Where the safety rubber meets the shop floor: A confirmatory model of management influence on workplace safety
Where the Safety Rubber Meets the Shop Floor: A Confirmatory Model of Management Influence on Workplace Safety

Richard C. Thompson, Thomas F. Hilton, and L. Alan Witt

The role of management in establishing a safe work environment remains a topic that receives less attention in the literature than it deserves. Many authors have focused on safety programs and associated indications of program effects. Prescriptive articles advocating various management behaviors abound. However, there is little empirical evidence that validates the important role management plays in establishing a climate that sustains safe job behaviors. There is even less information about how management influences the safety atmosphere of the workplace. This paper presents a model that links management support, organizational climate, and self-reported safety outcomes. Confirmatory Factor Analysis results indicate that managerial influence on safe behaviors varies as a function of management role (manager/supervisor) and safety outcomes (safety conditions/safety compliance). We developed the model based on data collected in 1992 and confirmed it based on data collected in the same organization in 1995. The results underscore the important role management plays in maximizing workplace safety.

INTRODUCTION

There has been little empirical research focused on understanding how managers (including supervisors) can promote workplace safety (Myers & Facteau, 1992). However, it is well established that management’s actions affect employee perceptions of their organization and

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its safety priorities (Cohen, 1977; Myers & Facteau, 1992; Tuttle, Dachler, & Schneider, 1975; Zohar, 1980). Management can communicate what is important in explicit and tangible ways by stating goals, rewarding job behaviors, establishing policies and procedures, and so forth. Each of these actions, in turn, contributes to an organization’s work climate (Schneider & Rentsch, 1988). The work climate within every organization includes a safety component.

When safety researchers examine organizational climate, their primary focus is usually to relate general components of an organization’s climate (e.g., communication, management concern, management trust) to safety outcomes (Brown & Holmes, 1986; Coyle, Sleeman, & Adams, 1995; Dedobbeleer & Bélard, 1991; Zohar, 1980). Because safety is rarely the focus of work climate research, there has been little attention paid to how managers can influence their organization’s work climate to improve workplace safety. Without some dynamic model to indicate how their organization’s work climate relates to safety, it is difficult for managers to understand their role in creating and maintaining a safe workplace. This might help to explain why many managers express concern that despite stated support for their safety programs, workplace safety does not seem to improve.

Cohen, Smith, and Cohen (1975), Cleveland, Cohen, Smith, and Cohen (1978), and Janssens, Brett, and Smith (1995) have all demonstrated that management involvement and support are significant factors in establishing and maintaining a safe workplace. A number of authors have even linked workplace safety to management behaviors and various organizational work climate factors (DeJoy, 1985, 1994; Myers & Facteau, 1992; Zohar, 1980). Yet, despite the widespread acceptance that organizational work climate and management support for safety are related to workplace safety, little research has been conducted to explore the nature of the relationship between these variables. This paper attempts to model the relationship between work climate, management support for safety, and workplace safety.

Focus discussions with shop floor employees indicated a vague perception that management policy and practice often sent inconsistent messages. This inconsistency in actions and words led employees to question priorities and whether safe behaviors were likely to be rewarded. Witt, Hellman, and Hilton (1994) formulated the hypothesis that three climate factors might be strongly influencing safety: (a) confusion over organizational goals (goal incongruence); (b) the perception that it would be impolitic to elevate safety issues to management (politics); and (c) the perception that elevated safety concerns might not be given a fair hearing (fairness).

**Goal Congruence**

Vancouver and Schmidt (1991) demonstrated that lack of workforce-management congruence about organizational goals can adversely impact workforce perceptions. Goal incongruence can also affect other climate-related outcomes (Schneider, 1987). Policy-practice inconsistency can have other effects. For instance, DeJoy (1985; 1994) pointed out that employee attributions about management intentions can be a key influence on safety perceptions. For example, if management is perceived as willing to set aside safe practices to meet production goals, employees are likely to attribute management’s support for safety as being perfunctory. This could lead some employees to conclude that cutting corners will be rewarded.

**Organizational Politics**

Organizational politics involves influencing the decision making of others in an organization through means outside the formal organizational structure (Drory & Romm, 1990). Politics can include such actions as social ingratiating, hiding agendas, or not elevating unpleasant or controversial matters. Political behavior is generally perceived to be a negative attribute that communicates the political actor’s needs as being placed above the needs of the organization and other individuals (Drory & Romm 1990; Gandz & Murray, 1980). Also, managers report that organizational politics occurs more frequently at middle and upper management levels (Madison, Allen, Porter, & Renwick, 1980). Generally, Kacmar and Ferris (1991) have shown that there are various dimensions associated with the politics construct. The dimension considered most relevant to safety was the “go along to get ahead” dimension, which emphasized not sending disagreeable messages to management. The general level of political behavior in an organization has been shown to in-
fluence the degree to which employees believe and trust what management says (Cohen, 1977; Kumar & Ghadially, 1989).

**Supervisor Fairness**

Supervisor fairness, like politics, is a multidimensional concept. In the present case, we examined what Greenberg (1993) calls "interactional justice." Interactional justice occurs when employees believe that concerns they elevate to their supervisor will be given a fair hearing by management. Reports by Bies and Moag (1986), Bies and Shapiro (1987), Shapiro (1993), and Shapiro and Brett (1991) have each demonstrated a relationship between perceived interactional fairness and levels of compliance with organizational procedures and rules. It follows that compliance with safety procedures and rules would be affected by perceived fairness in the workplace.

**Management Support for Safety**

While a number of dimensions have been found to be related to workplace safety climate, management support for safety stands out as a common factor (Brown & Holmes, 1986; Coyle, Sleeman, & Adams, 1995; Dedobbeleer & Béland, 1991; Zohar, 1980). Management support for workplace safety can take two forms because both managers and supervisors comprise management. Managers generally indicate their safety support indirectly. They establish priorities (for policies, procedures, and goals); set production schedules that may accommodate safe operations; and they control the incentives for complying with those priorities (e.g., compensation, awards, discipline). Supervisors, on the other hand, are the conduit linking management safety concerns to the shop floor. Therefore, they indicate management support for safety relatively more directly than do higher level managers (Kozlowski & Doherty, 1989). Supervisors monitor compliance with higher level management's direction, and they provide feedback to employees regarding the appropriateness of their behaviors. Supervisors also provide input to higher level management regarding employee compliance or negligence (Niskanen, 1994). Such visible actions on the part of supervisors more directly communicate higher level management support for safety than many actions taken by these managers.

**Safety Perceptions**

Another important issue relates to identifying measures that are indicative of workplace safety. Vojtecky and Schmitz (1986) reported results from a survey of 124 occupational health practitioners, indicating that the assessment of safety criteria presented a barrier in determining the effectiveness of most safety programs. Common sense would dictate that observed accident rates present an indisputable direct outcome measure for safety interventions. However, such measures are often problematic. There are four factors that can affect reliability: restriction of variance, random influences, inaccurate reporting, and variability in accident severity. First, because accidents are normally rare events, accident frequency rate data can be statistically unreliable due to restriction of variance (Menckel & Carter, 1985; Zohar, 1980). Second, accidents are not always under the control of job incumbents. No matter how compliant employees may be with safety procedures, extraneous random influences can cause or contribute to accidents. Therefore, uncontrollable events can also produce unreliability, especially if restriction of variance is a problem. Third, accidents are not always consistently recorded. There can be incentives for both the over-reporting and under-reporting of accidents. Either under-reporting, over-reporting, or both can lead to unreliable measures. Fourth, the level of accident severity can affect reliability. Washing out sawdust from an employee's eye might go unrecorded, whereas surgical removal of a splinter from an employee's eye is more likely to become a matter of record. One observable alternative to accident frequency rates is the cost of an accident, but cost data can be more unreliable than frequency rates. An accident must be recorded before a cost can be estimated, and estimates themselves involve judgment (e.g., does one include insurance, lost time from work, interrupted productivity?). A second alternative is a safety audit; however, audits are costly to conduct and rest upon observable conditions. A frequent weakness of audits is a lack of connection to behaviors. Moreover, audit data are often subject to unreliability caused by the four previously mentioned factors.
Self reports of safety behaviors and perceptions offer an alternative criterion measure for determining workplace safety (DeJoy, 1994; Hofmann, Jacobs, & Landy, 1995; Janssens, Brett, & Smith, 1995). Although common method variance can inflate validities, it is possible to estimate their reliability (Cronbach, 1951). Safety perceptions are more likely to be valid in the one-tailed sense. When accident frequency rates are very rare, respondents might over-estimate their workplace safety out of complacency. However, it is hard to believe that anonymous respondents would under-estimate their level of workplace safety if people around them were being injured on a regular basis.

### Hypotheses

Witt, Hellman, and Hilton (1994) established that management support for safety can mediate the relationship between work climate and perceived safety conditions. Figure 1 presents the results of their path analysis. Although Figure 1 establishes a relationship between work climate, management support, and safety, it provides limited insight into the dynamics of management’s role in influencing safety. In this study, we therefore pursued several additional hypotheses that followed from Witt et al.

Following the literature reviewed above, we first hypothesized that the politics-safety relationship would be mediated by manager support for workplace safety, whereas the fairness-safety relationship would be mediated by supervisor support for workplace safety. Second, we hypothesized that the managerial support mediation effect would be more pronounced in relationship to perceived workplace safety conditions, whereas the mediator effect of supervisor support would be most pronounced in relationship to perceived workplace safety compliance. Third, we hypothesized that this expanded model would successfully replicate on a second data set.

### Method

A safety climate survey was administered at the Federal Aviation Administration’s (FAA) Logistics Center in 1992 and 1995. The Logistics Center provides spare parts for all FAA air navigation aids, air traffic control equipment, and FAA facility physical plant materials (e.g., air conditioner parts and back-up generator parts). In addition to its warehousing mission, the center includes a large fabrication shop for altering or manufacturing unique replacements, as well as a large administrative office to coordinate requests for parts and equipment, to purchase equipment and raw materials, as well as to ship new, fabricated, or repaired materials.

The 1995 survey was a shorter version of the 1992 survey. The 1992 sample consisted of 350 of the 507 (69%) employees who volunteered to complete the survey. The 1995 sample consisted of 329 of the 662 (50%) employees who volunteered to complete the survey during a mandatory monthly safety meeting. For the 1995 survey, the sample demographics were compared to that of the entire Logistics Center workforce.
(these data are not available for the 1992 survey). This analysis showed that the sample was representative of the entire workforce in terms of respondent age and gender. There were differences, however, in Logistics Center tenure, with the sample over-representing lower-tenure employees (3 years or less), \( \chi^2(4) = 42.38, p < .001 \). Specifically, the sample consisted of 22% lower-tenure employees compared to the workforce as a whole, which consists of 10% lower-tenure employees.

The dimensions of interest on both surveys consisted of perceptions of organizational politics, supervisor fairness, management support for safety, and workplace safety perceptions. The items common to both surveys were nearly identical. However, the 1992 measures of safety perceptions and management support for workplace safety (see Figure 1) were re-scored in 1995 to create separate measures of safety conditions and safety compliance, and manager and supervisor support for safety, respectively. Finally, goal congruence, which was assessed in the 1992 survey, was dropped in 1995 (to reduce the time and administrative complexity of the survey, at management’s request). Assessment of congruence required using four separate questionnaires. Based upon the small contribution of congruence presented in Figure 1, we agreed not to assess congruence in 1995.

**Measures**

Organizational politics was measured using a four-item scale based upon the Kacmar and Ferris (1991) “go along to get along” construct (e.g., Some employees may hesitate to speak up for fear of retaliation). Supervisor fairness was measured using a four-item scale based upon Shapiro’s (1993) notion of interactional fairness (e.g., My supervisor considers my viewpoint when making decisions that affect me). Manager support for workplace safety was measured using a four-item scale following Dedobbeleer and Béland (1991; e.g., Management places worker safety as a top priority). Supervisor support for workplace safety used a four-item scale, also after Dedobbeleer and Béland (e.g., My supervisor tells management about unsafe situations). Two sets of items were used to measure safety perceptions. In the first set, four items were used to measure safety conditions of the workplace (e.g., Aisles/passageways and working areas are free of tripping hazards). The safety conditions construct examines the general workplace environment as it relates to potential safety hazards. In the second set, five items were used to measure safety compliance (e.g., To what extent do most people in your section use equipment designed to protect themselves?). Safety compliance items assess the level of general compliance with safety rules. All items were measured on five-point (strongly disagree to strongly agree) Likert-type scales. The items that comprise each scale can be found in the appendix. Accident frequency rate data were also obtained from organization records.

**RESULTS**

Table 1 presents the means for the revised 1992 and 1995 scores, their standard deviations, and coefficient alpha reliability estimates. As can be seen, the re-scoring of management support and perceived workplace safety did not adversely affect score reliabilities for either the 1992 or 1995 samples. As in the Witt et al. (1994) study, accident frequency rate data were once again found to be too unreliable to include in the analysis.

**Measurement Models**

Prior to examining relationships among the measured dimensions, the measurement models for each construct were established using the 1992 data. Measurement models were developed following a model-generating strategy (Jöreskog, 1993). This approach was taken for two reasons. First, examining measurement models provides some evidence of convergent and discriminant validity of the measures (Judge, 1993). To the extent that method biases account for item correlations, single factor models will best fit the data. Second, the hypothesized relationships investigated here differ from those of Witt et al. (1994).

For each construct a priori measurement models were tested and modified to obtain a level of reasonable fit. The single factor models of organizational politics, supervisor fairness, management support for safety, and supervisor support for safety fit the data well, although some within construct correlated errors were allowed (free theta deltas). Analyses of safety perceptions resulted in a two-factor model,
TABLE 1
MEASUREMENT SCALES USED IN THE 1992 AND 1995 SAFETY CLIMATE QUESTIONNAIRE

<table>
<thead>
<tr>
<th>Scale Dimension</th>
<th>NR Items</th>
<th>'92 Mean</th>
<th>'92 Std. Dev.</th>
<th>'92 Alpha</th>
<th>'95 Mean</th>
<th>'95 Std. Dev.</th>
<th>'95 Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organizational Politics</td>
<td>4</td>
<td>3.13</td>
<td>.97</td>
<td>.72</td>
<td>3.04</td>
<td>.94</td>
<td>.83</td>
</tr>
<tr>
<td>Supervisor Fairness</td>
<td>4</td>
<td>3.58</td>
<td>1.07</td>
<td>.87</td>
<td>3.71</td>
<td>.96</td>
<td>.90</td>
</tr>
<tr>
<td>Management Support for Safety</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manager Support</td>
<td>4</td>
<td>3.18</td>
<td>.75</td>
<td>.80</td>
<td>3.67</td>
<td>.66</td>
<td>.74</td>
</tr>
<tr>
<td>Supervisor Support</td>
<td>4</td>
<td>3.62</td>
<td>.82</td>
<td>.79</td>
<td>3.81</td>
<td>.70</td>
<td>.85</td>
</tr>
<tr>
<td>Safety Perceptions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Safety Conditions</td>
<td>4</td>
<td>3.29</td>
<td>.85</td>
<td>.62</td>
<td>3.27</td>
<td>.64</td>
<td>.60</td>
</tr>
<tr>
<td>Safety Compliance</td>
<td>5</td>
<td>3.26</td>
<td>.78</td>
<td>.74</td>
<td>3.59</td>
<td>.57</td>
<td>.75</td>
</tr>
</tbody>
</table>

The two-factor solution was compared to a one-factor solution, and the two-factor model provided a significantly better fit, $\chi^2(1) = 77.81, p < .001$.

Next, measurement models were combined and examined in a pairwise fashion (politics and fairness; management and supervisor support for safety). Here, correlated two-factor models were compared to one-factor models. Treating politics and fairness as separate but correlated constructs provided a significantly better fit than the more parsimonious one-factor model $\chi^2(1) = 47.18, p < .001$. Similarly, treating manager and supervisor support for safety as separate constructs improved the fit over the more parsimonious one-factor model $\chi^2(1) = 51.69, p < .001$. The two-factor model of safety perceptions was discussed above.

Finally, the four endogenous constructs were combined into a single model. The results indicated the existence of correlated error terms. Instead of freeing these paths, items with highly correlated within-construct error terms were combined into “mini-means” following Berstein and Teng (1989) and were included in the identification of the structural model.

**Structural Relationships**

After the new measurement model for the constructs was fully developed, the hypothesized structural relationships were tested. The expanded and revised basic model (Figure 2) was first tested. Figure 2 also presents the results of the structural assessment of the 1992 data. Consistent with our first hypothesis, the general mediator role of management support for workplace safety perceptions was significant, even though manager and supervisor support factors were treated as distinct constructs. That is, there was a direct effect between each climate measure specified as affecting each specified management support for workplace safety perceptions measure. There was also a direct effect between each management support measure and each workplace safety perceptions. There were no significant paths between any climate and workplace safety perceptions.

Consistent with our second hypothesis, Figure 2 shows that organizational politics was related to perceptions of management support, which in turn influenced perceptions of workplace safety conditions. Supervisor fairness influenced perceived supervisor support for workplace safety, which in turn, influenced perceptions of workplace safety compliance. Finally, manager support for workplace safety was also found to influence perceptions of supervisor support. This latter result was not predicted, but is consistent with the general leadership research literature (see, for example, the lengthy review in Conger, 1989).

The revised 1992 model established by Witt et al. (1994) supports the idea that an organization’s general climate affects workplace safety through management actions. Specifically, it shows that management influence is pervasive, not only influencing workplace climate and safety but also affecting the influence of supervisors on safety perceptions. However, because of the exploratory development of both the measurement and structural models, it is possible that the model that emerged did so because of capitalization on chance variations in the 1992 data. Therefore, the model was reassessed on the 1995 sample. The 1992 model was applied di-
FIGURE 2. Model of organization climate, safety climate and safety perceptions for 1992 data. Note: The “M” indicates mini-means for the respective items that were used in the model. An “R” indicates reversed item, structural estimates are standardized coefficients, and t-values are in parentheses.

rectly to the 1995 data using the same items, and free and fixed parameters from the previous model without prior assessment of indicator measures or structure. The results of this analysis are summarized in Figure 3. Consistent with our third hypothesis, the expanded model fit both the 1992 and 1995 data sets. The fit statistics for the models indicate the 1992 data provided a somewhat better fit than the 1995 data.

**DISCUSSION**

The present study extended earlier work demonstrating the important role managers play in establishing an organizational climate that affects workplace safety. The expanded model presented here clarifies that managers play a role in promoting workplace safety by affecting the degree of politics in their organization’s work climate, which in turn, impacts perceived workplace safety conditions. The expanded model also clarifies that supervisors play a role in promoting workplace safety by affecting the level of fairness in their organization’s climate, which in turn, impacts perceived compliance with safety rules. It would have been an added bonus if we could have tested these models using accident frequency rate data, however, this was not possible. Previous literature suggests that accident frequency rate data are not reliable in a great many organizations. As we noted in the introduction, unreliability may not be due to lax bookkeeping, but partly due to the rarity of workplace accident events in many organizations.

We would argue that perceptual data, (i.e., self reports), might be the preferred criteria for safety research. Minor workplace accidents often go unreported, yet those unreported events may be the best indicator of improving or worsening safety conditions that might eventually lead to serious injury. Members of the workforce out on the shop floor are likely to be sensitive to the type and frequency of accidents that go under-reported. Their perceived sense of workplace safety conditions might, therefore, be a better indicator of safety risk than the routine reports and other information available to management.

There are some methodological concerns in the present study that should be considered when interpreting the results. First, any time there is an exclusive reliance on self-report mea-
FIGURE 3. Model of organization climate, safety climate and safety perceptions for 1995 data. Note: The ‘‘M’’ indicates mini-means for the respective items that were used in the model. An ‘‘R’’ indicates reversed item, structural estimates are standardized coefficients, and t-values are in parentheses.

There are also some shortcomings in the structural model presented here. One might expect a relationship between safety compliance and general safety conditions. A significant relationship did not emerge during the exploratory structural analysis. However, when the model was confirmed in 1995, the analyses produced a large modification index, suggesting the model would benefit from freeing this path. However, because hypotheses being tested were aimed at confirming the structure of the model for the 1992 sample with the 1995 sample, additional structure changes were not assessed.

One can debate endlessly the nuances of any structural model. The best utility of confirmatory analyses is to add confidence to hypothesized relationships by examining them over time and in varying venues. This test used a very brief set of items at two points in time. We confirmed the relationships that we expected to find, based upon prior research and theory. Our results not only demonstrated that management plays an important role in maintaining a safe workplace, which should be obvious, but that managers and supervisors do so in differing ways. Managers appear to influence safety by influencing the politics of communication (what is elevated to their attention), whereas supervisors do so by influencing the fairness by which they interact with employees, perhaps leading to employee impressions of whether supervisors will elevate safety concerns to management.
APPENDIX

<table>
<thead>
<tr>
<th>1992 Item Number</th>
<th>1995 Item Number</th>
<th>Item wording</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q13</td>
<td>Q1</td>
<td>Organizational Politics Management officially encourages open communication, but, in reality, most people know not to &quot;upset the apple cart&quot; or &quot;rock the boat.&quot;</td>
</tr>
<tr>
<td>Q15</td>
<td>Q2</td>
<td>Some employees may hesitate to speak up for fear of retaliation.</td>
</tr>
<tr>
<td>Q32</td>
<td>Q3</td>
<td>It is generally safer to say you agree with management than to say what you think is right.</td>
</tr>
<tr>
<td>Q67</td>
<td>Q4</td>
<td>We are encouraged to express our concerns openly.</td>
</tr>
<tr>
<td>Q28</td>
<td>Q5</td>
<td>Supervisor Fairness When dealing with me, my supervisor has been able to suppress his/her personal biases and has almost always treated me fairly.</td>
</tr>
<tr>
<td>Q70</td>
<td>Q6</td>
<td>My supervisor has been fair in making my job assignments.</td>
</tr>
<tr>
<td>Q79</td>
<td>Q7</td>
<td>My supervisor considers my viewpoint when making decisions that affect me.</td>
</tr>
<tr>
<td>Q94</td>
<td>Q8</td>
<td>In making decisions that affect my pay and future promotability, my supervisor has been fair.</td>
</tr>
<tr>
<td>Q14</td>
<td>Q9</td>
<td>Management Support for Safety Management is open to new ideas on safety issues.</td>
</tr>
<tr>
<td>Q25</td>
<td>Q10</td>
<td>Management only pays &quot;lip service&quot; to OSHA regulations.</td>
</tr>
<tr>
<td>Q37</td>
<td>Q11</td>
<td>Management takes action to correct safety problems when brought to their attention.</td>
</tr>
<tr>
<td>Q33</td>
<td>Q12</td>
<td>Management puts the job before the safety of its employees.</td>
</tr>
<tr>
<td>Q95</td>
<td>Q13</td>
<td>Supervisor Support for Safety My section supervisor tries to make my job as safe as possible.</td>
</tr>
<tr>
<td>Q65</td>
<td>Q14</td>
<td>My supervisor seldom tells management about unsafe situations.</td>
</tr>
<tr>
<td>Q60</td>
<td>Q15</td>
<td>My supervisor shows personal concern about employee safety.</td>
</tr>
<tr>
<td>Q22</td>
<td>Q16</td>
<td>My supervisor places worker safety as a top priority.</td>
</tr>
<tr>
<td>Q63</td>
<td>Q22</td>
<td>Safety Conditions Aisles/passageways and working areas are free of tripping hazards.</td>
</tr>
<tr>
<td>Q76</td>
<td>Q25</td>
<td>Some of the workers in my section regularly behave in an unsafe manner.</td>
</tr>
<tr>
<td>Q80</td>
<td>Q27</td>
<td>Ventilation in my section is excellent.</td>
</tr>
<tr>
<td>Q81</td>
<td>Q28</td>
<td>There is enough light in my section to do the job well.</td>
</tr>
<tr>
<td>Q24</td>
<td>Q20</td>
<td>Safety Compliance First aid and safety equipment are maintained in good working order.</td>
</tr>
<tr>
<td>Q29</td>
<td>Q21</td>
<td>Most of the people in my workgroup believe it is essential that all employees use safety equipment on the job (i.e., glasses, gloves, shoes, etc.).</td>
</tr>
<tr>
<td>Q71</td>
<td>Q23</td>
<td>Information mandated by OSHA is posted and updated regularly.</td>
</tr>
<tr>
<td>Q74</td>
<td>Q24</td>
<td>Hazardous materials and stations are clearly marked.</td>
</tr>
<tr>
<td>Q77</td>
<td>Q26</td>
<td>Warning signs are posted in visible and relevant locations.</td>
</tr>
</tbody>
</table>

REFERENCES


Cleveland, R. J., Cohen, H. H., Smith, M. J., & Cohen, A.


