

## Preventive-Maintenance Program Shines

**ASRC Energy Services evaluates failure trends, improving planned maintenance from 58 to 80 percent**

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**By Preston Ingalls, Contributing Editor**

For Terry Howard, director of equipment operations for [ASRC Energy Services \(AES\)](#), the environment poses his greatest challenge. Howard manages fleet operations for Anchorage-based AES, which handles fleet management for the 800-mile-long [Trans-Alaskan Pipeline System](#).

To service the pipeline's geographically distributed area, a constant staff of 110 people and 10 seasonal workers are currently stationed throughout Alaska in four primary shop facilities in Prudhoe Bay, Fairbanks, Valdez, and Pump Station 3 in the Northern Region, and in an additional six minor facilities.

"Conditions can range from 40 to 50 degrees below zero with wind and snow, to total darkness for months in the northern areas," Howard says. "In Valdez, there has been 12 feet of snow so far this year."

Howard, a [Certified Equipment Manager](#) who has been with AES since 1977, keeps his fleet mobile with a strong preventive-maintenance program. For five years, preventive maintenance on-time completion has remained at 95 percent or above, an improvement from the previous 45 percent. In the last 12 months, planned versus reactive maintenance has risen from 58 to 80 percent, and fleet-equipment availability has ranged from 97 to 99 percent.

Five years ago, each facility operated independently with limited resource sharing, Howard says. Now the team strives for continual improvement, meeting weekly by telephone to review key performance indicators, discuss problems, and share resources. The group addresses performance against budget, equipment availability, on-time maintenance completion, planned versus actual maintenance, inventory, downtime, customer service, and compliance measures. The parts department, based in Fairbanks, maintains an additional set of performance indicators.

"What gets reported gets managed," Howard says. "When our Monthly Managers Report is published, we collectively review for anomalies, these issues that can be drilled down to the



AES continuously reviews and updates preventive-maintenance inspection check sheets.



Utilization rates at AES have inched forward toward perfection, improving from 97 to 99 percent.

### Profile

**Headquarters:** Anchorage, Ala.

**Specialty:** Manages the fleet for the Trans-Alaskan Pipeline System

**Equipment Value:** \$100 million

**Fleet Makeup:** 4,000 units

**Support Staff:** 120

**Facilities:** Prudhoe Bay, Fairbanks, Valdez, Pump Station 3 (Northern Region)

**Website:** [www.asrcenergy.com](http://www.asrcenergy.com)

source and resolutions sought." By systematically implementing improvements in their shop planning, scheduling, and preventive-maintenance programs, AES has seen fleet operations performance indicators continue to rise.

Using an internal failure analysis approach similar to the [TapRoot](#) methodology, Howard's team examines equipment-failure trends and sets preventive maintenance to address problems before they occur. TapRoot is a root-cause failure analysis process that can be used manually or with an optional software program. The TapRoot system helps people solve problems by finding and fixing root causes that, when corrected, stop problems from happening over and over again. Howard's team has based their Alyeska Loss Prevention System (ALPS) on the TapRoot approach. ALPS provides a step-by-step approach to identify causal factors and mitigating action items for losses, near losses, loss-prevention observations, and loss investigations.

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Terry Howard, Director of equipment operations

As an example, a recent Loss Investigation Report identified a crack in a steel tube hydraulic line on a skid-steer, resulting in the stoppage of a snow-removal operation. Following the ALPS steps, the team discovered that the line cracked at a bend where the metal was stressed during the forming process and that, upon disassembly, the line's rubber mount was out of place. To avoid a recurrence, the team enacted a plan to inspect the part at more frequent intervals and to utilize adhesive to prevent the rubber mount from sliding out of its bracket. A post-implementation review validated the solution.

Howard says the process of improvement in planned versus reactive maintenance is "more evolution than revolution."

"Fleet availability is a by-product of overall trend management," he says. A critical component of ongoing upward trending is a whole-hearted commitment to the preventive-maintenance program.

In another weekly pipeline-wide teleconference, the AES team reviews fleet-management reports and reacts to areas that need improvement. In these meetings, master mechanics from each facility provide explanations as needed for anomalies, issues are discussed, potential resolutions are evaluated and, as needed, items are flagged for additional attention.

Additionally, Howard and his team continuously review and update the existing preventive-maintenance inspection check sheets. They have developed equipment-specific pre-use, campaigns to fix, check, and redesign inspection sheets to fill gaps identified in their ongoing meetings.

One example of the AES team's improvement is the refinement of an in-depth scheduling process. The group focused on a more defined process for estimation of shop repairs, allowing for adequate time, resources and repair priority. Now, rather than address failures, preventive work is scheduled seven to 10 days in advance, and technicians are given an adequate amount of time to perform inspections.

AES maintenance and reliability improvement efforts resulted in what Howard calls his greatest success to date, winning the 2005 [Fleet Masters](#) Award.

The newly constructed Fairbanks facility, state of the art for Alaska, contributes to the success of the operation. The facility is the primary shop for scheduled repair work on the Pipeline. It is equipped with two 9-ton bridge cranes, five 1.5-ton jib cranes, a central lube distribution system, a portable wireless heavy-duty four-point lift, a medium-duty vehicle four-post drive-on lift, and two light-vehicle four-post drive-on

lifts. The shop also has an exhaust system with sliding hose reels, air-filtration system, office and parts room, drive-through wash bay with floor jets and water-recycling system, and a heated floor with in-floor drains.