

Construction Industries

CONDITION MONITORING

**Comprehensive solutions for protecting
and improving your equipment's health.**



WE MEET YOU WHERE YOU ARE

No matter the size or makeup of your fleet, the number of job sites you work or your operation's geographic footprint, Caterpillar and your Cat® dealer have proactive condition monitoring solutions to get you from where you are to where you want to be.

Need a full-time partner or help with business challenges?

Get a team of experts to monitor your fleet 24/7 with Remote Fleet Monitoring or to help you meet customized goals for productivity, efficiency, safety and more with Job Site Solutions (JSS).

Want to know experts have your back?

Cat dealers are experts in helping you keep your equipment easy to own and ready to work with Customer Value Agreements (CVAs) that include dealer condition monitoring, genuine Cat parts, planned maintenance and much more.

Have your own people but need fleet-wide technology?

Our cutting-edge condition monitoring tools are available if you have your own analysts to review equipment data and reports, and technicians to provide service. Your Cat dealer will stand ready to provide support when needed, where desired.

Mixed fleet?

No problem. Condition monitoring services are designed to work with any make or model of equipment, whether owned, rented or leased.

BUILDING BLOCKS OF CONDITION MONITORING

Inside, you'll learn what elevates our condition monitoring services above the rest:

Five Proven Foundational Elements



Game-Changing Technology



Customization for the Way You Work



ENHANCE YOUR OPERATION

A holistic condition monitoring program can help you achieve your lowest total cost of equipment ownership, while enhancing productivity, efficiency, safety—and your bottom line.



Achieve Business Goals

- Meet project commitments and deadlines
- Forecast costs and profit margins



Control Costs

- Eliminate idle time
- Spot and fix problems early



Improve Operations

- Schedule maintenance
- Allocate equipment



Reduce Risk

- Track wide-ranging machine telematics
- Get operations recommendations



Manage People

- Allocate service personnel
- Reward good, safe performance



WE'RE EXPERTS IN YOUR INDUSTRY

Caterpillar and Cat dealers have condition monitoring capabilities and experience across many industries.

- CONSTRUCTION
- DEMOLITION
- FORESTRY
- LANDSCAPING
- PAVING
- QUARRY AND AGGREGATES
- SCRAP RECYCLING
- WASTE MANAGEMENT

CONDITION MONITORING FOUNDATIONAL ELEMENTS

Caterpillar and Cat dealer programs that include condition monitoring are built on a solid foundation of five key elements to provide real-time information and dealer expert insights—based on knowledge of your equipment and your business—to bring it all together.



FLUID ANALYSIS



Cat® S•O•SSM Services Fluid Analysis

Like lab tests for your equipment, Cat S•O•S fluid analysis for oil, coolant and fuel can spy small issues before they become big repairs.

- **Choose which compartments to sample** and who draws the samples—your dealer or your technicians—for each asset.
- **Receive results quickly**, usually within 24 hours of sample receipt at one of our proprietary labs around the globe.
- **Access fluid analysis results and recommendations** in your VisionLink® account.
- **Take advantage of expert insights** to reap the benefits of lower equipment owning and operating costs.

(More details on S•O•S fluid analysis follow.)

INSPECTIONS



Cat Inspect for Visual Equipment Review

Whether an operator's daily examination or a step in a technician's service process, frequent equipment inspections help identify concerns that could lead to unscheduled downtime.

The Cat Inspect app lets you assign, complete and review inspections for any equipment with one easy-to-use app—no more paper.

- **Auto-populate the app** with your latest fleet information when you search by equipment family or serial number prefix.
- **Get updates with each new inspection** to provide current information for review, retention, sharing and printing.
- **Use provided inspection forms** or customize your own.
- **Save images, videos and comments** for quick reference.
- **Easily access all of your results in VisionLink** wherever you are.

ELECTRONIC DATA



Data Analysis for Insights and Actions

Equipment data is just numbers until it's analyzed and interpreted. Here's how those numbers make the journey to helpful outcomes:

- **Equipment sensors** collect data on temperature, fuel burn, location and more.
- **Cat Product Link™ hardware** collects the data and prepares it for transmission.
- **Data is transmitted** using satellite, cellular and/or Bluetooth technologies.
- **Data flows into the VisionLink platform** where it can be analyzed for insights that lead to important actions to keep your equipment healthy and on the job.

(More details on Product Link and VisionLink follow.)

SITE CONDITIONS



Expertise to Improve Your Operation

Using a structured site condition assessment, Cat experts evaluate factors that could affect your long-term equipment health, including operation and maintenance practices, local site conditions and overall climate/seasonal factors.

For your whole fleet or job site, real-time monitoring of your site conditions can help:

- **Control costs** by repairing before failure and limiting downtime.
- **Improve performance** by allocating assets more efficiently at each site.
- **Reduce risk** by preventing incidents related to equipment failure or unsafe conditions.
- **Manage people** by identifying opportunities for operator training and safety.
- **Make informed decisions** related to maintaining and restoring equipment to optimal condition.

REPAIR HISTORY



Optimization Across the Equipment Lifecycle

When you rely on your Cat dealer for service, these experts help you get the most from your equipment over the long haul by understanding your equipment history, including:

- **Optimal time to schedule** maintenance, repairs and rebuilds.
- **Detailed service reports** tracking repair history.
- **Precise records of parts** used in each service event.
- **Labor type and duration** for each repair.
- **Service Meter Unit (SMU) data and event intervals** across the lifecycle.



EXPERT INSIGHTS

These foundational condition monitoring elements are elevated by an additional element: the human one. Cat Condition Monitoring Analysts (CMAs) evaluate information and share recommendations that factor in your business goals and much more.




SPOTLIGHT ON CAT S•O•S FLUID ANALYSIS


As a key element of any condition monitoring program, regular S•O•S fluid analysis can catch small problems before they become big costs, helping you maximize productivity and meet your business goals. Rely on the expert analysts at one of our 90+ labs to check your equipment fluids for signs of equipment wear, contamination and more, with results quickly delivered to your email and VisionLink account.





TOP REASONS TO CHOOSE CAT S•O•S FLUID ANALYSIS OVER OTHER OPTIONS


We know you have options in fluid analysis for your equipment. So what makes Cat S•O•S Services your best choice?


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Enjoy peace of mind. Rest easy! Your S•O•S reports and dealer team will warn you of developing equipment health issues and alert you to act if needed.
- 

Sample your way. Choose the S•O•S sampling approach that works best for you: dealer drawn or DIY.
- 

Nobody knows Cat like we do. The S•O•S fluid analysis process is built by Caterpillar scientists, backed by its product engineers and supported by Cat dealers.
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We predict the unpredictable. We provide deep insights into your equipment health using a wide array of fluid tests and our complete Cat product knowledge. With more than 8 million samples tested globally each year, our vast database gives us the power to predict issues you can act on early, saving time, money and hassle.
- 

Enjoy the 360-degree view. Your fluid analysis report is integrated with other vital data—giving you a comprehensive view of your equipment health, performance, location and more. And with our easy-access global software, you can seamlessly sample with any of our labs around the world and get a complete history.
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Cover your entire mixed fleet. Get easy-to-understand oil, coolant and diesel fuel analysis reports for all your Cat and other equipment, including non-commercial equipment and vehicles—regardless of the fluid brands you use.



USE CAT INSPECT AND QR-CODED BOTTLES TO MAKE IT EASY



GAME-CHANGING TECHNOLOGY

VISIONLINK TURNS DATA INTO ACTIONABLE INSIGHTS

This cloud-based platform for desktop, tablet and mobile puts actionable fleet management data at your fingertips. VisionLink translates data from across all of your Product Link-enabled equipment into easy-to-understand insights, driving benefits to your fleet—and your bottom line



Expands visibility with actionable data insights for all equipment, regardless of make or model, whether owned, rented or leased.



Tracks location, operating hours, fuel levels, equipment health and overall utilization, getting reports and scheduling maintenance your way in the customizable user interface.



Maximizes uptime by monitoring fault codes, fluid analysis, inspection due dates and more.



Offers parts ordering and service scheduling within the platform.



CONNECT YOUR ASSETS WITH PRODUCT LINK

Today's robust condition monitoring is made possible by Product Link hardware included on each new asset and available for retrofit on older or other manufacturer's equipment. Product Link wirelessly connects you, your Cat dealer and, where applicable, your Caterpillar consultants, to your equipment, providing valuable insights into how each machine or fleet is performing.

Telematics, such as location, hours, fuel usage, productivity, idle time and diagnostic codes, support timely, fact-based decisions to maximize efficiency. They also help improve productivity and lower the cost of owning and operating your fleet.

- **Tracks asset data and utilization**, with scalable features that enable increasing data collection as needed.
- **Installs and integrates with ease** in a few easy steps in just minutes.
- **Allows cellular, satellite and Bluetooth connectivity** options for the best match with your communication needs.
- **Pairs with the VisionLink subscription of your choice** for rich data accessible anytime, anywhere.



SELECT THE VISIONLINK PLAN LEVEL ALIGNED WITH YOUR EQUIPMENT AND REPORTING NEEDS



CONNECT

Daily reporting of core telematics data so you can answer important questions about your Cat assets and better control your operating costs.

- **Increase efficiency** using daily information about asset location and hours.
- **Lower fuel costs** by tracking fuel utilization and working vs. idle time.
- **Reduce unplanned downtime** with maintenance reminders and diagnostic alert codes.
- **Estimate exhaust CO₂ emissions** in expanded reports.

CONNECTPro

Includes all Connect features, plus more robust monitoring data for Cat assets—and other makes and models if you have a mixed fleet.

- **Get instant updates** by requesting the hours and location of an asset immediately.
- **Avoid running out of fuel** by tracking fuel and diesel exhaust fluid levels.
- **Monitor machine events** with customizable inputs.
- **Control site safety** with remote disable capability.
- **Maximize uptime** by tracking engine start/stop time.

PERFORMANCE

Includes all ConnectPro features, plus higher-frequency reporting options and more comprehensive data.

- **Optimize site efficiency** through more frequent data reporting review and response.
- **Lower operating costs** by tracking real-time engine and idle start/stop.
- **Utilize equipment more effectively** with advanced analysis and mapping.
- **Plan maintenance** with real-time critical and non-critical alerts.

PERFORMANCE Pro

Includes all Performance features, plus the most comprehensive data updated every 10 minutes via cellular connection.

- **Increase site productivity** through more frequent data analytics and reporting that integrate multiple machine data sets from your entire site.
- **Improve results tracking** with precise payload, location and time details while developing cycle segmentation data for analysis.
- **Continuously improve operations** when you integrate productivity Key Performance Indicators (KPIs) and benchmarks into data analysis and progress reporting.

PRODUCTIVITY

Our most robust offering, including summarized machine telematics and job site data from all of your equipment for big-picture reporting.

- **Access actionable performance data anywhere** via desktop, tablet or mobile, on or off the job site.
- **Analyze performance**, such as material types and tonnage moved, fuel costs and machine hours, then compare productivity by time period, shifts and more.
- **Improve productivity** using dashboards to detect and address high idle time, redeploy fleet based on hourly utilization updates and use data to determine optimum distances between cycle segments.
- **Increase profits** when you identify and improve instances of high fuel burn, assess utilization levels to determine when to buy new, used or rent, and pull historical data for more accurate bids on future products.



VISIONLINK SUPPORT

Make the most of your VisionLink subscription. Ask your dealer about:

- **Cat Know Your Fleet tool** for technology and VisionLink subscription recommendations based on your top business challenges.
- **Assistance customizing your VisionLink** dashboards and reports to support your business needs.
- **VisionLink training** for your whole team or for your lead trainer(s) to share with others.

CUSTOMIZE FOR THE WAY YOU WORK

Which Condition Monitoring Approach Is Right for You?

To help you identify the condition monitoring approach that's right for you and your business, we get to know your operation, then work with you to determine the level of support that matches your needs. From a technology-focused self-service approach to consulting on custom job site challenges, Caterpillar and your Cat dealers have a condition monitoring solution to support the way you work, including customized combinations of the offerings noted.

Technology Solutions

Customer Value Agreements

Remote Fleet Monitoring

Job Site Solutions

TECHNOLOGY SOLUTIONS

Caterpillar and Cat dealer condition monitoring programs are built on a foundation of equipment connectivity made possible by Product Link equipment hardware and VisionLink cloud-based fleet management platform. Together, these powerful tools track asset and utilization data and translate it into insights that can help improve efficiency and boost profitability across all your assets.

Data from Cat S•O•S fluid analysis of oil, coolant and fuel and equipment inspections performed using Cat Inspect also flows into VisionLink for a complete picture of each asset's health.

This solution may be right for your business if you have:



A large operation with fleet manager(s), data analyst(s) and service technicians who can leverage these powerful technology applications



A small, tech-savvy owner/operator business

The key? Having experts—yours or ours—to turn insights into actions designed to lower the total cost of your equipment ownership.



BRAKE REPAIR BEFORE FAILURE



As a customer's fleet manager was reviewing VisionLink insights, she saw a brake sensor alert on a high-use machine. It indicated the brake pressure wasn't recovering as quickly as expected after the operator engaged the brakes—and that recovery time had been diminishing over the previous two months.

Based on that data trend, the manager ordered a brake inspection. When a leak was found, the maintenance team performed the brake repair before it turned into brake failure, preventing a potential safety issue and excess downtime, while saving on repair costs.

CUSTOMER VALUE AGREEMENTS (CVAs)

CVAs are designed to extend equipment life and maximize your investment by providing hassle-free ownership and maintenance, security of expert dealer support and peace of mind from equipment health management. Your dealer offers many different CVAs to choose from and may customize one to best fit your needs.

To receive dealer condition monitoring, select a CVA that includes these elements:

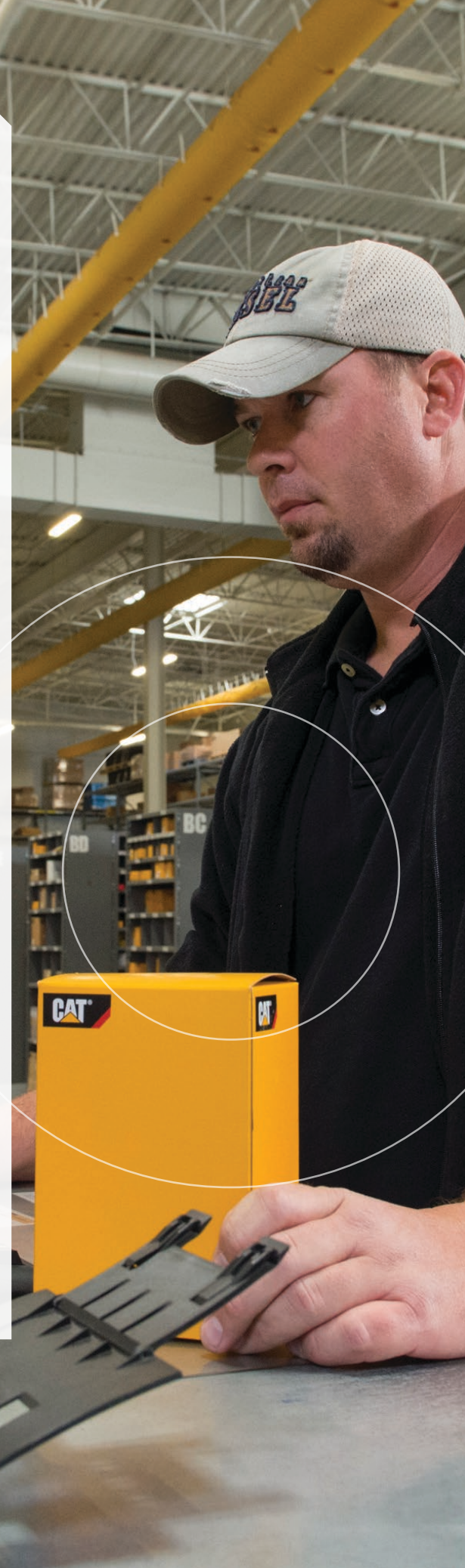
- VisionLink subscription
- S•O•S fluid analysis
- Equipment inspections
- CMA insights and recommendations that take into account data and insights from the above, plus knowledge of how and where you work and your equipment repair history
- Dealer reminders when PM events are due

In addition, CVAs include:

- Genuine Cat parts and fluids
- Option of dealer experts handling planned maintenance and covered repairs
- Equipment Protection Plan (EPP) (for new equipment) or critical component protection (for equipment you own) or other custom coverage
- Services Commitment for parts availability and service response
- Cat Certified Maintained eligibility (where available)

This solution may be right for your business if you want:

- Peace of mind that your equipment is supported by experts
- Help to keep track of PM timing
- Skilled technicians performing your maintenance and/or repairs
- Cat Services Commitment guarantees you only get with a CVA
- Cat Certified Maintained designation for your equipment at resale



THE CVA SERVICES COMMITMENT ADVANTAGE

Cat dealer CVAs qualify for these valuable guarantees:



1. Parts Availability

- Next-day maintenance parts
- Second-day repair parts (CVAs with dealer labor only)
- If a commitment is not met, receive Cat Prepaid Credits for the invoiced amount, up to \$1,000



2. Service Response

CVAs that include dealer labor also qualify the equipment for:

- Same-day confirmation of scheduled service
- Technician on site as soon as the second day
- Diagnostics before arrival
- Timely progress updates



SECURITY OF EXPERT DEALER SUPPORT



Miguel Allen, owner of Texas-based Allen Concrete, has grown his operation from a few machines up to a 90-machine outfit in the greater El Paso area. With a CVA on every Cat machine he owns, he views the dealer support he receives as a key differentiator. "It is a relationship with your Cat dealer," Allen said. "You have an expert telling you that your piece of equipment is okay."

REMOTE FLEET MONITORING

What if you could keep every asset in your fleet operating at the highest level, every minute of every day, without adding personnel? That's what Remote Fleet Monitoring helps make possible. Your Cat dealer and the Caterpillar Fleet Monitoring Center (FMC) team do the heavy lifting—keeping on top of asset performance and health—so you can focus on running your business.

When we see anomalies or areas for improvement, we let you know proactively. The result? You make informed decisions based on real-world data, driving bottom-line benefits.

Control Costs

- Schedule repairs before failure, limiting expensive downtime.
- Perform maintenance when it's needed, not too soon or too late.
- Extend component life by tracking condition, not hours.
- Identify areas where you can reduce idle time and fuel burn.

Improve Performance

- Allocate assets more efficiently.
- Make changes to your site that boost production and efficiency.
- Determine the ideal time to upgrade or replace older equipment.

Reduce Risk

- Avoid safety incidents resulting from equipment or component failure.
- Identify unsafe situations or risky behavior before accidents occur.
- Monitor fatigue and distraction in the cab (requires the Driver Safety System).

Manage People

- Spot opportunities to train operators to work more accurately or safely.
- Free up your internal resources for other jobs.
- Catch and fix human errors before they lead to equipment issues.

This solution may be right for your business if you want:

- Deeper insights and actionable recommendations from your equipment and site data
- Support managing assets across one or more job sites
- A single source to provide reminders about PM events
- Optimized fluid change intervals and maximized component life
- Help allocating and optimizing human and equipment resources
- Enhanced safety and reduced risk
- Better budget predictability and improved cashflow

CATERPILLAR FLEET MONITORING CENTER TEAM

The amount of data generated by today's assets and sites can be overwhelming. But who has the time or expertise to reap the valuable insights that data holds? Specialists at the FMC and dealerships around the world do.

Our team is made up of industry experts with years of hands-on experience working on equipment and job sites. They know how to turn a wrench, don't mind getting their boots dirty and get the greatest satisfaction out of helping you spot and stop problems before they happen. They also have the digital tools and training to review and interpret your data, including:

- Telematics information, such as asset utilization, fuel consumption, work vs. idle time and more
- Inspection results, including Cat Inspect data
- Fluid analysis results for oil, coolant and fuel
- Maintenance and repair histories
- Site assessments, including Site Operations and Maintenance Advisor (SOMA) studies
- Safety events, including fatigue and distraction incidents

Our experts will recommend specific actions you can take to cut costs, reduce downtime, improve performance and enhance safety. No matter your industry or brand of equipment, you can count on Caterpillar and dealer condition monitoring experts to help you make informed decisions that boost your productivity and profits.



\$0 SPENT ON NEW TRUCKS



A customer operating a truck fleet wasn't achieving desired production levels and planned to purchase more trucks. An FMC expert reviewed payload data and discovered the existing trucks were only being loaded to 60 percent capacity. The customer spent a little time training operators to load the current fleet fully—no additional trucks needed.

In a similar situation, another customer was using three trucks to move material. Telematics data analyzed by the FMC team indicated only two trucks were required for the work. The customer reassigned the third truck to another job with no loss in production.

In both cases, the FMC team analyzed data, gleaned insights and recommended actions that enhanced fleet productivity with no new equipment investment.



CAT JOB SITE SOLUTIONS

Cat Job Site Solutions is not about selecting a single product, technology or process. It's about bringing together the expertise of Cat dealers and Caterpillar teams to find ways to achieve a measurable goal. Whether supporting an individual machine, site, system or complete enterprise, our focus is to maximize the value of your investment so you can focus on your business.

We provide solutions that drive operational efficiencies for your site through:

- Proprietary technology and fleet knowledge
- Global data access and analysis
- Remote monitoring
- Application and technical expertise

Cat Job Site Solutions works with your local Cat dealer to provide a strategy, including intended outcomes, and build a plan for action that meets the unique challenges of your business. Then we'll help you execute it, working with you to solve problems and be an ally in your efforts.

We focus on your success, leveraging our capabilities to help you get the business results you're targeting.

JOB SITE SOLUTIONS

are customized, outcome-based solutions designed to overcome challenges and lead to sustainable operational improvements.



YOUR JOB SITE SOLUTIONS TEAM

What if you could focus on what you do best—while experts handle the rest? From your biggest operational challenges to daily issues that slow production, drive up costs, reduce machine availability and impact safety, your Job Site Solutions team has you covered.

Leveraging the global Cat dealer network and Caterpillar expertise, Job Site Solutions delivers customized solutions to optimize your operation. By analyzing production, equipment, safety, sustainability and financials, we identify and implement strategies that cut waste, reduce risk and maximize productivity and profit.

Reducing Costs and Improving Productivity

A cement company producing about 8 million tons of cement a year was facing significant challenges:

- Rising repair costs reducing machine availability
- Low fleet productivity leading to high overtime and employee burnout
- Limited budget for new equipment

The customer was interested in purchasing a new fleet of Cat 785 trucks. To better understand the underlying company and site challenges, the Cat dealer brought in a Cat Job Site Solutions team to conduct a site assessment with an eye to these challenges.

The team helped the company overcome its business challenges and optimize its fleet size with this multi-part solution:


- Full fleet management services
- Fleet evaluation selection
- Equipment lifecycle planning
- Investment in mobile equipment fleet
- Predictable site cost structure
- Maintenance and repair execution
- Operator performance management



The results delivered impressive savings:

- 20% reduction in haul fleet size
- Lower fuel and overtime expenses
- Increased machine availability and productivity

\$750,000+
ANNUAL SAVINGS 

 **34% IMPROVEMENT**
IN TONS MOVED PER HOUR



LET'S TALK

Condition monitoring is not a one-size-fits-all proposition. Together, we can identify the elements and build the approach that's right for you, your equipment and your goals.

Whether it makes the best business sense to include condition monitoring as part of equipment CVAs, a remote fleet management approach or a completely custom solution to your job site challenges, we're here to help. Just need the technology? We have you covered there, too.

To learn more or begin a discussion, reach out to your Cat dealer representative or visit www.Cat.com to find the dealer nearest you.

#PEDJ1504

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