



Operations on the SJR&P

Photo credits:

Deb Ames
Bob Hyman
Robert Manchek
Nancy Norris
Richard Rockwood
Thelma Shoneman
Mark Sylvester



Stan Ames
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The SJR&P Railway Overview

- **Scale:** Fn3 (1:20.3 3ft-narrow gauge)
- **Size:** 200' x 180' with over 16 scale miles of track
- **Prototype:** American 3' narrow gauge
- **Local:** rugged hills of the North East
- **Era:** 1940-1950s
- **Style:** linear with 6 main destinations yards
- **10 branch lines**, 70 industries/ switching locations
- **Mainline run:** 4 scale miles (1100')
- **Minimum degree of curve:** 43° (2 Meters)
- **Minimum Turnout:** #6 mainlines #4 yards/industries
- **Maximum Grade:** 2.5% mainline, 4% branch
- **Elevation Change:** 375 scale feet (18.6 feet)
- **Roadbed:** gravel roadbed
- **Track:** 110 lb rail (code 332 stainless steel and brass)
- **Scenery:** garden setting
- **Backdrop:** natural sky
- **Control:** DCC/Digital plus by Lenz





Different railroads have different operating styles

- Different prototype railroads operated differently.
- Timeframe of railroad provided different operating styles.
- How host has implemented different concepts also effects operation style.
- Garden railways have adopted a wide variety of styles to fit the needs of the individual railroad.





SJR&P operating style

- We've tried to structure our operations in part to how the D&RGW NG did its operations in the 40s-70s.
- Communication styles are still evolving.
 - we currently use FRS radios
 - may move to phones in the future
- Operating scheme is also evolving.
 - 2-person train crews
 - Agents to help plan out car movements
 - Train orders for train movements
 - As we gain experience we adapt





Operation positions on the SJR&P

We employ the following positions during operating sessions

- Superintendent
- Crew Chief
- Agents/Yard Master
- Dispatcher
- Crews (Engineer and Brakeman/Conductor)





Superintendent position

- The superintendent organizes the operations session and works with all the other members of the crew to resolve any issue that may come up during the session





Crew Chief

The Crew Chief is responsible for getting trains out on the railroad

- Follows the session schedule as a guide
- Works with the agents and dispatcher to reduce congestion and ensure that yards not get overloaded.
- Assigns locomotives and trains to crews

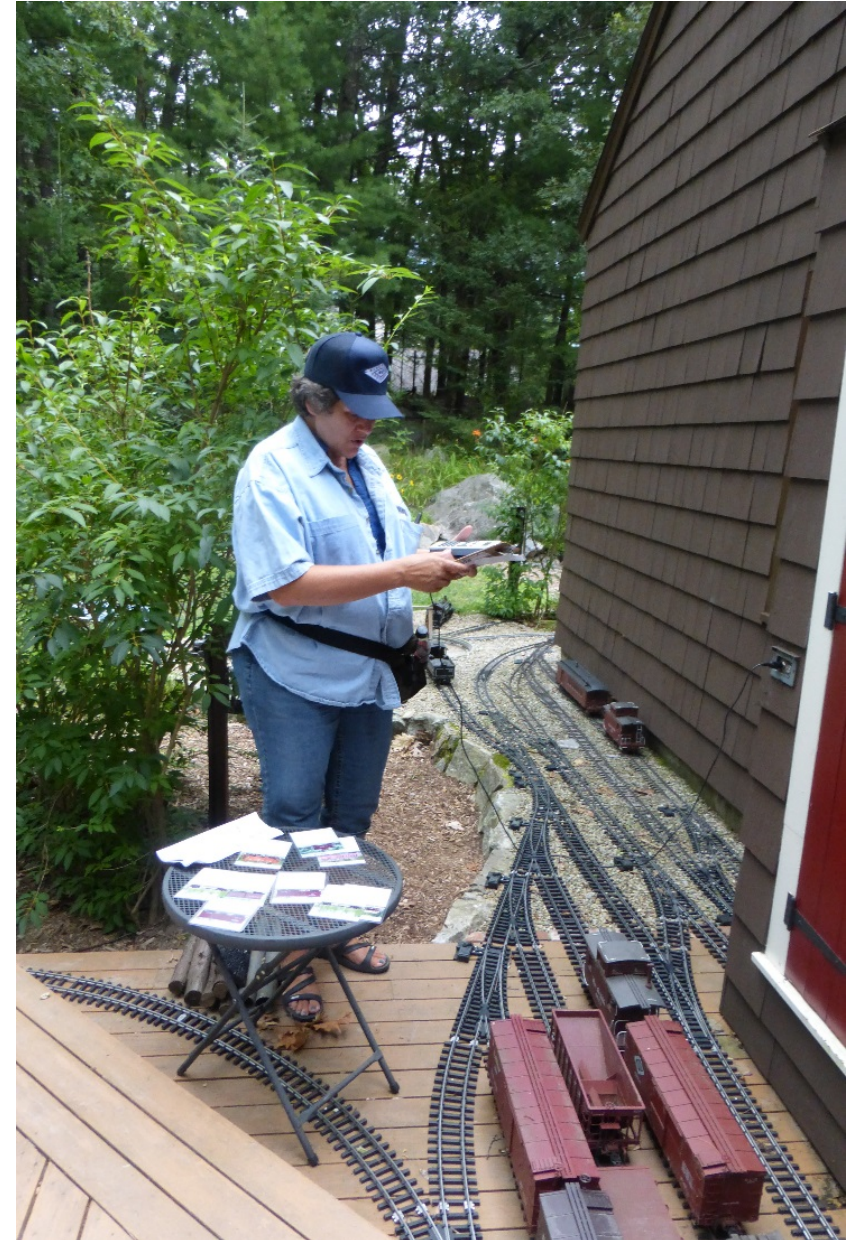




Agents: from Customer Request to Completed Shipment.

- The primary interface for the customer until the 60's was the Freight Agent. The Freight Agent collects the customer needs, arranges for the proper car to be spotted, and constructs the waybill for the cars contents so that the contents can be shipped to their destination and the customer can be billed.
- The primary interface for the Train Crew until radio communication was the Station Agent.
- The station agent provided the crews with orders.

1/7/2018





Dispatcher is in control of all movements outside yard limits.

- Crews must call in for orders before leaving yards, at a lowered train order signal or when they have cleared their order.
 - Proceed Orders - allow movement in one direction only
 - Between Orders - allow unlimited movement between two points
- Crews use Form 19s to record train orders.
- Form Ds are used to provide special instructions to crews.
- Before entering a yard, the engine crew will sound Approaching Waiting or Meeting Point signal. All movement within yard limits is at restricted speeds.





Train Crew

- On the SJR&P our Train Crews consist of two people: engineer and conductor/brakeman
- Crew picks up list of waybills from agent at initial station and constructs switchlist for run.
- Switching takes a lot of time and work, so proper planning on how a train is made up can save a lot of time.
- If origin yard has a yard crew, train may be made up; if not train crew makes up train.
- Before leaving the yard limits, the train crew needs a clearance card or orders from the dispatcher.
- Along the route, the train crew may have to pick up or set out cars
- At destination, crew needs to put out cars and put locomotive away.





A variety of documents assist operations

SJR&P Ry
Switchlist

Train No: ZRSL Eng. No: 40
Left: 1:20 m Date: Sept. 30 1917
Arrived: _____ m. Conductor: Bob Marchek

Rpt-Mks	Car No.	Type	Pull	Spot	Cons'ee	CK
1	EBT	903	Hgn	ZR	SL	yard ✓
2	D+R6W	3528	Bx	ZR	SBPT	yard
3	SJR+P	1785	Bx	ZR	CH	yard ✓
4	D+R6W	1722	Ca	ZR	Am	yard ✓
5	SJR+P	60				
6						
7	D+R6W					
8	D+R6W					
9	D+R6W					
10						
11	SJR+P	12				
12	R6S	4				
13						
14	R6S	2				
15	WSL					
16						
17	COAX	1				

FORM D SJRP FORM D

TRAIN NUMBER CHUW

SPECIAL ORDERS:

Chama Special Orders

Take all cars Going to Lower Woods Division and Garden Division



FORM 19 SJR&P FORM 19

TRAIN NUMBER ZRSL

Box 1: Proceed Order
Box 2: Between Order
Box 3: Restricted Order

ORDERS:
PROCEED from ZEPHYR

Denver & Rio Grande Western
K-27

DRGW 463

To: Riley - DD

Consignee: Gateside Furniture Co

Route Via: Bat House Yard

From: Cedar Deck

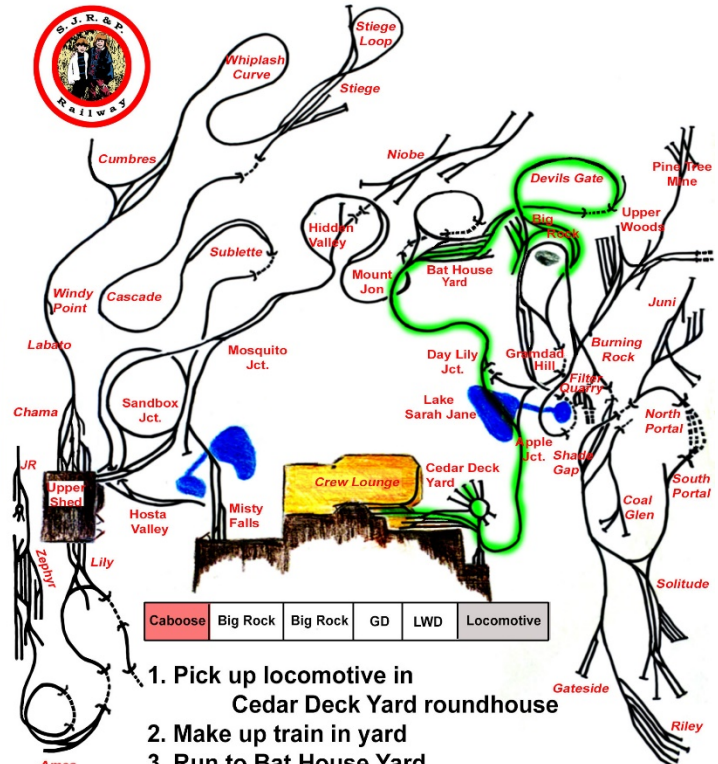
Shipper: Missoula Lumber Mills

Contents: Lumber

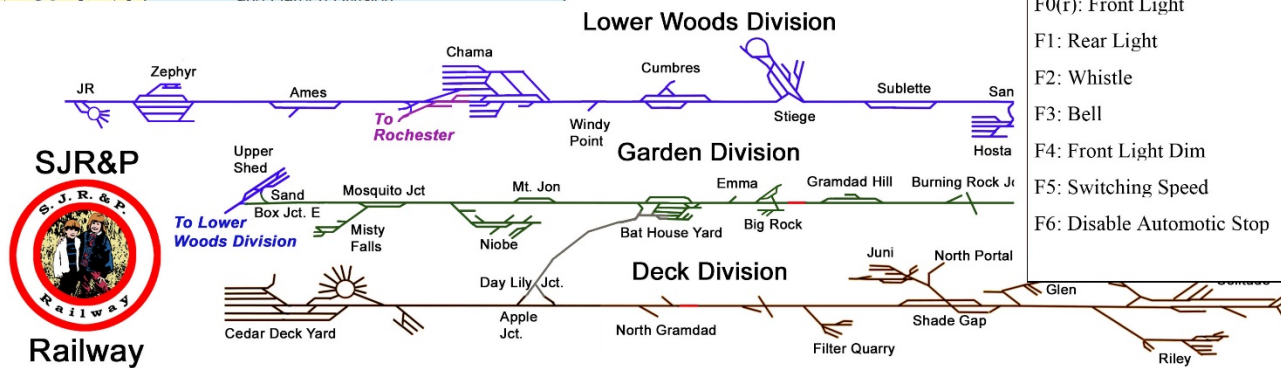


- F0(f): Front Light
- F0(r): Front Light
- F1: Rear Light
- F2: Whistle
- F3: Bell
- F4: Front Light Dim
- F5: Switching Speed
- F6: Disable Automatic Stop
- F7: Cab Light
- F8: Classification Lights
- F9: Blow Down
- F10: Coupler Clank
- F11: Coal Loading
- F12: Water Filling

Big Rock Local



1. Pick up locomotive in Cedar Deck Yard roundhouse
2. Make up train in yard
3. Run to Bat House Yard
4. Switch cars
5. Run to Big Rock
6. Switch factory and team track
7. Return to Cedar Deck Yard via Bat House Yard
8. Switch cars in yard
9. Service locomotive and return to roundhouse





Route Instructions

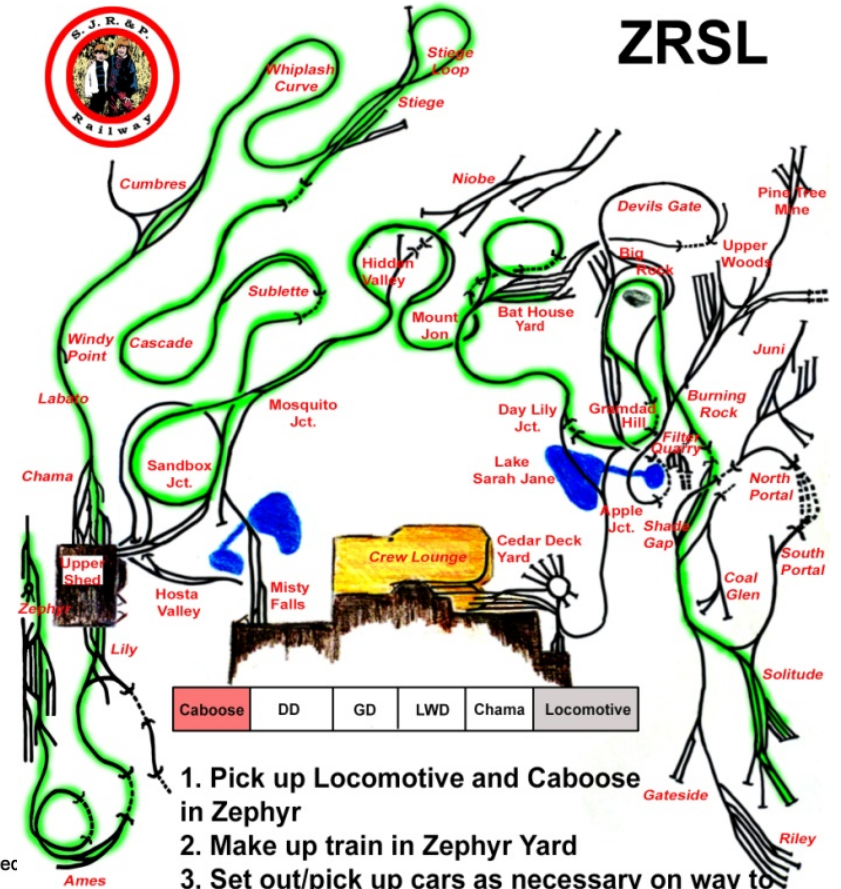


Each train crew receives a clearance card that contains a route map and route instructions (right) along with a linear semantics of the railway (below).

Zephyr to Solitude

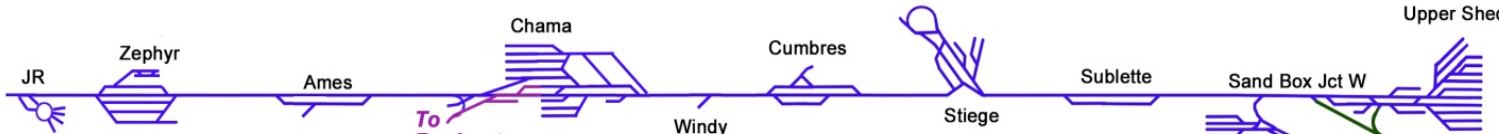


ZRSL



1. Pick up Locomotive and Caboose in Zephyr
2. Make up train in Zephyr Yard
3. Set out/pick up cars as necessary on way to Bat House Yard
4. Add helper in Cumbres if necessary
5. Run from Bat Yard to Solitude
6. Switch cars
7. Turn Locomotive and leave in Solitude engine house for coal and water

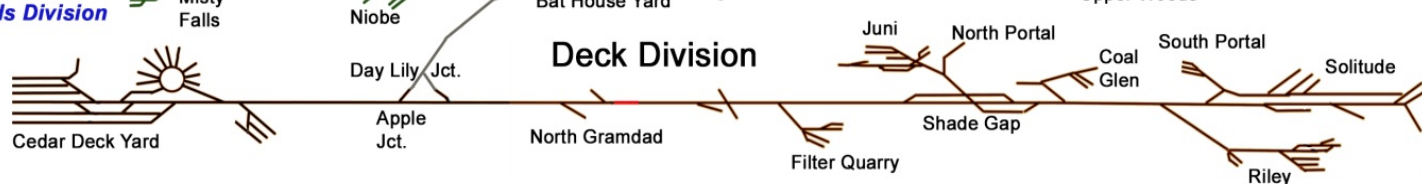
Lower Woods Division



Garden Division



Deck Division



<- Linear schematic

SJR&P



Railway



Locomotive card : characteristics of the locomotive

Denver & Rio Grande Western
K-27

DRGW 463



- | | |
|----------------------------|---------------------------|
| F0(f): Front Light | F7: Cab Light |
| F0(r): Front Light | F8: Classification Lights |
| F1: Rear Light | F9: Blow Down |
| F2: Whistle | F10: Coupler Clank |
| F3: Bell | F11: Coal Loading |
| F4: Front Light Dim | F12: Water Filling |
| F5: Switching Speed | |
| F6: Disable Automatic Stop | |

Maximum Load for # 463

	East	West
	9	12
Restrictions		
Day Lily Jct to Solitude	8	
Deck to Apple Jct	7	
Cumbres to Chama		9

Narrow Gauge Railroads typically run at less than 15 MPH. A speed of 2 seconds per 30' car is approximately 12MPH

Whistle Signals: 0 short, - long

0	Apply Brakes. Stop
--	Proceed
0 0	Release Brakes. Answer to any Signal not otherwise Provided
0 0 0	When standing, back up. When running, stop at next station
-- 0 -	Approaching public grade Crossing
-	Approaching Station
-- 0	Approaching waiting or meeting point
- 0	Warning. Response to yellow flag



Waybill

- Contains key information on car movement
- Destination Town
- Destination Industry
- Routing Instructions

1/7/2018

SJR&P
XM-Box Car

SJRP 1510



To: Riley - DD

Consignee: Gateside Furniture Co

Route Via: Bat House Yard

From: Cedar Deck

Shipper: Missolua Lumber Mills

Contents: Lumber



Form 19

- Each time a train is taken outside yard limits, a train order from the Dispatcher is required
- Proceed Orders - allow movement in one direction only to the location as instructed by the dispatcher.
- Between Orders - allow unlimited movement between two points
- The Conductor/Brakeman records the order on a Form 19

FORM 19	SJR&P	FORM 19
TRAIN NUMBER		<u>ZRSL</u>
Box 1:	Proceed Order	<input checked="" type="checkbox"/>
Box 2:	Between Order	<input type="checkbox"/>
Box 3:	Restricted Order	<input type="checkbox"/>
ORDERS: <i>PROCEED FROM ZEPHYR TO CHAMA</i> <i>CALL when arrived IN CHAMA</i>		
TRAIN ORDER #		<u># 1</u>



Form D

Form Ds are supplemental instructions to the Train Crew

- Used to indicate special switching moves in addition to the train orders

FORM D	SJRP	FORM D
TRAIN NUMBER		<u>CHUW</u>
SPECIAL ORDERS:		
Chama Special Orders		
Take all cars Going to Lower Woods Division and Garden Division		
Switch: Windy Point, Cumbres, Stiege Team Track and Gray's Refuse		
Note: Train over 9 cars needs helper after Cumbres		
SPECIAL ORDER # _____		



Switching List

- Switching lists are used by the train crew to organize the train and its movements along the route.
- Helps to organize the set of waybills that the crew is handling

SJR&P Ry

Switchlist

Train No: ZRSL

Eng. No: 40

Left: 1:20 m

Date: Sept. 30 1917

Arrived: _____ m.

Conductor: Bob Manheke

Rpt-Mks	Car No.	Type	Pull	Spot	Cons'ee	CK
1	EBT	Hq.	ZR	SL	yard	✓
2	D+R6W	Bx	ZR	SB Jct	yard	
3	SJR+P	Bx	ZR	CH	Yard	✓
4	D+R6W	601.	ZR	Cum	Teamtk.	✓
5	SJR+P	6023 FH.	ZR	Cum	"	✓
6						
7	D+R6W	797	601	CH	WP WP Stave	✓
8	D+R6W	793	601	CH	WP "	✓
9	D+R6W	161	601	CH	Stiege GRAYS	✓
10						
11	SJR+P	1247	601	WP	Niche B. Asphalt	
12	R6S	4455	601	WP	Pine tree Teamtk	✓
13						
14	R6S	2101	Rtr.	Cum	SL yard	✓
15	WSL	73	Log	Cum	BAT yard	✓
16						
17	CONX	17	TR.	Bat.	SL yard	
18	WSL	62	Log	Bat.	SL yard	
19						
20						



Big Rock Local – Example of operations





Start of Operations

- At the start of operations the Superintendent brings everyone together to go over the day's train orders
- Train orders are key to ensure all train crews understand the day's operations
- Also key is describing any railroad restrictions



S. J. R. & P. RY

TRAIN ORDER NO.: 081217 **DATE:** August 12, 2017

Dispatcher: Jane **Crew Chief:** Deb, John **Bat Yard:** Greg **Agents:** Mal - Chama, Paul – Solitude, Shack – Upper Woods, Tom - Upper Shed, Joe - Deck

All locomotive movements outside of yard limits are under control of Dispatcher.

Crews must call in for orders before leaving yards, at a train order signal that is down or when they have cleared their order.

Proceed Orders - allow movement in one direction only.

Between Orders - allow unlimited movement between two points

Form 19s are used to record train orders.

Form Ds are used to provide special instructions to crews.

Before entering a yard, engine crew will sound Approaching Waiting or Meeting Point signal.

All movement within yard limits is at restricted speeds.

Slow Orders – Deck Yard to Apple Junction – bad ties

Special Notes

1. ***Locals responsible for ALL cars movements in the town served.
2. Crews should use Switch Lists to organize route.
3. All communications on Channel 13.
4. Train lengths are number of cars not counting caboose but should be reduced for track conditions and loads.
5. Yard Crews must clear an arrival track 5 minutes before train arrival.
6. Available crews report to Crew Chief for Assignments. Upon completion of assignment return train board and locomotive card to crew chief.
7. Whistles should be used at all appropriate locations.
8. Any cars deemed defective will be stored with their waybill on the RIP track in Bat Yard.
9. Any problems identified will be recorded on a bad order list and left with crew chief.

CONDUCTOR AND ENGINEER MUST EACH HAVE A COPY OF THIS ORDER

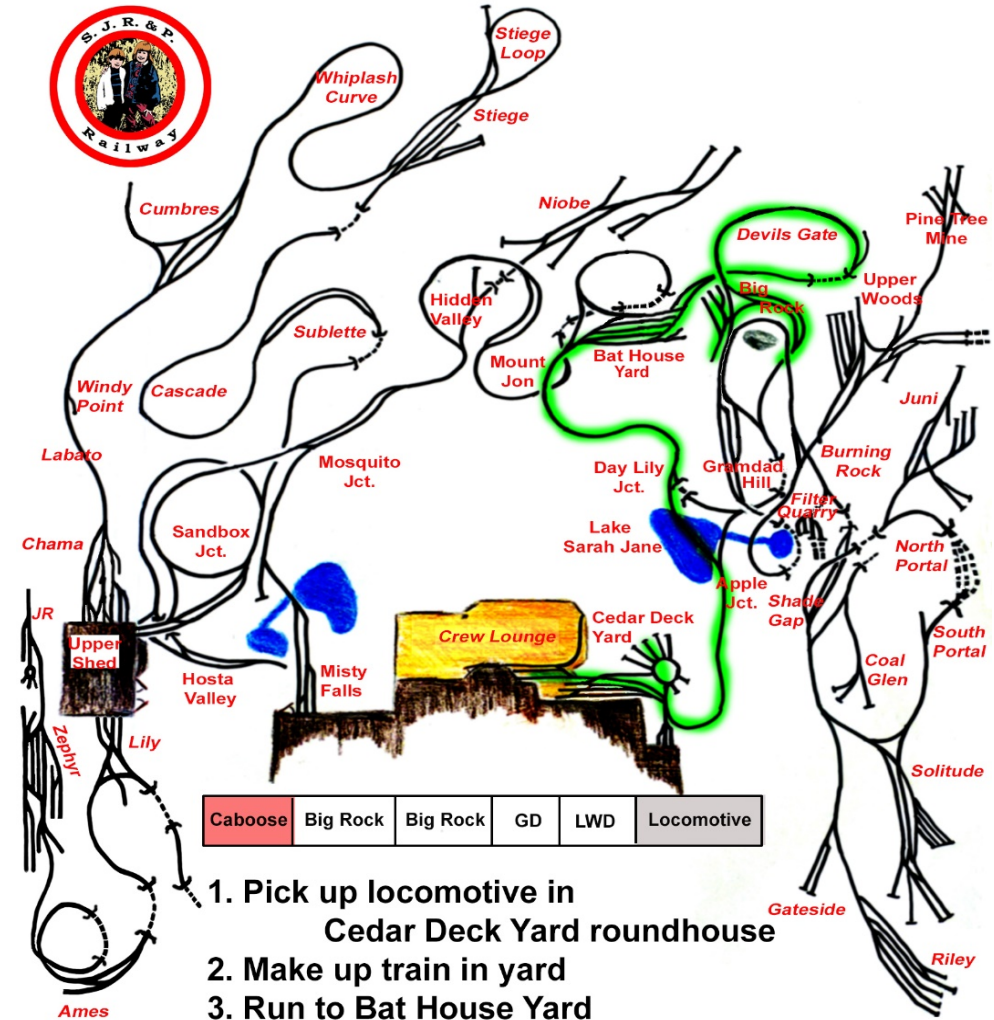
SJR&P Operations Manager: Stanley R. Ames Jr



Before you begin your run:

- Get your assignment from the Crew Chief
 - Train clearance card contains route and simplified instructions. Green highlighting shows route on card.
- **If new route, best to walk route first to gain familiarity with run.**
- Make up your train at the origin yard
- Plan your switching.
- Block your train.
 - Each movement takes time
- Figure out the order of the cars in your train
 - Reduces extra movements
- Make sure dispatcher gives you permission each time you enter the mainline.

Big Rock Local



Caboose	Big Rock	Big Rock	GD	LWD	Locomotive
---------	----------	----------	----	-----	------------

1. Pick up locomotive in Cedar Deck Yard roundhouse
2. Make up train in yard
3. Run to Bat House Yard
4. Switch cars
5. Run to Big Rock
6. Switch factory and team track
7. Return to Cedar Deck Yard via Bat House Yard
8. Switch cars in yard
9. Service locomotive and return to roundhouse



The Origin Yard for this Train is Cedar Deck Yard

- Work with the Yard Agent to understand which waybills you will be handling.
- Service your locomotive.
- Make up your train at the origin yard
- Plan your switching – **Make Switching List**
 - Each movement takes time
- Block your train.
 - Figure out the order of the cars in your train
 - Reduces extra movements
- Make sure dispatcher gives you permission before you leave the yard limits.
- **Copy instructions on form 19.**





First Stop Bat Yard

- Bat Yard is a busy place on the SJR&P.
- Cars not destined for Big Rock will be left here.
- Agent/Yardmaster will provide you with additional Waybills for Big Rock.
- **Revise Switching List**
- Make sure Dispatcher gives you permission before you leave the yard limits.
- **Copy instructions on form 19.**
- Head to Big Rock where you will service industries.



Big Rock Switching Example

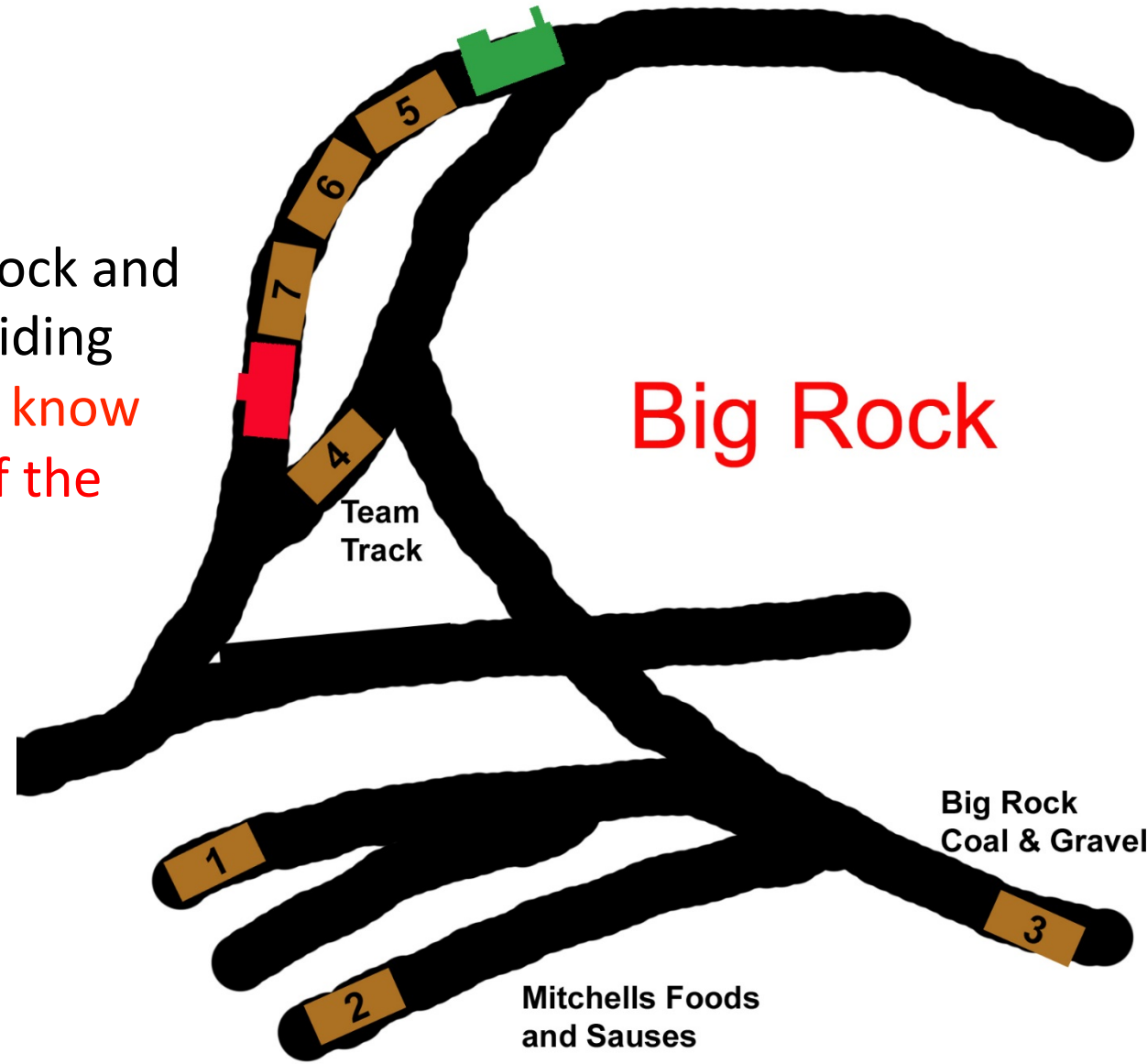
Step 1

SJR&P Ry
Switchlist

Train No: BRL Eng. No: _____
 Left: _____ m Date: _____ 19__
 Arrived: _____ m. Conductor: _____

Initials	Car No.	T	Lading	Pull	Spot	Cons'ee
1	5				X	CG
2	6				X	TT
3	7				X	MF
4	1					
5	2			X		
6	3			X		
7	4			X		
8						
9						
10						
11						
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- Arrive at Big Rock and pull train into siding
- Let dispatcher know you are clear of the Main Line



Big Rock Switching Example

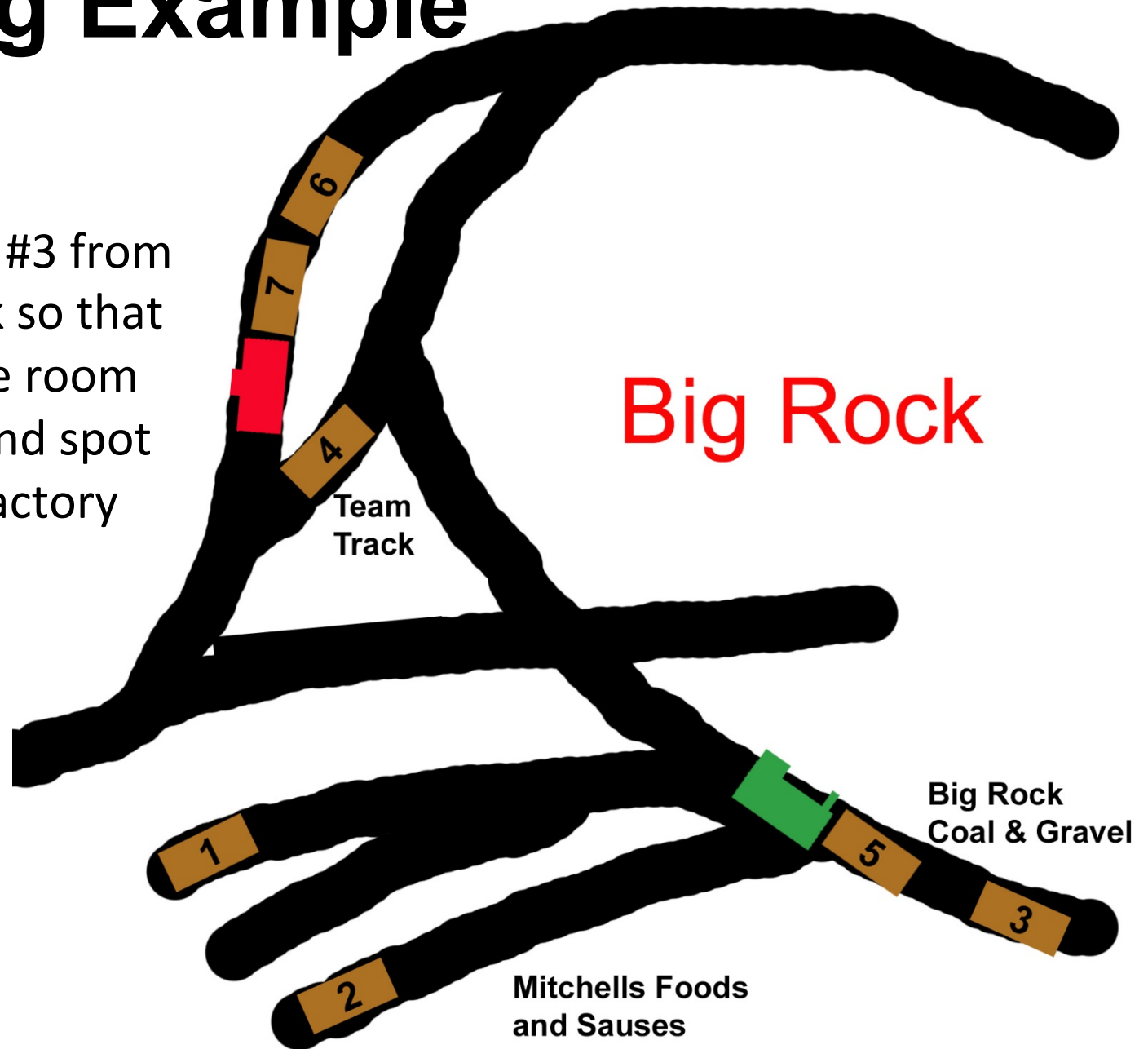
Step 2

SJR&P Ry
Switchlist

Train No: BRL Eng. No: _____
 Left: _____ m Date: _____ 19____
 Arrived: _____ m. Conductor: _____

Initials	Car No.	T	Lading	Pull	Spot	Cons'ee
1	5				X	CG
2	6				X	TT
3	7				X	MF
4	1					
5	2			X		
6	X	3		X		
7	4			X		
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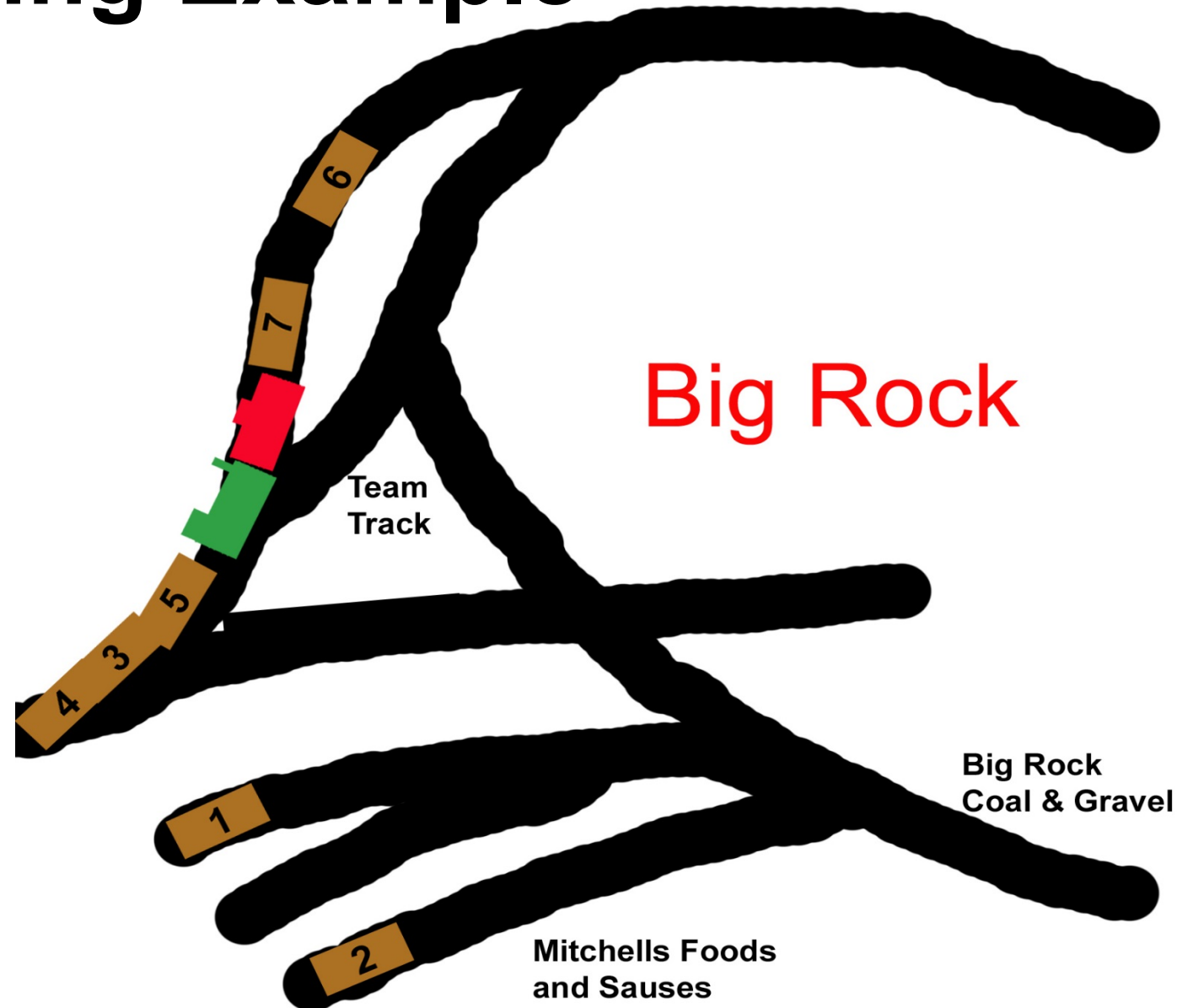
•Pull car #3 from tail track so that you have room to pull and spot cars in factory



Big Rock Switching Example

Step 2

- Run around train.
- Pick up caboose and Car7.
- Make sure you clear move with Dispatcher.



Big Rock Switching Example

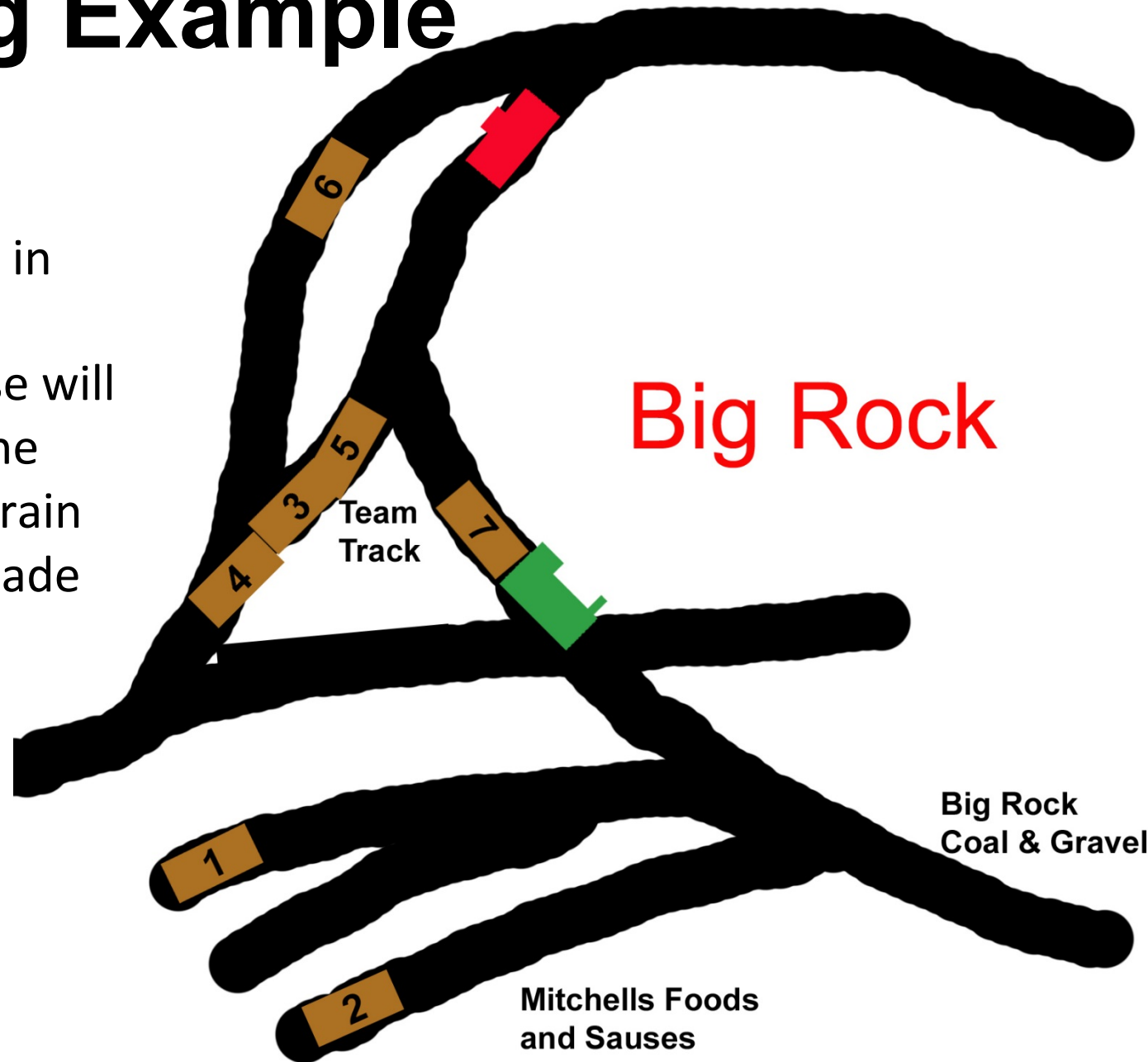
Step 4

SJR&P Ry
Switchlist

Train No: BRL Eng. No: _____
 Left: _____ m Date: _____ 19____
 Arrived: _____ m. Conductor: _____

Initials	Car No.	T	Lading	Pull	Spot	Cons'ee
1	5				x	CG
2	6				x	TT
3	x	7			x	MF
4	1					
5	2			x		
6	x	3		x		
7	4			x		
8						
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- Spot car #7 in the factory
- The caboose will now be at the rear of the train when it is made up



Big Rock Switching Example

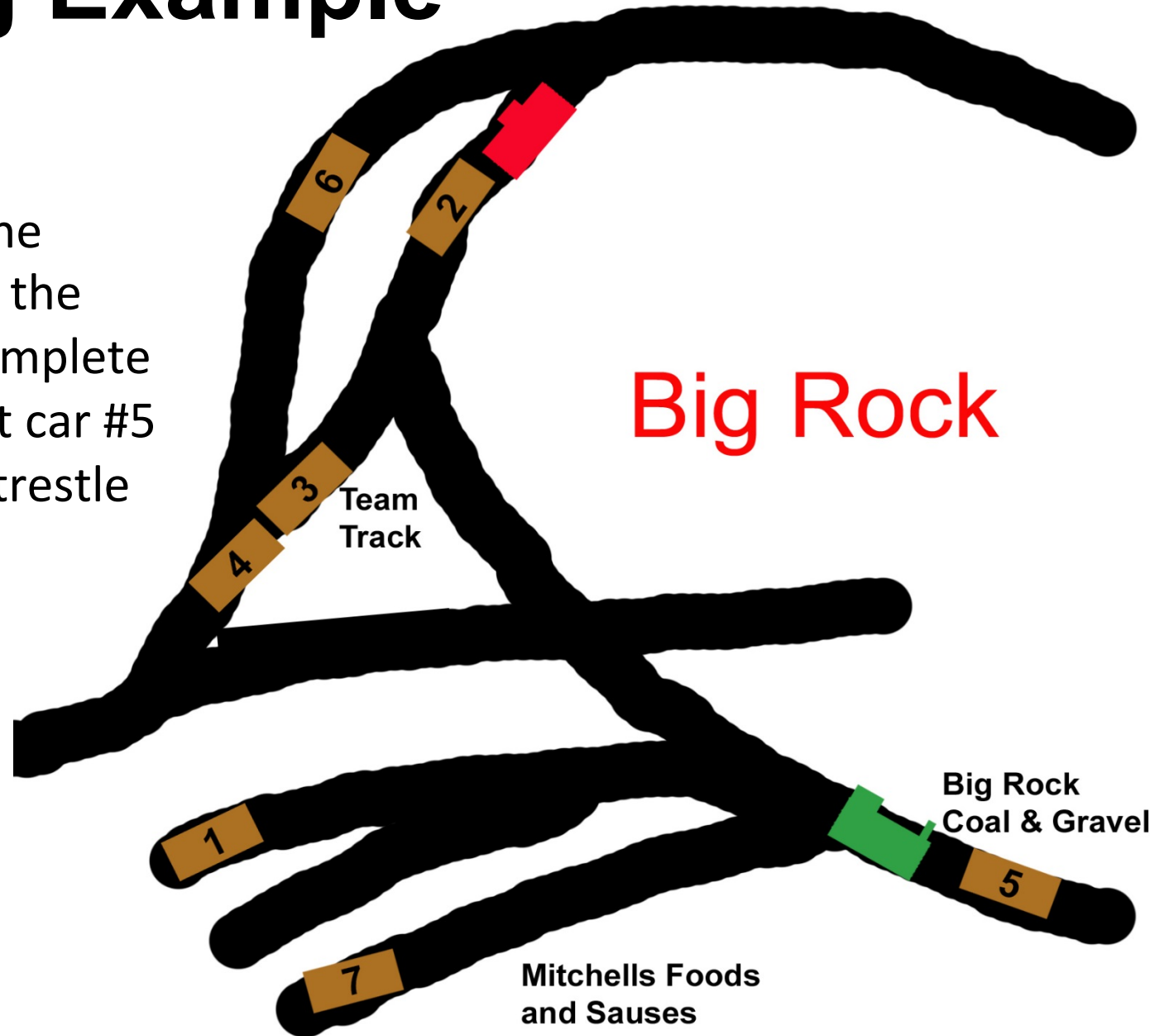
Step 6

SJR&P Ry
Switchlist

Train No: BRL Eng. No: _____
 Left: _____ m Date: _____ 19____
 Arrived: _____ m. Conductor: _____

	Initials	Car No.	T	Lading	Pull	Spot	Cons'ee
1	x	5				x	CG
2		6				x	TT
3	x	7				x	MF
4		1					
5	x	2			x		
6	x	3			x		
7		4			x		
8							
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•Now that the switching at the factory is complete you can spot car #5 on the coal trestle



Big Rock Switching Example

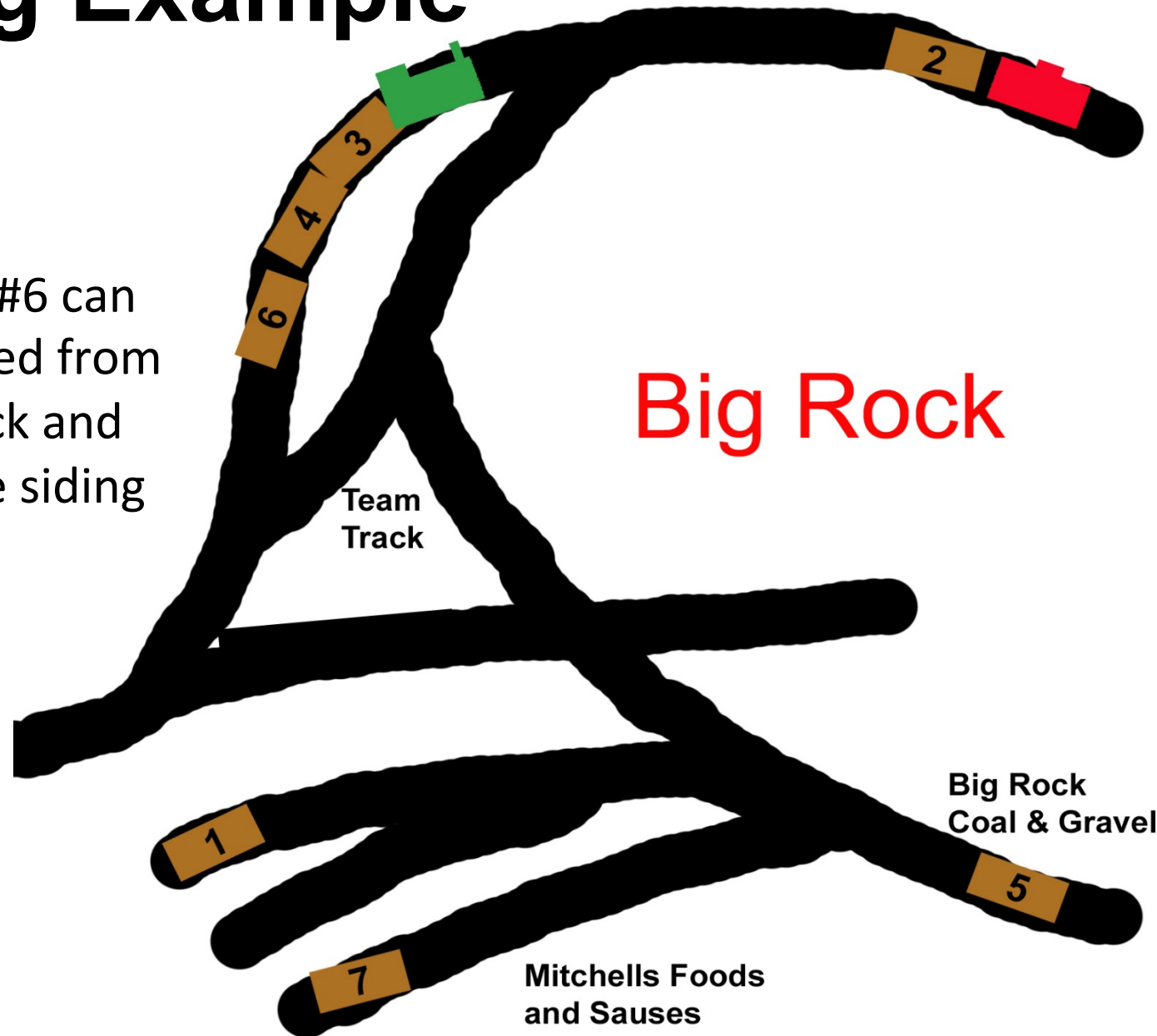
Step 7

SJR&P Ry
Switchlist

Train No: BRL Eng. No: _____
 Left: _____ m Date: _____ 19____
 Arrived: _____ m. Conductor: _____

	Initials	Car No.	T	Lading	Pull	Spot	Cons'ee
1	X	5				X	CG
2		6				X	TT
3	X	7				X	MF
4		1					
5	X	2			X		
6	X	3			X		
7	X	4			X		
8							
9							
10							
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•Cars #3 and #6 can now be cleared from the team track and placed on the siding



Big Rock Switching Example

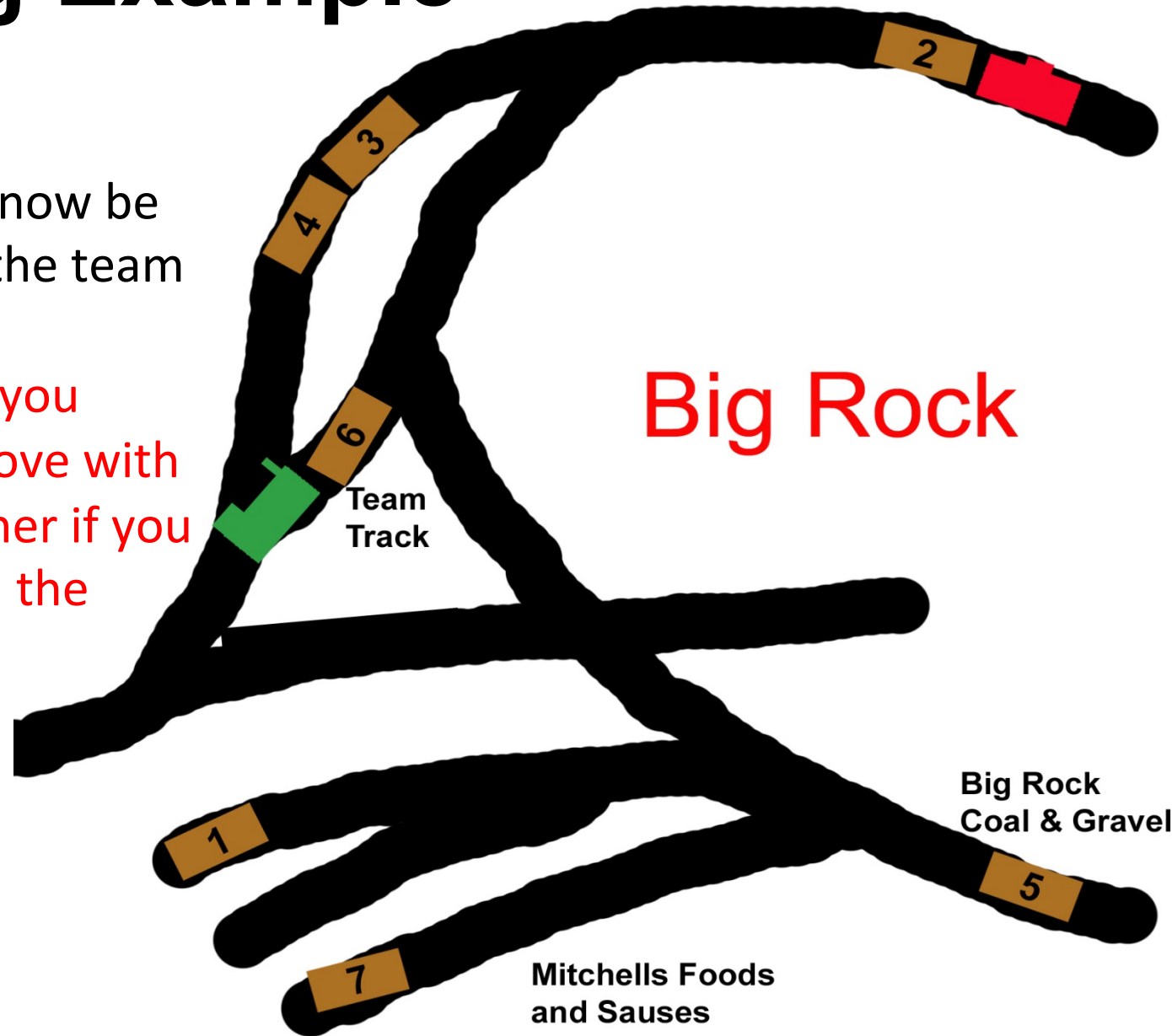
Step 8

SJR&P Ry
Switchlist

Train No: **BRL** Eng. No: _____
 Left: _____ m Date: _____ 19__
 Arrived: _____ m. Conductor: _____

	Initials	Car No.	T	Lading	Pull	Spot	Cons'ee
1	x	5				x	CG
2	x	6				x	TT
3	x	7				x	MF
4		1					
5	x	2			x		
6	x	3			x		
7	x	4			x		
8							
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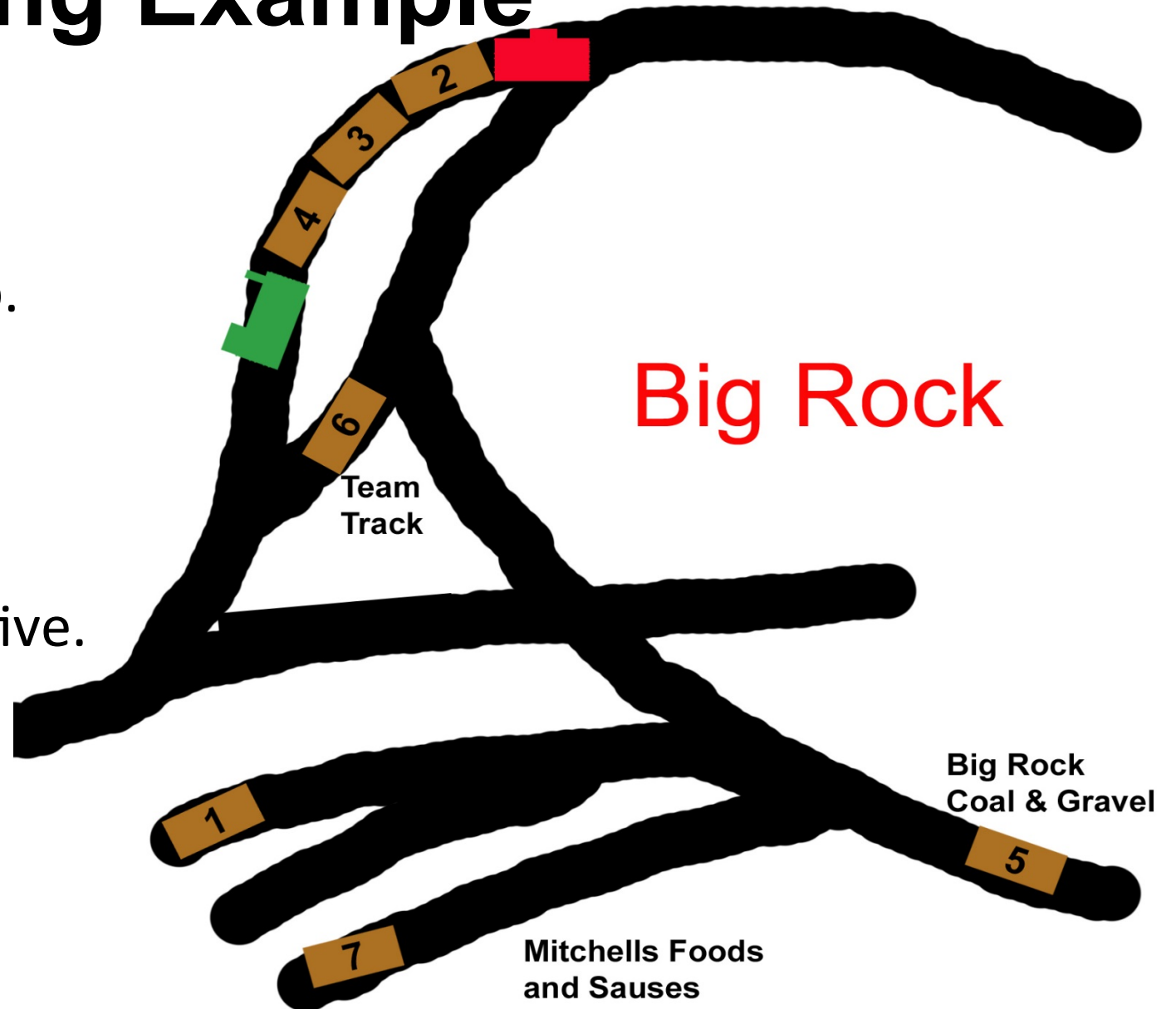
- Car #6 can now be spotted on the team track
- Make sure you clear this move with the Dispatcher if you need to foul the main line



Big Rock Switching Example

Step 9

- Train is now ready to Return.
- Rebuild Switchlist for return trip.
- On way back switch out cars at Bat House Yard.
- Train ends at Deck Yard.
- Put away Caboose and Locomotive.
- Return route orders and locomotive card to Crew Chief.





Best of all Have Fun!

- Operations is a puzzle.
- Take the time to enjoy your visit.
- Remember everyone makes mistakes and that is just part of the fun.

