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ENVIRONMENTAL ETHICAL DECISION MAKING IN THE U.S. METAL-FINISHING INDUSTRY

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We investigated the individual and contextual influences shaping the environmental ethical decision intentions of a sample of managers in the U.S. metal-finishing industry in this study. Ajzen's (1991) theory of planned behavior and Jones's (1991) moral intensity construct grounded our theoretical framework. Findings revealed that the magnitude of consequences, a dimension of moral intensity, moderated the relationships between each of five antecedents—attitudes, subjective norms, and three perceived behavioral control factors (self-efficacy, financial cost, and ethical climate)—and managers' environmental ethical decision intentions. We then developed implications for theory and practice in environmental ethical decision making.

When addressing the management of organizations in the natural environment, it is misleading to say that environmental problems and risks are *becoming* an issue of relevance for business organizations. Indeed, researchers have documented that such a well-known historical figure as Benjamin Franklin sought in 1739 to stop local businesses from polluting a small creek that ran through Philadelphia (Neuzil & Kovarik, 1996). Today it is recognized by some that "there are few significant man-made environmental problems (or woman-made ones) that do not have organizations behind them" (Perrow, 1997: 66). Perrow included this bold statement in his comments on the prospectus for the journal *Organization & Environment*. Specifically, he asserted that because organizations—especially big, bureaucratic ones—have such great power and influence, they deserve more attention as independent variables in studies of environmental damage than the influence of leaders, technology, strategy and structure, psychology, and so on. Although Perrow's recommendation has merit, researchers must remind themselves that "propositions about organizations are statements about human behavior" (March & Simon, 1958: 26). Stated a bit differently, "Organizations do not make decisions—individuals do" (Liedtka, 1991: 543). Thus,

if one is to understand the relationship between organizations and the natural environment, one ought to begin by studying the decision processes of organizational participants.

As Shrivastava noted in his article, "The Role of Corporations in Achieving Ecological Sustainability," "to unleash the vast potential of corporations to resolve ecological problems, researchers and managers must reconceptualize their roles in society" (1995: 954). Such a reorientation would influence the theoretical perspectives organizational researchers studying ecological issues use as guides, the problems and topics they choose to research, and how they choose to disseminate what they discover. For managers and organizational participants, this reconceptualization would include acknowledging that many organizational and economic decisions affect environmental sustainability.

How far are organizations and individual decision makers from practicing environmental sustainability? Gladwin, Newburry, and Reiskin noted that "the operational specifics of sustainable development (or sustainability) are likely to remain elusive and controversial for some time to come" (1997: 234), since most sources of management thinking do not draw upon paradigms of sustainability. However, to advance ecological sustainability as a management concept, scholars must begin somewhere. Organizational researchers, such as Starik and Rands (1995) have proposed there is much to be gained by studying what guides managers' and other employees' sustainability-oriented decisions and behaviors (1995: 929). We also believe that to understand what organizations must do to become ecologically sustainable, it is critical

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we understand the decision intentions of managers as they encounter environmentally sensitive dilemmas. Researchers need to know what influences managers' decisions most strongly so that they can effectively direct future research and design societal and organizational systems, policies, and procedures to support sustainable practices.

Studying the topic of organizations and the natural environment is complex—and exciting—because of its interdisciplinary, industry-specific, multilevel, and multisystem perspectives (see Starik and Rands [1995] for a good overview of this interconnectedness). When approached holistically, the study of ethical decision making is also cumbersome, because of the simultaneous influence of individual, situational, and issue-contingent forces (Bass & Hebert, 1995; Ford & Richardson, 1994; Jones, 1991; Morris, Rehbein, Hosseini, & Armacost, 1995; Treviño, 1986). In this research, we sought to understand the diversity of influences shaping managers' environmental ethical decision intentions concerning the specific operational activity of hazardous wastewater treatment and centered our research around two questions: (1) What factors affect a manager's environmental ethical decision intention concerning the treatment of hazardous wastewater? (2) Does the influence of each factor in predicting the environmental ethical decision intention change as the intensity of the environmental consequences increases?

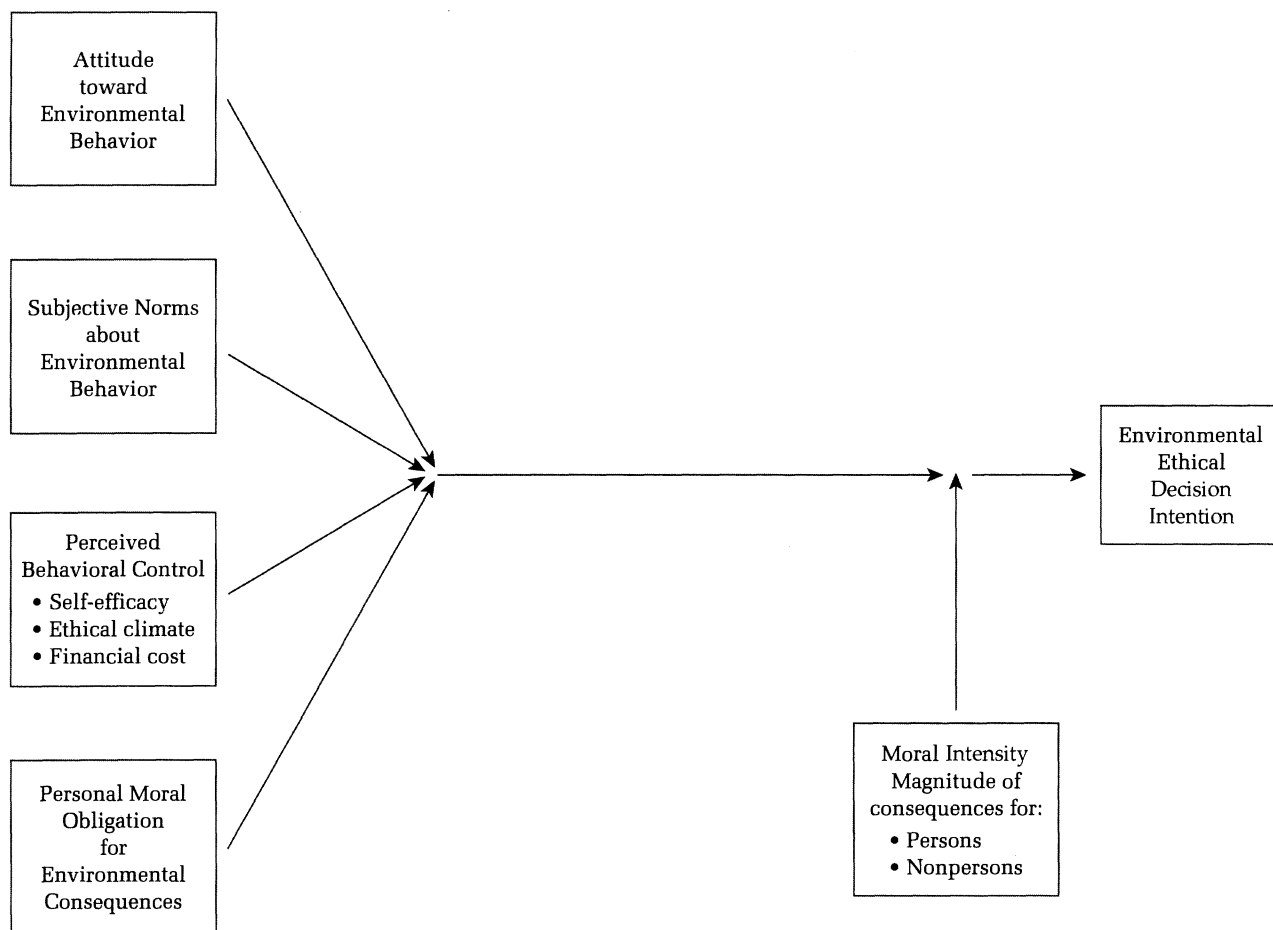
To frame and study the first research question, we developed an extended version of Ajzen's (1985, 1988, 1991) theory of planned behavior, since it was equipped to capture both the individual and situational factors impacting a manager's environmental ethical decision intentions. The dependent variable for this study was metal-finishing managers' decision intentions concerning a specific and salient environmental decision. Although factors such as time and new information can disrupt the intention-behavior relationship (Ajzen, 1985), recent studies of household composting (Taylor & Todd, 1997) and recycling (Boldero, 1995) have shown that intentions significantly predict the focal behaviors. Through the use of decision scenarios, we sought to explore the strength of a multitude of influences on these managers' environmental ethical decision intentions. We proposed that by studying decision intentions regarding the discharge of hazardous wastewater, we could better understand the strength of these influences on future wastewater treatment decisions and behaviors. Although we focused on a specific wastewater treatment decision, we believe that our model, shown in Figure 1, can be applied to a variety of environmental ethical decisions.

In keeping with the constructs and terminology proposed by Ajzen (1991), the independent variables of primary concern for this study were the metal-finishing managers': (1) *attitudes* toward the environmental behavior of hazardous wastewater treatment, (2) perceived levels of *personal moral obligation* for the environmental consequences associated with that decision intention, and (3a) *internal perceived behavioral control* over the decision (that is, self-efficacy). The situational or contextual independent variables included the (3b) *external perceived behavioral control factors* of the ethical climate of the employing organization and the perceived financial costs associated with hazardous wastewater treatment, and (4) the social influence of others, or the *subjective norms* about the environmental behavior. Figure 1 is an adaptation of Ajzen's theory of planned behavior to this study of environmental ethical decision making. The personal moral obligation and moral intensity factors are the extensions not included in Ajzen's theoretical foundation.

The second research question reflects our interest in discerning how the intensity of the environmental issue moderates the impact of each of the individual and situational factors on the environmental ethical decision intention. Environmental issues present variations in consequences to people and dimensions of the natural environment. Thus, we thought it appropriate to evaluate the impact of these environmental consequences on managers' decision processes.

According to ethics research by Collins (1989) and Jones (1991), ethical decision making is issue-contingent, and the characteristics of the particular *moral issue* in question should not be overlooked in studying moral decision making and behavior. An issue is moral if action on it or a decision about it has consequences for others and the actor or decision maker has volitional control over the action or decision (Jones, 1991). Jones also posited that the characteristics of a moral issue do not duplicate the idiosyncrasies of the individual making the decision, nor do they reflect situational factors in which the decision is embedded. Jones (1991) referred to the collected dimensions of moral issues as *moral intensity*. Recently, Morris and McDonald (1995) employed three ethical scenarios and found that two of Jones's dimensions of moral intensity, magnitude of consequences and social consensus, were the most important predictors of respondents' moral judgments. The influence of the *magnitude of consequences* dimension has received some further empirical support (e.g., Marshall & Dewe, 1997; Singer & Singer, 1997; Weber, 1996). We manipulated a variation of this di-

FIGURE 1
Factors Influencing Environmental Ethical Decision Making^a



^a Our model is an adaptation and extension of Ajzen's (1991) theory of planned behavior to environmental ethical decision making.

mention in this study's environmental ethical decision scenarios.

We chose to study an environmental decision concerning water pollution in the U.S. metal-finishing industry. We purposefully chose one industry because each industry has its own unique environmental issues and concerns. Our chosen industry includes organizations that "clean, etch, and plate metallic and nonmetallic surfaces to provide desired surface properties" (Environmental Protection Agency [EPA], 1992: 5). Owing to the nature of its processes and products, the primary metals industry, which includes metal-finishing companies and those that mine metals, ranked second after the chemical industry in overall toxic releases in the EPA's 1995 Toxics Release Inventory Report (Kertes, 1997). Another indication of this industry's recognized impact on the environment is the EPA's inclusion of it as one of six industry participants in its Common Sense Initiative, an effort to investigate and initiate improved environmental performance (EPA, 1997).

Managers in the metal-finishing industry are responsible for making decisions about the management and treatment of hazardous wastewater streams generated during operations. It may appear to many that such environmental decisions are inherently ethical, but we needed to explicitly address the question, Why do environmental decisions concerning the treatment of hazardous wastewater contain an ethical dimension? Our answer was that such decisions have an ethical dimension because, if not treated adequately prior to release, this wastewater—laden with heavy metals and other toxics—can jeopardize the health and welfare of living species and damage their habitats. Causing harm to people, animals, or the environment is considered to be undesirable by societal norms and rules, as is evidenced in part by environmental laws and regulations.

According to Palmer (1997), the production, treatment, and disposal of waste is a major issue in environmental ethics, with its focus on *equity*. In *Environmental Ethics*, Palmer posed these ques-

tions about waste generation: Is it equitable for a company, including its shareholders, managers, and employees, to benefit from exposing another group of people to risks? Is it equitable for the present generation to dispose of waste that will place future generations at risk? Is it equitable for human beings to benefit from waste-generating activities while harming animals and ecosystems? Even more powerfully, Michaelson (1996) stated that U.S. society allows people to die for some corporations' profits by virtue of the EPA's loose definition of acceptable toxic risk. Likewise, to determine acceptable levels of cancer and death on the basis of economic efficiency is a violation of the fundamental rights to life and liberty. Thus, from the perspective of equity, the environmental decision concerning the treatment of hazardous wastewater is ethical in nature because failure to properly treat the wastewater has significant ramifications for the life and well-being of species and ecosystems.

THEORY DEVELOPMENT

The theory of reasoned action (Ajzen & Fishbein, 1980) and the more recent and extended theory of planned behavior (Ajzen, 1985, 1991) have been used over the past two decades to study a wide variety of behavioral intentions and behaviors. Essentially, according to both theories, the key to predicting behavior lies with intentions. Intentions are shaped by attitudes toward a specific behavior and the influences of important others (and with the theory of planned behavior, the perceived level of control over the specific behavior).

To our knowledge, only a handful of studies have used either theory to study ethical decision making in an *organizational* context (Chang, 1998; Dubinsky & Loken, 1989; Kurland, 1995; Randall & Gibson, 1991). The cited studies have indicated that the two theories are powerful in explaining business or organizational ethical behavior, but more recent studies have found the theory of planned behavior—often, a modified version of it—to be the more robust in explaining intentions (Chang, 1998; Kurland, 1995; Randall & Gibson, 1991).

In the environmental psychology literature, Boldero (1995) and Taylor and Todd (1997) used the theory of planned behavior to predict individual newspaper recycling and composting behaviors, respectively. For example, Taylor and Todd (1997) labeled their adapted theory “the integrated waste management model” and included such factors as self-efficacy, compatibility (the inconvenience of composting and the effort, time, and cost necessary to compost), and resource-facilitating conditions (the accessibility of composting resources or facil-

ities). Given the theory of planned behavior's track record of proven validity, parsimony, testability, and specificity in many research arenas, we extended the theory for this study (see Figure 1). The following paragraphs outline the conceptual development of the individual and situational factors and the derivation of specific hypotheses for the study.

Attitude toward the Environmental Behavior

According to the original theory of reasoned action (Fishbein & Ajzen, 1975), a person's attitude toward a behavior is personal and captures her or his positive or negative evaluation of performing the behavior. As with intention-behavior specificity, Fishbein and Ajzen (1975) stressed using compatible measures to increase attitude-behavior correlations. Thus, when attitudes are reduced to the level of a specific behavior, behavioral prediction improves.

For this study, the managers' attitudes concerning the treatment of hazardous wastewater were the primary concern. Studies using a version of the theory of planned behavior similar to that employed in this study have found attitudes to be a strong predictor of proenvironmental intentions and behaviors (Boldero, 1995; Taylor & Todd, 1997). Thus, the following hypothesis was formulated:

Hypothesis 1. Managers' decision intentions concerning the treatment of hazardous wastewater will be influenced positively by their attitudes toward wastewater treatment.

Subjective Norms about Environmental Behavior

In both the theory of reasoned action (Fishbein & Ajzen, 1975) and the theory of planned behavior (Ajzen, 1988), the antecedent primarily concerned with social pressure is labeled “subjective norms.” Subjective norms are often measured directly by asking respondents to indicate whether “important others” (that is, self-selected referents) would approve or disapprove of their performing a particular behavior (Ajzen, 1991). Studies using either theory have often found subjective norms to have a mixed or smaller impact in predicting behavioral intentions than the other factors of the models (e.g., Kurland, 1995; Randall & Gibson, 1991). For example, Boldero (1995) found that subjective norms failed to predict recycling intentions, and Taylor and Todd (1997) found that household family members, neighbors, and friends all influenced composting behavior. Ajzen and Fishbein (1980)

did propose that the significance of the factors in their model would vary with the particular behavioral intention tested and the particular subgroup or population investigated. Despite this factor's inconsistent showing, environmental psychology research has generally supported the influence of social norms on proenvironmental behaviors (De Young, 1996; Vining & Ebreo, 1992). In view of this support, and because managers make decisions in social contexts, we formulated the following hypothesis:

Hypothesis 2. Managers' decision intentions concerning the treatment of hazardous wastewater will be influenced positively by their assessment of support from important others.

Perceived Behavioral Control

According to U.S. public opinion polls, 86 percent of the people polled believed the label "environmentalist" characterized them to some degree (Ladd & Bowman, 1995). From the results of this poll, it would seem the United States is a country of proenvironmental decision makers. However, in view of the country's consumption patterns (Buchholz, 1998; De Young, 1996), the results of the poll appear suspect. Why is it that so many Americans exhibit unsustainable environmental behaviors? Ajzen (1988) recognized that many behaviors are nonvolitional, and hence, proposed the inclusion of the perceived behavioral control factor in his theory of planned behavior. Thus, his theory recognizes that even the most ardent intentions may be constrained by dispositional and situational control factors.

Specifically, Ajzen differentiated between internal and external perceived behavioral control factors (Ajzen & Madden, 1986). Internal control factors are individual dispositional factors and include the amount of information a person has, along with the person's skills, abilities, emotions, and compulsions concerning a specific behavior (Ajzen, 1988: 128–129). The external control factors are situational issues outside the individual. Ajzen established that "these factors determine the extent to which circumstances facilitate or interfere with the performance of the behavior" (1988: 129). Psychology researchers usually acknowledge both internal and external control factors (Sparks, Guthrie, & Shepherd, 1997). Environmental researchers Taylor and Todd (1995, 1997) decomposed and labeled the two components "facilitating conditions" (external control factors, such as access to a compost box) and "self-efficacy" (the internal control factor) in their composting behavior research.

A debate is ongoing about the conceptualization and measurement of perceived behavioral control, with comparable studies yielding mixed support for the factor (e.g., Boldero, 1995; Kurland, 1995; Randall & Gibson, 1991). Because specificity is critical to the performance of the theories of reasoned action and planned behavior, different behaviors will be influenced by a unique—and perhaps extensive—set of control factors. One set of researchers tailored measures of perceived behavioral control to the type of behavioral issue under study (Sparks et al., 1997). Likewise, we developed relevant control factors, drawing on qualitative interviews conducted with metal-finishing managers during the pilot stage of the study. Specifically, we distinguished between the internal control factor of self-efficacy and two particular external control factors, the ethical climate of an organization and financial cost concerns.

Self-efficacy. As Ajzen clarified in 1991, the internal perceived behavioral control factor is most similar to Bandura's (1997) perceived self-efficacy construct. According to Bandura, self-efficacy is a person's expectancy about whether she or he can successfully perform the behavior in question. Our study focused on whether respondents believed they had the required knowledge, skills, and abilities to make decisions concerning the treatment and discharge of hazardous wastewater. Thus, we proposed that managers who felt self-efficacious would harbor the belief they could successfully assess the wastewater treatment decision scenario, including the environmental impact of their decisions. Stated as a hypothesis:

Hypothesis 3. Managers' decision intentions concerning the treatment of hazardous wastewater will be influenced positively by their levels of self-efficacy.

Ethical climate. Tetlock (1985) and others (Cohen, 1998; Treviño, 1986) established the need to study organizational decision makers and their contexts because "both individuals and small groups of individuals are constrained by the norms, procedures, and resources of the institutions in which they live and work" (Tetlock, 1985: 298). Some researchers even believe that in work environments, organizations dwarf the control individuals have over their own decisions (for instance, recall Charles Perrow's perspective reviewed above). Recent organizational ethics research offers empirical support for the influence of an ethical climate on ethical behaviors (Bartels, Harrick, Martell, & Strickland, 1998; Treviño, Butterfield, & McCabe, 1998).

To tap organizational participants' perceptions concerning the ethical climates of their organiza-

tions and the effect of those climates on a broad range of decisions, Victor and Cullen (1988) developed the Ethical Climate Questionnaire (ECQ). The ECQ categorizes ethical climates into five distinct types: (1) instrumental, (2) law and code, (3) rules, (4) caring, and (5) independence (for a definition and clarification of these five climates, see Victor and Cullen [1988] and Wimbush and Shepard [1994]). The *instrumental* climate—one that promotes self-interest and company interests over the interests of others who might be affected by decisions—has been proposed by Wimbush and Shepard (1994) as the climate type most likely to support *unethical* behaviors. The same authors viewed the other four types as supporting ethical behavior. We employed this instrumental climate dimension in our study and expected that the managers' perceptions of their organizations' climates would negatively influence their ethical decision intentions. Thus,

Hypothesis 4. Managers' decision intentions concerning the treatment of hazardous wastewater will be negatively related to the instrumentality of their own organizational climates.

Financial cost. Metal-finishing managers confirmed during our qualitative interviews with them that financial considerations might also influence their decision intentions concerning the treatment of hazardous wastewater. In our opinion, not acknowledging the influence of cost considerations would have greatly diminished the study's practicality. Indeed, economic motivations and outcomes are most often the focus of strategic decision making studies (Ilinitich & Wicks, 1996). This discussion led us to the following hypothesis:

Hypothesis 5. Managers' decision intentions concerning the treatment of hazardous wastewater will be negatively related to their perceptions of financial cost considerations.

Personal Moral Obligation for Environmental Consequences

Personal moral obligation has been discussed as a potential antecedent for inclusion in both the theory of reasoned action (Ajzen & Fishbein, 1980) and the theory of planned behavior (Ajzen, 1991; Kurland, 1995; Randall & Gibson, 1991). Ajzen defined this factor as "personal feelings of moral obligation or responsibility to perform, or refuse to perform, a certain behavior" (1991: 199). These feelings of personal moral obligation are similar to the values that individuals hold regarding their relationships to the environment. Most values the-

orists maintain that such values are a form of standards or criteria that guide action (Kluckhohn, 1951). Personal moral obligation as a value is more general in nature and more enduring over time (England, 1967; Rokeach, 1973) than attitudes that are linked more closely to specific objects, such as wastewater treatment. Consistent with Dose's (1997) work values framework, personal moral obligation is also conceptualized here as a personal value, as opposed to a value held by an organization or society at large, and it is viewed as a moral value, not simply a preference. Thus, the concept of personal moral obligation explored here bridges the gap between the values literature and the business ethics literature. Although Ajzen (1991) did not include personal moral obligation as a permanent antecedent in his theory of planned behavior, he did support theoretical and empirical investigations of it, saying that "it seemed reasonable to suggest that moral issues may take on added salience with respect to behaviors of this kind (i.e., cheating, shoplifting, and lying) and that a measure of perceived moral obligation could add predictive power to the model" (1991: 199).

In using an extended theory of planned behavior, Kurland (1995) reported that moral obligation was the most significant contributor in explaining insurance agents' ethical intentions. Randall and Gibson (1991) found that the addition of personal moral obligation to the theory significantly explained variation in the decision intentions of nurses. The importance of including personal norms in environmental research is also supported by Schwartz's norm activation theory (see Cordano [1996] for a discussion of the theory's constructs and its use in investigating environmental behaviors). Using Schwartz's model, Vining and Ebreo (1992) found household recyclers to have stronger feelings of personal obligation to recycle than did nonrecyclers. Thus, because of the ethical nature of this study, the following hypothesis warranted investigation:

Hypothesis 6. Managers' decision intentions concerning the treatment of hazardous wastewater will be influenced positively by their levels of personal moral obligation.

Moral Intensity: Magnitude of Consequences

The second research question directing this study focused upon the moderating effect that moral intensity had on the relationship between the factors of the extended theory of planned behavior (attitudes, subjective norms, perceived behavioral control, and personal moral obligation)

and ethical decision intentions concerning hazardous wastewater treatment (see Figure 1). This section will define the moral intensity construct and how we examined it in our study.

As noted, Jones (1991) proposed that ethical or moral issues varied depending upon their *moral intensity*. He emphasized that the moral intensity construct included neither characteristics of a decision maker nor influences exerted by an organization upon the decision maker (that is, individual and situational factors). Rather, the construct focused specifically on the *moral issue* in question. He believed ethical decision makers' responses to moral issues differ on the basis of the issues' characteristics. Furthermore, he believed researchers needed to include this issue-specific variable in any study of ethical decision making. Indeed, Weber cautioned that "the conclusions and implications presented in prior research which ignored the ethical issue when assessing decision making may be limited or misdirected" (1996: 3).

Magnitude of consequences and the nature of harm. Jones (1991) delineated moral intensity by characterizing it as having six core components or dimensions: magnitude of consequences, social consensus, probability of effect, temporal immediacy, proximity, and concentration of effect (see Jones [1991] for an extensive review of each of these dimensions). Recent empirical studies of the dimensions of moral intensity supported our decision to focus on the dimension of magnitude of consequences, which Jones defined as "the sum of the harms (or benefits) done to victims (or beneficiaries) of the moral act in question" (1991: 374). Morris and McDonald (1995) tested the multidimensional moral intensity construct and found that the magnitude of consequences component was one of the most significant contributors in explaining a person's moral judgment (the other significant dimension was social consensus). Similarly, Singer and Singer (1997) found that undergraduate evaluations of ethical scenarios were significantly predicted by the intensity of the magnitude of consequence dimension (along with the social consensus dimension).

Even though the moral intensity construct was proposed over nine years ago in the organizational sciences field, relatively few studies have evaluated this aspect of ethical decision making (see May and Pauli [2000] for a review of the literature on moral intensity and ethical decision making). Indeed, researchers have called for more work on the dimensions of moral intensity (Butterfield, Treviño, & Weaver, 1996; Morris & McDonald, 1995). By including the magnitude of consequences

dimension of moral intensity as a moderator variable in this study, we responded to these requests.

Merging Jones's (1991) magnitude of consequences dimension with Collins's (1989) distinction between harm to persons and harm to nonpersons works well for environmental issues. This distinction is an important aspect of environmental research because most humans have been conditioned to consider the impact businesses have on people; however, organizational researchers are just beginning to consider the importance of including the effects business activities have on non-human stakeholders (e.g., Starik, 1995). Drawing on Mischel's (1968) work in psychology on the influence of dispositional effects under "strong" and "weak" conditions, we theorized that harm to either persons or nonpersons represents a strong situation. Little harm to both groups represents a weak situation.

It was proposed that the intensity of the consequences for persons and nonpersons would influence the relationships among the managers' attitudes, subjective norms, perceptions of behavioral control factors and personal moral obligation, and behavioral intentions concerning wastewater treatment. That is, we hypothesized that these determinants would have their *lowest* impact on managers' intentions when the situation was morally intense in terms of the harm to people or to the environment. Under such conditions, we thought the issue itself would drive managers' decision intentions because it represented a strong situation (Mischel, 1968). However, when little harm to people or the environment was apparent (a weak situation), we believed managers were likely to consider how others felt about the situation, the costs involved, and their own attitudes, self-efficacy, and moral obligation when forming their decision intentions. Thus,

Hypothesis 7. The intensity of harmful environmental consequences will moderate the relationship between the antecedents of the extended theory of planned behavior and managers' decision intentions concerning the treatment of hazardous wastewater. Specifically, we expected decision intentions to be influenced by the antecedents more when the magnitude of consequences is low than when the magnitude of consequences is high.

METHODS

Research Scenario Design and Participants

In their critical review of the methodological state of business ethics research, Randall and Gibson (1990) proposed that the key problem with

survey research was its omission of the contextual information vital to realistic decision making. They recommended Fredrickson's (1986) scenario methodology as a way to infuse realism into business ethics research. Cavanagh and Fritzsche (1985) also concluded that vignettes allowed organizational researchers to capture real situations and made conditions comparable for each respondent. The aim of Fredrickson's (1986) scenario methodology is for the context, decision problem, terminology, and even the constructs of an investigation to be derived from the respondents and for the scenario or scenarios to provide a standardized decision stimulus. Likewise, Ajzen (1988: 43–44) believed the instrument used to understand individuals' intentions and behaviors must emanate from factors salient to that sample of individuals. Fredrickson's and Ajzen's insights prompted us to limit our study to one U.S. industry (metal finishing), involve managers in the development of the constructs and instrument, and write scenarios that accurately reflected an issue of salience to the respondents.

The first phase of the research involved qualitative interviews with six metal-finishing managers and tours of all six metal-finishing facilities located in a midwestern state of the United States. This article's scope does not include a discussion of all the details of our qualitative research,¹ but we believe our interviews and visits brought a realism and insight to the study that would have otherwise been missing. For example, we chose industry-specific language, selection of important others, decision scenario information, and significant control factors for inclusion in the final instrument in view of the qualitative research. Specifically, during an unstructured interview with a metal-finishing executive who had visited many metal-finishing facilities, we learned that it was very possible for such a plant to *not* operate its wastewater treatment systems at all times. As recently as April 1997, felony convictions were brought against an owner of two metal-finishing companies in Ohio for unlawfully discharging electroplating wastewater into public sewer systems (*American Metal Market*, 1997: 7). Thus, we chose this specific wastewater treatment dilemma because it was a real managerial issue with potential for harm to both human beings and the natural environment.

Scenario manipulation pretests. We designed four wastewater treatment scenarios varying the

severity of consequences for both persons and nonpersons. We administered the four scenarios to a sample of 63 business students (approximately 15 students read each of the four scenarios). A Fisher's protected least significant difference post hoc analysis (Cohen & Cohen, 1983) indicated that the mean differences for the scenario manipulations of consequences for persons versus consequences for nonpersons were significant (all $p < .05$). Given the results of this manipulation check, we included these scenarios in the final instrument.² The high-high scenario used in the final instrument, in which the magnitude of consequences was high for both human and nonhuman victims, read as follows:

Company F has been in the metal finishing industry for 30 years and specializes in nickel and cadmium plating for clients in a five-state area. You have been employed with the company for some time and recently were named its first Environmental Engineer. One of your primary duties is to oversee the plant's wastewater treatment system. The company's wastewater system was previously under the supervision and direction of the General Manager. Upon inspection of the system, you discover that a large volume of wastewater is not being treated before it is discharged. You bring this concern to the General Manager and he responds by saying that because it costs a lot to operate the wastewater treatment system, it is turned off unless visits by "outsiders" are expected. Therefore, the untreated wastewater is discharged directly to the publicly owned treatment works (POTW).

After the POTW processes the water it is released into River M. You recall yesterday's 10 o'clock news covering a story about a Game, Fish, and Parks study that found a significant number of fish and waterfowl inhabiting River M as having abnormally high nickel and cadmium levels and were dying of unknown causes. River M is the source for your community's drinking water. Interestingly, last week's newspaper reported a study conducted jointly by the Environmental Protection Agency and the National Cancer Institute indicating that your area's drinking water contained high concentrations of heavy metals, especially nickel and cadmium, and overall cancer rates were substantially higher in the area than in the rest of the country.

The three other scenarios presented the same first paragraph. The second paragraph varied as to the magnitude of consequences for both persons and nonpersons. For example, the scenario for low magnitude for nonpersons read as follows: "You

¹ The scenario methodology and the subsequent development of the instrument were quite extensive. A more detailed account of scenario and instrument development is available upon request from the first author.

² The texts of all four scenarios are available upon request from the first author.

recall yesterday's 10 o'clock news covering a story about a Game, Fish, and Parks study that found the fish and waterfowl inhabiting River M to be doing very well and thriving." The instrument (the scenario and questionnaire items) was further pre-tested with a sample of five metal-finishing managers. No significant changes were made following their evaluations.

Sample procedures and evaluation. As discussed previously, we selected metal finishing (Standard Industrial Classification [SIC] codes 3471 and 3479) as the focal industry. We mailed the final instrument to the 696 members of the National Association of Metal Finishers (NAMF). Individual members of NAMF are executives of firms engaged in plating, hard chroming, galvanizing, and other forms of metal finishing, and the association is "primarily concerned with management education and legislative issues" (Schwartz & Turner, 1995: 161). The package mailed included a cover letter written by a former NAMF president expressing support for the research, a brief description of the purpose of the research, instructions emphasizing the confidentiality of the information, a postage-paid return envelope, and the survey. After we mailed a reminder card, eight individuals requested another survey. A total of 139 usable questionnaires were returned, for a response rate of 20 percent.

To evaluate the representativeness of our sample, we compared some demographic information about our sample with information from a 1996–97 metal-finishing-industry report (Surface Finishing Market Research Board [SFMRB], 1997). Our respondents' organizations were job shops that provided finishing services for a fee, supporting comparison with the SFMRB sample. We found some similarities between the two samples. The median size (number of employees) of the firms that participated in our study ($n = 45$) was only slightly larger than that of firms in the SFMRB study ($n = 28$), indicating that most job shop metal-finishing firms were small. The geographic locations of the firms were also comparable, with 47.6 percent (SFMRB study) and 50.7 percent (our study) of the firms located in the U.S. Midwest. Also, a closer investigation of the breakdown for individual states for both studies indicated an especially high concentration of metal-finishing job shops in California. In sum, a comparison of the two surveys indicated that our survey was a good representation of the industry's median number of employees and geographical dispersion. Comparing our sample with the SFMRB study—and studying the characteristics and concerns of the industry through many other sources—increased our level of confidence

that we had procured a sample for our study that fairly characterized metal-finishing job shop managers.

Our respondents were managers responsible for company-level decision making; 85.1 percent were top and middle managers who reported their company title as president, vice president, general manager, or plant manager; 11.3 percent of the respondents represented themselves as environmental manager; and 3.9 percent did not provide a company title. The respondents had a 16-year median company tenure and a 10-year median position tenure. Eighty-two percent indicated they had a college degree.

Coding of Magnitude of Consequences

As described above, the magnitude of consequence dimension reflected harmful consequences for human or nonhuman victims and was presented in four scenarios. When the magnitude of consequences was represented as low for both persons and nonpersons, the intensity of the hazardous wastewater treatment issue was considered low. When the magnitude of consequences was represented in the scenario as high for either persons or nonpersons, the intensity of the hazardous wastewater issue was considered high.

The instrument began with brief instructions concerning the decision scenario and asked the respondents to put themselves in the shoes of the environmental engineer portrayed in the scenario. The four scenarios were randomly administered. For analyses, we coded the scenarios as either 0 or 1, with 0 indicating a low magnitude of consequences (low harm to persons *and* the environment), and 1 indicating a high magnitude of consequences (high harm to persons *or* the environment).

Measurement of Variables

Environmental ethical decision intention. Drawing on examples from previous research (Ajzen & Fishbein, 1980), we used one item to measure managers' environmental ethical decision intentions. The Appendix gives the text of this and all other items. This straightforward item presented an *unethical* behavioral intention (releasing untreated hazardous wastewater into the publicly owned treatment works), with higher scores indicating more unethical decision intentions.

Attitude toward the environmental behavior. We used a three-item scale developed for this study to assess the managers' attitudes toward "continuing to operate the wastewater treatment system as it has been for the last 30 years" ($\alpha = .73$). Randall

and Gibson (1991) and Kurland (1995) reported strong reliabilities on similar scales of .78 and .93, respectively. The design of our scale conformed with past research testing the theory of reasoned action (Ajzen & Fishbein, 1980) and the theory of planned behavior (Kurland, 1995; Randall & Gibson, 1991).

Subjective norms about the environmental behavior. We used Ajzen and Fishbein's (1980) measure as a guide for the development of two subjective norm items. The items were similar but had an alpha of .60. Subjective norm measures have produced relatively low reliabilities in other studies (Ajzen & Driver, 1991; Sparks et al., 1997).

Perceived behavioral control: Self-efficacy. We used items developed by Jones (1986) to measure newcomers' self-efficacy concerning role orientations as a guide in writing the self-efficacy items for this study ($\alpha = .89$).

Perceived behavioral control: Ethical climate. We averaged seven items developed by Victor and Cullen (1988) to measure an organization's instrumental ethical climate. The reliability of .81 for this scale in our study was higher than Victor and Cullen's reported .71 for the same scale.

Perceived behavioral control: Financial cost. We developed two items for this study to measure the respondents' perceptions of the influence that cost would have on their decision intentions ($\alpha = .64$).

Personal moral obligation. With three items we measured respondents' feelings of personal moral obligation toward three different entities: fish and waterfowl, people, and the publicly owned treatment works. We based the items for this study on Kurland's (1995) study and found them to be reliable ($\alpha = .85$). Kurland reported an alpha of .71 for her personal moral obligation scale.

Social desirability effects. Social desirability bias has been discussed as an important variable for organizational ethics studies because of their sensitive nature and heavy reliance on self-report instruments (Randall & Fernandes, 1991). We minimized the potential social desirability effect by administering the survey via mail rather than in person, writing the scenarios in the third person, and presenting the items in a nonthreatening, neutral tone (Nederhof, 1985). However, because these methods can reduce but not eliminate such effects, we also measured the effect of social desirability using Paulhus's (1991) Balanced Inventory of Desirable Responding (BIDR).

Paulhus's social desirability measure separates social desirability bias into two constructs: self-deception and impression management. Self-deception occurs when a person unconsciously sees and describes him/herself in a positive light,

whereas impression management occurs when a person consciously seeks to present the most positive social image (Paulhus, 1991). We chose the impression management scale because we postulated that with environmental issues, managers would attempt to project a positive image to a variety of stakeholders.

The ten items included propositions such as: "I sometimes tell lies if I have to" (reverse-scored), "I never cover up my mistakes," "I have done things that I don't tell other people about" (reverse-scored), and "I never take things that don't belong to me." The ten propositions were measured using a seven-point Likert scale (1, not true, to 7, very true; $\alpha = .60$). In the studies that have used the BIDR, values of Cronbach's alpha have ranged from .75 to .86 for the impression management scale (Paulhus, 1991). The lower alpha in the current study was possibly due either to respondents being fatigued when answering these items near the end of the questionnaire, or to natural variability across samples. This scale has not been employed in organizational research as often as other social desirability scales (such as the Marlowe-Crowne Scale [Randall & Fernandes, 1991]), preventing it from having a strong history of reliability and stability across samples.

Using Paulhus's method, after reversing the five negatively keyed items, we added one point for each extreme response (that is, a 6 or 7). According to Paulhus, "This scoring ensures that high scores are attained only by subjects who give exaggeratedly desirable responses" (1991: 37). An average of the ten items provided an overall social desirability index with higher scores—the highest score being a 10—indicating a greater level of social desirability bias.

Industry tenure. In view of previous research (e.g., Bass & Hebert, 1995), we believed that industry tenure could alter the managers' perceptions of many of the independent and dependent variables. Therefore, we controlled for industry tenure, measuring it in years as reported by respondents.

RESULTS

Descriptive Statistics

The means, standard deviations, and correlations among the study's variables are shown in Table 1. Metal-finishing managers in the sample tended to report that it was unlikely that they would endorse discharging untreated hazardous wastewater into the publicly owned treatment works ($\bar{x} = 1.35$).

According to the mean values shown in Table 1, these managers held negative attitudes about con-

TABLE 1
Means, Standard Deviations, and Correlations among All Variables^a

Variable	Mean	s.d.	1	2	3	4	5	6	7	8	9
1. Social desirability	5.10	2.30									
2. Industry tenure	22.62	11.38	-.10								
3. Attitude	1.34	0.64	.05	.28**							
4. Subjective norms	1.94	1.22	-.03	.12	.14						
5. Self-efficacy	6.33	0.97	.00	.01	-.10	-.14					
6. Ethical climate	1.34	0.76	-.12	.12	.05	.18*	.00				
7. Financial cost	3.68	1.78	-.09	.06	.20*	.26**	-.06	.19*			
8. Personal moral obligation	6.60	0.86	-.01	.13	-.03	-.18*	.10	.08	-.05		
9. Magnitude of consequences	0.73	0.44	-.13	.17*	-.06	-.01	-.01	.04	.05	.03	
10. Decision intention	1.35	1.01	.12	-.10	.15 ⁺	.17*	-.14	.12	.18*	-.05	-.19*

^a $n = 130$ – 139 owing to missing data.

⁺ $p < .10$

* $p < .05$

** $p < .01$

tinuing to operate the wastewater treatment system as it had been for the last 30 years ($\bar{x} = 1.34$), and they believed it was unlikely that important others would think they should continue discharging untreated hazardous wastewater into the publicly owned treatment works ($\bar{x} = 1.94$). The high self-efficacy score ($\bar{x} = 6.33$) indicates that these managers felt confident about their ability to make decisions concerning the treatment of hazardous wastewater. Most of them rated their organizations low on the instrumental climate dimension, indicating that they believed they worked for organizations that did *not* encourage self-interested behaviors ($\bar{x} = 1.34$). Finally, the managers reported a

moderate influence of cost on their wastewater treatment system decision intentions ($\bar{x} = 3.68$).

We conducted a principal components factor analysis with varimax rotation using the questionnaire items to assess the discriminant validity of the independent variables. Results of this analysis indicated that the items loaded on the appropriate factors, with the exception of one ethical climate item that shared a low loading with the two subjective norm items (see Table 2). In addition, two ethical climate items loaded on a seventh factor but also shared loadings on the major ethical climate factor. Given that previous research on ethical climate has used all seven items to measure instru-

TABLE 2
Factor Loadings of Independent Variable Items^a

Item	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7
Ethical climate, 1	.83						
Ethical climate, 2	.77						
Ethical climate, 3	.73						
Ethical climate, 4	.65			.33			
Perceived moral obligation, 1		.91					
Perceived moral obligation, 2		.87					
Perceived moral obligation, 3		.83					
Attitude, 1			.95				
Attitude, 2			.94				
Attitude, 3			.67				
Ethical climate, 5				.87			
Ethical climate, 6	.31			.82			
Self-efficacy, 1					.95		
Self-efficacy, 2					.93		
Subjective norms, 1						.81	
Subjective norms, 2						.75	
Ethical climate, 7	.41			.32		.45	
Financial cost, 1							.84
Financial cost, 2							.82

^a Loadings greater than .30 are shown.

mental climate (Victor & Cullen, 1988) and that the Cronbach alpha was .81, higher than the .77 that was obtained with a reduced-item scale, we chose to retain the original seven instrumental ethical climate scale items.

A lack of significant relationships between the social desirability variable and the other study variables increased the likelihood that the managers' responses were valid indicators of their perceptions of the issues in this study (see Table 1). Ethical decision intention was not significantly related to the other control variable, industry tenure. Finally, magnitude of consequences was related to environmental ethical decision intention; the more intense the environmental consequence, the more ethical the decision intention.

Using the bivariate correlations as a preliminary test of the relationships between the independent variables and the decision intention dependent variable, we found that the subjective norms and financial cost factors were apparently significant predictors of the managers' decision intentions. Attitudes were marginally related to decision intentions ($p < .10$).

Results of Hypothesis Tests

Hypotheses 1–6: Antecedents of the ethical decision intention. To test the “main effects” (Hypotheses 1–6), we focused on results of hierarchical regression analyses. For these analyses, we first entered the control variables social desirability and industry tenure into the equation, and then the specific independent variables (see Table 3, steps 1,

2, and 3). We evaluated the change in the multiple squared correlation coefficient (R^2) to determine the significance of the factors' influences on the managers' decision intentions.

In sum, these analyses indicated that the attitude, subjective norms, and cost factors significantly contributed to explained variance for the managers' decision intentions; thus, Hypotheses 1, 2, and 5 were supported. Instrumental climate contributed marginally to the variance in decision intentions, so Hypothesis 4 was marginally supported. We found no support for the self-efficacy and personal moral obligation factors in explaining the managers' decision intentions. Thus, Hypotheses 3 and 6 were *not* supported.

Magnitude of consequences interaction. We tested the interaction hypothesis (Hypothesis 7) to assess the moderating effect of magnitude of consequences, employing moderated hierarchical regression analysis to analyze the interaction between the magnitude of consequences variable and each of the six independent variables. For each interaction, we entered the control variables in step 1, the independent variable in step 2, the moderator variable (magnitude of consequences) in step 3, and the interaction term in step 4. Table 3 shows the results.

Magnitude of consequences had a significant, moderating effect on the relationship between each of the independent variables and the managers' environmental ethical decision intentions. For all but personal moral obligation, the interaction between the independent variable and the intensity of the harmful consequences explained a significant

TABLE 3
Results of Hierarchical Regression Analysis for the Moderating Effects of Magnitude of Consequences^a

Step	Variable	Attitude			Subjective Norm			Self-Efficacy			Ethical Climate			Financial Cost			Personal Moral Obligation		
		β	R^2	ΔR^2	β	R^2	ΔR^2	β	R^2	ΔR^2	β	R^2	ΔR^2	β	R^2	ΔR^2	β	R^2	ΔR^2
1	Social desirability	.12			.12			.12			.13			.12			.12		
	Tenure	-.09	.03	.03	-.09	.03	.03	-.09	.03	.03	-.08	.03	.03	-.09	.03	.03	-.10	.03	.03
2	Independent variable	.19*	.06*	.03*	.18*	.06 [†]	.03*	-.14	.04	.02	.15 [†]	.05	.02 [†]	.20*	.07*	.04*	-.02	.03	.00
3	Magnitude of consequences ^b	-.19*	.09**	.03*	-.19*	.09*	.04*	-.21*	.09*	.04*	-.22*	.09*	.05*	-.22*	.11**	.05**	-.21*	.06 [†]	.04*
4	Independent variable × magnitude of consequences	-.43*	.12**	.03*	-.45*	.13**	.04*	1.20*	.12**	.03*	-.77**	.17**	.07**	-.57*	.15**	.04*	.44	.07	.00

^a $n = 128$ – 129 owing to “listwise” deletion of missing data.

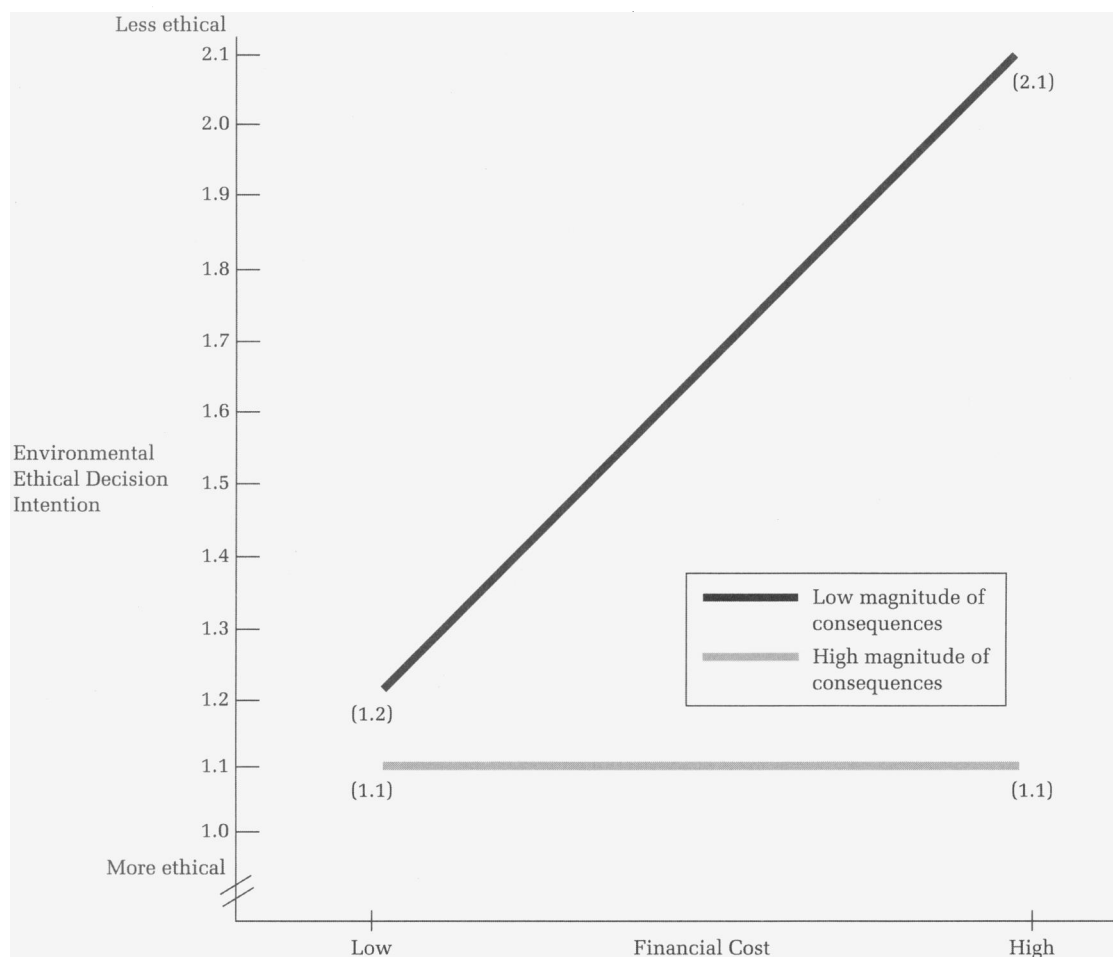
^b Magnitude of consequences was coded 0 = low harm for both persons and nonpersons, 1 = high harm for either persons or nonpersons.

[†] $p < .10$

* $p < .05$

** $p < .01$

FIGURE 2
Interaction of Financial Cost and Magnitude of Consequences for an
Environmental Ethical Decision Intention



amount of variance in the managers' decision intentions (see step 4 in Table 3).

Using procedures suggested by Peters, O'Connor, and Wise (1984), we graphed each of the six regression equations using representative low and high values for each independent variable (the mean plus or minus one standard deviation) to interpret the significant interactions between magnitude of consequences and each of the independent variables for the environmental ethical decision intention variable.

Figure 2 shows the interaction between the financial cost and magnitude of consequences variables, and it provides a good example of what the interactions look like for all the independent variables. To clarify, we labeled and scaled the decision intention variable from more ethical (low values) to less ethical (high values) on the basis of the presentation of the question in the survey instrument. For the financial cost independent variable, a low value indicated that managers felt the financial costs associated with operating a wastewater treatment sys-

tem had little influence on their decision intentions. Alternatively, a high value presented cost considerations as having a great influence on the managers' decision intentions. In the high magnitude of consequences condition, managers proclaimed the same decision intention whether financial cost influences were rated low or high (a score of 1.1 indicates a very ethical decision intention). However, under the low magnitude of consequences condition, cost considerations influenced the managers' decision intentions considerably. The greater the financial cost influence, the more unethical their decisions became.

Supplementary analyses for magnitude of consequences. To further examine whether the type of magnitude of consequences altered the relationship between our model's antecedents and the managers' environmental ethical decision intentions, we conducted two sets of supplementary analyses. In these analyses, we coded the magnitude of consequences as either harm to persons (see Table 4) or harm to non-

TABLE 4
Results of Supplementary Hierarchical Regression Analysis for the Moderating Effect of Magnitude of Consequences for Persons^a

Step	Variable	Attitude			Subjective Norm			Self-Efficacy			Ethical Climate			Financial Cost			Personal Moral Obligation		
		β	R^2	ΔR^2	β	R^2	ΔR^2	β	R^2	ΔR^2	β	R^2	ΔR^2	β	R^2	ΔR^2	β	R^2	ΔR^2
1	Social desirability	.12			.12			.12			.13			.12			.12		
	Tenure	-.09	.03	.03	-.09	.03	.03	-.09	.02	.02	-.08	.03	.03	-.09	.03	.03	-.10	.03	.03
2	Independent variable	.19*	.06*	.03*	.18*	.06 ⁺	.03*	-.14	.04	.02	.15 ⁺	.05	.02 ⁺	.20*	.07*	.04*	-.02	.03	.00
3	Magnitude of consequences ^b	-.12	.07*	.01	-.10	.07 ⁺	.01	-.10	.05	.01	-.11	.06 ⁺	.01	-.12	.08*	.01	-.11	.04	.01
4	Independent variable \times magnitude of consequences	-.37 ⁺	.09*	.02 ⁺	-.40*	.11*	.04*	.49	.06	.01	-.34 ⁺	.08 ⁺	.02 ⁺	-.20	.09*	.01	.86	.05	.01

^a $n = 128$ – 130 owing to "listwise" deletion of missing data.

^b Magnitude of consequences was coded 0 = low harm, 1 = high harm.

⁺ $p < .10$

* $p < .05$

** $p < .01$

TABLE 5
Results of Supplementary Hierarchical Regression Analysis for the Moderating Effect of Magnitude of Consequences for Nonpersons^a

Step	Variable	Attitude			Subjective Norm			Self-Efficacy			Ethical Climate			Financial Cost			Personal Moral Obligation		
		β	R^2	ΔR^2	β	R^2	ΔR^2	β	R^2	ΔR^2	β	R^2	ΔR^2	β	R^2	ΔR^2	β	R^2	ΔR^2
1	Social desirability	.12			.12			.12			.13			.12			.12		
	Tenure	-.09	.03	.03	-.09	.03	.03	-.09	.03	.03	-.08	.02	.02	-.09	.03	.03	-.10	.03	.03
2	Independent variable	.19*	.06*	.03*	.18*	.06 ⁺	.03*	-.14	.05	.02	.15 ⁺	.04	.02 ⁺	.20*	.07*	.04*	-.02	.03	.00
3	Magnitude of consequences ^b	-.12	.07*	.01	-.15 ⁺	.08*	.02 ⁺	-.16 ⁺	.07 ⁺	.02 ⁺	-.16 ⁺	.07*	.03 ⁺	-.16 ⁺	.09*	.02 ⁺	-.16 ⁺	.05	.02 ⁺
4	Independent variable \times magnitude of consequences	-.06	.07 ⁺	.00	-.19	.09*	.01	.71	.08 ⁺	.01	-.52*	.11**	.04*	-.14	.09*	.00	.05	.05	.00

^a $n = 128$ – 130 owing to "listwise" deletion of missing data.

^b Magnitude of consequences was coded 0 = low harm, 1 = high harm.

⁺ $p < .10$

* $p < .05$

** $p < .01$

persons (see Table 5). Each of these analyses revealed a diminished effect (one smaller than that in analyses with the original conceptualization of the magnitude of consequences) on the relationships between each of the independent variables and managers' environmental ethical decision intentions. For example, under the first set of analyses, consequences for persons only significantly impacted the relationship between subjective norms and environmental ethical decision intention ($F_{5,124} = 5.27$, $\Delta R^2 = .04$, $p < .05$). Under the second set of analyses, consequences for nonper-

sons only significantly influenced the relationship between instrumental climate and environmental ethical decision intention ($F_{5,123} = 5.97$, $\Delta R^2 = .04$, $p < .05$).

DISCUSSION

Findings and Future Research

The results of this study indicate that a number of both individual and situational factors influ-

enced the environmental ethical decision intentions of U.S. managers working in the metal-finishing industry. These results run counter to previous research indicating either individual or situational factors as more important for understanding ethical decision making in organizations. For example, Morris and colleagues (1995) found that personal characteristics influenced CEOs' ethical decision intentions more than organizational or contextual factors. Our results do support the current practice of organizational ethics and environmental psychology researchers of including both individual and situational factors in the modeling and researching of intentions and behaviors (Boldero, 1995; Taylor & Todd, 1997; Treviño et al., 1998). Also, the findings of our study provide encouraging evidence that the theory of planned behavior can be applied to understanding organizational environmental decision making as well as household and individual environmental intentions and behaviors (Boldero, 1995; Taylor & Todd, 1995, 1997). Similarly, the results indicated that Jones's (1991) moral intensity construct may be critical to understanding how individual and situational influences change in line with the severity of environmental consequences for persons and nonpersons.

In using the theory of planned behavior, we found that a manager's attitude was a marginal predictor and subjective norms were a significant predictor of managers' environmental ethical decision intentions. Although attitudes have consistently contributed to explained variance in ethical intentions and/or behaviors, the contribution of subjective norms has been mixed (e.g., Kurland, 1995; Taylor & Todd, 1997). We did find a significant relationship between subjective norms and financial cost. This finding could be interpreted as another indicator of the social impact that organizations have on decision makers. In future studies, we recommend researchers test this relationship by assessing whether the "most important others" about whom they ask respondents include organization members who are especially concerned with cost issues (for instance, company accountants).

Previous organizational ethical decision making studies that used the theory of planned behavior did not find strong support for the perceived behavioral control factor (Kurland, 1995; Randall & Gibson, 1991). We did find some support for the two external perceived behavioral control factors but found no support for the internal or self-efficacy component. Because our research was the first organizational ethical decision making study to measure self-efficacy as a control factor, further research is needed to assess its influence in other organizational settings. For example, in household settings, Taylor and Todd (1997)

found that self-efficacy significantly influenced composting behaviors. We showed in our study that by separating perceived behavioral control into Ajzen's (1988) internal and external categories, research can better identify the impact of these variables. We propose that this approach to studying perceived behavioral control will more accurately encompass the specific behavioral issue of study, an idea supported by other researchers (e.g., Sparks et al., 1997; Taylor & Todd, 1997).

This study also provides some evidence that organizational climates can constrain and/or facilitate the ethical judgments of decision makers (Cohen, 1998; Treviño et al., 1998). Future research should continue to examine the direct effect of organizational climate on individual ethical decision making. Researchers may again want to use Victor and Cullen's (1988) ethical climate questionnaire—perhaps using other climate types—to investigate contextual influences on ethical decision making.

Financial cost surpassed the other independent variables in its ability to explain variance in the environmental ethical decision intention. This research was the first ethical decision making study grounded in the theory of planned behavior to include cost as an external perceived behavioral control factor. The factor's significance as a predictor confirms that companies are, at a minimum, economic institutions, and future organizational research must examine the role that financial cost plays in ethical and environmental decision making.

Because this study's context and decision intention variable focused on a moral issue, one surprising finding was that the personal moral obligation factor was of little importance. This result is in sharp contrast to Kurland's (1995) finding that the personal moral obligation factor was the strongest predictor of insurance agents' ethical intentions. Because the managers consistently indicated possessing a high sense of personal moral obligation ($\bar{x} = 6.60/7.00$), a restriction of range may have precluded it from contributing to the explained variance in managers' decision intentions. Also informative were a few qualitative statements written on questionnaires next to the personal moral obligation items (for instance, "We are required legally, not ethically or morally"). These statements indicated that because disposing untreated hazardous wastewater was illegal, respondents perhaps suppressed feelings of personal moral obligation or considered them irrelevant.

Also, because so many factors influenced this complex environmental decision, cognitively framing it in a legal framework, rather than in a moral framework, possibly worked to reduce the difficulty of making an ethical judgment. Even so, an organization's social responsibility reflects legality and re-

sponsibility (Dalton & Cosier, 1982), and an organization may engage in activities that are legal but not necessarily environmentally responsible or sustainable. Future researchers investigating environmental and ethical decision making may wish to explicitly include legality as a factor. Finally, the personal moral obligation results might indicate that specific constructs, such as attitudes and perceived behavioral control, are better predictors of decision intentions than general values, even within an ethical context. However, because previous researchers have found a person's sense of moral obligation to be quite significant in explaining ethical intentions (Kurland, 1995; Schwartz & Tessler, 1972), future researchers should seek to clarify the role of a manager's sense of moral obligation in other environmental contexts and with issues that vary on the other dimensions of moral intensity.

In answering the second research question, we did find that the intensity of the consequences as presented in the scenarios influenced managers significantly. Specifically, managers made more decisions that we characterized as more ethical (as opposed to less ethical) when the magnitude of consequences was high than when it was low. This result is consistent with Jones's (1991) theory and Harrington's (1997) empirical research. Furthermore, the managers' attitudes, subjective norms, self-efficacy, organizational climates, and considerations of financial costs influenced their decision intentions more when the magnitude of consequences was low than when it was high. Thus, the low-harm scenario seemed to operate as Mischel's (1968) weak situation, and the high-harm scenarios operated as strong situations. The supplementary analyses conducted on magnitude of consequences indicated that individuals view any harm, whether to persons or nonpersons, as morally intense, since coding the scenarios solely on the basis of type of victim produced a much-diminished effect on the relationships in the model. These findings challenge Collins's (1989) statement that harm to persons may be more salient to individuals than harm to nonpersons. However, given humans' anthropocentric view of the world (Purser, Park, & Montuori, 1995), future research in this area is encouraged and necessary to resolve this theoretical point.

Different decision scenarios may have required more cognitive evaluation by the managers. For example, it is plausible that the managers may have made ethical decisions under the high-consequences condition without much difficulty because the appropriate decision was clearer to them. However, under the low-consequences condition, the appropriate decision may have appeared less obvious, with individual and situational factors, especially factors such as cost and organizational cli-

mate, influencing their intentions. This finding lends more support to assertions (e.g., Jones, 1991; Weber, 1996) about the importance of including aspects of a moral issue in ethics research, particularly magnitude of consequences. Future researchers should study the impact on environmental ethical decision making of Jones's (1991) other dimensions of moral intensity (such as social consensus and probability of effect).

Strengths and Limitations

Each day, organizational decision makers determine how their organizations will interact with the environment and society. Our aim in this study was to theoretically model and test what might be influencing such decision makers' environmental intentions. According to other researchers (Ford & Richardson, 1994; Randall & Gibson, 1990), few empirical studies with strong theoretical underpinnings have been conducted in the organizational ethical decision making arena. By using Ajzen's (1991) theory of planned behavior and Jones's (1991) moral intensity construct, we ensured that our study had a strong theoretical foundation. We have also begun to demonstrate a conceptual link between environmental psychology research on the influences of individual and situational factors on proenvironmental behaviors and the organizational environmental research literature (Boldero, 1995; Taylor & Todd, 1997; Vining & Ebreo, 1992).

Methodologically, by closely following the scenario methodology endorsed by Cavanagh and Fritzsche (1985) and Fredrickson (1986), we intertwined our environmental decision scenario, instrument, and respondents, providing the study with the necessary level of specificity and practicality for researching environmental and ethical decision making. The design and analysis of the study also controlled for social desirability bias, a concern of great import for ethics studies (Randall & Gibson, 1990). Finally, the hierarchical regression analyses conducted were rigorous. The main effects of the control, independent, and moderator variables on the decision intention variable were partialled out before we examined the contribution of the interaction term. The moderating effect of the magnitude of consequences variable also sustained a definite pattern for five of the independent variables. This finding verified that the relationship between the antecedent variables and decision intention was strongest under the low magnitude of consequences condition. Furthermore, under the high magnitude of consequences condition, managers tended to display more ethical decision intentions than they did under the low-consequences conditions.

However, the study has several limitations. One is the relatively low response rate (20%), although this rate is consistent with those in other ethics research (Randall & Gibson, 1990). We did take steps to improve the response rate, using a cover letter written by a former president of NAMF, and our response rate is better than that garnered for marketing research performed with the metal-finishing industry (1.5–6 percent; SFMRB, 1995). Another limitation of our sample is that we did not collect data on the nonrespondents, although we can confirm the sample's representativeness of the NAMF association and the metal-finishing industry overall (SFMRB, 1997). Finally, the sample size ($n = 139$) limited our ability to reliably use other data analytic tools, such as path analysis, to examine the hypotheses. Future researchers should investigate whether the relationships found here hold in larger samples and in contexts other than the U.S. metal-finishing industry.

Given that we also measured the dependent variable using only one item, potential construct validity concerns are legitimate. However, the question used in this study was modeled after a single-item measure of decision intention developed by Ajzen and Fishbein (1980). Another limitation of the study is that the data used for analyses were self-reported and collected as part of a field study using mail surveys. Thus, causal inferences regarding the relationships among the variables cannot be discerned, although the findings are consistent with previous theory (Ajzen, 1991).

Because we collected the data on all the variables at the same time, common method variance might explain some of our results. Nevertheless, common method variance is not a plausible alternative explanation for the significant interactions found here. Participants would have to have had implicit cognitive theories of the complex relationships between the antecedents of ethical decision intentions and the magnitude of consequences for this bias to explain these interactions. We used Harman's one-factor test (Podsakoff & Organ, 1986) to assess the degree to which correlations among the variables in the current study might be an artifact of common method variance. In this technique, all the variables of interest are entered into a factor analysis to examine the number of factors necessary to account for the variance in the variables. If a substantial amount of common method variance is present, either (1) a single factor emerges, or (2) one general factor will account for the majority of the covariance among the independent and dependent variables. A principal components analysis with varimax rotation revealed that no single factor emerged, nor did the largest factor account for a majority of the variance. These results do not totally rule out the possibility of common method variance, but

they suggest that such bias is not a plausible alternative explanation for the findings presented here.

Finally, although we reviewed the importance of limiting our study to one decision intention in one industry, some may see this focus as a limitation. Future researchers should examine the generalizability of the extended theory of planned behavior (including the personal moral obligation and moral intensity variables) across and within different ethical and environmental dilemmas in a diversity of organizations, industries, and countries.

Practical Implications

Of more practical interest, the findings for the instrumental climate and subjective norm factors signify, as Treviño postulated, that "most managers will look outside themselves for cues about what is right (appropriate) behavior and what is wrong (inappropriate) behavior" (1986: 608). This information should interest managers as they seek to promote environmentally and ethically sound decision making. Top managers would do well to establish the kind of organizational climate that fosters environmental ethical decision making by developing and supporting both formal (policies and reward structures) and informal (norms) systems (e.g., Treviño, 1990). Top managers should select and promote ethical individuals to serve as role models for other organizational participants. In sum, the climate and subjective norm results reinforce the powerful force of organizational contexts on the behaviors of their members (Cohen, 1998; Treviño et al., 1998).

As Collins claimed, ethical issues are often complex because "in many instances, the trade-off is not between generating a harm or benefit, but between degrees of harms or benefits to company and/or a stakeholder" (1989: 8). As such, a combination of ethics and environmental education and explicit behavioral guidelines (such as standard operating procedures) may be necessary to help and better prepare environmental decision makers to make such difficult decisions. Although we hope managers in organizations make good, just, and moral judgments, it might be unrealistic to expect them to make decisions using only implicit ethical guidelines. To support sound environmental decision making, organizational participants need explicit and official written policy statements, specific environmental objectives, the necessary training on regulatory requirements, state-of-the-art technology and pollution prevention approaches, and other technical expertise. Seldner and Cothrel (1994) and Stead and Stead (1996) have discussed elements of sound environmental systems. Stated a bit differently, because the job of a manager is complex and demanding, explicit

parameters supporting ethical judgments, including standard operating procedures, company policies, and legal imperatives, play an important role in ensuring ethical environmental judgments.

Individuals apparently made decisions we characterized as more ethical under conditions with great consequences. Like Weber's (1996) finding in his sample of 259 managers enrolled in a part-time master's of business administration program, our findings indicated the metal-finishing managers proclaimed more ethical and environmental decision intentions when consequences were of high magnitude. Weber wrote that "practitioners and academics engaged in ethics education may also detect that the moral issues used in business ethics training and instruction bias the ethical decision-making process" (1996: 3). We concur, and we posit that to adequately prepare organizational decision makers, ethics and environmental training should vary decision scenarios' conditions and intensity levels. For example, the following conditions are some of the relevant outcomes that might be considered for inclusion in environmental decision making education: (1) the magnitude, temporal immediacy, proximity, concentration, and probability of environmental damage as well as the social consensus surrounding the damage, (2) company financial issues, such as budgetary significance, managerial compensation, company financial and reputational gains, and (3) other factors, such as the frequency and duration of the environmental damage. Finally, because managers tended to make more ethical judgments under intense conditions, the most important and significant training may involve situations that appear to present *less* harm to others (low-moral-intensity situations). Thus, we recommend managers sensitize their employees to ethical and environmental dilemmas of all degrees of intensity.

Some environmental researchers have touched on the concept of moral intensity in their discussions of typical human reactions to environmental problems. For example, Gladwin and colleagues noted that human perception, because of its sensitivity to "rapidity, discontinuity, and discrepancy" (1997: 243), is not able to tune into the slow, yet catastrophic, assaults on the environment. Thus, the challenge is sensitizing organizational decision makers to the interconnectedness of daily business operations with the natural environment. Eagly and Kulesa (1997: 127) reported that studies have shown that concentrated direct experience with the natural environment has had a positive impact on environmental attitudes. Perhaps environmental education for organizational professionals needs to include field trips to rivers and other ecosystems surrounding operations, as well as longer wilderness experiences. Environmental train-

ing materials might include work by historically important figures in the environmental area, such as Aldo Leopold, author of *A Sand County Almanac* (1949/1989), as well as technical and legal material. Although this type of education might sound a bit unconventional, a manager of a plating company recently affirmed its potential. His personal theory of environmental ethical decision making was that metal-finishing managers who are avid outdoorsmen or women would be more likely to be ethical and environmentally sound in their hazardous wastewater treatment decisions because they are in touch with nature. These ideas hold potential for future environmental research, education, and training.

In conclusion, the story told by this research is that by enfolding the influences of the individual, context, and issue into organizational ethics and environmental research models, researchers may begin to understand the decision-making processes and judgments of some of our society's most influential decision makers—those organizational participants who, through their daily work decisions, help determine the health and sustainability of the natural environment.

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- am qualified to make a decision concerning the treatment of hazardous wastewater.
2. I feel confident that my skills, abilities, and knowledge qualify me to make a decision concerning the treatment of hazardous wastewater.
- Perceived Behavioral Control: Ethical Climate
- Instructions for these items were as follows: “We would like to ask you some questions about the general climate in your company. Please answer the following in terms of how it really is in your company, not how you would prefer it to be.”
1. There is no room for one’s own personal morals or ethics in this company.
 2. People are expected to do anything to further the company’s interests, regardless of the consequences.
 3. People here are concerned with the company’s interest—to the exclusion of all else.
 4. Work is considered substandard only when it hurts the company’s interests.
 5. In this company, people are mostly out for themselves.
 6. In this company, people protect their own interests above all else.
 7. The major responsibility of people in this company is to control costs.
- Perceived Behavioral Control: Financial Cost
1. As the environmental engineer of Company F, the cost of operating a wastewater treatment system would influence my decision.
- Company F was the company described in the scenario. “Completely disagree,” 1; “completely agree,” 7.
2. How much influence do you believe the cost of operating a wastewater treatment system would have on an environmental engineer’s decision concerning wastewater treatment?
- “Very little influence,” 1, “great influence,” 7.
- Personal Moral Obligation for Environmental Consequences
- “Completely disagree,” 1; “completely agree,” 7.
1. As an environmental engineer, I have a moral obligation to make sure hazardous wastewater from metal finishing operations does not harm fish and waterfowl.
 2. As an environmental engineer, I have a moral obligation to make sure hazardous wastewater from metal finishing operations does not harm people.
 3. It would be morally wrong for me to allow the discharge of untreated hazardous wastewater from metal finishing operations into a POTW.

APPENDIX

Questionnaire Items for the Dependent and Independent Variables

Environmental Ethical Decision Intention

“Extremely unlikely,” 1; “extremely likely,” 7.

After reading a decision scenario, the respondent was asked: “Putting yourself in the shoes of the new Environmental Engineer, what is the likelihood that you would continue to operate the treatment system as it has been for the last 30 years?”

Attitude toward the Environmental Behavior

“Bad, negative, harmful,” 1; “good, positive, beneficial,” 7.

“Continuing to operate the wastewater treatment system as it has been for the last 30 years would be:”

1. Bad/good
2. Negative/positive
3. Harmful/beneficial

Subjective Norms about the Environmental Behavior

“Extremely unlikely,” 1; “extremely likely,” 7.

1. Most people who are important to me would think that I should continue to operate the wastewater treatment system as it has been for the last 30 years.

2. Most people who are important to me would think that I should agree with the General Manager’s directions to continue to operate the wastewater treatment system as it has been for the last 30 years.

Perceived Behavioral Control: Self-Efficacy

“Completely disagree,” 1; “completely agree,” 7.

1. My past experience increases my confidence that I

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