

OCTOBER 25, 2023

Cyanco: Journey to Predictive Maintenance with AVEVA™ PI System™

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AVEVA

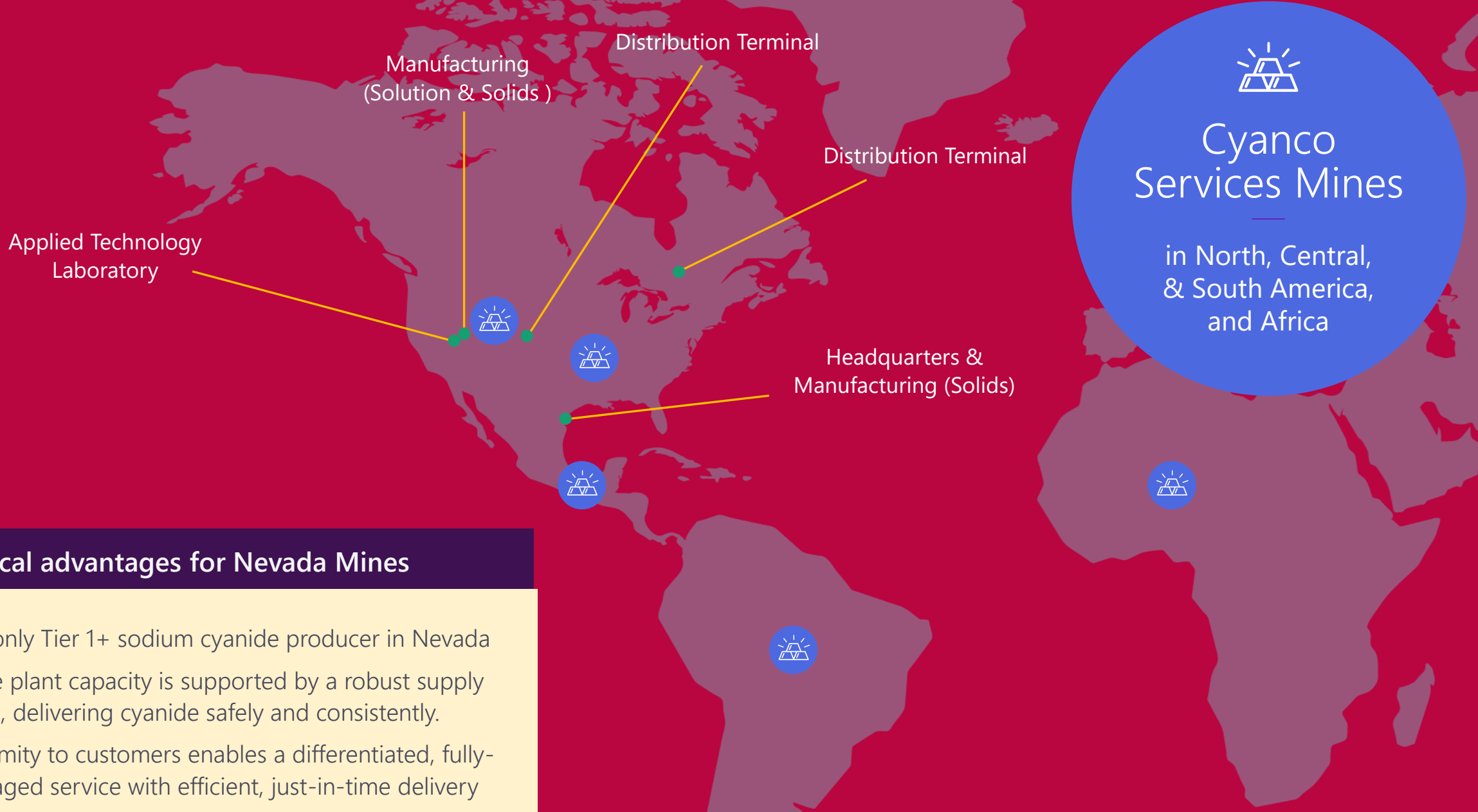
Agenda

- About Cyanco
- Where We Started and Where We Are
- Benefits Within Last Year
- Where We Want To Be
- Questions

About Cyanco

- Cyanco is the global leader in mineral extraction chemicals for the gold and silver mining industries.
- Formed in 1990, Cyanco sells cyanide in both solids and solutions and delivers competitively-priced, quality products and services around the world.
- With manufacturing facilities and distribution terminals located in the heart of key mining regions, Cyanco provides fast, safe and reliable delivery.





Logistical advantages for Nevada Mines

- The only Tier 1+ sodium cyanide producer in Nevada
- Large plant capacity is supported by a robust supply chain, delivering cyanide safely and consistently.
- Proximity to customers enables a differentiated, fully-managed service with efficient, just-in-time delivery

Where We Started And Where We Are

- AVEVA™ PI System™ is the one of the wheels on which Cyanco's digital journey is progressing and moving ahead. It has provided us with real-time visibility into our production, raw material consumption, helped implement condition-based maintenance while providing us real-time information on plant operations and environmental health and safety information supporting OEE in a continuous manufacturing environments

- Real-Time Data Processing ✓
 - Inventory, Raw Material. Environmental
- Automated Data Feeds to DW ✓
 - Better Data -> Better Reporting
- Condition Based Maintenance ✓
 - Proactive Maintenance ✓
- Real-Time Environment Notifications ✓
- Asset Reliability ✓

- Predictive Maintenance
- Overall Equipment Effectiveness (OEE)
- Digital Twin
- Overall Value Chain

Benefits (RTE, Usages, Status and more....)

Wednesday, 13 Sep, 2023

TRIR Target
0.00 0.60

7
Consecutive Good Days

61
Record Good Days

One Team/One Goal: Safe Production

Sep 2023

Sun	Mon	Tue	Wed	Thu	Fri	Sat
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

Days Since

1436	82	106
LTI	SOP Violation	RQ
7	118	9
Last Recordable	Transportation Incident	Non-RQLOPC

Good Catches

11
MTD
116
YTD

Overdue Tasks > 30 Days

1

Production

Solution (MT)			
Yesterday	Daily Target	MTD	Monthly Target
187	211	2,470	6,530

Usage

Ammonia (Budget 0.565)			
09/13/23	Cost Variance	MTD	MTD Cost Variance
0.593	(\$5,977)	0.572	(\$19,242)

Inventory(MT)

636	288
Solution	Solids
2,966	2,453
Ammonia	Caustic

Solids (MT)

Yesterday	Daily Target	MTD	Monthly Target
10	48	309	1,500

Usage

Caustic (Budget 0.860)			
09/13/23	Cost Variance	MTD	MTD Cost Variance
0.849	\$1,888	0.874	(\$31,625)

Logistics

60	8
Empty ISO	Loaded ISO
15	0
Empty Sparger	Loaded Sparger
49	10
Empty TankCar	Solution TankCar

Top 3 Focus Tasks

Resealing P-4281 and rebuilding P-4282

Correcting the O2 readings for B-5300

Weekly NOX checks

Recognition

Burton- Stop the job

DRY OEE %

Date	OEE %
Aug 20	85%
Aug 21	85%
Aug 22	83%
Aug 23	90%
Aug 24	90%
Aug 25	89%
Aug 26	89%
Aug 27	89%
Aug 28	0%
Aug 29	0%
Aug 30	0%
Aug 31	0%
Sep 01	0%
Sep 02	0%
Sep 03	0%
Sep 04	0%
Sep 05	0%
Sep 06	0%
Sep 07	0%
Sep 08	0%
Sep 09	81%
Sep 10	13%

Solutions Plant Outside - Submissions By Shift

Shift Rotation ● Days ● Nights

Date	Days	Nights
Aug 06	1	2
Aug 07	1	1
Aug 08	1	1
Aug 09	1	1
Aug 10	1	1
Aug 11	1	1
Aug 12	1	2
Aug 13	1	2
Aug 14	1	2
Aug 15	1	1
Aug 16	1	1
Aug 17	1	1
Aug 18	1	1
Aug 19	1	1
Aug 20	1	1
Aug 21	1	1
Aug 22	1	1
Aug 23	1	1
Aug 24	1	1
Aug 25	1	1
Aug 26	1	2
Aug 27	1	1

Ammonia Usage

● P1 ● P2

Date	P1	P2
09/13/23	0.593	0.572
09/14/23	0.598	0.584
09/15/23	0.646	0.548
09/16/23	0.548	0.544
09/17/23	0.541	0.547
09/18/23	0.557	0.564
09/19/23	0.627	0.562
09/20/23	0.584	0.562

2021 Budget: 0.568

Open Work Orders by Priority

● Breakdown Maintenance ● Preventive Maintenance

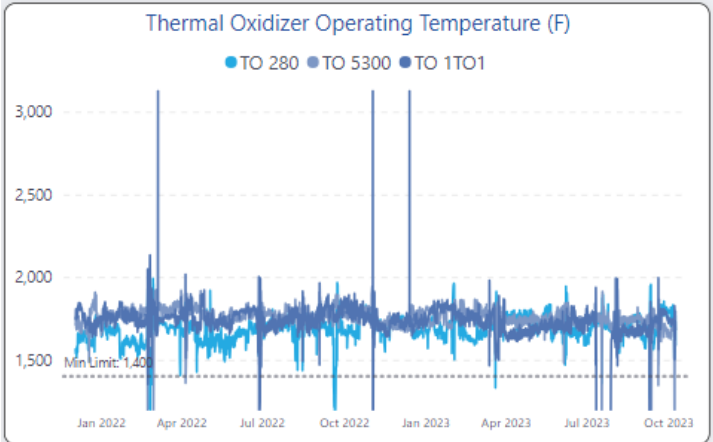
Priority	Breakdown Maintenance	Preventive Maintenance
Medium Priority - Within 1 Month	31	86
Medium Priority	8	0
Low Priority - Backlog	0	0
Highest Priority - Within 24 hours	15	0
High Priority - Within 1 Week	26	0

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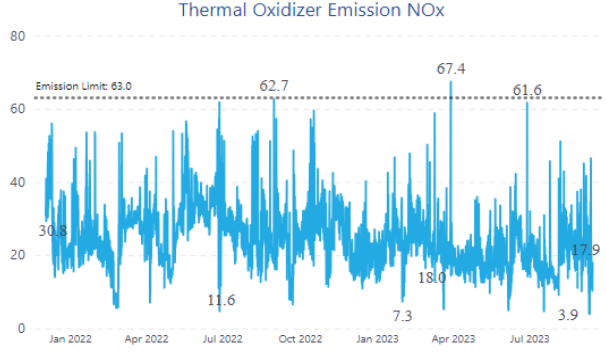
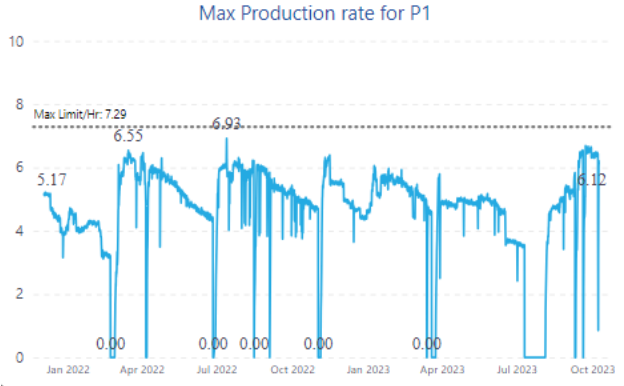
Benefits (Environmental and Sustainability)

(HCN Alarm Floor 1 West
 STARTTIME:yyyy-MM-dd
 HH:mm:ss% generated a new
 notification event.) Event: HCN
 Alarm Floor 1 West
 STARTTIME:yyyy-MM-dd HH:

(HCN Alarm Floor 1 Middle
 STARTTIME:yyyy-MM-dd
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 notification event.) Event: HCN
 Alarm Floor 1 Middle
 STARTTIME:yyyy-MM-dd



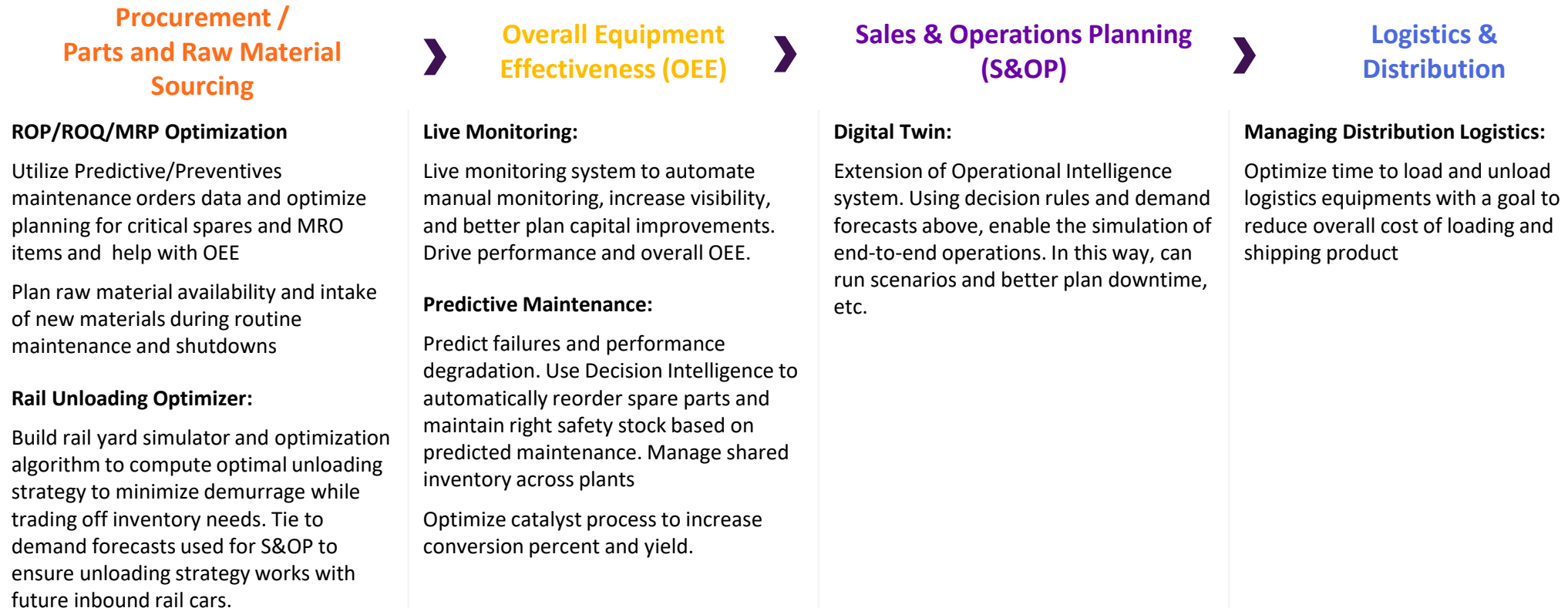
- 20+ critical environmental tags are configured in PI System to provide real time alerts. These alerts are sent out as text messages and/or emails in real time in case of any failures or issues.
- Critical tags are extracted and provide near real time plant operation information
- 25+ PI System extraction programs extract hundreds of PI System tags and feed into our DW to support reporting
- Feeding PI System data into our DW
 - Real-time, hourly, daily, weekly



AVEVA PI System Enabled - Overall Value Chain

We identified a series of use cases across the value chain, where PI System integrated with AI systems can augment decision making and drive value for the business.

Potential areas where PI System data and AI can drive value for the business



CHEMICALS

Using AVEVA™ PI System™ to enable conditional and proactive maintenance

Challenge

- Technology stack not supporting Cyanco's vision and digital journey
- Increasing cost of plant maintenance
- Lack of visibility to operational, production and raw material data

Solution

- Implemented AVEVA PI System technology including PI Server Asset Framework and PI Vision to server as a foundation for Cyanco's digital transformation
- Moved to a web-based tool to provide plant health and productivity anytime and anywhere
- Implemented PI Notifications to provide insight of real-time events
- Sourcing data from PI into ERP and Data warehouse

Results

- **Real-time visibility to plant operations and health by utilizing PI Vision dashboard**
- **Enabled conditional and proactive maintenance**
- **Enabled real-time notifications into equipment status and environmental issues**
- **Increased OEE**





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Questions?

Please wait for the microphone.
State your name and company.



Please remember to...

Navigate to this session in the mobile app to complete the survey.



Thank you!