

Data Summaries

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Current Wayside:

- **BNSF, CSX, UPRR creating WILD Data Summaries**
 - BNSF, UPRR publishing WILD Data Summaries
 - CSX publishing WILD Data Summaries EOM
 - **UPRR, CSX, NS with coded Data Summaries of:**
 - Hunting(UP since 2007) and Tbogi(CSX since April)
 - Acoustic (RailBAM (UP, CSX) and TADS(UP))
 - Wheel Temperature (Cold (UP), Hot nearly complete)
 - **DS Development currently focused on:**
 - Wheel Profile Detectors
- (also -BNSF and UPRR exchanging HBD data directly)
- DS now basis for all UPRR Wheel Alerts



WILD Example from Monday (UPRR DS)

FIELDS	DATA	MEANING
STAT_IND	O	OPEN
EQMT_INIT	UP	
EQMT_NBR	38659	
EQMT_SIDE	L	
EQMT_AXLE	2	
EVNT_CRTN_DATE	3/15/2009	OPEN DATE
RR_OWN	UP	OPENED BY UPRR
MAX_PEAK	83.59	
MAX_RATIO	5.36	
MAX_DYNM	51.77	
WILD_RDNG_CNT	7	7 PASSES SINCE OPENING
PEAK_GT_90_CNT		
DYNM_GT_30_CNT	4	4 'HIGH/BAD' Readings
PEAK_GT_80_CNT	2	
DYNM_GT_30_DATE	3/15/2009	First 'HIGH/BAD' Reading
LAST_EVNT_UPTD_DATE	5/26/2009	LAST SEEN BY UPRR
LAST_RATIO	5.36	STILL BAD
LAST_DYNM	36.67	STILL BAD



WILD Example from Monday (UPRR & BNSF)

FIELDS	UPRR DATA	BNSF DATA	MEANING
STAT_IND	O	O	OPEN
EQMT_INIT	UP	UP	
EQMT_NBR	38659	38659	
EQMT_SIDE	L	L	
EQMT_AXLE	2	2	
EVNT_CRTN_DATE	3/15/2009	6/7/2009	OPEN DATE
RR_OWN	UP	BNSF	OPENED BY BNSF
MAX_PEAK	83.59	115.09	
MAX_RATIO	5.36	5.92	
MAX_DYMN	51.77	80.86	
WILD_RDNG_CNT	7	9	9 PASSES SINCE OPENING
PEAK_GT_90_CNT		4	
DYMN_GT_30_CNT	4	8	8 'HIGH/BAD' Readings
PEAK_GT_80_CNT	2	5	
DYMN_GT_30_DATE	3/15/2009	6/8/2009	First 'HIGH/BAD' Reading
LAST_EVNT_UPTD_DATE	5/26/2009	9/13/2009	LAST SEEN BY BNSF
LAST_RATIO	5.36	3.36	STILL BAD
LAST_DYMN	36.67	80.86	STILL BAD



WILD Example from Monday (COMBINED)

FIELDS	UPRR/BNSF COMBINED DATA	MEANING
STAT_IND	0	OPEN
EQMT_INIT	UP	
EQMT_NBR	38659	
EQMT_SIDE	L	
EQMT_AXLE	2	
EVNT_CRTN_DATE	3/15/2009	OPEN DATE
RR_OWEN	UP,BNSF	OPENED BY UPRR FIRST, THEN BY BNSF
MAX_PEAK	115	115 Max PEAK
MAX_RATIO	5.92	5.92 Max Ratio
MAX_DYMN	80.86	80.86 Max Dynamic
WILD_RDNG_CNT	16	16 PASSES SINCE OPENING
PEAK_GT_90_CNT	4	4 TIMES OVER 90 KIPS
DYMN_GT_30_CNT	12	12 'HIGH/BAD' Readings
PEAK_GT_80_CNT	7	7 TIMES OVER 80 KIPS
DYMN_GT_30_DATE	3/15/2009	First 'HIGH/BAD' Reading
LAST_EVNT_UPTD_DATE	9/13/2009	LAST SEEN BY BNSF
LAST_RATIO	5.36	STILL BAD on 9/13/2009
LAST_DYMN	80.86	STILL BAD on 9/13/2009

Illustration of Prioritization and Single View – 16 Readings



Equipment Health Management System - Windows Internet Explorer provided by Union Pacific

https://ehms.railinc.com/RAILINC_EHMS_WEB/ehms/dataquery/equipHistorySearch.do

Google

Equipment Health Management System

Alerts

Equipment ID	Alert Type	Open Date	Location	Alert Date	Alert Status	Closed Date	Alert Level	Opening Reason
DTTX-0000721380	WILD	08-20-2009	AXLE=03;SIDE=L	08-20-2009	OPEN		C	ALERT_EVENT

FIELDS	UPRR DATA	MEANING
STAT_IND	O	OPEN
EQMT_INIT	DTTX	
EQMT_NBR	721380	
EQMT_SIDE	L	
EQMT_AXLE	3	
EVNT_CRTN_DATE	2/28/2009	OPENED in Feb 2009
RR_OWN	UP	
MAX_PEAK	95.98	AAR CONDEMNABLE NOW
MAX_RATIO	3.7	
MAX_DYNM	64.58	
WILD_RDNG_CNT	42	42 Passes
PEAK_GT_90_CNT	1	
DYNM_GT_30_CNT	32	32 Passes 'BAD'
PEAK_GT_80_CNT	5	
DYNM_GT_30_DATE	3/12/2009	
LAST_RATIO	1.14	GOOD WHEEL LAST PASS
LAST_DYNM	4.07	GOOD WHEEL LAST PASS
LAST_EQMT_SPED	68.8	
LAST_EVNT_UPTD_DATE	9/14/2009	
DYNM_LT_20_DATE	9/14/2009	GOOD WHEEL MONDAY
PREV_DYNM_LT_20_DATE	9/13/2009	GOOD WHEEL SUNDAY

- Sometimes:
- Repair Not Reported
 - AEI Problem
 - Bad Sensor
 - Bad Reading
 - Wrong Repair Report



UPRR Action: Inspect and Verify GOOD WHEEL

Alerts

Alert ID	Alert Occurrence Time	Severity Level Type	Alert Name	Position	Alert Action Text	Alert Symptoms
CDM13505	09/13/09 16:08	MCS	Inspect - High Risk Wheel Impact over 90 closed	L3	The most recent WILD Wheel data report shows any impact with Dynamic < 20 and Ratio < 2. A #1130 open alert has been closed Inspect the wheel.	40617653 Closed...

FIELDS	UPRR DATA	MEANING
STAT_IND	O	OPEN
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EQMT_NBR	721380	
EQMT_SIDE	L	
EQMT_AXLE	3	
EVNT_CRTN_DATE	2/28/2009	OPENED in Feb 2009
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PREV_DYNM_LT_20_DATE	9/13/2009	GOOD WHEEL SUNDAY

Illustration of Overcoming a Non-reported Repair



Overview

- **EHMS/ATSI/JWDS groups found problems**
- **Data Summaries Solve Problems**
 - **Real Time**
 - **Works with Rules Engines**
 - **Standard Format with Enough Info to Accomplish Needs**
 - **Supports Overviews of Health/Statistics**
 - **Improved Prioritization**
 - **Error Handling / Elimination**
 - **Fast Additions / Base Supports ALL Data Types**
 - **Work Arounds for Non-Job Code Items (Locos, HB,)**
 - **Sharing of Information without Years of Committee Vetting**



Hunting Index

EVNT_CRTN_DATE	EQMT_INIT	EQMT_NBR	TRUCK	Count HI >= 0.35	Count HI >= 0.20	LAST HI >= 0.20	EVNT_CRTN_DATE
3/30/2009	BRAN	4724	6	5	8	9/15/2009	3/30/2009
4/5/2009	BRAN	4766	6	5	5	9/11/2009	4/5/2009
5/30/2009	MP	641459	2	5	5	9/6/2009	5/30/2009
4/3/2009	BRAN	4756	1	5	6	8/12/2009	4/3/2009
6/18/2009	TTEX	353683	1	5	5	8/11/2009	6/18/2009
8/10/2009	HS	3707	2	4	5	8/24/2009	8/10/2009
3/30/2009	BRAN	4724	1	4	6	9/15/2009	3/30/2009
7/7/2009	SP	246587	2	4	5	9/1/2009	7/7/2009
4/17/2009	BRAN	4704	6	4	9	8/18/2009	4/17/2009
5/7/2009	TTEX	353772	1	4	6	8/25/2009	5/7/2009
7/6/2009	AGR	320	2	4	4	8/26/2009	7/6/2009
5/20/2009	AGR	5403	1	4	4	8/6/2009	5/20/2009
5/15/2009	NADX	17008	1	4	6	8/4/2009	5/15/2009
4/15/2009	TTEX	353772	4	4	21	9/6/2009	4/15/2009
6/2/2009	PEYX	105554	1	4	4	9/9/2009	6/2/2009
5/27/2009	TTEX	161039	3	4	15	8/28/2009	5/27/2009
6/12/2009	DTTX	427427	8	4	4	9/10/2009	6/12/2009
4/12/2009	DTTX	744384	3	4	4	8/19/2009	4/12/2009
4/21/2009	HS	3729	2	4	5	9/14/2009	4/21/2009
4/1/2009	NYC	281496	2	4	5	9/10/2009	4/1/2009



Acoustic Bearing (RailBAM)

EQMT_INIT	EQMT_NBR	STAT_IND	EVNT_CRTN_DATE	EQMT_SIDE	EQMT_AXLE	OPN_FULL_DESC	EXTD_FLT_CNT	MULT_FLT_CNT	RR_CLSE_DATE
AEPX	3876	C	12/15/2008	L	3	RS1_e	23		6/9/2009
MARX	98573	C	12/12/2008	L	3	RS1_e	21	2	6/17/2009
AEPX	3609	C	12/18/2008	L	3	RS1_e	18	2	8/11/2009
CWEX	2112	C	12/24/2008	R	1	RS1_m	18	1	6/13/2009
AEPX	4430	C	12/29/2008	L	3	RS1_p	17		7/7/2009
ETRX	850598	C	12/28/2008	L	3	RS1_e	17		5/22/2009
CWEX	9526	C	12/25/2008	R	2	RS1_e	16		5/13/2009
COEH	5993	C	12/15/2008	L	3	RS1_m	15	2	6/9/2009
MRDX	99170	C	1/26/2009	L	3	RS1_p	15	0	5/16/2009
JE	6182	C	12/14/2008	L	3	RS1_e	15		8/11/2009
SATX	10103	C	12/16/2008	L	2	RS1_p	15		8/11/2009
AEPX	3551	C	1/7/2009	L	1	RS1_e	15	1	8/11/2009
UCEX	22267	C	12/14/2008	R	4	RS1_e	14		3/18/2009
UCEX	95129	C	12/13/2008	L	3	RS1_e	14		5/21/2009
UCEX	94324	C	12/13/2008	R	1	RS1_p	14		5/22/2009
OMAX	1021	C	12/14/2008	R	2	RS1_e	14		3/15/2009
MAXX	98154	C	12/17/2008	L	1	RS1_e	14		4/19/2009
OVEX	6303	C	12/15/2008	L	1	RS1_p	14	1	6/8/2009
MAXX	98475	C	12/28/2008	L	1	RS1_m	14	2	4/19/2009
AEPX	3657	C	12/17/2008	R	2	RS1_e	14	1	6/30/2009



THE END

- **ATSI Town Hall in Chicago on Sept 30**
Rosemont, IL - 9 to noon, Westin Hotel O'Hare

preliminary Agenda:

- 1) **Progress Reports:**
 - **TPD's, THD's, ABD's, Warm Bearing Trending and WILD's-Statistics**
- 2) **2009 EHMS Updates / 2010 Plans**
- 3) **Data Summaries Update**
- 4) **Truck Bogie Optical Geometry Inspection (TBOGI) Update**
- 5) **ATSI Research Update**

