

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_OWN	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 G Go Bookmarks PageRank 11 blocked Check AutoLink AutoFill Send to

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...

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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**

