

TrackerRMS



Asset Health - Risk Management Solution

*“Catch the Problem Before It
Catches You”*



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The PdM Challenge: Road Blocks

What road block lies in your path to a successful PdM program?

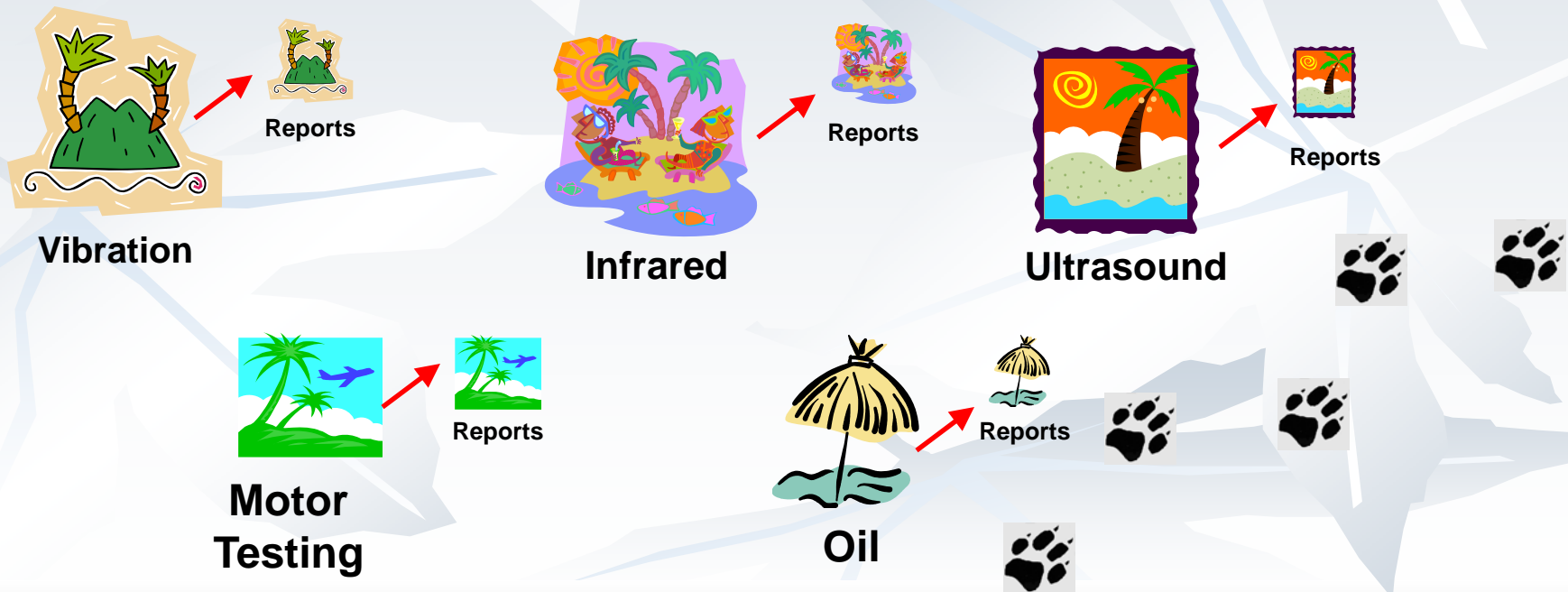


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The PdM Challenge: Lots of Data

- ❖ Each PdM technology gathers lots of data, analyzes the data, and reports on the findings.



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The PdM Challenge: Data Integration

- ❖ Database integration is usually done manually to summarize the results from multiple PdM technologies.
- ❖ A fixed and unlinked report is then generated and distributed.



Reports



Reports



Reports



Reports



Reports



Plant	432 Total Assets	Infrared	Ultrasound	Motor Circuit Testing	Vibration	Oil Analysis	
Asset Health Report							
Assets with problems	35	21	2	12	12	12	
Assets on the watch list	16	4	0	6	20	6	
Assets with no problems	334	325	200	92	118	92	
385 Assets Tested		350	202		110	150	
Equipment Name	Asset ID	Status	Infrared	Ultrasound	Motor Circuit Testing	Vibration	Oil Analysis
North Tower Breaker	A62225D12	Red	02/20/04				
Electrical Room WT L3-3	A62225D13	Green	02/20/04				
Electrical Room WT L2-1	A62225D14	Green	02/20/04				
Main Chill Water Pump Motor	A62225D40	Yellow	02/20/04		1/5/2005	1/12/2004	2/3/2004
Breaker Panel LV-1	A62225D15	Green	02/20/04				
Lighting Panel WT L1-4	A62225D16	Green	02/20/04				
Main Breaker	A62225D17	Green	02/20/04				
Fire pump 3	A62225D18	Red				1/12/2004	1/20/2004
Exh Fan 1	A62225D19	Green	02/20/04				
Pad Mount TSFR 325-453	A62225D20	Green					
Compressor #254	A62225D21	Green		3/2/2005			
Compressor #255	A62225D22	Red	02/20/04	3/2/2005			
Electrical Room WT L2-2	A62225D23	Green	02/20/04				
Lighting Panel WT L1-3	A62225D24	Green	02/20/04				
Electrical Room WT L3-2	A62225D25	Green	02/20/04				
Distr. Panel 1A Breaker	A62225D26	Green	02/20/04				
Pole 125	A62225D27	Green	03/02/05				
Pole 555-808-3421	A62225D28	Green	01/18/05				
Sup Fan 1	A62225D29	Green	01/18/05				



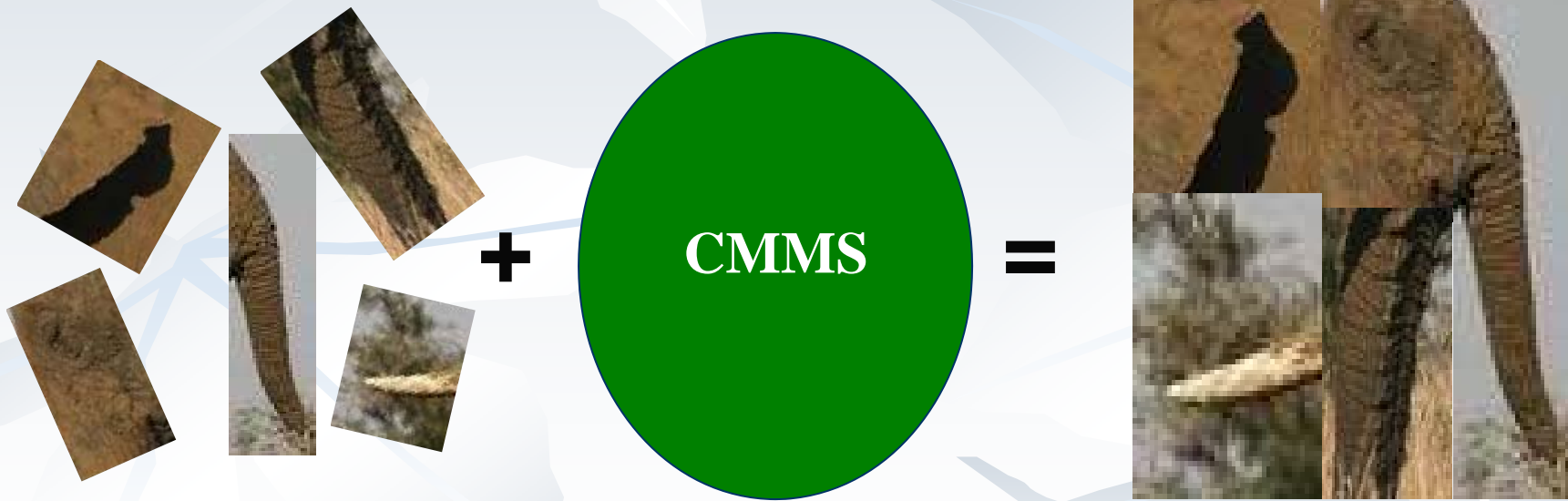
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Consistent Inventory Identification with CMMS

Is your PdM testing giving you a complete or accurate picture?

Without accurate and consistent inventory Identification the actual Big Picture may be hard to interpret.



Individual PdM
Technologies

Asset Inventory

Consolidated Technology
Report

Is this complete or Accurate?



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Consistent Inventory Identification with CMMS



The Big Picture “A”

**Which Result
Do You
Prefer?**



OR

The Big Picture “B”

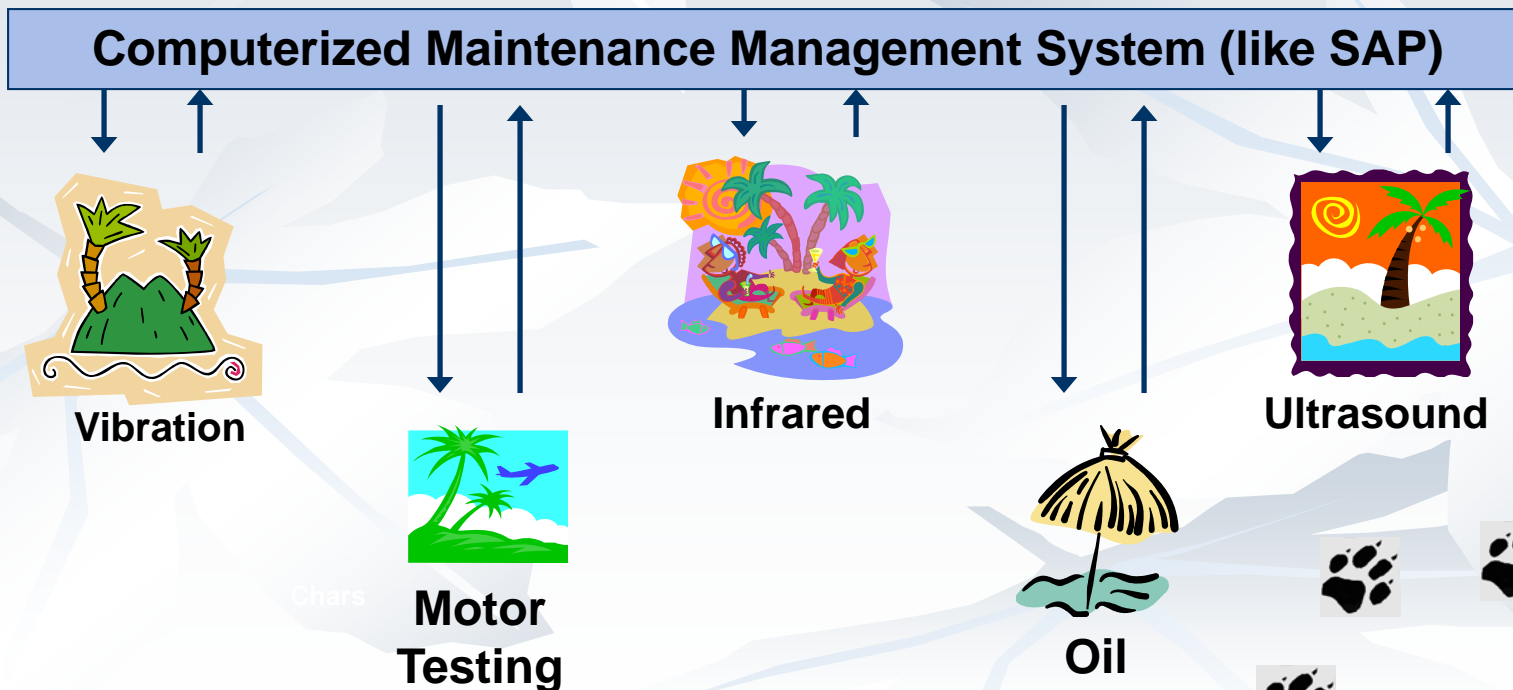


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The PdM Challenge: CMMS Integration

- ❖ Integration with CMMS component data enhances asset tracking across all PdM technologies and can reduce errors and confusion.

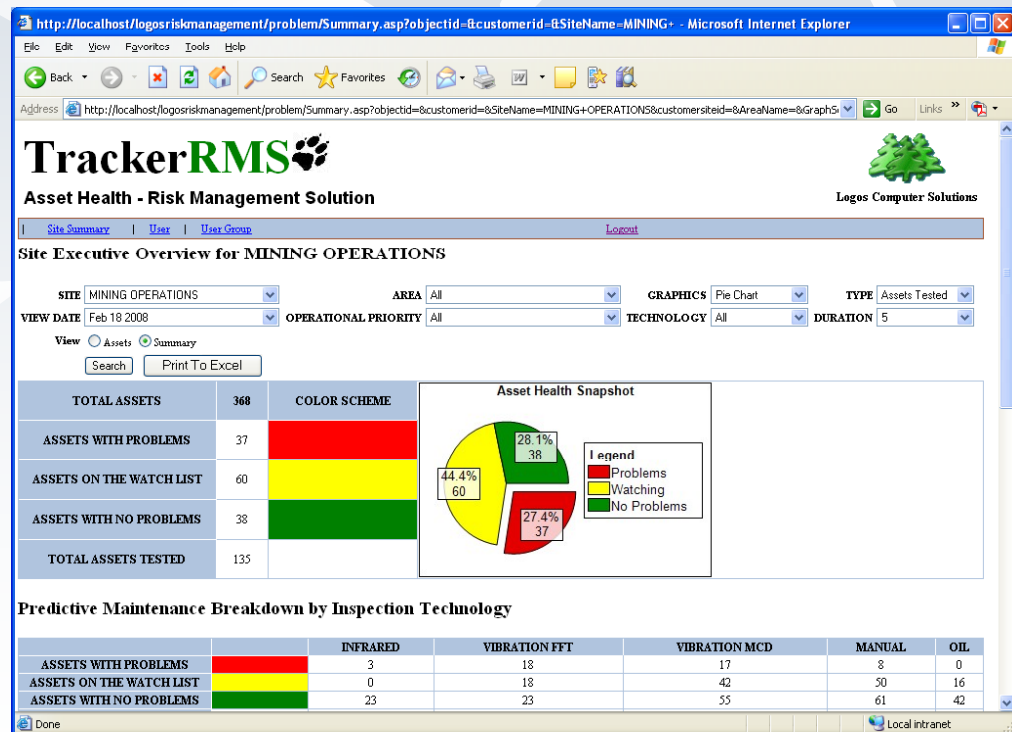


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Manage your Risk by Knowing what is happening to all your equipment:

- Minimize risk to the plant by automatically summarizing all PdM technologies for all assets in one summary overview.

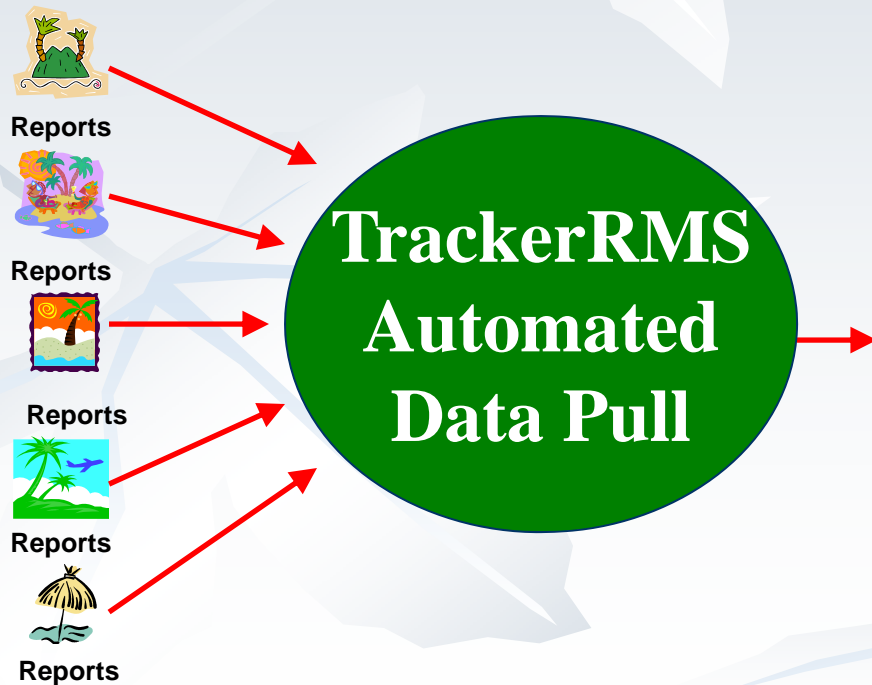


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Automatic Daily Data Stream Integration

- + Automated Database Integrations are rolled up and summarized with results from multiple PdM technologies.



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Site Executive Overview for MINING OPERATIONS

SITE: MINING OPERATIONS AREA: All GRAPHICS: Pie Chart TYPE: Assets Tested
VIEW DATE: Feb 18 2008 OPERATIONAL PRIORITY: All TECHNOLOGY: All DURATION: 5

View: Assets Summary Search Print To Excel

Metric	Value	Color Scheme
TOTAL ASSETS	368	
ASSETS WITH PROBLEMS	37	Red
ASSETS ON THE WATCH LIST	60	Yellow
ASSETS WITH NO PROBLEMS	38	Green
TOTAL ASSETS TESTED	135	

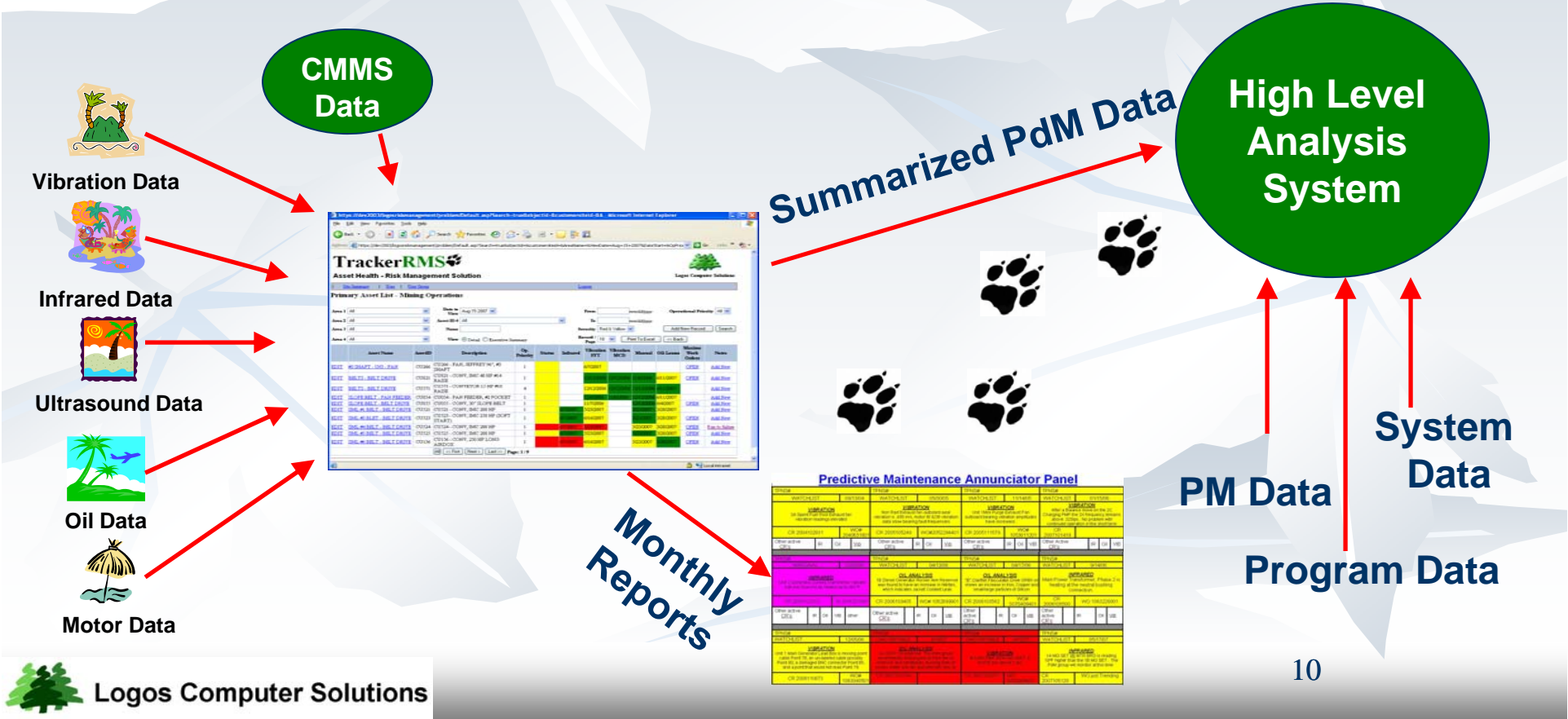
Asset Health Snapshot

Metric	Infrared	Vibration FFT	Vibration MCD	Manual	Oil
ASSETS WITH PROBLEMS	3	18	17	8	0
ASSETS ON THE WATCH LIST	0	18	42	50	16
ASSETS WITH NO PROBLEMS	23	23	55	61	42

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Rollup PdM Data generates daily or monthly reports and can send data to other high level analysis systems.

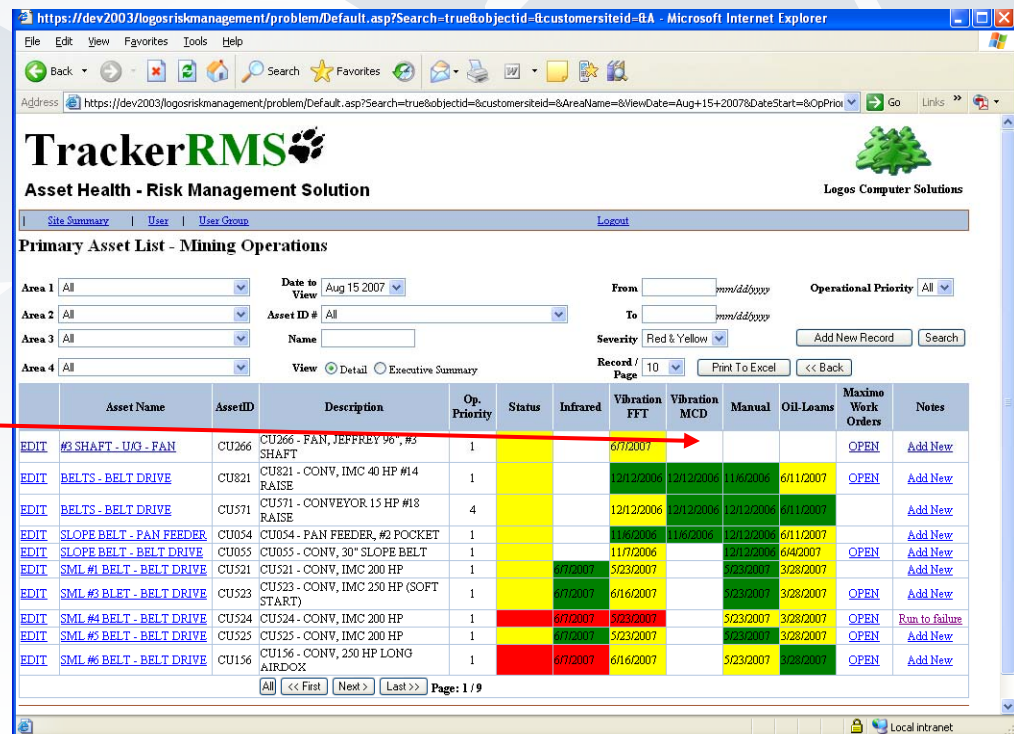


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Manage your Risk by Knowing what is happening to all your equipment:

- Optimize your PdM program by viewing all PdM technologies on one screen. Quickly see what is being tested and what is not.



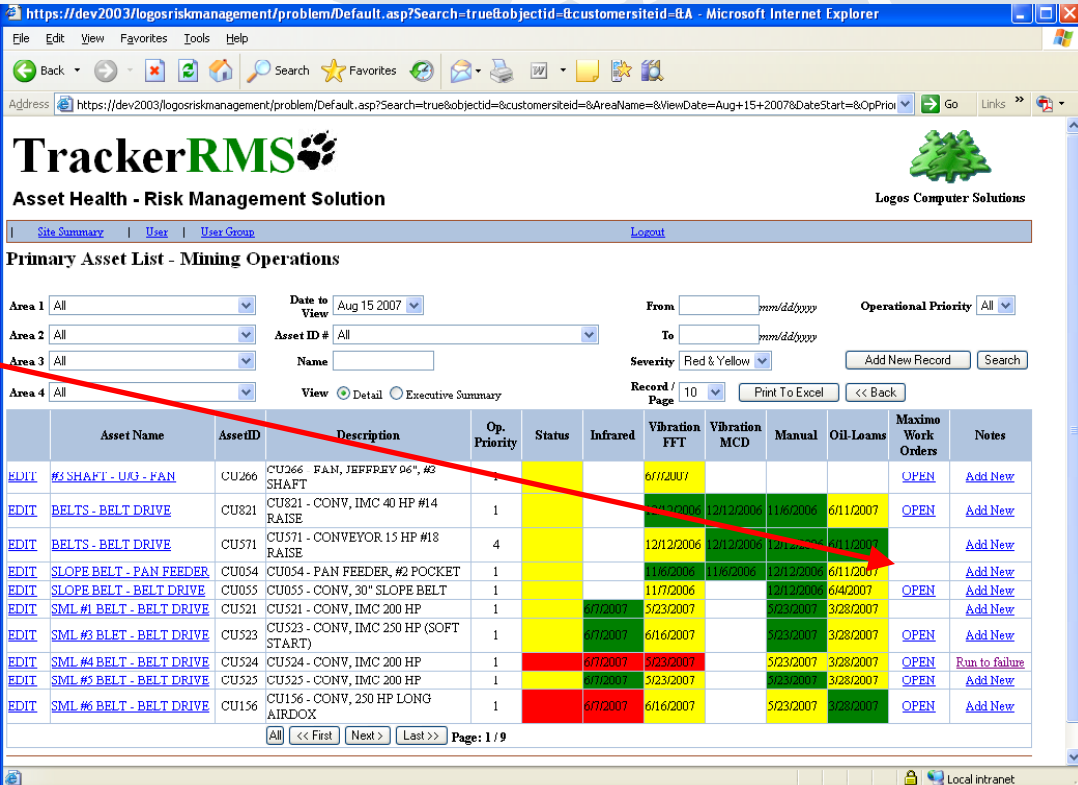
	Asset Name	AssetID	Description	Op. Priority	Status	Infrared	Vibration FFT	Vibration MCD	Manual	Oil Leaks	Maximo Work Orders	Notes
EDIT	#3 SHAFT - U/G - FAN	CU266	CU266 - FAN, JEFFREY #6 , #5 SHAFT	1	Yellow		6/7/2007				OPEN	Add New
EDIT	BELTS - BELT DRIVE	CU821	CU821 - CONV, IMC 40 HP #14 RAISE	1	Yellow		12/12/2006	12/12/2006	11/6/2006	6/11/2007	OPEN	Add New
EDIT	BELTS - BELT DRIVE	CU571	CU571 - CONVEYOR 15 HP #18 RAISE	4	Yellow		12/12/2006	12/12/2006	12/12/2006	6/11/2007		Add New
EDIT	SLOPE BELT - PAN FEEDER	CU054	CU054 - PAN FEEDER, #2 POCKET	1	Yellow		11/6/2006	11/6/2006	12/12/2006	6/11/2007		Add New
EDIT	SLOPE BELT - BELT DRIVE	CU055	CU055 - CONV, 30" SLOPE BELT	1	Yellow		11/7/2006		12/12/2006	6/4/2007	OPEN	Add New
EDIT	SML #1 BELT - BELT DRIVE	CU521	CU521 - CONV, IMC 200 HP	1	Yellow	8/7/2007	5/23/2007		3/23/2007	3/28/2007	OPEN	Add New
EDIT	SML #3 BELT - BELT DRIVE	CU523	CU523 - CONV, IMC 250 HP (SOFT START)	1	Yellow	8/7/2007	6/16/2007		5/23/2007	3/28/2007	OPEN	Add New
EDIT	SML #4 BELT - BELT DRIVE	CU524	CU524 - CONV, IMC 200 HP	1	Red	8/7/2007	5/23/2007		5/23/2007	3/28/2007	OPEN	Run to failure
EDIT	SML #5 BELT - BELT DRIVE	CU525	CU525 - CONV, IMC 200 HP	1	Yellow	8/7/2007	5/23/2007		3/23/2007	3/28/2007	OPEN	Add New
EDIT	SML #6 BELT - BELT DRIVE	CU156	CU156 - CONV, 250 HP LONG AIRDOX	1	Red	8/7/2007	6/16/2007		5/23/2007	3/28/2007	OPEN	Add New

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Manage your Risk by Knowing what is happening to all your equipment:

- Do your identified problems have a work order created to correct the problem?



The screenshot displays the TrackerRMS web application interface. At the top, there is a navigation bar with links for Site Summary, User, User Group, and Logout. Below this is the 'Primary Asset List - Mining Operations' section. The interface includes several filters: Area (All), Date to View (Aug 15 2007), Asset ID # (All), Name, and Severity (Red & Yellow). There are also buttons for 'Add New Record' and 'Search'. A table of assets is shown with columns for Asset Name, AssetID, Description, Op. Priority, Status, Infrared, Vibration FFT, Vibration MCD, Manual, Oil-Loans, Maximo Work Orders, and Notes. A red arrow points from the text 'Do your identified problems have a work order created to correct the problem?' to the 'Maximo Work Orders' column of the table.

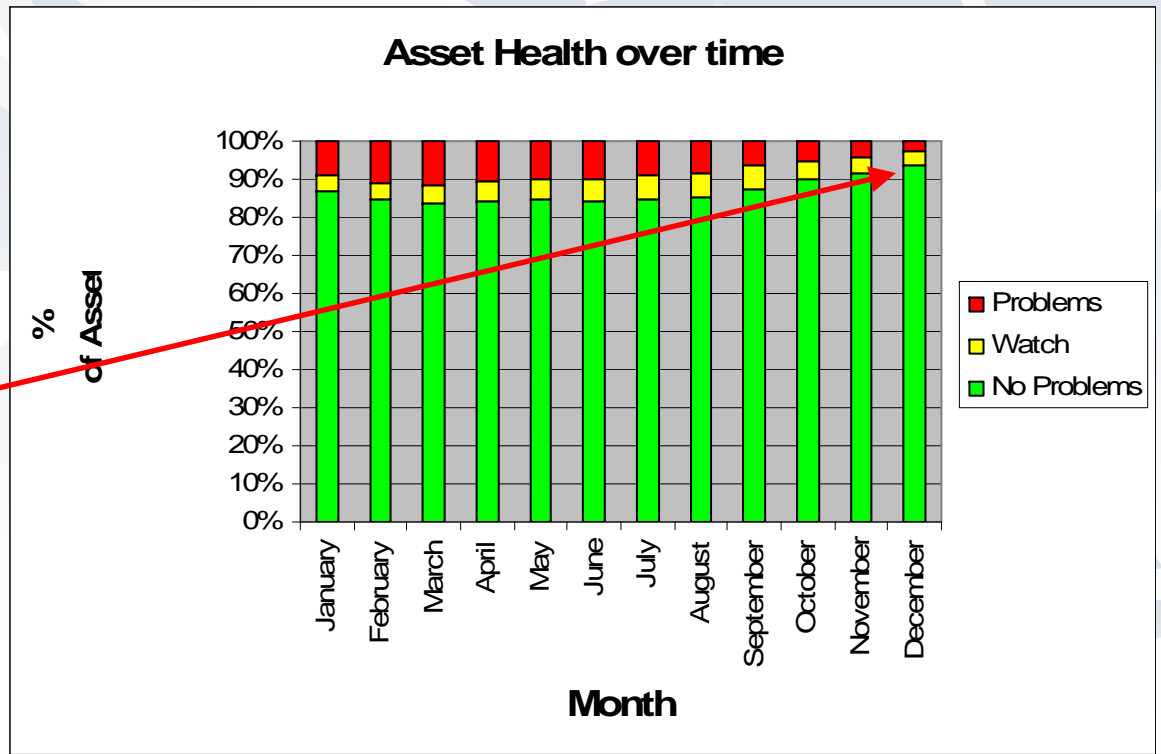
Asset Name	AssetID	Description	Op. Priority	Status	Infrared	Vibration FFT	Vibration MCD	Manual	Oil-Loans	Maximo Work Orders	Notes
#3 SHAFT - UG - FAN	CU266	FAN, JEFFREY 06", #3 SHAFT				6/7/2007				OPEN	Add New
BELTS - BELT DRIVE	CU821	CU821 - CONV, IMC 40 HP #14 RAISE	1			12/12/2006	11/6/2006	11/6/2006	6/11/2007	OPEN	Add New
BELTS - BELT DRIVE	CU571	CU571 - CONVEYOR 15 HP #18 RAISE	4			12/12/2006	12/12/2006	12/12/2006	8/11/2007		Add New
SLOPE BELT - PAN FEEDER	CU054	CU054 - PAN FEEDER, #2 POCKET	1			11/6/2006	11/6/2006	12/12/2006	6/11/2007		Add New
SLOPE BELT - BELT DRIVE	CU055	CU055 - CONV, 30" SLOPE BELT	1			11/7/2006		12/12/2006	6/4/2007	OPEN	Add New
SML #1 BELT - BELT DRIVE	CU521	CU521 - CONV, IMC 200 HP	1			6/7/2007	5/23/2007	5/23/2007	3/28/2007		Add New
SML #3 BELT - BELT DRIVE	CU523	CU523 - CONV, IMC 250 HP (SOFT START)	1			6/7/2007	6/16/2007	5/23/2007	3/28/2007	OPEN	Add New
SML #4 BELT - BELT DRIVE	CU524	CU524 - CONV, IMC 200 HP	1			6/7/2007	5/23/2007	5/23/2007	3/28/2007	OPEN	Run to failure
SML #5 BELT - BELT DRIVE	CU525	CU525 - CONV, IMC 200 HP	1			6/7/2007	5/23/2007	5/23/2007	3/28/2007	OPEN	Add New
SML #6 BELT - BELT DRIVE	CU156	CU156 - CONV, 250 HP LONG AIRDOX	1			6/7/2007	6/16/2007	5/23/2007	3/28/2007	OPEN	Add New

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Manage your Risk by Knowing what is happening to all your equipment:

- View and Trend the “Asset Health” of your plant.
- Here is 94% equipment availability.



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Manage your Risk by Knowing what is happening to all your equipment:

- View high level summaries or drill down to actual inspection reports.

MINING OPERATIONS Predictive Maintenance Breakdown by Inspection Technology

TOTAL ASSETS	368	INFRARED	VIBRATION FFT	VIBRATION MCD	MANUAL	OIL
ASSETS WITH PROBLEMS	32		3	26	1	0
ASSETS ON THE WATCH LIST	51		0	48	14	19
ASSETS WITH NO PROBLEMS	53		23	28	38	32
TOTAL ASSETS TESTED	136		26	102	53	51

Inspection History

Inspection No.	Date Inspected	Test Status	Measured Temp	Threshold Temp	Ambient Temp	Status Note
1001	2/18/2004	TESTED	116 F	150 F	75 F	F
1002	2/19/2004	NTIC	128 F	150 F	77 F	F
1003	2/19/2004	TOT	147 F	150 F	77 F	F
1004	1/19/2005	TOT	165 F	150 F	77 F	F

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View SAP or other CMMS repair status by equipment:

Mosaic Risk Manager - Maximo Work Orders - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address <https://dev2003/logosriskmanagement/problem/WorkOrder.asp?EquipmentID=CU156&ViewDate=8/15/2007>

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[Site Summary](#) | [User](#) | [User Group](#) [Logout](#)

Maximo Work Orders

Asset ID # Record / Page

Equipment	Work Order status	Work Order No.	Date Work Order Opened	Date Work Order Closed	Description
CU156	COMP	U1274406	6/15/2007 11:34:34 AM	6/15/2007 11:41:14 AM	cut string from carriage bearing road side.
CU156	WAPPR	U1267705	6/8/2007 11:16:11 AM		ROAD SIDE CARRAIGE PILLAR BLOCK BEARING 165 DEG REMOVE STRING
CU156	CLOSE	U1177898	3/14/2007 11:36:53 AM	3/26/2007 8:08:17 AM	PDM CREW WILL GET BASELINE AFTER COMPLETION OF INSTULATION
CU156	CLOSE	U1177897	3/14/2007 11:35:56 AM	3/26/2007 8:08:17 AM	REPLACE MOTOR AND FLUID COUPLING
CU156	CLOSE	U1176991	3/13/2007 1:10:38 PM	3/21/2007 8:00:00 AM	REPLACE MOTOR AND FLUID COUPLING

[Feedback](#)

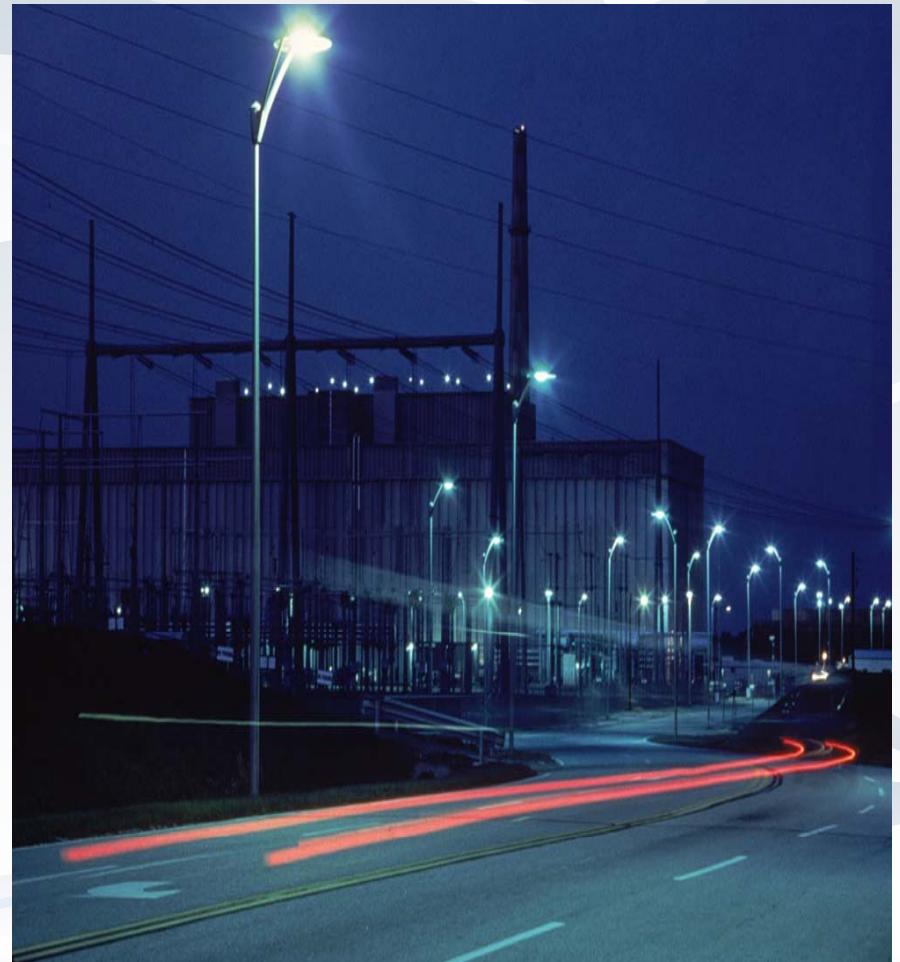
Done Local intranet

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Key Features:

- Central PdM Warehouse
- Daily automated integration of all PdM technologies into one web based control panel.
- Tracking of open, scheduled and closed issues

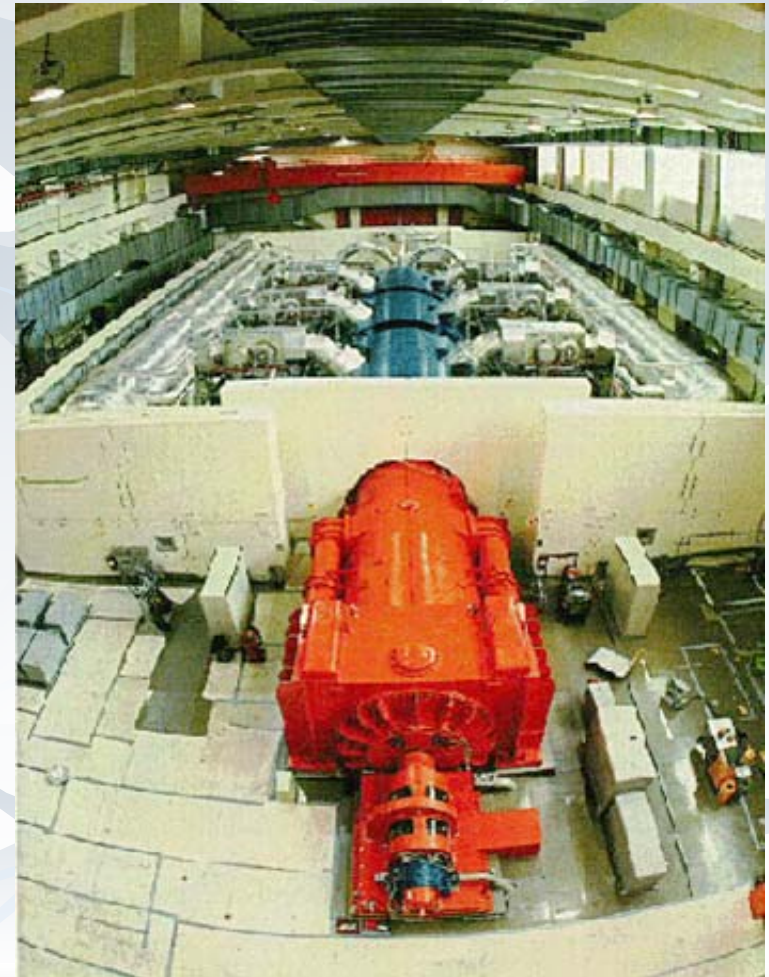


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Key Features:

- Web Enabled Access
- Scalable, Reliable Microsoft SQL Database
- Attach Notes and Documentation for Assets or Inspection points
- Documentation of corrective actions and equipment status



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Key Features:

- Track Key Performance Indicators (KPI's)
- Inventory Accountability
- Comprehensive PdM Inventory Information at Your Fingertips
- Email Alerting System for Open and Scheduled Issues

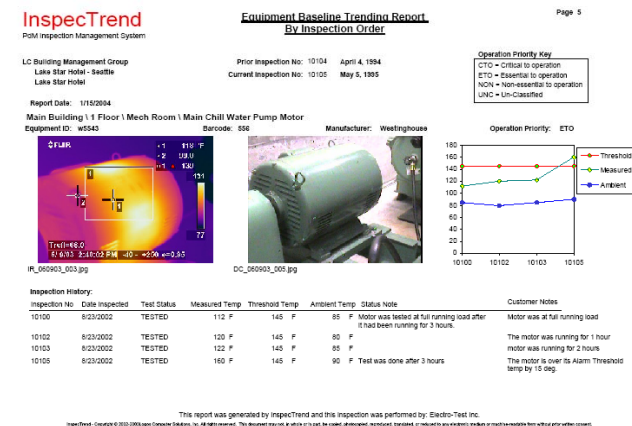


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Benefits:

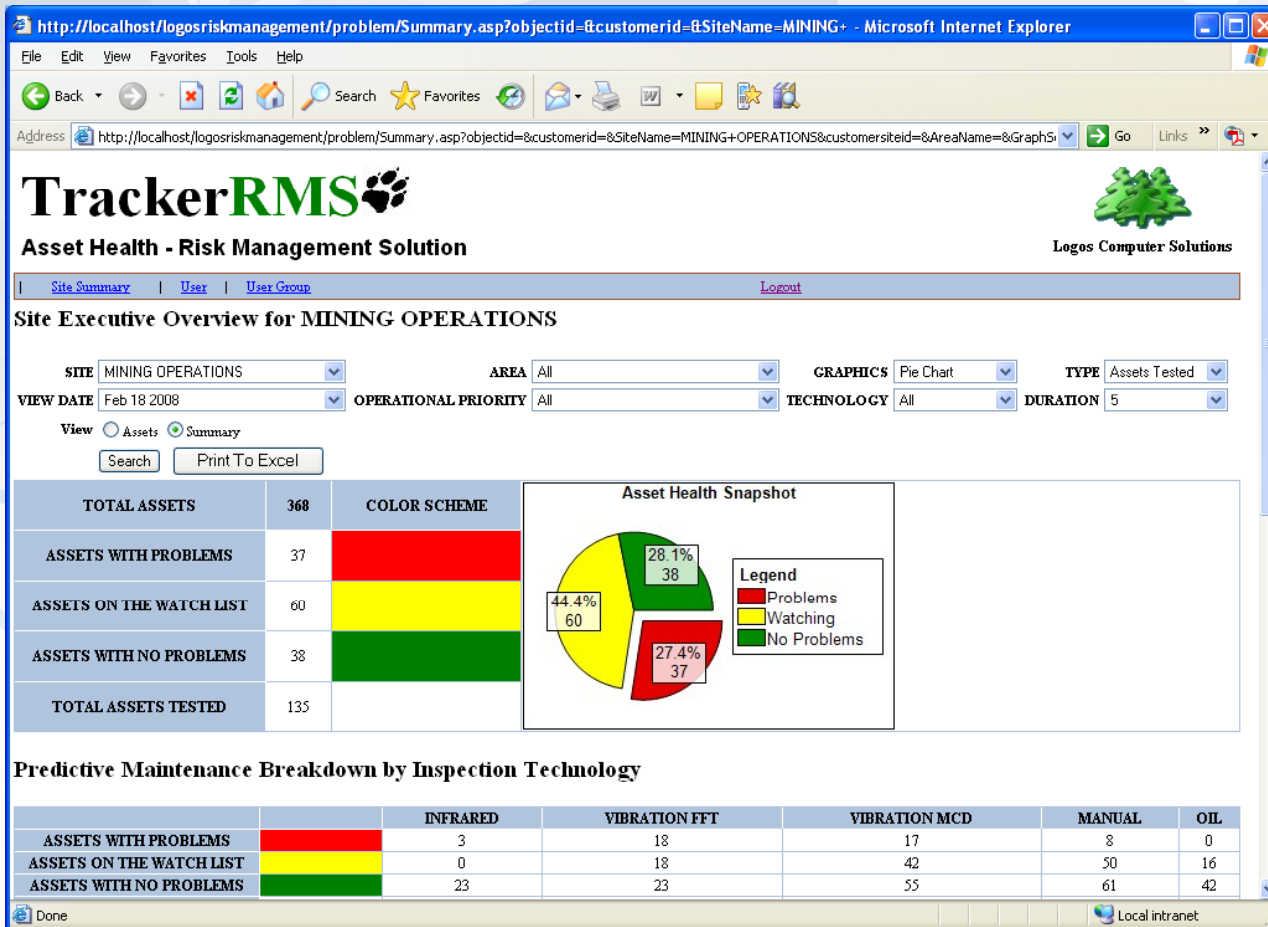
- Unlimited Data-mining capabilities
- Attach documents or reports from any PdM technology.
- CMMS Integration
- Upload data collected and summarized in TrackerRMS to other Analysis systems.




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Summary Page with filters by plant, area, priority, or date:



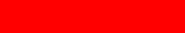


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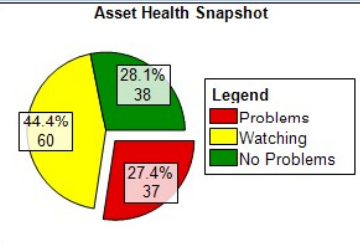
Site Executive Overview for MINING OPERATIONS




SITE: AREA: GRAPHICS: TYPE:
 VIEW DATE: OPERATIONAL PRIORITY: TECHNOLOGY: DURATION:

View Assets Summary

TOTAL ASSETS	368	COLOR SCHEME
ASSETS WITH PROBLEMS	37	
ASSETS ON THE WATCH LIST	60	
ASSETS WITH NO PROBLEMS	38	
TOTAL ASSETS TESTED	135	

Asset Health Snapshot



Legend:
 Problems
 Watching
 No Problems

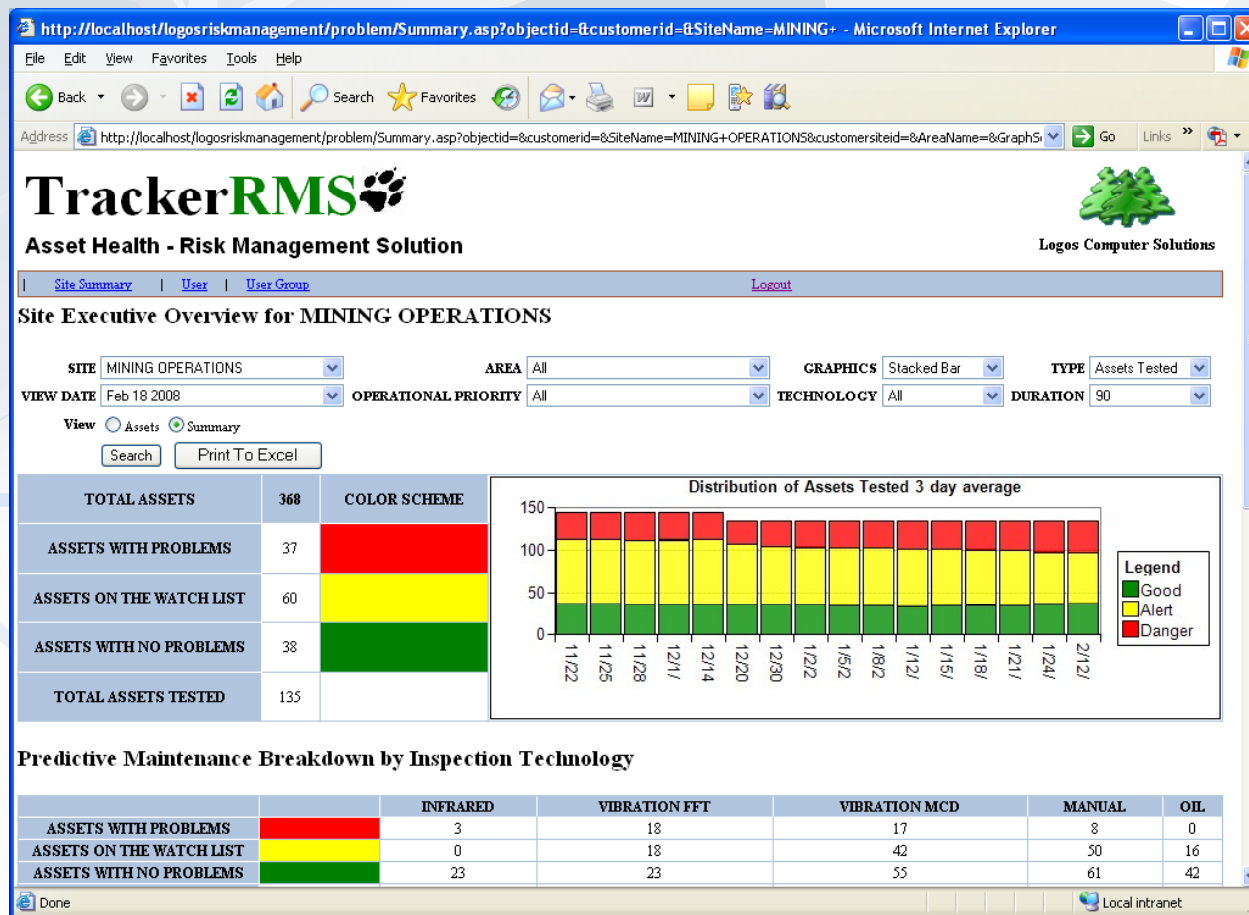
Predictive Maintenance Breakdown by Inspection Technology

	INFRARED	VIBRATION FFT	VIBRATION MCD	MANUAL	OIL
ASSETS WITH PROBLEMS	3	18	17	8	0
ASSETS ON THE WATCH LIST	0	18	42	50	16
ASSETS WITH NO PROBLEMS	23	23	55	61	42

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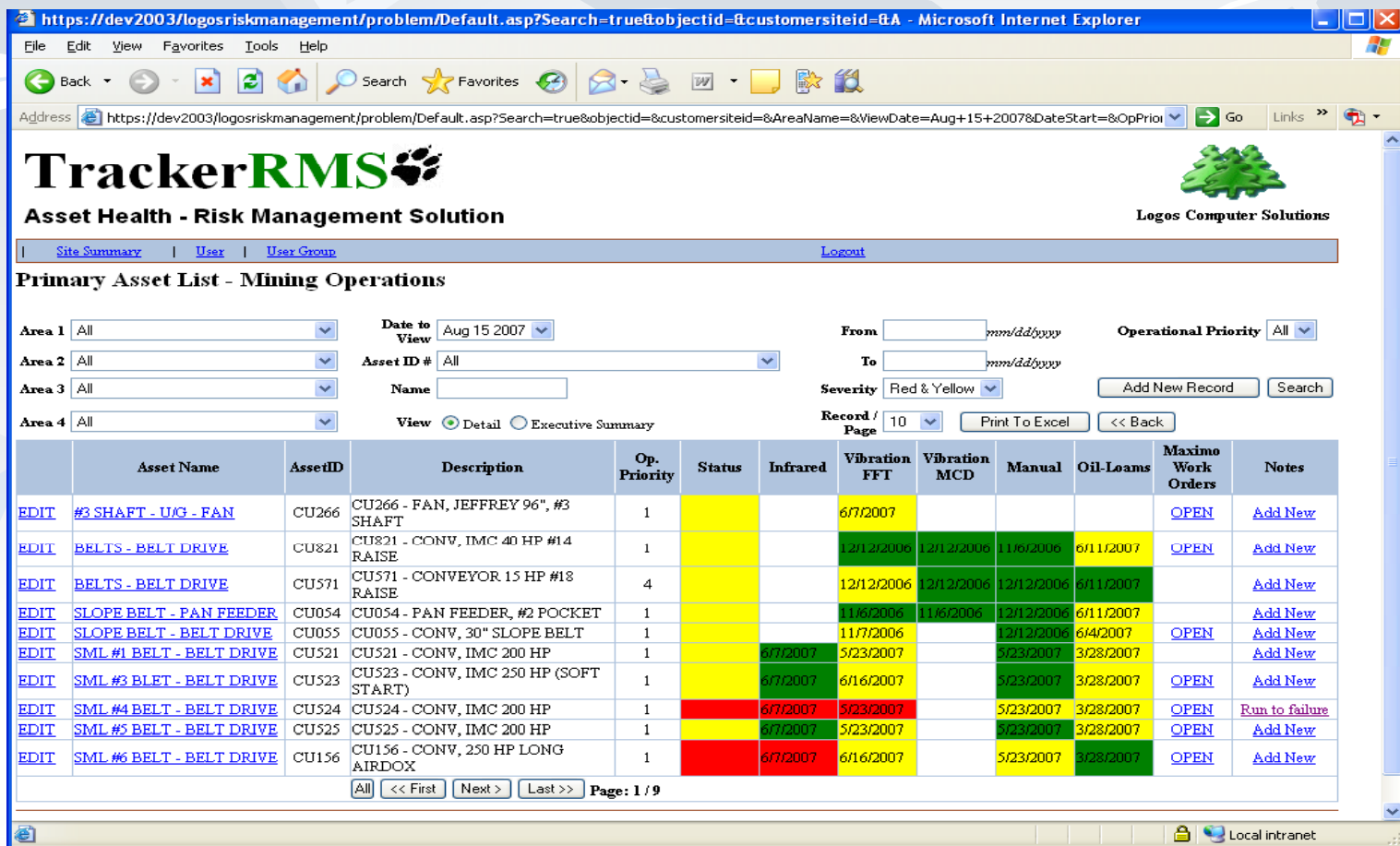
View asset health trends over time: Getting better or worse?



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Standard user interface with filters to limit data viewed:



The screenshot shows the TrackerRMS web application interface. The browser address bar indicates the URL: <https://dev2003/logosriskmanagement/problem/Default.asp?Search=true&objectid=&customersiteid=&AreaName=&ViewDate=Aug+15+2007&DateStart=&OpPrior>. The page title is "TrackerRMS Asset Health - Risk Management Solution".

The interface includes a navigation menu with "Site Summary", "User", "User Group", and "Logout". The main section is titled "Primary Asset List - Mining Operations".

Filters are available for:

- Area 1, 2, 3, 4 (All)
- Date to View (Aug 15 2007)
- Asset ID # (All)
- Name
- View (Detail, Executive Summary)
- From (mm/dd/yyyy)
- To (mm/dd/yyyy)
- Operational Priority (All)
- Severity (Red & Yellow)
- Record / Page (10)
- Buttons: Add New Record, Search, Print To Excel, << Back

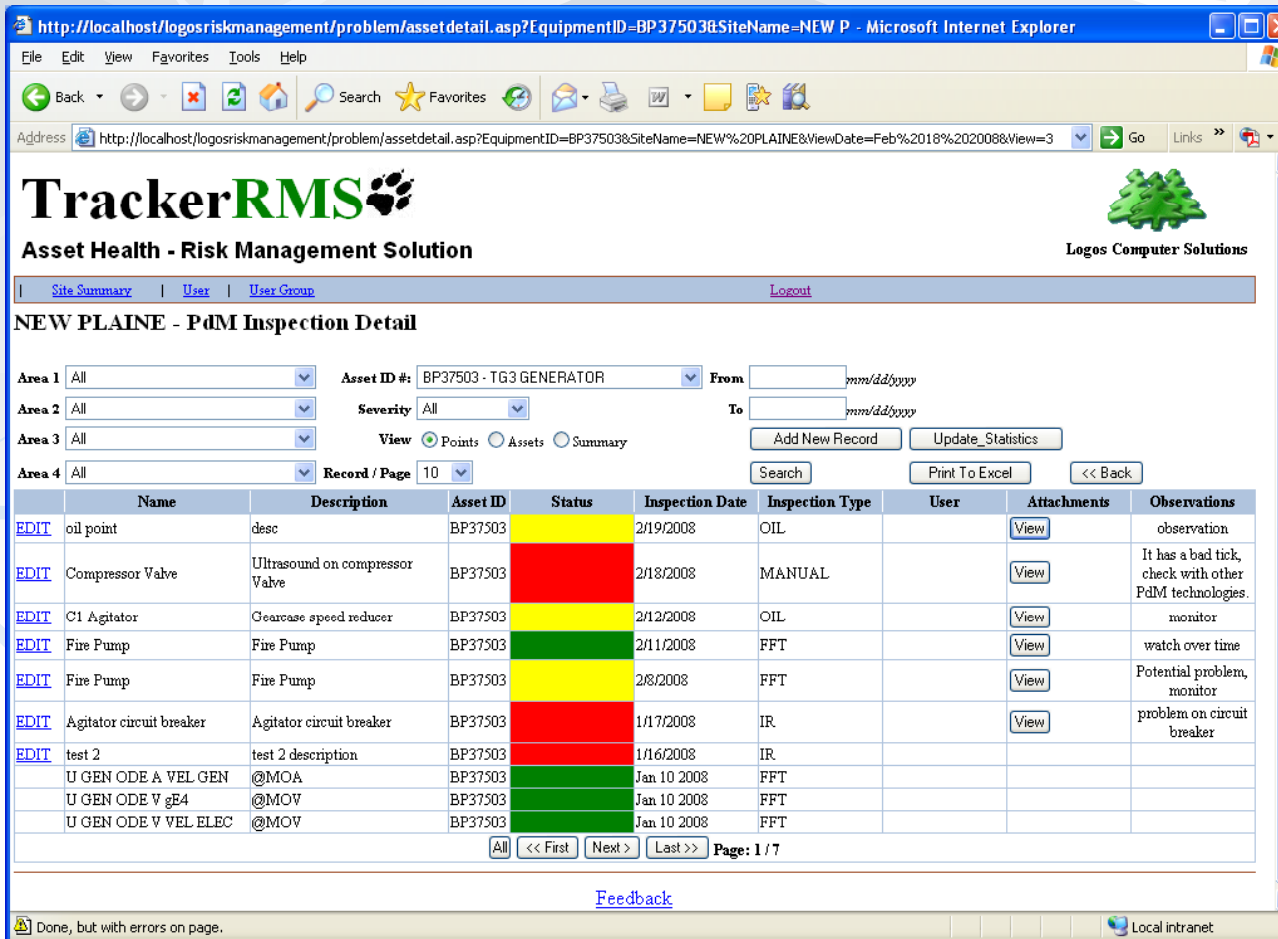
	Asset Name	AssetID	Description	Op. Priority	Status	Infrared	Vibration FFT	Vibration MCD	Manual	Oil-Leams	Maximo Work Orders	Notes
EDIT	#3 SHAFT - U/G - FAN	CU266	CU266 - FAN, JEFFREY 96", #3 SHAFT	1			6/7/2007				OPEN	Add New
EDIT	BELTS - BELT DRIVE	CU821	CU821 - CONV, IMC 40 HP #14 RAISE	1			12/12/2006	12/12/2006	11/6/2006	6/11/2007	OPEN	Add New
EDIT	BELTS - BELT DRIVE	CU571	CU571 - CONVEYOR 15 HP #13 RAISE	4			12/12/2006	12/12/2006	12/12/2006	6/11/2007		Add New
EDIT	SLOPE BELT - PAN FEEDER	CU054	CU054 - PAN FEEDER, #2 POCKET	1			11/6/2006	11/6/2006	12/12/2006	6/11/2007		Add New
EDIT	SLOPE BELT - BELT DRIVE	CU055	CU055 - CONV, 30" SLOPE BELT	1			11/7/2006		12/12/2006	6/4/2007	OPEN	Add New
EDIT	SML #1 BELT - BELT DRIVE	CU521	CU521 - CONV, IMC 200 HP	1		6/7/2007	5/23/2007		5/23/2007	3/28/2007	OPEN	Add New
EDIT	SML #3 BLET - BELT DRIVE	CU523	CU523 - CONV, IMC 250 HP (SOFT START)	1		6/7/2007	6/16/2007		5/23/2007	3/28/2007	OPEN	Add New
EDIT	SML #4 BELT - BELT DRIVE	CU524	CU524 - CONV, IMC 200 HP	1		6/7/2007	5/23/2007		5/23/2007	3/28/2007	OPEN	Run to failure
EDIT	SML #5 BELT - BELT DRIVE	CU525	CU525 - CONV, IMC 200 HP	1		6/7/2007	5/23/2007		5/23/2007	3/28/2007	OPEN	Add New
EDIT	SML #6 BELT - BELT DRIVE	CU156	CU156 - CONV, 250 HP LONG AIRDOX	1		6/7/2007	6/16/2007		5/23/2007	3/28/2007	OPEN	Add New

Page: 1 / 9

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Drill down to individual inspection points by technology and status:



The screenshot shows the TrackerRMS web application interface. At the top, there is a navigation bar with links for Site Summary, User, User Group, and Logout. The main heading is "NEW PLAINE - PdM Inspection Detail". Below this, there are several filters and controls: Area 1-4 (all set to "All"), Asset ID # (BP37503 - TG3 GENERATOR), Severity (All), and View options (Points, Assets, Summary). There are also buttons for "Add New Record", "Update Statistics", "Search", "Print To Excel", and "<< Back".

	Name	Description	Asset ID	Status	Inspection Date	Inspection Type	User	Attachments	Observations
EDIT	oil point	desc	BP37503	Yellow	2/19/2008	OIL		View	observation
EDIT	Compressor Valve	Ultrasound on compressor Valve	BP37503	Red	2/18/2008	MANUAL		View	It has a bad tick, check with other PdM technologies.
EDIT	C1 Agitator	Gearcase speed reducer	BP37503	Yellow	2/12/2008	OIL		View	monitor
EDIT	Fire Pump	Fire Pump	BP37503	Green	2/11/2008	FFT		View	watch over time
EDIT	Fire Pump	Fire Pump	BP37503	Yellow	2/8/2008	FFT		View	Potential problem, monitor
EDIT	Agitator circuit breaker	Agitator circuit breaker	BP37503	Red	1/17/2008	IR		View	problem on circuit breaker
EDIT	test 2	test 2 description	BP37503	Red	1/16/2008	IR			
	U GEN ODE A VEL GEN	@MOA	BP37503	Green	Jan 10 2008	FFT			
	U GEN ODE V gE4	@MOV	BP37503	Green	Jan 10 2008	FFT			
	U GEN ODE V VEL ELEC	@MOV	BP37503	Green	Jan 10 2008	FFT			

At the bottom of the table, there are navigation buttons: All, << First, Next >, Last >>, and Page: 1 / 7. A "Feedback" link is also present.

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View SAP or other CMMS repair status by equipment:

Mosaic Risk Manager - Maximo Work Orders - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address <https://dev2003/logosriskmanagement/problem/WorkOrder.asp?EquipmentID=CU156&ViewDate=8/15/2007>

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[Site Summary](#) | [User](#) | [User Group](#) [Logout](#)

Maximo Work Orders

Asset ID # Record / Page

Equipment	Work Order status	Work Order No.	Date Work Order Opened	Date Work Order Closed	Description
CU156	COMP	U1274406	6/15/2007 11:34:34 AM	6/15/2007 11:41:14 AM	cut string from carriage bearing road side.
CU156	WAPPR	U1267705	6/8/2007 11:16:11 AM		ROAD SIDE CARRAIGE PILLAR BLOCK BEARING 165 DEG REMOVE STRING
CU156	CLOSE	U1177898	3/14/2007 11:36:53 AM	3/26/2007 8:08:17 AM	PDM CREW WILL GET BASELINE AFTER COMPLETION OF INSTULATION
CU156	CLOSE	U1177897	3/14/2007 11:35:56 AM	3/26/2007 8:08:17 AM	REPLACE MOTOR AND FLUID COUPLING
CU156	CLOSE	U1176991	3/13/2007 1:10:38 PM	3/21/2007 8:00:00 AM	REPLACE MOTOR AND FLUID COUPLING

[Feedback](#)

Done Local intranet

TrackerRMS

Asset Health - Risk Management Solution

**“You Can’t Manage
Your Asset Health
If You Can’t Track It”**

TrackerRMS

...is the Asset Health - Risk Management tool you can use to manage, organize, and share all your PDM data effectively and efficiently.

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website: www.microtech.co.za 