Subtitle C and D Corporate Financial Test Analysis
Issue Paper
Effects of the Financial Test on the Surety Industry

In response to the proposed Subtitle D corporate financial test rule of October 12, 1994, several commenters expressed concerns that the presence of the financial test would jeopardize the surety market within the Subtitle D industry. Specific issues raised by commenters included:

- The proposed financial test exempts the financially strongest firms from posting third-party financial assurance, leaving only the highest risk owners and operators for private sector financial assurance providers.

- Banks may charge different interest rates based on the credit worthiness of the customer. Surety rates, however, are state-regulated and a bond issued by a surety carries the same rate regardless of the financial strength of the customer. Therefore, sureties cannot price differentiate to account for the greater risk posed by a financially weaker firm.

- A market comprised only of financially weak companies will preclude most sureties from becoming involved in this product line. Because the percentage of losses is increased and competition is decreased, sureties remaining in the market will raise their underwriting standards by adding, for example, high collateral requirements. Raising these standards may make the surety alternative so costly that it is no longer an option for the small customer.

This issue paper analyzes the effects of the proposed rule on the surety and insurance markets. The key findings of this paper, in summary, are:

- Firms that cannot pass the financial test are not necessarily "bad risks." A particular firm's inability to pass the financial test does not necessarily mean it poses an unreasonable risk for sureties.

- Although surety rates are state-regulated, surety companies may develop rating plans that offer decreased rates to companies meeting minimum financial strength requirements.

- Financially sound owners and operators will continue to have access to alternate financial assurance mechanisms, as they do in the Subtitle C universe where the financial test is currently available in many states. Even if surety mechanisms become expensive and difficult to obtain due to underwriting considerations, owners and operators still have the option of setting up a trust fund to comply with financial assurance obligations.

The remainder of this issue paper is divided into three sections. Section 1 analyzes the relative risk of both Subtitle C and Subtitle D firms unable to pass the financial test. Section 2 discusses the surety company's alternatives for limiting risk within a potential market. Section 3 presents the results of interviews with state permitting officials in states that allow the financial test for Subtitle C facilities and states that do not.

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1. Third-Party Financial Assurance Market

Several commenters suggest that the proposed financial test will broadly exempt financially strong MSWLF owners and operators from the requirement to post third-party financial assurance for closure and post-closure care. These commenters believe the corporate financial test will segregate MSWLF owners and operators into categories of "good risk" and "bad risk." The "good risk" owners and operators would meet their financial assurance obligations using the financial test, leaving only the "bad risk" owners and operators as potential clients of surety and insurance companies offering financial assurance.

Firms that cannot pass the financial test, however, are not necessarily "bad risks." In designing the financial test, the Agency's objective was to maximize the availability of the financial test to financially strong firms, while at the same time minimizing the number of firms allowed to use the test that later go bankrupt without covering their environmental obligations. Since no financial test can perfectly discriminate between financially viable and nonviable firms, a number of viable, financially sound firms will be unable to use the test. In addition, because of the nature of the test, some MSWLF firms will be able to use the financial test to cover only a portion of their total closure and post-closure care obligations. The proposed financial test is a conservative predictor of long-term viability and therefore, a particular firm's inability to cover all or some portion of its future obligations using the financial test does not necessarily mean that it poses an unreasonable risk for third-party guarantors of financial responsibility, such as the insurance or surety bond industry. This conclusion is supported by the calculation of failure rates for firms that will be unable to pass the financial test, discussed below.

Exhibit 1 presents the overall failure rates for all manufacturing firms by net worth category. These failure rates were taken from three different sources: the Subtitle C financial test technical background document; the proposed Subtitle D financial test technical background document; and an analysis by the Nuclear Regulatory Commission (NRC) of assurance provided by current and proposed financial assurance mechanisms. The estimated failure rates from all three sources were based on statistics collected by the Bureau of the Census for manufacturing firms. The failure rates from the NRC analysis are used for calculations in this issue paper because they are based on more recent data and because they better discriminate between net worth categories.

Exhibit 1
Overall Failure Rates by Net Worth Categories

	Net Worth ($ millions)						
	0 - 5	5 - 10	10 - 20	20 - 100	100 - 400	400 - 1 bil	> 1 bil
Subtitle C (based on 1982 data)	1.6%	1.6%	1.5%	1.1%	0.7%		
Subtitle D (based on 1982 data)	--	--	1.5%	1.1%	0.7%		
NRC (based on 1984-1990 data)	1.53%		1.24%	1.02%	0.81%	0.55%	0.14%

Exhibit 2 presents the availability and misprediction rates for firms in the non-bankrupt firm sample (firms with a net worth over $10 million) as presented in the technical background documents for the Subtitle C and proposed Subtitle D financial tests. These figures are used in the calculations below because they most accurately reflect the Subtitle C and Subtitle D universes.

Exhibit 2
Availability and Misprediction Rates by Net Worth Category

	Availability	**Misprediction**
Subtitle C	80%	16%
Subtitle D	75%	31%

The failure rate for firms that are able to pass the financial test can be calculated by multiplying the failure rate for all firms in the non-bankrupt firm sample by the misprediction rate for firms that use the financial test, as shown in the following equation:

$$f^{FT} = f^{ALL} \times M$$

where,

f^{FT} is the failure rate for firms able to use the financial test to cover their financial assurance obligations;

f^{ALL} is the failure rate for all firms in the non-bankrupt firm sample; and

M is the misprediction rate of the financial test for firms in the bankrupt firm sample. (See Exhibit 2).

Fifty percent of firms in the Subtitle C and 70 percent of firms in the Subtitle D non-bankrupt firm sample have a net worth above $100 million. Therefore, the failure rate for all firms in the non-bankrupt firm sample (f^{ALL}) is assumed to be 0.81 percent for the purposes of this analysis. (See Exhibit 1.) Using this overall failure rate and the appropriate misprediction rate from Exhibit 2, the calculated failure rate for firms able to pass the financial test is 0.13% for Subtitle C firms and 0.25% for Subtitle D firms.

The failure rates for firms that meet the net worth requirement but are unable to use the financial test to cover their financial assurance obligations can be calculated recognizing that the overall failure rate (f^{ALL}) must reflect a weighted average of the failure rate for firms that can use the financial test (f^{FT}) and the failure rate for firms that cannot use the financial test (f^{NFT}), where the availability of the test (A) determines the weight for each failure rate:

$$(f^{FT} \times A) + [f^{NFT} \times (1-A)] = f^{ALL}$$

or

$$f^{NFT} = [f^{ALL} - (f^{FT} \times A)]/(1-A)$$

where,

f^{NFT} is the failure rate for firms unable to use the financial test to assure their financial assurance obligations;

f^{FT} is the failure rate for firms able to use the financial test to cover their financial assurance obligations (calculated above for both Subtitle C and Subtitle D);

f^{ALL} is the failure rate for all firms in the non-bankrupt firm sample (approximately 0.81); and

A is the availability of the financial test (see Exhibit 2).

Using the equations above, the calculated failure rate for firms unable to use the financial test to cover their closure and post-closure care obligations is 3.53 percent for Subtitle C firms and 2.49 percent for Subtitle D firms.[1]

Given their failure rates, even firms unable to pass the financial test would be considered qualified for financing by financial markets. Both of these failure rates, for example, are lower than the average failure rate for speculative bonds as reported by Moody's. Moody's reports that the average annual failure rate for speculative or "junk" bonds is 3.78%. Although banks generally do not invest in non-investment grade bonds, they regularly provide

[1] Calculations for Subtitle C: $f^{NFT} = [0.0081 - (0.0013 \times 0.80)]/[1 - 0.80]$
Calculations for Subtitle D: $f^{NFT} = [0.0081 - (0.0025 \times 0.75)]/[1 - 0.75]$

direct lending to firms that have higher failure rates than the average default rate for speculative bonds.[2] In general, banks control the risks associated with these loans by requiring collateral and by charging a higher interest rate based on the level of risk associated with the loan. Banks and other lending institutions, therefore, should be willing to assume the lesser risk associated with providing financial assurance to firms that are not able to use the financial test.

2. Surety Industry Characteristics

One commenter asserts that individual states regulate the rates charged by surety companies to ensure that the rates are not inadequate, insufficient, or unfairly discriminatory. Therefore, unlike a bank which may analyze various customers and charge different interest rates based on the credit worthiness of the customer, a surety offers the same rate regardless of the financial strength of the customer. This commenter states that sureties have only three alternatives for controlling their risk: (1) the surety may decline the marginal customer; (2) require collateral to assume a risk; or (3) develop minimum underwriting requirements.

Additional analysis suggests that sureties' risk minimization options are not as limited as suggested by the commenters. Like an insurance company, a surety company must file its rates with the state insurance department. However, the surety company does not necessarily offer the same rate regardless of financial strength of the customer. Within an individual market, a surety company may develop a rating plan. A rating plan, filed with the state, allows a surety company to decrease its rates for firms that meet certain financial strength requirements and charge higher rates to higher risk firms.[3] For example, a surety could develop a rating plan that offers decreased rates to firms with a net worth over $10 million. While sureties do not have the same flexibility as banks, sureties can limit the risk of speculative investments in a similar manner to banks by establishing these rating plans.

In addition to these rating plans, sureties have several other ways to control their risks that are similar to banks.[4] First, a surety may decline the marginal customer. Even if a particular company can afford the established rates for the desired surety, a surety company can refuse the bond for a variety of reasons, including financial strength, management skills, and corporate creditworthiness. Second, a surety company may require a firm to provide collateral for the bond. Surety companies generally require more collateral from smaller companies with less financial strength. Requiring collateral in an amount equal to the cost of the obligations is not uncommon. Firms which lack sufficient financial backing often arrange for indemnitors to provide collateral. Finally, sureties can develop minimum underwriting standards which vary by industry and obligations covered.

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[2] Ken Houghton, Sun Trust, ICF interview, August 4, 1995. Bles Dones, American Bankers' Association, ICF interview, August 4, 1995.

[3] Bill Kelly, American Surety Association, ICF Interview, May 1995.

[4] *Ibid.*

Even if banks are better equipped to provide financial assurance to higher risk firms than surety companies, the financial test would not alter any such competitive disadvantage of the surety industry in a specific market segment. If banks could charge higher rates for high-risk customers and surety firms could not, then surety firms would tend to decline these customers and banks would dominate the market segment, regardless of the provisions of the financial test. In any event, the Agency's primary interest is the extent to which firms are able to obtain financial assurance generally, discussed in the next section.

3. Availability of Alternate Mechanisms

Several commenters suggest that by exempting the vast majority of credit worthy owners and operators from the requirement to post third-party financial assurance mechanisms, the financial test will reduce the number of potential customers for the surety industry. If the potential customer base is too small to support the minimum overhead needed to adequately obtain, underwrite, and adjust claims for the class of business, the commenters argue, sureties will generally look to other types of risks. The commenters concluded that many surety companies will abandon the market. With decreased competition and increased risk, underwriting requirements will become very strict and rates will be high. Therefore, alternative mechanisms will become costly and difficult to obtain.

Although the financial test may reduce the number of potential customers for the surety industry, a large pool of financially sound firms unable to use the financial test will remain potential customers of the surety industry. In addition to larger firms that cannot pass the financial test, smaller firms with a net worth of less than $10 million will also need to obtain third-party financial assurance. These firms comprise nearly half of the corporate MSWLF landfill industry by market share.[5] Although small, these firms are not necessarily financially weak. As shown in Exhibit 1, the failure rate for these smaller firms is only approximately 1.53%. The combination of small firms that cannot satisfy the net worth requirement of the financial test and larger firms that cannot satisfy other financial test requirements, should support a sufficient market for third-party financial assurance mechanisms.

Based on Agency experience implementing the Subtitle C requirements, it appears likely that third-party financial assurance mechanisms will remain available to financially sound firms in the Subtitle D industry even after the financial test is promulgated. The provisions of the surety bond, as well as other third-party financial assurance mechanisms contained in the Subtitle D criteria, are also essentially the same as the provisions of mechanisms approved under financial assurance requirements for Subtitle C facilities. Interviews with several state Subtitle C permit officials suggest that financially sound owners and operators have had access to alternate third-party financial assurance mechanisms. Most of these facilities are using a letter of credit rather than a surety bond to demonstrate financial assurance. Exhibit 3 presents data on the financial assurance mechanisms used by Subtitle C facilities in Maryland, Massachusetts, and four other states that allow the financial test. These limited state-specific data are inconclusive with regard to the impact of the financial test's availability on use of surety bonds under Subtitle C. For example, in the four states where the financial test is

[5] One large waste management firm estimated that large firms account for 30 percent of landfill revenues, small firms 25 percent, and government landfills 45 percent. EPA/OSW. Report to Congress on Flow Control and Municipal Solid Waste. March 1995, p. III-67.

available, five facilities use surety bonds out of 306 total facilities, while in the two states where the financial test is not allowed, eight facilities use surety bonds out of 57 total facilities. At the same time, on average, in half the states where the financial test is available, no facilities use surety bonds, and similarly, in half the states where the financial test is not available, no facilities use the surety bonds. Given these data, it is not possible to draw any causal link between availability of the financial test and demand for, or availability of, surety bonds.

Exhibit 3
Distribution of Subtitle C Facilities among Financial Assurance Mechanisms

Financial Assurance Mechanism	MD	MA	IL	CT	LA	VA
Financial Test	--	--	12	4	45	40
Letter of Credit	27	14	56	0	40	20
Surety Bond	0	8	4	0	0	1
Closure Insurance	2	4	17	2	0	4
Trust Fund	1	1	53	0	0	8

Every Subtitle C permit official interviewed, regardless of whether their state allowed the financial test, stated that no financially viable facility in the state was unable to obtain a valid financial assurance mechanism. In some cases, firms have been unable to obtain financial assurance. However, in every case, the problem was not the availability of financial assurance mechanisms, but the financial strength of the company. In most cases, facilities unable to obtain a financial assurance mechanism had been closed and the company had gone bankrupt.

Finally, if an owner or operator is unable to secure a third-party mechanism for any reason, there is one remaining option. Trust funds are available to all owners and operators regardless of their corporate affiliations or the prevailing market conditions, because there is no financial risk in providing them. Even if surety mechanisms become expensive and difficult to obtain due to underwriting considerations, owners and operators still have the option of setting up a trust fund to comply with their financial assurance obligations.