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# Technological Disasters, Litigation Stress, and the Use of Alternative Dispute Resolution Mechanisms\*

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*The legal system in the United States is uniquely conflict-oriented, expensive, and legalistic. From the perspective of victims, we contend that adversarial litigation is particularly ineffective as a means of resolving conflicts that typically ensue in the aftermath of technological disasters. The purpose of this paper is threefold. First, we discuss why the psychosocial impact of litigation on litigants following a technological disaster is particularly damaging. Second, examining longitudinal data collected following the Exxon Valdez oil spill, we demonstrate that the litigation process itself functions as a source of secondary trauma for litigants. Third, we provide suggestions for bypassing the litigation process altogether, via alternative dispute resolution mechanisms.*

*Although it may be that we have exchanged swords and cudgels for subpoenas and depositions, an aura of combat continues to hover about the judicial process, and combat produces casualties. Strasburger (1999: 203)*

## I. INTRODUCTION

The United States has experienced a litigation explosion in the last three decades which has profoundly transformed all aspects of social life (Garry 1997; Olson 1991). This greater reliance on litigation for dispute resolution, in part, may be the outcome of increasing societal complexity and heterogeneity (Auerbach 1983; Sarat & Grossman 1975). Such universal claims, however, belie the potential importance of nation-state specific explanations. For instance, from a review of studies that compare the legal systems and regulatory processes of economically advanced democratic nations,

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Kagan concludes that the United States' legal system is more: (1) complex, with detailed bodies of legal rules; (2) formal, with adversarial procedures for resolving political and scientific disputes; (3) costly, with litigant-dominated forms of legal contestation; (4) punitive, with greater reliance on legal sanctions; (5) invasive, with judicial intervention into administrative decision-making; (6) politically controversial, especially regarding legal rules and institutions; and (7) legally obscure, malleable, and unpredictable (for a review, see Kagan 2000: 8–11, 1996: 24–6). In order to capture this relatively unique constellation of features, Kagan (1991, 1996, 2000) coins the term “adversarial legalism.” In short, adversarial legalism in the United States is uniquely conflict-oriented, expensive, and legalistic (Kagan 2000) and has increasingly become the dominant legal paradigm (Kagan 1996).

A more elemental understanding of adversarial legalism warrants a brief discussion of two different types of adjudication – the inquisitorial and adversary systems (Sward 1989). Historically, the inquisitorial system of adjudication was developed in continental Europe and is now widely used throughout the world. The defining feature of this system is that the judge, rather than waiting to review the evidence during trial, actively participates by supervising the gathering of evidence (*ibid.*). In contrast, the central feature of the adversary system of adjudication is that evidence is gathered and presented by the parties themselves (*ibid.*). Unlike the more communitarian inquisitorial system, the adversary system is individualistic and evidence is gathered to support the respective parties' interests and legal arguments. The judge does not see the evidence until trial (*ibid.*).

The ineffectiveness of adversarial legalism, an exemplar of the adversary system of adjudication, is most revealed in complex litigation (*ibid.*). The litigation process that ensues in the aftermath of catastrophic technological disasters is complex due to the legal and regulatory fragmentation of authority, the scientific nature of factual information and the degree of scientific uncertainty, and the inclusion of multiple parties. Litigation involving factually complex scientific information requires that both plaintiffs and defendants rely on paid experts to collect and analyze data (*ibid.*). With adversarial adjudication, the judge, with no prior knowledge of the case or subject matter, must choose between competing scientific claims presented by opposing experts (*ibid.*). Clearly, a more non-adversarial, inquisitorial system of adjudication is appropriate in factually complex, multiparty litigation, such as toxic tort cases that result from technological disasters. Numerous non-adversarial elements have emerged as alternative procedures under the Federal Rules of Civil Procedure (*ibid.*).

A consensus is building that the recent litigation explosion and adversarial legalism are scourges on society (Garry 1997). Espousing neo-liberal rhetoric, corporations, insurance companies, and legal scholars lament that litigation decreases profitability, drives corporations to foreign countries, increases insurance premiums, and imposes countless regulations on the economy (*ibid.*). Essentially, these groups are concerned about the impact

of adversarial legalism on the economic well-being of, in most cases, the defendants. This one-sided perspective misses a more unfortunate ramification of adversarial legalism, the devastating impact of protracted litigation on the social and psychological well-being of plaintiffs. Noting the dearth of inquiry on the effects of litigation on litigants, Relis appropriately exclaims: "But shouldn't litigants be at the core of our interests? After all, civil litigants are the users, the consumers of the civil justice system, which exists ostensibly for them and provides them with this highly important service" (2002: 152).

The purpose of this article is threefold. First, we discuss the reasons why the psychosocial impact of adversarial legalism on litigants in the aftermath of technological disasters is particularly damaging. Second, by examining longitudinal data collected following the *Exxon Valdez* oil spill (EVOS) in Cordova, Alaska, we empirically demonstrate that the litigation process itself functions as a source of secondary trauma for litigants, exacerbating existing stress stemming from the original disaster event. Third, we provide suggestions for bypassing the litigation process completely, via alternative dispute resolution (ADR) mechanisms. Three examples of the successful use of ADR mechanisms are discussed as a means of resolving disputes and enhancing the social and psychological recovery of victims.

## II. TECHNOLOGICAL DISASTERS, LITIGATION, AND PSYCHOLOGICAL STRESS

Seminal research on disasters noted the distinction between natural disasters as "acts of God" and technological disasters as "human-caused" (Barkun 1974; Fritz 1961). Yet, it was not until the late 1960s and 1970s with the emergence of large-scale, human-caused disasters that the social and psychological relevance of this distinction became apparent and thus a worthy area of study (Marshall, Picou & Gill 2003). Since the late 1960s, the United States has experienced many notable large-scale technological disasters – for example, the Santa Barbara oil spill (California), Three Mile Island (Pennsylvania), Love Canal (New York), and the *Exxon Valdez* oil spill (Alaska). Perhaps less newsworthy, but damaging nonetheless were eighty-seven large-scale chemical incidents that occurred between 1970 and 1998 (Baxter 2002), as well as toxic train derailments and the repeated discovery of localized toxic contamination (Edelstein 1988; Gill & Picou 1998; Picou & Rosebrook 1993). These are ominous trends, especially considering that researchers have found consistent empirical evidence that technological disasters create a far more exacting and enduring pattern of social, psychological, economic, and cultural impacts than do natural disasters (Erikson 1994; Freudenburg 1997; Kroll-Smith & Couch 1990; Kroll-Smith, Couch & Levine 2002).

Norris et al. (2001), in a comprehensive review of disaster studies, evaluated 177 articles that analyzed the psychological effects of disasters on 130 distinct

samples of victims. Of the disasters studied, 62 percent were natural disasters, 29 percent technological disasters, and 9 percent mass violence. Of the 130 distinct samples of victims, specific psychological problems were found in nearly three-quarters (74 percent) of the samples and post-traumatic stress disorder (PTSD) was found in approximately two-thirds (65 percent) of the samples. These researchers conclude that technological disasters in the United States were more psychologically stressful than natural disasters (Norris et al. 2001). Furthermore, evidence indicates that victims of technological disasters exhibit symptoms characteristic of PTSD (Arata et al. 2000; Baum & Fleming 1993; Green 1991; Havenaar & van den Brink 1997; Picou & Gill 1996, 2000).

In addition to psychological stress, researchers have documented the debilitating consequences of technological disasters at the community level (Arata et al. 2000; Baum & Fleming 1993; Brown & Mikkelsen 1989; Edelstein 1988; Erikson 1994; Picou & Gill 2000; Picou, Marshall & Gill 2004). Chronic patterns of personal distress typically produce a "corrosive community," in which community solidarity is attenuated and social isolation increases (Freudenburg 1993, 1997, 2000). The psychosocial impacts of technological disasters have been described as a "complex of distress, dysfunction and disability manifested in a wide range of psychological, social and behavioral impacts to individuals, groups and communities as a consequence of actual or perceived environmental contamination" (Taylor et al. 1991: 441).

Given the evidence of psychological stress and community damage, the following research question comes to fore: what are the factors, typically present in (but not restricted to) the aftermath of technological disasters, that lead to such dramatic social and psychological impacts? The three factors that have received considerable attention are: (1) perceptions of governmental failure (Couch 1996; Freudenburg 1993, 2000; Marshall, Picou & Gill 2003); (2) uncertainty regarding the mental and physical health of victims (Arata et al. 2000; Baum & Fleming 1993; Green 1991; Marshall, Picou & Gill 2003; Picou & Gill 1996, 2000); and (3) protracted litigation (Gill & Picou 1991; Marshall, Picou & Gill 2003; Picou 1996a, 1996b; Picou, Marshall & Gill 2004; Picou & Rosebrook 1993). To reiterate, we suggest that this latter factor, protracted litigation, is a source of psychological stress and community damage above and beyond the impact of the disaster itself (Picou, Marshall & Gill 2004).

Litigation "implies three distinct elements: first, a *claim*, that is, an active attempt to attain some valued end; second, a *dispute* or conflict, in other words, resistance to the claim; and third, the use of a specific institution, the *court*, to resolve the conflict or dispute" (Friedman 1989: 18, emphasis in original). An outcome of adversarial legalism is that the litigation process itself, independent of the event which initiated the claim, is a source of stress for litigants (Cohen & Vesper 2001; Lees-Haley 1988; Strasburger 1999). More succinctly, "[t]here is an inherent irony in the judicial system in

that individuals who bring suit may endure injury from the very process through which they seek redress. The legal process itself is often a trauma" (Strasburger 1999: 204). Lees-Haley (1988) coined the term "Litigation Response Syndrome" to refer to the anxiety, depression, or stress caused by litigation. In a similar vein, Cohen and Vesper (2001) make a stronger claim by arguing for a new diagnostic category, designated as "Forensic Stress Disorder".

In short, the litigation process can be a traumatic experience for some people, manifesting itself in multiple symptoms (Cohen & Vesper 2001; Lees-Haley 1988; Strasburger 1999), many of which are characteristic of PTSD (Strasburger 1999). Unfortunately, victims of technological disasters are dealt a double blow. First, they must endure the initial trauma of experiencing real or perceived toxic contamination from the disaster-event. Second, their only formal avenue of seeking redress is through an adversarial legal process that is also a source of chronic social disruption and psychological stress. Adversarial adjudication results in a "secondary disaster" that continues over time, preventing timely disaster recovery.

### III. THE *EXXON VALDEZ* OIL SPILL: A CASE STUDY OF ADVERSARIAL LITIGATION

Shortly after midnight on 24 March 1989, Exxon's largest oil transportation vessel, the *Exxon Valdez* became impaled on a well-marked reef and leached more than eleven million gallons of oil into the pristine ecology and fishing grounds of Prince William Sound, Alaska. The death toll to seabirds, bald eagles, sea otters, seals, whales, fish, and other marine life was staggering. As damaging as the spill itself was, the complete response failure that followed made things worse. Those legally responsible for the implementation of spill-reaction contingency plans did not have any equipment or personnel available (Picou, Gill & Cohen 1997). Exxon's ownership of the vessel and cargo was indisputable and their liability for the spill was obvious. Lawrence Rawls, Exxon's chairman, stated on "Face the Nation," one week after the spill, that Captain Joseph Hazelwood was drunk at the time and it was a "gross error" and "bad judgment" by Exxon's management to allow Hazelwood to captain the vessel, given his history of alcohol abuse. At first glance, common sense suggested the case against Exxon was clear-cut. Yet, once foisted in the labyrinth of an adversarial system of adjudication, we can see that the case has been reconstructed as anything but clear-cut.

More than five years after the spill, following a very aggressive discovery phase during which Exxon's attorneys focused on reducing damage claims and deposing thousands of plaintiffs, the trial began on 2 May 1994. Prior to the trial, Exxon deposed "every commercial fisherman, Alaska Native, and anyone else who brought an individual case and required these plaintiffs to produce tax returns, business records, and other documents related

to their damages” (Hirsch 1997: 280). Exxon also subpoenaed scientific information from independent experts, attempting to secure any data and confidential information that would be potentially damaging to Exxon’s position during the trial (e.g., see Marshall 1993; Picou 1996a, 1996b). The result of this aggressive and intrusive legal strategy was that many damage claims of plaintiffs were dismissed, independent social scientists were diverted from projects, and “tens of millions of dollars” were spent for expert reports and the depositions of hundreds of expert witnesses for both plaintiffs and defendants (Hirsch 1997: 280).

The trial ended on 16 September 1994, with the jury awarding a \$5.2 billion punitive damage verdict for the 40,000-plus plaintiffs involved in the case. Exxon’s attorneys filed repeated motions to overturn the jury verdict, to depose jurors, to depose newspaper reporters, to overturn the punitive damage award, to have a new trial and, in general, to appeal any plaintiffs’ actions that occurred in response to Exxon’s legal strategy. On 24 September 1996, more than two years following the trial, judgment was entered on the jury verdict and the award was now subject to interest payments. So, seven years following the most devastating technological disaster in the history of North America, the trial verdict was recognized.<sup>1</sup>

To date, Exxon has continued its relentless legal strategy of “legitimate” frivolous appeals and motions for a new trial. On 3 May 1999, Exxon filed appeals in the Ninth Circuit Court for a new trial and reduction of the punitive damage award from the original jury verdict. Three years later, the Ninth Circuit Court of Appeals remanded the case to the United States District Court for the District of Alaska, stating that the “5 billion punitive damages award is too high to withstand the review we are required to give it under BMW and Cooper Industries” and “it must be reduced.”<sup>2</sup> The Federal Court for the District of Alaska ruled that the \$5.2 billion damage award “was justified” and “is not grossly excessive” (ibid.: 50). Undaunted by such rulings and in accordance with its legal strategy, Exxon’s attorneys have vowed to take the case to the U.S. Supreme Court.

Exxon claims that they are simply “exercising a fundamental right to appeal these damages, a right to which every American individual and company is entitled. This is a core value of our judicial system . . .” (cited in Picou 2002). Legal rights aside, there are very practical reasons for delaying proceedings as long as possible. For instance, in 1998 the *Anchorage Daily News* reported:

Apparently, delay pays. Exxon is earning \$90,000 an hour, about \$2 million a day or nearly \$800 million a year, on the same \$5 billion as long as the case drags on and the money stays in its coffers. As it stands now, if the appeals linger a couple more years, Exxon will have earned enough interest alone to pay the \$5 billion plus the accrued interest. (Picou 2002)

In short, after the reckless destruction of the ecology and fisheries of Prince William Sound, Exxon’s legal strategy has resulted in over fourteen years of costly court deliberations and the denial of the allocation of damage

awards to the victims of the spill. The adversarial techniques deftly used by Exxon can be summarized as follows:

1. Retain the best attorneys money can buy and aggressively attack plaintiffs in every manner possible.
2. Hire scientists to collect and analyze data in an effort to “debunk” damage claims made by independent and/or plaintiff-sponsored scientists, thus creating “reasonable doubt” through the selective use of “scientific uncertainty.”
3. Deny all non-economic damage claims by attacking the credibility of independent and/or plaintiff-sponsored social scientists and preventing this data from being admitted as court evidence.
4. Use biased accounting strategies to overestimate costs to the defendants and underestimate the damages to victims.
5. Hire law professors and other legal scholars to publish legal position papers that support “legitimate” claims against punitive damages and monitor relevant, ongoing legal cases.
6. Organize a massive public relations campaign that “deconstructs” what really happened and “reconstructs” an “all clear signal,” pronouncing that the spill damages are gone and all victims (ecological and human) have recovered.

Many of the aforementioned techniques are regularly employed by corporate defendants in mass tort cases in an attempt to win the case or, at least, minimize the costs of reparation and restoration of damages. Ultimately, these strategies serve to delay court proceedings by any means necessary for as long as possible, no matter how “frivolous” the legal challenge. Such delay tactics, available to corporations with “deep pockets,” exhaust the financial and coping resources of victims, their attorneys, and experts. Winning by attrition may seem unethical and brutish, but successfully operating within a system of adversarial legalism necessitates such tactics. As such, adversarial legalism becomes a game unto itself, with its own internal logic, language, and set of formal rules and procedures – a game disconnected from the real world in which lawyers for both the defendants and plaintiffs make decisions that may not reflect the best interests of their respective clients. Lawyers who profit from such a system have acquired greater incentives and opportunities to extend adversarial legalism even further (Kagan 1996).

Although successful from Exxon’s standpoint, adversarial litigation and delay tactics have had very real psychosocial impacts on the victims of EVOS. In support of this claim, we will review findings of research (Picou, Marshall & Gill 2004) that examined the impact of litigation, relative to other hypothesized factors, on victims of the EVOS. We also provide further analysis, updating earlier work by including EVOS data collected in 2000. The data used in this manuscript were collected in 1991, 1992, 1995, 1997, and 2000 in Cordova, Alaska.<sup>3</sup> Cordova is located in southeastern Prince William Sound, is geographically isolated, and its population varies from 3,500 residents during the summer fishing season to less than 2,000

during the winter. Cordova was selected as an "impact" community because it is economically dependent on commercial fishing and characterized by culturally prescribed subsistence behaviors.

The Impact of Events Scale (IES), developed by Horowitz and Associates (1974, 1979), consists of 15 items anchored to a specific event and a particular time frame. This indicator of event-related stress is a reliable measure and has been found to be correlated with clinical diagnoses of PTSD and stress-related illness (Baum & Fleming 1993). The IES contains two subscales that measure intrusive recollections (intrusive stress) of the spill, as well as one's avoidance of spill-related reminders (Picou & Gill 1996). In the present study, psychological stress is operationalized by creating a simple additive scale consisting of the seven questions measuring event-related intrusive stress.<sup>4</sup> With the use of the 1991/1992 data and structural equation modeling, it was found that "being a litigant" had the largest indirect effect – relative to gender, marital status, and occupation (fishing-related occupation or not) – on intrusive stress. Furthermore, "litigation stress" had a stronger direct effect on intrusive stress than the other mediating variables – disruption of work, a lack of trust in institutions (recreancy), perceptions of an increased risk for future spills (oil spill risk), and community attachment – in the model (see Picou, Marshall & Gill 2004).

Presented in Table 1 are intrusive stress mean scores for litigants and non-litigants over time. The data illustrate that intrusive stress levels for litigants vary over time, with no obvious linear pattern. The increased stress level from 1992 to 1995 is most likely due to loss of resources from the spill, including herring and salmon fisheries, concerns about the contamination of Prince William Sound, and uncertainty regarding the litigation process (Arata et al. 2000). The decrease from 1995 to 1997 may partially reflect the success of a clinical intervention program, designed to alleviate psychological stress, initiated in January 1996 and completed in February 1997 (Picou 2000, Prince William Sound Regional Citizen's Advisory Council 1999). The most telling finding is that, for litigants, event-related intrusive stress is higher (14.74) in 2000, eleven years after the spill, than in 1991 (12.46) and 1992 (11.78). Also, compared to litigants, we can see that non-litigant intrusive stress levels are notably lower for 1991, 1992, and 2000 and these mean differences are statistically significant at the  $p < 0.001$  level. What is more, these mean differences increase over time, suggesting that post-disaster recovery for litigants is impeded by the litigation process.

In Table 2, main cell entries are standardized regression coefficients from intrusive stress regressed on education, gender, occupation, and litigation status. We expect that the less-educated, women, people in fishing-related occupations, and litigants will have higher levels of intrusive stress than their respective counterparts (Picou & Gill 1996). In 1992 and 2000, gender and education are not statistically significant predictors of psychological stress. In 1992, occupation (1 = fishing-related occupation, 0 = other occupations) and litigation status (1 = litigant, 0 = non-litigant) are statistically significant

Table 1. Mean Intrusive Stress Scores for Litigants and Non-Litigants from 1991 to 2000

| Intrusive stress score<br>(0–35) | Survey year |            |             |            |             |
|----------------------------------|-------------|------------|-------------|------------|-------------|
|                                  | 1991        | 1992       | 1995        | 1997       | 2000        |
| Litigant mean                    | 12.46 (101) | 11.78 (74) | 15.65 (120) | 13.39 (85) | 14.74 (103) |
| Non-litigant mean                | 7.09 (127)  | 5.94 (89)  | na          | na         | 6.90 (87)   |
| Mean difference                  | 5.37*       | 5.84*      | –           | –          | 7.84*       |

Notes: Main cell entries are means; parenthetical entries are the number of respondents (n)

\* Independent samples t-test statistically significant at the  $p < 0.001$  level

Table 2. Standardized and Un-Standardized Regression Coefficients from the Regression of Intrusive Stress on Education, Gender, Occupation, and Litigation Status

| Independent variables            | Survey year              |                          |
|----------------------------------|--------------------------|--------------------------|
|                                  | 1992                     | 2000                     |
| Education                        | –0.08 (–0.28)            | –0.07 (–0.45)            |
| Gender (female = 1)              | 0.06 (1.05)              | 0.03 (0.55)              |
| Occupation (fish-related = 1)    | 0.20 (3.45) <sup>a</sup> | –0.04 (–0.91)            |
| Litigation status (litigant = 1) | 0.23 (3.75) <sup>b</sup> | 0.44 (8.84) <sup>c</sup> |
| R <sup>2</sup>                   | 0.15                     | 0.19                     |
| N                                | 148                      | 179                      |

Notes: Main cell entries are standardized regression coefficients; parenthetical cell entries are un-standardized regression coefficients

<sup>a</sup> significant at the  $p < 0.05$  level

<sup>b</sup> significant at the  $p < 0.01$  level

<sup>c</sup> significant at the  $p < 0.001$  level

predictors of intrusive stress. The standardized regression coefficients indicate that the relative explanatory power of litigation status ( $\beta = 0.23$ ) is slightly greater than for occupation ( $\beta = 0.20$ ). In 2000, litigation status is the only statistically significant predictor of intrusive stress, explaining nearly one-fifth ( $R^2 = 0.19$ ) of the total variance in spill-related intrusive stress. These results reveal the increasing significance of litigation over time for producing chronic patterns of psychological stress for victims of the largest and most ecologically damaging oil spill in the history of North America.

Commercial fishermen and people in occupations dependent on the fishing industry were arguably the most severely effected by the oil spill. Even today, fishing has not rebounded to pre-spill levels. The most notable finding in Table 2 is that while litigation status has become a relatively stronger predictor of intrusive stress from 1992 to 2000, occupation is no longer a significant predictor in 2000. Put differently, twelve years after the oil spill, Cordova's

chief means of economic sustenance, commercial fishing, has not recovered and litigation continues unabated, but only the latter has significant consequences for predicting intrusive stress. The adversarial legalism strategy used by Exxon's lawyers, and the fact that victims who choose to be litigants are increasingly stressed, provide empirical evidence of the enduring, secondary trauma experienced by plaintiffs. As such, it appears that adversarial adjudication creates a context that produces more damage than good for victims of human-caused, toxic disasters.

#### IV. ALTERNATIVE DISPUTE RESOLUTION MECHANISMS

There are two general approaches to mitigating the psychosocial impact of adversarial adjudication on litigants and promoting timely recovery for victims. The first approach, in post-disaster scenarios where adversarial litigation is unavoidable, is the implementation of a long-term clinical intervention program to untangle and mitigate the psychosocial stress associated with two sources – the disaster itself and the litigation process (PWSRCAC 1999). The ability clinically to diagnose someone with Litigation Response Syndrome (Lees-Haley 1988) or Forensic Stress Disorder (Cohen & Vesper 2001) would provide additional diagnostic evidence of the negative effects of adversarial adjudication and inform the development of culturally appropriate intervention programs (Picou 2000). The second, and preferable, approach is to employ non-adversarial mechanisms currently available in modern litigation, thus reducing the potential negative impacts of litigation. Examples of such mechanisms, which we will collectively refer to as “ADR,” include negotiation, mediation, arbitration, mini-trials, and the use of independent court-appointed experts (Sward 1989). ADR techniques are essentially cooperative rather than conflictual (*ibid.*) and generally operate outside of the formal court system (Friedman 1989). It is worth noting that ADR mechanisms in general, and the three cases presented below, reflect, in principle, the broader argument by criminologists for restorative justice rather than traditional justice (see, e.g., Siegel 2003: 271–5).

##### A. COURT-ORDERED RESEARCH: INDEPENDENT DAMAGE ASSESSMENT<sup>5</sup>

On 28 September 1982, at 5:12 AM, an Illinois Central Gulf Railroad (ICGR) freight train derailed in Livingston, Louisiana, a small rural community located approximately twenty miles east of Baton Rouge. A total of forty-three cars derailed and thirty-six were tank cars that contained hazardous and toxic materials. All 2,500 residents of the community were evacuated within hours following the accident and the excavation lasted from fourteen to seventeen days (Picou 1984, 1996b; Picou & Rosebrook 1993). Fires were ignited by the accident and burned for two weeks. Explosives were used to stop the burning and the release of chemicals into the air. The derailment

resulted in massive contamination of a ten-acre site. More than five million pounds of chemicals were burned, vaporized, or leached into the ground. More than 96,000 cubic yards of soil were eventually removed from the derailment site (Gill & Picou 1991; Picou & Rosebrook 1993).

On 4 October 1982, a petition for recognition of a class action suit for damages and losses sustained as a result of the derailment and subsequent events was filed in the Twenty-First Judicial District Court (the court) of the state of Louisiana. On 18 October 1982, the court recognized the proceedings as a class action. Eleven days later, the Gulf South Research Institute (GSRI) was appointed as the court's expert, and was directed to prepare a proposal for an independent assessment of the ecological, physical, economic, sociological, and psychological damages arising from derailment-related events. A proposal was submitted to the court which, although proposing that GSRI work with ICGR, its representatives, and contractors, also proposed to conduct an independent assessment in each of the five study areas identified by the court. The proposal, with estimated costs approaching one million dollars, was submitted on 15 November 1982. On 2 December 1982, the court ordered GSRI to begin work on certain portions of the assessment as set forth in the proposal (Picou & Rosebrook 1993).

Attorneys for ICGR appealed both the recognition of the class action suit and the appointment of experts by the court for independent assessments. The appeals were pursued to the Louisiana Supreme Court, but were eventually denied. This final action came in September 1983. The court ordered the plaintiffs to post initial funds for the study according to its previous order of 2 December 1982. On 22 January 1984, the court ordered GSRI to begin research on all phases of the assessment according to the original proposal.

The court provided guidance to GSRI throughout all phases of the study. The final reports were completed and all information was provided to the court and shared with parties involved in the litigation (Picou & Rosebrook 1993). A tentative settlement of the class action suit was reached in March 1985, prior to the scheduled trial date. The settlement agreement required the technical experts from all involved parties to participate in a court hearing. The panel was composed of representatives of the Louisiana Departments of Health, Environmental Quality, and Public Safety, GSRI, ICGR, ITC and two of its subcontractors, and a toxicological consultant. Local television stations were allowed in the courtroom, and experts, under oath, were seated in a panel discussion format in a non-adversarial atmosphere. During three days of proceedings, questions were allowed from defense and plaintiff attorneys, the bench, and interested citizens. The primary objective of this hearing was to provide the court and the citizens of Livingston with objective scientific information on potential threats to their present and future health and the social, economic, and psychological impacts that resulted from the derailment and subsequent contamination (Picou & Rosebrook 1993).

The findings of scientific damage assessment completed on behalf of the court, as contained in final reports and brought out at the hearing provided a non-adversarial context, led to a rational, information-based settlement within two years. This timely response to a catastrophic train derailment and toxic spill provides an example of how one state court organized and facilitated an alternative resolution to a toxic tort case that could have lasted for decades.

#### B. NEGOTIATED PARTNERSHIP BETWEEN COMMUNITY AND COMPANIES

This case involved a solvent contaminated industrial site in Groton, Massachusetts, with ongoing operations by two companies and down-gradient homeowners impacted by off-site migration of contaminated groundwater. The attorney had been contacted by some of the homeowners who had recently been informed by local health officials that their private wells may be contaminated with low levels of solvents. Testing soon thereafter revealed some of the down-gradient private drinking wells contained trace levels of solvents (Schlichtmann 2003).

The attorney assisted the community of down-gradient property owners formally to organize into "Concerned Citizens Against Contamination" (CCAC). CCAC was an unincorporated association that had a steering committee and officers. CCAC publicly announced its formation and its pledge to work with local, state, and federal officials, and those potentially responsible in an effort to understand what happened and determine what should be done. CCAC opened discussions with the officials, which subsequently resulted in the down-gradient community changing from private wells to town water. The community's attorney approached the companies' attorneys about entering into discussions about the problem. The companies stated they saw no need to have such discussions. The companies' position was that the problem was a "regulatory matter" and since they were involved in discussions with state environmental officials, there was no need to discuss matters with the community (*ibid.*).

CCAC and their attorney developed a cooperative and supportive relationship with state regulatory officials resulting in a formal establishment of a "Technical Advisory Committee" chaired by the state environmental agency with representatives of the companies, local officials, and representatives of CCAC. Through this body CCAC and their attorney developed trust between regulators, the companies, and town officials. Eventually, the companies agreed to negotiations with CCAC regarding issues stemming from the off-site migration of contaminants. After several months of negotiations, the parties entered into a settlement of their issues. The settlement provided funds for property protection and health security. The settlement also included an agreement in which CCAC and the companies agreed to work in "partnership" to gain regulatory approval of the companies' cleanup program. Because of the cooperative approach, the companies were able

to institute a cost-effective cleanup plan on the front end – a saving of time and money with direct benefits to both the community and the companies. The relationship was so successful between CCAC and the companies that CCAC's attorney was able to facilitate a settlement with the companies and the town's claim for costs associated with the connection of residents to the town water supply (*ibid.*).

#### C. PARTY NEGOTIATED STAND-STILL AGREEMENT AND MEDIATED SETTLEMENT

Beginning in the mid-1990s a number of families in Toms River, New Jersey, whose children had contracted cancer, became concerned after the public release of the New Jersey cancer registry data which suggested a higher than expected incidence of some forms of cancer among certain groups of children in the area. Many feared that there was a link between the childhood cancers and environmental contamination. There had been longstanding concern in the community for the city drinking-water supply and several suspected sources of potential contamination. Two of these sources concerned Superfund sites within a mile or so radius of the city well field. Cleanups at the two sites had been underway for many years by two large chemical companies. Eventually, the New Jersey Department of Health and Human Services and the Agency for Toxic Substances and Disease Registry undertook to review the available data and conduct an extensive health study (*ibid.*).

After retaining counsel, several of the afflicted families joined together in a group they called TEACH (Toxic Environments Affect Children's Health). Eventually, this group consisted of 69 families. Each family had a child who was presently suffering or who had suffered cancer and had resided in the Toms River Community and had been a user of the Toms River water supply prior to diagnosis (*ibid.*).

The families and their counsel were concerned about protecting their rights against any parties they believed responsible for the situation. The companies were fearful about being unfairly singled out for blame and subjected to what they considered to be unfounded litigation. The magnitude and complexity of the issues involved was evident to all parties, as was the fact that any litigation would likely consume enormous resources with no certain outcome. All parties were aware that full-scale mass toxic tort litigation over the issue could take many years, consume millions of dollars, and polarize the responsible parties and the community (*ibid.*).

Due to a fortuitous relationship between one of the counsel for the families and one of the companies' counsel, direct communications began between the parties in late 1997. These communications eventually led to more extensive discussions between counsel for the families and counsels for the chemical companies, and the Toms River Water Company. The talks eventually resulted in the families and the companies entering into a

“Tolling/Standstill Agreement” that was executed on 1 February 1998. The “Standstill” agreement established a period of time during which all rights were preserved and no litigation could be instituted so that the parties could engage in a dialogue to encourage the sharing of information and the discussion of concerns (*ibid.*).

The “Standstill” period originally set for eighteen months was extended for another term. Through these discussions the parties in the latter part of 2000 agreed to bring in Eric Green of Resolutions LLC to assist the parties in a more formal and facilitated process. This more formal, rigorous, but non-adversarial, process, required the parties under Green’s supervision to engage in an extensive exchange of detailed factual, scientific, and technical information and expert research and reports concerning the environmental and childhood health issues. As detailed and rigorous as the information exchange process was, it was also far more efficient than that which usually occurs through the discovery process in complex litigation. The exchange of information was done in a non-adversarial manner and in a context that allowed for an open presentation and discussion of facts, data, and expert opinion (*ibid.*).

Although the process ranged over the better part of 2001, there was no meeting of the minds regarding whether there was a link between the potential sources of contamination and the incidence of cancer. The rigorous and detailed exchange of information served to demonstrate that the parties had substantially different views and opinions regarding the conclusions from the available data. However, with Green’s assistance, the extensive exchange of information and views, and the productive and cooperative approach, led the parties to see their mutual self-interest in attempting to fashion a resolution. Over time, the process evolved into a more traditional mediation context. After a great deal of time and painstaking effort, Green was able to facilitate a workable and mutually acceptable resolution of the dispute. Toward the end of 2001, the families and the companies finally came to terms regarding closure of the matter. A settlement was announced and court approval of the settlement terms related to family members who were still minors occurred in December 2001 (*ibid.*).

## V. DISCUSSION AND CONCLUSION

We have argued that particular legal strategies, part and parcel of adversarial legalism, are ineffective at resolving disputes in factually complex, multiparty lawsuits. More specifically, delay tactics resulting in protracted litigation have direct negative social and psychological impacts on victims of large-scale technological disasters. Protracted litigation is a secondary source of stress, independent of the event-related stress caused by the disaster, which impedes timely recovery for victims. In support of this claim, we initially outlined the legally based delay tactics employed by Exxon’s lawyers

in the aftermath of EVOS. Second, by summarizing extant research, we demonstrated that “being a litigant” has a strong indirect effect and “litigation stress” has a strong direct effect on event-related psychological stress for plaintiffs in the Exxon case. Third, updating earlier research on the EVOS with data collected in 2000, we found that intrusive stress levels are higher for litigants than non-litigants over time and stress levels for litigants were higher in 2000 than in 1991. Also, evidence indicated that “being a litigant” was the strongest predictor, relative to other hypothesized relationships, of psychological stress in 1992 and the only significant predictor in 2000. The corporate strategies used in EVOS litigation are less an exception and more the rule in lawsuits that follow technological disasters.

We concluded by advocating the use of alternative dispute resolution (ADR) mechanisms as a means of circumventing adversarial litigation and mitigating its attendant, long-term psychosocial impacts. We provided brief summaries of the three cases in which ADR mechanisms were used successfully. The court-order research in the train derailment case in Livingston (Louisiana), the negotiated partnership in the contaminated well-water case in Groton (Massachusetts), and the standstill agreement and negotiated settlement in the contaminated drinking water case in Toms River (New Jersey) illustrate the successful use of ADR mechanisms. In each case, ADR mechanisms avoided the pitfalls of adversarial adjudication, averting what otherwise could have been an intractable, divisive, and destructive clash of interests.

Some of the lessons learned from these cases include:

1. Court-ordered scientific research provides an inquisitorial option for reducing conflict over complex factual information.
2. It is never too early to begin a dialogue between all parties involved in a toxic tort issue.
3. A formal agreement to protect rights and suspend potential conflict is essential to foster meaningful interaction and focus productive energy.
4. Parties working cooperatively can exchange the critical information needed to evaluate their position more efficiently in a non-adversarial context.
5. The services of an experienced neutral facilitator, who earns the respect of the parties and has the skills to facilitate the exchange of information, can enhance a satisfactory, timely outcome.

We fully understand that ADR mechanisms are not a panacea, but the successful use of these mechanisms may, albeit incrementally and accumulatively, offer a framework to avoid the protracted revictimization process that characterizes survivors of catastrophic technological disasters.

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#### NOTES

1. This information was obtained from the Survivors of the *Exxon Valdez* Oil Spill, the official website of the *Exxon Valdez* victims. The ten-year timeline of *Exxon Valdez* litigation can be found at <http://www.jomiller.com/exxonvaldez/articles/timeline.html>. Also see France (1996) and Hirsh (1997).
2. Order No. 358, Renewed Motion for Reduction of Punitive Damage Award, 2 December 2002: 15. Punitive damage awards must be based on a due process analysis stemming from the decision of the U.S. Supreme Court in *BMW of North America, Inc. v Gore* (1996). The significance of the *BMW* guideposts in determining the limits of punitive damages was reinforced in *Cooper Industries, Inc. v Leatherman Tool Group, Inc.* (2001).
3. The surveys conducted in 1991, 1995, and 2000 were designed as geographically stratified, random household samples of residents of Cordova, Alaska. The surveys conducted in 1992 and 1997 were follow-up surveys to the 1991 and 1995 surveys, respectively. For a more thorough description of the research design and data-collection methods, see Arata et al. (2000), Picou et al. (1992), and Picou and Gill (1996).
4. The exact wordings of the stem and the seven intrusive stress items were as follows (see Picou, Gill & Cohen 1997).

*Stem*: An accident like the *Exxon Valdez* oil spill can affect people in different ways. These effects may last long after the actual accident. Please read the following statements made by people after some other stressful life events. For each statement, please indicate how often it was true for you about the spill during the past seven days. It might not have happened at all during the past week, or during the past week, it might have occurred only rarely, sometimes, or often.  
*Stress Items*: (1) I thought about it when I didn't want to (the thought of the spill just popped into my mind); (2) Pictures about it popped into my mind; (3) Other things kept making me have thought about it (even when I didn't want to); (4) I had dreams about it; (5) I had trouble falling asleep or staying asleep because pictures or thoughts about it came into my mind; (6) I had waves of strong feelings about it (feelings about it just seemed to wash over me); (7) Reminders of it brought back feeling I first felt about it.

5. This section is based on previous research. For more information, see: Picou (1984), Gill and Picou (1991), Picou and Rosebrook (1993), and Picou (1996b).

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