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FALL 2004

• Assessing Environmental Liabilities Under CERCLA
page 6

Developments Related to Statements of Actuarial Opinion on Loss Reserves

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Deja Vu

Back in the late 1980s, the high-profile insolvencies of insurance companies like Transit Casualty Company and Mission Insurance Company led to a congressional study and culminated in a report titled *Failed Promises: Insurance Company Insolvencies* (commonly known as the Dingell report after John Dingell, the chairman of the investigating committee). The Dingell report attributed the company failures to numerous causes including rapid expansion, underpricing, under-reserving, management fraud, incompetency, and weak regulation by the states.

One outcome of the Dingell report was a new requirement for property and casualty (P&C) insurers to obtain an annual Statement of Actuarial Opinion (SAO) on loss reserves by a qualified actuary or loss reserve specialist. The SAO requirement was intended to be a significant step towards decreasing the likelihood of insurer failure due to inadequate loss reserves.

Fast-forward to today, and the mood is familiar, at least to financial industry observers of a certain age. The insolvencies of Reliance Insurance Company and numerous California workers' compensation insurers have been attributed in large part to reserve deficiencies. Numerous insurers and reinsurers have announced huge reserve increases and been subsequently downgraded. According to a recent news release from A.M. Best Co., US P&C insurers have taken $47 billion in reserve charges over the past three calendar years. A.M. Best estimates that the industry's reserves remain deficient by as much as $67 billion, an amount representing approximately 19% of policyholder surplus. Industry analysts commonly cite deficient loss reserves as the leading cause of P&C insurer insolvencies, with the percentage ranging from one-third to two-thirds depending on the time period under consideration.

In November 2003, Standard & Poors came out with an article called "Insurance Actuaries—A Crisis of Credibility" containing statements to the effect that insurers are chronically misstating loss reserves and that the actuarial profession has failed to be sufficiently accountable for the problem. The S&P article criticized the current SAO requirements from the NAIC as being too vague, so that "the average reader is left clueless about the potential magnitude of variability and can easily be misled."

Although the accuracy and fairness of this type of criticism is open to debate, it is safe to say that there is a major concern about P&C loss reserve adequacy and potential insolvencies, and as a result it is important to ensure that SAO quality is as high as possible. Both regulators and actuarial professional organizations are working to accomplish this goal. The NAIC has recently taken a number of steps to enhance insurance company financial reporting and financial controls. Further, the American Academy of Actuaries (AAA) and the Casualty Actuarial Society (CAS) are pursuing several initiatives to investigate and improve the quality of SAOs. This article provides an overview of the current changes and initiatives related to US statutory statements of actuarial opinion on P&C loss reserves.

Regulatory Changes

The NAIC has made the following recent changes regarding SAOs on P&C loss reserves:

- Revamped the SAO instructions.
- Implemented a new data testing rule that applies to the data underlying the SAO.
- Required companies to disclose previous disputes when they replace their appointed actuaries.

- Introduced a new Actuarial Opinion Summary that will provide key information to regulators regarding the appointed actuary's estimates.

- Developed a model law to protect the confidentiality of the AOS.

The remainder of this section contains additional information about each of these changes.

There is an additional initiative within the NAIC to extend key provisions of the Sarbanes-Oxley Act of 2002 (SOX) to all US insurance companies. Currently SOX applies only to publicly traded companies. The SOX initiative extends beyond loss reserves to encompass broader issues such as corporate governance, auditor independence, and financial controls. The SOX initiative is still in the formative stages within the NAIC and will not be covered further in this article.

New SAO Instructions

Effective for loss reserves as of December 31, 2004, the SAO instructions have been completely revised. The nature and purposes of the revisions are to:

- Increase the level of disclosure in critical areas.
- Improve adherence to actuarial standards.
- Organize the information in the SAO more efficiently.

The following are some of the most significant disclosures introduced in the 2004 SAO instructions:

- A requirement to state whether or not the appointed actuary believes there is a significant risk of material adverse deviation with respect to loss reserves. Formerly, the requirement was to include a disclosure only if the actuary believed that there was a significant risk.

- The dollar amount of the materiality standard underlying the appointed actuary's assessment of the risk of material adverse deviation. Formerly, the requirement was to disclose the materiality standard only if the actuary believed that there was a significant risk.

- The name and affiliation of the person upon whom the appointed actuary relies for the data underlying the loss reserve analysis. Formerly, it was acceptable to state reliance on "responsible officers or employees of the company."

- A list of items required to be included in the report underlying the SAO, such as a comparison of the appointed actuary's point estimate or range to recorded reserves, a reconciliation of loss reserving data to Schedule P, and extended comments on unusual IRIS ratios. Formerly, the SAO instructions were less specific about the actuarial report contents.

The SAO instructions generally attempted to improve adherence to actuarial standards by including more explicit instructions. For example, the instructions require explicit identification of the type of opinion (reasonable, qualified, deficient, redundant, or no opinion) in accordance with Actuarial Standard of Practice 36.

Another key change is the removal of the "loss reserve specialist" from the definition of a qualified actuary for purposes of issuing SAOs. However, the new instructions allow someone who does not meet the definition of a qualified actuary to issue SAOs if appointed by a state insurance commissioner.

Many other changes to the SAO generally improved the logic and organization of the document. The number of sections of the SAO instructions was greatly reduced, from 17 to nine. All numeric disclosures were incorporated into two exhibits rather than being dispersed throughout the text; the exhibits make a clear distinction between disclosure items and opinion items.

To help insurance companies understand the changes to the SAO instructions, the Casualty Actuarial Task Force (CATF) of the NAIC wrote a regulatory guidance document (the "CATF document"). This document provides background and explanation of the major changes, and gives additional information on the expectations of regulators. One important expectation contained in the CATF document is known as the "Bright-Line Indicator," which represents the CATF's expectation of "an outside bound of what is material." The Bright-Line Indicator is defined in the CATF document as the condition that:

> "10% of the insurer's net reserves, that is 10% of the sum of Lines 1 and 3 on Page 3 of the Annual Statement, are greater than the difference between the Total Adjusted Capital and Company Action Level capital."

Thus, if a 10% net reserve deficiency would cause the company's RBC to fall to Company Action Level, the CATF expects to see explicit comments regarding the risk of material adverse deviation in the SAO.

The CATF document notes that the Bright-Line Indicator is not intended to be a de facto materiality standard, and observes that the CATF expects the appointed actuary to choose a more restrictive standard in the majority of situations.

The major impact of the revised SAO instructions for most P&C companies is likely to be:

- An increase in the number of SAOs that disclose the presence of a significant risk of material adverse deviation.

- An increase in the attention paid to the data underlying the SAO, as the name of the responsible person providing the data must be disclosed.

- Improved clarity as to exactly what opinion is being rendered by the appointed actuary; e.g., reasonable, qualified, or deficient.

- Better and more complete information in the actuarial reports underlying the SAO.

The CATF document can be found on the NAIC website, www.naic.org and on the CAS website, www.casact.org. It will also be included as an Appendix to the Practice Note on P&C Statements of Actuarial Opinion provided by American Academy of Actuaries Committee on Property and Liability Financial Reporting (COPLFR).

New Data Testing Requirement

The 2004 Annual Statement Instructions contain a new paragraph in Section 9, "Scope of Examination and Report of Independent Certified Accountant," referred to as "the new data testing requirement" in this article. Effective for loss reserves as of December 31, 2004, company management must instruct the independent certified public accountant to subject the data used by the appointed actuary to testing procedures.

As it regards testing data used in actuarial analyses, auditors are guided by SOP 92-4, which requires the auditor to subject the data underlying loss reserve estimates to testing procedures. The data relied upon by the auditor may or may not be the same as the data used by management in developing the loss reserve estimate. Under SOP 92-4, data used by the appointed actuary might not have been subject to testing if that data was not also relied upon by the auditor in the course of the statutory financial statement audit. The new data testing requirement ensures that the auditor will become aware of the data that the appointed actuary identifies as being significant. However, not all data identified as significant by the appointed actuary will necessarily be tested in the statutory financial statement audit; this is a matter of auditor judgment as well as the auditor's assessment of materiality.

The purpose and intended effect of the new data testing requirement is to decrease the likelihood that the appointed actuary will rely upon inaccurate data that results in inaccurate conclusions. In numerous insolvency proceedings, inaccurate data has been cited as a critical factor underlying loss reserve deficiencies. Although not all data used by the appointed actuary will be tested by auditors, the new data audit requirement will almost certainly result in additional testing versus what is currently being done. It will also result in an increased dialogue among appointed actuaries, company management, and auditors regarding the nature, significance, and use of the data underlying the SAO.

Over the past six months, COPLFR held numerous discussions regarding the new data audit requirement with the American Institute of Certified Public Accountants (AICPA), the NAIC/AICPA Working Group and the NAIC Casualty Actuarial Task Force. Based on these discussions the AAA issued a non-binding guidance document on the new data audit requirement to US P&C actuaries. It can be found on the AAA website, www.actuary.org.

Replacement of Appointed Actuary

The 2005 SAO Instructions contain a new provision regarding the replacement of an appointed actuary that generally follows existing provisions regarding the replacement of an independent auditor. Effective beginning in calendar year 2005, the new instructions require the insurer to:

- Notify the insurance department of the state of domicile within five days of the Board of Directors action to replace the appointed actuary.

- Send the domiciliary commissioner a separate letter within 10 days of the Board action, stating whether in the preceding 24 months there were any disagreements with the former appointed actuary regarding the content of the opinion on matters of the risk of material adverse deviation, required disclosures, scope, procedure, or data quality. The disagreements required in the company's letter include both those resolved to the former actuary's satisfaction and those not resolved to the former actuary's satisfaction.

- Request in writing a letter from the former actuary stating whether the actuary agrees with the statements contained in the insurer's letter and, if not, stating the reasons for which he/she does not agree.

The impact of this new requirement on most P&C companies is likely to be minimal, because the replacement of an appointed actuary is most often due to circumstances other than disagreements, such as fee considerations or job changes. For those companies that do replace their appointed actuaries following disagreements over the content of the SAO, the new requirement is likely to result in increased regulatory scrutiny of the circumstances surrounding the replacement.

Actuarial Opinion Summary and Model Law

When the CATF was revising the 2004 SAO instructions, one of the most heavily debated issues was the disclosure in the SAO of the appointed actuary's point estimate or range of estimates. The regulators who favored disclosure thought that it would improve their ability to detect companies slipping lower over time in a range of reasonable reserves, or ranges estimated by appointed actuaries that appeared to be unreasonably wide. The parties who opposed disclosure were concerned that the appointed actuary's estimates would be used in ways that were not intended, for example that they would become a de facto lower bound for recorded reserves.

Although the appointed actuary's estimates are contained in the actuarial report underlying the SAO, many regulators felt that reports are impractical to use for monitoring purposes. First, actuarial reports are not due until several months after the SAO, and are therefore less timely. Moreover, it would be time-consuming and difficult to extract the crucial information from the reports, which can be extensive and complex and are not produced in any standard form. Finally, it was difficult or impossible in many states to protect the confidentiality of the actuarial reports outside the auspices of a financial examination.

The Actuarial Opinion Summary (AOS), a confidential document to regulators separate from the SAO, is the compromise that was reached on this issue. A provision contained in the Annual Statement Instructions for December 31, 2005 defines the contents of the AOS and outlines the conditions for its submission. The Annual Statement Instructions state that the AOS should be signed and dated by the appointed actuary and should include at least:

- the appointed actuary's range of reasonable estimates for loss and loss adjustment expense reserves, net and gross of reinsurance; and/or
- the appointed actuary's point estimates for loss and loss adjustment expense reserves, net and gross of reinsurance; and
- the company's recorded loss and loss adjustment expense reserves, net and gross of reinsurance; and
- the difference between the company's carried reserves and the appointed actuary's point estimate and/or range of reasonable estimates, net and gross of reinsurance; and
- in cases where there has been one-year adverse development in excess of 5% of surplus, as measured by Schedule P, Part 2 Summary, in at least three of the past five calendar years, an explicit description of the reserve elements or management decisions which were the major contributors.

The reason that the range and point estimate requirements are shown separately is that some actuaries develop a range to support their SAOs and some develop a point estimate. Either is acceptable, and the AOS contents would follow the actuary's work.

The instructions state that the AOS contains significant proprietary information, and that it should be held confidential and is not intended for public inspection. The NAIC drafted a model law, separate from the Annual Statement Instructions, protecting the confidentiality of the AOS. Companies are required to file the AOS in their domiciliary state only if the confidentiality of the AOS is protected through the existence of a model law or some similar means. Language in the model law also shields the appointed actuary from liability for the SAO from parties other than the regulator and the insurance company, except in cases of fraud or willful misconduct.

In domiciliary states where confidentiality is protected, the AOS is due March 15. The AOS will also be submitted to non-domiciliary states on request, provided that the requesting state can demonstrate that they are able to preserve the confidentiality of the document.

The impact on P&C companies of the new AOS and model law is likely to be as follows:

- A requirement to file the AOS in many states for year-end 2005, and in most of the remaining states by 2006.
- Increased scrutiny by regulators in situations where the appointed actuary's range is unusually wide, where the company's loss reserves are low in the range, or where reserves fall significantly lower than the actuary's point estimate in those cases where only a point estimate is provided.
- An increased amount of scrutiny by company management of the recorded loss reserve position relative to the actuary's range of estimates.

Initiatives within the Actuarial Profession

Through COPLFR, the AAA has participated in an active dialogue with the NAIC on all these regulatory changes, and in many cases has helped to craft the solutions. Beyond that, there are two major initiatives within the actuarial professional organizations—the AAA as a policy-making group and the CAS as a research group—related to SAO quality.

SAO Quality

Members from COPLFR, the AAA Professionalism Council, and the NAIC CATF recently formed a subcommittee (the SAO Quality group) to ensure that the quality of P&C SAO work is generally as high as it should be. The group's first action item is the proposed development of a course specifically addressing the SAO, covering such topics as:

- Annual Statement Instructions regarding SAOs;
- Applicable actuarial standards of practice, statements of principles, qualification standards, and continuing education requirements;
- Documentation of opinions;
- Reliance on the work of other actuaries;
- Issues in reconciling Schedule P data;

- Considerations in establishing ranges versus point estimates;
- Considerations in complying with data audit and data quality requirements;
- Considerations in taking on a new opinion assignment; and
- Effective delivery of messages that others may not be pleased to hear.

The SAO Quality group envisions that the course would extend for no more than one day, and could be offered at several locations throughout the year to maximize access. Documentation of successful completion would require in-person attendance and would be provided to all attendees who are present for the entire day. It is envisioned that the documentation would expire in three to five years, so that actuaries would periodically update their attendance through refresher courses, either online or in person.

The group recommends that, initially, the course be voluntary. In the future it is possible that states may require that appointed actuaries disclose in the SAO whether they have attended the course. If the course proves to be valuable, it is possible that regulators or the profession will eventually make participation mandatory for appointed actuaries.

The SAO quality group envisions that this course will improve adherence to current regulation and actuarial standards by appointed actuaries, and result in higher-quality SAOs for the industry.

Under-Reserving Insolvency Link

In 2002, the CAS Committee on Reserves (CASCOR) established the Under-Reserving Insolvency Link (URIL) subgroup. URIL's mission is to investigate and report on the impact of inadequate reserves on recent P&C company insolvencies, and review the cause of recent reserve increases taken by ongoing companies. CASCOR's ultimate goal is to address deficiencies in current actuarial approaches to loss reserving through education and research.

The subgroup's work plan is divided into two separate projects. Project 1, which is near completion, involves an examination of SAOs from insolvent companies and ongoing companies with large reserve changes. Project 2, which is in the planning phase, will examine the reserving process for ongoing companies with recent large reserve changes.

The purpose of Project 1 is to measure the quality of information in SAOs relative to company performance, from a retrospective viewpoint and using publicly available data. URIL gathered SAOs from insolvent companies between 1990 and 2000, and from ongoing companies with large reserve changes between 2000 and 2003. They compared certain statistics for these companies to statistics from the industry as a whole. Examples of the statistics are:

- Change in appointed actuary
- Appointed actuary comes from outside the company
- Reinsurance collectibility issues
- Failure of 1-year and 2-year IRIS ratios on reserve development
- Data reconciliation problems
- Reasonable opinion

URIL will examine these statistics to determine whether problems were typically identified in SAOs prior to insolvency or reserve movement.

In September 2004, partial results from Project 1 were presented by the URIL at the Casualty Loss Reserve Seminar. Additional presentations are planned in November 2004, at the CAS Annual Meeting and at a later date to the NAIC.

The goal of Project 2 is to make a rigorous examination of the reserve process at on-going companies with large reserve changes, and identify any problem areas such as assumptions, methods, or selections. URIL is planning to use independent researchers for Project 2 to protect the confidentiality of the companies, and a request for proposals to do that work is under development.

The outcome of Project 2 will be a list of action items to be addressed by CASCOR through a working party, funded research, call papers, or other means. The eventual impact of this initiative on insurance companies is likely to be a greater awareness of loss reserving issues as they relate to insolvency.

Conclusion

All of the changes and initiatives described in this article are the culmination of many hours of thoughtful debate, analysis, and effort on the part of regulators and the actuarial profession. The people involved in the debate share a common sense of urgency in responding to the challenges of improving the quality of SAOs and helping to avoid insolvency through inadequate loss reserving. The outcome for users should be a better understanding of the risks and considerations underlying the P&C industry's loss reserves, and a greater confidence in the usefulness of SAOs as one of the main tools in solvency monitoring.

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Assessing Environmental Liabilities Under CERCLA

by Claus S. Metzner, FSA, FCAS, MAAA, Aktuar-SAV, Christine M. Fleming, JD

This article is intended to serve as an overview for assessing environmental liabilities under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA). In recent years, insurers have been focusing on the adequacy of asbestos reserves, in many cases without channeling the same level of attention toward environmental reserves. At the same time, Superfund resources are dwindling, A.M. Best has reported that the industry remains underreserved for environmental reserves, and estimating these liabilities continues to involve complicated and unresolved issues. The time is right for insurers to examine pollution liabilities closely. Part I of this article will list the challenges facing insurers when reserving for pollution liabilities. Part II will outline a model for estimating liabilities for large, multi-party waste sites.

A future article will discuss the assessment of liabilities arising from non-CERCLA sites, i.e., under state action.

I. Challenges

CERCLA imposed strict liability on parties responsible for the remediation of waste sites on the National Priorities List (NPL). Waste sites listed on the NPL are considered to be the largest and most hazardous (i.e., the most in need of clean-up). Liability under CERCLA is considered "joint and several," meaning that a party liable for any portion of the contamination-even a de minimus share-could be accountable for the total clean-up costs of the entire site. Although CERCLA has been interpreted as being a punitive law, the primary purpose of CERCLA was to identify the largest contaminated sites and select a remedial action that protected human health and the environment in a cost-effective manner. CERCLA also established a fund to pay for the remediation of those sites for which no potentially responsible party (PRP) exists (the Superfund).

In response to the CERCLA aftermath and various reporting requirements, insurers in the 1990s strengthened pollution reserves. In recent years, however, environmental reserves were being paid down without further strengthening. A.M. Best describes the industry as being in "sleep mode" with respect to environmental losses, with insurers' environmental reserves declining about 10% a year from 1999 to 2002. With payouts averaging about $1.5 billion annually in recent years, and A.M. Best estimating that the industry is underreserved for environmental claims by about $25 billion as of year-end 2002, it is likely that reserve reviews will be needed with the next few years.

Several factors contribute to the difficulty in estimating environmental reserves:

1. Uncertain Number of Sites. Currently, there are 1,238 total sites on the NPL; however, this number changes from year to year and estimates regarding the final total number of sites that will be eventually remediated are speculative. To further add to the speculation, the Comprehensive Environmental Response, Compensation, and Liability Information System includes a list of hazardous waste sites, potential hazardous waste sites, and remedial activities across the nation beyond what is listed on the NPL. Individual states also maintain a list of sites for which the state has clean-up responsibility.

2. Uncertain Costs of Remediation. Remediation efforts under CERCLA generally have been slow to implement and complete, and have resulted in large transaction costs. In addition, cost estimates performed at the time of the Remedial Investigation, Feasibility Study, and Record of Decision (ROD) have in some cases varied greatly from the actual final cost of remediation. Appropriate standards for clean up continue to be an area of debate. The Superfund resources are dwindling, with fund revenue sharply declining between 1995 and 2002. These and other aspects of CERCLA may result in future reforms and amendments to CERCLA, and add further uncertainty to cost estimates.

3. Inapplicability of Standard Actuarial Techniques. Because pollution claims involve multiple PRPs, the "occurrence" of contamination often spans multiple policy periods. The existence or extent of liability often depends in large part on legislative and judicial actions. As a result, pollution liabilities cannot be estimated using standard actuarial techniques (e.g., an accident year "triangle" projection method).

Estimation methods widely accepted in the industry for projecting pollution liabilities, such as the survival ratio method and the market share analysis method employed by A.M. Best, have their own drawbacks. For example, the survival ratio provides a means of comparing among insurers the ratio of total reserves to average annual paid losses. A.M. Best's industry environmental survival ratio as of year-end 2002 was 5.6; presumably a company with a lower survival ratio might be "underreserved," while one with a higher ratio may be adequately reserved. However, the survival ratio is really a measure of the payment activity and settlement philosophy of the insurer.

4. Coverage Issues. Certain policy terms that may have been intended to exclude pollution claims are being interpreted unfavorably for insurers. For example, some courts have held that even the "absolute" pollution exclusion does not always bar coverage for a pollution-related claim, and the "sudden and accidental" pollution exclusions are sometimes interpreted so that coverage applies to unintended damage.

II. A Model for Estimating Waste Site Liabilities

For NPL sites, a ground-up review encompasses an assessment of the liability for each site and an assessment of any residual IBNR. One must begin with a thorough understanding of the environmental claims handling process and data collection. Information obtained could include:

1. Name of site
2. Location
3. Insured's volumetric share
4. The starting and ending years of insured's active involvement at the site
5. Policy effective and expiration dates
6. Policy attachments and per occurrence limits
7. Policy type (e.g., claims made)
8. Applicable pollution exclusions and probability that the exclusion will apply
9. Whether policy is triggered
10. Layer share
11. Coverage percentage
12. Whether there is a non-cumulation clause
13. Other significant information

One can model an insurer's ultimate losses for pollution claims using the following framework.

A. Selection of Trended Ultimate Costs. Using EPA site information, supplemented with information from the claims department if available, one can select an appropriate ultimate cost of site remediation. For sites without publicly available information or information from the claims department, one might extrapolate cost information from other "similar" sites and studies. Cost estimates can be brought to a current cost level using an appropriate trend factor.

B. Adjusting the Trended Costs for Additional Provisions. Some sources of cost information on a site will not contain provisions for other types of costs such as allocated loss adjustment expenses (ALAE). The EPA ROD costs, for example, include operation and maintenance costs, but do not include ALAE, a provision for possible third party actions, or a provision for natural resource damages. To provide for these potential additional costs, the trended ultimate site costs should be adjusted. Appropriate adjustment factors can be selected from various resources (e.g., studies performed by A.M. Best)

C. Deficiency Load. Adding the ALAE load, third party action load, and natural resource damage load to the trended site costs yields a trended, loaded site cost. However, some studies have shown that in many cases the actual value of the clean-up cost can be significantly higher than the original expected value. To account for this, one can incorporate a "deficiency load." The amount of the deficiency load will depend upon the age of the information upon which the cost estimate is based, but can generally be selected based on studies conducted on this issue.

D. Estimation of the Insurer's Share of the Total Costs. One can estimate the insured's share of the total costs by applying the insured's volumetric share (i.e., the insured's share of the total damages at the site), if available, or by applying the applicable PRP percentage. The estimated costs to the insurer would depend upon the length of coverage triggered and the policy limits. The insurer's estimated cost per site can be allocated to each triggered policy by dividing the costs by the number of triggered policies.

E. Application of Coverage Defenses. Once costs are allocated to policy period, one can apply applicable coverage defenses, attachments, and limits.

F. Include a provision for IBNR. In this case, we are using the broad definition of IBNR. More specifically, the broad definition provision includes amounts needed to pay for claims not yet reported plus a provision to bring current claim department estimates on known cases to their ultimate settlement value. Some key considerations are:

- A thorough understanding of the claim reporting patterns (i.e., the amount of time between the discovery of contamination and the identification of the insured as a PRP and the notification to the insurer). This phase is arguably the most difficult part of the IBNR assessment. One technique is to review recently reported claims (usually not that many) and

determine the kinds of sites and insureds involved and when the site was originally identified as contaminated.

- Researching the various studies regarding the estimated number of total sites.

- Familiarity with current coverage issues and decisions. (Note that the insurer may also have defenses due to late reporting of claims by the insured.)

- Assessing the insurer's source of clean-up cost data and the potential that case reserves may not yet be reflective of ultimate expected payments.

- Assessing the additional costs due to operation of joint and several liability if not all PRP's are capable of paying their share of the cost.

- The level of uncertainty in the development of an IBNR provision should be clearly communicated to the client. A range based on scenario testing or, if data is available, on stochastic modeling of key cost elements (including the potential increase in liability if some PRP's do not pay their share) should be considered.

G. Develop a set of monitoring tools

- Since the development of a provision for IBNR has to consider significant uncertainties, any metrics that can serve as "early warning" indicators that one or more of the key assumptions underlying the analysis may no longer hold are valuable.

- The metrics ideally should be keyed not only to the model used in developing the IBNR provision, but also to the underlying drivers of remediation costs.

- Examples of possible metrics are:

  - development of costs per site,

  - remediation cost trends due to engineering and/or other changes,

  - legal and regulatory changes (precedent setting decisions),

  - monitoring of actual claim reporting patterns against expected reporting patterns, and

  - monitoring actual claim payments against expected claim payments (same for legal costs).

III. Summary

The process of evaluating liabilities under CERCLA and developing an appropriate reserve for losses and loss adjustment expenses presents the insurance industry with significant challenges. These challenges arise both from the legal environment and from the available data (or lack thereof). The knowledge of legal and claim experts is required to develop appropriate actuarial models for assessing the IBNR provision. Developing and clearly explaining the key assumptions underlying the actuarial model will help to make the process transparent and will provide the claim and legal experts, as well as management, the tools to monitor emerging experience against expected experience.

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