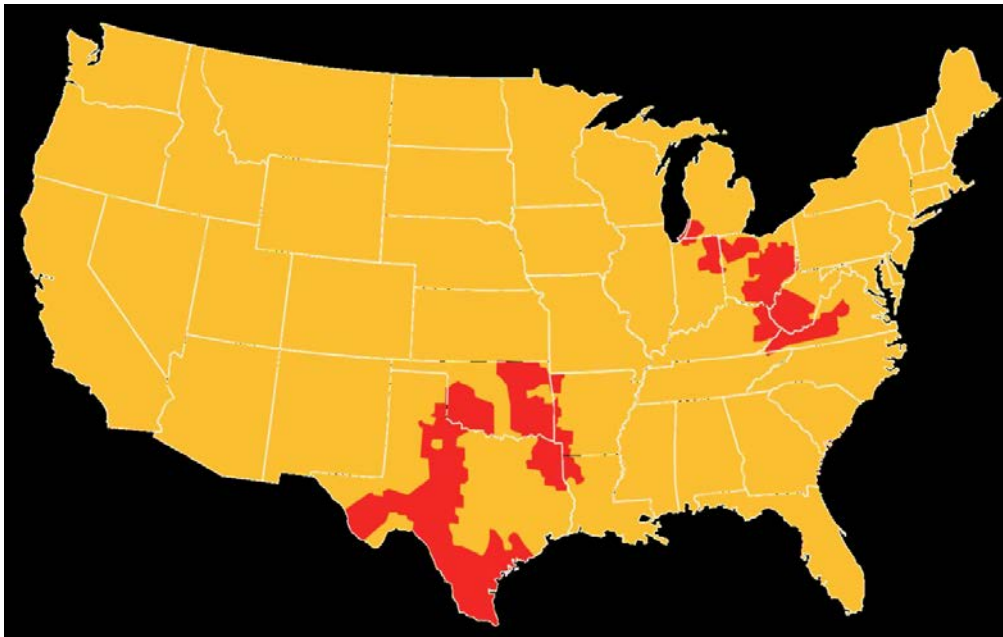


Lifting Plan by AEP Engineering

Wayne Palumbo, American Electric Power

American Electric Power



Chairman, President & CEO:

Nick Akins

2014 operating earnings:

\$1.675 billion

2014 revenues: \$17 billion

Assets: \$59.6 billion

Employees: Approx. 17,600

Service territory:

More than 200,000 square miles

Miles of transmission lines:

More than 40,000 miles

Miles of distribution lines:

Approx. 223,000 miles

Generating capacity:

Approx. 32,000 MW

U.S. customers: Approx. 5.4 million

2014 U.S. electricity sales:

Approx. 207 million MWh



Regional Engineering Services (RES)

- Provides site-based engineering support for the AEP generation fleet
- Six engineering regions:
 - APCo/KYPCo, PSO, SWEPCo
 - Generation Resources
 - Gas Turbine Engineering
 - I&M/Hydro/Programs
 - Diving
 - PDM
 - Lifting & Rigging



Why a Lift Planning Process?

- Recognized need for comprehensive and authoritative guidance for planning lifting activities in order to better protect people and property.
- Recently-developed ASME P30.1-2014 addresses this need.
- OSHA's General Duty Clause obligates employers to provide a place of employment free from recognized hazards.



RES Lift Planning Survey

- AEP Generation conducted a survey to assess the understanding and awareness of lift planning issues and to determine current lift planning processes in use throughout the system.
- 106 responses received from:
 - AEP East and AEP West Generating Assets
 - Competitive Generation
 - Field & Support Services
 - Operations & Mining
 - Project Controls & Construction
 - AEP Safety & Health, AEP Training
 - AEP contractors



Survey Question Topics

- Lift planning processes, such as: When? Who prepares and reviews? What is addressed? Risk factors?
- Critical Lift processes and permitting
- Personnel assignment and qualifications
- Marine Lift processes
- Contractor-performed lift planning processes
- Sources of lift planning and engineering support
- Issues and needs



Survey Results

- Items identified:
 - Address inconsistencies in the planning process
 - Ensure peer review of lift plans
 - Provide a planning process for non-critical lifts
 - Clarify the qualifications, responsibilities and roles of those involved in the process
 - Ensure adequate lead time for the planning process
 - Identify Marine Lift planning process requirements
 - Establish a procedure for making and documenting field revisions
 - Create a central repository for lift plans
 - Define the role of Regional Engineering Services



Process Development

- Survey
- Lift Planning Focus Group
- Regional Engineer meetings
- Lift Plan Database
- Operating Instruction (OI) preparation and approval
- Ongoing communication and participation



Operating Instruction

Purpose and Scope

- The OI defines the RES process and provides guidance to comply with AEP, regulatory and industry directives.
- The OI may supplement but should not conflict with any AEP Environmental, Safety and Health Policy/Document.
- The OI does not address lifting and rigging procedures or how to perform the lifts – only the lift planning process.
- The OI is intended to apply to work performed by AEP Generating Facility employees or contractors, or under the direction of RES.



Roles and Responsibilities

- Extra lead time will be required and is to be provided for the evaluation, preparation and review of lift plans.
- Definitions, roles and responsibilities of individuals involved in lift planning, criteria for defining a Qualified Person for lift planning, and personnel assignment requirements are provided in the OI.
- The Person-in-Charge (PIC) shall act as the ‘Lift Director’ and is responsible for ensuring that adequate lift planning is conducted.
- The RES Lifting and Rigging Engineer is to assign formal lift plan numbers and to document the plans in an accessible central location.



Lift Plan Requirements

Every lift shall have a plan that identifies, evaluates and addresses, as applicable:

- Load characteristics
- Load handling equipment
- Rigging
- Load handling equipment and load travel
- Personnel
- Site conditions
- Communications
- Site control
- Repetitive lift considerations
- Emergency action plans



Lift Plan Evaluation and Categorization

Every lift shall be evaluated and categorized based on:

- Potential hazards to persons
- Hazards in proximity to the work area
- Complexity of the lift
- Impact from environmental conditions
- Equipment and rigging capacity and/or performance
- Potential commercial or operations impact
- Site specific requirements
- Repetitive lifts

Lift evaluation and categorization is largely subjective and the responsibility of those performing the lift.



Types of Lifts

- Standard Lift
 - Informal Lift
 - Documented Lift
- Critical Lift
- Marine Lift



Critical Lifts

- Critical Lift Permit required
- Existing AEP Critical Lift Policy to be followed and the AEP Critical Lift Forms to be used
- Equipment Operator, AEP Qualified Engineer and, for contractor-developed plans, Contractor Qualified Engineer review required
- Professional Engineer review and stamp recommended for contractor-developed plans



Documented Lifts

- No permit required
- Existing AEP Critical Lift Policy procedures to be followed and the AEP Critical Lift Forms used as applicable and necessary
- Equipment Operator, AEP Qualified Engineer or Qualified Person and, for contractor-developed plans, Contractor Qualified Engineer or Qualified Person review required



Marine Lifts

- Categorized as a Standard Lift or Critical Lift, but can not be an Informal Lift
- Requires compliance with all applicable standards and regulations such as OSHA 1926.1437 and ASME B30.8
- Requires Barge and Crane Stability Analyses by Qualified Persons
- Review requirements same as with conventional (non-marine) Documented and Critical Lift Plans except that AEP Qualified Engineer review is always required



Attachments

- Lift Plan Development Guide: Provides an overview of the process along with a basic list of items to be evaluated and addressed in the lift plan
- Lift Evaluation Checklist: Identifies conditions to consider in assessing risks and categorizing the lift
- Documented Lift Plan Cover Sheet: To identify and describe the plan, and to specify and allow for required and supplemental reviewers
- Marine Lift Plan Forms: To ensure compliance with the General Requirements and the Barge and Crane Stability Analyses requirements of OSHA 1926.1437



How does this affect you as a Lift Director?

- More written lift plans will be prepared.
- You will need to get started earlier on these lift plans.
- Equipment operators, AEP and contractor engineers, and others will be more involved with and will review the lift plans.
- Involvement and certifications by professional engineers and by marine professionals will be required for certain lifts.
- A procedure, or tool, will be available to improve and better communicate your lift plans.



Process Benefits

- **Safer, and more timely, efficient, and consistently planned lifting activities**
 - Methodology to ensure compliance with regulations and industry standards
 - Increased knowledge and awareness of load handling issues
 - More comprehensive planning for non-critical lifts
 - Qualified review of lift plans ensured
 - Defined Marine Lift procedure
 - Documentation of lift plans enhanced with indexing system, revision procedure, and Central Repository
 - The roles and responsibilities of Regional Engineering Services and others involved with the lift clearly defined

QUESTIONS?
