

**PROPOSED REFORMS TO SPILL PREVENTION
CONTROL AND COUNTERMEASURES (SPCC)
REGULATIONS**

TECHNICAL MEMORANDUM

Prepared for:

U.S. Small Business Administration
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February 2006

Work Assignment No. 04-5A

A. BACKGROUND

Under a December 12, 2005 proposed SPCC rule (70 Fed. Reg. 73524, December 12, 2005), EPA is allowing small facilities that meet the new “qualified facility” criteria to opt out of the requirement that their SPCC plans are certified by a professional engineer (PE). The EPA defines a “qualified facility” as a facility that has a total oil storage capacity of 10,000 gallons or less and a facility that has not had a spill in the last ten years according to the definition found in 112.1(b).¹ The EPA proposal is in contrast to a proposal initially advanced by a coalition of small business trade associations and the U.S. Small Business Administration (SBA)’s Office of Advocacy in 2004.²

Under the Office of Advocacy (Advocacy) approach, currently regulated SPCC facilities would be required to meet all substantive SPCC requirements (e.g., secondary containment), but the formal written SPCC plan requirement would be eliminated or revised for facilities with smaller oil storage capacities. The Advocacy approach divides the regulatory community into three categories (tiers) based on each facility’s oil storage capacity. For facilities with capacities between 1,321 and 5,000 gallons (Tier I), EPA would no longer require an SPCC plan. All other facilities (Tier II representing facilities with 5,001 to 10,000 gallons capacity, and Tier III representing facilities with greater than 10,000 gallons capacity) would be required to prepare an SPCC plan. However, Tier II facilities would no longer be required to have their plans certified by a PE. Table 1 presents a comparison of EPA’s proposal with the proposal advanced by Advocacy.

Table 1. Comparison of Advocacy and EPA SPCC Plan Requirement Proposals

Storage Capacity (gallons)	Advocacy	EPA
1,321 to 5,000	No SPCC plan	SPCC plan without PE certification
5,001 to 10,000	SPCC plan without PE certification	
Greater than 10,000	SPCC plan with PE certification	

B. ESTIMATION OF ANNUAL SPILL VOLUMES BY TIER CATEGORY

In April 1995, EPA conducted a national survey of oil storage facilities potentially subject to the SPCC regulations. The purpose of the survey was to answer five specific questions: (1) How many facilities are regulated by EPA's SPCC program; (2) What types of facilities does the SPCC program regulate; (3) What do these facilities look like;

¹ Or has never had a spill when a facility has been in operation for less than ten years.

² Letter from Douglas Greenhaus, National Automobile Dealers Association *et al.*, to David Evans, U.S. Environmental Protection Agency, “Re: Small Facility Alternative to Professional Engineer Certification,” January 20, 2004; and Letter from Thomas M. Sullivan, and Kevin Bromberg, U.S. Small Business Administration, to Thomas P. Dunne, U.S. Environmental Protection Agency, “RE: Spill Prevention, Control and Countermeasure (SPCC) Rule; 67 Fed. Reg. 47042 (July 17, 2002); Recommendation for Adoption of Interim Final Rule,” June 10, 2004.

(4) Which facilities pose the greatest oil spill risk; and (5) How effective is the SPCC program in reducing oil spill risk?

The EPA calculated average facility oil spill volumes by storage capacity range from the survey responses that were received (EPA, 1996). For example, the survey results indicated that the average facility with a storage capacity between 1,500 and 2,000 gallons discharged approximately 0.59 gallons of oil for the year surveyed.³ However, documentation of the survey results does not provide the number of facilities surveyed in each storage capacity range. This omission precluded Pechan from calculating weighted average per facility spill volumes for the more aggregate storage capacity ranges that pertain to Tier I, Tier II, and Tier III facilities. Therefore, Pechan calculated the simple average of the per facility spill volumes for the storage capacity ranges of interest for each Tier. For example, Pechan computed the Tier I facility average spill volume (1.6 gallons) by averaging the following per facility spill volumes reported by EPA:

- 1,500 to 2,000 gal (0.59 gallons);
- 2,000 to 2,500 gal (0.85 gallons);
- 2,500 to 3,000 gal (0.09 gallons);
- 3,000 to 4,000 gal (6.03 gallons); and
- 4,000 to 5,000 gal (0.63 gallons).⁴

Table 2 reports the Tier level estimates of average per facility spill volumes calculated from actual spill data compiled from the EPA survey. Next, Pechan obtained estimates of the total number of SPCC regulated facilities by Tier from EPA's regulatory analysis for the proposed SPCC rule amendments (EPA, 2005). These facility counts are also displayed in Table 2. Finally, Pechan estimated the total volume of spills associated with each Tier by multiplying the average per facility spill volumes by the facility counts. The estimated total spill volume by Tier is also reported in Table 2.

Table 2. Number of Facilities and Total Spill Volume Estimates by Tier Category

	Tier I (1,321 to 5,000 gallons)	Tier II (5,001 to 10,000 gallons)	Tier III (Greater than 10,000 gallons)
Per Facility Spill Volume (gallons)	1.6	27.3	2,372
Number of Facilities ⁵	235,656	86,018	296,559
Total Spill Volume (gallons)	383,334	2,350,298	112,485,560

³ The EPA survey results are not well documented, but appear to include both facilities with spills and facilities without spills.

⁴ Because available data indicate that there are considerably more facilities with smaller storage capacities than facilities with larger capacities, it is anticipated that the simple average calculation will overstate the Tier level spill volume estimates because greater spill volumes are generally associated with higher storage capacity facilities. In its own analysis of the survey, EPA noted that "facilities with larger storage capacity are likely to have a greater number of oil spills, larger volumes of oil spilled, and greater cleanup costs" (EPA, 1996).

⁵ Computed from estimates reported in exhibit 3-1 of EPA, 2005.

Table 3 reports the percentage of facilities and percentage of total volume of oil spilled for facilities in each of the three Tiers identified in Advocacy's proposal. This table indicates the fact that although Tier I facilities are numerous, they account for only a very small percentage (0.3) of the total volume of oil spilled by SPCC regulated facilities. While accounting for nearly 14 percent of all SPCC regulated facilities, Tier II facilities account for only 2 percent of total oil spilled.⁶

Table 3. Comparison of Facility and Spill Volume Estimates by Storage Capacity

	Tier I (1,321 to 5,000 gallons)	Tier II (5,001 to 10,000 gallons)	Tier III (Greater than 10,000 gallons)
% of Facilities	38.1	13.9	48.0
% of Spill Volume	0.3	2.0	97.6

C. ESTIMATION OF SPCC PLAN COST SAVINGS FOR ADVOCACY AND EPA PROPOSALS

In order to evaluate the potential cost savings of the Advocacy qualified facility proposal relative to EPA's proposal, Pechan first compiled estimates representing the total cost for both a new SPCC plan and an amended SPCC plan, as well as estimates for only the PE certification portion of these total costs. Table 4 displays each of these costs estimates and identifies the source of each estimate.

Table 4. Cost Estimates for New and Amended SPCC Plans

	PE Certification	Total
New Plan	\$2,000 (from EPA, 2005)	\$3,000 (from JFA, 2004) ⁷
Amended Plan	\$750 (from EPA, 2005)	\$1,125 (computed from EPA's PE certification cost and total plan to PE certification plan cost proportion for new plans)

⁶ Note that the JFA, 2004 report estimated the percentage of total spill volume for facilities between 1,321 and 10,000 gallons as less than 0.2 percent. The values reported herein reflect estimates derived using recently released facility counts by storage capacity category (from EPA, 2005).

⁷ JFA reports that small facility plan costs range between \$2,500 and \$3,500, although the source for these estimates is not documented. Additional support for the \$3,000 estimate is provided by the fact that \$3,100 was the median of the total plan cost estimates provided by commenters to EPA's Notices of Data Availability (69 Fed. Reg. 56182, 2004 and 69 Fed. Reg. 56184, 2004).

Because EPA has acknowledged the existence of noncompliance with current SPCC requirements,⁸ and because an extensive survey conducted by the U.S. Department of Agriculture (USDA) indicated that approximately 60 percent of farmers were not aware of SPCC requirements,⁹ Pechan developed cost savings estimates for the current noncompliant facilities. Pechan also prepared amended plan cost savings estimates for a ten year period for each proposal. These estimates were based on an assumption that 50 percent of all SPCC regulated facilities would require one plan amendment over a 10 year period.¹⁰

To estimate the number of facilities that are currently subject to SPCC requirements, but do not have an SPCC plan, Pechan divided the Tier I and Tier II facility counts into facilities in the farm sector (117,500 in Tier I and 17,204 in Tier II) and facilities not in the farm sector (117,500 in Tier I and 68,814 in Tier II) based on percentages calculated from facility counts in EPA's regulatory analysis (EPA, 2005).¹¹ Next, Pechan assumed that 60 percent of Tier I and II farm facilities do not have an SPCC plan based on the results of the USDA survey described above.¹² In lieu of information on the noncompliance percentage for nonfarm facilities, Pechan assumed noncompliance at half the rate estimated for the farm sector (i.e., 30 percent).

⁸ The EPA agrees that noncompliance exists, but does not estimate the noncompliance rate: "EPA does recognize, however, that there is non-compliance with the SPCC requirements by some portion of the regulated community" (EPA, 2005 at pg. 8).

⁹ Specifically, 61 percent of farmers surveyed by the USDA were unaware of SPCC requirements (USDA, 2005).

¹⁰ This number may be higher if facilities need to make plan changes to reflect EPA's 2002 SPCC rule amendments.

¹¹ Pechan did not estimate the cost savings for new facilities; those savings would be a small fraction of total savings (less than \$10 million); the total savings are dominated by the savings estimated for existing facilities.

¹² This is a conservative estimate as there is surely an additional percentage that is aware of SPCC requirements, but does not have an SPCC plan.

1. EPA Proposal

The EPA's qualified facility proposal removes the requirement that an SPCC plan be certified by a PE for facilities with storage capacities of 10,000 gallons or less (equivalent to Tier I and Tier II facilities under Advocacy's proposed scheme). To estimate the cost savings of EPA's proposal, Pechan multiplied the PE certification cost estimate for new plans (\$2,000) by the estimated number of current facilities that do not have an SPCC plan, and multiplied the PE certification cost estimates for amended plans (\$750) by the estimated number of existing plans that will be amended over a 10 year period.

2. SBA Proposal

For Tier II facilities, Advocacy's proposal is the same as EPA's proposal, however, under Advocacy's proposal, Tier I facilities would not be required to prepare a written SPCC plan. Because Tier II facilities have the same requirements under both proposals, the Tier II facility cost savings are the same under each proposal. To estimate Tier I facility cost savings under the Advocacy proposal, Pechan multiplied the total cost estimate for a new plan (\$3,000) by the estimated number of current facilities that do not have an SPCC plan, and multiplied the total cost for an amended plan (\$1,125) by the estimated number of existing plans that will be amended over a 10 year period.

3. Comparison of Advocacy and SBA Proposals

Table 5 compares the estimated cost savings for new plans and amended plans by Tier category under the EPA and Advocacy proposals. As indicated by the table, the Advocacy proposal represents a substantial cost savings of nearly \$130 million relative to EPA's proposal.

**Table 5. Comparison of Advocacy and EPA SPCC Plan Requirement Proposal
Total Cost Savings**

		New Plan Savings	Amended Plan Savings	Total Savings
EPA	Tier I	\$211,500,000	\$48,468,750	\$259,968,750
	Tier II	\$61,932,960	\$20,644,320	\$82,577,280
SBA	Tier I	\$317,250,000	\$72,703,125	\$389,953,125
	Tier II	same as EPA	same as EPA	same as EPA
Additional SBA Cost Savings				\$129,984,375

Because the risk of reaching navigable waters is lower for small facilities, and because SPCC plans have not by themselves been demonstrated to reduce the oil spill risk to the environment, a cost-effective approach to reducing risk should address ways to reduce the cost of SPCC plan development for facilities with smaller storage capacities. Given

average facility spill volumes and the fact that EPA has been unable to conclude that spill prevention plans lead to spill reductions,¹³ it is difficult to assert that the theoretical spill reduction benefits of SPCC plan development will outweigh the substantial cost of plan development for Tier I facilities.

To further demonstrate the value of the Advocacy proposal relative to EPA's proposal, Pechan calculated the maximum potential cost-effectiveness of the SPCC plan requirement for Tier I and Tier II facilities. The maximum potential cost-effectiveness reflects the total volume of spills that could be reduced if each SPCC plan was one hundred percent effective at eliminating oil discharges. Utilizing the average small facility plan cost of \$3,000, and the total number of Tier I facilities subject to current SPCC plan requirements, Pechan estimates the total cost of new SPCC plans for all Tier I facilities at \$705 million. When this cost is spread over a ten year period, and compared to projected total spill volumes over this period, the maximum potential cost-effectiveness for Tier I facilities is estimated at \$184 per gallon. Using analogous assumptions to those used above, the cost-effectiveness of total potential Tier II facility spill reductions is estimated at \$10.98 per gallon. This comparison demonstrates why Tier I facilities are a much less desired target for a SPCC plan requirement than Tier II and Tier III facilities.

Table 6. Comparison of Potential Cost-Effectiveness for New SPCC Plans

	Estimated Spill Volume Over 10 Year Period (gallons)	Total New Plan Cost	Potential New Plan Per Gallon Cost Effectiveness
Tier I	3,833,338	\$705,000,000	\$183.91
Tier II	23,502,985	\$258,054,000	\$10.98

Because the risk of reaching navigable waters is lower for small facilities, and by themselves, SPCC plans have not been demonstrated to reduce the oil spill risk to the environment, a cost-effective approach to reducing risk should address ways to reduce the cost of SPCC plan development for facilities with smaller storage capacities. Therefore, Advocacy's qualified facility proposal appears preferable to EPA's proposal.

¹³ Based on an analysis of survey data collected from facilities subject to SPCC regulation, EPA was unable to conclude that a written spill prevention (or spill response) plan is effective in minimizing oil spill risk to the environment (EPA, 1996). However, EPA was able to conclude that other specific spill prevention/control measures (e.g. secondary containment) are effective in minimizing this risk.

REFERENCES

- 69 Fed. Reg. 56182, 2004: Federal Register, "Oil Pollution Prevention and Response; Non-Transportation-Related Onshore and Offshore Facilities," Vol. 69, pg. 56182, September 20, 2004.
- 69 Fed. Reg. 56184, 2004: Federal Register, "Oil Pollution Prevention and Response; Non-Transportation-Related Onshore and Offshore Facilities," Vol. 69, pg. 56184, September 20, 2004.
- 70 Fed. Reg. 73524, December 12, 2005: "Oil Pollution Prevention; Spill Prevention, Control, and Countermeasure Plan Requirements—Amendments," Vol. 70, pg. 73524, December 12, 2005.
- EPA, 1996: U.S. Environmental Protection Agency, "Analysis of the Effectiveness of EPA's SPCC Program on Spill Risk," Office of Emergency and Remedial Response, Washington, DC. 1996.
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- JFA, 2004: Jack Faucett Associates, Inc., "Proposed Reforms to the SPCC Professional Engineer Certification Requirement: Designing a More Cost Effective Approach for Small Facilities," prepared for U.S. Small Business Administration, Office of Advocacy, May 2004.
- USDA, 2005: U.S. Department of Agriculture, "Fuel/Oil Storage and Delivery for Farmers and Cooperatives," Rural Development, Cooperative Services Program, Washington, DC. March 2005.