also PEICo's legal counsel). The contracts allow the PMO to act as an agent of PEICo for designated activities. Title to the Equipment is held by PEICo with the corresponding purchase orders being issued by PEICo. Since quality is related to a PEICo contractual responsibility and the Equipment's title is held by PEICo, the Quality Assurance Manual is titled the PEICo Quality Assurance Manual. The PEICo QA Program may also be selectively applied to other items or activities (e.g., services provided by PEICo affiliate, Storage and Maintenance Services, LLC). The SAFER Equipment Committee, which includes members of all the participating utilities, will remain in-place for the length of time for which the respective plants rely on the SAFER program. This group is responsible to ensure that the equipment continues to be available and is properly tested and maintained. • PEICo and industry-populated Equipment Committees are established using PMO procedures to obtain and share the cost of equipment.

NEI 12-06 Section 12.2 Minimum Capabilities for Offsite Resource	Capability Met
1) A capability to obtain equipment and commodities to sustain and backup the site's coping strategies. [Continued]	• Generic equipment selected by the industry is cost split on a per unit basis. Generic means that ≥70% of the units agree to procure, and in these cases, 100% of the units share the cost. • Non-Generic Equipment – Separate industry-populated Equipment Committees are established to determine requirements/ approve specifications/share cost. • Commodities – Separate Equipment Committees are established to support the commodity needs (currently Boric Acid is the only commodity being provided and is done so under the Mobile Boration Equipment Committee.). The transportation supplier(s) and the response team have a contractual mechanism through PEICo to support deployment capability. The contract with FedEx Custom Critical invokes meeting the requirements of the Technical Requirements for Transportation, AREVA document number 12-9211571. This contract provides the requirements for both truck and fixed-wing deployment of equipment. This includes timing for first truck to arrive at NSRC, arrival of first trucks at the airport (if flying) or staging area (if driving), etc. It also provides the requirement of meeting the 24 hour delivery response. Further description of the process for obtaining 24 hour delivery for each individual licensee is included in the SAFER Response Plan, which includes the potential use of helicopters.

NEI 12-06 Section 12.2 Minimum Capabilities for Offsite Resource	Capability Met
2) Off-site equipment procurement, maintenance, testing, calibration, storage, and control.	All licensees relying on SAFER and the NSRCs have executed contractual agreements with PEICo. The PMO's procedures referred to as PRPs, include provisions for equipment procurement, maintenance, testing, calibration, storage, and control. PRP section 13.1.C.2 states, "The PMO is responsible for developing warehouse storage and maintenance procedures, and monitoring and directing contractor support activities to ensure that detailed storage and maintenance requirements are implemented. Per the PMO's Storage and Facilities Procedures Manual, section MI-1, step 3.2, "The Facilities and Inventory Manager is responsible for the preparation and issuance of detailed Maintenance Instructions (MIs) for each specified class of equipment per the applicable original equipment manufacturer's storage and/or maintenance instructions, industry standards and/or other requirements." Also, PRP Section 13.1.C.6 states, "The PMO is responsible for maintaining the equipment in a serviceable condition." Any changes to the PRPs are controlled by industry participants. That is, revisions to PRPs must be approved by a majority vote of the Management Committee which is made up of representatives from the utilities that have PEICo contracts. Additionally, standard industry guidance and best practices are implemented via: • Maintenance Instructions developed in accordance with the EPRI template for Phase 2/Phase 3 equipment, vendor recommendations, and the PRPs which require equipment in the program to be maintained in a serviceable, deployable condition. • Equipment not covered by the EPRI template is maintained in accordance with vendor recommendations. • Operational placards developed using the INPO template.

NEI 12-06 Section 12.2 Minimum Capabilities for Offsite Resource	Capability Met
3) A provision to inspect and audit the contractual agreements to reasonably assure the capabilities to deploy the FLEX strategies including unannounced random inspections by the Nuclear Regulatory Commission.	It is expected that the NRC will periodically inspect and/or audit the SAFER program, including potentially unannounced random inspections. The contractual agreements with vendors supplying transportation are also available for review and inspection. All licensees relying on SAFER and the NSRCs have executed contractual agreements with PEICo which include stipulation for independent audits and oversight by the licensee. Important aspects of this program include: • PEICo implements a 10 CFR 50 Appendix B QA program. • PEICo is audited by NUPIC on a three year cycle. • PEICo has a Quality Assurance and Licensee Committee made up of industry participants which provide oversight of the QA Program. The PEICo Quality Assurance Manual stipulates that an annual audit of the PMO's activities and interfaces in support of the PEICo QA Program shall be performed. The PEICo QA Manager is responsible for scheduling and performing (or delegating the performance to a qualified organization) the internal audit of the PMO's activities. Since the PEICo QA Manager is a part of the review process for procedures and processes within the PMO, a qualified outside consultant is hired to lead the annual audit to ensure an independent assessment. The QA manual also stipulates that on a triennial basis, or more frequently if conditions warrant, PEICo shall be audited by a Nuclear Procurement Issues Committee (NUPIC) team comprised of utility members.

NEI 12-06 Section 12.2 Minimum Capabilities for Offsite Resource	Capability Met
3) A provision to inspect and audit the contractual agreements to reasonably assure the capabilities to deploy the FLEX strategies including unannounced random inspections by the Nuclear Regulatory Commission. [Continued]	Although the SAFER program is not an Appendix B program, activities related to the SAFER Equipment Committee are included in the scope of these audits. For example, in the 2013 NUPIC audit, a member of the SAFER Steering Committee participated on the audit team. The standard contract terms for PEICo Suppliers include terms for (4.0) Right of Access and (8.0) Source Inspection/Surveillance Notification. However, transportation providers are performing a service and providing various documents (e.g., load plans, deployment plans, congested area flight plans) and are not manufacturing an item that would warrant the inspections or audits mentioned above. In light of this fact, the POs with transportation suppliers exclude the “Right of Access” provision. FedEx Custom Critical is to perform annual reviews and updates of all load plans and deployment plans and will participate in drills as required by SAFER. The deliverables from these activities will provide SAFER the opportunity to ascertain readiness. Subcontractors providing transportation services only would not be subject to direct inspections. Their capabilities would be verified through the SAFER program.

NEI 12-06 Section 12.2 Minimum Capabilities for Offsite Resource	Capability Met
4) Provisions to ensure that no single external event will preclude the capability to supply the needed resources to the plant site.	Offsite capabilities are available to be deployed from one of two redundant National SAFER Response Centers. As discussed previously, there is reasonable assurance that a single BDBEE would not impact both Response Centers located in Memphis and Phoenix. Each Response Center contains adequate generic equipment to support deployment to 4 units. Active generic equipment (e.g. pumps and generators) also have a spare component of the type to support maintenance. With a spare component, the 90-day Out-Of-Service (OOS) time is generally not relevant. The number of non-generic equipment varies and the 90-day OOS time for maintenance may be utilized. Refer to NEI 12-06, Section 12.2.9. The SAFER Control Center has two redundant locations with qualified personnel available to respond from diverse locations. The primary SAFER Control Center is located in Lynchburg, VA with a backup located in Birmingham, AL. Deployment technicians normally support site services across the country. A roster of trained technicians is maintained with the team selected to deploy to affected site following the event. A team is selected, following the event, from those whose location supports arrival within the required time.

NEI 12-06 Section 12.2 Minimum Capabilities for Offsite Resource	Capability Met
5) Provisions to ensure that the off-site capability can be maintained for the life of the plant.	All licensees relying on SAFER and the NSRCs have executed contractual agreements with PEICo. These participation contracts include mechanisms to continually renew. The participation contracts only cancel if the utility takes an active role to cancel. If notification to cancel is received, a year notice period is initiated prior to cancellation. The supplier contracts between PEICo, AREVA, FedEx Custom Critical, and helicopter providers also contain mechanisms to continually renew. PEICo, AREVA, and FedEx Custom Critical are all longstanding companies with vast experience in the nuclear industry.
6) Provisions to revise the required supplied equipment due to changes in the FLEX strategies or plant equipment or equipment obsolescence.	All licensees relying on SAFER and the NSRCs have executed contractual agreements with PEICo. Additional Equipment Committees can be established or the SAFER Equipment Committee can be expanded to allow procurement of additional equipment or replacement of obsolete equipment. As part of the PMO's program, a configuration management plan is in place with mechanisms for the periodic review of SAFER Response Plans. Equipment design parameters are documented that bound unit specific coping strategies. Changes to either equipment participation or equipment functionality are updated through PEICo participation forms. These changes are reconciled in the Equipment Technical Requirements Document (AREVA document number 51-9199717). This document is the source for equipment listings in the SAFER Response Plans issued by the sites which are updated accordingly for any changes. Changes are reviewed for impact and those which do not impact deployment strategies (i.e., editorial) are held for an annual review and update.

NEI 12-06 Section 12.2 Minimum Capabilities for Offsite Resource	Capability Met
7) The appropriate standard mechanical and electrical connections need to be specified.	All licensees, as part of the SAFER equipment committees, have approved industry standard connections for offsite capabilities. This has been validated throughout the procurement process. Licensees have applied the Phase 3 standard connections to the Phase 2 design. Standardized mechanical and electrical equipment connections are documented in the Equipment Technical Requirements Document (AREVA document number 51-9199717).
8) Provisions to ensure that the periodic maintenance, periodic maintenance schedule, testing, and calibration of off-site equipment are comparable/consistent with that of similar on-site FLEX equipment.	All equipment procured as part of equipment committees is subject to PRPs. These procedures include maintenance, testing, and calibration. Upon receipt, equipment is entered into PEICo maintenance, testing, and calibration program. EPRI has developed Maintenance plan templates through expert panel reviews of site equipment lists. These templates include recommendations for periodic static inspections, and periodic operational verifications with performance tests. These plans are used across the industry and provide a consistent approach for Phase 3 equipment. Maintenance Instructions are developed in accordance with the EPRI templates for the Phase 3 equipment, vendor recommendations, and the PRPs which require equipment in the program to be maintained in a serviceable, deployable condition. SAFER deployment support equipment (such as light towers) is included as part of the Generic equipment and is maintained in the PEICo maintenance program. Any changes to PRPs are governed by the licensees. That is, revisions to PRPs must be approved by a majority vote of the Management Committee which is made up of representatives from the utilities that have PEICo contracts.

NEI 12-06 Section 12.2 Minimum Capabilities for Offsite Resource	Capability Met
9) Provisions to ensure that equipment determined to be unavailable/non-operational during maintenance or testing is either restored to operational status or replaced with appropriate alternative equipment within 90 days.	The procurement of an additional set of equipment minimizes the risk of required equipment being out of service for greater than 90 days. All licensees relying on SAFER and the NSRCs have executed contractual agreements with PEICo which includes access to the spare equipment. PEICo processes are in place to track equipment out of service and for the development of recovery plans. PRP 13, “Equipment Storage and Maintenance”, section 13.2.6 states “The PMO shall document and disposition non-conformances identified during inspection and maintenance”. Also PRP 16, “Quality Assurance”, section 16.2.D, “Resolution of Nonconformance Reports” states “The PMO keeps the Equipment Committee (EC) members informed of the status of non-conformances that affect the members' Equipment. The EC members shall concur with the resolution of any nonconformance that accepts a condition that is not in compliance with the specified requirements.” If a piece of SAFER equipment is unavailable for deployment other than for normal maintenance, the SAFER participants would be notified via Non-Conformance Report, and the PMO would develop a recovery plan based on their direction. This will include replacing the equipment or making equivalent equipment available within 90 days.
10) Provision to ensure that reasonable supplies of spare parts for the off-site equipment are readily available if needed. The intent of this provision is to reduce the likelihood of extended equipment maintenance (requiring in excess of 90 days for returning the equipment to operational status).	The SAFER organization will maintain a minimum inventory of spare parts in accordance with vendor recommendations. Vendor manuals are reviewed for recommended spare parts and consumables. Any critical spare parts not readily available are maintained in inventory and tracked per the PEICo maintenance program. These spare parts are available to support the offsite capability through licensee participation contracts.

Figure 1 – SAFER Organization

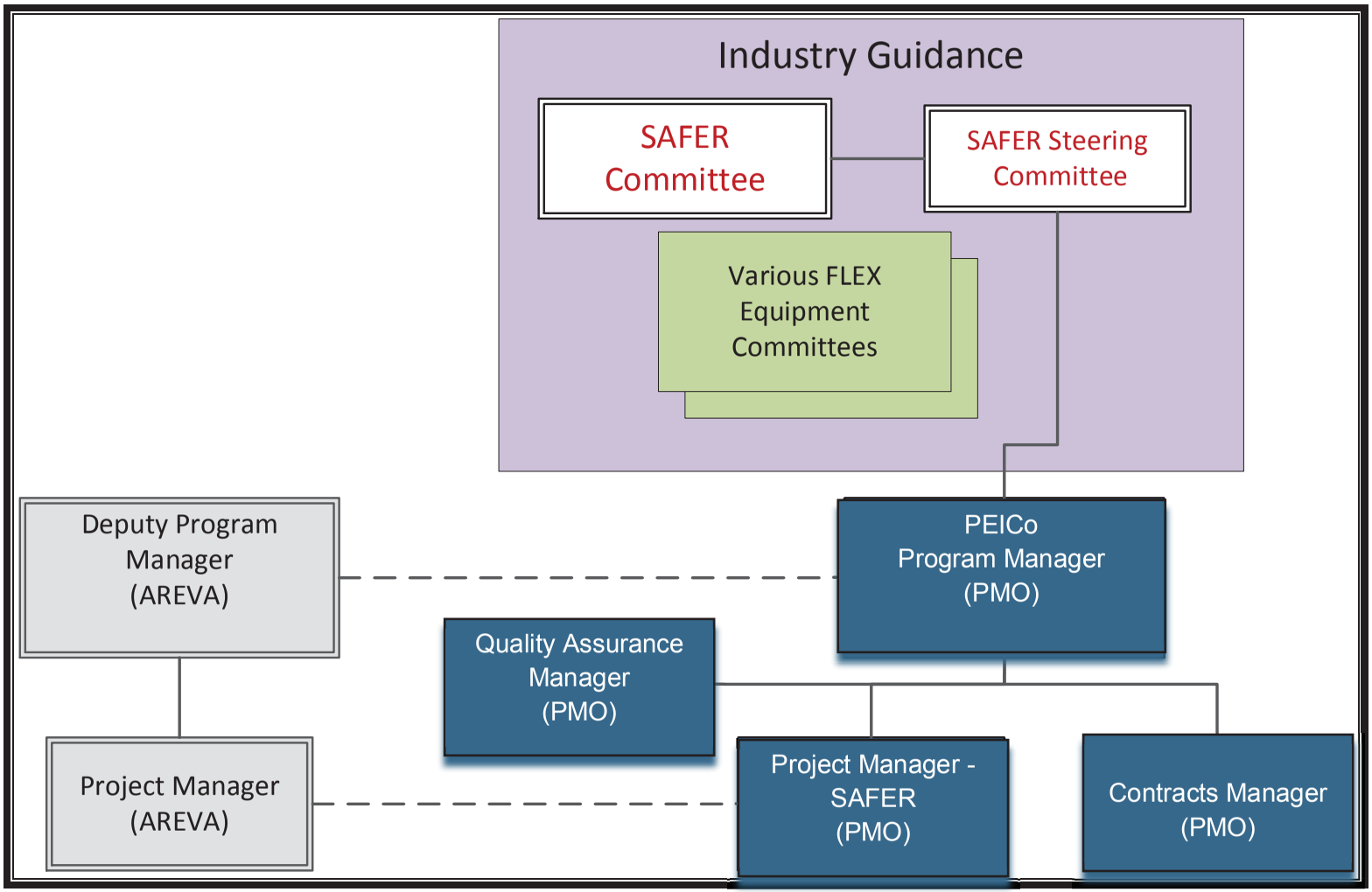


Figure 2 – Generic Deployment Timeline

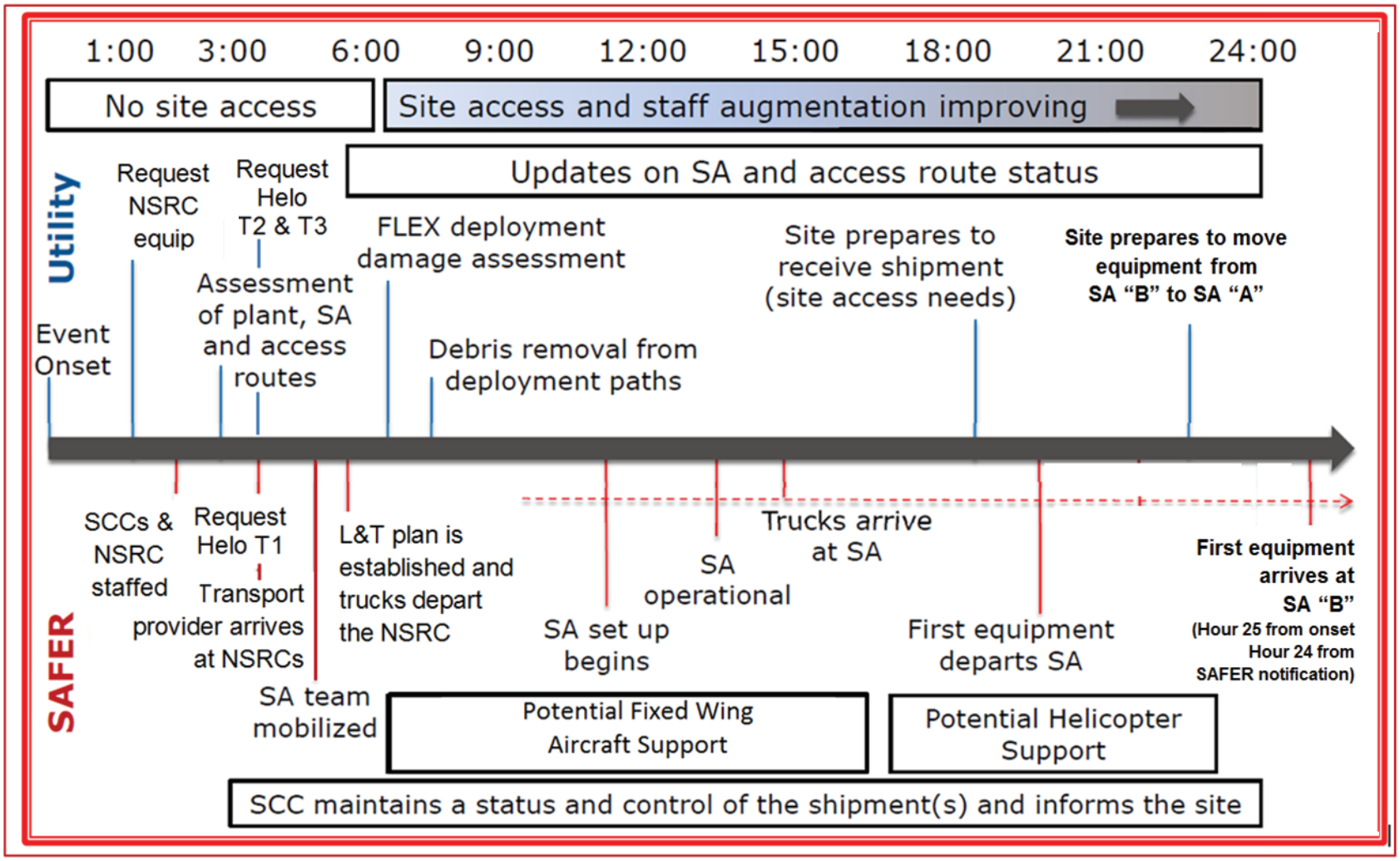


Figure 3 – SAFER Control Center and Response Center Organization

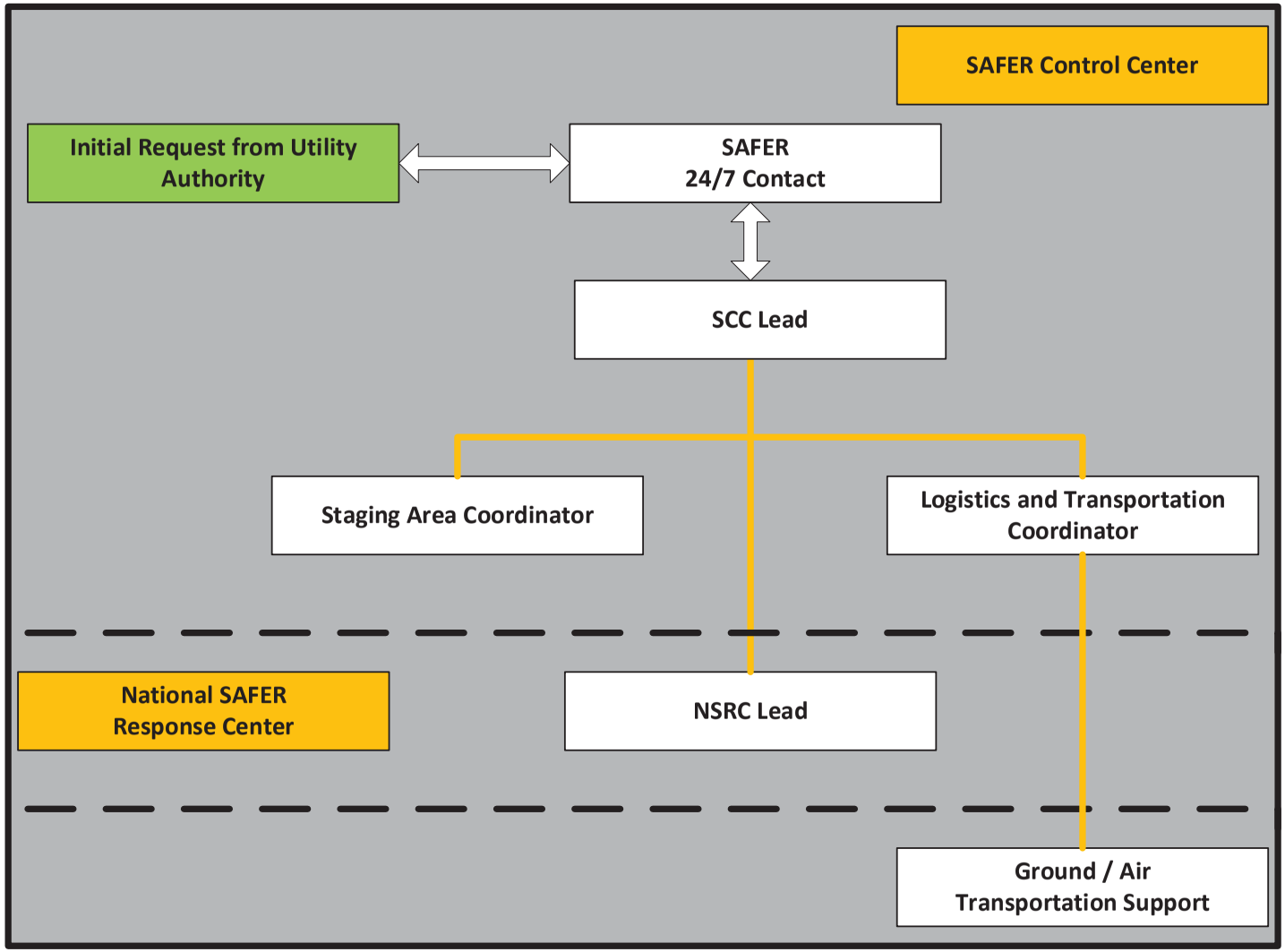
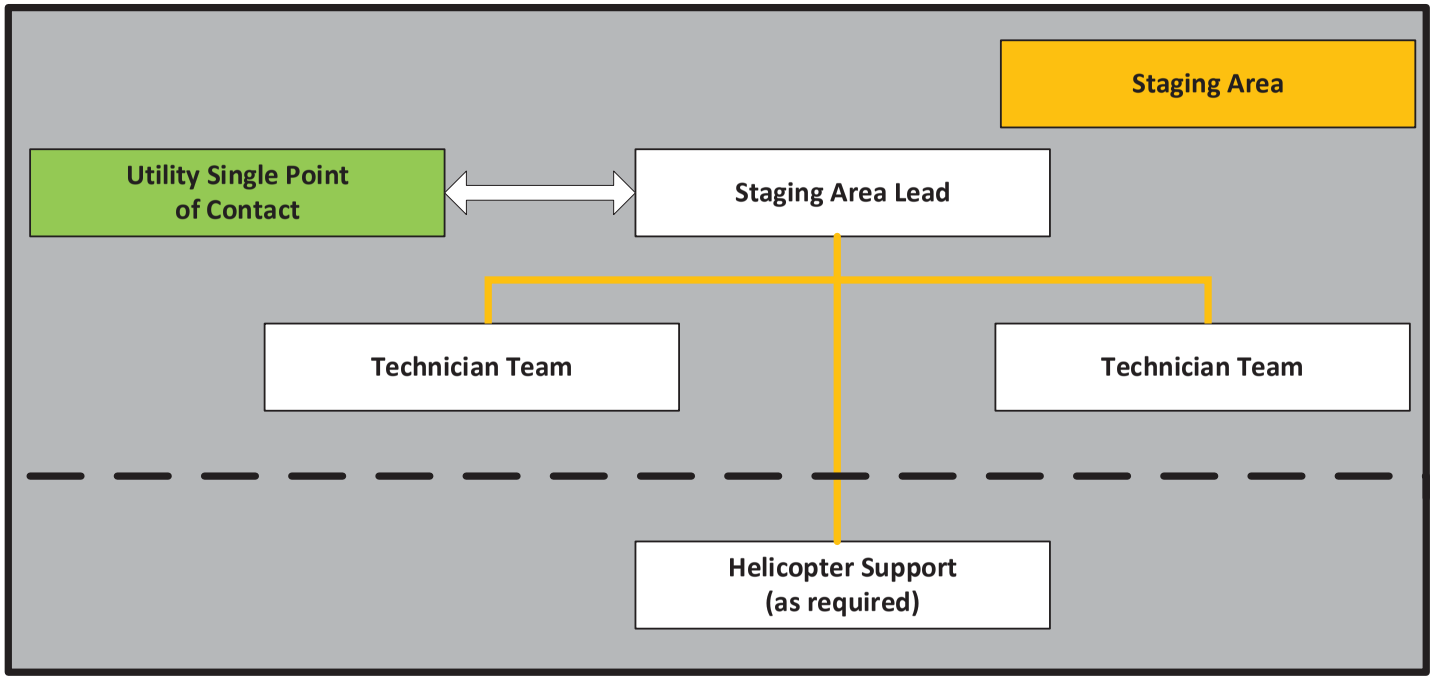


Figure 4 – Staging Area Organization



White Paper
National SAFER Response Centers

This White Paper provides an accurate description of the SAFER Program which has been established by the nuclear industry through Pooled Equipment Inventory Company (PEICo). PEICo, through its Program Manager Organization, is committed to provide the services described herein to support the US nuclear industry's compliance with NRC Order EA-12-049, "Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events" dated March 12, 2012. The SAFER program will also support compliance with future regulations which may be written to supersede this existing Order.

R. W. Mundy

PMO Manager (as agent for PEICo)

D. L. Brush

SAFER Steering Committee Chairman

Dated: September 11, 2014