CASE STUDY
IMPROVING RELIABILITY

S&C ELECTRIC COMPANY
Excellence Through Innovation

Pad-Mounted Gear Inspection Program Helps Utility Manage Aging Assets

S&C Featured Solution: S&C's Power Systems Solutions

Location: Southeast United State

Customer Challenge

Expanding upon an existing program to externally inspect the condition of their pad-mounted switchgear, a large investor-owned electric utility in the southeastern United States outsourced the comprehensive internal and external inspection of its entire installed base of 1,800 pad-mounted gear units to S&C. Performed with the gear energized, the objective of the inspection program was to develop a prioritized approach to maintenance, which would ultimately extend the life of the gear, reduce outages, and increase system reliability.

S&C Solution

S&C's Power Systems Solutions personnel worked with the utility to create a customized, detailed inspection list that included the switchgear manufacturer's inspection procedures, supplemented by the utility's own practices.

A two-person team of expert S&C field technicians was dedicated to the inspection of all pad-mounted gear on the utility's distribution system. They coordinated their efforts with the utility's load dispatchers daily. The crew used the inspection list to record observations and maintenance recommendations for each unit of gear, including conformance with the manufacturer's installation instructions. Of particular concern were:

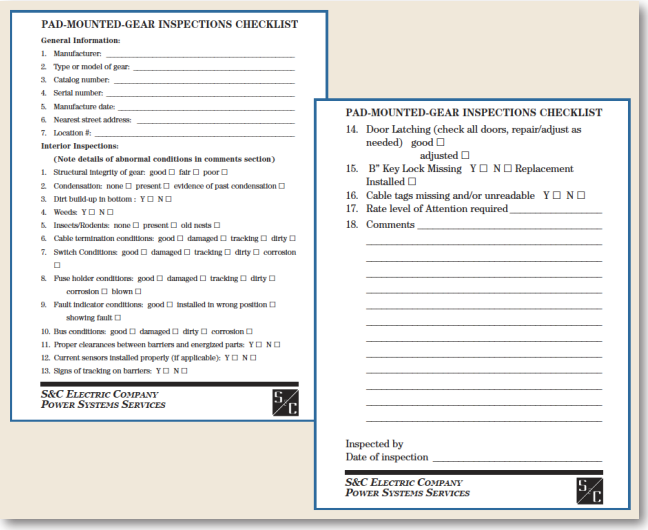
- Insufficient terminator-barrier clearance
- Damaged terminators
- Gear improperly positioned on its concrete pad
- Gear with access limited by vegetation
- Missing padlocks

The crew also developed a prioritization report to identify the switchgear units requiring greatest attention. Gear needing urgent attention was immediately reported to the utility.

Results

In less than a year, S&C inspected all 1,800 pad-mounted gear units. While the vast majority of the equipment was manufactured by S&C, the inspection program included an assessment of gear manufactured by other suppliers, too.

The utility is very pleased with the information collected and has expanded the maintenance program to other equipment. It has contracted with S&C for the inspection of 850 pad-mounted transformers serving critical loads. The next round of pad-mounted gear inspections has been scheduled for 2008.



PAD-MOUNTED-GEAR INSPECTIONS CHECKLIST

General Information:

1. Manufacturer: _____
2. Type or model of gear: _____
3. Catalog number: _____
4. Serial number: _____
5. Manufacture date: _____
6. Nearest street address: _____
7. Location #: _____

Interior Inspections:

(Note details of abnormal conditions in comments section)

1. Structural integrity of gear: good ☐ fair ☐ poor ☐
2. Condensation: none ☐ present ☐ evidence of past condensation ☐
3. Dirt build-up in bottom : Y ☐ N ☐
4. Weeds: Y ☐ N ☐
5. Insects/Rodents: none ☐ present ☐ old nests ☐
6. Cable termination conditions: good ☐ damaged ☐ tracking ☐ dirty ☐
7. Switch Conditions: good ☐ damaged ☐ tracking ☐ dirty ☐ corroston ☐
8. Fuse holder conditions: good ☐ damaged ☐ tracking ☐ dirty ☐ corrosion ☐ blown ☐
9. Fault indicator conditions: good ☐ installed in wrong position ☐ showing fault ☐
10. Bus conditions: good ☐ damaged ☐ dirty ☐ corrosion ☐
11. Proper clearances between barriers and energized parts: Y ☐ N ☐
12. Current sensors installed properly (if applicable): Y ☐ N ☐
13. Signs of tracking on barriers: Y ☐ N ☐

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PAD-MOUNTED-GEAR INSPECTIONS CHECKLIST

14. Door Latching (check all doors, repair/adjust as needed) good ☐ adjusted ☐
15. B" Key Lock Missing Y ☐ N ☐ Replacement Installed ☐
16. Cable tags missing and/or unreadable Y ☐ N ☐
17. Rate level of Attention required _____
18. Comments _____

Inspected by
Date of inspection _____

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Example of damaged termination.

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