



# **RAILROAD INDUSTRIES AND FREIGHT TRAFFIC**

*The “WHY” Behind Prototype Railroad Operations*

# **A MODEL RAILROADING COROLLARY, AND RULE NUMBER ONE**

- **Never say never (and likewise, never say always)**
- **There are always situations and practices which are outliers . . .**
- **Rule Number One – Whose railroad is it?**

# RAILROADS ARE TRANSPORTATION BUSINESSES

- Railroads are *common carriers*, required to accept and move freight traffic tendered (*commodities*) for established amounts (*rates*) over given *routes*.
- Rail traffic can be either line-haul or a switch move:
  - With line haul traffic, your railroad is in the routing and rate as a line-haul carrier.
  - With switch traffic (generally reciprocal switching), the railroad is not in the route or rate except as a delivering carrier, and earns a fixed fee for handling that car across town between the industry and the line haul carrier.



# **CATEGORIES OF LINE-HAUL RAILROAD TRAFFIC**

- **Originated** (*the shipper is on your railroad*).
- **Terminated** (*the receiver is on your railroad*).
- **Local** (*both shipper and receiver are on your railroad*).
- **Overhead or bridge** (*neither shipper nor receiver are on your railroad - the traffic is originated on railroad A, interchanged to your railroad and delivered to railroad C, which terminates the shipment*).

# RECIPROCAL SWITCHING



- Reciprocal switching is typical in large terminal areas where mutual access is granted between the industries of local line-haul railroads.
- For example, A.E. Staley (now Tate & Lyle) was physically located on the Nickel Plate at Lafayette, Indiana, but if Staley was “open” to reciprocal switching, Monon, Wabash and New York Central could quote line haul rates into and out of the facility as if it were on their own railroad.
- Nickel Plate would still physically switch the cars into and out of the plant for an established switch fee.

# SWITCHING AND TERMINAL RAILROADS

- Switching and terminal railroads exist to effectively serve as (typically) neutral terminal facilities, often in major cities.
- For example, Belt Railway of Chicago, Indiana Harbor Belt, Kentucky & Indiana Terminal, Houston Belt & Terminal, Kansas City Terminal.
- These railroads handle cars between line haul railroads and each other or on-line industries for a switch fee.
- They are typically not part of the line haul routing and rates.
- Industries on switching and terminal lines are effectively on-line customers of the connecting line-haul carriers.

# **PRIMARY DETERMINANTS OF THE “WHY” OF RAIL TRAFFIC FLOWS**

- **Three primary factors determine why you would see a carload of a certain commodity at a given location:**
  - **Economics**
  - **Geography**
  - **Business relationships**

# ECONOMIC CONSIDERATIONS

- While railroads are common carriers, they are not, however required to move freight which is unprofitable (*non-compensatory* in railroad talk).
- Freight rates are typically a function of the *value of the commodity being hauled*, and the *distance of the haul*.



# TYPICAL RAIL-HAULED COMMODITIES

- Commodities are codified in the Standard Transportation Commodity Code (“STCC”), and are assigned a standardized name and seven-digit code:

STCC	Commodity Group	STCC	Commodity Group	STCC	Commodity Group	STCC	Commodity Group
01	Farm products	22	Textile mill products	32	Clay, concrete, glass, stone	42	Shipping devices, empty
08	Forest products	23	Apparel	33	Primary metal products	43	Mail, express traffic
09	Fresh fish/marine prods.	24	Lumber/wood products	34	Fabricated metal products	44	Freight forwarder traffic
10	Metallic ores	25	Furniture or fixtures	35	Machinery exc electrical	45	Shipper association traffic
11	Coal	26	Pulp, paper or allied prods.	36	Electrical equipment	46	Misc. mixed shipments
13	Petroleum & products	27	Printed matter	37	Transportation equipment	47	Small packaged freight
14	Nonmetallic minerals	28	Chemicals or allied prods.	38	Instruments, clocks	48	Hazardous wastes
19	Ordnance or accessories	29	Petroleum or coal products	39	Misc manufactured prods.	49	Hazardous materials
20	Food products	30	Rubber or misc. plastics	40	Waste or scrap materials	50	Bulk boxcar shipments
21	Tobacco products	31	Leather or leather products	41	Misc freight shipments	<b>SOURCE: Railinc</b>	

# **GEOGRAPHIC CONSIDERATIONS**

- **Lower-value, fungible commodities typically don't move beyond alternative origins of the same commodity.**
- **Also, east-west movements historically get expensive over the Chicago, St. Louis or other central US gateways.**

# BUSINESS RELATIONSHIPS

1162

## ROSCOE, SNYDER & PACIFIC RAILWAY COMPANY

### "R-S PACIFIC ROUTE"

General Office—Roscoe Tex. New York Office—74 Trinity Place.

H. O. WOOTEN, President and General Manager, Abilene, Tex. E. J. WORTHY, General Freight and Passenger Agent, Roscoe, Tex.  
 R. O. DOBBINS, Vice-President—Operation, Roscoe, Tex. W. A. HOTMAN, Assistant General Freight Agent, 404 Mid-Continent Building, Fort Worth, Tex.  
 S. H. WOOTEN, Secretary and Treasurer, Abilene, Tex. R. D. WILLIAMS, Asst. General Freight Agent, 224 Monadnock Building, San Francisco, Cal.  
 A. H. HANEY, Auditor, Roscoe, Tex. CHAS. K. BLECH, Gen. Agt., 615 Central Bldg., Los Angeles, Cal.  
 HARRIS and SENTELL, General Attorneys, Snyder, Tex. L. POOLE, Gen. Agent, 226 Woodward Bldg., Birmingham, Ala.

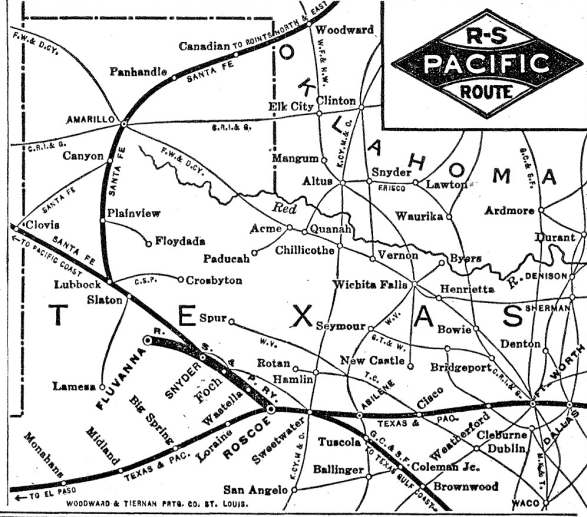
Refer Traffic Matters to General Freight and Passenger Agent: Claims to Auditor: Per Diem and Car Accounts to Vice-President—Operation.

No. 7	No. 5	Mis	January, 1939.	No. 6	No. 8
8 25 A M	8 25 A M	0	LEAVE Roscoe	2 30 P M	2 00 P M
8 50 "	8 50 "	8.0	Wastella	12 05 "	1 15 "
8 58 "	8 58 "	10.8	Inadale	1 55 "	1 25 "
9 20 "	9 20 "	18.9	Hermleigh	1 35 "	1 05 "
9 55 "	9 55 "	30.4	Snyder	1 00 P M	12 30 P M
11 00 A M	11 00 A M	49.2	Fluvanna	1 12 00 A M	11 20 A M
			ARRIVE		

† Daily, except Sunday; § Sunday only; f flag stop. STANDARD—Central time.

Connections.— With Texas & Pacific Ry. With Panhandle & Santa Fe Ry.

**THROUGH FREIGHT TRAFFIC ROUTE**  
**Between PACIFIC COAST**  
 Also all Points North and East,  
**And TEXAS POINTS**  
 Regular and Special Freight Service,  
 Insuring Prompt Dispatch.



- Sometimes shippers (especially larger ones) specify the routing.
- Otherwise, the local agent will set the route, based on established routing protocols oriented to giving the originating carrier the long-haul.

# RATES AND COMMODITIES

- Higher-value commodities tend to travel longer distances than those of lower-value.
- Rarely do commodities travel long distances to an area where those materials are otherwise readily available.
- The number of railroads in the overall haul also affects the rate and viability of the move.



# RATES AND COMMODITIES

Which do you think travels at a higher rate, a hopper load of coal or a trilevel auto rack of new BMWs?



# RATES AND COMMODITIES

How about a container load of new televisions or a boxcar load of scrap paper?



# RATES AND COMMODITIES

How about a tank car load of chlorine or a hopper load of crushed limestone?



# RATES AND COMMODITIES

How about a covered hopper load of corn or a covered hopper load of plastic resin pellets?





# EXAMPLES FROM THE MONON



# EXAMPLES BY INDUSTRIES

Davison Chemical  
1998

- Davison Chemical Division of W.R. Grace in New Albany, Indiana manufactured fertilizer compounds.
- Inbound potash from Canada, New Mexico, Utah.
- Inbound phosphate from Florida's Bone Valley.
- Inbound nitrogen and ammonia.
- Other inbound fertilizer compounds.
- Outbound fertilizer compounds – dry in covered hoppers and liquids in tank cars.

Google Earth  
Image U.S. Geological Survey

300 ft

# EXAMPLES BY INDUSTRIES

- Pillsbury Mills, also in New Albany manufactured refrigerated dough.
  - Inbound flour from the Pillsbury in Springfield, Illinois, and the Upper Midwest and East.
  - Inbound plastic resins from Northeast, Gulf Coast (packaging)
  - Inbound pulpboard from Southeast (packaging)
  - Outbound refrigerated dough (mostly trucks)

# POOL AND ASSIGNED CARS

- Sometimes, cars are assigned for specific loading at a particular station or industry (“assigned cars”).
  - *Appliance loading only. When empty return to General Electric, Appliance Park Ky via L&N or SOU.*
  - *Grain loading only. When empty return agent MON, Bainbridge Indiana.*
- Pool cars are cars of different railroads assigned for loading at a specific major industry, based on their proportion of outbound traffic from that industry (like autoracks or Rio Grande cookie boxes).

# MONON TRAFFIC 1970

Category	Units	%
Originated (tons)	2,072,578	30%
Received from connections and terminated or forwarded (tons)	4,896,333	70%
Total tonnage	6,968,911	100%
Average total cars in each train	66.2	100%
Average loads	41.4	63%
Average empties	24.8	37%
Average tons per load		45.7

# MONON TRAFFIC, 1970

Category	Tons	%
Bituminous coal	1,340,514	19%
Industrial chemicals	429,461	6%
Abrasives, asbestos, etc.	418,436	6%
Sand and gravel	329,593	5%
Crushed stone	296,357	4%
Fertilizers	262,796	4%
Soybeans and associated products	257,508	4%
Cement	240,218	3%
Paperboard, etc.	237,840	3%
Lumber	212,699	3%
Paper	210,652	3%
Corn	182,556	3%
All other commodities	2,550,281	37%

# CONSIST OF MONON NO. 70 AT K&T YOUNGTOWN YARD

## 11/18/70



YOUNGTOWN 11-18-70  
NO 70 ENG 605 508 511 507  
CAB  
RBNX 64516 XB BRC  
SOU 280526 CLAY  
PRR 600144 LOAD  
IC 41935 -  
SOU 16114 PBRD  
- 16175 -  
ATSF 9265 XDF  
CGW 3826 XF  
LN 176533 S TONE  
MP 780455 XDF  
LN 8056 LSTONE  
SOU 37777 CIGRTS  
- 97446 LOAD  
- 98114 -  
- 96419 -  
- 97959 -  
- 97101 -  
WP 3417 XB  
SOU 29164 FURNI  
GATX 85125 XT  
SAL 21050 LOAD  
NAHX 31518 FEED  
NW 160705 XDF  
RNAX 215 XR  
MILW 100232 XCH  
LN 82725 COAL  
MCSTL 46865 -  
LN 116759 -  
- 188937 -  
SAL 35816 CLAY  
LN 101818 PBRD  
CNW 95907 XCH  
GATX 91595 XT  
NW 44904 ROCK  
MP 355171 PBRD  
CBQ 181418 XCH  
SOO 178440 XDF 23  
- 15778 XSP  
IC 28079 LOAD  
SOO 14002 XF  
LN 8437 APPLNCS  
PRR 606534 -  
- 606531 -  
- 600791 -  
EL 182061 -  
SOU 319994 XB  
SCL 495600 JUICE  
LN 137528 COAL  
SOU 16290 PBRD  
- 98553 PHOSP  
SOO 176942 XB  
ACFX 47763 XT  
TTX 101550 APPLNCS  
GTTX 302057 -  
TTX 151663 LCAD  
NP 65543 APPLNCS  
MILW 57417 -  
SOU 6161 CLAY

WA	5111	PBRD	23
MON	1529	-	-
LN	62751	COTTON	-
ACL	121458	PHOSP	-
LN	103974	PBRD	-
-	103955	-	-
-	201275	CLAY	-
-	102571	PBRD	-
UP	113586	XB	-
DLW	54585	WINDEX	-
LN	46721	APPLNCS	-
DUPX	7061	LATEX	-
LN	194311	COAL	-
OG	7853	CHAIRS	-
TTBX	931154	AUTOS	-
TTX	101944	APPLNCS	-
GTTX	302151	-	-
TTX	156975	-	-
-	156748	-	-
-	150600	-	-
XTTX	153584	-	-
TTZ	157017	-	-
XXX	XXXXX	XXXXX	23
TTX	158104	LOAD	23
63-19-4849	-	23	23 PIG
1-0-60	-	23	23 PIG

MCDIEL FILLOUT  
ON HEAD END

MON	52032	CEMENT	29
-	4359	-	-
-	52067	-	-
-	52089	-	-
-	52069	-	-
-	52036	-	-
-	52026	-	-
-	7005	STONE	-

8-0-963 TONS

93#22-7429 TONS  
LANE

# CONSIST OF MONON NO. 72 AT K&T YOUNGTOWN YARD 10/23/70



YOU NGTOWN OCT 23 1970		72 ENGS 607 518 508 606 CAB ?						
NO	MP	131391	APPLNCS	BRC	SLSF	20330	CLAY	S00
LN	LN	46834	.	.	MILW	61065	XB	IHB
SLSF	NP	13114	.	.	LN	7603	BRICK	S00
LN	LN	5677	.	.	SHPX	26348	CLAY	.
ATSF	WAB	92990	.	.	CG	25056	.	.
LN	LN	16809	.	.	GN	39392	APPLNCS	BOCT
CO	MON	90999	.	.	R#	5895	.	.
ATSF	ATSF	92943	.	.	LN	92630	.	.
ATSF	RI	46713	.	.	SP	640204	.	S00
ATSF	LN	1596	XB	.	UTLX	79498	PHOS	IHB
ATSF	LN	56041	.	.	CBQ	40240	FURN	S00
ATSF	LN	56055	.	.	ACFX	47759	XCH	IHB
ATSF	LN	22089	DRUMS	.	.	47772	.	.
ATSF	LN	47725	LAVA	.	.	47774	.	.
ATSF	LN	47897	.	.	.	47773	.	.
ATSF	LN	428	XH	.	NS	5162	PHOS	S00
ATSF	LN	16909	APPLNCS	.	SOU	65083	ORE	29 EJE
ATSF	LN	132618	COAL	.	LN	138004	COAL	A60 SS
ATSF	LN	153220	.	.	.	132512	.	.
ATSF	LN	137636	.	.	GATX	78758	CLAY	CO
ATSF	LN	115044	.	.	HOKX	1392	XT	SS
NWX	LN	204	XR	.	LN	133270	COAL	SS
EFCX	LN	2867	PAPER	.	LN	71523	.	.
AFCX	LN	90977	CLAY	.	LN	136910	.	.
BKTY	LN	20565	PAPER	.	NW	54476	SAND	.
PLE	LN	6144	XB	.	NW	44602	.	.
SOU	LN	42098	ROSI	.	CN	4580147	XB	SS
SOU	LN	35469	PAPER	.	SOU	263006	PBRD	A43
SOU	LN	94717	CLAY	.	GATX	88685	CLAY	.
SOU	LN	93031	.	.	GATX	95364	.	.
SOU	LN	93219	.	.	ACFX	90476	.	.
SAN	LN	246	.	.	LN	130028	COAL	.
EL	LN	50584	.	.	LN	151428	.	.
LN	LN	46698	APPLNCS	.	GTW	303722	XTM	.
SP	LN	640106	.	.				
SOU	LN	27056	.	.				
SOU	LN	27078	.	.				
SOU	LN	27068	.	.				
LN	LN	46779	.	.				
SOU	LN	29918	.	.				
EL	LN	84993	.	.				
MP	LN	38525	.	.				
ACL	LN	24396	.	.				
SOU	LN	29960	.	.				
CBQ	LN	87118	XB	.				
SAL	LN	31473	CLAY	.				
ATSF	LN	48020	TUBS	.				
SCMX	LN	962	XT	.				
SOU	LN	72548	STONE	.				
CP	LN	383601	XCH	.				
CNW	LN	37076	BRICK	.				
S OU	LN	9433	PAPER	.				
SCL	LN	624378	APPLNCS	BOCT				
LN	LN	46643	.	.				
SOU	LN	27076	RUBBERS	S00				
S00	LN	16744	XB	.				
S00	LN	176860	XT	.				
GATX	LN	76663	CLAY	IHB				
SOU	LN	94741	.	.				

43-09-2587 TONS BRC  
16-07-1249 TO NS 23  
01-00-0099 TONS 29  
05-05-0706 TONS A60  
06-01-0567 TONS A43



# CONSIST OF MONON NO. 71 AT SOUTH HAMMOND, 10/29/64



SO HAMMOND OCT 29-64  
 NO 71 HAS GILLILAND OUT. 845PM  
 MON 81532 CABOOSE  
 NIFX 12001 PIG BACK 323  
 TTX 478926 -  
 SOU 35399 XA 323 SOU  
 LN 99651 BOXES LN  
 LN 97138 XA  
 LN 108383 -  
 LN 119731 XH  
 LN 331135 -  
 LN 124413 -  
 LN 78524 -  
 LN 130839 -  
 LN 71429 -  
 LN 76318 -  
 LN 773379 -  
 LN 119181 -  
 RI 42519 FLOUR 323  
 IC 36820 P WOOD KIT  
 EJE 62041 XA LN  
 MILW 65763 MACHY  
 ACL 87997 XCH  
 UP 160026 CASES  
 GATX 59620 ACID  
 GATX 54771 CHEM 323  
 ACL 35249 XA LN  
 ACL 35384 -  
 PFE 20511 LETTUCE 323  
 LN 36032 XG LN  
 ACL 35889 XCH  
 ACL 35283 -  
 PHD 1185 TIRES IC  
 IC 17035 -  
 GATX 75899 XT 323  
 CO 5039 LOAD IC  
 IC 60236 W BRD 323  
 WAB 19233 A PARTS SOU  
 SP 216521 SPUDS -  
 ACL 87123 XCH  
 UP 258023 AHAXXXX MACHY  
 UP 258023 B MACHY  
 MILW 24126 WADDG  
 SOU 9802 ALUMN  
 SAL 8469 XCH  
 SOU 72492 COKE  
 ATSF 73221 STEEL  
 GMO 14039 -  
 MDT 12143 BUTTER  
 CNW 99701 STEEL  
 SHPX 25338 XCH  
 SHPX 25447 -  
 SOU 36510 HAY  
 NADX 123 LARD  
 ACL 491601 XA  
 MILW 24444 MACHY  
 NWX 19969 CD GDS  
 SOOL 69239 FLOUR 317  
 MON 1385 SOAP 317 BO  
 RI 26969 WOOD 317

SO HAMMOND OCT 29-64  
 NO 71 CONT'D  
 MON 3535 XG 222  
 ERIE 87431 CABTS  
 NP 37250 LAOD  
 NP 24440 LBR  
 CNW 24678 DRUMS 282  
 MON 3097 XG 222  
 MON 3518 -  
 NYC 78878 CD GDS  
  
 29-25-2418 TONS 323  
 3-0-176 TONS 317  
 5-3-310 TONS 222  
  
 GETS 5 CABTS AT MONON  
  
 SAL 22487 CABTS 222  
 SP 209575  
 SOU ~~1271~~ 42074  
 SP 66309  
 GN 4153 5-0-150 TONS  
 PICK UP AT DYER  
 MON 4367 XCH 256  
 MON 4335  
 MON 4338  
 FEC 14041  
 MON 4262  
 MON 4254  
 MON 4319  
 MON 4351  
 FEC 14073  
 MON 4269  
 FEC 14146  
  
 0-11- 297 TONS

# CONSIST OF MONON NEW ALBANY SWITCHER, 1/3/66



## MONON RAILROAD

Form 165 2nd Rev.

### CONDUCTOR'S REPORT OF REVENUE FREIGHT TRAIN (DO NOT USE FOR PASSENGER OR WORK TRAIN)

FIRST CREW: Train No. **SWITCHER** Left..... Time **6/30 AM** Date **1 3 66**

Conductor..... Eng. No..... Arrived..... Time..... Date.....

SECOND CREW: Train No..... Left..... Time..... Date.....

Conductor..... Eng. No..... Arrived..... Time..... Date.....

THIRD CREW: Train No..... Left..... Time..... Date.....

Conductor..... Eng. No..... Arrived..... Time..... Date.....

Train No..... Arrived..... Time..... Date.....

Conductor..... Eng. No..... Left..... Time..... Date.....

Sheet No. \_\_\_\_\_ of \_\_\_\_\_ Sheets

Any rough handling, train parted, accident, etc.

Yes or No.....

Explain on reverse side.

\_\_\_\_\_ 1st Crew

\_\_\_\_\_ 2nd Crew

\_\_\_\_\_ 3rd Crew

\_\_\_\_\_ 4th Crew

Line No.	Initial	Number		Kind	Weight in Tons		Where Taken	Where Left	Date and Time Taken	Car Miles	Monon Destination
		Loaded	Empty or Contents		Tare	Net					
1	HP	7896	B	26						317	
2	MON	1735	B	26						317	
3	NYC	79184	B	26						317	
4	SP	211713	B	26						317	
5	SOU	116008	BRICK	B	26	109				317	
6	SSW	222	21263	B	26					317	
7	LN	152940	COAL	H	21	75				317	
8	MON	742	NDSE	B	26	10				317	
9	PLE	41554	LOGS	B	26	30				317	
10	SP	107484	SUGAR	B	26	40				317	
11	HW	51101	P BD	B	26	44				317	
12	HILW	97201	FLOUR	B	26	80				317	
13	HILW	97200	FLOUR	B	26	78				317	
14	GND	56351	WOODS	B	26	32				317	
15	LN	171337	WOODS	B	26	42				317	
16	HW	42874	FERTZ	B	26	30				317	
17	ACL	316877	PAPER	B	26	22				317	
18	HW	51104	P BD	B	26	45				317	
19	ATSF	145551	FERTZ	B	26	50				317	
20	AA	290	FERTZ	B	26	50				317	
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# SUMMARY

- Cars most likely reloaded toward the home road include:
  - General service (unequipped) boxcars
  - General service (unequipped) gondolas
  - General service (unequipped) flatcars
  - Hopper cars
- For your model railroad, do a little research:
  - Industries and commodities
  - Traffic patterns and flows
  - Connecting railroads
  - Train operations
  - Equipment rosters and assignments
- Remember Rule Number 1 – it's YOUR railroad! HAVE FUN!

# RESOURCES

- The Interwebs
- NMRA OpSIG and *The Dispatcher's Office*
- Employee timetables, dispatcher sheets and train consists
- Traffic data, tariffs and industry guides
- Equipment rosters and car assignment guides
- Standard Transportation Commodity Code
- The Official Guide to the Railroads (“Official Guide”)
- Official Railway Equipment Register (“ORER”)
- Switching guides and car inventory booklets
- Track maps and valuation maps (“val maps”)
- Annual reports and statistical supplements
- Employee interviews