Subpart M - Pipeline Sampling (§§761.240-761.257)

1. Cut into 40 foot segments, and number from upstream end.

2. Is pipeline section greater than 3 miles long?
   
   Yes - Sample first segment, and segments every half mile or 66th segment (1, 67, 133, etc.)
   
   No - Take 7 samples: first segment, last segment, and five interim segments

3. Sampling points are on upstream end of segment, inside pipe on bottom
Definition of Pipe Segment and Pipeline Section (§761.240)

Pipe Segment

40’

Pipeline Section
Sampling Pipeline Section (longer than 3 miles)
(§761.247)

Every half mile, or 66th segment
Sampling Pipeline Section (shorter than 3 miles)  
(§761.247)

1. Number segments (i.e., 1-383)
2. Sample first and last segments
3a. Find Sampling Interval  
   = Total number of segments divided by 6  
   = 383/6 = 63.8 = 64  
   Take 5 interim samples at sampling intervals  
   (i.e., 65, 133, 199, 265, and 331)

or

3b. Use random number generator to find 5 interim sampling points

1 67 133 199 265 331 383
Sample bottom of upstream end of pipe segment

1 inch from upstream end, if cut by saw

6 inches from upstream end if cut by torch

Top View

Cross Section View

Top

Bottom

Sampling Point

Direction of Former Gas Flow

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Codified 63 FR 35463
Three Dimensional View

Former Gas Flow

Sampling Point
Subpart O
Verification Sampling of Self-Implementing Cleanup
(§§761.280 -761.298)

1. Overlay grid oriented on Magnetic N/S/E/W

2. Mark Sampling Points

3. Collect Samples

4. Composite Samples
Center Grid on Remediated Area

- Remediated Area
- Original Area of Contamination
- Sampling grid

N (Magnetic)

W
S
E
Mark Sampling Points at Intersection of Grid Lines
Area of Inference Around Sampling Point

Sampling Point

1.5 m

Codified 63 FR 35465
Compositing Areas: Point Source

Initial Compositing Area

Subsequent Compositing Areas

N

meters

-7.5 -6 -4.5 -3 -1.5 0 1.5 3 4.5 6 7.5

meters

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Codified 63 FR 35466
Sampling Smaller Areas of Contamination

1. Use smaller grid interval
2. Use random number to identify 3 coordinates within remediated area

- Sampling point
Subpart P - Sampling Non-Porous Surfaces by Halves
(§761.306)

1. Divide 1 square meter area in half

2. Assign each half “heads” or “tails”

3. Flip coin

4. Select “winning side” and divide in half

5. Repeat from step 2 until selected half is >100 cm$^2$ and <200 cm$^2$
Subpart P - Sampling Non-Porous Surfaces by Halves (§761.306)

First coin toss - heads
Second coin toss - tails
Third coin toss - tails
Subpart P - Sampling Non-Porous Surfaces by Halves (§761.306)

Fourth coin toss - heads
Fifth coin toss - tails
Sixth coin toss - heads
Subpart R - Sampling a Conical Pile
(§761.347)
1. Mark center of pile using rod, stake, etc.
2. Run string from top of center marker to base (b)
3. Measure circumference (c) from base (b)
4. Find sampling radius \((r)\) by multiplying circumference \((c)\) by a random number.
5. Run string from center marker to base at point \((r)\).
6. Measure length \((l)\) from center marker to base \((r)\).
7. Find sampling length \((s)\) by multiplying \((l)\) by a random number.

8. Starting from base \((r)\), find point \((s)\) on length \((l)\).
Three Dimensional View
9. Determine the vertical distance (v) by inserting a rod marked in cm
10. Find sampling depth (t) by multiplying (v) by a random number
11. Take sample at point (t)
Three Dimensional View

Sampling Point
Subpart R - Sampling a Specifically Configured Pile
(§761.347)

1. Configure pile so it is a rectangle no more than 30 cm (1 ft) deep
Subpart R - Sampling a Specifically Configured Pile

2. Divide pile into quarters
Subpart R - Sampling a Specifically Configured Pile

3. Divide quarters into quarters, and number from 1 to 4
4. Randomly select 2 of the 4 numbers to sample (e.g., 1 and 4)
5. If volume of 1/16th of the original area is greater than 76 liters, continuing dividing into quarters until volume is <76 liters but >19 liters
Subpart R - Sampling a Specifically Configured Pile

6. Number and randomly select subsection for sampling (e.g., 4)
7. Take samples in same position in each corresponding subsection
8. Composite samples