Estimation of Liabilities Due to Inactive Hazardous Waste Sites

by Raja Bhagavatula, Brian Brown, and Kevin Murphy

"ESTIMATION OF LIABILITIES DUE TO INACTIVE HAZARDOUS WASTE SITES"

Abstract:

The potential liability associated with inactive hazardous waste sites can be large for both policyholders and insurance companies. Our paper outlines several methods that can be used to estimate and monitor insurance company and/or policyholder liabilities associated with inactive hazardous waste sites. We have outlined several publicly available data elements which can be helpful in evaluating environmental liabilities.

None of the procedures described in this paper provide "the method" to analyze environmental liability exposures. For financial reporting purposes, company management needs to evaluate the details of its own exposures and judge the ultimate cost based on current facts and financial reporting principles.

Additionally, this paper summarizes the legal issues involved in environmental coverage disputes between insureds and insurance companies. For the past ten years issuers of CGL policies and their policyholders have engaged in a protracted struggle to determine whether or not environmental liabilities are entitled to defense and indemnity under CGL policies. This paper discusses major coverage issues such as what constitutes a "suit", whether it results in "damages", whether it was "sudden and accidental", etc., upon which the primary battle lines between insurers and insureds are drawn. Although the legal landscape of environmental insurance coverage is becoming clearer, many of these and other issues have not been decided in a number of jurisdictions.

Biography:

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"ESTIMATION OF LIABILITIES DUE TO INACTIVE HAZARDOUS WASTE SITES"

INTRODUCTION

Property and casualty insurance companies are under increasing pressure to set aside large sums for clean-up costs and other damages associated with inactive hazardous waste sites. A significant portion of this potential liability arises from commercial general liability (CGL) policies issued between ten and thirty years ago or more.

The clean-up cost liabilities arise from the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) passed in 1980. This act is commonly known as Superfund and it provided a financial mechanism for funding the clean-up of inactive hazardous waste sites. This act was reauthorized and amended in 1986 by the Superfund Amendments and Reauthorization Act (SARA) and is again up for reauthorization in 1994.

Transporters and generators of hazardous waste as well as owners of dump sites are potentially responsible parties (PRPs) for cleaning up waste sites. Superfund employs the following legal bases:

- Strict liability;
- Joint and several liability; and
- Retroactive liability.

The potential liabilities that arise from Superfund could be staggering for both insurance companies and PRPs. To put the potential cost in perspective, the Environmental Protection Agency (EPA) estimates that the clean-up costs for the approximately 1,300 sites currently on the national priorities list (NPL) may be $30 billion to $40 billion.

This figure is expected to increase significantly as more of the 37,000 potential sites are added to the NPL list[1]. Additionally, a University of Tennessee study estimates that environmental clean-up costs could exceed $1.0 trillion[2]. Attention from several forces such as the Securities Exchange Commission (SEC), regulators and rating agencies regarding the reporting of environmental liabilities has recently increased due to the magnitude of the potential liabilities.

In 1992 the General Accounting Office (GAO) recommended that the SEC require insurers to disclose in their annual reports the number and type of environmental claims they have received and an estimated range or minimum amount of associated claims and expenses.

The 10-K's of industrial companies in general state that their pollution liabilities are covered by insurance, and therefore, have no effect on their bottom lines. However stock insurers often state that environmental claims filed to date are not covered by the policies in question and are only posting modest amounts relative to the potential exposure. Therefore, there is a concern that neither companies nor insurers are recording environmental liabilities. In an attempt to improve this situation, the SEC issued Staff Accounting Bulletin No. 92 in July 1993 requiring companies to disclose liabilities both gross and net of anticipated insurance recoveries. The 1993 10-K's issued by industrial companies and insurers may shed some light on the insurance recoveries anticipated by insureds as compared to liabilities acknowledged by insurance companies.

In the remainder of this paper, we will:

- Describe methods which can be used by insurance companies to analyze their

[1]David Foppert "Pressure Mounts for Clean-up Reserving" Best's Review, November 1993

[2]Hazardous Waste Remediation Project Study of the University of Tennessee, December 1991

environmental liabilities;

- Outline publicly available data that can help actuaries and claim administrators in the evaluation of environmental liabilities;

- Describe procedures that analysts are likely to apply based on public data as well as methods that management might want to include as part of its overall evaluation of a company's environmental liabilities; and

- Discuss insurance coverage issues (this legal analysis is attached as Appendix A).

Any reference to environmental liabilities in the following sections should be interpreted as liabilities arising out of inactive hazardous waste sites. We acknowledge that other liabilities may be classified as environmental liabilities (e.g. oil spills); however, these categories are outside the scope of our paper.

None of the procedures described in this paper provide "the method" to analyze environmental liability exposures. For financial reporting purposes, company management needs to evaluate the details of its own exposures and judge the ultimate cost based on current facts and financial reporting principles. Management should also consider the provisions under the Superfund Reform Act of 1994 which are likely to have a significant impact on these liabilities.

Evaluating Environmental Liabilities

Traditional actuarial reserve projection techniques are not directly applicable in evaluating environmental liability exposures for several reasons. First, it is difficult to assign losses to an accident or policy year. If a firm dumped at a particular site between 1950 and 1990, the assignment of damages to years is uncertain. Second, insurance companies and insureds are involved in extensive litigation with regard to coverage

issues. Finally, we lack historical data and there may be changes in the state and federal laws under which these claims may be ultimately resolved.

We will discuss a number of methods to project environmental liabilities in this paper. Specifically we will discuss the following methods which we believe can be used to project environmental liabilities:

1. A curve fitted to calendar year emergence;
2. A calendar year loss development method;
3. An industry benchmark method;
4. A market share model; and
5. An exposure model.

The first two methods are loss development methods, the only difference between the two methods being how the development factors are derived. In method 1, we rely on a curvefit of the insurance company's internal data, while in method 2, we analyze this data and an external data source to select development factors.

Method 3 provides benchmarks an individual company may use to compare itself to peer companies and the industry. These benchmarks provide guidance on the relative level of the company's reserves and payments as compared to the industry and peer companies. The benchmarks that are used for comparison include: reserves as a multiple of annual payments or annual incurred and indicated market share based on payments and incurred losses to date.

Methods 4 and 5 are exposure-based methods. Method 4 requires an estimate of the liability for the U.S. insurance industry and assumes that an individual company's share is represented by its general liability premium market share. Method 5 provides a systematic process of estimating these liabilities using insurer and EPA data.

LOSS DEVELOPMENT METHODS

Methods 1 and 2 are loss development methods. These methods treat the losses arising out of inactive waste sites as if they were due to one accident year and measure the development of these losses in total. As we mentioned previously, it may be difficult or impossible to assign individual environmental claims to accident years. Also, underlying "causes" of development are calendar year events which have the same effect on all old accident years regardless of accident year age. For example, in the case of clean-up costs for inactive waste sites, the underlying cause of development is the passing of CERCLA in 1980.

The purpose of the two development approaches is to use a methodology which is generally used for actuarial projections, until such time as a company has sufficient data to utilize more refined approaches. The assumption underlying the projections is that there is a relationship between environmental losses reported and the ultimate losses. The approaches differ with respect to the source of the development factor, with one inferred from the patterns in the actual data, and the other derived from an external - and presumably sufficiently comparable - source.

CURVE FITTING TO CALENDAR YEAR EMERGENCE-METHOD 1

In explaining why we might want to rely on calendar year emergence, it may be useful to outline what we will call the life cycle of latent claims. This life cycle can be broken down into the following segments:

Event: Something happens to expose an individual/property to a hazardous agent (e.g. the initial dumping of waste into a site which does not immediately result in any property damage);

Exposure: Once the event occurs, the exposure to the hazardous agent takes place often over a long and undetermined period of time (e.g. chemicals from the site slowly enter the ground water system);

Emergence: The effects of the exposure are known (e.g., it becomes clear that the ground water system is polluted). In this stage claims are made or PRPs notified; and

Expenditure: Payments are made to clean up sites as well as legal fees incurred to determine coverage issues.

The attached Exhibit 1 displays a graph for a hypothetical life cycle for latent claims.

Much of the activity that led to waste site claims occurred between 1950 and 1980. This is the event stage. Stage two, the exposure stage, probably overlapped with the event stage but may have initially lagged the event stage by several years (as the chemicals dumped did not immediately leak from the site).

The next stage, the emergence stage, probably lagged the exposure stage by several years (especially the emergence of the clean-up costs of inactive waste sites, which is governed largely by Superfund legislation). Superfund did not become law until 1980. Therefore, we would expect the emergence curve to start low but increase dramatically after 1980.

We would expect the expenditure curve to lag the emergence curve by several years and to increase less dramatically than the emergence curve due to the fact that several coverage/liability issues are delaying actual payments. Additionally the expenditure curve will be extended after the site is cleaned up because annual maintenance costs are significant and may be expected to continue for 30 or more years. While the expenditure curve only reflects payments in Exhibit 1, the expenditure horizon could be separated into two steps: (1) Loss reserves established; and (2) Claim payments

made.

The curve fitting to calendar year emergence method extrapolates the ultimate claim costs based on fitting an "S" curve to the cumulative calendar year incurred losses. Exhibit 2 displays cumulative incurred environmental losses by accident year and calendar year for a hypothetical insurance company, ABC Insurance Company, based on the insurance company's assignment of losses to accident year. As the exhibit shows, the accident year losses do not display a normal development pattern for a property/casualty coverage as no payments or case reserves were established prior to year end 1989 for accident years 1970 through 1977.

However, it appears that the calendar year cumulative losses, in total, may be extrapolated based on an "S" curve. Exhibit 3 displays the actual and fitted points and the estimated curve. The footnotes on Exhibit 3 elaborate on the mathematical form of the curve. (However, it should be noted that there is considerable uncertainty involved in estimating the shape of the curve at this time due to the fact that few of the waste sites have been cleaned up.) This method implies that currently reported incurred losses will increase from $128.8 million currently to $600.4 million.

A second version of the curve fitting to calendar year emergence which may be useful in the future is an extrapolation based on actual payments. At this point in the environmental claim cycle so few payments have been made that this procedure is not practical.

CALENDAR YEAR LOSS DEVELOPMENT-METHOD 2

For this method, ABC's reported losses to date are projected to ultimate using development factors from an external source that reasonably matched ABC's development to date.

This method is illustrated on Exhibit 4. The method relies on the incurred environmental losses, from Exhibit 2, by accident year and calendar year for ABC Insurance Company. The accident year losses do not display a normal pattern of development for a casualty coverage, however; it appears that the calendar year incurred loss totals at the bottom of the exhibit show a "development pattern".

We selected Reinsurance Association of America (RAA) 1993 data as the external source of data which might reasonably match ABC's loss development to date. Exhibit 4 compares the environmental calendar year period to period development factors from Exhibit 2 to the incremental RAA factors. The RAA data is provided on an accident year basis and the factors on Exhibit 4 display the incremental change in the RAA accident year losses from one year to the next.

By posting the calendar year development factors for ABC's environmental claims against the incremental (age to age) accident year RAA factors, we are attempting to match ABC's age-to-age factors against the RAA factors to estimate the equivalent maturity of ABC's environmental claims. Based on Exhibit 4, we would estimate that ABC's environmental claims (in total) are at a maturity equivalent to an accident year at 36 months of maturity. Therefore, one approach to develop ultimate environmental losses for ABC Insurance Company is to multiply the environmental losses to date by a 36 month to ultimate loss development factor from RAA data. The following chart displays the calculation.

ABC-Ultimate Environmental Losses ($000's)	
(1) ABC Incurred Losses - All Years	$128,790
(2) 36 Month to Ultimate Factor Based on RAA Data*	3.6
(3) Ultimate Environmental Losses (1)x(2)	463,644
(4) Environmental IBNR Reserves** (3)-(1)	334,854

* Based on our review of RAA GL data for combined treaty and facultative business excluding environmental and asbestos claims

** Including supplemental development on case reserves.

The results obtained using this method have to be monitored closely. The following discussion is helpful in understanding why we believe a factor of 3.6 may be too low for an insurance company with significant exposures and some of the limitations of this method.

1. The claim paying and reserving activity for environmental claims has just begun for many companies and it is likely to extend over a period in excess of 50 years. Using what has emerged in a horizon of less than 10 years to project what may be expected in the next 40 years is best characterized as the "tail wagging the dog."

   It is important to note that in using the RAA patterns we are not stating that the environmental loss development patterns are similar to excess reinsurance patterns. Those patterns were selected because they provided a reasonable match to ABC's development to date, and we believe that environmental patterns, like excess reinsurance patterns, have a long tail.

2. As is discussed later, our crude estimates of environmental losses for the U.S. insurance industry indicate a ratio of ultimate losses to recognized losses (payments to date + case reserves + IBNR) of 4.7, which is in excess of 3.6. If only reported losses were considered for the U.S. insurance industry, the ratio would have been higher than 4.7.

   The 4.7 ratio is based on an estimate of $70 billion for the U.S. insurance industry ultimate losses and recognized losses of $15 billion through 1993. (A special report by A.M. Best's entitled "Environmental/Asbestos Liability Exposure: A P/C Industry Black Hole" dated March 28, 1994 indicates that approximately $15 billion has been recognized by the U.S. insurance industry through 1993. The U.S. insurance industry estimate of $70 billion is based on our analysis outlined in Attachment A.)

INDUSTRY BENCHMARKS METHOD

There are multiple forces exerting pressure on an insurance company to recognize environmental liabilities, e.g.., rating agencies such as Best's, SEC and regulators. However, the standards for establishing appropriate environmental liability reserves are still developing. There is uncertainty associated with the estimation of ultimate liabilities because historically based actuarial approaches do not apply and exposure models, when applied, may produce significantly different results with small changes in assumptions. The Superfund Reform Act adds another dimension of uncertainty in the estimation of these liabilities. The Superfund Reauthorization Act, as proposed, has sweeping changes which could have a significant impact on these liabilities. A large portion of these liabilities may be addressed via a premium tax. Given these uncertainties, one approach to evaluating environmental liabilities may be to examine the reasonableness of the reserves from a number of perspectives including comparison to industry averages and consistency over time.

We have used actual data for Company A from its 1992 10-K, adjusted by an arbitrary scale factor to obscure its identity, to illustrate benchmarks an insurance company might consider in evaluating its environmental liabilities.

Environmental Reserve Analysis
(Dollar Amounts in Millions)

	Calendar Year		
	1992	1991	1990
Company A Net Losses:			
(1) Loss & ALAE Paid During Year	$108	$122	$62
(2) Loss & ALAE Incurred During Year	$184	$122	$83
(3) Loss & ALAE Reserve End of Year	$216	$140	$140
Industry Net Losses:			
(4) Loss & ALAE Paid During Year	$965	$887	$675
(5) Loss & ALAE Incurred During Year	$2,047	$1,674	$1,043
(6) Loss & ALAE Reserve	$5,854	$4,772	$3,985
(7) Loss & ALAE Reserve End of Year/Loss & ALAE Paid During Year:			
(a) Company	2.0	1.1	2.3
(b) Industry	6.1	5.4	5.9
(8) Losses & ALAE Reserve End of Year/Loss & ALAE Incurred During Year:			
(a) Company	1.2	1.1	1.7
(b) Industry	2.9	2.9	3.8
(9) Ratio of Company A Loss & ALAE Paid to that of Industry	11.2%	13.7%	9.2%
(10) Ratio of Company A Loss & ALAE Incurred to that of Industry	9.0%	7.3%	8.0%
(11) Ratio of Company A Loss & ALAE Reserves to that of Industry	3.7%	2.9%	3.5%
(12) Company A GL Written Premium Market Share (adjusted for Reinsurance)	4.5%	4.5%	4.5%

(4), (5) and (6) from A.M. Best's report entitled "Environmental/Asbestos Liability Exposure: A P/C Industry Black Hole."

The following observations can be made about Company A reserve levels:

(1) Company A's reserves appear to be less adequate than industry reserves. (Line 7a versus 7b and 8a versus 8b)

(2) Company A's share of losses paid has been 11.5% (line 9) and its share of losses incurred is approximately 8% (line 10). Its market share based on GL premium is 4.5%. The payment and incurred ratios to date indicate that Company A's share of ultimate losses might be higher than its 4.5% premium share. This suggests several possibilities, two of which are as follows:

(a) Company A's GL market share may not be representative of its share of industry losses because of higher than average exposure to insureds with environmental liability exposures.

(b) Company A's share is higher initially but will drop down to its GL written premium market share because most of Company A's exposure is in states where the environmental case law is more developed than for an average state, or its limits are lower.

(3) Company A's reserves can fund 2 years of payments, compared to industry reserve levels which provide for 6 years of payments. (Line 7a versus 7b for 1992)

(4) Company A's reserves provide for 1.2 years of IBNR losses compared to an industry level of 3 years (Line 8a versus 8b for 1992). IBNR provides for true unreported claims as well as adverse development on reported claims. Due to the uncertainty associated with coverage issues, initial case reserves may be low even for claims that settle for significant amounts.

While reviewing the environmental liability reserve levels for Company A it might be instructive to review them in the context of what might be needed if Company A selected a reserving approach based on analysis of the U.S. insurance industry data. The following table displays the estimated paid losses through year-end 1993 for the U.S. insurance industry and some critical observations that can be inferred from the U.S. insurance industry experience.

ESTIMATED PAYMENT PATTERN
U.S. INSURANCE INDUSTRY
ENVIRONMENTAL LOSSES

	Calendar Year	Estimated Insurance Industry Payments (in Millions)
1.	1985 and Prior	$500.0
2.	1986	237.8
3.	1987	255.3
4.	1988	360.8
5.	1989	468.1
6.	1990	674.8
7.	1991	886.5
8.	1992	964.4
9.	1993	1,060.8
10.	**Total**	**$5,408.5**
11.	Estimated Ultimate U.S. Insurance Industry Losses	$70,000
12.	Paid Loss Development Factor at December 31, 1993	13
13.	Expected percentage of Losses Paid at December 31, 1993	7.7%
14.	Reserve to Average Calendar Year Paid Factor at December 31, 1993 (Assuming Average Calendar Year Payment of $1 Billion)	65

(1): Estimated based on subsequent payments
(2) - (5): Estimated From Rand Study entitled "Superfund and Transaction Costs"
(6) - (9): A special report entitled "Environmental Asbestos Liability Exposures: A P/C Industry Black Hole" by A.M. Best Company dated March 28, 1994.
(11): See Attachment A.
(12): (11)÷(10)
(13): (10)÷(11)
(14): (70,000 - 5408.5)/1,000

Some of the U.S. industry statistics that are helpful in the evaluation of Company A's reserve levels are outlined below:

- Percentage of losses expected to be paid through December 31, 1992
  [(10) - (9)] / (11) 6%

- Multiple of payments indicated as of December 31, 1992 for industry reserves to be fully funded assuming average calendar year payment of $1 billion
  [(11) - (10) + (9)] / 1,000 66

Assuming average annual payments of $100 million for Company A and a multiple of 66 as indicated above, Company A's ultimate losses could be $6.6 billion. Thus indicated reserves as of December 31, 1992 would be $6.2 billion ($6.6 billion - $0.4 billion estimated paid through December 31, 1992).

Assuming that 6% of ultimate losses are paid through December 31, 1992, the ultimate loss level for Company A is expected to be $6.7 billion ($0.4 billion / 0.06). Thus indicated reserves as of December 31, 1992 are $6.3 billion ($6.7 billion - $0.4 billion).

Using either one of the above approaches, Company A appears to be significantly underreserved with respect to what might be ultimately needed.

Another test that is helpful to Company A would be to compare itself to its peers. The following chart displays the reserves as of December 31, 1992 expressed as a multiple of average calendar year payments for three stock insurance companies using data from 12/31/92 10-K's.

SURVEY OF ENVIRONMENTAL LIABILITY RESERVES*
FOR A SELECTED GROUP OF COMPANIES
(All Dollar Amounts in Millions)

	(1)	(2)	(3)	(4)	(5)	(6) = (5)/(4)
	Calendar Year Payments			Average		Reserve To Annual
	1990	1991	1992	Annual Payment	Reserve @ 12/31/92	Payment Ratio
Company 1	$55	$30	$55	$47	$734	15.6
Company 2	18	52	55	42	435	10.4
Company 3	72	102	131	102	340	3.3

Source: 1992 10-K's

*Includes Asbestos and Other Toxic Tort Claims

As in the case of Company A, these sample companies are posting reserves less than the 65 factor that our analysis for the U.S. insurance industry implied. However, Companies 1 and 2 show higher reserve ratios and are arguably more adequately reserved than Company A.

While some companies might be justified in using a factor less than 65, a factor higher than 65 may be appropriate for companies that are paying environmental claims at a rate significantly slower than industry levels. Given the long term nature of these liabilities, an argument could be made that a factor less than 65 is reasonable. For example, industry net payments of $1 billion per year in a perpetuity at 5% interest would be funded by $20 billion, implying a factor of 20.

The values described above could be altered by multiples (even orders of magnitude) based on court decisions on coverage terms, reinsurance treatment, etc.

MARKET SHARE MODEL

The market share model requires an estimate of the total cost to the insurance industry associated with inactive waste sites. Attachment A provides an illustration of how the total industry costs may be estimated. The cost for a specific insurance company is estimated based on the company's share of the total insurance industry cost.

The specific calculation is described below:

1. Total company and U.S. insurance industry general liability (GL) and Commercial Multi Peril (CMP) direct premiums written in the time period 1950-90 are compiled. We are only interested in GL and CMP premiums because these coverages are expected to generate the majority if not all of the insurance industry losses associated with inactive hazardous waste sites. We are interested in the years 1950-90 because those years are expected to generate the majority of the environmental losses.

2. Based on the information compiled in Step 1 above, individual insurance company direct premium as a percentage of total U.S. industry direct premium is calculated for the time periods 1950-55, 1955-60, 1960-65, 1965-70, 1970-75, 1975-80, 1980-85 and 1985-90.

3. Expected U. S. insurance industry environmental losses are then allocated to the five-year intervals described above using a basis such as the following:

   a. Years of operation of the sites[3]: This is a proxy for years of dumping and is expected to provide a measure of the liability due to hazardous waste sites under the exposure trigger; or

   b. Year of discovery of sites: This basis of allocation provides a measure of liability based on the discovery trigger.

4. Individual company losses are estimated as the product of the percentage estimated in Step 2 and US insurance industry environmental losses estimated in Step 3 for each applicable five-year interval. These estimates may need to be modified based on some additional factors. For example, if, an insurance company insured a high percentage of Fortune 500 companies or companies most often listed as PRPs, then, its exposure may exceed its market share as determined in Step 2.

5. The result of Step 4 is an estimate of direct ultimate losses. The net ultimate losses may be estimated based on individual insurance company's reinsurance programs. Some statistics that might be helpful in the estimation process include net to direct ratios exhibited by reported losses to date and written premiums.

The procedure described above applies to primary companies. For reinsurers, a similar approach may be used with one modification. The modification occurs in

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[3] The attached Exhibit 5 displays an allocation of costs to 5 year interval for a select number of NPL sites based on data published by the EPA (this data is discussed in a later section of the paper).

Step 2 and involves analyzing a reinsurer's assumed premium as a percentage of total direct premium to determine its share of the market. Additionally, the reinsurer's market share may have to be modified downwards because it is expected that the reinsurer's share would be lower than what its market share would otherwise indicate. This is because losses due to waste sites are expected to be spread over many years and many insureds, and therefore, may not expose the reinsurer as much as the primary company. (Steps 4 and 5 above would require a primary company's market share to be increased based on the same logic.) Additionally, special adjustments may be necessary for companies which write a significant amount of excess and claims made coverage.

The following table displays an estimate of the total cost for Company A based on the method discussed above[4].

MARKET SHARE MODEL

($ Billions)

1) Selected Insurance Industry Total Costs Due to Inactive Waste Sites	$70
2) Percentage of Primary GL Market Written by Company A	6%
3) Adjustment for Company A's Relative Exposure (10% Greater Due to Concentration of Insureds Which are Chemical Companies)	110%
4) Estimate of Losses Ceded to Reinsurers	25%
5) Estimated Ultimate Cost - Company A (1)x(2)x(3)x[1-(4)]	$3.5

Therefore for Company A, the cost estimate associated with inactive waste sites is roughly $3.5 billion.

[4]For simplicity, the industry losses are not separated into 5 year periods.

EXPOSURE MODEL

The exposure model separately estimates the costs for reported claims and incurred but not reported (IBNR) claims. We first discuss the cost estimation procedure for reported claims. The cost estimation procedure for IBNR claims is discussed later in this section.

The costs due to inactive waste sites can be divided into the following categories:

- Clean up costs;
- Remedial Investigation / Feasibility Study costs (RI/FS);
- Third party claim costs;
- Allocated loss adjustment expense costs (ALAE);
- Declaratory judgment action costs (DJA); and
- Unallocated loss adjustment expense costs (ULAE).

The data required for the analysis includes the following information from insurer records:

- Reported claims and notifications per site and per PRP.
- Coverage terms-retention, limits, applicable exclusions, etc.
- Insurer estimates of costs (in total or in the categories listed above), likelihood of exposure, likely share of total clean-up costs for each insured, etc.
- Reinsurance attachment points, limits, and policy terms.

The insurer information can be supplemented by EPA data available in the following five databases.

- Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS);
- Site Enforcement Tracking System (SETS);
- Superfund Comprehensive Accomplishment Plan (SCAP);
- Record Of Decision (ROD); and

- State books.

CERCLIS

CERCLIS contains a significant amount of information on each site identified by the EPA (not just the NPL sites). The information is site specific and a few of the fields listed on the databases are:

- Name of the site;
- Location of the site;
- The physical classification of the site (e.g. ground water contamination, dioxin, housing area);
- Status (NPL, non-NPL); and
- Discovery date of the site.

While there are over 250 fields in CERCLIS, CERCLIS does not include a list of the parties who dumped at the site (PRPs), the expected future costs associated with cleaning up the site, the actual expenditures to date associated with the site, or information regarding the dates the site was used/closed. That information comes from other sources.

SETS

The SETS database contains a list of PRPs identified by site. These PRPs may or may not have yet filed claims with their insurance carriers. To the extent that this list agrees with the insurers' claim notifications, it represents reported claims. To the extent that policyholders are included in the SETS list but have not yet filed claims, these sites represent potential IBNR reports.

SCAP

The next database, SCAP, contains actual expenditures by site. The expenditures are divided into approximately 50 categories, which can be aggregated into two broad types of expenditures:

- Remedial Investigation/Feasibility study (RI/FS) expenditures; and

- Actual clean-up costs.

The RI/FS expenditures represent the costs associated with investigating the site and determining how to best clean up the site. These costs are often significant. Both RI/FS costs and actual clean-up costs are not available for all sites.

ROD

The next database, ROD, contains information on clean-up costs estimated by the EPA at individual sites. The record of decision (ROD) is a formal estimation procedure employed by the EPA.

The following information is available on ROD:

- The date the ROD was established;

- Estimated initial clean-up costs;

- Estimated cost to monitor the site once the initial clean-up is complete;

- Number of years of annual maintenance;

- Whether the estimated costs are undiscounted or discounted; and

- Owner of the site (sometimes).

The ROD database also contains information on the physical condition of the site. In many cases the EPA delineates cost summaries by technology employed to clean up a site.

Of the 1,300 sites on the NPL list, about 600 have RODs. Of the remaining non-NPL

sites RODs have only been completed on a small percentage of the population of sites, but it is anticipated that approximately 60% of the 37,000 potential sites will not require a ROD as the site will not need to be cleaned up.

State Books

The last data source is the state books. The state books contain, among other things, the number of years the site was in operation, the year the site was closed, nature of ground water contamination if applicable and proximity of neighborhoods to the site.

Description of Exposure Model - Known PRPs/Sites

The model estimates ultimate losses associated with reported claims (situations where a PRP has notified the insurance company of its exposure at a site) for clean-up costs, RI/FS costs, third party claim costs and ALAE. Estimates of costs for ULAE, Declaratory Judgment Actions (DJA) and IBNR are prepared separately.

The key steps in the model are as follows:

1. Identify reported claims for each PRP and site combination

2. Estimate costs by site from EPA data, insurer data and other sources

3. Allocate the costs by year for each site

4. Apply the PRP share to the step 3 results

5. Apply policy limits and reinsurance retention by year/PRP/site

6. Adjust for the probability that insurance coverage applies

7. Repeat steps 1-6 for each PRP/site combination and aggregate to obtain the total insurer cost estimate for reported claims

This model can be envisioned in the following manner by site. First, PRPs are identified by site. Step 2 involves estimating the clean-up and RI/FS costs by site. If a ROD estimate from EPA is available this may be used, otherwise, clean-up and RI/FS costs can be estimated. (For example, we would expect similar sites in the same general area to have similar costs.) Next, costs are spread to year and PRP based on the assumed legal coverage theory and known or estimated PRP shares. These costs are then increased for deficiencies in EPA estimates, third party costs, legal expenses, ALAE, etc. Some costs (e.g., third party costs) may be estimated as a percentage of the clean-up costs on the assumption that these costs are likely to be correlated with clean-up costs.

Next, specific coverage items are considered (self insured retentions, aggregate limits and reinsurance). The result of the first four steps is the anticipated cost to the insurance company assuming that all inactive waste site exposures are covered (i.e. insurance company does not win on any coverage defense issues). Lastly, the probabilities of coverage responding are applied to certain cost items (to clean-up costs but not legal costs).

Site Identification and Cost Estimates

Based on insurance company records, known PRPs and exposure years can be identified. The sites on which PRPs are exposed can be identified from both insurer records and EPA databases.

For example, from EPA data sources, a record can be created to reflect :

- The insured (PRP);
- A cost estimate for the site (clean-up, etc.); and
- The number of years the site was in operation.

Cost Allocation by PRP and Year

Next, costs by site need to be spread to year and PRP.

There are several legal theories that can be used to spread the loss estimate to individual

years. Potential triggers are:

- Exposure;
- Manifestation;
- Continuous; or
- Actual injury.

If the applicable trigger were the exposure trigger, the losses might be spread equally to the years the site was used (years of operation of the site may be used as a proxy if more detailed information is not available). Similarly, loss estimates under alternative triggers can be calculated.

Next, the PRP share by site/year may be estimated as (a) 1/n where n is the number of PRPs on the site or (b) 1/n adjusted to reflect the relative size or degree of responsibility for the PRP. A size adjustment would be based on the theory that a larger PRP is more likely to be able to pay and may have contributed more to the environmental impairment than a smaller PRP. One measure of degree of responsibility might be how often the PRP is on an EPA site list. Another measure of size is whether or not the PRP is a Fortune 500 company.

For example, if 20 PRPs are named at a site, one estimate of a specific PRP's share for the site would be 5%. However, a Fortune 500 chemical company should probably be assigned a share greater than 5%.

Policy Terms and Reinsurance

In the next phase, policy provisions and reinsurance are applied to estimate individual insurance company shares of these losses under the assumption that coverage applies. For example, if the above mentioned procedure resulted in $1,275,000 of losses per year for a specific PRP insured, and if the insurance company only wrote policy limits of $1,000,000 per year (in aggregate), then the insurance company's indemnity exposure would be capped at $1,000,000 per year.

Probability of Coverage

The last step would be to incorporate the probability that coverage applies to the estimates by site/PRP/year. This probability is based on the jurisdiction and the insurer's coverage defenses. The probability of coverage responding is a rather complex item which would most likely vary by:

- The coverage defenses postulated by the insurance company;
- The state; and
- The year (ISO introduced a pollution exclusion in 1973 and a second stronger exclusion in 1986, and many companies follow ISO forms.)

The probability of coverage responding may best be thought of as a matrix by year:

PROBABILITIES OF INSURANCE COVERAGE RESPONDING

	State	
Coverage Defense	A	B
Clean-up Costs Not Damages as Defined in CGL Policy	XX%	XX%
Clean-Up Costs Excluded Due to Pollution Exclusion	XX%	XX%
Coverages only applies if Damage is not Expected or Intended	XX%	XX%
Owned Property Exclusion	XX%	XX%
Late Notice of Occurrence	XX%	XX%

Total Costs

The above procedure is performed by site/PRP/year combination and the results aggregated to determine the insurance company's potential reported exposure for a PRP. All insured PRPs can then be aggregated to estimate the insurance company's potential exposure.

DJA, ULAE and IBNR costs are described in the next sections.

Declaratory Judgment Action (DJA) Costs

DJA costs represent the costs associated with litigating coverage issues (e.g., whether a CGL policy responds to Superfund clean-up).

The DJA costs may be estimated based on:

- Average DJA expenditures per site and PRP;
- Expected number of future claims (PRP/site notifications);
- A factor reflecting the fact that over time as coverage issues become more well defined, costs may be reduced; and
- Inflation in legal expenditures.

The following table displays a sample calculation for a hypothetical insurance company:

	ABC Insurance Company	
(1)	Average Historical DJA Costs Per Site per PRP	$750,000
(2)	Estimated Future Site/PRP Combinations Involving DJA Litigation	100
(3)	Factor Reflecting More Clearly Defined Case Law	50%
(4)	Inflation Factor for Legal Fees	1.2
(5)	Estimated Future DJA Costs (1)x(2)x(3)x(4)	$45 Million

ULAE Costs

One method to estimate ULAE costs is to estimate:

- Average annual ULAE costs;
- The number of years in the future for which ULAE costs will be incurred; and
- Inflation in claims adjustment costs.

For example, many insurance companies have established a special work force of claims personnel dedicated to handling only environmental claims. If we assume:

(1) A unit generates annual salary and benefits of $350,000;

(2) Wage and benefit inflation of 5% per year; and

(3) Environmental claims take 30 more years to be settled,

then, the estimated ULAE reserve is equal to
$(350,000)(1.05)+(350,000)(1.05)^2+...(350,000)(1.05)^{30}$ or approximately $24.4 million.

IBNR Claims

IBNR claims may result from the following:

(1) Known PRPs being named at future sites; and

(2) Unknown PRPs being named at known and future sites.

The cost of IBNR claims can be calculated by PRP for known PRPs at future sites based on:

- Anticipated number of sites where an insured (PRP) will be named;
- Estimated cost of the sites (including clean-up; RI/FS costs, third party costs and ALAE costs);
- The PRP's share at IBNR sites (PRP shares at known sites may be used as a proxy);
- Insurance company coverage response probability (again information at known sites may be used as a proxy); and
- Coverage provisions and reinsurance.

To illustrate, assume that PRPs have been notified by the EPA on 600 sites and ultimately we expect PRPs to be notified by the EPA at 3,000 sites. Therefore our IBNR claim universe for PRPs is 2,400 sites (i.e. the maximum number of additional times that an insured could receive a PRP letter is 2,400). Based on the 600 sites for which the

EPA has identified a list of PRPs, a specific PRP is identified 60 times (10% of the time). Therefore, for the additional 2400 sites we might assume that the PRP would be named 240 times (2,400 times 10%).

Next, based on evaluating previous sites, we might estimate a clean-up cost of $33 million for each newly identified site.

Based on known sites, the PRP's average share is 5%. Based on the specific insurance company's success in arguing that coverage does not apply and on the insurer's coverage and limits, we estimate that the insurance company may be responsible for 40% of the total costs. Therefore, one estimate of the insurance company's liability for a specific PRP's IBNR exposure is:

Insurance Company's Estimated Liability for Newly Identified Sites	
(1) Estimated Number of Future Sites	2,400
(2) Estimated PRP Exposure at Future Sites	10%
(3) Estimated PRP IBNR Sites (1)x(2)	240
(4) Average Cost of Newly Identified Sites	$33 Million
(5) PRP Share	5%
(6) Insurance Company Coverage Probability*	40%
(7) Third Party and ALAE Costs Factor	1.70
(8) Insurance Company Liability (3)x(4)x(5)x(6)x(7)	$269 Million

*Includes coverage provisions (e.g. limits, number of years insured)

This process can be repeated for all the insured PRPs to obtain a total estimate of IBNR cost for known PRPs at future sites. Unknown PRPs at current and future sites may be reflected using a judgmental factor. These costs can then be allocated to year based on EPA information (e.g., years of operation of the future site universe).

The IBNR estimates by year plus the estimates for reported claims equal the total costs.

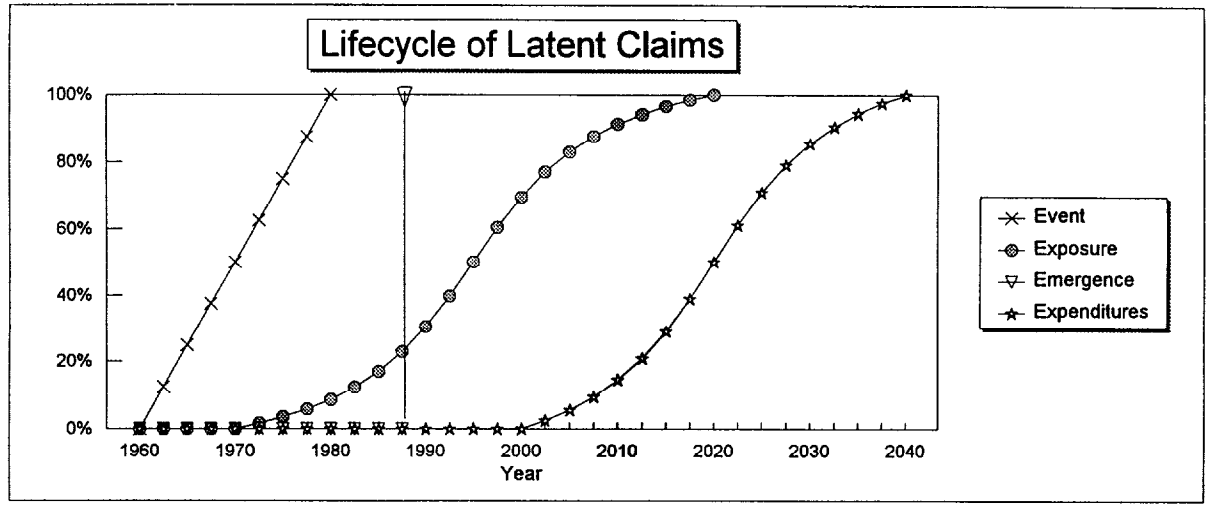
If the estimates of total costs are summarized in five-year intervals, these values can be compared to the results of the market share model discussed previously.

SUMMARY

This paper has outlined several methods that can be used to estimate insurance company (as well as PRP) liabilities associated with inactive hazardous waste sites. Additionally we have outlined several publicly available data elements which can assist in evaluating environmental liabilities along with summarizing the current legal issues involved in coverage disputes between insureds and insurance companies (Appendix A).

The potential liability associated with inactive hazardous waste sites is significant. Insurance companies and PRPs need to introduce procedures to attempt to monitor and quantify the potential liability.

None of the procedures described in this paper provide "the method" to analyze environmental liability exposures. For financial reporting purposes, company management needs to evaluate the details of its own exposures and judge the ultimate cost based on current facts and financial reporting principles. Management should also consider the provisions under the Superfund Reform Act of 1994 which are likely to have a significant impact on these liabilities.



Notes

Event -- Assumes the event stage occurs between 1960 and 1980. Company A uniformly dumps at a particular site between 1960 and 1980.

Exposure -- The chemicals start leaking in 1970 and are still leaking. Therefore the exposure stage starts in 1970 and is still occurring.

Emergence -- The effects of the exposure are known. For one particular site, this may be a point in time. However, it will be a curve for all sites.

Expenditures -- Company A makes payments to clean up the site. Cleanup at the site begins in the year 2000 with ongoing maintenance continuing until 2040.

Exhibit 2

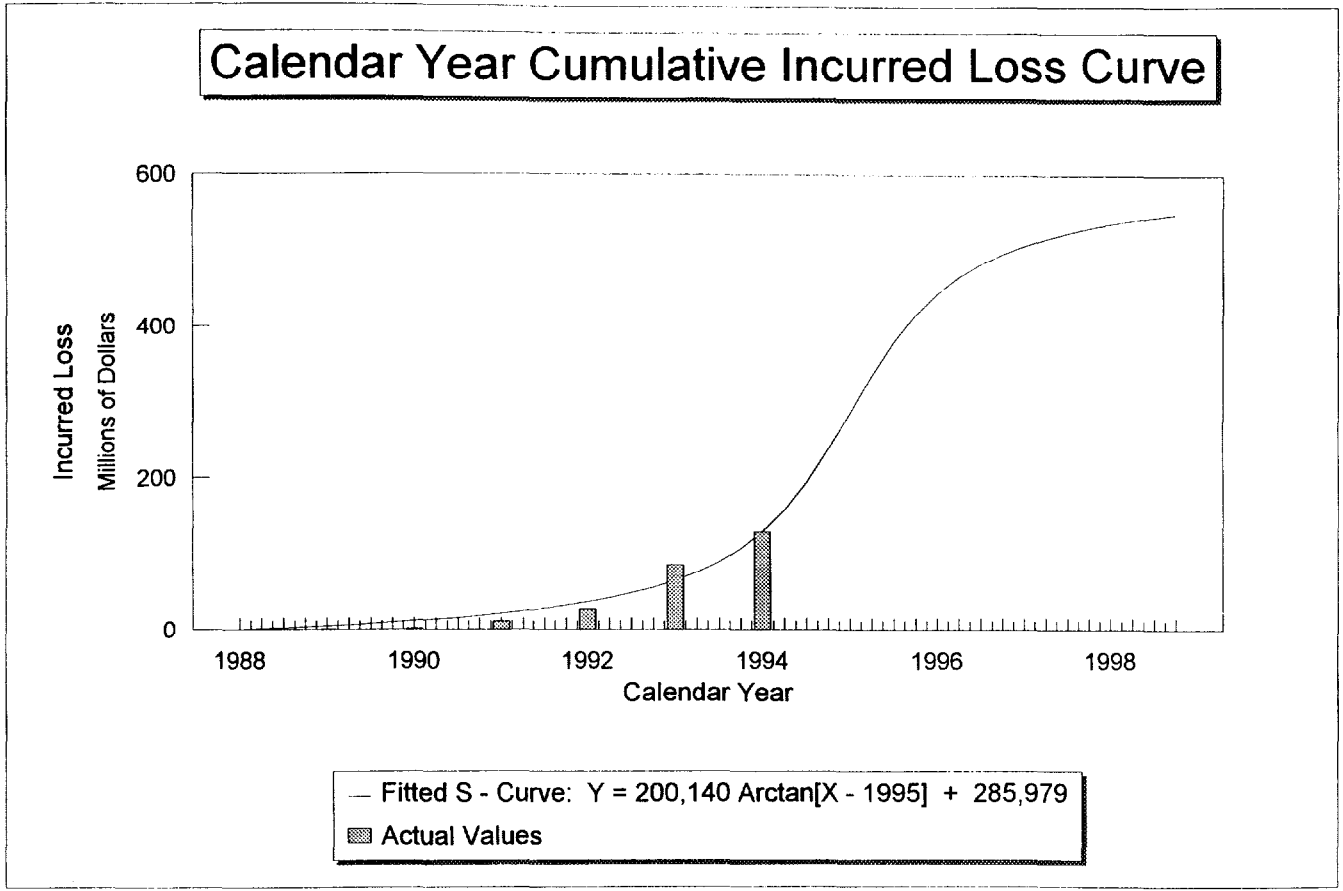
ABC Insurance Company

Environmental Claims

Incurred Losses

($000's)

Accident Year	At 12/88	At 12/89	At 12/90	At 12/91	At 12/92	At 12/93	At 12/94
1970	0	40	290	1,300	3,350	13,350	13,350
1971	0	150	600	600	600	800	1,200
1972	0	3	300	5,230	11,400	11,400	27,700
1973	0	50	50	600	800	5,000	7,200
1974	0	50	250	250	290	4,876	14,500
1975	0	50	40	600	620	1,690	11,800
1976	0	0	0	800	2,400	19,000	23,740
1977	0	0	0	1,000	7,300	29,300	29,300
1978 & Subsequent	0	0	0	0	0	0	0
Calendar Year Total	0	343	1,530	10,380	26,760	85,416	128,790
Calendar Year LDF	NA	NA	4.46	6.78	2.58	3.19	1.51



According to Makridakis and Wheelwright, "An S curve implies a slow start, a steep growth, and then a plateau."

Forecasting Methods for Management, Page 322.

Comparison of Development Factors

ABC Insurance Company

Environmental Claims

RAA Data For General Liability

Calendar Year	ABC Insurance Company	RAA Age to Age	RAA Accident Year Age to Age Factors
12/89-12/90	4.46		
12/90-12/91	6.78		
12/91-12/92	2.58		
12/92-12/93	3.19	12-24	3.00
12/93-12/94	1.51	24-36	1.60

Exhibit 5

An Estimate of the Allocation of NPL Clean-Up Costs to 5-year Periods

For Select NPL Sites

Period		Percentage of Total
Prior to	1901	0.64%
1901	1905	0.22%
1906	1910	0.29%
1911	1915	0.37%
1916	1920	0.41%
1921	1925	2.58%
1926	1930	2.19%
1931	1935	0.59%
1936	1940	0.81%
1941	1945	1.75%
1946	1950	2.76%
1951	1955	6.32%
1956	1960	9.99%
1961	1965	12.99%
1966	1970	15.84%
1971	1975	18.04%
1976	1980	16.88%
1981	1985	5.25%
1986	&Subsequent	2.10%

Note: In allocating costs to 5-year period, we assumed an exposure trigger and used the years of operation of the site as a proxy for years of dumping. The exposure is based on an allocation of ROD clean-up cost estimates to year for those NPL sites with available ROD cost estimates.

The approaches for estimating insurance industry liabilities due to inactive hazardous waste sites are illustrated on sheets 2 through 7 of this attachment. We have used an estimate of $70 billion throughout this paper as an estimate of the total liabilities for the U.S. insurance industry. It is important to recognize that these ultimate loss estimates are highly uncertain. For example, a special report entitled "Environmental/Asbestos Liability Exposure: A P/C Industry Black Hole" dated March 28, 1994 indicates expected environmental liabilities of $255 billion. The best and worst case estimates in that report are $60 billion and $608 billion respectively, showing the uncertainty associated with estimating these liabilities. This uncertainty stems from the fact that many of these cases have not been resolved in court yet. In addition, average clean-up costs, third party costs, PRP shares, insurer litigation costs and success of insurer coverage defenses are critical assumptions in the estimation process and are best guesses at this point.

The approach described in sheet 2 explicitly considers the various elements such as clean up costs, ALAE costs, etc. for which the insurance industry would be responsible with respect to inactive hazardous waste sites. The only item that is not considered is the payment associated with natural resource damages. The PRPs, and hence, the insurance industry, may be required to share in the cost of restoring natural resources damaged by pollutants to their original form. The cost for this element is not considered because there is very little information available on this issue. Sheet 2 provides the ultimate loss estimate for the insurance industry using a set of what might be considered reasonable assumptions. The notes on sheets 3 and 4 explain some of the thought process that underlies our assumptions.

It is important to understand that there is uncertainty associated with each of those assumptions and more than one set of assumptions may be considered reasonable. To illustrate this uncertainty, we have included results based on a variation of the critical assumptions. Sheet 5 provides results based on these alternate assumptions.

Sheet 6 outlines an alternate method where the insurance industry ultimate loss payments are estimated as a percentage of total national expenditures related to clean-up activity.

Sheet 7 summarizes the results of various estimates of ultimate environmental liabilities.

Based on review of results in sheets 2, 5, 6 and 7 we selected $70 billion as the ultimate loss estimate for the U.S. insurance industry for the illustrations in the paper.

Estimated Ultimate Insurance Industry Liability Due to Inactive Hazardous Waste Sites

Dollar Amounts in Millions

Attachment A
Sheet 2

		Scenario A
(1)	Expected number of ultimate NPL sites	**3,000**
(2)	Estimated clean up cost per site	**$33**
(3)	Estimated RI / FS cost per site	$2
(4)	Estimated total clean up and RI / FS cost for NPL sites [(1)×{(2)+(3)}]	$105,000
(5)	Estimated expected number of non-NPL sites	**15,000**
(6)	Estimated clean up and RI / FS cost per non-NPL site	**$5.0**
(7)	Estimated total clean up and RI / FS cost for non-NPL sites [(5)×(6)]	$75,000
(8)	Total clean up cost at NPL and non-NPL sites [(4)+(7)]	$180,000
(9)	PRP share of (8)	**50%**
(10)	Total PRP clean up cost responsibility [(8)×(9)]	$90,000
(11)	Third party costs [25% of (10)]	$22,500
(12)	Insurance Industry portion of PRP share if coverage were to apply 100% of the time	60%
(13)	Insurance Industry cost if coverage were to apply 100% of the time [((10)+(11))×(12)]	$67,500
(14)	Probability that coverage applies	**50%**
(15)	Insurance Industry Indemnity cost [(13)×(14)]	$33,750
(16)	ALAE / ULAE / DJA costs as a percentage of total indemnity costs	60%
(17)	ALAE / ULAE / DJA costs [(15)×(16)]	$20,250
(18)	Total cost to the industry for Indemnity, ALAE, ULAE, DJA costs [(15)+(17)]	$54,000

Notes	Source
(1) (a) EPA estimates that the number of NPL sites by the year 2000 would be 2,100. (Currently there are approximately 1,200 NPL sites and 37,000 CERCLIS sites.)	Coming Clean: Superfund Problems Can Be Solved Prepared by Office of Technology and Assessment (OTA) (October 1989)
(b) OTA estimates that the number of NPL sites by the year 2000 would be 10,000.	Coming Clean: Superfund Problems Can Be Solved Prepared by Office of Technology and Assessment (OTA) (October 1989)
(c) Hazardous Waste Remediation Project (HWRP) of the University of Tennessee estimates that based on current policies for adding sites on CERCLIS and designating sites to the NPL, the number of sites in CERCLIS would grow to over 75,000 producing approximately 3,000 NPL sites. HWRP estimates a plausible upper bound of 6,000 NPL sites.	Cleaning Up Hazardous Waste: Is There a Better Way Prepared by Orin Kramer & Prof. R. Briffault (January, 1993)
(2) (a) EPA estimates average cost of completed cleanup excluding non-federal transaction costs at $30 million per site.	Cleaning Up Hazardous Waste: Is There a Better Way Prepared by Orin Kramer & Prof. R. Briffault (January, 1993)
(b) In 1990, EPA estimated that construction costs would approximate $25 million per site.	A Management Review of the Superfund Program prepared by EPA (June, 1989)
(c) The 1992 RAND study estimates the average cost to cleanup existing NPL sites at $25 to $33 million per site.	Superfund and Transaction Costs Prepared by RAND (ICJ) (1992)
(d) HWRP estimates that the average cost of remediation per site would ultimately rise to approximately $50 million per site.	Cleaning Up Hazardous Waste: Is There a Better Way Prepared by Orin Kramer & Prof. R. Briffault (January, 1993)
The cleanup cost estimates cited in (2)(a)-(d) do not consider increases expected if guidelines established by SARA are strictly followed.	Cleaning Up Hazardous Waste: Is There a Better Way Prepared by Orin Kramer & Prof. R. Briffault (January, 1993)
(3) We assumed an average of $2 million per site or 5% of average clean up costs for RI/FS costs.	
(5)(6) There are 37,000 sites in the Nation's inventory. More than half of these sites would need no action beyond initial investigation. We assumed that approximately 15,000 sites will need some action on a non-NPL basis. We estimated that the clean-up and RI/FS cost at non-NPL sites would approxiamte 15% (or $5 million) of the cost per NPL site.	
HWRP study cites that most cleanup activity at non-NPL sites is removal of waste rather than remediation. They used clean-up cost estimates of $1 million to $3 million for non-NPL sites in their study.	

Notes		Source
(9) (a)	PRP's are estimated to pay 50% of the total cost for the cleanup of current NPL sites.	A Management Review of the Superfund Program Prepared by EPA (June, 1989)
(b)	PRP's are estimated to pay 45% of the total cost for the cleanup of current NPL sites. It is likely that PRP's may be responsible for a larger share at non-NPL sites because of more PRP initiated actions at non-NPL sites.	Report to the Congress of the United States - An Overview of Superfund Reauthorization Issues Dated March 29, 1985.
(11)	The RAND study estimated BI/PD claims accounted for 21% of the indemnity expenditures for the insurers in 1989. We selected 25%.	Superfund and Transaction Costs Prepared by RAND (ICJ) (1992)
(12)	This percentage was judgmentally selected based on our experience. The Insurance Industry will ultimately pay only a portion of the PRP cleanup costs due to self-insured retentions and policy limits.	Judgment
(14)	Based on discussions with attorneys for PRP's and insurance companies, we selected a ratio of 50%. Also, SEC Commission member, Richard Y. Roberts, is quoted in Business Week as saying that insurers are losing 70% of the time.	The Hurricane Called Superfund Business Week article, August 2, 1993
(16) (a)	The RAND study estimated that transaction costs accounted for 88% of the total expenditures for the insurers in 1989.	Superfund and Transaction Costs Prepared by RAND (ICJ) (1992)
(b)	The RAND study estimated that transaction costs accounted for 69% of the total expenditures for closed claims for the insurers in 1989.	Superfund and Transaction Costs Prepared by RAND (ICJ) (1992)
(c)	Paul Portney of Resources for the Future has cited that transaction costs are running anywhere from 30% to 70%.	Cleaning Up hazardous Waste: Is There a Better Way Prepared by Orin Kramer & Prof. R. Briffault (January, 1993)
(d)	We selected transaction costs as representing 60% of total insurer costs. This selection is based on items (a) - (c) discussed above and the expectation that as the coverage defenses get played out in court, transaction costs will go down as a % of total costs.	Judgment

Estimated Ultimate Insurance Industry Liability Due to Inactive Hazardous Waste Sites

Dollar Amounts in Millions

		Scenario B	Scenario C
(1)	Expected number of ultimate NPL sites	5,000	2,100
(2)	Estimated clean up cost per site	$50	$33
(3)	Estimated RI / FS cost per site	$3	$2
(4)	Estimated total clean up and RI / FS cost for NPL sites [(1)×{(2)+(3)}]	$265,000	$73,500
(5)	Estimated expected number of non-NPL sites	25,000	15,000
(6)	Estimated clean up and RI / FS cost per non-NPL site	$7.5	$5.0
(7)	Estimated total clean up and RI / FS cost for non-NPL sites [(5)×(6)]	$187,500	$75,000
(8)	Total clean up cost at NPL and non-NPL sites [(4)+(7)]	$452,500	$148,500
(9)	PRP share of (8)	75%	50%
(10)	Total PRP clean up cost responsibility [(8)×(9)]	$339,375	$74,250
(11)	Third party costs [25% of (10)]	$84,844	$18,563
(12)	Insurance Industry portion of PRP share if coverage were to apply 100% of the time	60%	60%
(13)	Insurance Industry cost if coverage were to apply 100% of the time [((10)+(11))×(12)]	$254,531	$55,688
(14)	Probability that coverage applies	70%	50%
(15)	Insurance Industry Indemnity cost [(13)×(14)]	$178,172	$27,844
(16)	ALAE / ULAE / DJA costs as a percentage of total indemnity costs	60%	60%
(17)	ALAE / ULAE / DJA costs [(15)×(16)]	$106,903	$16,706
(18)	Total cost to the industry for Indemnity, ALAE, ULAE, DJA costs [(15)+(17)]	$285,075	$44,550

ULTIMATE U.S. INSURANCE INDUSTRY LOSSES FOR INACTIVE HAZARDOUS WASTE SITES
DOLLAR AMOUNTS IN BILLIONS

			COMMENTS
(1)	OTA estimate of spending by all parties on cleanup related costs	$500.00	Note 1
(2)	Estimate of national spending by all parties on cleanup related costs from inception through 1993	$30.00	Note 2
(3)	Insurance company expenditures from inception through 1993	$5.40	Note 3
(4)	Insurance company expenditures as a % of total national annual spending	18.00%	(3) / (2)
(5)	Insurance company ultimate expenditures	$90.00	(4) * (1)

NOTES:

Note 1

We have assumed that the Office of Technology and Assessments (OTA) estimate of $500 billion represents total expenditures of the nation as they relate to inactive hazardous waste sites. We have seen other reports where OTA's estimate was interpreted as being just clean-up costs without any provision for transaction costs. (Coming clean: Superfund problems can be solved, Chapter 1, prepared by OTA October, 1989)

Note 2

News report from Superfund Improvement Project (Release date February 3, 1994)

Note 3

From Chart B of our paper

Estimates of Ultimate Liabilities for the U.S. Insurance Industry
Due to Inactive Hazardous Waste Sites

Method	Estimate (Billions)
Scenario A*	$54.0
Scenario B*	285.1
Scenario C*	44.6
Projected Based on OTA data	90.0
Estimated	**70.0** **

* These scenarios project ultimate losses based on differing assumptions regarding the ultimate number of NPL sites, the cost to clean up the sites, the number of non-NPL sites, and various other assumptions as delineated on sheets 2 and 5 of this attachment. These estimates are for the U.S. and non-U.S. insurers and reinsurers. To estimate the liabilities for the U.S. insurance industry a reduction has to be made for cessions to non-U.S. reinsurers and losses due to non-U.S. primary insurers. In making our selection for the U.S. insurance industry we judgmentally reduced the indications under scenarios A, B, and C for the non-U.S. component.

** Selection for U.S. Insurance Industry.

COMPREHENSIVE GENERAL LIABILITY INSURANCE COVERAGE OF ENVIRONMENTAL LIABILITIES

INTRODUCTION

For decades, most corporations have purchased general liability insurance policies to provide coverage for the risk of bodily injury or property damage arising out of their business operations. Members of the insurance industry, collaborating through the Insurance Services Office and its predecessor organizations, drafted the standard comprehensive general liability ("CGL") policy form in 1966, which form was subsequently revised in 1973 and 1985. As its name indicates, the CGL policy was intended to provide coverage for a broad range of liabilities, subject to its specific terms, provisions and exclusions. Most CGL policies issued during the past four decades either utilize the standard form or incorporate the key policy language from that form.

When the standard CGL policy form was initially drafted in 1966, the legal framework for environmental obligations and liabilities of industrial operations was not well-developed. Disposal of waste materials, discharge of wastewaters and emissions of exhaust gases were largely unregulated. Just as importantly, the impact of these activities upon the environment was poorly understood and generally not the subject of liability claims, whether by governmental agencies or private parties. The environmental impacts of such industrial operations came into sharper focus in the 1970's and laws were developed to prevent or respond to those impacts. Congress passed the Air Quality Act of 1967 and strongly revised it with the Clean Air

Amendments of 1970 and 1977. The Federal Water Pollution Control Act Amendments were enacted in 1972 and amended in 1977 by the Clean Water Act Amendments. Congress began to regulate waste management practices by enacting the Resource Conservation and Recovery Act of 1976 and the Hazardous and Solid Waste Amendments of 1984. Most importantly, in terms of impact on liability insurance coverage, the Comprehensive Environmental Response, Compensation and Liability Act of 1980, or "Superfund" legislation was enacted to create a system of liability for the environmental consequences of literally decades of unregulated waste disposal.

As a result of the foregoing statutes, the regulations promulgated thereunder, and similar developments in both the statutory and common law of the fifty states, industrial companies faced substantial liabilities in the 1980's that could not have been imagined just a short time before. Significantly, much of this liability was retroactive, being imposed upon these companies as a result of their actions (or those of their predecessors or others) years or even decades earlier. The most dramatic example of such liability is Superfund, under which an individual company can be held liable for 100% of the cost of remediating the environmental damages arising from a waste disposal site, simply because some portion of the waste at that site (no matter how small) is determined to have been generated by that company, regardless of how it came to be disposed at the site in question. The cost of such environmental remediation projects undertaken pursuant to Superfund have in some cases exceeded $100 million. Given the prospect of such staggering liability, potentially responsible parties ("PRPs") have become

embroiled in an ever-increasing storm of litigation with governmental regulators, other PRPs and, of course, liability insurers.

Pursuant to the insuring agreement of the standard CGL policy form, liability insurers have two separate duties to their insureds: (1) to indemnify the insured for all liabilities covered by the policy, and (2) to defend any suit against the insured which, if successful, would subject the insured to a liability covered by the policy. Insurers and insureds have come to disagree strongly regarding the interpretation and application of the language of that insuring agreement, as well as certain key exclusions in the policy, so that the state and federal judicial systems have become swollen with declaratory judgment litigation seeking to resolve these disagreements.

The indemnity portion of the insuring agreement typically obligates the insurer to "pay on behalf of the insured all sums which the insured shall become legally obligated to pay as damages because of bodily injury or property damage to which this insurance applies, caused by an occurrence." The policy defines an "occurrence" to mean "an accident, including injurious exposure to conditions, which results, during the policy period, in bodily injury or property damage neither expected nor intended from the standpoint of the insured." The primary battle lines between insurers and insureds (as well as among various insurers) are initially drawn at the underlined portions of the foregoing insuring agreement and definition.

- Insurers argue that the phrase "as damages" limits the policy coverage to the insured's liability to pay monetary damages to a third-party claimant, and excludes coverage for an insured's obligation to incur the expense of performing an environmental remediation pursuant to Superfund or other legal requirement. Insureds maintain that the distinction

between payment of money to environmental contractors to perform a remediation and payment of money to the government or some other third party as reimbursement for the cost of such a remediation is irrelevant for purposes of policy coverage.

- Because of the long-term and largely unseen nature of environmental contamination, insurers generally challenge any contention that bodily injury or property damage occurred during the relevant policy period. Indeed, most environmental insurance coverage disputes involve a continuing process of environmental contamination over a long period of time and a multitude of policy periods. The issue of when bodily injury or property damage occurred and which policy or policies should provide coverage is a quagmire from which few insurance coverage disputes have yet to emerge.

- Depending upon the circumstances, insurers frequently contend that insureds either expected or intended the bodily injury or property damage for which they subsequently seek coverage. Even where insureds undeniably engage in intentional acts of waste disposal, however, they contend that they did not intend and could not anticipate the property damage which ultimately arose therefrom.

In addition to the foregoing provisions of the insuring agreement, insurers and insureds litigate the meaning and application of two key policy exclusions known as the "pollution exclusion" and the "owned property" exclusion. The pollution exclusion was generally introduced to the standard CGL policy form as an endorsement in approximately 1970. It basically states that the insurance does not apply to bodily injury or property damage arising out of the discharge or release of waste materials or contaminants into the environment. In turn, however, the exclusion itself does not apply "if such discharge, dispersal, release or escape is sudden and accidental." Insurers contend that this exclusion significantly reduces coverage by introducing a temporal qualification which requires pollution to be abrupt or instantaneous (e.g., the result of an explosion or traffic accident) in order to be covered. Insureds respond that "sudden and

accidental" means nothing more than "unexpected and unintended" and is simply an application of the basic occurrence definition to events of pollution.

The owned property exclusion generally states that the insurance does not apply to property damage to any property owned or occupied by the insured or in the care, custody or control of the insured. Regarding most Superfund liabilities, the insured has never had any interest in or control of the contaminated waste site property. Not infrequently, however, insureds become subject to liability for contamination arising from the historic discharge or disposal of waste at their own facilities. Insurers contend that such on-site property damage is excluded by the owned property provision. Insureds generally respond that, while some or all of the environmental remediation activity might take place on the property of the insured, it is legally obligated to do so in order to remediate or prevent damage to adjacent, off-site property, or the underlying groundwater which is owned or controlled by the State and not the insured.

In addition to the duty to indemnify, the insuring agreement of CGL policy form obligates the insurer "to defend any suit against the insured seeking damages on account of such bodily injury or property damage, even if any of the allegations of the suit are groundless, false or fraudulent." Insurers have argued that this defense obligation is triggered only by a judicial action brought against the insured in a court of law and does not apply to notices of potential responsibility under the Superfund statute or other administrative proceedings initiated by governmental agencies. Insureds argue that the initiation of any action which can ultimately lead

to the imposition of legal obligations on the insured constitutes a "suit" which the insurer must defend. Of course, the insurers and insureds also regularly dispute whether the allegations of any such suit, if true, seek damages on account of bodily injury or property damage that is covered by the policy.

Each of the foregoing legal issues have been variously decided by the courts of different states, or by federal courts attempting to apply or anticipate the law of those states. Many states have yet to address some or all of those issues. In states where there have been judicial decisions regarding these coverage questions, the matter may not yet have come before the court of highest authority in such states. Accordingly, there remains a high degree of uncertainty regarding questions of environmental insurance coverage throughout the country. This uncertainty is the source of significant difficulty for insurers and insureds alike, as well as their outside litigation counsel and the entire judicial system.

GENERAL ISSUES OF JUDICIAL INTERPRETATION

Before it can even begin to consider the foregoing policy language in the context of an environmental coverage dispute, a court must first address certain preliminary issues that are critical to any interpretation of the policy. The most important of these is probably the choice of which state's law the court will apply in order to interpret the policy language in the case at issue. Because of the contrary positions that have been taken by the various state courts

regarding the major coverage issues, such a choice of law can be dispositive of the substantive issues in a coverage dispute.

The courts of each state have developed principles for determining which state's law should control any particular lawsuit, and even these choice-of-law principles are not consistent among the various states. Traditionally, disputes regarding contracts, including contracts of insurance, are governed by the law of the state in which the contract was made. Because of the nature of the insurance underwriting process and its reliance upon local commercial insurance brokers, contracts of insurance are generally deemed to have been made in the state in which the insured's principal place of business is located. In recent years, however, courts have begun to move away from this relatively simple place-of-contract approach and to apply instead the law of the state which has the "most significant contacts" with the dispute between the parties. In contract actions generally, and environmental coverage lawsuits in particular, the state with the most significant contacts often turns out to be the same state in which the contract was made. Some litigants have argued (and courts have decided), however, that the location of the environmental contamination which is the subject of the underlying claim against the insured is the most significant contact and that the law of the state in which the contamination took place should govern the subsequent insurance coverage dispute. Of course, because the same insured may operate facilities in many different states, or may be identified as a PRP at waste disposal sites located throughout the country, that insured may be seeking coverage for environmental contamination located in more than one state. If the place of contamination is deemed to be the

most significant contact which controls the choice of law, the same CGL policy can be subjected to different and conflicting interpretations pursuant to the judicial precedent in different states.

The foregoing choice of law argument between the place of contract and the place of contamination does not find either insurers or insureds consistently on one side or the other. Litigants generally argue for the application of that state law which has already been decided favorably to their own coverage position. Indeed, the same insurance companies have argued for the law of the place of contract in one coverage dispute while requesting application of the law of the place of contamination in another. As the highest courts of more and more states continue to decide the substantive coverage questions discussed herein, choice of law will increasingly become the primary dispositive issue in any environmental coverage litigation.

After choosing the applicable law, courts also apply a number of important rules of construction for interpreting any policy provisions at issue in an insurance coverage dispute. The most important such rule is contra proferentum, a judicial principal which holds that any ambiguity in an insurance contract will be strictly construed against the insurer as the drafter of the policy. In applying this rule of construction, insuring agreements are generally interpreted broadly so as to afford the greatest possible coverage to the insured, while exclusionary clauses are interpreted narrowly against the insurer.

In recognition of the fact that insurance policy forms are generally prepared by the insurer (or, as in the case of the standard CGL form, the insurance industry acting in a collaborative effort), courts require that insurance policies be construed in order to give effect to the reasonable expectations of the insured. Accordingly, where such reasonable expectations are in conflict with the intentions of the insurers expressed in technical policy language, the purported limitations of such language often will not be allowed to defeat the coverage expectations of the insured. These rules of construction apply in any case involving standard form policy language regardless of whether the insured is a small company or a large corporation with significant bargaining power and sophistication concerning insurance. Where the insurance policy in question is not a standard form policy, however, insurers argue that the insurance contract is an arms length transaction (particularly where the insured is a major corporation) and that the rule of contra proferentum should not be applied.

While most environmental insurance coverage disputes focus primarily upon the language of the policy provisions identified above, historical documentation regarding the drafting and interpretation of that language and other similar extrinsic evidence has played an important part in many judicial decisions. Insurers usually argue that the language of the CGL policy form is unambiguous and that courts should not allow the discovery or admission of extraneous materials into evidence but limit themselves to the "four corners" of the insurance contract. Some courts have so held and have denied insureds the right to obtain discovery of policy drafting history or other extrinsic documents. Insureds have consistently sought to discover and make use of such

documents, and many courts have ordered insurers to produce documents regarding the drafting history of the standard form CGL policy, the representations made by insurers to state insurance regulators, internal interpretive documents of the insurers, and communications with other policy holders regarding environmental coverage claims. Many courts that have ruled in favor of insureds on the substantive environmental coverage issues have done so, at least in part, in reliance upon such extrinsic documents or evidence. As a result, the fight over the discovery and admissibility of such documents has become a significant preliminary battle in the environmental insurance coverage wars.

DUTY TO DEFEND

The duty of an insurer to defend its insured is independent of and broader than the duty to indemnify. An insurer must defend its insured against a claim if there is any possibility that the claim is covered by the policy, based solely upon the allegations against the insured. An insurer must provide a defense regardless of whether it believes an exclusion may ultimately defeat coverage, unless it is clear from the complaint that the allegations fall entirely within the scope of a policy exclusion. In an action with multiple claims against the insured, if any one of those claims gives rise to a duty to defend, the insurer must defend against the entire action.

In a typical CGL policy, the duty to defend is independent of the limits of liability which govern the duty to indemnify. In other words, the insurer must pay the cost of defense in addition to the amount of any indemnity. This is important in Superfund litigation where the defense

expenses can be very significant and often continue for long periods of time before there is any determination regarding the liability of the insured. Indeed, even in cases where the insured is not ultimately held liable to pay for the alleged environmental contamination, the insurer may be required to pay substantial amounts in order to defend against the claim.

The typical duty to defend provision in the CGL policy form requires the insurer "to defend any suit against the insured seeking damages on account of such bodily injury or property damage, even if any of the allegations of the suit are groundless, false or fraudulent . . .". Insurers have argued that the word "suit" only refers to the institution of civil judicial proceedings against the insured. In contrast, the procedure for determining liability for environmental response costs under Superfund is typically initiated by a notice letter from the USEPA informing the insured that it is potentially responsible for environmental remediation at a given Superfund site. The liability for many Superfund cleanups is often resolved with little or no judicial proceedings whatsoever. Insureds maintain that any administrative or other legal proceeding, including the typical PRP notice letter issued by USEPA, constitutes a "suit" pursuant to the CGL policy which triggers the duty of an insurer to defend against that claim of liability. Although a few courts have ruled that the term "suit" is limited to civil judicial proceedings, the clear majority of courts have concluded that a PRP letter pursuant to Superfund (or other similar notice or remedial order from a regulatory agency) is a "suit" which gives rise to a duty to defend the insured.

MAJOR COVERAGE ISSUES

As "Damages"

The typical insuring agreement provides for indemnity of "all sums which the insured shall become legally obligated to pay as damages because of bodily injury or property damage . . ." Insurers have argued that the term "damages" incorporates the historical distinction in both English and American common law between an award of legal damages (i.e., a requirement to pay a sum of money to the plaintiff) and the issuance of an injunction or other form of equitable relief (i.e., the requirement to perform or refrain from a certain action which may result in certain costs to the defendant). This distinction is potentially very significant when applied to the modern context of Superfund liability. Typically, USEPA orders a group of PRPs to perform a specified environmental remedy and the PRPs allocate the cost of that remedy among themselves through a process of negotiation or litigation. In the alternative, if some or all of the PRPs fail to perform the remedy, either USEPA or a group of the PRPs will do so and then seek to recover the cost of that remedy from the non-participating PRPs. Superfund negotiations with USEPA typically result in the entry of an injunctive consent order to perform a remedy. In contrast, a successful cost recovery action by USEPA or private parties results in the entry of a damage award. Insurers contend that, while the latter might come within the scope of the insuring agreement as an obligation to pay "as damages," the former is outside the scope of that agreement and not covered by the standard CGL policy.

A minority of courts have agreed with the insurers and held that environmental response costs incurred by PRPs in order to perform a cleanup pursuant to Superfund are a form of equitable or injunctive relief (and not legal "damages") which is not covered by the CGL policy. In contrast, a large majority of courts have ruled that such a technical reading of the policy is contrary to the reasonable expectations of the insureds and have construed this language of the insuring agreement broadly in favor of coverage.

Trigger of Coverage

The standard form CGL policy provides coverage for bodily injury or property damage "caused by an occurrence" which is defined to mean an accident which results in bodily injury or property damage "during the policy period." In other words, in order to determine whether one or more CGL policies provides coverage for a given claim, a court must decide whether the alleged injury or damage occurred during the relevant policy period. This "trigger of coverage" issue is often very complex because of the continuous long-term development of the alleged damage or injury in most environmental cases and the delayed manifestation of such damage or injury. In order to resolve this issue, courts have generally resorted to one of four approaches or "triggers": exposure, manifestation, continuous or actual injury.

Some courts have held that environmental damage occurs at the time of exposure of the contaminant to the environment, regardless of when the property damage was discovered. Depending upon the circumstances, such "exposure" can consist of either a single event of waste

disposal, discharge or emission, or a number of such events. Obviously, exposure through a series of discharge events over multiple policy periods could trigger coverage under more than one policy.

A number of courts have held that property damage is not deemed to exist until it becomes manifest or is discovered, regardless of when the initial exposure to contamination occurred. This manifestation trigger theory is favored and promoted by insurers for two reasons. First, it generally results in the triggering of only one policy period and precludes the stacking of policy limits for multiple policies even where the contamination or events of waste disposal took place during more than one period. Second, although the disposal or discharge events and environmental exposure may have occurred in the 1960's, the resulting property damage may not have become manifest or discovered until the mid-1970's (after the introduction of the sudden and accidental pollution exclusion), or even the mid-1980's (after the introduction of the absolute pollution exclusion). Consequently, the application of the manifestation trigger can provide a substantial benefit or even complete victory to insurers in many environmental coverage disputes.

An emerging rule in environmental coverage cases is that environmental contamination can be progressive and cumulative, and that coverage is continuously triggered during all policy periods in which the property was damaged. Under this continuous trigger theory, all policies in effect

after the time of the initial release or discharge of contaminants into the environment potentially provide coverage for the resulting environmental damages.

Finally, a few courts have refused to adopt the exposure, manifestation or continuous trigger theories and instead have held that there must be "actual injury" during the policy period in order to trigger coverage. This approach requires an analysis of the particular facts of each case and often precludes summary judgment on the basis of more readily identifiable events such as the time of discharge or discovery. In actual application, this actual injury trigger may well result in coverage under multiple policy periods for environmental liabilities.

Expected or Intended Damage

Pursuant to the definition of "occurrence," the insuring agreement of the standard CGL policy only provides coverage for bodily injury or property damage "neither expected nor intended from the standpoint of the insured." The issue is whether the insured expected or intended to cause the alleged injury or damage, not whether it intended to dispose of waste materials or perform some other act which ultimately caused the damage. Accordingly, environmental property damage at a waste disposal site to which an insured intentionally and regularly shipped waste materials is not deemed to be "expected or intended" from the standpoint of the insured. In contrast, depending upon the nature and circumstances of the insured's actions, a discharge of contaminants by the insured directly to the environment can be the basis for an inference that the insured intended the alleged injury or damage.

Most courts focus upon the subject of intent or expectation of the insured in the circumstances of the case at issue, not some objective standard as to what the insured should have known or expected. Recognizing that "expected or intended" means more than just reasonably foreseeable (i.e., simple negligence on the part of the insured), some courts interpret this provision to exclude only those damages which the insured knew would flow directly and immediately from its intentional act. On the other hand, other courts have held that coverage will be excluded if there was a "substantial probability" that the damage would occur.

Pollution Exclusion

Prior to 1970, the standard CGL policies generally did not contain any policy language specifically addressing pollution or excluding liability arising from pollution events. In about 1970, the Insurance Services Office drafted a standard form pollution exclusion which was adopted by its member companies and incorporated into most CGL policies as either an endorsement or an exclusion within the policy form. The standard form exclusion provides as follows:

> This insurance does not apply . . . to bodily injury or property damage arising out the discharge, dispersal, release or escape of smoke, vapors, soot, fumes, acids, alkalis, toxic chemicals, liquids or gases, waste materials or other irritants, contaminants or pollutants into or upon land, the atmosphere or any watercourse or body of water; but this exclusion does not apply if such discharge, dispersal, release or escape is sudden and accidental.

The meaning and application of the foregoing sudden and accidental pollution exclusion has been perhaps the principal issue in the long-playing environmental insurance coverage debate between

insurers and their insureds. The controversy concerns the exception to the exclusion and particularly the meaning of the phrase "sudden and accidental." Insurers contend that the word "sudden" in this exclusion has a temporal meaning and that a discharge or release of contaminants must occur abruptly or instantaneously in order to be covered by the CGL policy. Environmental damages resulting from a gradual release of contaminants over a long period of time are subject to the exclusion and not covered by the policy. A substantial number of courts have agreed with this argument and excluded coverage for "gradual" pollution.

In contrast, insureds argue that the word "sudden" means nothing more than unexpected or unanticipated, a surprise. Accordingly, the phrase "sudden and accidental" should be interpreted as "unexpected and unintended," which is the basic concept of the "occurrence" definition and a fundamental character of the risk inherent in the insuring agreement. An equally substantial number of courts have agreed with this argument of the insureds and have construed the "sudden and accidental" language so as not to exclude coverage for gradual pollution so long as that pollution was not expected or intended by the insured.

For those courts which construe "sudden and accidental" to mean "unexpected and unintended," the question then becomes what must be unintended and unexpected? The initial disposal, discharge or release of contaminants? Or the consequent damage to groundwater or some other environmental resource? For example, if an insured deliberately places waste materials into a landfill, surface impoundment or other waste management unit, and contaminants from that

waste material subsequently migrate from the waste management unit to the underlying groundwater, does the pollution exclusion apply? Many cases have focused upon the consequent environmental damage and have held such unexpected and unintended damage to be covered regardless of the intentional nature of the initial act of waste disposal. Other courts have focused more closely on the actions of the insured and have held that coverage exists only where the discharge, dispersal, release or escape of contaminants was not expected or intended. In these cases, the particular facts and circumstances of the underlying contamination, including the nature of the waste or contaminants, the type and character of the waste disposal unit and the purpose of the required remediation, are critical factors in the ultimate coverage decision.

In general, extrinsic evidence from historical documents (in addition to the policy language itself) has played a significant role in many of the judicial rulings that "sudden and accidental" means nothing more than "unexpected and unintended." Those courts which have found such extrinsic materials to be both discoverable and admissible have frequently ruled in favor of the insureds regarding the application of the pollution exclusion. In contrast, those courts which have rejected extrinsic evidence and limited their consideration to the policy language are also more inclined to opt for a restrictive interpretation which excludes coverage for gradual pollution. Numerous drafting history documents and other historical materials have become exhibits for judicial consideration in a host of environmental coverage lawsuits. Perhaps the most important of these documents are the representations made by the Insurance Services Office on behalf of its member companies in connection with the submission of the pollution exclusion

form for approval by the insurance regulatory authorities of the various states. Insureds contend, and many courts have agreed, that these statements on behalf of the insurers constitute evidence that the proposed exclusionary language was intended to be nothing more than a restatement of the "unexpected and unintended" requirement of the basic insuring agreement. Recently, a New Jersey court has gone even further in ruling that, on the basis of these representations to state insurance authorities, the insurers are estopped from contending that "sudden" has a temporal meaning or that the exclusion should be construed narrowly. Insureds are likely to present this same estoppel argument to other courts in the near future.

In or about 1985, the Insurance Services Office developed the "absolute" pollution exclusion which most insurers have included in general liability policies issued since that time. In rather elaborate language, this new exclusion precludes coverage for (a) bodily injury or property damage arising out of the release of pollutants and (b) costs of any environmental clean-up pursuant to governmental direction or request. Courts confronting this absolute pollution exclusion in recent litigation generally have concluded that it is unambiguous and excludes coverage for all claims alleging damage caused by pollutants. The exclusion has been held inapplicable in several cases, however, where there was a material issue of fact as to whether the substance in question was a "pollutant" within the meaning of the exclusion. Significantly, the Supreme Court of Louisiana recently found the absolute pollution exclusion to be ambiguous as a matter of law because a literal application could preclude coverage of many routine business accidents which an insured would reasonably expect to remain covered. While the court held

that coverage for soil and groundwater remediation expenses arising from an underground storage tank leak were excluded, "nonenvironmental" property damage to underground telephone cables were covered. Undoubtedly, the parameters and application of the absolute pollution exclusion will continue to be tested on a case-by-case basis.

Owned Property Exclusion

The majority of environmental coverage claims involve underlying liabilities in which the insured is identified as a PRP at a Superfund site because waste generated by that insured was ultimately disposed of at the site in question. In these circumstances, the PRP typically had no ownership interest in or operational control over the waste disposal site. Indeed, the insured may have had no knowledge whatsoever regarding the ultimate destination of its waste. In a significant number of cases, however, insureds have been subjected to liability for environmental damages at facilities which they have owned or operated. Typically, such on-site environmental liabilities arise in connection with governmental enforcement actions under the hazardous waste regulations, private litigation by adjacent property owners, or environmental cost recovery claims by subsequent purchasers of the facilities in question. In such cases, the owned property exclusion of the CGL policy may limit or preclude coverage for certain damages arising from on-site environmental contamination.

Typically, the owned property exclusion provides that "this insurance does not apply . . . to property damage to (1) property owned or occupied by or rented to the insured, (2) property

used by the insured, or (3) property in the case, custody or control of the insured or as to which the insured is for any purpose exercising physical control. . ." The basic principle underlying this exclusion is that liability insurance covers damage to the property of third parties, whereas damage to the insured's own property is typically covered by first-party property insurance. In general, courts have applied this exclusion to reject coverage claims where the alleged property damages are solely confined to the property of the insured and there is no contamination of underlying groundwater or adjacent, third-party property. Frequently, however, the application of this exclusion has proven to be rather complicated. Typically, contamination which may have originated on the property of the insured has either migrated to off-site property or is threatening to do so. Most courts have held that the exclusion does not apply where there has been actual off-site contamination. Some courts have even held that, where environmental remediation is required in order to prevent threatened off-site contamination, the owned property exclusion is inapplicable. Where environmental response actions are undertaken in part to remediate on-site contamination and also to prevent or remediate off-site migration of contaminants, the court must determine whether the on-site remediation costs are subject to the exclusion, or whether the exclusion is completely inapplicable and all response costs are covered by the policy.

The treatment of groundwater is perhaps the most important issue regarding the owned property exclusion. Insurers maintain that groundwater underlying owned property should be considered no different from structures upon that property, or the property itself. In other words, underlying groundwater is property owned or controlled by the insured and any damage to such

property is excluded from coverage. The insureds respond that they do not own or control the groundwater which is the property of the state, so that groundwater contamination is not damage to owned property. In general, most courts which have addressed this issue have agreed with the insureds and have refused to apply the owned property exclusion to groundwater contamination. Indeed, one court recently held that the costly remediation of groundwater contamination is driven by the interest of the state in such groundwater, not by the property interests of the insured.

CONCLUSION

As of this writing, most (if not all) of the foregoing issues of policy interpretation are pending before courts in jurisdictions with no binding, determinative precedent. Many of those cases involve factual circumstances concerning the nature of the contaminating release, the environmental damages or the governmental response which may serve to distinguish them from prior judicial decisions. As a result of this ongoing judicial process, the interpretation of the CGL policy and its application to events of environmental contamination will continue to evolve and be refined.

Readers interested in any citations to judicial decisions regarding the issues discussed in this article are encouraged to contact the author.