The P.E.’s Perspective

40 CFR Part 112
Spill Prevention, 
Control and Countermeasure 
(SPCC) Plan

Presented by:
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What?

- Rule Dates
- Professional Engineer Certification Review
- Keep it in the container
- Keep it in containment
- Keep it at the Facility
- PERFORMANCE BASED
Dates of Rule Activity

- January 10, 1974 – First Effective Date
- October 22, 1991 – Proposed Amendments
- 1993, 1997…
Dates of Rule Activity

- July 17, 2002 – Final Rule Published
- August 16, 2002 – 1st Effective Date
- February 17, 2003 – 1st Plan Amendment
- August 18, 2003 – 1st Plan Implementation
Dates of Rule Activity

- April 17, 2003 – Extension Published
- August 17, 2004 – 2nd Plan Amendment
- February 18, 2005 – 2nd Plan Implementation
Dates of Rule Activity

• August 11, 2004 – Extension Published
• February 17, 2006 – 3rd Plan Amendment
• August 18, 2006 – 3rd Plan Implementation
Dates of Rule Activity

- February 17, 2006 – Extension Published
- October 31, 2007 – 4th Plan Amendment
- October 31, 2007 – 4th Plan Implementation
Dates of Rule Activity

• December, 2005 – Proposed Revision
• October 2006 – Anticipated Final Revision
Dates of Rule Activity – Target Practice

- 1973 – Originally Proposed
  - January 10, 1974 – First Effective Date
- October 22, 1991 – Proposed Amendments
  - July 17, 2002 – Final Rule Published
  - August 16, 2002 – 1st Effective Date
- February 17, 2003 – 1st Plan Amendment
- August 18, 2003 – 1st Plan Implementation
  - April 17, 2003 – Extension Published
  - August 17, 2004 – 2nd Plan Amendment
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  - December 2005 – Proposed Revision
  - October 2006 – Anticipated Final Revision
What’s the Point?

• Extensions Necessary and Appreciated.

• Many Operators completed new SPCC Plans along the way.

• Many Operators and many P.E.s are responsible for many Plans.

• Consider the review and certification date when reviewing a Plan.

• Immediate reaction to new interpretations and guidance is not practical.

• Bottom Line → PERFORMANCE BASED
Professional Engineer Certification

By certification, the PE attests that:

1. He is familiar with the requirements of the SPCC rule;
2. He or his agent has visited and examined the facility;
3. The Plan has been prepared in accordance with good engineering practice, including consideration of applicable industry standards, and with the requirements of the SPCC rule;
4. Procedures for required inspections and testing have been established; and
5. The Plan is adequate for the facility.
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PERFORMANCE BASED
• Keep it in the container

• Keep it in containment

• Keep it at the Facility
Keep it in the Container → Integrity Testing, Inspections

- [112.8] Test each aboveground container for integrity on a regular schedule, and when material repairs are done;

- Take into account container size and design when deciding test frequency and type;

- Must Combine visual inspection with another testing technique (such as hydrostatic, radiographic, ultrasonic, etc.).
Keep it in the Container → Integrity Testing, Inspections

- API 653 (field erected)
- STI SP-001 (shop built)
- API 2350 (overfill protect)
- API 570 (piping)
- NFPA 30
- API 12R1 (E&P)
- Industry Standards+++
Industry Standards

- Over 100 Standards
- Avg 100 pgs each & 10 external references each
- 10,000 pages and 1,000 additional references
- Adopt your CRITICAL FEW reference standards
Keep it in the Container → Integrity Testing, Inspections

CRITICAL FEW

- API 653 (field erected)
- STI SP-001 (shop built)
- API 2350 (overfill protect)
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- PERFORMANCE BASED
• Keep it in the container

• Keep it in containment

• Keep it at the Facility
Keep it in Containment → Secondary Containment

- How much is enough – the Great Debate
- [112.7] Provide appropriate containment...constructed so that discharge...will not escape before clean up...
- [112.8] ...secondary containment for the entire capacity of the largest single container and sufficient freeboard to contain precipitation
Keep it in Containment → Secondary Containment

• How much is enough?

• 110%?

• 25 year / 24 hr storm event?

• 1 year / 1/2 hr storm event?
Keep it in Containment → Secondary Containment

• 110% has significant industry support (historical rule of thumb); Utilized as example in D-16; Referenced in EPA Outreach documents; Utilized in many state rules.

• $110\% > \frac{25}{24}$ $\iff$ $110\% < \frac{25}{24}$
Keep it in Containment ➔ Secondary Containment

- Point ➔ Allowance for Precipitation.
- Both measures are arbitrary;
- Design for the specific application;
- Document assumptions and calculations.
- PERFORMANCE BASED
Keep it in Containment → Secondary Containment

- Pre-1974 Facilities (no rule).
- Pre-2002 Facilities (should).
- Good Engineering Judgment – often involves the study of Probability/Statistics. How many full volume tank releases have occurred simultaneous with 25 year storm events? How many times has 110% been adequate; been inadequate?
- Performance Based
Keep it in Containment → Secondary Containment
• Keep it in the container
• Keep it in containment
• Keep it at the Facility
[112.7] The walls and floor of the containment must be capable of containing oil and must be constructed so that any discharge from a tank or pipe will not escape containment before cleanup occurs.

[112.8] …must ensure that diked areas are sufficiently impervious to contain discharged oil.
What’s the issue? Floor permeability.
Facilities built upon native soils.
Permeability may be an issue.
Pre-1974 Facilities (No Rule).
Pre-2002 Facilities (Should).
Keep it at the Facility → Sufficiently Impervious

• After the Fact Installation of Liners is not feasible

• Expect and Accept Utilization of Impracticability

• Keep in mind that containment (for SPCC purposes) is to keep product from reaching navigable water until clean up occurs.
Keep it at the Facility → Sufficiently Impervious

• So how do we apply this?
Keep it at the Facility → Sufficiently Impervious

- **Draw the Black Box – 2D**
- **Keep it in the Box – 2D**
- **Analyze potential 3D conduits**
- **Tiered Approach**
- **Utilize Monitoring Wells and Automated Detection**
Sufficiently Impervious → Keep it on the Facility
Impracticability

• Old rule
  • When it is not practicable to install secondary containment at a facility, the owner/operator must explain why and provide a strong spill contingency plan (per 40 CFR 109) describing commitment of manpower, equipment, and materials to control and remove any harmful quantity of oil discharged.

• Revised rule
  • The owner/operator also must conduct periodic integrity testing of the containers; and conduct periodic integrity and leak testing of the valves and piping.
ReCap

- PERFORMANCE BASED
  - Keep it in the Container
  - Keep it in Containment
  - Keep it at the Facility
Observations (EGP’s)

• **Guidance Doc** – great work effort but remember it is Guidance. Rule and SPCC Plans remain Performance Based.

• **Applause for the attempt to Standardize across the regions. Uniqueness across regions is understood -- BUT-- compliance with a consistent set of expectations much easier and more effective.**
API Update

- Guidance Document -- Substantial comments made, look forward to EPA’s acknowledgment and response
- D16 will be revised when EPA finalizes Proposed Rule
- D16 -- would appreciate EPA’s review and comments
Contact us for additional information or to discuss our SPCC development capabilities:

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