



CAR ATTENDANT'S HANDBOOK

D-1001

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Nevada State Railroad Museum / Boulder City

**NEVADA SOUTHERN RAILWAY
CAR ATTENDANT'S HANDBOOK**

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1.0 INTRODUCTION

This Car Attendant's Handbook is intended to provide the basic information needed to perform the duties of a Car Attendant and to provide background information for the attendant's use in answering questions from the passengers. The background information will be updated as additional data is uncovered. Any update of the safety information will be noted in the text as a revision from the previous issue of the handbook.

The Car Attendant's duties must be learned and followed by all crew designated to be Car Attendants. A State approved narrative is played on the public address system. The detailed history is provided as a resource to help answer any additional questions. Car Attendants should scan the material so that they know what information is available. It is not necessary to memorize the material.

2.0 SUMMARY OF CAR ATTENDANT'S DUTIES

It is the Car Attendant's duty to assist the Conductor and to help provide a safe and pleasant experience for the passengers. This is accomplished by making sure that the environment is safe, that the passengers behave in a safe manner, and that the passengers are reasonably comfortable and informed.

Appearance is important. Car Attendants must be neatly dressed and groomed. It is preferred, but not mandatory, that Car Attendants be dressed similar to Conductors - dark pants, white shirt, vest, conductor's cap, and jackets and coats when required by the weather.

When boarding and disembarking, there should be at least two people at the vestibule. When boarding, one attendant should take tickets and one should be at the top to direct passenger to the appropriate cars. When disembarking, two attendants (or one attendant and the Conductor) should be at the bottom of the stairs, and if available one attendant at the top of the stairs. During the run, each attendant should roam among the passengers, elicit questions, and encourage conversation.

2.1 PRIOR TO FIRST RUN

It is the Conductor's responsibility to check the following items before the first run of the day. It is the Car Attendant's duty to double check the items appropriate to their car. **If you find any problems with the car, tell the Conductor immediately.** After this inspection, Car Attendants must attend the Safety Briefing scheduled by the Conductor.

- A) The steps and handrails leading up to the car platform are not loose or broken.
- B) The step stool used for loading and unloading passengers at the station is safe.
- C) The car platform is clean with no obstructions on the deck.
- D) There are no gaps between the bumpers in-between the cars.
- E) The passage ways and doors leading into the cars work properly.
- F) The windows work properly, are not broken or jammed, are clean, and are closed if the air conditioner is in use. (If windows are opened, make sure the latches are properly in place so they don't fall or close inadvertently.)
- G) The seat backs and cushions are not out of place, torn or dirty.
- H) The floor is clean and free of obstructions.
- I) The overhead lights and fans have been turned on to make sure they work.
- J) The AC/Heat unit is working properly. If you are not familiar with the control, ask someone who is.
- K) The fire extinguisher is in its proper place. (Note it's location in the car you are attending.)

- L) The wheel chair loading hoist is available and unlocked.
- M) The trash cans are not full and over flowing.
- N) The Conductor will pick up the P.A. microphone, push the button and talk. Listen throughout your car to make sure the system is working properly.
- O) In the 601 car in the Conductor's closet, there is a first aid kit, a tool kit, and water for emergencies (e.g. dehydration). Make sure everything is available and secure.
- P) In the ADA/Handicap car, make sure that the wheel chair side loading doors are working, that the bathroom is clean and has all supplies.
- Q) In open air cars, make sure that the car crossovers are in their proper place, that the hand rails are not loose, and that the side gates are closed and locked.

2.2 BOARDING PASSENGERS

- A) Determine how many seats are available in your car.
- B) Put the step stool in place at the bottom of the car stairs. Make sure that it is firm - step on it to make sure it's OK.
- C) When instructed by the Conductor to begin the boarding, collect ticket stubs, assist passengers onto the step stool and instruct them to hold the hand rail as they climb the steps.
- D) If a passenger might have difficulty negotiating the stairs, offer to assist them, and offer use of the wheelchair lift for loading.
- E) If needed, assist the Conductor in loading passengers requiring the wheelchair lift.
- F) Observe what people are carrying, and if consumables other

than water are noted, inform the passengers that only water is allowed to be consumed aboard the train.

- G) Keep approximate count of how many seats remain in your car and do a walk through head count as the car reaches capacity.

When loading is complete and the Conductor has instructed you to do so:

- H) Take the step stool aboard the train.
- I) Carefully lower the platforms, close and latch all exterior doors.
- J) Just before the train leaves, make sure that all passengers are seated.

2.3 DURING THE RUN

- A) In the open air cars, make sure that the passengers are not in a position to fall out - no leaning over the rail, no climbing, etc.
- B) Make sure that passengers are seated or holding on whenever the train is starting or stopping.
- C) In the enclosed cars, if the A/C is running, make sure that all windows are closed and that the door at the ends of the car are closed.
- D) **Talk to the passengers!** If they have any questions you can't answer, see if you can find someone who can. Note the unanswered questions for future inclusion in the Car Attendant's Handbook.
- E) Passengers should not stand between the cars during the run, but may walk through on their way to other cars.

- F) Make sure that all passengers follow the safety instructions as given by the Conductor.

2.4 END OF THE RUN

- A) Determine from the Conductor which vestibules are to be used for unloading.
- B) After the train has passed the street, unlatch and open the vestibule unloading doors and lift their platforms and lock them into place.
- C) Once the train has stopped and the engineer has blown the whistle to indicate that the brakes have been set, take the step stool onto the platform at the foot of the stairs and make sure that it is securely in place.
- D) Have two Car Attendants at the foot of the stairs to assist passengers down to and straight forward off of the step stool. Remind them to use the hand rails.
- E) When all passengers have disembarked, inspect the car for forgotten items and for cleanliness.
- F) Put the step stool up into the vestibule.

3.0 EXAMPLE INFORMATION

This section provides examples of the types of background and history information that can be provided to the passengers during a run. Because the train makeup (consist) may change depending upon the availability of equipment and expected passenger load, the Car Attendant should become aware of the details of the train makeup before boarding the train. For example, three different locomotives are available, so the correct description should be selected from the example text.

It is not necessary, nor is it desirable, to give all of the announcements at one time. These background conversations should not begin until the narrative over the PA has completed. And yes, you will often have to answer questions that were covered in the narrative, so be prepared to repeat those details. In general, these background conversations should be timed to occur when no safety announcements from the Conductor are expected.

3.1 CURRENT TRAIN

The Crew: Welcome to the Nevada Southern Railway. Your crew is all volunteer.

Our run today will be about 3.5 miles to near the Railroad Pass Casino, and will last about 45 minutes.

The train (the consist) you are riding is composed of diesel locomotive number 844 (or 1855 or 1000 as appropriate), a Head End Power Car, one (or two) enclosed passenger cars, an open passenger car, an ADA/handicap car, and a caboose.

The locomotives used on this railway are of the diesel-electric design. We don't have any operational steam locomotives at this time.

(844) Today we are using locomotive 844, a type GP-30. It was built in 1963 by the Electro-Motive Division of General Motors, and was first used by the Union Pacific Railroad. It has completed a restoration here at the Museum in 2003. It weighs over 250,000 pounds and has a V-16 diesel engine which generates about 2250 horsepower.

(1000) Today we are using locomotive 1000, a type NW-2. It was built in 1939 by the Electro-Motive Company as the first demonstrator of this class of yard switching locomotive. It was first used by the Union Pacific, then went through a series of owners before coming to this Museum. It weighs just under 250,000 pounds and has a V-12 engine that generates about 1000 horsepower.

(1855) Today, we are using locomotive number 1855. It was built in 1953 and was used in service for the government, and uses a diesel engine that was originally developed by the Fairbanks-Morse Company for use in diesel submarines.

The Head End Power Car was created because these locomotives were designed to operate as yard switchers or with freight trains. They do not have the power generation needed by passenger trains for things such as lighting, air conditioning, and announcement systems. The Head End power car was originally a boxcar that has now been fitted with two diesel engines and generators capable of providing approximately 500 kilowatts of three-phase power at 480 volts.

The Enclosed Passenger Cars and the ADA/Handicap Car were built by the Pullman Company. They're what are called Harriman Style. Passenger car number 601 was built in about 1910. Passenger car number 603 was built in 1913. The ADA/Handicap car was built in 1916. It was modified here at the Museum to have side loading doors for use with a lift so that it can accommodate wheelchairs and passengers who cannot climb the stairs into the cars. It is also used as crew quarters for alternate crews during the runs. For safety, all cars were brought up to FRA (Federal Railway Administration) mechanical standards, and for comfort in our climate, the enclosed cars have had air conditioning added.

The Open Passenger Cars are of Heavyweight design. They have three axles (six wheels) on each truck instead of the two axles per truck used for the enclosed passenger cars. To give the car a smooth ride, the floor is several inches of poured concrete. This coach, built in 1914, was originally a Maintenance-of-Way support coach, including a lunch counter, that served on the Union Pacific.

The Caboose is the “office” for the rear brakeman. When the train is backing toward the station, the rear brakeman is the “eyes” for the engineer, and has the means to stop the train in an emergency.

3.2 HISTORY

In 1928, the Federal Government appropriated \$165 Million for the construction of the Boulder Canyon project, soon renamed to Boulder Dam and later given its current name of Hoover Dam. To begin bringing people, supplies, and equipment to the site, a two lane vehicular road was built from Las Vegas to Boulder City. Then for heavy equipment and supplies, the Union Pacific in 1931 constructed a branch line linking their main Las Vegas line to Summit, later renamed Boulder City. Today, we are riding on those rails and ties installed in 1931.

A railroad was needed to take supplies directly to the Dam construction site. The U.S. Government Construction Railroad branch was built from Boulder City to the Dam site proceeding down Hemenway Wash. That branch required the construction of five tunnels through the rock hills. That right-of way is now a walking trail that is accessible from a trailhead just east of the Alan Bible Visitor's Center on US 93 east of Boulder City.

The Six Companies, Inc. Railroad branched off the U.S. Government Railroad in lower Hemenway Wash and crossed the river on a trestle bridge to the Arizona gravel pit. Another branch went from the gravel plant near the present Boulder Islands to the lower Dam site. Dam construction began in 1930 and was completed just less than five years later in 1935. Shortly after completion of the Dam, the Six Companies, Inc. Railroad branch was decommissioned and the rails removed. The railroad beds and trestle bridge were covered as the lake filled.

The U.S. Government Construction Railroad was used until 1961 when the last generator was installed in Hoover Dam. The tracks from Boulder City down to the Dam were removed soon afterward. The Union Pacific abandoned the portion of the Boulder City Branch line from Boulder City to Henderson in 1985 and donated the land and track to the State of Nevada for this Nevada State Railroad Museum.

In 1988, the Heber Creeper (Wasatch Mountain Railway) began selling off equipment. Many of the cars (including the two enclosed coaches and the open-air car) and locomotives were purchased by the State of Nevada and moved onto these tracks in 1993. To accommodate restoration work here at the Museum, the maintenance facility was built in 1996 and the platform was built in 2000. Equipment has been acquired by the State both through purchase and donation. The refurbishment of the locomotives and cars has been funded primarily by the State, with some private donations, and lots of volunteer labor. The first public run was the “Santa Train” in December 2002.

3.3 SIGHTS FROM THE TRAIN

Several places of interest, both natural and man-made, can be seen from the train. The portion of track used for this run are roughly east-west, and we are currently running west toward Railroad Pass.

The mountains to the north are the River Mountains, and the mountains to the south-west along US-95 are the McCullough Range.

To the south along US-95 is the Eldorado Valley and the Eldorado dry lake bed. During the first two months of 2005, we had enough rain that there was sufficient water in the “dry” lake for a few adventurous souls to go jet skiing.

Looking south past the dry lake bed, the square area of reflection is from the Solar One generating plant. The reflection is from the mirrors that focus the sunlight onto a central pipe to heat a fluid. That fluid is pumped through a heat exchanger containing water, which then forms steam to run the generators. Solar One opened for commercial operation in 2007. It puts out a modest 50-64 megawatts (MW) peak.

Way up on the hill north of the tracks is a set of antennas. They are aircraft navigation systems, a VOR (VHF Omnidirectional Range) and DME (Distance Measuring Equipment). The VOR gives the pilot the angle of his aircraft from the site and the DME gives the range. Most flight paths are designated as a series of segments from VOR to VOR. This station provides the final point for approach from the east into McCarran Airport.

The large “hole” just north of the train is a storm water detention basin. It holds run-off water coming in via the large concrete channels on the uphill side, and meters out the water at a controlled rate into the storm water control system. It was constructed with a flat bottom to accommodate a variety of fields that could be used by the Parks and Recreation Department and the public. And with minimal improvement of the basin's walls, could provide arena type seating.

To the north, the facility is the “Captain Michael L. Hyde” Nevada Veteran's Nursing Home. It is a State owned and operated facility that receives support from the Department of Veteran's Affairs.

Just to the west of that facility is what appears to be a pile of big rocks. This is actually the “P.O.W. Memorial Trails” trailhead for several hiking and mountain biking trails up through the area known as Bootleg Canyon. Some of the trails have interesting (? possibly descriptive) names such as Snakeback, Armageddon, Kevorkian and Poopchute.

Animals: Many of our visitors have no idea of the large variety of mammals, reptiles and birds inhabiting southern Clark County. The National Park Service lists seventy-one different species of mammals that are found within the Lake Mead National Recreation Area. Even though this area appears to be very inhospitable, and a rather hostile environment, it is actually teeming with animals, many of which are seldom seen because they are nocturnal (active only at night). Kangaroo Rats, Pack Rats, Ringtail Cats, and various species of bats and snakes are representative of this nocturnal group. Three rattlesnake species common to the area are the Sidewinder, the Mojave Green, and the Speckled Rattler. A variety of birds and mammals may be observed in the early morning or late evening. Some of those most commonly seen are Quail, Roadrunners, vultures (which migrate seasonally) Ravens, Coyotes, Desert Bighorn Sheep (our official Nevada State mammal), Desert Tortoise (our official Nevada State reptile), Black Tailed Jackrabbits and Cottontail Rabbits. Present, but in limited numbers, are Peregrine Falcons, the fastest specie of all animals (in a dive they can exceed 200 mph) which nests near Hoover Dam.

The next facility to the north is the Cascata (waterfall, in Italian) golf course, designed by Rees Jones. It has 800 acres of land leased from Boulder City with one 18 hole course developed and sufficient land for a

second course. It was previously owned by Caesars Entertainment, available only to invited guests of the hotel. Now that Caesar's has merged with Harrah's, the course has been opened to the public with greens fees of \$350 during the week and \$500 during the weekend.

Across the road from the Railroad Pass Casino to the west of the tracks (and of US-95) is a large gravel pit formerly owned by Rinker Materials, purchased by CEMEX in 2007. This is their Eldorado plant and quarry. It supplies seven concrete plants with between 6,000 and 10,000 tons of material every day.

To the south of the quarry is PMC (Precision Made Cartridges) manufacturing and the Desert Lake Country Club. PMC manufactures cartridges for a variety of guns, both for sport and for law enforcement. The Desert Lake Country Club is a shooting club for handguns, shotguns, rifles and archery.

The paved trail alongside the train is part of the River Mountain walking and biking trail system. West of the Cascata entrance road and directly behind the casino, our tracks cross a trail. The portion of the trail from the casino to the P.O.W. Memorial Trails trailhead, including a pedestrian/biking bridge crossing the road to the Cascata entrance has been recently paved. The total loop is 35 miles, and has a spur to the Railroad Trail which goes through five tunnels and ends at the parking garage at Hoover Dam, and a spur to the Wetlands Trail. There are approximately 15 trailheads along the loop for access.

Boundary: As we pass the Casino's parking lot, we are going from Boulder City into Henderson. The Railroad Pass Casino is in Henderson.

The tracks pass through the cut (or the REAL Railroad Pass, as I like to call it) and approach US 93/95. The valley between the tracks and the highway was a camping ground for people trying to get employment on the construction of the Dam. Those who were employed got to live in the Boulder City facilities provided by the government.

3.4 END OF THE RUN

Call attention to any displays on the display track. Give the details of the current operating schedule. Provide information on any special activities or displays occurring at the shop. And be sure to invite everyone to visit the gift shop.

Be sure to remind everyone to tell their friends about our operating schedule. Regular operations on every weekend of the month. The first two weekends in December will be "Santa Train". Complete schedule information is available at the ticket booth and on the website **www.NevadaSouthern.com**.

4.0 DETAILED INFORMATION

The information provided in this section is meant for reference. It would help to have skimmed the information before trying to use it to answer passenger's questions.

4.1 LOCOMOTIVES

All of the operational locomotives at this Museum are of the diesel-electric design. Although there are some steam locomotives in the collection, there are no plans to make them operational, just to have them for display

Diesel-electric locomotives have their wheels driven directly by electric traction motors. The diesel engine does not drive the wheels directly, but instead drives a generator which in turn provides power to the traction motors. This arrangement works well for locomotives because electric motors develop their maximum torque (or pulling power) at the lowest speeds, which is what is needed to start a train. Combustion engines (both diesel and gasoline) develop their maximum torque at higher speeds so they are less suited for starting heavy loads.

4.1.1 NSRM 1000, TYPE NW2, BLUE

Locomotive Number 1000 was designed by Richard Dillworth and was built by the Electro-Motive Company in 1939. It is a type NW2, and was the demonstrator for this new class of yard switching locomotive. The 1,000 horsepower NW2 demonstrator, originally numbered 889, arrived at UP property in Omaha for a six-month demonstration period. UP found the NW2 to be satisfactory and purchased it, renumbering it to UP 1000. Over the next two years, UP took delivery of 44 additional type NW2 locomotives before WWII restrictions required the cancellation of pending orders for more units.

EMC NW-2 UP #1000 was sold by UP to ST&E as their #1000. It was traded to Western Pacific in 1968 for an ALCO Switcher. W.P. numbered it 607. It was sold to Sacramento Northern in 1973 as their #607. S.N. was owned by W. P. S.N. #607 spent most of her later years off home rails, working in the W.P.'s Stockton Yard in company of

W.P.'s SW-9 Switchers (similar in appearance, but more horsepower). Sacramento Northern and its corporate parent, W.P., were absorbed into U.P. and # 607 was donated by U.P. to the Deer Creek Scenic Ry. (Heber Creeper), in Heber City, UT. It was later sold to the Nevada State Railroad Museum as UP 1000. While with the S.N. #607/1000 was painted in WP Perlman Green. It is now painted Nevada State Railroad Museum blue.

The NW2 model features a 1000 hp V-12 567-A engine -- 888 such locomotives were built by 1950. Later models of the locomotive such as the 1200 horsepower SW7 have a similar appearance, differing only in details such as window shape and door louvers.

EMC NW2 Switcher #889 Specifications (as-built):
 Builder: EMC, the Electro-Motive Company, General Motors, LaGrange, IL

| | |
|--------------------------|--|
| Engine model: 12V-567A | Weight: 248,120 lbs. |
| Date built: Oct. 1939 | Displacement: 6804 c.i. (567 per cylinder) |
| Type: 2-stroke diesel | Tractive effort: 62,030 lbs. |
| Aspiration: Roots blower | Idle speed: 300 rpm |
| Horsepower: 1000 | Length: 44' 5" |
| Cylinders: 12 (Vee) | Max. speed: 800 rpm |
| Top speed: 60 mph | Brake system: 14EL |
| Bore x Stroke: 8.5 x 10" | |

4.1.2 NSRM 844, TYPE GP-30, YELLOW

Locomotive Number 844, a type GP-30, was built in 1963 by the ElectroMotive Division of General Motors, and ran on the Union Pacific. It is just finishing its refurbishment. It weighs approximately 125 tons, and has a turbocharged V16 engine that develops 2250 horsepower. It has been repainted in Union Pacific colors.

| | |
|---|------------------------------|
| Model: GP30 | Engine: 16V-567D3 |
| Builder: EMD, the Electro-Motive Division, General Motors, LaGrange, IL | Horsepower: 2250 |
| | Tractive effort: 63,375 lbs. |
| | Wheels: B-B |

Weight: 253,500 lbs.
 Max. Speed: 71 MPH
 Fuel: 1700 gal.
 Sand: 46 cu. ft.

4.1.3 NSRM 1855, TYPE FAIRBANKS-MORSE, BLACK

Locomotive Number 1855 was built in 1950 and was used in service for the government in the Army Transportation Corps. It is unusual because it's diesel engine is of opposed piston design. This type of engine was developed by the Fairbanks-Morse Company for use in diesel submarines. After World War 2, Fairbanks-Morse was looking for applications for these large powerful engines and decided to incorporate them into railroad locomotives.

TYPE: 1200 H.P. Switching Locomotive, Model H12-44

DIMENSIONS:

| | |
|--------------------------------|--------|
| Track Gage | 4'8½" |
| Overall Length inside knuckles | 48'10" |
| Height over roof | 14'6" |
| Overall width | 10'2" |
| Truck wheel base | 8' |
| Total wheel base | 33'6" |

ENGINE

One 1200 HP model 38D8 1/8, 2 cycle opposed piston, 6 cyl.,
 Bore 8½", Stroke (each piston) 10"

TRANSMISSION

| | |
|----------------|--------|
| Generator | 481-G |
| Motors | 362DF |
| Gearing | 68:14 |
| Wheel Diameter | 40" |
| Maximum Speed | 60 mph |

AIR BRAKES

| | |
|-----------------------------|----------------|
| Straight and Automatic | Schedule 6BL |
| Air Compressor | Type 3CD |
| Compressing rate at 850 rpm | 260 cfm |
| Reservoir volume | 60,000 cu. in. |

WEIGHTS (Fully Loaded)

| | |
|------------------|-------------|
| Total Locomotive | 246,000 lb. |
|------------------|-------------|

TRACTIVE EFFORT

| | |
|--------------------------|------------|
| Starting at 30% Adhesion | 73,800 lb. |
| Continuous at 11.3 mph | 34,000 lb. |

SUPPLIES

| | |
|-------------------------|------------|
| Fuel Oil, Tank Capacity | 750 gal. |
| Lubricating oil | 250 gal. |
| Engine Cooling Water | 135 gal. |
| Sand | 28 cu. ft. |

4.1.4 NSRM L-3, GE 80 Ton, YELLOW

Wednesday March 14, 2006, the GE 80-Ton locomotive arrived at the Museum here in Boulder City on a "lowboy" trailer. At the Nevada Test Site in the 1960's, the locomotive was used to haul nuclear powered rocket engines. The approximately eight miles of track were located in the "Jackass Flats" area, so the railroad was dubbed the "Jackass and Western".

When the program became dormant, the locomotive was "mothballed". After several years when it had sufficiently "cooled off" it was brought here to the Museum. During the summer of 2006, it received recommissioning maintenance such as brake certification, battery replacement, some replacement of belts and hoses that have been sitting for many years, and overall inspection.

CLASS B-B 160/160 4 GHM 833

HP 500

DATE OF MANUFACTURE Sept. 1964 (per AGC-10126)

4.1.5 NSRM 97, MOTORIZED OBSERVATION CAR

OI' 97 was created as a "happening" - there were some spare parts and the thought that we should make something out of them. It has a diesel engine for the hydraulic pump which drives the hydraulic motors. It is used to transport a few (about 12 comfortably) passengers for sight-seeing in our storage yard.

4.2 PASSENGER CARS

The Enclosed Passenger Cars and the Crew-Handicap car were built by the Pullman Company. They're what are called Harriman Style.

Passenger car number 601 was built in about 1910. Passenger car number 603 was built in 1913. They each can accommodate about 75 people. The Crew-Handicap car was built in 1916. It was modified here at the Museum to have side loading doors for use with a lift so that it can accommodate wheelchairs and people who cannot climb the stairs into the cars. It is also used as crew quarters for alternate crews during the runs. For safety, all cars were brought up to Amtrak mechanical standards, and for comfort in our climate, the enclosed cars have had air conditioning added.

The term Harriman refers to railroad equipment built in the 1900s and 1910s to a set of common standards that were used by the Harriman controlled Southern Pacific and Union Pacific. The coaches are 72' 0" long over the end sills, 9'9-7/8" wide, and 14'0" from rail to top of roof. They are 80'8-7/8" long from coupler to coupler. Each coach weighs 119,900 lbs. without passengers. The coaches are constructed on a steel frame with steel channel and plate used throughout. The coach floor is poured concrete, which provides a smoother and quieter ride.

The Open Passenger Cars are of Heavyweight design. They have three axles (six wheels) on each truck instead of the two axles per truck used for the enclosed passenger cars. To give the car a smooth ride, the floor is several inches of poured concrete. This coach, built in 1914, was originally a Lunch Counter coach that served on the Union Pacific.

4.3 OTHER CARS

The Head End Power Car was created because these locomotives were designed to operate with freight trains. They do not have the power generation needed by passenger trains for things such as lighting, air conditioning, and announcement systems. It was originally a boxcar that has now been fitted with a diesel engine and generator capable of providing approximately 300 kilowatts of power.

A Pullman Dining Car which has completed the first phase of its restoration. It can provide limited food refrigeration and warming.

A Caboose, UP number 906255, has been refurbished by volunteers. Exterior painting and mechanical work has been completed, heating/air-conditioning has been made functional, and an air horn and emergency brake stand installation has been completed. It is the "office" for the rear brakeman when the train is operating in reverse. The brakeman provides the "eyes" for the engineer, and, in case of communication failure, has the means with the emergency brake stand to apply the brakes on the train.

4.4 BRANCH LINES

For heavy equipment and supplies, the Union Pacific, in 1931, constructed what is now known as the Boulder Branch Line linking their main line near Las Vegas to Summit, now known as Boulder City.

A railroad was needed to take supplies directly to the Dam construction site. The U.S. Government Construction Railroad branch was built from Boulder City to the Dam site proceeding down Hemenway Wash. That branch required the construction of five tunnels through the rock hills. The right-of-way is now a 2.5 mile long (5 mile round trip) walking trail that is accessible from a trailhead just east of the Alan Bible Visitor's Center.

The Six Companies, Inc. Railroad branched off the U.S. Government Construction Railroad in lower Hemenway Wash and crossed the river by a trestle bridge to the Arizona gravel pit. Another branch went from the gravel plant near the present Boulder Islands to the lower Dam site.

Dam construction began in 1930 and was completed just less than five years later in 1935, ahead of schedule and under budget. Shortly after completion of the Dam, the Six Companies, Inc. Railroad branch was decommissioned and the rails removed. The railroad beds and trestle bridge were covered as the lake filled. The U.S. Government Construction Railroad was used until 1961 when the last generator was installed. The Union Pacific abandoned the portion of the line from Boulder City to Henderson in 1985 and donated the land and track to the State of Nevada for this Nevada State Railroad Museum.

Six Companies Inc. was a joint venture of Morrison-Knudsen Co., Utah Construction Co., J. F. Shea Co., Pacific Bridge Co., MacDonald & Kahn Ltd. and an interior joint venture of W. A. Bechtel Co., Henry J. Kaiser, and Warren Bros. Six Companies was formed because no single company could raise \$5 million for the performance bond. Six Companies' \$48.9-million low bid won it what was then the largest single contract ever let by the U.S. government.

4.5 MUSEUM FACILITIES

Here at the Museum, the maintenance facility was built in 1996 and the platform was built in 2000. Equipment has been acquired by the State both through purchase and donation. The refurbishment of the locomotives and cars has been funded primarily by the State, with some private donations and lots of volunteer labor.

A building site (just south of the maintenance facility) has been allocated for a display Museum facility, but there is no current funding available for planning nor construction of that facility.

4.6 BOULDER CITY

In 1928, the Federal Government appropriated \$165 million for the construction of the Boulder Canyon project, soon renamed to Boulder Dam. To bring people, supplies, and equipment to the site, a two lane vehicular road was built from Las Vegas to Boulder City. For heavy equipment and supplies, The Union Pacific in 1931 constructed a rail line linking their main Las Vegas line to Boulder City.

The community of Boulder City was constructed to provide housing and recreation for the men that worked on the project. There were facilities for both single men and for families. Many of those facilities are still in use in historic Boulder City. The City of Boulder City was incorporated on 1 October 1959 as a special charter City with a council/manager form of government.

5.0 FREQUENTLY ASKED QUESTIONS

- Q Why are they called “diesel-electric” locomotives instead of just diesel?
- A Diesel-electric locomotives have their wheels driven directly by electric traction motors. The diesel engine does not drive the wheels directly, but instead drives a generator which in turn provides power to the traction motors. This arrangement works well for locomotives because electric motors develop their maximum torque (or pulling power) at the lowest speeds, which is what is needed to start a train. Combustion engines (both diesel and gasoline) develop their maximum torque at higher speeds so they are less suited for starting heavy loads.
- Q What are those antennas on the top of the hill?
- A They are aircraft navigation systems, a VOR (VHF Omnidirectional Range) and DME (Distance Measuring Equipment). The VOR gives the pilot the angle of his aircraft from the site and the DME gives the range. Most flight paths are designated as a series of segments from VOR to VOR. This station provides the final point for approach from the east into McCarran Airport.
- Q When will the steam locomotive be operational?
- A. There are no current plans to make that equipment operational. They will be used for static display.
- Q. When will the train be able to go farther than the Railroad Pass Casino?
- A. The tracks are still continuous under the existing pavement down to Henderson. As an adjunct of the project to build a new bridge across the river south of the Dam, a Boulder City Bypass Road will be built. The portion of the bypass that connects US-93/95 to the existing Interstate 515 will include an overpass for the train above

- the new highway. When this portion of the bypass is completed, we will then be able to reopen the grade crossing to occasional train traffic.
- Q. What is the difference between EMC and EMD built locomotives?
- A. This was just a name change. Electro Motive Engineering Corporation (EMC) was founded in 1922 by Harold L. Hamilton. EMC was acquired by the General Motors Company (GM) in 1930. It remained EMC, although owned by GM, until January 1, 1941 when it was combined with the Winton Corporation (a diesel engine manufacturer acquired by GM in 1930) and the name was changed to Electro-Motive Division (EMD). Therefore our NW-2 was built in 1939 by EMC, but subsequent (identical) NW-2's were built by EMD.
- Q. What's the story about the yellow “Jackass and Western” locomotive?
- A. The GE 80 ton unit was used at the Nevada Test Site to move equipment for testing of the Nuclear Rocket program. It accumulated only about eight miles of operation during its use at the Test Site.

6.0 REFERENCES FOR FURTHER INFORMATION

Myrick, David F., Railroads of Nevada and Eastern California, Volume II: The Southern Roads, ISBN 0-87417-194-6, Copyright 1962, Reprinted University of Nevada Press 1992

REVISIONS RECORD

| <u>Date:</u> | <u>Description</u> |
|--------------|---|
| 4/28/04 | Original release. |
| 7/14/06 | Change some duties from Car Attendant to Conductor. Add some Car Attendant duties. Reorganize sections. Add new descriptive materials in script. |
| 2/1/2010 | Remove script Add new equipment - L3, 97 Add new sights from train - Solar One, River Loop Trail Various description expansions |