



**OCCUPATIONAL SAFETY AND HEALTH REVIEW COMMISSION**

1120 20<sup>th</sup> Street, N.W., Ninth Floor  
Washington, DC 20036-3457

**SECRETARY OF LABOR,**

**Complainant,**

**v.**

**M & J PAINTING COMPANY, INC.,**

**Respondent.**

**OSHC DOCKET NO. 11-2694**

Appearances:

Kevin E. Sullivan, Attorney  
U.S. Department of Labor, Office of the Solicitor, Boston, Massachusetts  
For the Complainant.

Martin J. Boetcher, Attorney  
Harrington, Hoppe & Mitchell, Ltd., Youngstown, Ohio  
For the Respondent.

Before: Carol A. Baumerich  
Administrative Law Judge

**DECISION AND ORDER**

M & J Painting Company, Inc. (M&J or Respondent) is in the bridge-painting business and maintains its principal office in Campbell, Ohio. Beginning about August 2010 and continuing through September 2011 and thereafter, M&J did cleaning and painting work on the Charles M. Braga Jr. Bridge (Braga Bridge), located in Fall River, Massachusetts. (Tr. 370).

In August 2010, the Occupational Safety and Health Administration (OSHA) inspected M&J's Braga Bridge worksite. As a result, on October 25, 2010, OSHA issued one six-item serious citation and one single-item other-than-serious citation, to M&J. Item 5 of Serious

Citation 1 alleged a violation of 29 C.F.R. § 1926.502(d)(8), as to horizontal lifelines. (CX-1). Respondent M&J did not contest the citations. (Tr. 13-14, 309-10, 432-33).

On November 19, 2010, the parties resolved all of the 2010 citation items and signed an Informal Settlement Agreement (ISA). The ISA's terms included, among others, penalty reduction, reclassification, and grouping of some items. The terms also included a specific agreement to "use a safety consultant qualified in fall protection systems to design the horizontal lifeline systems to protect employees from falls during bridge work." In addition, the ISA modified the abatement completion date, regarding the violation of 29 C.F.R. § 1926.502(d)(8), to December 15, 2010. Finally, in signing the ISA, M&J waived its right to contest the citations. (Tr. 13-14, 67-71, 73, 281-85; CX-3). Respondent M&J was not represented during the informal settlement conference. (Tr. 193, 391). The ISA has become a final order of the Commission. (CX-1). Because of the ISA, there was no merit adjudication regarding the citations.

From March 31, 2011 to August 19, 2011, OSHA conducted a follow-up inspection of M&J's Braga Bridge worksite. As a result of this second inspection, on September 23, 2011, OSHA issued a Notification of Failure to Abate Alleged Violation (FTA Citation).<sup>1</sup> The FTA Citation alleged that M&J had failed to abate Item 5 of Citation 1, which had been issued in 2010 and pertained to horizontal lifelines. (Tr. 184, 278-79, 403; CX-15). In particular, the FTA Citation alleges that M&J committed a serious violation of 29 C.F.R. § 1926.502(d)(8), in that, when building containment structures, employees were using horizontal lifelines that were not designed, installed and used under the direction of a qualified person, as part of a complete fall arrest system that maintains a safety factor of at least two. The Secretary has proposed a penalty of \$19,250.00 for the alleged violation. (Tr. 279; CX-15).

M&J timely contested the FTA Citation. This proceeding is before the Occupational Safety and Health Review Commission (Commission) under section 10(c) of the Occupational Safety and Health Act of 1970, 29 U.S.C. § 651 *et seq.* (Act). The undersigned held a hearing in this matter on April 11, 12 and 13, 2012, in Boston, Massachusetts. The parties stipulated to jurisdiction and coverage. (Tr. 6-7). Both parties have filed post-hearing briefs.

M&J contends that the Secretary failed to prove the alleged violation of 29 C.F.R. § 1926.502(d)(8), either at the time of the initial inspection in 2010 or at the time of the second

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<sup>1</sup> OSHA issued additional citation items as a result of the 2011 inspection, but the parties resolved all of the items except for the alleged failure-to-abate violation. M&J was represented by counsel at this time, and the parties signed a second ISA in regard to the resolved 2011 citation items. (Tr. 184-86, 403-04).

inspection in 2011. In its Answer, M&J raised the affirmative defenses of greater hazard and infeasibility, alleging that compliance with the cited standard is functionally impossible or would prevent the performance of required work. M&J did not pursue these defenses at the hearing or in its post-hearing brief. The undersigned deems these affirmative defenses to be abandoned.

For the reasons discussed below, the FTA citation item is affirmed and a penalty of \$19,250.00 is assessed.

### **Factual Background**

#### *The Containment Structure*

M&J performed cleaning and painting work on the Braga Bridge; it began this work about August of 2010. Before the work could begin, a containment system needed to be designed and installed on the Braga Bridge. M&J first contacted Fenton Engineering (Fenton), in regard to the preparing of the initial drawings for the containment system, about September 2008. The initial containment system drawings were completed around May of 2009. The containment system plans and calculations, prepared by John Fenton, were approved by Structural Engineer Robert David Oates, P.E., in Massachusetts, and Edward Baumann, P.E., of Purcell and Associates, for the Massachusetts Department of Transportation (MDOT). The initial containment drawings did not take into consideration or include calculations for a horizontal lifeline system. (Tr. 370, 379-80, 389, 457-58, 490, 497-99, 570; RX-1; RX-2; RX-11; RX-44; p. 1). *See also* RX-11, pp. 37-39.

Twelve longitudinal cables that ran the length of the bridge, on the top of the structure, in the same direction as traffic, supported the containment structure. The Braga Bridge is 1603 feet long. The containment structure closed two sections of the bridge structure at a time, with tarps, for cleaning and painting. There were two sets of longitudinal cables on the bridge: one set ran under the work platform, and a second set ran above carrying the tarps. It is the top set of longitudinal containment cables that M&J contends were its horizontal lifeline system.<sup>2</sup> (Tr. 51-52, 370-71, 375-76, 378-84, 387, 459; RX-16; RX-17, p. 1; RX-24; RX-44, p. 1-2, 4, 10, 13).

George Gialousis, M&J's Project Manager, testified that the 12 longitudinal containment

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<sup>2</sup> The longitudinal cables running in the direction of traffic for the length of the Braga Bridge were referred to by the Secretary as containment cables. Respondent referred to these cables as horizontal lifeline cables or longitudinal cables. During the OSHA inspection, these cables were also referred to as "roof cables." (Tr. 203-04, 213-14, 234, 460; CX-10, pg.1; RX-44). This decision will refer to these cables as longitudinal containment cables.

cables were installed early in the project, in mid to late 2009.<sup>3</sup> They were in place at the time of the 2010 and 2011 OSHA inspections. The 12 wire rope longitudinal containment cables were secured to the main bridge members and ran through outriggers attached to the bridge structure box beams. George Gialousis testified that in the center of the bridge structure, where several beams meet, the structure is “built-up,” precluding installation of an outrigger, resulting in a 19-foot span between the two outriggers and the longitudinal cables in the bridge center. One end of the longitudinal cable was attached at a time to the bridge member. When the other end was attached to a bridge member, the cable tension was checked with a Dillon Quick Check meter. M&J typically used a choker, with a shackle and three clips, to attach the longitudinal containment cables around the permanent bridge member. A representative from MDOT was present and monitored the tensioning of certain longitudinal cables, for use as part of M&J’s containment system, on specific dates in August and October 2009 and in 2010.<sup>4</sup> MDOT did not monitor or evaluate any of the bridge cables for use as horizontal lifelines. The 12 longitudinal containment cables were installed by George Gialousis and two of M&J’s painters, Isileu (Izi) Taufa and Craig Scott, in 2009. (Tr. 46-49, 207-20, 214-15, 251-52, 370-76, 385-86, 395-97, 400-01, 418-19, 473-74; CX-17; RX-12; RX-13; RX-16; RX-28; RX-44, p. 2).

Transverse cables ran perpendicular to traffic, from one side of the bridge to the other. Furled tarps were placed on top of the bridge structure, held up by 3/8-inch transverse cables. When M&J was ready for the next containment structure to be built, the furled tarps would be unfurled. Fenton’s final containment system design did not include transverse cables; the initial reference to transverse cables had been amended out. None of the transverse cables on the Braga Bridge job site were installed pursuant to the advice of Fenton. M&J’s Project Manager George Gialousis testified that he did not install the transverse cables. (Tr. 381-82, 388, 422-25, 460, 490; RX-11, p. 37; RX-44, p. 4).

#### *The 2010 OSHA Inspection*

In August 2010, OSHA inspected the worksite. The inspection was prompted by a referral OSHA received from Massachusetts Department of Labor reporting high blood lead

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<sup>3</sup> George Gialousis, M&J’s hearing representative, was present throughout the entire hearing. (Tr. 8, 383-85).

<sup>4</sup> MDOT daily reports reveal on-site monitoring and tensioning of specific 1/2-inch and 5/8-inch main cables running lengthwise on the bridge, on specific dates. There are no MDOT reports in evidence regarding the installation of transverse cables following the 2010 OSHA inspection. M&J’s managers and employees informed the OSHA CO that numerous transverse cables, running perpendicular to traffic, were installed as horizontal lifelines, following the 2010 OSHA inspection, as discussed in detail below.

levels at the site. CSHO (CO) Sal Insogna was assigned to conduct a safety inspection regarding fall hazards.<sup>5</sup> On August 12, 2010, CO Insogna held an opening conference with M&J's Project Superintendent Leonidas (Leo) Gialousis, Project Supervisor Emanuel (Manny) Gialousis, and Project Manager George Gialousis.<sup>6</sup> Manny Gialousis was listed by M&J as a competent person for safety. (Tr. 33-36, 60, 191-92, 287-88, 367; CX-1; CX-2; CX-4; CX-5; CX-16).

Manny Gialousis accompanied CO Insogna during the walk-around inspection on August 26, 2010.<sup>7</sup> That day, CO Insogna observed two M&J employees working on the bridge superstructure without any fall protection, exposing them to a 40-foot fall hazard.<sup>8</sup> The CO learned that a fall from the Braga Bridge to the water below could be up to or exceed 150 feet. The CO also observed that there were longitudinal containment cables available for employees to use as lifelines on part of the bridge, but the containment cables were too widely spaced in the center of the bridge to be available as lifelines. In the center of the bridge, the gap between the longitudinal containment cables was about 19 feet, precluding the employees' ability to tie off from one center containment cable to the next. CO Insogna saw employees tying off to the box beam holes, using the snap hooks on their lanyards, which were left in an open position and not fully engaged, exposing the employees to a fall hazard.<sup>9</sup> CO Insogna observed that there were no horizontal lifelines traversing the bridge, perpendicular to the traffic lanes, across the longitudinal containment cables. He also saw no visible sag in the longitudinal containment cables being used as horizontal lifelines. (Tr. 36-38, 40-44, 48-58, 129-35, 216, 522-23; CX-2; CX-17, pp. 10-14).<sup>10</sup>

CO Insogna observed that the safety net installed did not provide complete fall protection, as there was a net on only one side of the box beam. Also, on the side of the beam with the safety net, there was a gap in the net; thus, the net was not continuous and contiguous on

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<sup>5</sup> As the Secretary's hearing representative, Sal Insogna was present throughout the entire hearing. (Tr. 8).

<sup>6</sup> Four Gialousis brothers served as managers on the Braga Bridge project: Leo, Manny, and George, discussed above, and Anthony (Tony) Gialousis, the production supervisor. (Tr. 37; CX-16). George Gialousis was the only management witness called by M&J at the hearing. At the time of the hearing, George Gialousis testified that his brother Leo Gialousis no longer worked for M&J. (Tr. 407-08).

<sup>7</sup> George Gialousis testified that he was not present for CO Insogna's on-site inspections. (Tr. 390).

<sup>8</sup> Respondent received a citation for these employees not being tied off. (Tr. 135).

<sup>9</sup> During the closing conference, CO Insogna told Manny Gialousis of the safety problem with the snap hooks not being fully engaged around their anchorage points. When Mr. Gialousis questioned this, the CO showed him that the snap hook states right on the hook that it must be fully engaged around the anchorage point. (Tr. 60; CX-2).

<sup>10</sup> The photograph in evidence as CX-17, pg.11, taken during the 2011 inspection, shows the 19 foot gap between containment cables at the bridge center. (Tr. 50).

the side of the box beam.<sup>11</sup> (Tr. 61-63, 132-35, 219-20, 416-17; CX-17, p. 14).

CO Insogna interviewed two employees, Wanderson de Souza and Augustine Lopez de Moral; they said that the employees were using nylon horizontal lifelines. One employee stated that he tried to avoid using the nylon rope horizontal lifeline because he did not have the same confidence in it as he had in the longitudinal containment cable.<sup>12</sup> Manny and Tony Gialousis informed CO Insogna that M&J had not yet installed synthetic rope horizontal lifelines, contrary to the information the CO had obtained from the employees. (Tr. 56-57, 174-75, 522-25; CX-2).

During his inspection of the site, CO Insogna also spoke with Manny and Tony Gialousis about the need to have a qualified person design and install the horizontal lifelines. The CO explained that horizontal lifeline systems are not easy to install and that it is important for sag to be in the lifeline to ensure safety should someone fall. Absent sag, in the event of a fall, the force generated on the horizontal lifeline anchorage point rapidly increases. Manny Gialousis said he would consult with the rope manufacturer to get the proper expertise to properly design the horizontal lifelines. (Tr. 55-61, 64; CX-2).

At the conclusion of the inspection, on October 25, 2010, OSHA issued the citations described above to M&J.<sup>13</sup> The inspection indicated to CO Insogna M&J's need to have a qualified person design the horizontal lifeline system because (1) the longitudinal containment cables M&J was using as the horizontal lifeline system was not continuous in the center of the bridge and therefore was unavailable to the employees for use as a lifeline, (2) the CO's conversations with Leo and Tony Gialousis disclosed that they did not appreciate the need for sag in the horizontal lifeline system, and (3) one of the employees interviewed had expressed to the CO that he was fearful of using the nylon horizontal lifelines. The need to have a qualified person design and install the horizontal lifeline system was reiterated during an email exchange between OSHA and M&J following the 2010 closing conference. (Tr. 59, 72-73; CX-2).

On November 19, 2010, the parties resolved all of the October 2010 citation items and

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<sup>11</sup> Although OSHA did not cite M&J for faulty safety nets, safety nets could be one component of a full, continuous, fall protection system. (Tr. 216-17, 221, 298-99).

<sup>12</sup> The Secretary called as a witness Antonio Hernandez, a business agent for the Painters & Allied Trades Union (Union). Mr. Hernandez generally testified, regarding the 2010 OSHA inspection, that some Spanish-speaking employees were fearful while working for M&J. He further testified that employees had told him they were rushed along at work by M&J and there was no time to tie off. (Tr. 23-26, 30-31). The Union did not file a notice of party status election in this case; however, Mr. Hernandez entered an appearance at the hearing. (Tr. 6, 20; CX-16).

<sup>13</sup> OSHA also issued citations to M&J in regard to the 2010 health inspection; these citations were resolved in an expedited settlement agreement. (Tr. 287-89).

signed the ISO described above.<sup>14</sup> As noted above, the ISO modified the abatement completion date to December 15, 2010, in regard to the alleged violation of 29 C.F.R. § 1926.502(d)(8) concerning the horizontal lifelines. After the informal settlement conference, M&J's Project Superintendent Leo Gialousis submitted an Abatement Certification Form to OSHA. The certification stated that Citation 1, Item 5, regarding the horizontal lifelines, had been corrected on September 27, 2010, as "employees attended fall protection class by Ultrasafe – All designs are by qualified person." (Tr. 193-94, 292-93; CX-4). It is undisputed that the certification was submitted before M&J retained a structural engineering firm to assess whether the cables its employees were using as horizontal lifelines satisfied the design, installation and supervised use requirements of the cited standard. Assistant Area Director (AAD) Barletta testified that the general statement in the certification form did not satisfy the requirement for documented proof of abatement, as it did not include a plan; did not document how the horizontal lifeline system would be incorporated; did not contain calculations; and did not show how the horizontal lifeline system was designed, installed and supervised by a qualified person. (Tr. 302-04).

On November 21, 2010, Leo Gialousis wrote a letter to OSHA that included the September 16, 2010 proposal M&J had received from Ruby and Associates, Structural Engineers (Ruby), "to design and analyze the lifeline connection and application methods." His letter mentioned that M&J's "owner is looking to see if this is something that his containment plan engineer can provide for us given his familiarity of the structures before we decide to contract with Ruby." His letter also stated that he intended to take seminars and classes regarding lifeline design and that "[a]lthough [he felt] comfortable with the practical and application aspect of [his] installations, having the theory and technical training behind [him] would be highly beneficial." (Tr. 273-74, 293-94, 391-92; CX-5; CX-16).

The September 16, 2010 proposal from Ruby is revealing for the full scope of the horizontal lifeline system analysis requested, including analysis of synthetic lifelines. It sets forth the proposed scope, intent, and extent of structural engineering services to be provided, in relevant part, as "Review and Analysis of [M&J's] Horizontal Lifeline Personal Fall Arrest System ... including the following components: 5/8-inch diameter Polydac synthetic lifeline, personal fall protection equipment including shock absorbing lanyards, full body harness, and

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<sup>14</sup> George Gialousis was not present at the November 2010 settlement conference, and no one from M&J consulted with him in regard to the settlement terms. George Gialousis did participate in the consultation as to whether M&J had used a qualified person for erecting the horizontal lifelines after the 2011 inspection. (Tr. 390-91, 433-34).

connecting devices, horizontal lifeline stanchions and anchorage components.” Further, “[i]f deemed necessary by Ruby, perform testing on the 5/8-inch diameter Polydac synthetic lifeline in order to determine the minimum breaking strength and elongation properties.” (CX-5).

The OSHA Area Office did not receive abatement documentation by the agreed-upon date of December 15, 2010, for Citation 1, Item 5. The abatement documentation required would have detailed a horizontal lifeline system that: was part of a full and continuous fall protection system; insured a safety factor of two to one; was designed and implemented by a qualified person; and included calculations by someone with expertise regarding horizontal lifeline systems. (Tr. 285-86, 292-93; CX-4). There is no evidence in the record that M&J filed a petition for modification of abatement pursuant to section 10(c) of the Act.

#### *The 2011 OSHA Inspection*

OSHA received an anonymous complaint about M&J’s Braga Bridge worksite on March 25, 2011. Among other concerns, the complaint alleged that “[e]mployees [are] being pressured to work fast and, as a consequence, are not tying off. Horizontal lifelines are not being installed.” (CX-8; CX-9, p. 2).

The complaint prompted CO Insogna to review the 2010 inspection file. Upon doing so, the CO noticed a March 11, 2011 letter from Leo Gialousis pertaining to the horizontal lifeline systems.<sup>15</sup> In the letter, Leo Gialousis advised that he had been unable to attend training to obtain certification to be recognized by OSHA, along with his extensive field knowledge, as a qualified person to recognize, correct, and develop a horizontal, vertical lifeline, and fall prevention program. He also advised that M&J’s supervisors had taken “OSHA 30” training at the beginning of 2011 and all employees had received “OSHA 10” training, after the holidays, in 2011.<sup>16</sup> The letter noted that M&J had not yet used a safety consultant to design and install a horizontal lifeline system. The firm [Ruby] that Leo Gialousis had discussed with OSHA during the informal conference had not worked out. That firm was interested in developing an alternative design from scratch, rather than incorporating or analyzing the stanchions and rigging already in place for the bridge project. The letter stated that “[t]he engineer that developed the

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<sup>15</sup> The CO considered the March 11 letter to be M&J’s response to OSHA’s March 7, 2011 letter as to the status of abatement. The March 7, 2011 letter did not concern the horizontal lifeline citation. (Tr. 195-97, 275, 294; CX-6).

<sup>16</sup> AAD Barletta testified that OSHA 10 training is very basic, elementary, safety training for employees; it does not include training to design horizontal lifeline systems and does not come close to training for a qualified person. He also testified that OSHA 30 training does not include training on the design of horizontal lifeline systems. It includes fall protection systems, but not in the detail needed for a qualified person. He stated that attendance at the OSHA 10 and 30 training programs did not constitute abatement of Citation 1, Item 5. (Tr. 301-02).

containment and rigging system is now working to see if this is something that he can incorporate into his original design.” It also stated that M&J did not take this matter lightly. Further, Manny Gialouis had informed Leo Gialouis of speculation that employees were not tying off 100 percent of the time. Leo Gialouis noted that M&J’s entire management staff was policing the crew so that they followed the safety guidelines and regulations in place. (Tr. 74-78, 194-97, 294-96, 391-92; CX-3; CX-5, p. 2; CX-6; CX-7; CX-16).

At the hearing, George Gialouis testified that while Ruby’s engineers were structural engineers, they had no special knowledge regarding building bridge containment systems. Further, M&J felt that any design for the horizontal lifelines would need to be integrated with the containment system. (Tr. 392-93). In fact, M&J felt the horizontal lifelines were already in the containment system plan designed by Fenton, so M&J had “asked Fenton to ... just put the word horizontal lifeline on what [Fenton] already gave us.” (Tr. 393) (emphasis added). George Gialouis had assumed that the containment plan M&J already had was going to be used for fall protection. (Tr. 425-25).

The anonymous complaint and the March 11, 2011 letter raised concerns that M&J had not complied with the ISA abatement terms and prompted OSHA to conduct a follow-up inspection. On March 31, 2011, CO Insogna went to the Braga Bridge job site. While he was there, Leo Gialouis asked the CO if M&J was going to be cited for a willful violation because they had not addressed the horizontal lifeline issue.<sup>17</sup> During his inspection that day, and through employee interviews, the CO learned that M&J was not using any plans or specifications for installing the wire transverse horizontal lifelines; rather, they were using “experience.”<sup>18</sup> At the hearing, CO Insogna testified that engineering calculations are required to properly install horizontal lifelines. (Tr. 77-81, 141, 529-30; CX-9, p. 2; CX-16).

On April 7, 2011, CO Insogna interviewed Leo Gialouis, who said the transverse horizontal lifelines were resting on top of the longitudinal containment cables that were supported by stanchions or outriggers spaced every 8 feet across the bridge. He also said the transverse horizontal lifelines were close to the outriggers. Leo Gialouis noted that M&J was using 3/8-inch wire rope cable running the span of the bridge, two U-bolt clips, and a 5/8-inch shackle, secured by 5/8-inch cable on the outside box beams. He further noted that before the

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<sup>17</sup> The CO’s testimony in this regard was not rebutted.

<sup>18</sup> Transverse horizontal lifelines were installed perpendicular to the longitudinal containment cables and ran perpendicular to the bridge traffic lanes.

2010 inspection, they just put the horizontal lifelines that traverse the bridge where they were working; after that inspection, they put the horizontal lifelines wherever the vertical beams were located.<sup>19</sup> Mr. Gialousis told the CO that initially, one employee at a time would traverse the beam and use the transverse horizontal lifeline; if they were installing tarps, however, two employees could be using the lifeline, starting at either end of the beam. He also told the CO that the horizontal lifelines could move laterally along the bridge. Mr. Gialousis said the horizontal lifelines were all wire rope; he then said they might use 5/8-inch synthetic rope in between the 34 vertically-spaced vertical beams, just for touch up and blasting work.<sup>20</sup> Mr. Gialousis stated that he had extensive experience with rigging and bridge work and that M&J had relied on his experience to install the horizontal lifelines; also, the lifelines were installed under his supervision and that of John Vavoulis, M&J's rigging foreman. Mr. Gialousis said he knew the U-bolt clips were tight enough, as they were put on ratchets; the clips were tight enough if the cable was just starting to pinch. He knew the line was pulled tight enough if there was no sag. When the CO asked if M&J had used a safety consultant as required by the ISA, Mr. Gialousis replied that M&J was working on it.<sup>21</sup> (Tr. 149-56, 240, 530-32, 535-38; CX-9, pp. 3-9; CX-10, p. 13; CX-16).

On April 12, 2011, CO Insogna interviewed John Vavoulis, M&J's rigging foreman. Mr. Vavoulis said there were 42 vertical box beams along the entire length of the Braga Bridge and he thought that all but two of the beams had been outfitted with transverse horizontal lifelines. He also said he knew how to install the lifelines through "common sense." He and other employees had installed several of the lifelines at once a few weeks before. The horizontal lifelines sat on top of the longitudinal containment cables ("roof cables," as he called them), approximately 1 foot from the outriggers. The longitudinal containment cables ran through the holes in the outriggers. The horizontal lifelines could be moved. Two or three employees would hand-tie the lifelines so they were pretty flat; as he put it, "you'd think we used a Come-Along." Mr. Vavoulis stated they used one U-bolt clip at each end of the transverse horizontal lifeline and that two employees might tie off to the lifeline at the same time. He acknowledged that they had

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<sup>19</sup> The CO's notes from his April 7, 2011 interview state in part: "since 8/10 inspection, put horizontal lifelines wherever the vertical beams are – before, just put them in area they were working. Not using nylon horizontal lifelines *anymore*, using wire rope." (CX-9, pg. 3) (emphasis supplied).

<sup>20</sup> During the second inspection, CO Insogna testified that he conducted extensive interviews with management and employees of M&J regarding vertical lifelines. He stated that there was never any confusion regarding whether they were discussing vertical lifelines or horizontal lifelines. (Tr. 526-27, 539-40).

<sup>21</sup> This testimony was not rebutted.

been using nylon rope for the horizontal lifelines where they were now using wire rope cables. Mr. Vavoulis had told Leo Gialousis how he had installed the horizontal lifelines, and Leo Gialousis had said that was “fine.” (Tr. 156, 159-63, 532; CX-10, pp. 1-2, 13).

On April 13, 2011, CO Insogna interviewed Benny Bacon, an M&J employee who had performed a variety of tasks. Mr. Bacon said he did not think safety was being enforced at the job site and that the employees were afraid to ask for fall protection because they could be fired.<sup>22</sup> He was concerned about the lack of safety lines and the poor condition of the safety lines that were in place. The riggers installed the wire rope horizontal lifelines that were attached to outriggers at each end of the bridge with a shackle. Mr. Bacon thought two U-bolt clips were used on each end. He did not know how the U-bolt clips were tightened. He described the horizontal lifelines as “pretty tight.” (Tr. 169-72; CX-10, p. 4).

On April 25, 2011, CO Insogna spoke to Augustine Lopez de Moral, an employee he had first interviewed during the 2010 inspection. Mr. Lopez de Moral said M&J had not installed horizontal lifelines before the 2010 inspection.<sup>23</sup> After that inspection, he installed nylon rope horizontal lifelines. He said that M&J had used the nylon horizontal lifeline system during the winter of 2010–2011 and that Mr. Vavoulis had supervised the lifeline installation. Usually, two employees had installed the lifelines by pulling the lifeline rope tight with their hands. The lifeline was attached to cables at each end of the bridge with a shackle; the lifeline itself was attached to the shackle with a knot, generally a figure-eight knot. Mr. Vavoulis saw employees attaching the lifelines with knots.<sup>24</sup> Mr. Lopez de Moral indicated employees were pressured to work fast, which may have affected safety on the job. (Tr. 173-78; CX-2, CX-10, pp. 5-6).

On May 19, 2011, CO Insogna interviewed Johnny Hernandez, an M&J employee the CO identified as a rigging worker.<sup>25</sup> Mr. Hernandez said his crew was not pushed too much and that M&J was using both wire rope and nylon rope horizontal lifelines. He said that there were a lot of cables but that an employee might have to take a few unprotected steps in order to reach a

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<sup>22</sup> See footnote 12 above.

<sup>23</sup> This particular statement conflicts with Mr. Lopez de Moral’s statement to the CO during the 2010 inspection, *i.e.*, that M&J was using nylon horizontal lifelines at the time of the first inspection. (Tr. 174-85; CX-2). I give greater weight to Mr. Lopez de Moral’s 2010 statement and find that his recollection in 2011 as to the timing of the initial use of nylon horizontal lifelines was mistaken. That nylon horizontal lifelines were used at the time of the first inspection is also supported by the September 2010 proposal Ruby provided M&J. (CX-5).

<sup>24</sup> According to CO Insogna, a knot weakens a rope. (Tr. 177).

<sup>25</sup> George Gialousis testified that Mr. Hernandez worked as a painter and was not involved in the installation of rigging or horizontal lifelines. (Tr. 417).

horizontal lifeline to tie off. Mr. Hernandez stated that training at the Braga Bridge site was limited to weekly tool box talks that were mainly about fall protection and respirators. He had not heard of an OSHA 10-hour class. (Tr. 178-80; CX-10, p. 7).

During the spring of 2011, CO Insogna interviewed employee Junior Martinez, who described working on the substructure of the bridge. Mr. Martinez said the wire cable horizontal lifelines that traversed the bridge were attached to a beam on either side and in the middle of the bridge. He also said that when crossing the bridge substructure, using the horizontal lifelines, the cable was “tight ... a straight line.” He was told to wear a harness and lanyard and told how to attach with a snap hook; however, he did not receive any special training or training on how to inspect the harness or lanyard. (Tr. 181, 532-33; CX-10, p. 8). The CO also interviewed rigging employee Isi Taufa during the spring of 2011. Mr. Taufa said the transverse horizontal lifelines were attached to the bridge cable with a shackle. He described using a thimble to make a loop using three U-bolt clips. He also said the horizontal lifelines were near, but not through, the outriggers. The lifelines were very tight, and employees used a Come-Along or a hand tool cable-grabber to tighten the lifeline. There were no prints on the bridge as to how to tighten a lifeline; they installed the lifelines through experience. (Tr. 182-83; CX-10, p. 11).

On May 25, 2011, CO Insogna interviewed Leo Gialousis more extensively. When the CO asked about the status of the horizontal lifeline system and having it designed, installed and used under the direction of a qualified person, Mr. Gialousis said they were still working on it.<sup>26</sup> In describing the horizontal lifeline system that M&J had in place at that time, Mr. Gialousis stated they were using 3/8-inch wire rope cable for the transverse horizontal lifelines, installed on vertical upright columns or beams, located every 30 feet along the bridge. Leo Gialousis said they used two U-bolt clips and shackles to attach the cables, at each end, to the longitudinal containment cables. Leo Gialousis said he and Respondent’s Rigging Foreman John Vavoulis were responsible for the installation and use of the horizontal lifelines. CO Insogna asked Mr. Gialousis how they knew how to design a horizontal lifeline. Leo Gialousis responded “through experience.” Leo Gialousis also told the CO that nylon horizontal lifelines were being used, including the manufacturer’s name, the diameter of the lifelines, where they had been installed, and the type of work for which they were used. (Tr. 142-45, 522-24; CX-9, p. 7). On May 25, 2011, George Gialousis told the CO that M&J was using a Klein Tool Haven Grip to pull the

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<sup>26</sup> This testimony was not rebutted.

cable by hand and then using U-bolt clips to form a loop. (Tr. 145-46, 163-64; CX-9, p. 10).

In July 2011, CO Insogna sent an inquiry to Larry Campion, CHST, OSHA Directorate of Training and Education, regarding the design, installation and use of horizontal lifeline systems on M&J's Braga Bridge job site. Mr. Campion inquired about the person who designed the horizontal lifeline system: "what training, experience, education, including doing the calculations involved, has the person had in designing horizontal lifelines."<sup>27</sup> Mr. Campion said the system had to be designed as a complete personal fall arrest system that maintains a safety factor of at least two. He also said M&J needed to demonstrate, with calculations, what forces would be generated on the system, in the event of a fall, and then multiply those forces by two. M&J first needed the calculations, before it could properly select the system components, which include wire rope, hardware, shackles, clips, turnbuckles, eye bolts, and anchor points, among others. Mr. Campion asked whether M&J had sag designed into the line or shock absorbers in the line to reduce the forces on the hardware and end anchor points. (Tr. 197-202; CX-12).

In July 2011, via email, CO Insogna requested photographs of the horizontal lifelines from Leo Gialousis. Mr. Gialousis replied that before sending the photos M&J would run the request by its attorney. The CO sent a second email request for the photographs, but did not receive an affirmative response. As instructed by their supervisor, CO Insogna and Occupational Safety and Health Specialist (CO) Michael Grover went to the job site on July 27, 2011, to photograph the horizontal lifelines. As CO Insogna approached the site, taking a few photos, he observed a hazard. He saw two employees under Leo Gialousis' supervision climbing over the left aerial lift guardrail, to the work platform, then lowering themselves down to the road surface, without tying off.<sup>28</sup> Upon arriving at the bridge, CO Insogna spoke to Leo Gialousis who informed the CO that he would need a warrant to take photographs.<sup>29</sup>

OSHA obtained a warrant, and on August 9, 2011, COs Insogna and Grover returned to the Braga Bridge job site, accompanied by two police officers. They presented the warrant to

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<sup>27</sup> CO Insogna testified that he did not check the training, experience or education of the Fenton engineers. He did not evaluate the qualifications of Fenton to design the containment system. (Tr. 194, 198-99). As discussed below, however, M&J did not ask Fenton to design a horizontal lifeline system, as part of a complete personal fall arrest system; rather Fenton was asked to check some of the containment cables for their capacity to support fall protection loads. Fenton likewise checked the transverse cables. (Tr. 466; RX-1; RX-2)

<sup>28</sup> M&J was cited for this hazard. (Tr. 85). CO Insogna observed other safety issues on the job site during the 2011 inspection, *i.e.*, one employee used a taped lanyard, which impaired the lanyard's ability to absorb shock, and a second employee used a badly frayed harness. (Tr. 65-67).

<sup>29</sup> As the COs left the job site, George Gialousis approached their car and yelled that they had created a hazard when they accessed the job site. (Tr. 85-86, 225-26). This testimony was not rebutted.

George and Manny Gialousis. At first, the brothers questioned whether the COs had the training to go up onto the bridge decking, about 20 feet above the road surface, to take photographs. After further discussion, the COs were permitted access to the bridge, where they photographed the horizontal lifelines. The COs then conducted a walk-around inspection, accompanied by George and Leo Gialousis.<sup>30</sup> They also interviewed employees, and some told CO Grover they used the longitudinal cables as part of their horizontal lifeline system. CO Insogna again spoke with Rigging Foreman John Vavoulis, who conceded that in the spring of 2011, M&J was using nylon horizontal lifelines; these lifelines were used on cross-boxes. Mr. Vavoulis initialed CO Insogna's interview notes, which include a drawing of the cross-boxes. (Tr. 86-90, 96, 162-63, 221, 227-30, 247, 150-51, 276, 528-29; CX-10, p. 14; CX-13; CX-16; CX-17, pp. 1-12, 15-16).

On August 9, 2011, CO Insogna also spoke to Lasa Lasalosi, M&J's touchup foreman. He said they were using nylon synthetic rope for the horizontal lifelines, which he thought was 5/8-inch rope. He also said he usually used these horizontal lifelines, which he installed and set up. Mr. Lasalosi had no training as to horizontal lifelines; rather, he relied upon his experience. He did not identify following any manufacturing specifications. Mr. Lasalosi said he tightly tied the nylon horizontal lifeline to the beam hole or bridge cable, directly or with a choker; he tied it by hand or using a Come-Along. The CO was certain his discussion with Mr. Lasalosi concerned nylon horizontal lifelines, as a Come-Along would not be used on a vertical lifeline.<sup>31</sup> Mr. Lasalosi initialed the CO's notes.<sup>32</sup> (Tr. 165-66, 231-40, 525-28; CX-10, p. 12; CX-16).

CO Insogna also spoke to Oscar Rivera, M&J's blasting and painting foreman, who was in charge of employees performing sandblasting work. He described the horizontal lifelines as 3/8-inch cable, stiff, attached to the outriggers with three clips on each end, and attached either directly to the outrigger or with a shackle; sometimes the horizontal lifelines were attached to the longitudinal containment cables. Mr. Rivera said that during his blasting work, he was protected by a net, and he also wore a harness and would tie off.<sup>33</sup> However, there were some points where

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<sup>30</sup> George Gialousis testified that he was not present for CO Insogna's on-site inspections. (Tr. 390).

<sup>31</sup> CO Insogna's testimony about his interview with Mr. Lasalosi is credited as it is specific, detailed, and supported by the CO's notes, which Mr. Lasalosi initialed. (CX-10, p. 12). George Gialousis' general, non-specific testimony that Mr. Lasalosi would not install horizontal lifelines and would use vertical lifelines is not credited. (Tr. 417). Further, as discussed below George Gialousis' testimony that M&J did not use transverse horizontal lifelines or nylon/synthetic horizontal lifelines on the bridge is not credited.

<sup>32</sup> CO Insogna was unaware of Mr. Lasalosi's reading ability, but he verbally reviewed his notes with the employees he interviewed before they initialed the notes. (Tr. 538-40)

<sup>33</sup> During this inspection, CO Insogna looked at the safety nets in detail and took photographs. He observed that the safety nets were not tight against the box beams and that there were gaps between the box beam and the safety net; if

he was unable to tie off. Mr. Rivera told the CO that the horizontal lifelines were left up after they completed their work, as the touchup crew came behind them. Mr. Rivera initialed CO Insogna's interview notes. (Tr. 166-68, 236-40, 533-34; CX-10, pp. 9-10).

Through interviews with Leo Gialousis and John Vavoulis on August 9, 2011, COs Insogna and Grover learned that M&J was not measuring the tension being applied to the transverse horizontal lifeline cables when installing the lines.<sup>34</sup> CO Insogna's interviews with employees corroborated what he had learned from management, *i.e.*, that M&J was not using a device to measure the tension applied to the horizontal lifelines during their installation; rather, M&J was applying tension to the horizontal lifelines by hand pulling the lines, although a few employees said they used a Come-Along to pull the lines. The employees also said they knew how tight to install the horizontal cable based on the cable's feel and their experience. The CO's interviews with Leo Gialousis, John Vavoulis and other employees consistently disclosed that M&J was pulling the horizontal lifeline cables very tight during installation, so that there was no sag. (Tr. 145-47, 231-35, 239-40; CX-9, pp. 7-8).

After concluding the inspection on August 9, 2011, CO Insogna held a closing conference with Leo Gialousis over the phone on August 19, 2011. The CO discussed all of the apparent violations noted during the 2011 inspection. In his final comments to Leo Gialousis, the CO said there were manufacturer's specifications in regard to the appropriate torque to be applied to U-bolt clips. Mr. Gialousis replied that there were no manufacturer's specifications, thereby acknowledging that M&J was not measuring the torque used to clamp the U-bolt clips. (Tr. 154-55, 183, 190; CX-16).

OSHA delivered an investigative subpoena to M&J on August 9, 2011, during OSHA's last site visit. Upon receipt of the subpoenaed records, approximately one week later, CO Insogna saw for the first time Fenton's July 8, 2011, letter analysis regarding the horizontal lifelines. (Tr. 80-82, 187-89, 296, 394-95; CX-14; CX-19).

It was not until the summer of 2011, months after the December 2010 abatement date, that M&J asked Fenton to check some of the containment cables to determine their capacity to

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someone had fallen off the box beam, they could have fallen to the deck below. Also during this inspection, CO Insogna reviewed with Leo Gialousis safety net fraying that appeared substantial to the CO. (Tr. 61-63).

<sup>34</sup> The Fenton design, later prepared for M&J, was based upon a certain amount of tension on the horizontal lifelines. (RX-1; RX-2). M&J's managers acknowledged they did not measure the tension of the transverse horizontal lifelines during installation; therefore, it was not possible to confirm whether the horizontal lifelines as installed conformed to Fenton's design. (Tr. 153).

support fall protection loads. Fenton's design calculations and assumptions were for the wire rope longitudinal containment cables and transverse cables. (Tr. 347). Fenton reviewed its containment system design to evaluate whether the wire ropes could be utilized as horizontal lifelines and support fall protection loads. Fenton was not asked to evaluate nylon lifelines. Fenton concluded that the longitudinal and transverse wire ropes provided a combination of initial tension and corresponding sag to meet the safety factor of two in accordance with OSHA requirements. (Tr. 337-39, 347; RX-1; RX-2; CX-22; CX-25).

Fenton's July 8, 2011 letter was reviewed by OSHA Professional Engineer Scott Jin, who provided his analysis to CO Insogna, via email, on September 11, 2011. Mr. Jin stated that Fenton's computation, by itself, appeared acceptable; however, concerns remained because the "as-built system" was not installed consistent with Fenton's assumptions. Installation deviations from Fenton's assumptions included the use of a hand tool or Come-Along to install the cable, with no control of the initial tension, and the contractor was not verifying or readjusting the as-built tension according to Fenton's assumptions. Mr. Jin noted that if the horizontal lifelines were pulled very tight, without visible sag, the additional tension due to the maximum fall arrest force could cause the horizontal lifeline to fail. The outriggers were installed in variable spacing, with outriggers spaced about 19 feet apart at the mid-width of the bridge. The contractor used different numbers of U-bolt clips to secure the cable ends, and sometimes nylon rope was used as the horizontal lifeline. Mr. Jin concluded, therefore, that M&J was not in compliance with the cited OSHA standard.<sup>35</sup> (Tr. 199-202; 296-97; CX-23; CX-24)

The photographs taken during OSHA's August 2011 inspection were taken after Fenton prepared its letter regarding the horizontal lifelines. (RX-2). These photographs revealed problems with the horizontal lifelines when compared to the horizontal lifeline design set forth in Fenton's letter, *i.e.*, there was no visible sag in the horizontal lifelines, the transverse horizontal lifelines were resting on the longitudinal containment cable<sup>36</sup> and not attached to the outriggers

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<sup>35</sup> Mr. Jin's email did not specifically set forth calculations as to whether the "as-built system" was unsafe; however, ADD Barletta testified that Mr. Jin's letter states that he performed an "analysis," which generally would include performing calculations. (Tr. 297-98).

<sup>36</sup> George Gialousis testified that the transverse cable pictured in the CX-17, on page 11, was not used as a horizontal lifeline because the bulk of the work on the bridge was done in the right or left bridge trusses and not in the bridge center. He said that this photo depicted the rigging phase of the work, when employees did not need to be in the bridge center. He also said that if an employee did use the transverse cable as a lifeline, a safety net was present, so that an employee did not need to be tied off. (Tr. 398-400, 411-12, 427-31, 444-51; CX-17, p. 11; RX-44, pp. 2, 15). On cross-examination, Mr. Gialousis conceded that M&J employees did perform paint removal work, done by abrasive blasting, in the bridge center. He stated that the employees did not use horizontal lifelines

or structural members of the bridge, and the longitudinal containment cables were spaced at about 19 feet, in the bridge center, as compared to the 10-foot spacing in Fenton's analysis. (Tr. 91-103, 106-07, 121-32, 203-04, 207; CX17, pp. 1-16; CX-19; RX-44). The photographs further showed a transverse horizontal lifeline tied off to a longitudinal containment cable, which was also inconsistent with Fenton's design. (Tr. 101-03; CX17, pp. 1, 10-11). The photos revealed transverse horizontal lifelines attached to the longitudinal containment cables with a shackle, secured by two improperly installed U-bolt clips, as they are oriented backwards.<sup>37</sup> (Tr. 106-27, 154-55; CX-17, pp. 2-8). Attaching the U-bolts backwards can damage the live end of the wire rope, affecting the rope strength in the event of a fall. (Tr. 113-18, 123-24; CX-17, p. 7). The Secretary's expert witness Mr. Ayub testified that attaching U-bolts backwards may result in slippage and failure of the lifeline.<sup>38</sup> (Tr. 335). Further the transverse horizontal lifeline was attached to the longitudinal containment cable with a shackle without any apparent means of keeping the shackle stationary on the containment cable, other than the dynamic tension exerted upon it from the transverse horizontal cable. In the event of a fall, it was not certain that the shackle would not move. (Tr. 241-44; CX-17, p. 7).

At the conclusion of the 2011 inspection, on September 23, 2011, OSHA issued the FTA Citation, alleging M&J's failure to abate Citation 1, Item 5, regarding the horizontal lifelines.

*Findings in regard to OSHA Inspection Evidence*

Considering the record as a whole, I find that M&J's employees at the Braga Bridge site used nylon horizontal lifelines at the time of the 2010 OSHA inspection. I further find that

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while doing this work; rather, they performed the abrasive blasting work from the netting system. He also conceded that the abrasives probably cause problems if they hit the netting. (Tr. 420-21; 443). Importantly, as discussed below, George Gialousis' testimony that employees did not use transverse lifelines on the site was not credible and was contrary to the weight of the evidence presented.

<sup>37</sup> CO Insogna testified that installing the horizontal lifelines by using two U-bolt clips was inconsistent with Fenton's design, which states that horizontal lifelines are to be attached to a bridge structural member, using three clips. (Tr. 110). The record does not support this testimony. The Secretary introduced one page from Fenton's August 2009 Containment Plan Design for the Braga Bridge, which states that "standard cable rigging recommends 3 cable clamps." (CX-21; RX-11). A careful reading reveals that this page from the design plan concerns the longitudinal containment cables, not the transverse cables. (Tr. 269-71). Further, OSHA's expert witness Mr. Ayub testified that as the transverse cable was only 3/8-inch cable, perhaps two U-bolts would do. With cable of 1/2 inch or greater, three or more U-bolts would be needed. Mr. Ayub testified that engineers typically follow the manufacturer's recommendations regarding the number of U-bolts. (Tr. 329).

<sup>38</sup> Mr. Ayub testified that when installing the U-bolts, proper torque would need to be applied, following the manufacturer's recommendations, or the wire could slip. He said that normally the U-bolts could not be tightened by hand but that it was possible. (Tr. 335-36). CO Insogna testified that failing to measure the torque applied to U-bolt clips installed backwards presented two problems: first, the backwards clip could weaken the cable, and second, improperly torqued U-bolt clips, if not sufficiently tight, could come undone. (Tr. 155).

employees used nylon horizontal lifelines and transverse horizontal lifelines after the 2010 inspection and during the 2011 inspection. As set forth above, the testimony of CO Insogna and CO Grover reveals the statements and admissions of various managers, including Project Superintendent Leo Gialousis and Rigging Foreman John Vavoulis, and a number of employees, regarding the installation and use of nylon horizontal lifelines and transverse horizontal lifelines. The management statements are corroborated by the employee statements, and I give this un rebutted evidence great weight. CO Insogna's testimony about the statements management and other employees made to him is not hearsay as the statements made concerned matters within the scope of their employment and were made during the existence of the employment relationship. *See* Federal Rule of Evidence 801(d)(2)(D). *See also Atlantic Battery*, 16 BNA OSHC at 2192. COs Insogna and Grover were credible witnesses. Their testimony is supported by CO Insogna's contemporaneous investigative notes. (CX-9; CX-10).

Further, Fenton's report and calculations in regard to fall protection for the Braga Bridge site was for both wire longitudinal containment cables and transverse cables used as lifelines.<sup>39</sup> (Tr. 347; RX-1; RX-2). As discussed above, the September 16, 2010 proposal from Ruby with respect to M&J's horizontal lifeline system includes an analysis of synthetic lifelines. (CX-5). The contrary testimony of George Gialousis, that M&J did not use the transverse cables as horizontal lifelines and that nylon ropes were not used as horizontal lifelines, is not credited.<sup>40</sup> (Tr. 387-88, 401, 421-25).

George Gialousis was the only manager that M&J called to testify at the hearing. M&J did not call any of its other managers or employees to rebut the statements and admissions about which the COs testified. In calling only George Gialousis, M&J presented the testimony of a manager who was not actively involved in the installation of the nylon horizontal lifelines and transverse horizontal lifelines after the 2010 inspection. His testimony thus failed to rebut the testimony of the OSHA COs in regard to how the transverse horizontal lifelines were installed and used on the Braga Bridge job site. Stated another way, M&J did not present as witnesses those managers who were actually involved in installing the lifelines at issue, including Leo Gialousis, John Vavoulis, Lasa Lasalosi and Oscar Rivera. M&J also did not call Tony or

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<sup>39</sup> Eric Fenton did not have personal knowledge whether M&J's employees used transverse wire cables as horizontal lifelines. (Tr. 465; RX-1).

<sup>40</sup> George Gialousis testified that the primary function of nylon rope on the bridge project was for vertical lifelines. (Tr. 401). CO Insogna's April 7, 2011 interview notes state that "George ... Confirmed 2 suppliers of synthetic rope. All used for lifelines." (CX-9, p. 10).

Manny Gialousis as witnesses.

George Gialousis admitted having an inconsistent presence at the job site, following the 2009 time period when the longitudinal containment cables were installed. (Tr. 374-75, 421-22; RX-12). In light of the extensive and detailed admissions by managers and employees as to the use of nylon and transverse horizontal lifelines at the site, George Gialousis' denials in this regard were simply not credible. This testimony is unreliable and will not be credited.

George Gialousis' testimony that employees did little work in the bridge center, thus implying that horizontal lifelines were not needed in this area, is likewise not credited. *See* footnote 36, above. CO Insogna's observations during the two inspections and the photographic evidence show there was a 19-foot gap between the longitudinal containment cables in the bridge center, resulting in incomplete horizontal lifeline fall protection. The CO's interviews during the second inspection revealed that employees had to take a "few unprotected steps" while working. (Tr. 168, 178-79; CX-10, p. 7). These statements support a finding that the horizontal lifeline fall protection on the Braga Bridge site, including the bridge center, was inadequate.

*The Secretary's Expert Witness*

Mohammad Ayub has been Director, Office of Engineering, and Director of Construction, in OSHA's National Office for 18 years. He is a professional engineer, with a Master's Degree in civil engineering, and he is licensed in Maryland and Virginia. He is a licensed structural engineer in California. (Tr. 311-12, 336; CX-24). Approximately once per month, he reviews employers' horizontal lifeline designs to assess their compliance with the OSHA standard and to recommend design changes to meet the standard's requirements. He has reviewed and evaluated well over 100 horizontal lifeline designs.<sup>41</sup> (Tr. 542).

Mr. Ayub prepared an expert report regarding the adequacy of longitudinal and transverse cables erected on the Braga Bridge job site and used as horizontal lifelines; he also reviewed Eric Fenton's February 28, 2012, statement of opinion (Fenton report).<sup>42</sup> Mr. Ayub concluded that the longitudinal containment cables and the transverse cables used by M&J as horizontal lifelines met neither the requirements of the cited OSHA standard nor the required safety factor of two. He noted that Fenton originally designed the wire rope system to support the

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<sup>41</sup> Respondent did not object to Mr. Ayub's expert testimony.

<sup>42</sup> Mr. Ayub's review was based on the OSHA inspection report, photos taken by the CO, the cited standard, and the Fenton report. (Tr. 314, 344; RX-1). Mr. Ayub testified the practice of his office is not to include the calculations made in support of a report unless the calculations are requested by the employer's counsel. (Tr. 346-47).

containment structure, not fall protection.<sup>43</sup> (Tr. 314-15, 336-38, 570; CX-22; CX-25; RX-11).

According to Mr. Ayub, the OSHA inspection revealed Fenton's assumptions regarding initial tension and corresponding sag did not reflect the actual job site conditions. M&J failed to monitor the initial tension and corresponding sag of the longitudinal and transverse wire ropes. Mr. Ayub reviewed the assumptions and conclusions set out in the Fenton report as to the longitudinal cables, noting Fenton assumed sag of 31 inches in each of the 42 bridge spans.<sup>44</sup>

Mr. Ayub testified that eyewitness accounts, including those of the OSHA COs, and the inspection photographs, revealed that the sag in the wire rope longitudinal and transverse cables was non-existent or minimal; further, as installed, M&J had no means to determine the required initial tension. Mr. Ayub said that a 30-inch sag in the longitudinal cable would be visible to the naked eye. He also said that wire ropes pulled tight, with practically no sag, greatly increased the tension in the wire ropes. Mr. Ayub concluded that if the longitudinal and transverse wire ropes were taut, even with sag of 1/10th of a foot, they would fail under a fall arrest force of 900 pounds.<sup>45</sup> (Tr. 315-22, 341, 344, 568; CX-17, pp. 7-8; CX-22; CX-25; CX-26).

Mr. Ayub further discussed the Fenton report, regarding the longitudinal cables. The distance between the cable sag in situation two (which takes into consideration the dead load and the wind load) and situation three (which takes into consideration the loads assumed in situation two and the load of an employee falling) would cause the longitudinal lifeline to deflect an additional net distance of 29 inches (the difference between 32 inches and 62 inches). To this must be added the 6-foot length of the lanyard, creating a further concern that during a fall an employee could hit a bridge bracing member.<sup>46</sup> (Tr. 562, 574-79; CX-26; RX-1, p. 4).

Mr. Ayub stated that Fenton's calculations as to the longitudinal containment cables deviated from the containment plan approved by MDOT; that plan assumed an initial load of 5 pounds per square foot or 20 pounds per square foot, in different areas. In contrast, the scenarios

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<sup>43</sup> It is undisputed that there was no computation in the approved containment design for horizontal lifelines.

<sup>44</sup> Mr. Ayub testified about the Fenton report's "situation one" and "situation two," both of which address the longitudinal cables. In situation one, Fenton calculated an initial tension of 2,000 pounds, on ½-inch cable, with sag assumed as "2.58 feet." Sag of 2.58 feet translates into 31 inches of sag, in each of the 42 bridge spans. If, in fact, the sag is not 31 inches in each span, Fenton's calculations are not valid, as less sag creates greater tension. Further, situation two, which assumed an initial dead load of 2 pounds and applied a wind load of 40 miles per hour (mph), was flawed. Mr. Ayub said that calculating a wind load of 40 mph was very low and did not meet industry practice. He also said a wind speed of 90 mph should have been applied; in situation two, the tension increased to almost 4200 pounds and the sag increased to 32 inches. (Tr. 316-17, 322, 345-46, 550-60; CX-26; RX-1, p. 4).

<sup>45</sup> The manufacturer's recommendation is a maximum fall arresting force of 900 pounds. For a safety factor of two, 1800 pounds of force would be applied before the cable broke. (Tr. 341-42).

<sup>46</sup> George Gialousis said an employee falling could hit a support beam at a lesser distance, *i.e.*, 3 feet. (Tr. 586-88).

in the Fenton report assumed an initial load of only 2 pounds per square foot.<sup>47</sup> An assumed initial load of 2 pounds per square foot deviates from the industry practice.<sup>48</sup> (Tr. 545, 550-51, 558-59, 572-73, 585; CX-11; RX-11, RX-1, p. 4).

As to Fenton's transverse cable analysis, Fenton's calculations assumed sag of 1/10<sup>th</sup> of a foot, which would not provide a safety factor of two, according to Mr. Ayub's calculations.<sup>49</sup> Mr. Ayub said that this small degree of sag would result in a very high degree of initial cable tension; therefore, with a fall load of 900 pounds, the safety factor would not be two. Also, the transverse horizontal cable at the bridge center crosses a span of 19 feet. Mr. Ayub stated that his calculations indicated that attaching fall protection at this location would not meet the safety factor of two. (Tr. 324-25, 337-40; CX-17, p. 11; CX-22; CX-25).

Another problem with Fenton's evaluation was that the transverse wire rope anchors were not designed to provide a safety factor of two.<sup>50</sup> Mr. Ayub said that Fenton's horizontal lifeline evaluation was incomplete. It did not consider the reality at the site, as there was no design for transverse cables attached directly to the longitudinal cables. It also did not address how the load from the transverse cable would be supported and transferred to the longitudinal cable, how that attachment impacts sag, and what would be the impact on the containment cable tension.<sup>51</sup> Mr. Ayub's own calculations showed that attaching the transverse cable to the longitudinal cable would not satisfy the safety factor of two. Mr. Ayub stated that sometimes M&J attached the transverse cables near the outrigger, near the bracket; at other locations the transverse cable was

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<sup>47</sup> In Fenton's scenarios, the load of 2 pounds per square foot accounts for the dead load (the weight of the cable and tarps) and some amount of live load. (Tr. 558-59).

<sup>48</sup> Industry practice is to use a live load of 20 pounds per square foot to account for employees walking, equipment, and incidental occurrences at the construction site; this live load is in addition to the dead load, which includes the weight of the cable, tarp, deck, and other items. (Tr. 545).

<sup>49</sup> Mr. Ayub testified that OSHA engineer Scott Jin's analysis of Fenton's July 8, 2011 evaluation was incomplete. He agreed with Mr. Jin that the horizontal lifeline system M&J installed was different from Fenton's assumptions. He disagreed with Mr. Jin's conclusion that Fenton's computation appeared acceptable, as Mr. Jin did not have all of the information that he (Mr. Ayub) had, as provided in the Fenton report, for example, that a 200- pound initial tension on the transverse cable will give a sag greater than .1 inch and that transverse cables were directly connected to the longitudinal cables. (Tr. 351-56; CX-23; RX-1)

<sup>50</sup> Mr. Ayub testified that he had not analyzed whether the longitudinal cables that run the length of the bridge were properly anchored. (Tr. 249-50).

<sup>51</sup> Mr. Gialousis testified that Fenton's design does account for the containment cable to be used as a horizontal lifeline when a transverse cable supporting roof tarps is connected to the containment cable; it is part of Fenton's "non-structural connections." (Tr. 437-41). This opinion is given no weight. A review of Fenton's July 2011 and February 2012 reports does not disclose calculations or analysis regarding transverse cables directly connected to longitudinal containment cables. (RX-1; RX-2). Further, Eric Fenton's testimony about transverse cables resting on two longitudinal cables was specifically qualified by the manner in which the cables were anchored to the bridge members. See fn. 56 below.

connected at the center of the longitudinal containment cable, which was very problematic. Mr. Ayub noted that there should have been a positive connection between the transverse cable and the outrigger, rather than simply placing the transverse cable on top of the longitudinal cable. Further, even if the transverse cables attached to the longitudinal cables were not used as lifelines, Fenton's design was flawed as its computations provided no consideration for the dead load of the transverse cable or any platforms or other items the transverse cable was supporting.<sup>52</sup> (Tr. 319-28, 340, 356, 360-64, 382-84; CX-17, pp. 7, 11; CX-22; RX-1; RX-44, p. 4).

A further problem with Fenton's evaluation was that it did not consider the use of nylon rope, which M&J installed and used in certain locations. (Tr. 333-34, 350; CX-22; RX-1, RX-2). Mr. Ayub found Fenton's 2012 report and its 2011 report to both be flawed; the latter was flawed as it did not reflect the actual conditions on the bridge regarding the horizontal cable installation. Mr. Ayub's conclusion was that the longitudinal containment cables and the transverse cables used by M&J as horizontal lifelines did not meet the cited standard's requirements and did not meet the safety factor of two. (Tr. 315, 331-34, 337-38, 346; CX-22; CX-25; RX-2).

#### *Respondent's Expert Witnesses*

Eric John Fenton, PE, has worked as a structural engineer since 1993. Since 2009, he has been vice-president and secretary of Fenton, a company he formed with his father, John Fenton. His work experience includes preparing engineering calculations, drawings and written engineering reports. His duties include structural design for cable-supported structures. For the past 12 years, he has designed bridge containment structures.<sup>53</sup> (Tr. 454-57, 475; RX-6).

Fenton prepared the containment system design for M&J at the Braga Bridge site in 2008 and 2009. In about June 2011, M&J asked Fenton to perform additional services, including checking some of the longitudinal containment cables atop the bridge for use as horizontal lifelines. Eric Fenton performed calculations and prepared the July 8, 2011 report. In doing so, he also looked at the transverse cables as horizontal lifelines.<sup>54</sup> For both the longitudinal and transverse cables, he checked two things: that the fall distance would be less than 6 feet and that the safety factor would be at least two, meaning the breaking strength of the cable divided by the final cable tension. He concluded that both the longitudinal and the transverse cables were

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<sup>52</sup> The record discloses that the transverse cable did in fact support other loads. George Gialousis testified that the furled and unfurled containment tarps rested on the 3/8-inch transverse cables. In addition, the transverse cables supported the roof structure. (Tr. 382-84, 435-42; CX-17, pp. 1-4; RX-44, p. 4).

<sup>53</sup> The Secretary did not object to Eric Fenton's expert testimony.

<sup>54</sup> Eric Fenton did not know whether transverse cables were used as horizontal lifelines. (Tr. 465).

adequate to be used as horizontal lifelines. Mr. Fenton attached spreadsheets to his report, setting forth his assumptions for tension, span length, number of spans and loads.<sup>55</sup> From these assumptions, he calculated sag, *i.e.*, the vertical deflection in the cable. As to the longitudinal cable spreadsheet, in scenario one, he assumed an initial vertical load from the cable self-weight and the tarps of 2 pounds per square foot. He calculated sag of 1.85 feet after the tarp load was placed on the cable. Fenton testified that without the tarps on the cables, the expected sag would be ½ of an inch. He also calculated that the total displacement under the fall load of 900 pounds would equal 27 inches. (Tr. 458-66, 480-85; RX-1, p. 2, ¶ 8; RX-2; RX-44, p. 3).

Eric Fenton testified that in his design analysis, the transverse cables go over the top of the longitudinal cables near the outriggers; if the transverse cable rested on the longitudinal cable far from the outrigger, this would not be in accord with his design and assumptions.<sup>56</sup> Further, attaching a transverse cable directly to a longitudinal cable that is not near an outrigger is not in accord with Fenton's design. In these alternate conditions, Fenton's calculations supporting a safety factor of two would not apply. Mr. Fenton specifically agreed that "controls on tension are needed for the system to work." (Tr. 476-80, 486-88; CX-17, pp. 7-8; RX-1, p. 2, ¶ 3; RX-2, p. 3).

Eric Fenton further testified that, in his opinion, the longitudinal cable would remain adequate to act as a horizontal lifeline, supporting a 900-pound fall load and maintaining a safety factor of two, where a transverse cable was attached directly to a longitudinal cable. However, this cable attachment method and its impact upon horizontal lifeline adequacy or fall protection was not assumed or analyzed in either of Fenton's reports; in addition, there were no calculations provided to support this opinion. (Tr. 477, 491; CX-17, pp. 4, 7).

Eric Fenton prepared the 2012 report in response to concerns and comments raised in OSHA engineer Scott Jin's email of September 11, 2011. Mr. Jin was concerned that the system "as built" was not consistent with Eric Fenton's assumptions in his July 2011 report; one concern was the actual 19-foot distance between two of the longitudinal cables in the bridge center, rather than the 9-foot distance between cables that Mr. Fenton had assumed. Mr. Fenton

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<sup>55</sup> The spreadsheets do not show the formulas used. In its calculations, Fenton modeled the cables with a uniform load of 1,800 pounds, assuming that was equivalent to a point load of 900 pounds. (Tr. 461-62).

<sup>56</sup> Mr. Fenton said he would not have a problem with the transverse cable being used as a lifeline, as shown in one of OSHA's photos where the transverse cable is resting on two longitudinal lifelines, *with the caveat that the transverse cable is attached to bridge members on either side*, which the photo does not show. He said that if there was a fall on the transverse lifeline that was *correctly anchored to a bridge member*, with a 900-pound fall load, a smaller load of about 450 pounds each would go to each of the longitudinal cables. (Tr. 488-89; CX-17, p. 11).

then performed revised calculations using the 19-foot spacing. He noted that the containment design had a safety factor of six, as compared to a horizontal lifeline system that only required a safety factor of two. (Tr. 466-71, 499; RX-1).

When preparing the 2012 report, Eric Fenton checked his calculations for the longitudinal cables and for the transverse cables to determine if they were sufficient to satisfy the horizontal lifeline requirements. He did not recall being asked to run additional calculations as to “the adequacy of the horizontal lifeline system.” Regarding the longitudinal cables, Mr. Fenton performed calculations for three different scenarios: the first considered the initial load of the tarps, the second considered the initial tarp load and 40 mph wind, and the third considered the tarp load, the wind, and the fall load in a worst case scenario. For the longitudinal cables, he assumed an initial tension of 2,000 pounds. After performing these calculations, Mr. Fenton concluded that in each scenario the safety factor was at least two for tension and the fall distance was less than or equal to 6 feet. Regarding the transverse cables, Mr. Fenton assumed the initial tension was 2,000 pounds; in performing his initial calculations, in July 2011, he had assumed an initial tension of 200 pounds. After performing the calculations relating to the transverse cables, Mr. Fenton concluded that the safety factor was at least two for tension and the fall distance was less than or equal to 6 feet. (Tr. 393-94, 425, 466-70, 473; RX-1; RX-2).

Eric Fenton’s longitudinal cable calculations, in scenario one, assumed a sag of 2.58 feet, which equates to 30 inches of sag, accounting for the weight of the cable itself and the weight of the loaded tarp. He disagreed that the weight of the cable itself would result in 30 inches of sag. He opined that, without any tarp load, the longitudinal cable visible sag would be about ½ of an inch. Photographs of the longitudinal cables without the tarps do not show 30 inches of sag. (Tr. 472-73; RX-16; RX-17).

Eric Fenton did not evaluate the use of nylon rope.<sup>57</sup> He agreed that if someone was tied off to one of the longitudinal cables and fell, the fall load would impact the entire longitudinal cable that runs the length of the bridge, impacting the remaining sag between the other supports and spans. Fenton did account for the impact of a fall in one span, increasing the sag in the span where the fall occurred and decreasing the sag in adjacent spans. Mr. Fenton also agreed that if an employee was tied off to a longitudinal cable and fell, the fall would affect the longitudinal

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<sup>57</sup> Eric and John Fenton do not have personal knowledge whether M&J used nylon rope as part of its horizontal lifeline system. (Tr. 472, 504).

cable stretching. Fenton's calculations accounted for the elastic stretch of the wire rope. (Tr. 471, 474, 482-85; RX-1; RX-2, p. 4).

Eric Fenton opined that, based upon his knowledge, education, training and experience, either the longitudinal cables or the transverse cables could be used as horizontal lifelines, with a safety factor of at least two. He further opined that, in light of his experience in designing containments, he was a qualified person in regard to designing horizontal lifelines. He noted that he had read and acquainted himself with the lifeline regulations and requirements. He also noted that he was able to correctly analyze the forces in the cable and the effects that the forces have on cable tension and sag. (Tr. 470-71, 475-76, 512).

John Fenton is a licensed professional engineer, specializing in structures, who has a Master's Degree in civil engineering. Currently he teaches architectural students at Kent State University. He formed Fenton with his son in 2009.<sup>58</sup> Before the Braga Bridge project, he had approximately 20 years of experience with bridge containment work, platform work and design. After the original containment design, M&J asked Fenton to analyze the containment system for "a letter of support" of a horizontal lifeline system. John Fenton reviewed his son's July 2011 report, and he agreed with the calculations in the report, based on his son's assumptions. (Tr. 493-98; RX-2; RX-3; RX-5).

John Fenton testified that the longitudinal cables, between supports, and under their own weight with no other load, would deflect possibly ½ of an inch and would appear very straight. Based on his education, training and experience, John Fenton opined that M&J's use of the longitudinal cables as horizontal lifelines was adequate and met the required safety factor of two. Without any supporting calculations or analysis, Mr. Fenton further opined that a longitudinal cable would be safe to use as a horizontal lifeline, even with a transverse cable attached directly to it, as there would be only a very slight additional load from the weight of the transverse cable. (Tr. 500-08; CX-17, p. 4; RX-17).

#### *Findings in regard to Expert Testimony*

Review of the expert reports and testimony reveals significant areas of agreement. Fenton did not review and analyze the horizontal lifeline system as installed by M&J on the job site; rather, Eric Fenton made certain assumptions and calculations to evaluate the use of the wire

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<sup>58</sup> The Secretary did not object to Mr. John Fenton's expert testimony.

longitudinal containment cables and the wire transverse cables for use as horizontal lifelines. Eric Fenton did not evaluate the use of nylon rope as horizontal lifelines, and his analysis did not include transverse cables attached directly to the longitudinal cable, distant from an outrigger. His analysis also did not include transverse cables going over the top of longitudinal cables, distant from an outrigger. Eric Fenton assumed that the cables used as horizontal lifelines would be attached to the bridge structure. He agreed that tension controls were necessary. These areas of agreement are credited. They establish that Fenton's reports do not accurately reflect the "as built" horizontal lifeline system in place on the Braga Bridge. These reports, therefore, do not support a finding that M&J was in compliance with the cited standard.

After consideration of the expert reports and testimony, I credit Mr. Ayub's opinion that significant sag must be present in the horizontal lifelines, as installed, to comply with the standard's requirements and provide a safety factor of two. The necessary sag was absent from the horizontal lifelines installed on the Braga Bridge. Fenton's own assumptions, regarding the longitudinal cables, calculated sag of 31 inches in each of the 42 bridge spans. I credit Mr. Ayub's testimony that 31 inches of sag, per span, would be visible to an observer.<sup>59</sup> (CX-17, CX-26). Mr. Ayub testified that wire ropes pulled tight, with minimal or no sag, have greatly increased tension and would fail under a fall arrest force of 900 pounds. Horizontal lifelines installed with minimal or no sag do not reflect compliance with the cited standard that requires horizontal lifeline design, installation and use supervised by a qualified person. I find that the horizontal lifelines as installed on the Braga Bridge do not reflect compliance with the cited standard as they did not include the necessary sag to insure reliable fall protection. My finding is based on Mr. Ayub's credited analysis, the job site observations of the OSHA COs and the photographs taken at the site, and the admissions of M&J's managers and employees that the transverse horizontal lifelines were installed tightly, without measured tension.

### **The Secretary's Burden of Proof**

The Secretary has the burden of establishing that M&J violated the cited standard. To prove a violation of an OSHA standard, the Secretary must show by a preponderance of the

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<sup>59</sup> Eric and John Fenton testified that the longitudinal cables, without any tarp load, would have visible sag of about ½ of an inch. The record does not support a finding that this minimal degree of sag reflects compliance with the requirements of the cited standard. I credit Mr. Ayub's testimony that Fenton's evaluations based on an assumed initial load of only 2 pounds deviated from industry practice and the assumed initial load in the initial containment plan. I also credit Mr. Ayub's testimony that wire ropes with such a minimal degree of sag would fail under a fall arrest force of 900 pounds.

evidence that (1) the cited standard applies, (2) the employer failed to comply with the terms of the cited standard, (3) employees had access to the violative conditions, and (4) the employer either knew or could have known with the exercise of reasonable diligence of the violation. *See Atlantic Battery Co., Inc.*, 16 BNA OSHC 2131, 2138 (No. 90-1747, 1994).

The Secretary also has the burden of establishing that M&J failed to abate the condition cited in the original citation. To do so, the Secretary must prove that (1) the original citation and finding of a violation became a final order of the Commission, and (2) at the time of the re-inspection the same violative conditions or hazards set forth in the original citation were found and remained violative. *See section 10(b) of the Act; Hercules, Inc.* 20 BNA OSHC 2097, 2098, 2103 n.19 (No. 95-1483, 2005); *Kit Mfg Co.*, 2 BNA OSHC 1672, 1673 (No. 603, 1975); *York Metal Finishing Co.*, 1 BNA OSHC 1655, 1656 (No. 245, 1974). *See also Launder-Clean, Inc.*, 11 BNA OSHC 1674, 1675 (No. 83-0057, 1983) (ALJ decision) (evidence of employee exposure to the hazard at the time of re-inspection required). The original citation must describe with “particularity” the nature of the violation, to provide the employer with notice of what must be changed and to allow the Commission, in a later failure to abate proceeding, the ability to ascertain whether the cited condition was abated. *See Hercules, Inc.* 20 BNA OSHC at 2098.

In cases where there was no contest of the original citation, the Secretary’s prima facie failure to abate case may be rebutted by showing actual abatement of the violative condition, by correction of the physical condition or prevention of employee exposure to the hazard or violative condition. The employer also may rebut the Secretary’s prima facie failure to abate case by showing that the alleged violative condition contained in the original citation was, in fact, not violative of the Act, where the original citation became a Commission final order by operation of law without prior adjudication. *York Metal Finishing*, 1 BNA OSHC at 1656. *See also Franklin Lumber Co., Inc.*, 2 BNA OSHC 1077, 1078 (No. 900, 1974).

As distinguished from the facts in *York Metal Finishing*, M&J in the instant case waived its right to contest the original horizontal lifeline citation as a term of the ISA; in the ISA, M&J specifically agreed to abate the cited horizontal lifeline violation. In *Hercules, supra*, the parties settled the original citation and the employer withdrew its notice of contest, conceded the merits of the original citation, and agreed to abate the alleged violations.<sup>60</sup> There, the Commission

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<sup>60</sup> *See Whaley Eng’g*, 8 BNA OSHC 1644, 1645 (No. 79-3040, 1980) (ALJ decision) (where the employer withdrew its notice of contest as to the original citation, *with no mention of settlement*, the employer in a subsequent failure to

stated that the employer was “not in any position to re-litigate the validity of the violation as originally alleged.” *Hercules*, 20 BNA OSHC at 2104. In that case, the validity of the original citation was not before the Commission. *Id.* at 2103 n.17. The Commission majority noted, however, that in a subsequent failure to abate case, following settlement of the original citation, the Commission is not foreclosed from considering whether the condition or hazard found upon re-inspection is identical to the violation in the original citation. *Id.* at 2104. The Commission’s decision and analysis in *Hercules*, regarding an employer’s ability to challenge the validity of the original citation in a failure to abate proceeding after having agreed to settle the original citation, is not determinative in this case. This is because the facts in this matter show that M&J was in violation of the cited horizontal lifeline standard at the time of the initial inspection and at the time of the failure to abate citation.

In cases where the original citation became a final order of the Commission following a settlement agreement entered into by the parties, the issue before the Commission is what the cited standard requires and whether the violative conditions have been abated, not whether the requirements set forth in the parties’ settlement agreement have been satisfied. *See Atlantic Battery*, 16 BNA OSHC at 2134-35, 2146 n.22, 2165 n.54.

#### **Alleged Violation of 29 C.F.R. § 1926.502(d)(8)**

In Citation 1, Item 5, the Secretary alleges that during the 2010 inspection and during the 2011 inspection, M&J violated the cited standard, as follows:

When building containment structures, employees were using horizontal lifelines that were not designed, installed and used under the direction of a qualified person.<sup>61</sup>

The cited standard, 29 C.F.R. § 1926.502(d)(8) provides:

Horizontal lifelines shall be designed, installed, and used, under the supervision of a qualified person, as part of a complete personal fall arrest system, which maintains a safety factor of at least two.

#### **Discussion**

The Secretary alleges M&J violated the cited standard during both inspections, in that, when building containment structures, employees were using horizontal lifelines that were not designed, installed and used under the direction of a qualified person as part of a fall arrest

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abate proceeding may argue that the condition cited in the original citation was not a violation).

<sup>61</sup> The definitions applicable to Part 26, the safety and health regulations for construction, are set out at 29 C.F.R. § 1926.32. The definitions for “qualified person” and “competent person” are set out at sections 1926.32(m) and (f), respectively.

system that maintained a safety factor of at least two. The Secretary contends the violation was apparent during the 2010 inspection, as M&J was not using a horizontal lifeline system designed and installed by a qualified person as part of a full fall arrest system. The longitudinal containment cables the employees were using as horizontal lifelines were not continuous in the center of the bridge and therefore were unavailable as horizontal lifelines. The longitudinal containment cables also appeared to not have the necessary sag. In addition, employees on the site were using nylon rope as horizontal lifelines.

The Secretary contends that during the 2011 inspection, M&J remained in non-compliance with the cited standard, as it did not obtain the services of a qualified person to design, install and supervise the use of the horizontal lifeline system. When the violations cited in the first inspection were settled in October 2010, M&J specifically agreed to obtain the services of a safety consultant qualified in fall protection systems to design the horizontal lifeline system to protect employees from falls during bridge work; it also agreed to abate the violation by December 15, 2010. M&J delayed until the summer of 2011 before it requested a limited evaluation of certain cables installed on the Braga Bridge from Fenton, the engineers who had designed the bridge containment system. The Secretary asserts that Fenton's analysis of the longitudinal containment cables and the transverse cables did not satisfy the standard's requirement that the horizontal lifelines be designed under the supervision of a qualified person, as part of a complete personal fall arrest system, because Fenton's analysis and assumptions differed from the actual "as built" cable system on the bridge. In particular, Fenton's analysis did not include, among other things, nylon horizontal lifelines, transverse cables attached directly to the longitudinal containment cables (rather than to the bridge structure), and cables installed without monitored tension. Further, the 2011 inspection revealed M&J's continued noncompliance with the standard, as the transverse horizontal lifelines were not installed and used under the supervision of a qualified person. This was apparent from the improper installation techniques CO Insogna observed and learned about during the 2011 inspection and from the admissions of M&J's managers that they intended to obtain the expertise of an individual qualified in regard to horizontal lifelines, but failed to do so. The Secretary's expert witness, Mr. Ayub, also questioned some of the assumptions made and conclusions reached by Eric Fenton in his analysis.

Respondent M&J contends that the horizontal lifeline system in place at the worksite

during both of the inspections was designed, installed and used under the supervision of qualified people, as part of the complete fall arrest system that maintained a safety factor of two. M&J asserts that the horizontal lifeline system at the site was composed only of the longitudinal containment cables that were designed and installed as part of the containment system; the system was designed by Eric Fenton in 2008 and 2009, and it was installed in late 2009 under the supervision of M&J's Project Manager George Gialousis. While the longitudinal containment cables were originally designed as part of the bridge containment system, M&J asked Fenton in the summer of 2011 to evaluate certain containment cables to assess whether they met the fall protection requirements of the cited standard, including maintaining a safety factor of two. Eric Fenton made certain design assumptions in regard to tension, anchorage, initial load and fall load, and he specifically evaluated the wire rope longitudinal containment cables and transverse cables on the bridge. Based on his initial assumptions and calculations, Eric Fenton concluded that the wire rope longitudinal containment cables and transverse cables on the bridge satisfied the requirements of 29 C.F.R. § 1926.502(d)(8). M&J concludes that Eric Fenton's analysis proves that it was in compliance with the cited standard at the time of the 2010 inspection and at the time of the 2011 inspection.

*Applicability of the Cited Standard*

It is undisputed that the cited standard applied to M&J's work on the Braga Bridge at the time of both inspections. Employees working on the Braga Bridge worked at great heights, exposing them to falls of 150 feet or more. (Tr. 40; CX-17, p. 12).

*Noncompliance with the Terms of the Cited Standard*

It is undisputed that M&J began work at the job site in or before August 2010, using horizontal lifelines that had not been designed as "horizontal lifelines, as part of a complete personal fall arrest system." This was a violation of the cited standard. The record shows that at the time of the 2010 inspection, in part, M&J's employees were using longitudinal containment cables as horizontal lifelines. These cables were designed and installed in connection with M&J's containment system; they were not designed or installed as horizontal lifelines, as part of a complete personal fall arrest system.<sup>62</sup> During the 2010 inspection, problems were observed

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<sup>62</sup> The 12 containment system cables that ran the length of the bridge were installed in 2009, by George Gialousis and two of M&J's painters, Isileli Taufa and Craig Scott. (Tr. 372-75, 418-19; RX-12; RX-28). There is no evidence in the record to show that these individuals had received specific technical education or training so as to be considered "qualified" persons in regard to designing, installing or supervising the use of horizontal lifeline systems.

with the use of the longitudinal containment cables as horizontal lifelines at the site: the longitudinal containment cables did not have the required sag, and there was a wide gap at the bridge center where no containment cable was available for use as a horizontal lifeline. The CO noted there were no transverse horizontal lifelines in place running from one side of the bridge to the other, perpendicular to traffic. Conversations with M&J managers revealed their lack of knowledge and appreciation of the need for sag in cables used as horizontal lifelines. The 2010 inspection also revealed that employees were using nylon horizontal lifelines that were not included in the containment system design and had not been designed or installed under the supervision of a qualified person. Employees expressed a lack of confidence in the nylon horizontal lifelines. Further, employees were observed tying off to box beams using the snap hooks on their lanyards, without the snap hooks being fully engaged. These facts establish that M&J was not in compliance with the cited standard at the time of the 2010 inspection. (Tr. 39-44, 48-64, 72-73, 129-35, 174-75, 370-80, 387, 458-59, 490, 499, 522-25, 570; CX-2, RX-11).

After the 2010 inspection, M&J was cited for violating the horizontal lifeline standard set out at 29 C.F.R. § 1926.502(d)(8). In October 2010, M&J signed an ISA in which it specifically agreed to abate the violation by “us[ing] a safety consultant qualified in fall protection systems to design the horizontal lifeline systems to protect employees from falls during bridge work.” The ISA is a final order of the Commission. (CX-3).

OSHA conducted another inspection of the worksite in 2011. That inspection revealed the same violative conditions that had been found during the 2010 inspection. M&J’s employees continued to work on the Braga Bridge using horizontal lifelines that had not been designed, installed and used under the supervision of a qualified person, as part of a complete personal fall arrest system. M&J had failed to abate the horizontal lifeline violation by the agreed-upon date of December 15, 2010. In fact, M&J had delayed until about June 2011 before it requested that Fenton evaluate certain longitudinal cables, installed as part of the bridge containment system, to ascertain their suitability as horizontal lifelines. Even at this late date, M&J did not request, and Fenton did not provide, a “horizontal lifeline design” as part of a complete personal fall arrest system; rather, Eric Fenton evaluated specific longitudinal containment cables and transverse

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In August 2009, Mr. Taufa and Mr. Scott completed a training session that included basic rigging and other topics. (Tr. 372; RX-28). Both Mr. Taufa and Mr. Scott had experience rigging before the Braga Bridge project. (Tr. 373). Further, at the end of October 2011, George Gialousis and Mr. Taufa completed “competent person” training regarding suspended access and rigging safety. (Tr. 373; RX-27).

cables to determine their capacity to support fall protection loads.<sup>63</sup> Fenton was not asked to evaluate the horizontal lifeline system actually in place at the job site. M&J's management was aware that nylon horizontal lifelines had been installed and that transverse horizontal lifelines had been connected directly to longitudinal containment cables, rather than to the bridge structure; regardless, these important features of M&J's actual horizontal lifeline system in place were not included in Fenton's evaluation. (Tr. 459-60, 466-68, 471, 479-80, 486. RX-1; RX-2).

The 2011 inspection also revealed that M&J was not in compliance with the cited standard because the horizontal lifelines on the bridge had not been installed and their use was not supervised by "qualified" people.<sup>64</sup> The record shows that after the 2010 inspection, numerous wire and nylon transverse horizontal lifelines were installed on the Braga Bridge by M&J employees and managers. This installation was supervised by Leo Gialousis and John Vavoulis. The transverse horizontal lifelines were not installed in accordance with a horizontal lifeline design, as part of a complete personal fall arrest system. No plans or drawings were used, nor was a person qualified in horizontal lifeline installation consulted, during the installation of the transverse horizontal lifelines; rather, the lifelines were installed based only on the "experience" and "common sense" of M&J's managers and employees. The incorrect installation of the transverse horizontal lifelines on the bridge establishes that the "experience" of M&J's managers and employees was not adequate to satisfy the requirements of the cited standard.<sup>65</sup> The record shows that the transverse horizontal lifelines were installed without

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<sup>63</sup> M&J did not request, and Fenton did not prepare, a design or analysis of a "horizontal lifeline system, as part of a complete personal fall arrest system," for the job site. Therefore, testimony regarding Eric Fenton's qualifications to perform such a task is academic. (Tr. 475-76, 512).

<sup>64</sup> In light of the un rebutted evidence regarding the inadequate manner in which the transverse horizontal lifelines were installed, John Fenton's opinion that Leo and George Gialousis were qualified persons for the installation and use of the horizontal lifelines is given little weight. This opinion was based on John Fenton's experience working with Leo and George Gialousis installing cables that support work platforms. (Tr. 509; RX-1). Mr. Fenton's statement that in his opinion "the horizontal lifelines were designed, installed, and used under the direction of qualified people" is also accorded little weight, as the horizontal lifelines referenced were not defined and the "qualified people" were not identified. (RX-1). Mr. Fenton's further opinion that Leo and George Gialousis were qualified to supervise the assembly and maintenance of bridge containments, and to supervise blasting and painting operations within the containments, did not address the relevant inquiry in the instant case as to the design, installation and supervised use of horizontal lifeline systems, and is thus given little weight. (Tr. 501; RX-3). Also, as noted above, George Gialousis testified that he did not install the transverse cables. (Tr. 422-23).

<sup>65</sup> As to installing and supervising the use of horizontal lifelines, George Gialousis opined that he and Leo Gialousis were "qualified persons." (Tr. 405, 411). For the reasons set out above, this opinion is given little weight. George Gialousis' opinion that he was a qualified person was based mainly on his 25 years of experience (which was with Leo Gialousis) and on his education and training. (Tr. 366-77, 404-05; RX-7, RX-8). His work experience with Leo Gialousis included supervising the installation and use of horizontal lifelines. (Tr. 409; RX-9). George Gialousis noted that no "horizontal lifeline" (by which he meant the longitudinal cables) on the project had failed.

checking the cable tension and that employees installed the lifelines by hand pulling or with the use of a hand tool. The actual installation thus differed from Eric Fenton's analysis and assumptions, which specified that "controls on tension are needed for the system to work." (RX-1, RX-2). The transverse horizontal lifelines were pulled tight, without sag, contrary to the considered opinion of the reviewing OSHA engineers and the Secretary's expert witness, that cables pulled tight, with practically no sag, had significantly increased cable tension, compromising the cable's ability to maintain the required safety factor of two. The transverse horizontal lifelines were not anchored to the bridge structure; there was substantial evidence in the record, including statements from M&J's employees and managers and photographs taken during the 2011 inspection, that transverse cables were attached directly to the longitudinal containment cables or lying on top of the longitudinal containment cables, distant from an outrigger. This "as built" installation differed from Eric Fenton's analysis and assumptions, which did not anticipate that transverse horizontal lifelines would be connected directly to the longitudinal containment cables, rather than to the bridge structure, and distant from an outrigger. U-Bolt clips were installed backwards on some of the transverse horizontal cable attachments. Transverse horizontal lifelines attached directly to the longitudinal containment cables were not fixed and could move laterally. Nylon rope was installed and used as horizontal lifelines. Fenton did not evaluate nylon lifelines. Further, Leo Gialousis and John Vavoulis acknowledged that two employees might tie off to a transverse horizontal lifeline at the same time. These facts demonstrate M&J was not in compliance with the cited standard at the time of 2011 inspection. (Tr. 83-85, 91-103, 106-32, 135-38, 142--83, 190, 203-04, 207, 221-27, 231-44, 479-80, 486, 522-38; CX-9, pp. 1-10, 13; CX-10, pp. 2-14; CX-16; CX-17, pp. 1-12, 15-16; CX-19; RX-1; RX-2; RX-44).

*Employee access to the Violative Condition*

It is undisputed that M&J's employees at the Braga Bridge site were required to work on

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(Tr. 405).

The record shows that George and Leo Gialousis had received supervisor/competent person training. (RX-7-10). The record does not show that they had received the specific technical education or training for "qualified" persons in the design, installation or use of horizontal lifeline systems. The record further shows that George, Leo, Tony and Manny Gialouis, and several other M&J managers and employees, completed "competent person" training with respect to suspended access and rigging safety at the end of October 2011; these latter individuals included Isileli Taufa, James Bass, John Vavoulis and Lasa Lasalosi. (Tr. 373; RX-27).

bridge structures at significant heights above the river. Absent a safe horizontal lifeline system, designed, installed and used under the supervision of qualified people, the employees were exposed to the potential failure of the horizontal lines used on the bridge. This could have resulted in falls from great heights with potentially fatal consequences. This situation was present at the time of the 2010 inspection, and it remained unabated during the 2011 inspection.

Other fall protection measures that were in place at the site did not eliminate employee exposure to fall hazards due to the absence of a horizontal lifeline system that complied with the cited standard. During both the 2010 and the 2011 inspections, M&J was also cited for employees not tying off; M&J settled these citation items. (Tr. 40-41, 54, 84-85, 96-97, 132-38, 226-27, 522-23; CX-17, pp. 14-16; *see also* footnotes 8 and 28 above). In addition, the record reflects concerns regarding the proper installation of safety nets on the Braga Bridge, calling into question their reliability as a component of a complete personal fall arrest system. (Tr. 61-67, 132-35, 216-20, 298-99, 416-17; CX-17, p. 14; *see also* pages 5-6 and footnotes 28 and 33, above).

#### *Employer Knowledge*

The 2010 inspection revealed M&J's general awareness of the need for fall protection, as some fall protection elements were in place, including harnesses, lanyards, and safety nets. Considering the work involved at the worksite, which was done at great heights, and M&J's experience in the bridge painting industry, M&J could have known of the requirements of the cited standard with the exercise of reasonable diligence. M&J was certainly aware that work began on the bridge without horizontal lifelines having been designed and installed under the supervision of a qualified person, as part of a complete personal fall arrest system.

Further, at the time of the 2010 inspection, M&J's longitudinal containment cable system was installed on the bridge in plain view. With the exercise of reasonable diligence, M&J could have observed the absence of containment cables in a wide area of the bridge center, which required employees to tie off to box beams rather than to a longitudinal containment cable. M&J also knew that no transverse horizontal lifelines had been installed at the time of the 2010 inspection. In light of M&J's request for a proposal from Ruby in September 2010, for a review and analysis of Respondent's horizontal lifeline personal fall arrest system, including the 5/8-inch synthetic rope, as discussed above, M&J knew that employees were using nylon/synthetic rope at the time of the 2010 inspection. (Tr. 41-44, 48-58, 129-30, 174-75, 216, 522-25; CX-5).

CO Insogna spoke to M&J's managers during the 2010 inspection and advised them of the need for sag in the horizontal lifelines and the need to have a qualified person design and install the horizontal lifelines on the bridge. Project Supervisor Manny Gialousis advised CO Insogna that he would consult with the rope manufacturer to get the proper expertise to design the horizontal lifelines. (Tr. 55-61, 64; CX-2).

At the conclusion of the 2010 inspection, M&J was cited for a violation of the horizontal lifeline standard set out at 29 C.F.R. § 1926.502(d)(8). In October 2010, M&J signed an ISA in which it specifically agreed to abate the violation of the cited standard by using a safety consultant qualified in fall protection systems to design the horizontal lifeline system, in order to protect employees from falls during bridge work. (CX-3). Based on the ISA's terms, M&J had a "heightened" knowledge or awareness of its specific duty and obligations under the cited standard. *See Atlantic Battery*, 16 BNA OSHC at 2143, 2161, 2187.

Even with this heightened awareness of its obligations, M&J did not abate the horizontal lifeline violation by the agreed-upon date of December 15, 2010. The 2011 inspection began in March 2011. Before and during the 2011 inspection, in correspondence and conversations with OSHA representatives, Project Superintendent Leo Gialousis recognized M&J's obligations under the cited standard and its failure to timely comply with those obligations. Leo Gialousis responded to inquiries concerning abatement, well after the abatement date, by stating that M&J was "working on it." In March 2011, Leo Gialousis expressed concern to CO Insogna that M&J would be cited for a "willful violation" as it had not addressed the horizontal lifeline issue. (Tr. 74-77, 141-42, 151, 155-56, 194-97, 294-96, 391-92; CX-5, CX-7, CX-9, CX-16).

M&J delayed until about June 2011 before it requested that Fenton evaluate certain longitudinal cables, installed as part of the bridge containment system, to ascertain their suitability as horizontal lifelines. As discussed above, even at this late date, M&J did not request, and Fenton did not provide, a "horizontal lifeline design," as part of a complete personal fall arrest system. (RX-1, RX-2). For the reasons discussed above, Fenton's evaluation did not satisfy the requirements of the cited standard. I find that, at the time of the 2011 inspection, M&J knew that it was not in compliance with the requirements of the cited standard and that its employees remained exposed to the risk of potentially fatal falls.

#### *Failure to Abate*

I find that the Secretary has met her burden and has proven the alleged failure to abate the

violation of 29 C.F.R. § 1926.502(d)(8). The failure to abate citation is affirmed. The violation is also affirmed as serious, as a fall from the bridge would most likely result in death.

### **Penalty Determination**

Section 17(j) of the Act provides that the Commission shall have the authority to assess all civil penalties. When determining the appropriateness of a penalty, the Commission must give due consideration to four criteria: (1) the size of the employer's business, (1) the gravity of the violation, (3) the good faith of the employer, and (4) the history of previous violations.

Section 17(d) of the Act provides that any employer who fails to correct a violation for which a citation has issued, within the stated abatement period, "may be assessed a civil penalty of not more than \$7,000 for each day during which such failure or violation continues."

The gravity of the violation is the most important factor in the penalty assessment. Determination of the gravity of a particular violation requires a consideration of the number of exposed employees, the precautions taken to protect employees, the duration of employee exposure, and the probability that an accident will occur. *See J.A. Jones Constr. Co.*, 15 BNA OSHC 2201, 2214 (No. 87-2059, 1993), and cases cited therein.

The Secretary has proposed a penalty of \$19,250.00 for the violation in this case. AAD Barletta testified that the severity of the violation was high, because if someone fell from the great height of the bridge they would likely not survive. OSHA determined the probability of a fall was lesser, as M&J did have some fall protection in place. The gravity-based penalty was thus calculated to be \$5,000.00. For the failure to abate violation, the gravity-based penalty was multiplied for each working day beyond the abatement date, up to 30 days, which totaled \$150,000.00. M&J received a 30 percent reduction for size, based on Respondent's number of employees, which reduced the proposed penalty to \$105,000.00. Because M&J did abate five of the original six citation items issued in 2010, the OSHA Area Director further reduced the penalty to one sixth, equaling \$17,500.00. That figure was then increased by 10 percent in light of Respondent's citation history in 2010. No reduction was given for good faith because M&J had failed to abate the violation. The final proposed penalty was \$19,250.00. (Tr. 278-81, 309; CX-16). I find the proposed penalty appropriate. That penalty is therefore assessed.

**Findings of Fact and Conclusions of Law**

The foregoing decision constitutes the findings of fact and conclusions of law in accordance with Rule 52(a) of the Federal Rules of Civil Procedure.

**Order**

Based upon the foregoing decision, it is ORDERED that:

Citation 1, Item 5, alleging a serious failure to abate violation of 29 C.F.R. § 1926.502(d)(8), is AFFIRMED, and a penalty of \$19,250.00 is assessed.

*S/ Carol A. Baumerich*

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Carol A. Baumerich  
Judge, OSHRC

Dated: September 28, 2012  
Washington, D.C.