



POLARIS LABORATORIES * CUSTOMER SUMMIT

ELEVATE

MOVE BEYOND THE INDIVIDUAL OIL
ANALYSIS REPORT

Henry A. Neicamp / POLARIS Laboratories®



Illinois Basin Coal & Mining Expo / August 27 & 28, 2019

TODAY'S PRESENTER



Henry Neicamp

Technical Business Consultant



Industry Experience

- B.S. General Engineering/Mining Engineering University of Illinois
- More than 35 years technical sales, engineering and management experience in the petroleum industry and lubricants marketplace
- Well Logging Engineer with Seismograph Service Corporation and Dresser Industries
- Sales Engineer and Technical Services Manager with Pennzoil-Quaker State Company
- Sales/Technical Engineer with Warren Oil Co.
- Field Services Manager; Midwest Territory Sales Manager; Technical Business Consultant with POLARIS Laboratories®
- CLS/OMA certified by STLE

HORIZON[®]



*TOTAL PROGRAM
MANAGEMENT IS
ON YOUR HORIZON[®]*

*“It’s not just data, it’s
what you do with it!”*

EXAMINE AGGREGATE FLUID SAMPLING DATA



- Examining aggregate (a whole formed by combining several elements; collection; combined; total) fluid sampling data helps maintenance staff:
 - discover root cause for high-severity reports
 - address issues before damage occurs to their equipment

EXAMINE AGGREGATE TEST DATA



- Examining aggregate test data can reveal valuable information:
 - Common Causes of Wear and Failures
 - Contamination Sources
 - Fluid Mixing
 - Optimal Drain Intervals
 - Equipment Make (OEM) and Models That Best Support Operations

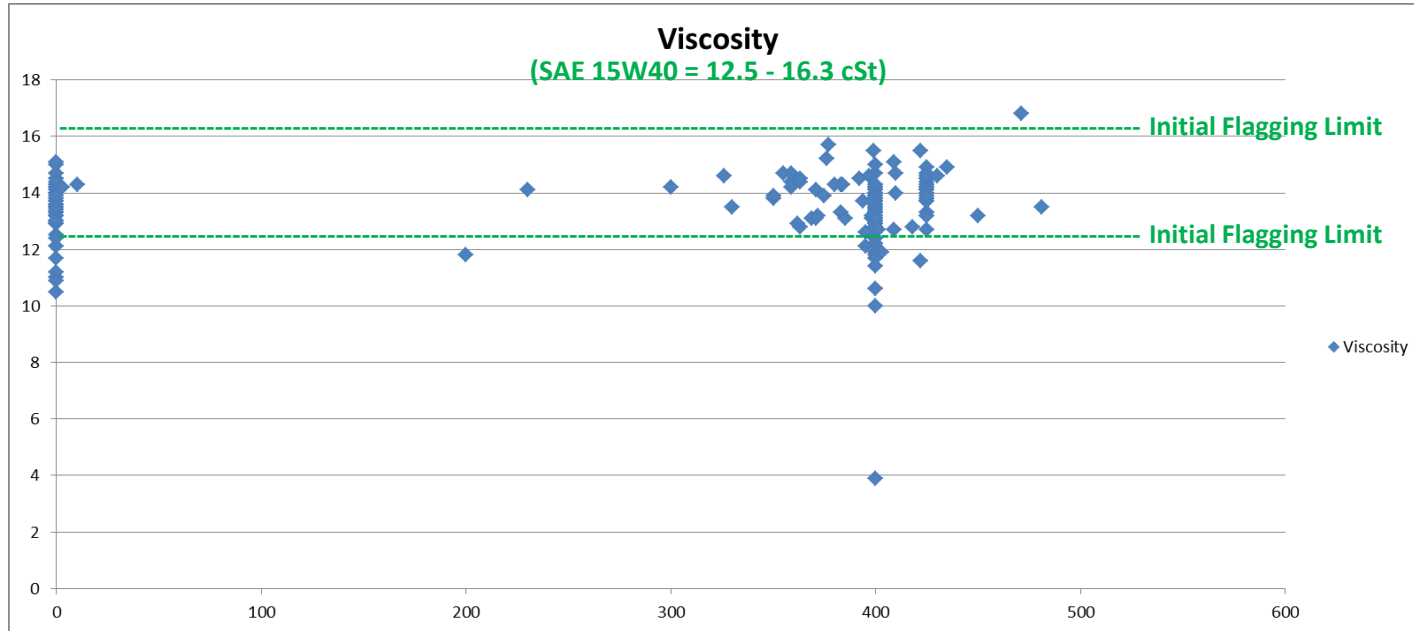
CASE STUDY - “A TRUE STORY”

- Major Oil Company (PLP) – LM Business Consultant
- Major Oil Company’s customer owns and operates a network of ready-mix concrete plants and aggregate facilities across three Midwest states
- **Goal:** Determine the optimum service interval for customer’s ready-mix fleet of trucks using 15W40.
- Ran Data Extraction Tool for samples YTD (Jan 1-May 17, 2016) and plotted 3 KPI’s – Viscosity, Base Number, and Oxidation

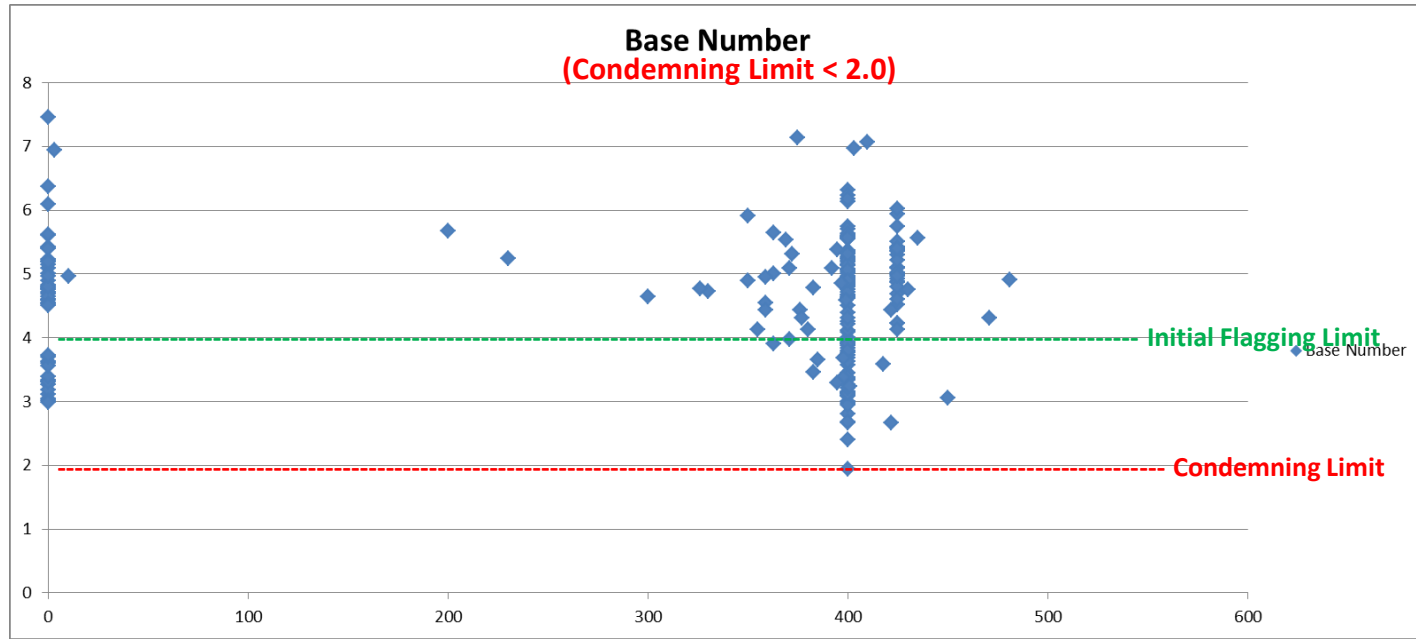
DATA EXTRACTION REPORT YTD 051716

Account Number	Company Name	Component ID	Component Type	Component Manufacturer	Fluid Grade	Fluid Time	Fuel Dilution	Soot	Viscosity 100 Å°C	Base Number	Oxidation
LUB19100010028	PRAIRIE MATERIALS - YARD# 4522	M4121 E	DIESEL ENGINE	OSHKOSH	SAE 15W40	400	1.3<1		11.9	4.51	20
LUB19100010017	PRAIRIE MATERIALS - YARD# 4R32	M8337 E	DIESEL ENGINE	MACK	SAE 15W40	400	2.1<1		13	3.13	14
LUB19100010017	PRAIRIE MATERIALS - YARD# 4R32	M8337 E	DIESEL ENGINE	MACK	SAE 15W40	400<1	<1		13.7	2.8	16
LUB19100010017	PRAIRIE MATERIALS - YARD# 4R32	M4054 E	DIESEL ENGINE	MACK	SAE 15W40	400	3.9	0.4	13.3	4.81	14
LUB19100010017	PRAIRIE MATERIALS - YARD# 4R32	M4054 E	DIESEL ENGINE	MACK	SAE 15W40	400	3.4	0.3	11.8	3.93	18
LUB19100010017	PRAIRIE MATERIALS - YARD# 4R32	M8181 E	DIESEL ENGINE	MACK	SAE 15W40	400	2.5	0.7	13.3	5.34	13
LUB19100010017	PRAIRIE MATERIALS - YARD# 4R32	M8181 E	DIESEL ENGINE	MACK	SAE 15W40	400<1		0.4	13.6	5.59	13
LUB19100010017	PRAIRIE MATERIALS - YARD# 4R32	M8396 E	DIESEL ENGINE	MACK	SAE 15W40	400	1.4<1		13	3.68	13
LUB19100010017	PRAIRIE MATERIALS - YARD# 4R32	M8396 E	DIESEL ENGINE	MACK		0	1.1<1		13.3	3.6	15
LUB19100010017	PRAIRIE MATERIALS - YARD# 4R32	8295 E	DIESEL ENGINE			400<1	<1		13.6	4.26	14
LUB19100010017	PRAIRIE MATERIALS - YARD# 4R32	M8115 E	DIESEL ENGINE	MACK	SAE 15W40	400<1		0.1	13.5	5.14	13
LUB19100010017	PRAIRIE MATERIALS - YARD# 4R32	M8115 E	DIESEL ENGINE	MACK	SAE 15W40	400<1		0.2	13.5	5.25	13
LUB19100010017	PRAIRIE MATERIALS - YARD# 4R32	8129 E	DIESEL ENGINE			400	5.4	0.1	12.6	4.92	14
LUB19100010017	PRAIRIE MATERIALS - YARD# 4R32	8395 E	DIESEL ENGINE			400	2.5<1		12.8	3	15
LUB19100010017	PRAIRIE MATERIALS - YARD# 4R32	M8379 E	DIESEL ENGINE	MACK	SAE 15W40	400	2.8<1		12.9	3.33	15
LUB19100010017	PRAIRIE MATERIALS - YARD# 4R32	M8379 E	DIESEL ENGINE	MACK	SAE 15W40	400	3.2<1		12.4	3.14	16
LUB19100010017	PRAIRIE MATERIALS - YARD# 4R32	M4034 E	DIESEL ENGINE	MACK	SAE 15W40	400	8.7<1		11.7	4.88	14
LUB19100010017	PRAIRIE MATERIALS - YARD# 4R32	M4034 E	DIESEL ENGINE	MACK	SAE 15W40	400	6<1		10.6	4.4	19
LUB19100010017	PRAIRIE MATERIALS - YARD# 4R32	M8166 E	DIESEL ENGINE	MACK	SAE 15W40	400<1		0.3	13.8	5.19	13
LUB19100010017	PRAIRIE MATERIALS - YARD# 4R32	M8166 E	DIESEL ENGINE	MACK	SAE 15W40	400<1	<1		13.6	4.8	13
LUB19100010017	PRAIRIE MATERIALS - YARD# 4R32	M8171 E	DIESEL ENGINE	MACK	SAE 15W40	400<1		0.2	13.6	6.14	11
LUB19100010017	PRAIRIE MATERIALS - YARD# 4R32	M8172 E	DIESEL ENGINE	MACK	SAE 15W40	400	2.6	0.1	13.1	4.94	13
LUB19100010017	PRAIRIE MATERIALS - YARD# 4R32	M8172 E	DIESEL ENGINE	MACK	SAE 15W40	400	1.9<1		13.1	5.27	14
LUB19100010017	PRAIRIE MATERIALS - YARD# 4R32	M8178 E	DIESEL ENGINE	MACK	SAE 15W40	0<1		0.1	13.8	5.41	13
LUB19100010017	PRAIRIE MATERIALS - YARD# 4R32	M8289 E	DIESEL ENGINE	MACK	SAE 15W40	400<1		0.1	13.5	4.86	13
LUB19100010017	PRAIRIE MATERIALS - YARD# 4R32	M8289 E	DIESEL ENGINE	MACK	SAE 15W40	400<1		0.5	14	4.95	13
LUB19100010017	PRAIRIE MATERIALS - YARD# 4R32	M8292 E	DIESEL ENGINE	MACK	SAE 15W40	400<1		0.4	13.6	5.13	13
LUB19100010017	PRAIRIE MATERIALS - YARD# 4R32	M8294 E	DIESEL ENGINE	MACK	SAE 15W40	400<1		0.5	13.8	5.6	11
LUB19100010017	PRAIRIE MATERIALS - YARD# 4R32	M8294 E	DIESEL ENGINE	MACK	SAE 15W40	400<1		0.5	13.5	4.85	14
LUB19100010017	PRAIRIE MATERIALS - YARD# 4R32	M8296 E	DIESEL ENGINE	MACK	SAE 15W40	400<1		0.3	13.7	4.86	13
LUB19100010017	PRAIRIE MATERIALS - YARD# 4R32	M8297 E	DIESEL ENGINE	MACK	SAE 15W40	400<1		0.1	13.5	5.15	13
LUB19100010017	PRAIRIE MATERIALS - YARD# 4R32	M8297 E	DIESEL ENGINE	MACK	SAE 15W40	400<1		0.1	13.4	4.9	13
LUB19100010017	PRAIRIE MATERIALS - YARD# 4R32	M8298 E	DIESEL ENGINE	MACK	SAE 15W40	400<1		0.3	13.9	4.83	14
LUB19100010017	PRAIRIE MATERIALS - YARD# 4R32	M8298 E	DIESEL ENGINE	MACK	SAE 15W40	400<1		0.3	14	5.37	14

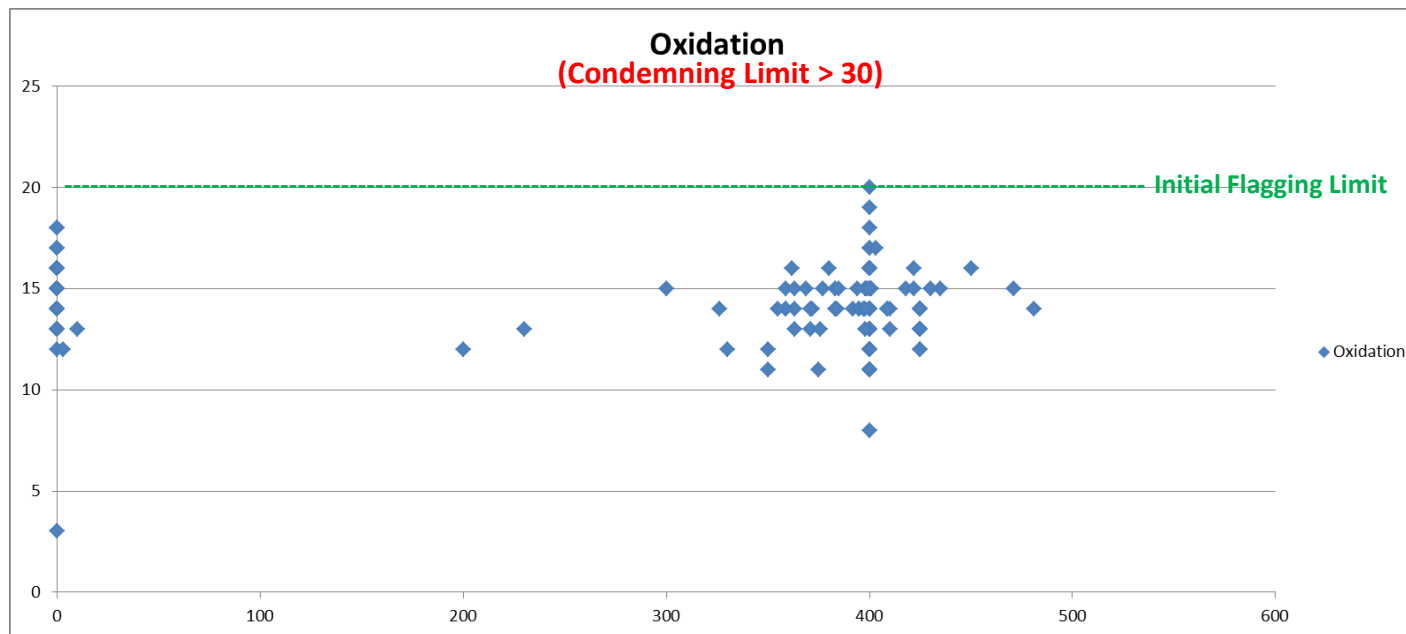
VISCOSITY VS. HOURS ON OIL



BASE NUMBER VS. HOURS ON OIL



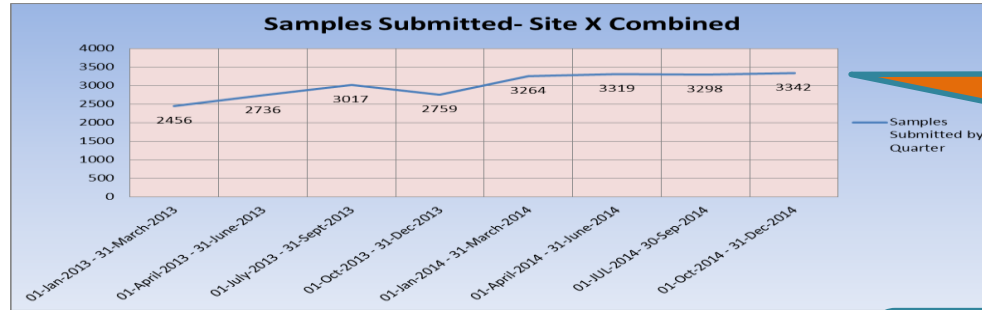
OXIDATION VS. HOURS ON OIL



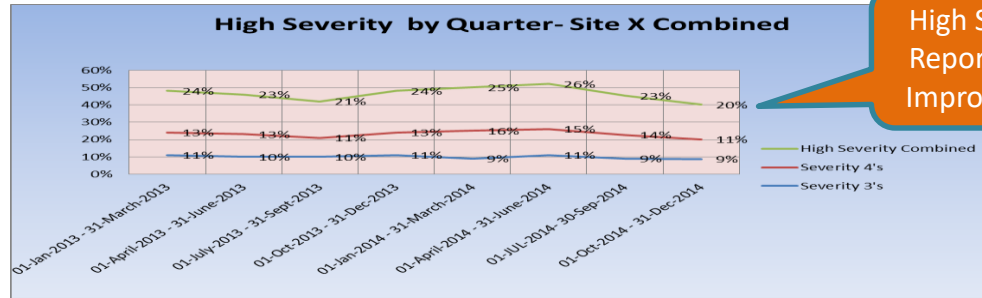
CASE STUDY - “A TRUE STORY”

- TBC shared Data Extraction Report and Scattergrams with Major Oil Company and their Midwest customer
- Evaluation of KPI's indicated the current drain interval of 400 HR's was not overextending the oil
- Decision made to have Data Analysis add “Extended Drain Comments” to determine “Optimum Service Interval”

PROGRAM ENRICHMENT

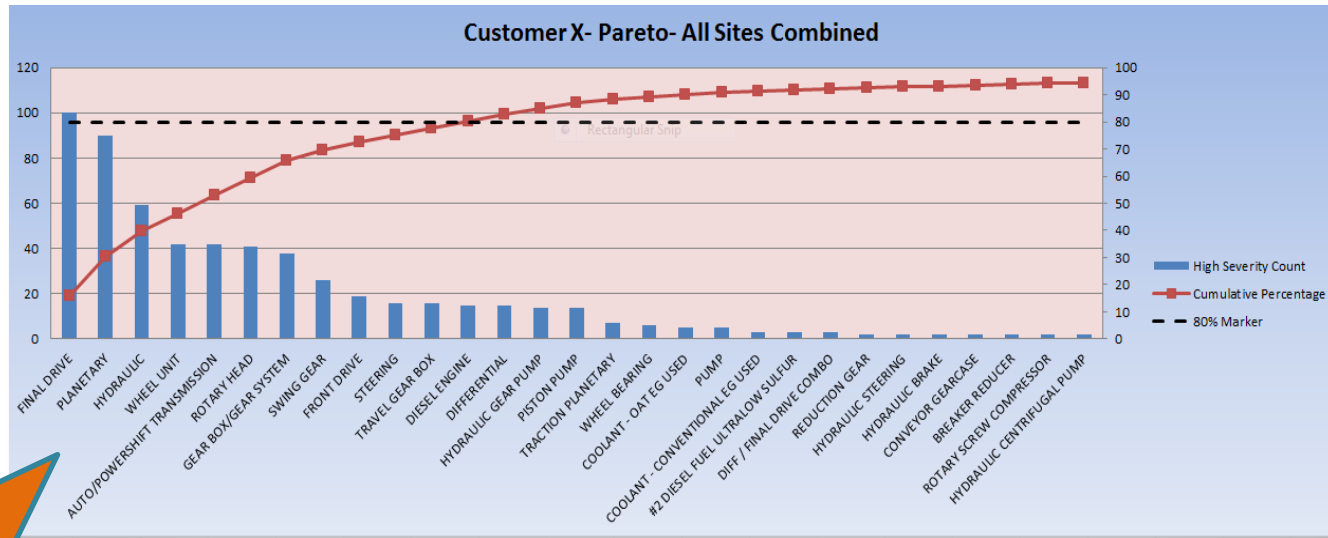


Compliance Lowered Severities



High Severity Reports – 6% Improvement

PROGRAM ENRICHMENT

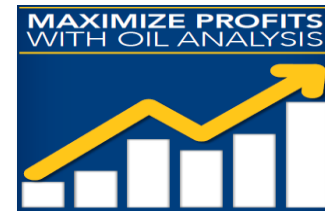


Of the 87 component types on file, only 11 component types account for 80% of the high severity reports.

IDENTIFIED THEIR BIGGEST PROBLEMS

MOVE BEYOND THE INDIVIDUAL OIL ANALYSIS REPORT

- **Discover Trends and Systemic Problems**
 - Business Intelligence Software (BIS)
 - Scattergrams
 - Pareto Charts
- **Most Programs Have Enough Data (AMR)**
 - Drive Changes
 - Increase Uptime
 - Reduce Maintenance Costs
- **Program Champions**
 - Uncover Data Trends
 - Adjust Maintenance Strategies
 - Minimize Wear | Maximize Savings



"It's not just data, it's what you do with it!"

QUESTIONS | DISCUSSION



THANK YOU!

