

1/1/2014

Track Information provided by Twin Cities General Director Line Maintenance Douglas J. Jensen headquartered in Minneapolis, MN

Derailment on 12/30/2013 on KO Sub M1 MP 28.5, Class 4 track at approximately 1410 hours

1. Track Inspection – Last inspection was completed on Sunday 12/29/1013.
2. Geo Car – November 13, 2013 with no yellow or red tag defects.
3. Rail Detector – Last D-car test at reported POD MP 28.5 was on 12/10/13 by Herzog HRZ134. Since last test - 20 days, 3.9 MGT with a Target frequency of 45 days.

Last 12 months rail defects was 1-SSC M1 MP 28.019 and 1-Crushed Head MP 28.992

4. FRA, NTSB and BNSF can to a consensus on Wednesday 1/1/2014 that the POD was at MP 28.5 on the straight side of a RH #20 turnout with 136lb rail installed in 2005. The POD was 96'6" from point of switch and 60'3" from point of frog. GPS Coordinates – N 46.901067, W 97.2278290
5. Track notes verified that track was good for class of track.

#20 136 lb  
RH Turnout  
Installed 2005

1/1/2013

West

pt of SW with

heel block - wheel change impact marks

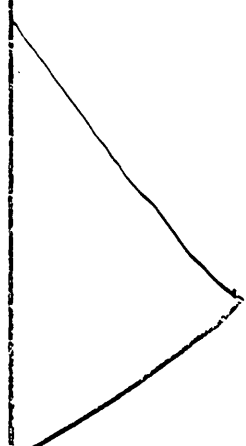
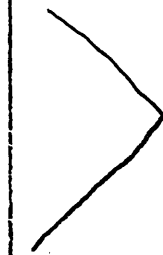
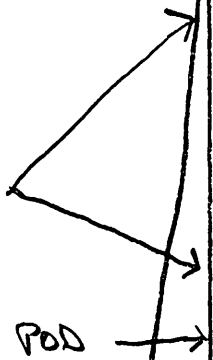
95' to 104' from point of frog  
← sage side clips broke off

light marks on top of sage  
side clips where flange of  
wheel was running

96' 6" from Point of SW.  
60' 3" from Point of Frog

marks on top of both  
N & S straight siderails  
at various locations  
between point of frog  
& POD

wheel marks on  
sage side clips  
& logs



South

North

East



**Rail Defect with Repair Information LS 26 mp 27.500 - mp 29.500  
12/30/2012 12:00:00 AM to 12/30/2013 12:00:00 AM**

DIVISION_CODE	SDIV_NAME	TEST_DATE	LINE_SEGMENT_NBR	TRACK_CHECK_TYPE	TRACK_KM_NBR	MILE_POST	DEFECT_TYPE	RAIL_POS_NAME	DEFECT_CODE	DEFECT_SEQUENCE_NBR	Def Type Test	YEAR_ROLE	DEFECT_ANGLE	DEFECT_ANGLE_MFG	LENGTH_D_DF_CT_IN	Defect Unit of Meas	DFCT_REM_ARC	DEFECT_ANGLE_TYPE	GPS_LATITUDE	GPS_LONGITUDE	DFCT_CORRECT_T	DFCT_FRACTIONAL_REM_CD
TC	KO	4/29/2013	26	M	1	28.019	24	Left Tangent	HRZ134	267	Shelld-Corugated	1,984	132	BE	48.00	IN	48 In SSC	D	46.900486	-97.218201	5/31/2013	R
		8/6/2013	26	M	1	28.997	23	Left Tangent	HRZ134	692	Crushed Head	1,988	132	CF	12.00	IN	12 In CH	W	46.901672	-97.238663	9/27/2013	R
		8/6/2013	26	M	2	27.521	23	Left Tangent	HRZ134	698	Crushed Head	1,984	132	CF	12.00	IN	12 In CH	W	46.898420	-97.182976	8/6/2013	I
		8/6/2013	26	M	2	27.765	24	Left Tangent	HRZ134	697	Shelld-Corugated	2,002	136	RM	72.00	IN	72 In SSC	W	46.900162	-97.212959	8/6/2013	N
		8/6/2013	26	M	2	27.766	24	Right Tangent	HRZ134	696	Shelld-Corugated	2,002	136	PS	*****	IN	120 In SSC	W	46.900162	-97.212959	8/6/2013	N
		12/3/2013	26	M	2	28.381	24	Left Tangent	HRZ134	1,408	Shelld-Corugated	2,004	136	CF	60.00	IN	60 In SSC	T	46.900909	-97.225945	12/3/2013	N
		6/24/2013	26	M	2	28.384	24	Left Tangent	HRZ134	572	Shelld-Corugated	2,004	136	RM	*****	IN	240 In SSC	T	46.900909	-97.225929	6/24/2013	I
		2/19/2013	26	M	2	28.427	32	Left Tangent	HRZ142	95	Bolt Hole Break	1,998	136	OT	5.00	IN	5 In BHB	G	46.900974	-97.227112	3/1/2013	R
		4/29/2013	26	M	2	28.800	24	Right Tangent	HRZ134	268	Shelld-Corugated	1,975	132	CF	60.00	IN	60 In SSC	T	46.901394	-97.234619	5/9/2013	R



# Track Geometry Inspection Measurement Recording Sheet

Revised November 12, 2010

Subdivision KO		Date of Inspection 12/31/2013		Reason for Inspection GRAIN TRAIN DERAILED ON MAIN 1. CAUSING A COLLISION WITH OIL TRAIN ON MAIN 2. STATIONS 1-5 ARE PART OF THE DERAILMENT.	
Line Segment 26		Inspected by L. PACHECO			
Track Number Main 1		Timetable Freight Speed 60			
Begin Milepost 28.493		Timetable Passenger Speed 60			
Direction (Increasing or Decreasing MP) DECREASING		Timetable Talgo Speed 60			
Design Curvature NONE		Design Elevation NONE		Method to Use for Calculating Average 62 foot Mid Ordinates - ( Select and Use Drop Down to Change) Default Setting - Compensates for Curve, Spiral, and Tangent	

Station Location (Feet)	Station #	Cross level (Inches)	Left or Right Rail Low	Max Diff. in 62 Feet	Gage (Inches)	Mid-Ord 62 foot Chord (Inches)	Rail for 62' Mid-Ord	Manual Average 62 foot Mid-Ord (Overrides Spreadsheet Calculation)	Mid-Ord 31 foot Chord (Inches) (Curves Class III and higher)	Rail for 31' Mid-Ord	62 Foot Left Profile (Inches)	62 Foot Right Profile (Inches)	Remarks	Joint Number	Cross level at Joint (Inches)	Low Side at Joint	Change in XLV
0.0	1	6/16	R	4/16	56 4/16		L		10/16	R				1			
15.5	2	3/16	R	4/16			L		- 2/16	R				2			
31.0	3	7/16	R	4/16			L		- 8/16	R				3			
46.5	4	3/16	R	4/16	56 8/16		L		2/16	R				4			
62.0	5	5/16	R	7/16	56 14/16		L		1	R				5			
77.5	6	4/16	R	5/16	56 14/16		L		4/16	R				6			
93.0	7	0	R	5/16	56 9/16		L		- 1/16	R				7			
108.5	8	0	R	4/16	56 8/16		L		0	R			POD between station 7 and 8	8			
124.0	9	0	R	1/16	56 8/16		L		- 4/16	R				9			
139.5	10	0	R	4/16	56 9/16		L		0	R				10			
155.0	11	1/16	R	4/16	56 11/16		L		2/16	R				11			
170.5	12	4/16	R	4/16	56 12/16		L		2/16	R				12			
186.0	13	3/16	R	8/16	56 10/16		L		- 2/16	R				13			
201.5	14	2/16	R	8/16	56 9/16		L		- 4/16	R				14			
217.0	15	4/16	L	8/16	56 9/16		L		0	R				15			
232.5	16	3/16	R	8/16	56 9/16		L		2/16	R				16			
248.0	17	4/16	R	8/16	56 9/16		L		2/16	R				17			
263.5	18	3/16	R	1/16	56 10/16		L		2/16	R				18			
279.0	19	4/16	R	1/16	56 10/16		L		0	R				19			
294.5	20	4/16	R	1/16	56 10/16		L		2/16	R				20			
310.0	21	3/16	R	1/16	56 10/16		L		2/16	R				21			
325.5	22													22			
341.0	23													23			
356.5	24													24			
372.0	25													25			
387.5	26													26			
403.0	27													27			
418.5	28													28			
434.0	29													29			
449.5	30													30			



## Details of Track Inspection & Calculation Results

	Class of Track Limitation	FRA Curving Speed Limitation	Max Allowable Speed
Freight Speed	80	Ins Data	80
Passenger Speed	90	Ins Data	90
Talgo Speed	90	Ins Data	90

Station #	Tangent or Curve	Gage		Warp 62		Superelev/Rev EL		Curving Speeds					62 foot Mid Ord			31 foot Mid Ord (Class 3,4,5 Curves)			62 foot Left Profile		62 foot Right Profile		Maximum Track Class at Station			
		Measurement	Max Track Class	Value	Max Track Class	Measured XLV	Max Track Class	155 foot Curvature (degrees)	155 foot Average Elevation	Max Frt Speed (3" Unbal)	Max Passenger Speed (4" Unbal)	Max Talgo Speed (6" Unbal)	Measured 62 foot MCO	Average 62 foot MCO	62 foot mid chord Deviation	Max Track Class	Measured 31 foot MCO	Average 31 foot MCO	31 foot mid chord deviation	Max Track Class	Measured Left Profile	Max Track Class		Measured Right Profile	Max Track Class	
1		56 4/16	5	4/16	5	6/16	5		5/16																	5
2				4/16	5	3/16	5		4/16									2/16								5
3				4/16	5	7/16	5		4/16									8/16								5
4		56 8/16	5	4/16	5	3/16	5		3/16									- 2/16								5
5		56 14/16	5	7/16	5	5/16	5		3/16									-1								5
6		56 14/16	5	5/16	5	4/16	5		3/16									- 4/16								5
7		56 9/16	5	5/16	5	0	5		2/16									1/16								5
8		56 8/16	5	4/16	5	0	5		2/16									0								5
9		56 8/16	5	1/16	5	0	5		2/16									4/16								5
10		56 9/16	5	4/16	5	0	5		1/16									0								5
11		56 11/16	5	4/16	5	1/16	5		1/16									- 2/16								5
12		56 12/16	5	4/16	5	4/16	5		1/16									- 2/16								5
13		56 10/16	5	8/16	5	3/16	5		1/16									2/16								5
14		56 9/16	5	8/16	5	2/16	5		2/16									4/16								5
15		56 9/16	5	8/16	5	4/16	5		2/16									0								5
16		56 9/16	5	8/16	5	3/16	5		2/16									- 2/16								5
17		56 9/16	5	8/16	5	4/16	5		3/16									- 2/16								5
18		56 10/16	5	1/16	5	3/16	5		2/16									- 2/16								5
19		56 10/16	5	1/16	5	4/16	5		2/16									0								5
20		56 10/16	5	1/16	5	4/16	5		2/16									- 2/16								5
21		56 10/16	5	1/16	5	3/16	5		4/16									- 2/16								5
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