

**ORIGINAL**Decision No. 89639 NOV 9 1978

## BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Investigation on the Commission's own motion into the use of excess width cars by Southern Pacific Transportation Company.

OII No. 23  
(Filed August 22, 1978)

Application of Southern Pacific Transportation Company for an Exemption from the Provisions of General Order 26-D.

Application No. 58316  
(Filed August 29, 1978)

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James P. Jones, for United Transportation Union, California Legislative Board; Michael J. Leahy, for Northrop Corporation; and David O. Wente, Attorney at Law, for Lockheed-California Company; interested parties.

Peter Fairchild, Attorney at Law, for the Commission staff.

O P I N I O N

This proceeding was commenced August 22, 1978, by the issuance of a temporary restraining order and an order to show cause, wherein Southern Pacific Transportation Company (Southern Pacific) was ordered to refrain temporarily from operating certain excess width boxcars in violation of General Order No. 26-D pending a hearing on the order to show cause.

A hearing was held August 25, 1978, before Administrative Law Judge Robert T. Baer, and the matter was continued to August 31, 1978.

On August 29, 1978, Southern Pacific filed Application No. 58316 seeking an exemption from the provisions of General Order No. 26-D. A notice of hearing in Application No. 58316 was mailed August 29, 1978, setting hearing for August 31, 1978, at the same time and place and before the same ALJ as the hearing in OII 23. As the two matters involve the same subject, it is appropriate that the two proceedings be consolidated for hearing and decision and that the record previously made in OII 23 be incorporated into the record in Application No. 58316. The ALJ properly so ruled. One additional day of hearing was held September 5, 1978.

Southern Pacific commenced its evidentiary presentation by calling a Commission staff member as an adverse witness under Evidence Code Section 776. After questioning the staff witness, Southern Pacific conceded that the five cars, identified by number in the order issued August 22, 1978, were excess width cars. For the convenience of certain Southern California witnesses, the evidence of Lockheed-California Company (Lockheed) was then taken. It is summarized below.

Lockheed's Evidence

Lockheed has entered into a contract with the Government of Canada to furnish 150 of the P-3C Orion, a four-engine turbo prop,

anti-submarine aircraft. A provision of the contract requires that certain parts of the aircraft be manufactured in Canada. However, since the final assembly of the aircraft is accomplished in Burbank, California, the parts manufactured in Canada must be shipped to California.

The Canadian-manufactured parts are wings, the stub wing section (that is, the portion of the fuselage to which the wings are affixed), and the flight station or cockpit. This set of parts is called a ship set. Each ship set is worth approximately \$910,000. These ship sets are manufactured only in Canada.

Lockheed is currently delivering two airplanes per month, and the rate of delivery will vary between two and three airplanes per month through 1983. The current customers for these aircraft are the United States Navy, the Government of Canada, the Government of Japan, and the Government of Australia. If the ship sets do not reach Burbank or are delayed, then Lockheed's deliveries will be prevented or delayed.

Because of production delays in Canada, Lockheed has flown four ship sets to Burbank. However, this form of transportation is not practical on a regular basis. The only plane in

the world with interior dimensions spacious enough to handle the Orion components is the Miniguppy, owned by American Jet Industries. It is a 30-year old, converted Boeing 133, modified to make the fuselage 15 feet in diameter. The cost of leasing this plane is \$33,000 to \$37,000 for one round trip (taking about one week) between Van Nuys, California, and Montreal. Since the plane is one of a kind, there are always many people wanting to use it for emergency situations. Moreover, it is not equipped with deicers, making flights out of Montreal problematical in the winter.

After making a feasibility study of the various means of transportation of the shipsets, Lockheed determined that the only way to insure service schedules and to protect the lading was to ship by rail. The parts, particularly the wings, are too large for trucks, and the regulatory restrictions on the transportation of such wide loads, varying as they do from county to county and from state to state, made highway transport impractical. Moreover, the expense and the risk of delay from adverse weather conditions are greater for highway than for rail transportation. Even ocean shipping was considered but transit times are excessive (8-10 weeks); the cost is high, comparable to air transport; and ships are not always available when they are needed.

When rail transport was decided upon, Lockheed rejected containerization based upon its experience with shipping C-130 parts. Lockheed has found that specially designed steel cars protected the lading from damage even in the case of derailments, whereas containers come off the flat cars in derailment situations, causing damage to the lading. In addition, steel cars protect the extremely valuable lading from vandalism, even bullet holes.

The special cars were designed by Lockheed in consultation with Southern Pacific's engineering personnel. The exterior width of the cars is 12 feet. The interior width, allowing for internal ribbing, is 11 feet 7-3/4 inches. The stub

wing section and the flight station are both 11 feet, 4 inches wide. This allows only 3-3/4 inches play between the parts and the car interior, or 1-7/8 inches on each side. The two wings are shipped standing on their leading edges in a specially designed dolly. The stub wing section is shipped with the wings, and the flight station is shipped separately. The car width is the minimum possible in order to ship these parts.

Lockheed has contracted for five such cars to be manufactured by Bradley Engineering in Southern California. Only one has been accepted. It is now located in Montreal. No actual ship sets have been transported by rail to Burbank as yet.

Northrop Corporation's (Northrop) Evidence

Northrop is a major subcontractor for McDonnell Douglas (McDonnell) in the production of the F-18 fighter for the United States Navy. The F-18 is a multimission aircraft with both fighter and attack capability. It is intended to replace the F-4 (Phantom) and the A-7 aircraft.

Northrop manufactures the center and aft fuselage, including the vertical stabilizers and all the systems therein. The systems include hydraulic, environmental control, fuel, secondary power, fire detection and extinguishing, and propulsion integration. When the assembly is shipped from Hawthorne, California, to McDonnell in St. Louis, Missouri, the systems are all installed and functionally tested; and Northrop's assembly is ready to be joined with the components manufactured by McDonnell. Northrop employs in California from 2,500 to 3,000 persons on the F-18 project. In addition from 4,000 to 6,000 persons are employed by Northrop's subcontractors.

Northrop's delivery schedule requires shipment of between one and two assemblies per month prior to May 1979. A total of 14 assemblies are involved in this phase of the F-18 project, which is called the full scale development (FSD) contract. As of August 31, 1978, the date of Northrop's testimony, three of such assemblies had been shipped; one was to be shipped September 8, 1978, and another on October 13, 1978.

Three other contracts control future production of the aircraft: (1) a pilot production contract, involving five aircraft, (2) a limited production contract, and (3) a full production contract. If full production is reached, the F-18 project will eventually involve the manufacture of a total of 800 aircraft during the decade of the 1980's.

Delays in delivery of the FSD assemblies will set back the subsequent phases of the project and have cost impacts on both Northrop and McDonnell in magnitudes which are not quantified on this record but which appear substantial.

Northrop conducted a feasibility study to determine the most practical means of transportation from a cost and service standpoint. Commercial air movement was rejected because there are no commercial aircraft large enough to handle the F-18 assembly. The C-5A, an Air Force cargo aircraft, is large enough but its primary mission does not include the kinds of movements required by Northrop. It is therefore available only on a standby basis. There is no assurance that a C-5A will be available when it is needed to make a scheduled delivery in the future.<sup>1/</sup> In addition, the C-5A costs approximately 10 times the rail rate of \$3,600.<sup>2/</sup>

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<sup>1/</sup> Three assemblies were delivered by C-5A in June, July, and August 1978, due to scheduling delays.

<sup>2/</sup> If 800 F-18 assemblies are ultimately produced, and shipped 2 per rail car or 2 per C-5A flight, the relative transportation costs will be \$14,400,000 by C-5A and \$1,440,000 for rail, a difference of \$12,960,000.

Truck transportation was also rejected by Northrop for the same reasons as stated by Lockheed, weather problems and regulatory restrictions on movement.

After it was determined that rail transportation was the most practical, Northrop's engineering personnel, in consultation with Southern Pacific's engineers and the Federal Railroad Administration (FRA) designed a rail car to carry the F-18 assembly. The car is 13 feet wide, the maximum allowed by the physical clearances on the route between Hawthorne, California, and St. Louis, Missouri. The car is based on a standard Southern Pacific flat car from which the wood deck has been removed. A steel floor is welded to the flat car frame and a steel canopy is welded to the floor. Access to the car is by doors on one end. The finished appearance of the car is much like an oversized boxcar. The car as designed and built complies with the safety rules of the FRA.

Before shipment the F-18 assembly is firmly affixed to a steel frame called a shipping fixture. The shipping fixture is in turn tied down to a track system on the floor of the car. The clearance between the widest part of the F-18 assembly (the tips of the vertical stabilizers) and the interior of the car is only  $2\frac{1}{2}$  inches on each side. This much clearance must exist to allow for flexing of the vertical stabilizers and the walls of the car during shipment.

In designing the car Northrop's engineering personnel were not aware of the Commission's General Order No. 26-D. The engineering witness for Northrop testified that he "never knew there was any such thing as the Public Utilities Commission until the 16th of August." On August 16, 1978 two members of the Commission staff visited his office to inquire about the wide cars.

Southern Pacific's Evidence

Southern Pacific's evidence indicated that in consulting with the personnel of Northrop regarding the design of its wide car, Southern Pacific personnel assumed that what was involved was not excess width cars but excess width loadings.<sup>3/</sup> General Order No. 26-D, Section 7, allows the movement of open top (flat) cars with lading in excess of 5'5" from the center line of the car under the conditions specified in Sections 7.2-7.7 of General Order No. 26-D. However, cars in excess of 10'10" in width may not be moved unless minimum side clearances and distances between parallel tracks are increased (§ 3.20). Southern Pacific personnel apparently believed that since the steel canopies were mounted on open top (flat) cars, the canopy was part of the lading and could be moved under Section 7 of General Order No. 26-D. Accordingly, Southern Pacific personnel did not advise Northrop personnel of the provisions of General Order No. 26-D. Thus, Northrop personnel designed their cars without reference to such provision. The same situation apparently obtained with respect to Lockheed's cars.

Southern Pacific recounted in detail the special handling given wide cars and wide lading. Before the five cars in this proceeding were built, Northrop and Lockheed obtained from Southern Pacific written confirmation (see Exhibit 23) that physical clearances existed on particular routes for cars of the dimensions required by Northrop and Lockheed. Thereafter, upon the movement of the oversized cars, the same special handling was and is required by Southern Pacific of such cars as is required by General Order No. 26-D, Section 7, for cars carrying wide lading.

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<sup>3/</sup> Southern Pacific's evidence in this area was weak, leaving room for the suspicion that it may have intended to present the Commission with a fait accompli. No more ill-conceived policy could be imagined. We expect Southern Pacific to obtain our authority before commencing operations requiring an exemption and will not hesitate to deny the requested authority where circumstances require.



General Order No. 26-D

Under Section 7 of General Order No. 26-D, lading mounted upon open top cars, which extends laterally in excess of 5'5" from the center line of a car, may be moved subject to the following restrictions:

- a. The size or dimensions of the lading cannot be reduced. (§ 7.2.)
- b. The load, when practical, and the car shall be placarded on the four corners with the sign "This Car Excess Width". (§ 7.3.)
- c. Cars with excess width lading shall be trained at least five cars distant from both caboose and engine. (§ 7.4.)
- d. A train order shall be delivered to every train consisting of cars with wide lading informing the crew of the presence of cars with wide lading. (§ 7.5.)
- e. A separate train order shall be delivered to every train which may be affected by the presence or movement of a train with wide loads. (§ 7.6.)
- f. Yard supervisors shall be notified sufficiently in advance of the arrival of trains with wide loads to enable them to safeguard the employees in the yard. (§ 7.7.)

Section 16.2 of General Order No. 26-D provides that the railroad may apply for an exemption from the provisions of General Order No. 26-D. Wide cars may only be operated after such an exemption is granted by the Commission. A railroad may, however, lawfully operate cars with wide loads, without the advance approval of the Commission, merely by observing the special provisions of Sections 7.2-7.7 of General Order No. 26-D. Nevertheless, the Commission

may, pursuant to Section 16.3, modify the provisions of General Order No. 26-D when public safety and the public interest would be served.

Staff Evidence

The staff witness testified that the use of wide cars reduces the clearances for employees standing between adjacent tracks. His testimony may be summarized by the following matrix:

Inches of Clearance for Employees Between  
Cars of Various Widths  
On Tracks with 13' Centers

Car Width	Car Width			
	10'10"	11'1"*/	12'0"	13'0"
10'10"	26"	24½"	19"	13"
11'1"*/	24½"	23"	17½"	11½"
12'0"	19"	17½"	12"	6"
13'0"	13"	11½"	6"	0"

\*/ Union Pacific wing cars 11'1" wide are now moving under the authority of Commission Resolution No. S-1420, dated March 29, 1977, pending a decision on Union Pacific's Application No. 57361.

It is apparent from the matrix that unless wide cars and loads are given special handling, including appropriate warnings to train crews and yard personnel, they pose a danger to railroad employees.

The staff, however, conceded that if a container 13' wide could be mounted upon an open top car and secured to the car by bolts, or some other temporary method, then a lading the same width as Northrop's 13' wide cars and posing the same hazards to railroad personnel could be operated by Southern Pacific subject to the restrictions of General Order No. 26-D (Section 7). Northrop's

engineering witness testified that such a container with temporary attachments could be designed and built at significantly greater expense to Northrop.

The staff was nevertheless totally opposed to the granting of an exemption for the five cars here involved. However, if the cars were, or were considered to be, excess width loads, they could move under Section 7 of General Order No. 26-D, subject to certain additional restrictions recommended by the staff because of the extraordinary width of the 12' and 13' wide cars.

The additional restrictions are those listed in Ordering Paragraph 2 of Decision No. 89341, an interim order dated September 6, 1978, which granted to Southern Pacific authority to operate the wide cars for 60 days. (See also Exhibit 24 and the following order.) Southern Pacific did not oppose these additional restrictions.

#### Discussion

It is the staff's position that the 12' and 13' wide cars designed and built by Lockheed and Northrop for the transportation of military aircraft assemblies are, in fact, wide cars, rather than excess width loads resting on open top cars. The staff's reasoning is that since the canopies are permanently welded to the open top cars, the cars cease to be open top cars with wide loadings and become specially designed wide boxcars. On the first day of hearing, Southern Pacific conceded that the staff position was the correct view of the matter. Although it would be possible to consider the wide canopies of such cars to be merely the covering of the lading and thus part of the lading, such straining of the facts is neither a necessary nor a reasonable means of addressing the question of whether to grant an exemption.

Were we to find that such cars were open top cars with excess width loads, the result would be the same as if we granted the exemption sought by Southern Pacific, conditioning such exemption upon the observance of the Section 7 restrictions. In either case the cars would move subject to Section 7.

Another alternative suggested by the staff is to require the redesign and reconstruction of the canopies to make them removable. This appears to be an idle act which would have only negative results to Lockheed, Northrop, and Southern Pacific and would not improve the safety of the operation. A removable canopy, the same size and shape as the permanently mounted canopy, would not reduce the risk to railroad employees.

The staff, through cross-examination of Northrop's engineering witness, suggested that a canopy could be designed with a trapezoidal outline, instead of a rectangular outline. The small base of the trapezoid would be affixed to the deck of the open top car and the large base would be wide enough to clear the vertical stabilizers of the F-18. In theory, such a design would be safer for railroad employees, but there is insufficient engineering testimony in the record to justify ordering such a car to be built. In addition, a trapezoidal design would impair internal clearances needed for the employees of Northrop to enter and tie down the F-18 shippable assembly, i.e., the assembly plus the shipping fixture. Such a configuration would be inappropriate for Lockheed's assemblies, which are in two cases round in profile. A diamond shape was suggested, but not explored on the record.

The staff explored two other possibilities, one involving the shipment of the F-18 assembly without the vertical stabilizers and the other involving raising the lading higher off the floor of the open top car to enable the design of the car to be narrowed where it might come in contact with a pedestrian. The latter proposal has insufficient engineering support in the record. The former proposal seems fairly straightforward on the surface, but is complicated by Northrop's contractual obligations. Northrop is required to supply the center and aft fuselage with vertical stabilizers installed and all systems connected. The installation of the vertical stabilizers is a complex operation involving the joining of both structures and systems (fuel, electrical, and hydraulic). This is in contrast to the horizontal stabilizers which are simply slipped over spindles and attached to a single horizontal actuator. While it would be possible to transfer the attachment of the vertical stabilizers to St. Louis, this change in the manufacture of the aircraft would have cost and scheduling impacts which are unknown.

At the close of the last day of hearing, submission in OII No. 23 was deferred pending a ruling by the Commission on the staff's motion for an order requiring Southern Pacific to produce more detailed evidence of the number of actual movements in which the subject wide cars had been involved. The purpose of such evidence is to support a Commission order imposing penalties upon Southern Pacific for operating such cars in violation of General Order No. 26-D. Alternatively, the staff would use such evidence in a Superior Court penalty action.

Southern Pacific resisted the staff's motion to produce such evidence in OII No. 23 arguing that, since Chapter 11, commencing with Section 2100, of the Public Utilities Code does not authorize the imposition by the Commission of monetary penalties, such evidence would be irrelevant to OII No. 23. It is unnecessary to reach or decide that issue, since the scope of the proceeding is limited by the language of the order instituting investigation to the issuance of injunctive orders. Monetary penalties are not mentioned nor is a contempt of the Commission by Southern Pacific alleged. Since the initiatory pleading (the order instituting investigation) makes neither monetary penalties nor contempt issues in this proceeding, it would be clearly inappropriate to broaden the proceeding at this point to include those issues. Accordingly, the motion of the staff is denied.<sup>4/</sup> In addition, submission of OII No. 23 need not be further delayed. The following order will dispose of OII No. 23, and the proceeding will be discontinued.

Findings

1. Rail transportation is a practical, economic, and expeditious means of carrying Lockheed's and Northrop's military aircraft assemblies, when compared with air, ocean, and highway transportation.
2. The use of specially designed steel boxcars protects the valuable lading from damage due to accidents and vandalism.
3. The specially designed boxcars consist of steel canopies welded to a standard, open top car.
4. Containers, the same size and shape as the steel canopies, could be designed, fabricated, temporarily fastened to open top cars, and operated by Southern Pacific subject to the provisions of Section 7 of General Order No. 26-D.

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<sup>4/</sup> The staff may require the production of any information it needs from Southern Pacific merely by requesting it. Southern Pacific is required by law to furnish such information. (Public Utilities Code, Sections 581 and 582.)

5. Such operation would pose the same risks to the public, to railroad operating personnel, and to railroad equipment and facilities as the operation of the subject boxcars.

6. Any such risks can be greatly reduced and the subject boxcars can be operated with reasonable safety if such operations are subject to the safety provisions of Section 7 of General Order No. 26-D and subject to the additional restrictions and conditions recommended by the Commission staff and acquiesced in by Southern Pacific. (Exhibit No. 24.)

7. The use of the specially designed extra width boxcars will be relatively infrequent. In the case of the cars in assigned service to Lockheed, only from four to six round trips per month through 1983 are involved. In the case of the cars in assigned service to Northrop, approximately 400 round trips in more than 10 years are involved. In both cases, the transportation occurs for the most part on out-of-state railroads.

8. Only one labor union, the United Transportation Union, participated in this proceeding. Although it opposed the granting of the exemption sought by Southern Pacific, it did not sponsor any evidence.

9. Upon completion of the service for which authorization is granted, the specially designed wide cars will be restored by Lockheed and Northrop to their original form by the removal of the canopies and steel floors and the open top car will be returned to Southern Pacific to resume normal service.

#### Conclusions

1. In view of the combination of unique facts presented in this proceeding: (a) the military nature of the cargo, (b) the high value of the cargo, (c) the sensitivity of the cargo to damage, (d) the relatively infrequent shipments, (e) the use primarily of out-of-state railroads, (f) the high cost and impracticability of other modes of transportation, and, (g) the special restrictions on the transportation recommended by the staff, the exemption sought by Southern Pacific

should be granted, limited to the five cars specifically identified in the following order.

2. OII No. 23 should be terminated.

3. Since Southern Pacific's temporary operating authority expires on November 5, 1978, the following order should be effective immediately.

O R D E R

IT IS ORDERED that:

1. The temporary restraining order issued August 22, 1978, is hereby rescinded.

2. OII No. 23 is terminated.

3. Southern Pacific Transportation Company is authorized to operate cars 598376 and 598380 (the 13-foot wide cars in assigned service to Northrop Corporation) and cars 598301, 598326, and 598308 (the 12-foot wide cars in assigned service to Lockheed-California Corporation) subject to the following conditions and restrictions:

- a. Such cars shall be operated subject to the provisions of Section 7 of General Order No. 26-D.
- b. Such cars and any cars containing lading in excess of 10 feet 10 inches wide shall be blocked together in the train.
- c. Such cars shall not be left standing on tracks where adjacent track centers are less than 15 feet apart.
- d. A train containing such cars shall not meet, pass, or be passed on curves, turnouts, or locations where track centers are less than 14 feet apart by any rail movement in excess of 10 feet 10 inches wide.
- e. Such cars shall have alternating red and white reflective 4-inch wide diagonal stripes from floor to top on the end portion which extends beyond 5 feet 5 inches from centerline.
- f. Movement of such cars shall be expedited and handled in through trains and main-lined wherever operations will permit.



g. Employees shall be prohibited from riding such cars or on cars moving past such cars on adjacent tracks.

The effective date of this order is the date hereof.

Dated at San Francisco, California, this 9th day of NOVEMBER, 1978.

Robert Bateman  
President  
William S. ...  
Vernon ...  
Robert ...  
Paul ...  
Commissioners