

COLORADO HISTORICAL SOCIETY

COLORADO STATE REGISTER OF HISTORIC PROPERTIES NOMINATION FORM

SECTION I

Name of Property

Historic Name Denver & Rio Grande Western Railroad Hopper No. 14718

Other Names D&RGW No. 14718

Address of Property

address not for publication

Street Address 800 Seminole Rd., Burnham Yard, Union Pacific Railroad

City Denver County Denver Zip 80204-4200

Present Owner of Property

(for multiple ownership, list the names and addresses of each owner on one or more continuation sheets)

Name Marcus Rail c/o Daniel Quiat

Address PO Box 3498 Phone 303-579-1506

City Boulder State CO Zip 80307-3498

Owner Consent for Nomination

(attach signed consent from each owner of property - see attached form)

Preparer of Nomination

Name Property Owner Date 9/11/2006

Organization _____

Address _____ Phone _____

City _____ State _____ Zip _____

| | |
|--|---|
| <p>FOR OFFICIAL USE:</p> <p>_____ Nomination Received</p> <p><u>2/16/2007</u> Review Board Recommendation <input checked="" type="checkbox"/> Approval <input type="checkbox"/> Denial</p> | <p>Site Number <u>5DV10296</u></p> <p>Senate # <u>18</u> House # <u>13</u></p> <p><u>2/22/2007</u> CHS Board State Register Listing <input checked="" type="checkbox"/> Approved <input type="checkbox"/> Denied</p> <p>Listing Criteria <input type="checkbox"/> A <input type="checkbox"/> B <input checked="" type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E</p> |
| <p>Certification of Listing: President, Colorado Historical Society Date _____</p> | |

COLORADO STATE REGISTER OF HISTORIC PROPERTIES

Property Name Denver & Rio Grande Western Railroad Hopper No. 14718

SECTION II

Local Historic Designation

Has the property received local historic designation?

no

yes --- individually designated designated as part of a historic district

Date designated _____

Designated by _____ (Name of municipality or county)

Use of Property

Historic Railroad freight service

Current Historical display

Original Owner Denver & Rio Grande Western Railroad

Source of Information Car lettering, folio sheet

Year of Construction June 1966

Source of Information Car lettering, folio sheet, car card

Architect, Builder, Engineer, Artist or Designer Bethlehem Steel Company, Johnstown, PA

Source of Information Car lettering, folio sheet, car card

Locational Status

Original location of structure(s)

Structure(s) moved to current location

Date of move Moved throughout its operational life

SECTION III

Description and Alterations

(describe the current and original appearance of the property and any alterations on one or more continuation sheets)

COLORADO STATE REGISTER OF HISTORIC PROPERTIES

Property Name Denver & Rio Grande Western Railroad Hopper No. 14718

SECTION IV

Significance of Property

Nomination Criteria

- A** - property is associated with events that have made a significant contribution to history
- B** - property is connected with persons significant in history
- C** - property has distinctive characteristics of a type, period, method of construction or artisan
- D** - property is of geographic importance
- E** - property contains the possibility of important discoveries related to prehistory or history

Areas of Significance

- | | | |
|---|--|---|
| <input type="checkbox"/> Agriculture | <input type="checkbox"/> Economics | <input type="checkbox"/> Landscape |
| <input type="checkbox"/> Architecture | <input type="checkbox"/> Education | <input type="checkbox"/> Architecture |
| <input type="checkbox"/> Archaeology – prehistoric | <input checked="" type="checkbox"/> Engineering | <input type="checkbox"/> Law |
| <input type="checkbox"/> Archaeology – historic | <input type="checkbox"/> Entertainment/ Recreation | <input type="checkbox"/> Literature |
| <input type="checkbox"/> Art | <input type="checkbox"/> Ethnic Heritage | <input type="checkbox"/> Military |
| <input type="checkbox"/> Commerce | <input type="checkbox"/> Exploration/ Settlement | <input type="checkbox"/> Performing Arts |
| <input type="checkbox"/> Communications | <input type="checkbox"/> Geography/ Community Identity | <input type="checkbox"/> Politics/ Government |
| <input type="checkbox"/> Community Planning and Development | <input type="checkbox"/> Health/Medicine | <input type="checkbox"/> Religion |
| <input type="checkbox"/> Conservation | <input type="checkbox"/> Industry | <input type="checkbox"/> Science |
| | <input type="checkbox"/> Invention | <input type="checkbox"/> Social History |
| | | <input type="checkbox"/> Transportation |

Significance Statement

(explain the significance of the property on one or more continuation sheets)

Bibliography

(cite the books, articles, and other sources used in preparing this form on one or more continuation sheets)

SECTION V

Locational Information

Lot(s) _____ Block _____ Addition _____

USGS Topographic Quad Map Fort Logan

Verbal Boundary Description of Nominated Property

(describe the boundaries of the nominated property on a continuation sheet)

COLORADO STATE REGISTER OF HISTORIC PROPERTIES

Property Name Denver & Rio Grande Western Railroad Hopper No. 14718

SECTION VI

Photograph Log for Black and White Photographs

(prepare a photograph log on one or more continuation sheets)

SECTION VII

ADDITIONAL MATERIALS TO ACCOMPANY NOMINATION

Owner Consent Form

Black and White Photographs

Color Prints or Digital Images

Sketch Map(s)

Photocopy of USGS Map Section

Optional Materials

Use of Nomination Materials

Upon submission to the Office of Archaeology and Historic Preservation, all nomination forms and supporting materials become public records pursuant to CRS Title 24, and may be accessed, copied, and used for personal or commercial purposes in accordance with state law unless otherwise specifically exempted. The Colorado Historical Society may reproduce, publish, display, perform, prepare derivative works or otherwise use the nomination materials for Society and/or State Register purposes.

For Office Use Only

Property Type: [] building(s) [] district [] site [X] structure [] object [] area

Architectural Style/Engineering Type: Standard gauge triple-bay hopper car

Period of Significance: 1966

Level of Significance: [X] Local [] State [] National

Multiple Property Submission: N/A

Acreage None

P.M. 6th Township 4S Range 68W Section 4 Quarter Sections SE

UTM Reference: Zone 13 Easting 499434 Northing 4397492 NAD27

Property Name Denver & Rio Grande Western Railroad Hopper No. 14718

DESCRIPTION and ALTERATIONS

The Bethlehem Steel Company built Denver & Rio Grande Western Railroad (D&RGW) Hopper No. 14718 on June 15, 1966, at its plant in Johnstown, Pennsylvania. The car was one of a series of 400 (Nos. 14600-14999). The Rio Grande purchased the car in 1966 at a cost of \$11,635.72. The First National Bank of Denver financed the purchase under Equipment Trust Series "FF" (car card, folio sheet).

The car is a standard gauge triple-bay open top hopper categorized in the American Association of Railroads standard mechanical designations as type "HT." It has a total length of 43 feet, 7 inches. The car has two sets of four-wheel roller bearing trucks. The car weighs 55,300 lbs. empty, with a load capacity of 154,000 lbs. It has a maximum volume of 2,928 cubic feet.

The car has fixed steel sides and ends of riveted construction with outside bracing. The bottom of the car interior consists of three V-shaped bays or hoppers. The bays direct the contents of the car to pairs of steel hopper doors that empty between the rails via gravity feed. Each set of doors is operated manually from outside the car. Grab irons form ladders on the car sides and ends. One end contains the manual brake wheel and an air reservoir for the automatic braking system.

Other than routine maintenance the car has had little modification. Marv McCall, retired D&RGW Car Department foreman, stated, "For that type..., they were a strong car. We had no problems with them." (McCall 2006). With its retirement, the car initials and classification marks were so faded that temporary markings and numbers had to be placed on the car for travel to its current location, the Union Pacific's Burnham railyard in Denver.

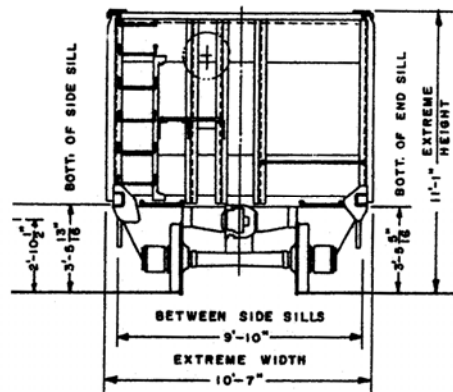
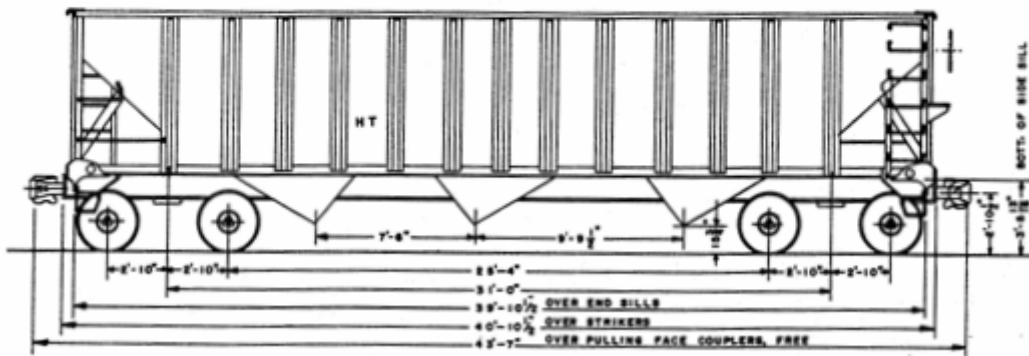
| | |
|--|---|
| GAUGE ----- 4'-8 ¹ / ₂ " | SUPERSTRUCTURE ----- STEEL |
| JOURNALS -14600-14949-6"X 11" TIMKEN ROLLER BEARINGS | UNDERFRAME ----- STEEL |
| JOURNALS -14950-14999-6"X 11" HYATT ROLLER BEARINGS | DOORS -6 (STAND. RWY EQUIP. CO.)- DREADNAUGHT ³ / ₈ " PLATE |
| WHEELS ----- 33" WROT STEEL 2-W | DOOR FIXTURES ----- WINE |
| AXLES ----- D-11-1965 | DOOR OPENINGS ----- 25 ³ / ₄ " X 35 ³ / ₄ " |
| TRUCK TYPE ----- ASF A-3 RIDE CONTROL | DRAFT GEAR ----- CARDWELL-WESTINGHOUSE MARK 50 |
| SPRING TRAVEL ----- 2 ¹ / ₂ " | COUPLER ----- AAR TYPE BE-60-AHT |
| TRUCK SIDES ----- NARROW PEDESTAL TYPE | BRAKE ----- ABD 1012 |
| SIDE BEARINGS ----- STUCKI-SINGLE ROLLER | BRAKE SLACK ADJUSTER ----- ELLCON NATIONAL-1340-4 |
| BRAKE BEAMS ----- UNIT TYPE NO. 24 | HAND BRAKE ----- AJAX |
| | BRAKE STEP (14600-14799, 14900-14999) ----- APEX |
| | BRAKE STEP (14800-14899) ----- U.S. GYPSUM CO. |

Property Name Denver & Rio Grande Western Railroad Hopper No. 14718

| | |
|--|----------------------|
| MARKED CAPACITY, LBS. _____ | 154,000 |
| LIGHT WEIGHT, LBS., AV. -14600-14799 _____ | 55,300 |
| MAX. WT. OF LADING, LBS., AV. -14600-14799 _____ | 164,700 |
| LIGHT WEIGHT, LBS., AV. -14800-14999 _____ | 54,700 |
| MAX. WT. OF LADING, LBS., AV. -14800-14999 _____ | 165,300 |
| | |
| CUBICAL CAPACITY, LEVEL, CU. FT. _____ | 2603 |
| CUBICAL CAPACITY, HEAPED _____ | 2928 |
| | |
| LENGTH INSIDE _____ | 39'-10" |
| WIDTH INSIDE _____ | 9'-9 $\frac{1}{2}$ " |
| | |
| YEAR BUILT _____ | 1966 |
| BUILDER _____ | BETHLEHEM STEEL CO. |

DENVER & RIO GRANDE WESTERN R.R.
HOPPER CARS No's. 14600 to 14999

AAR MECHANICAL DESIGNATION: HT



Property Name Denver & Rio Grande Western Railroad Hopper No. 14718

SIGNIFICANCE STATEMENT

The 1966 Denver & Rio Grande Western Railroad (D&RGW) Hopper No. 14718 is eligible for the State Register under Criterion C in the area of *engineering*. The car is a rare surviving example of a standard gauge, open top, triple-bay, 70-ton hopper car. Used to carry coal, limestone, dolomite and other bulk materials not requiring weather protection, the 70-ton hopper is a freight car type important to the operation of the Rio Grande Railroad during the later part of the twentieth century. The car's forty-years of continuous service demonstrate the success of its design and manufacture.

A hopper is a high-sided open-top rail car with a floor sloped toward bays (wells or hoppers) to funnel the transported material to the bottom hatches through which the commodity is unloaded. The development of the hopper was critical to the long-term success of railroads, for the railroad was (and is) best among transportation modes at hauling huge quantities of bulk materials, such as coal, aggregate and grain.

An early ancestor to the hopper was the coal jimmie, a small, four-wheel, open-top wood car that could be unloaded through a hinged side or bottom hatch. By about 1840 the jimmie had evolved into larger, two-truck, eight-wheel cars with a more sophisticated hopper/hatch system and more than double the carrying capacity. These were the first true hopper rail cars. The hopper can only haul substances capable of self-unloading by means of the car's sloped sides and hatches. Initially, hoppers operated on railroads where mineral (coal or ore) traffic predominated. Despite the early appearance of the hopper, it did not rapidly gain acceptance by railroad managers. Jimmies remained popular into the late 1800s, finally dying out by 1900. (Schafer and McBride 1999, pp. 74, 76).

Originally made of wood, the first steel hoppers came out in the 1890s and were able to hold 35 tons. By 1899, hoppers were being manufactured at 40- and 50-ton capacity (Thompson, 2006). Some of the first hopper cars in Colorado belonged to the Rio Grande Western and the Denver & Rio Grande railroads. These cars were two-bay hoppers with metal center sills built around 1905 (Tudek, 2006). In the 1930s the three-bay, 70-ton hoppers were first manufactured (Thompson 2006).

During the 1950s, rail car builders tried welding hoppers instead fabricating riveted cars. The welds tended to break and separate over time under the stresses of loading and movement. The Rio Grande purchased a series of welded cars, the 18500- 18999 series. They were used to haul everything (Eager 1999, p. 79; McCall 2006). The cars began by providing successful service, but as the aged, Marv McCall, retired D&RGW Car Department foreman, noted, "the 18000 series just came apart at the seams. They were terrible" (McCall 2006). For reasons like this, coal cars were and are almost always of riveted construction (Tudek 2006).

Bethlehem Steel built the 14600-14999 Rio Grande series hoppers in two groups during 1966— one in the late winter and the other in the summer. The design engineer at Bethlehem was Gus Holabeck. He was known at the time as one of the finest rail car designers. Bethlehem Steel made the best cars in the industry thanks to his help. "He was a top man," pronounced Marv McCall, retired foreman of the D&RGW Car Department. "We bought other cars from them as well. They had an excellent reputation. The Rio Grande wanted to spend its money on the best equipment. They were always careful with their money." (McCall 2006).

For the purposes of inspection and approval, the Rio Grande sent Marv McCall to the Johnstown plant to watch the production of the series. McCall recalled that part of the plant was subject to the weather and that it was very cold in the winter (McCall 2006). He inspected rivets and parts as well as the general assembly. He checked to make sure the discharge doors opened and closed correctly.

Property Name Denver & Rio Grande Western Railroad Hopper No. 14718

Previously, the railroad sent five people to the plant to inspect car building. Each person assumed responsibility for specific areas of each car (McCall 2006).

In the 1960s, car builders also fabricated 85-ton, 90-ton and finally 100-ton hoppers (Thompson 2006). The 14000 series cars were built during a period when 70-ton capacity cars were made in the same Bethlehem Steel production plant as 100-ton capacity hoppers. Indeed, in 1963, the Rio Grande purchased 125 four-bay (quad) 100-ton Bethlehem hoppers (Eager 1996, p. 80). The 14000 series were the last 70-ton hoppers built for the Rio Grande. This raises an obvious question. Why did the Rio Grande purchase this series of smaller capacity cars instead of larger cars?

The higher capacity cars did not render the 70-ton cars obsolete. The 70-ton hoppers served customers with shipping and receiving needs below the capacity of 100-ton cars. (Rhodes 2006; McCall 2006). It made sense that smaller customers wanted to avoid receiving more product than they could use or store. The 70-ton cars were used extensively for coal hauling. Shipments were made on the D&RGW to Cañon City's power plant and the 70-ton hoppers brought coal from the Jensen Mine west of Trinidad to Colorado Fuel and Iron (CF&I) in Pueblo (Rhodes 2006; McCall 2006). They were also used to move limestone from Monarch, Colorado, and to supply CF&I with dolomite from Cañon City (McCall 2006). Finally, the cars hauled iron ore to CF&I from Woody Creek, north of Aspen. (McCall 2006). "They were great general purpose cars, particularly for coal." (McCall 2006).

As the cars aged, they saw service hauling lava rock from Antonito to Denver (Rhodes 2006). Structurally damaged hoppers were used at the ends of trains moving welded rail. The cars served as sacrificial buffers preventing the rail from sliding forward or back off the flatcars cars (Rhodes 2006).

By October 1997, only 163 of the original 400 D&RGW 70-ton hoppers remained on the railroad's roster (Official Railway Equipment Register October 1997, p. RR - 608). As of October 2005, the number of operating 14000 series hoppers dwindled to only seven (Ibid, October 2005, p. RR-787). The railroad retired the remaining seven cars during June 2006. Railroad regulations prohibit the interchange of rail cars over 40 years of age. Such cars sometimes continue to operate in limited service on the rails of their owners or are relegated to non-revenue maintenance of way service. Most are sent to the scrap yard.

After the Union Pacific Railroad absorbed the Rio Grande and Southern Pacific railroads in 1996, older freight cars disappeared quickly. Aging special purpose cars were unnecessary for a railroad with an enormous supply of younger cars. New lightweight aluminum hopper cars preferred by the Union Pacific weigh less empty than the 14000 series car and can carry twice as much (Freight Car America website 2006). Many of these cars are designed for rotary dumping, a process where the entire car is turned upside down and unloaded from the top. Such cars often lack hoppers and hatches and are really "gondolas" instead of hopper cars.

Hopper No. 14718 was one of the last, if not the last, former D&RGW 70-ton hopper on the Union Pacific's active roster. The fact that many lasted so long in their rough duties is proof of their superior engineering and dependable service.

Property Name Denver & Rio Grande Western Railroad Hopper No. 14718

BIBLIOGRAPHY

David Thompson. "A Brief History of Coal Hoppers," Appalachian Railroad Modeling, http://members.tripod.com/appalachian_railroad/hopperhistory.html, accessed 9/2006.

Eager, Jim. *Rio Grande Color Guide to Freight and Passenger Equipment*, Morning Sun Books: Edison, NJ. 1996.

Equipment folio sheet and car card, Rio Grande Railroad. Copies courtesy of Colorado Railroad Museum, Golden.

Freightcar America, aluminum hopper specifications, www.johnstownamerica.com/products/fcp_quadhopper.html, accessed 9/2006.

McCall, Marv, retired foreman D&RGW Car Department, interviewed 9/22/2006 by Daniel Quiat.

The Official Railway Equipment Register, October 1966. The Railway Equipment and Publication Company: New York, NY 1966.

The Official Railway Equipment Register, October 1997. Kill Directory: Hightstown N.J. 1997

The Official Railway Equipment Register, October 2005. Commonwealth Business Media: East Windsor, N.J. 2005.

The Official Railway Equipment Register, July 2006. R.E.R. Publishing Corporation: East Windsor, NJ 2006.

Rhodes, Don, rip track foreman, interviewed 9/16/2006 by Daniel Quiat.

Schafer, Mike and Mike McBride. *Freight Train Cars*. Osceola, WI: MBI Publishing Co., 1999.

Tudek, John, retired carman, interviewed 9/9/2006 by Daniel Quiat.

Union Pacific Railroad Umler Inquiry, Railcar history 2006.

GEOGRAPHICAL DATA

VERBAL BOUNDARY DESCRIPTION

The State Register nomination includes only the structure of the hopper car as it sits within the boundaries of the Union Pacific Railroad's Burnham Yard at 800 Seminole Rd. in Denver. No land is included with this nomination.

Property Name Denver & Rio Grande Western Railroad Hopper No. 14718

PHOTOGRAPH LOG

The following information pertains to photograph numbers 1-6:

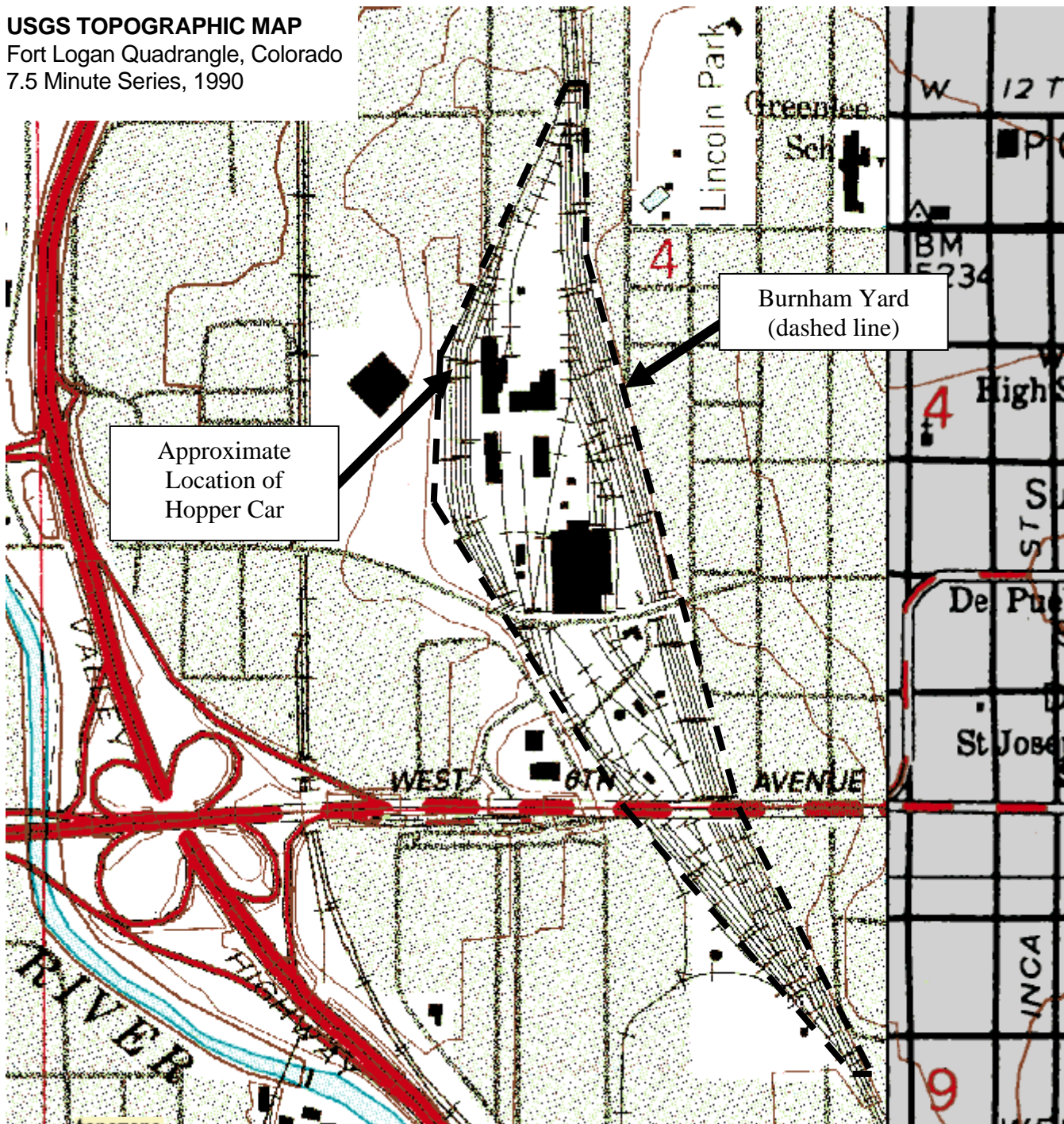
Name of Property: Denver & Rio Grande Western Railroad Hopper No. 14718
Location: 800 Seminole Rd., Burnham Yard, Union Pacific Railroad, Denver
Photographer: Daniel Quiat
Negatives: Possession of the photographer

Photo No. Photographic Information

- 1 Car profile looking east (10/2/2006).
- 2 Car profile looking west (10/4/2006).
- 3 Car end with breaking equipment (10/2/2006).
- 4 Car end (opposite photo no. 3) (10/2/2006).
- 5 Car side showing old and new markings (10/2/2006).
- 6 Car side showing equipment trust markings (10/2/2006).

Property Name Denver & Rio Grande Western Railroad Hopper No. 14718

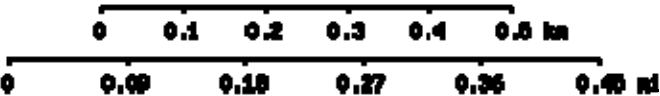
USGS TOPOGRAPHIC MAP
Fort Logan Quadrangle, Colorado
7.5 Minute Series, 1990



Approximate
Location of
Hopper Car

Burnham Yard
(dashed line)

topozone
Copyright 1999-2003 Maps a la carte, Inc.



Denver Water Department Heliport, USGS Fort Logan (CO) Quadrangle
Projection is UTM Zone 13 NAD83 Datum

M=10.01
G=-0.004