

SECRETARY OF LABOR,

Complainant,

v.

AUSTIN BRIDGE & ROAD, INC., and its
successors

Respondent.

OSHRC DOCKET NO. 02-0983

APPEARANCES:

For the Complainant:

Madeleine Thu-Hang Le, Esq., Lindsay McCleskey, Esq., Office of the Solicitor, U.S. Department of Labor, Dallas, Texas

For the Respondent:

Steven R. McCown, Esq., Littler Mendelson, Dallas, Texas

Before: Administrative Law Judge: Robert A. Yetman

DECISION AND ORDER

This proceeding arises under the Occupational Safety and Health Act of 1970 (29 U.S.C. Section 651-678; hereafter called the "Act").

Respondent, Austin Bridge & Road, Inc., (Austin), at all times relevant to this action maintained a place of business at I-35 South at Crest Drive, Lacy Lakeview, Texas, where it was engaged in highway construction. Respondent admits it is an employer engaged in a business affecting commerce and is subject to the requirements of the Act.

On January 16, 2002, Austin's Manitowoc crane overturned while lifting a concrete beam. Following that incident, the Occupational Safety and Health Administration (OSHA) conducted an investigation of the conditions at Austin's work site at the time of the event. As a result of OSHA's investigation, Austin was issued citations alleging violations of §1926.550(b)(2) of the Act. A penalty of \$4,500.00 was proposed. By filing a timely notice of contest Austin brought this proceeding before the Occupational Safety and Health Review Commission (Commission).

On January 21, 2003, a hearing was held in Arlington, Texas. The parties have submitted briefs on the issues and this matter is ready for disposition.

Alleged Violations

Serious citation 1, item 1 alleges:

29 CFR 1926.550(b)(2): All crawler, truck, or locomotive cranes in use shall meet the applicable requirements for design, inspection, construction, testing, maintenance, and operation as prescribed in the ANSI B30.5-1968, Safety Code for Crawler, Locomotive, and Truck Cranes.

A Manitowoc crawler crane, type 222B, s/n 23047, was being used to lift a concrete beam when the back left side dipped down causing the boom to go backwards and hit the concrete barrier overpass on the north-bound side of I-35 at Crest Drive near Lacy Lakeview, Texas near exit 342A. According to the lift plan for Span 3, the lattice boom was 110 feet, load radius was 21.5 feet, concrete beam weight was 74,100 pounds, and the weight for the load block and rigging was 5,000 pounds for a total weight of 79,100 pounds. According to the crane operator the boom angle was about 82 degrees, the maximum boom angle for this crane. The load chart does not have a designation for 82 degrees or for 21.5 feet load radius. Since the load radius was between load radii of 22 feet and 20 feet, the next lower capacity should be used which would be a load radius of 22 feet, boom angle of 80.3 degrees, and rated for 78,860 pounds. The employer estimated the weight of the hoist line, rigging, and load block to be 3,009 pounds, however, this weight was not used for the lift plan.

Interview statements indicated the mats were level north to south but not level west to east and eyewitness accounts of the load drifting out when the crane was rotating is an indication that the crane was on a slight slope. No documentation was provided on the level measurements of the matting used by the crane.

Conservative estimates indicate the grade to be about 1.7% (using 1 inch rise per 48 inches) at the low end and 7-8% (4 inch rise for 48 inches) on the high end. If the level used showed slightly less than half a bubble on the 4 foot level used, this would calculate to about 1.4% slope (0.8 degrees). The crane should be on a firm supporting surface level within 1% grade.

Swinging from the low side to the high side with a high boom angle can cause the boom to collapse over the crane. Also, side loads on the boom caused by working on a slope can result in boom collapse. Employees were exposed to the hazard of being struck by equipment which could result in serious physical harm or death.

Facts

Douglas Walker, an employee of Davis Motor Crane Service, was at the work site off I-35 where Austin Bridge set up its Manitowoc crane on January 16, 2002 (Tr. 12). According to Walker, there was a six inch difference between the height of the curb and the roadside shoulder where the Manitowoc was to be located, a variation which Austin attempted to even out with fill dirt (Tr. 19, 154). After backfilling the area, Austin laid oak mats on top of the fill to provide a surface for the crane to work on (Tr. 19-20, 153). Walker was sitting in the cab of his crane approximately 200 yards from the area when Austin attempted the lift which is the subject of this citation (Tr. 19). Walker testified that a beam was brought in on the roadway above the shoulder where the Manitowoc was located. An employee on the roadway rigged the beam to the boom, and the Manitowoc picked up the beam. Kenneth Turner, Davis' driver/oiler, testified that the operator set the beam back onto the

overpass once before hoisting it up, and rotating it around counter-clockwise (Tr. 54, 63, *see also*, testimony of Walker, Tr. 26, 34). Both Walker and Turner saw the load swing out as the crane rotated around (Tr. 27, 54). The crane then overturned (Tr. 27, 54; Exh. C-2). According to Walker, the load will swing out over the low side if the crane is not level (Tr. 20). Walker testified that after the accident, he saw Austin employees using a four-foot level, a tape measure and a camera to ascertain whether the mats were out of level (Tr. 29-30). Walker stated that the level lifted approximately four inches off the east end of the mat (Tr. 30). Walker did not take any measurements himself. He did not see the working surface until after the crane had tipped (Tr. 50). Kenneth Turner, however, stated that he “could tell” the mats weren’t level just by looking at them (Tr. 55, 60).

Jimmy Wiethorn, an engineering consultant in failure analysis, testified for Respondent as an expert in crane operations and accident reconstruction (Tr. 198-99). Mr. Wiethorn stated that he believed the accident occurred when the crane’s rear drive sprocket became wedged in the seam between two mats and caused the mats to spread (Tr. 205-06). Wiethorn believed that the pressure of the excessive load drove the sprocket between the two mats, causing the load to swing out and tipping the crane (Tr. 206). Wiethorn testified that the tipping of the crane disrupted the placement of the mats that had been supporting it (Tr. 201-02). On January 17, 2002, Wiethorn measured the gap between the mats, and found that those on the left rear side of the crane were splayed eight inches further apart than the mats on the right rear side (Tr. 206). According to Wiethorn, there was no way anyone viewing the site after the accident could have told whether the mats were level before the accident (Tr. 203). Moreover, Complainant’s expert, Leon Johnson, stated that conditions other than an uneven base could cause the load to swing out. If the operator rotated the load too quickly, or accidentally boomed down while rotating the cab, the load could swing out of radius (Tr. 117-18).

John Shine, Austin’s operations manager, is a registered professional engineer with more than 20 years of experience in developing lift plans for cranes (Tr. 140). Shine testified that he asked Mike Pettit, Austin’s company engineer, to create a lift plan for the job at I-35 and Crest Drive. Shine reviewed and approved the lift plan (Tr. 140, 144-45, 148). Shine testified that he instructed Pettit to calculate the weight of the beams to be lifted based on dimensions provided by Texas’ Department of Transportation (TxDOT), using 150 pounds per cubic foot of concrete, including the beams’ diaphragm and endblock (Tr. 146-47). Given the specified dimensions, Pettit calculated the weight of beam U40B19 (also referred to as span No. 3), which is the subject of this citation, to be approximately 74,100 pounds (Tr. 43, 75, 89, 157). Shine testified that the weight of the entire load was calculated by adding the weight of the beam to the weight of the block and rigging (Tr. 169). The lift plan was

created by comparing the total load to the crane's load chart and determining the appropriate lift radius (Tr. 169).

Leon Johnson, director of crane operator training and certification for the American Equipment Company, was certified as an expert in cranes (Tr. 65-72). According to Mr. Johnson, a lift plan is generally developed when a crane will be lifting a load in excess of 75% of its capacity in the planned configuration (Tr. 72-73). Johnson testified that Austin's lift plans for the January 16, 2002 lift anticipated the use of the Manitowoc's 110 foot boom with a 21 ½ foot radius, *i.e.*, the boom tip was to be positioned so that the load's center of gravity was 21 ½ feet out from the center of the boom's butt pin, or the boom's center of rotation (Tr. 73-77; Exh. C-4, C-5). Referring to load capacity charts for the Manitowoc crane, Johnson testified that the maximum capacity of the 110 foot boom at 22 feet is 78,860 pounds (Tr. 78; Exh. C-6).¹ Johnson calculated the weight of span No. 3, by looking at the design criteria drawing, and multiplying 150 by the number of cubic feet of concrete specified (Tr. 86). One hundred and fifty is the weight of concrete with re-bar. That total was then multiplied by 27, the number of cubic feet per cubic yard, yielding a total calculated weight of 74,034 pounds (Tr. 86-87). Johnson's calculated weight was virtually identical to the figure used by Austin in preparing its lift plan (Tr. 89). Johnson added in the weight of the block and rigging, 1,804 and 426 pounds, respectively (Tr. 82-84), and arrived at a total load of 77,380 pounds, which he found to be slightly over 98% of the crane's 78,860 lb. capacity at a 22 foot radius (Tr. 91). At 98% of capacity, Johnson stated, the crane was operating just within its limits (Tr. 122-23).

However, Johnson testified that the manufacturer's calculated weight, included on the way bill, exceeded the design weight (Tr. 96). Bexar Concrete Works Inc., (Bexar's) bill of lading reported span No. 3's weight as 77,690 pounds (Tr. 97, 161-62; Exh. C-10). When he added the weight of the block and rigging to Bexar's calculated weight, Johnson came up with a total load weight of 80,970 pounds, 102.7% of the Manitowoc's capacity (Tr. 81, 97). Shine testified that the actual weight of the beam, which was determined after the accident, was a little over 78,000 pounds, exceeding even the manufacturer's calculated weight (Tr. 161-62, 182-84; Exh. R-3, R-5).

According to Respondent's engineer, Mike Pettit, it is standard procedure to rely on shop drawings when preparing lift plans (Tr. 192). Pettit testified that he had successfully designed approximately 100 lift plans in the five years he has been with Austin, relying on his calculations of

¹ The load charts list values for load radii of twenty and twenty-two feet. Johnson rounded up to the load radius with the lower capacity, in accordance with industry practice (Tr. 79).

engineered weights (Tr. 192-93). Wiethorn also testified that it was reasonable to rely on specifications and engineering drawings in designing a lift plan, and stated that it was the standard practice in the industry (Tr. 209, 214). Wiethorn stated that, in his experience, the actual weight of a beam is generally not available in time to incorporate into the lift plan (Tr. 212).

Leon Johnson, Complainant's expert, opined that, while it is reasonable to rely on engineered weights as a minimum standard when preparing a lift plan (Tr. 109), an informed person in the construction industry would realize that the engineered weight may not be accurate (Tr. 89-90). Variations in the content of the concrete aggregate, the amount of re-bar used, and manufacturing techniques, can result in a beam either lighter or heavier than specified in the engineering drawings (Tr. 89-90). Davis' crane operator, Walker, testified that, in his experience, a manufactured beam generally "hang[s] just a little bit heavier than what the manufacturer [says]" (Tr. 24). According to Johnson, a prudent operator would ascertain whether the calculated weight of the load was accurate before operating a crane so close to its capacity (Tr. 95, 123). John Shine agreed that it is always better to use the actual weight of a beam, if it is available. He stated, however, that Bexar, the manufacturer of the concrete beam did not provide either a calculated, or an actual weight for the beam prior to the its delivery on the job site (Tr. 155-56). He did not see Bexar's bill of lading prior to January 16, 2002, and stated that he had to call Bexar after the incident to ask whether they had made any calculations determining the weight of the beam (Tr. 156, 176). Wiethorn also conceded that, if the weight of a beam were available, he would use that figure, rather than the engineered weight, to determine the weight of the load (Tr. 215-16). Finally, Mike Pettit stated that, if a bill of lading containing the actual weight of a beam were available, it would be prudent to look at it before lifting the beam (Tr. 195).

Austin argues, however, that it had no knowledge of the contents of Bexar's bill of lading prior to January 16, 2002. Shine testified that he had to call Bexar after the incident to ask whether they had made any calculations determining the weight of the beam (Tr. 156, 176). Pettit maintained that it was not unusual to receive a manufactured beam before receiving the bill of lading (Tr. 188-91). According to Pettit, the delivering driver will often bring the paperwork to be signed after a beam has already been removed from his truck and set into place (Tr. 195). Johnson, on the other hand, testified that he never had a beam delivered without a bill of lading listing the manufacturer's calculated weight (Tr. 111).

It is uncontested that the actual weight of the load exceeded the capacity of the Manitowoc at the radius at which the crane was being operated on January 16 (Tr. 97, 101, 160, 205). Shine stated that, had he been aware of the beam's actual weight, he would have re-examined the load charts and

reduced the crane's radius (Tr. 160, 173-74, 181). Johnson agreed that if the load radius had been reduced, the crane's capacity would have increased (Tr. 77).

Mr. Walker testified that he spoke to Claude Heights, the crane operator, after the accident and asked him what his capacity was when he picked up the beam (Tr. 32, 65). Heights told Walker that his computer wasn't working (Tr. 32). According to Kenneth Turner, Heights told him that he was not comfortable making the lift (Tr. 56, 59). Heights told Turner that he had spoken with Austin's engineer, Mike Pettit, telling him that he didn't think he could make the lift on his own (Tr. 56). Pettit had a laptop computer on site with a drafting program, "AutoCAD," on the I-35 work site, and could have refigured his lift plan with Bexar's estimated weights, had he looked at the bill of lading (Tr. 152).

Neither party called the crane operator as a witness.

Discussion

The cited standard provides:

All crawler, truck or locomotive cranes in use shall meet the applicable requirements for design, inspection, construction, testing, maintenance and operation as prescribed in the ANSI B30.5-1968 Safety Code for Crawler, Locomotive and Truck Cranes....

The applicable ANSI code states:

No crane shall be loaded beyond the rated load, except for test purposes. . . . (Tr. 101-02; Exh. C-11, p. 19, ¶5-3.2.1a).

Crane to be standing on firm supporting surface level within 1 percent grade. (Tr. 102; Exh. C-11, ¶5-1.2.2)

Discussion

In order to prove a violation of section 5(a)(2) of the Act, the Secretary must show by a preponderance of the evidence that (1) the cited standard applies, (2) there was a failure to comply with the cited standard, (3) employees had access to the violative condition and (4) the cited employer either knew or could have known of the condition with the exercise of reasonable diligence. *See, e.g., Walker Towing Corp.*, 14 BNA OSHC 2072, 2074, 1991-93 CCH OSHD ¶29239, p. 39,157 (No. 87-1359, 1991).

Overloading. In this case, there is no question that the cited crane was overloaded, causing it to overturn, and exposing Austin employees to the hazard of being thrown from, or struck by the crane or its load. The sole matter at issue is Respondent's knowledge of the violative condition. It is well settled that in order to show employer knowledge of a violation, the Secretary must show that the

employer knew or, with the exercise of reasonable diligence, could have known of the hazardous condition. *Dun Par Engd. Form Co.*, 12 BNA OSHC 1962, 1986-87 CCH OSHD ¶27,651 (No. 82-928, 1986). A lack of reasonable diligence may be shown when the employer fails to take measures to prevent foreseeable hazards. *Pride Oil Well Serv.*, 15 BNA OSHC 1809, 1991-93 CCH OSHD ¶29,807 (No. 87-692, 1992). Given the circumstances cited in this case, the record establishes that a reasonable employer would have taken steps to ascertain the actual weight of the beam its crane was attempting to lift. The record further establishes that, had it made the attempt, Austin would have known its Manitowoc crane was overloaded on January 16, 2002.

Leon Johnson testified that any employer familiar with the construction industry would realize that the calculated, or engineered weight of a concrete beam may not be accurate because of variations in the content of the concrete aggregate, the amount of re-bar used, and differences in manufacturing techniques. Though Austin's expert, Mr. Wiethorn, testified that it reasonable to rely solely on engineering weights in developing a lift plan, his opinion is not consistent with the physical evidence or the testimony of the industry witnesses. Davis' crane operator, Mr. Walker, testified that manufactured beams are usually heavier than the engineering drawings specify. The beam at issue was approximately 4,000 pounds heavier than the engineered weight. Austin's witnesses agreed that when it was available, it was preferable to use the actual rather than the engineered weight of a beam in designing a lift plan. Relying on specification weights cannot be reasonable where, as this record discloses, engineering weights can be so inaccurate that the margin of error in a lift plan does not compensate for the difference between the specified and the actual weight of a beam. Wiethorn testified that, in his opinion, it is standard practice within the construction industry to rely solely on engineering weights when designing a lift plan. However, assuming that Wiethorn's opinion reflects industry practice,² the Commission has held that while industry practice is relevant in determining reasonableness, it is not dispositive if such practices are recognizably inadequate under the cited condition. *See, Farrens Tree Surgeons, Inc.*, 15 BNA OSHC 1793, 1991-93 CCH OSHD ¶29,770 (No. 90-998, 1992). Moreover, where, as here, the Secretary spells out additional measures that the employer could easily have taken to enhance employee safety and avoid the cited hazard, it is difficult for the employer to argue that such measures are unreasonable. *See, Precision Concrete Construction,*

² Complainant's expert, Johnson, testified that a person familiar with the construction industry would know that using engineered rates in the calculation would not result in an exact weight of the beam (Tr. 90-91).

19 BNA OSHC 1404, 2001 CCH OSHD ¶32,331 (No. 99-0707, 2001). Accordingly, no weight is accorded Wiethorn's opinions.

Leon Johnson testified that, in his experience, a bill of lading listing the manufacturer's weight calculations always accompanies a beam when it is delivered. The way bill lists the actual weight of the beam (Tr. 94-95). While Shine denied having seen the bill of lading, and Pettit testified that it was not unusual for the driver to turn over the bill of lading after a beam has been off-loaded,³ neither witness claimed that the bill of lading did not accompany the beam, was unavailable to Austin at the work site, or could not have been incorporated into Pettit's lift plan had he made an effort to locate it prior to the lift. There is no evidence that any of Respondent's employees attempted to locate the bill of lading prior to off-loading the beam. In the cited circumstances, the original lift plan provided a minimal margin of error. Moreover, Austin's crane operator told Mike Pettit he didn't think he could make the lift.⁴ Thus, it is concluded that Pettit, and through Pettit, Austin, was on notice that it was likely that the crane's load was too heavy to be lifted as the crane was configured. Under the conditions described in the record, a reasonably prudent employer would have made an effort to ascertain the accuracy of the engineered weight of span No. 3 by reviewing the bill of lading before attempting to lift the beam. Austin made no such attempt, choosing instead to rely on its original calculations. The violation is established.

Level Surface. Complainant seeks to establish that the surface from which the Manitowoc worked was more than 1% out of level, relying on the testimony of Davis employees Walker and Turner, both of whom saw the crane's load swing out as the operator rotated the Manitowoc's turret. Turner also testified that he could tell that the mats were not level just by looking at them, and Walker stated that he estimated the mats were approximately 4 inches out of level after the accident.

³ Complainant's expert, Johnson, testified as follows with respect to the bill of lading:

Q. Based upon your experience, when and where is a way bill usually provided to an employer?

A. When the truck driver leaves the load off at the jobsite, he delivers the paperwork to responsible person at the jobsite.

Q. Why is it given to the responsible person at the jobsite?

A. For one thing, he'd have to deliver his paperwork so that he can leave, and until he passes his paperwork off to a responsible person, a supervisor/foreman/lift director, he really can't say he's delivered his load.

⁴ Austin failed to call Claude Heights, the Manitowoc operator, to rebut Mr. Turner's testimony regarding the content of his conversation with Mr. Heights. Nor did Mike Pettit refute Turner's statements while on the stand. Turner's testimony, therefore, is credited.

Complainant's evidence fails to establish the violative condition by a preponderance of the evidence. The Davis crane was 200 yards from the accident scene. It is unlikely that anyone could determine at that distance whether the Manitowoc was four inches off of level. Mr. Walker's observations of the working surface, made after the Manitowoc overturned, cannot be relied upon, as the overturning of the crane would have impacted the surface on which the crane was working. Finally, both Complainant's and Respondent's experts offered alternative explanations for the load swinging out of radius. Complainant failed to prove, by a preponderance of the evidence, that an uneven working surface was the cause of the swing. Complainant failed to carry her burden on this issue.

Penalty

A penalty of \$4,500.00 was proposed for this item. Although the Secretary failed to prove every aspect of the violation, the gravity of the violation in this case remains high because, as stated by Compliance Officer (CO) Michael Talmont, should a crane tip over or collapse, it is likely that employees will suffer serious injuries which could lead to death (Tr. 129). Talmont figured the gravity based penalty at \$5,000.00. Talmont testified that Austin is a large company, with more than 250 employees, and was not entitled to any reduction in penalty based on its size (Tr. 130). Because Austin had no recent history of OSHA violations, Talmont reduced the proposed penalty by 10% (Tr. 130-31).

Though the Secretary failed to show that the cited crane's support was more than 1% out of level, it is clear from the resulting accident, that the gravity of the overloading violation was severe enough to justify the Secretary's gravity based penalty of \$5,000.00. CO Talmont took into account the other statutory criteria in proposing a penalty of \$4,500.00, and that amount will be assessed.

Findings of Fact

All findings of fact relevant and necessary to a determination of all issues have been made above. Fed. R. Civ. P. 52(a). All findings of fact inconsistent with the decision are hereby denied.

Conclusions of Law

1. Respondent is engaged in a business affecting commerce and has employees within the meaning of section 3(5) of the Act.
2. Respondent, at all times material to this proceeding, was subject to the requirements of the Act and the standards promulgated thereunder. The Commission has jurisdiction of the parties and of the subject matter of this proceeding.
3. At the time and place alleged, Respondent violated the provisions of §1926.550(b)(2) of the Act as alleged and said violation was serious within the meaning of the Act.

ORDER

1. Citation 1, item 1, alleging violation of §1926.550(b)(2) is AFFIRMED, and a penalty of \$4,500.00 is ASSESSED.

/s/
Robert A. Yetman
Judge, OSHRC

Dated: May 21, 2003