

Missouri Department of Natural Resources  
Water Pollution Control Program

UST Technical Bulletin  
Leak Detection Methods  
#2 of 8

## MANUAL TANK GAUGING

**What is it?** Take a product measurement, then stop use of the tank for a certain length of time (at least 36 hours), and take a final measurement to check for a change of product level.

Tank is leaking if the level changes by more than the following amount:

<b>Tank Capacity</b>	<b>Per Week</b>	<b>Per Month (Avg. of 4)</b>	<b>Length of Time</b>
110 - 550 gal.	10 gal.	5 gal.	36 hrs.
551 - 1000 (64" x 73")	9 gal.	4 gal.	44 hrs.
1000 (48" x 128")	12 gal.	6 gal.	58 hrs.
<u>If used in combination with annual tank tightness tests</u> (see Method #3):			
551 - 1000	13 gal.	7 gal.	36 hrs.
1001 - 2000	26 gal.	13 gal.	36 hrs.

### Requirements:

Measure tank level at beginning and end of a period of at least 36 hours (see "Length of Time" above).

1. Take each measurement twice, and average.
2. Measure to the nearest 1/8 inch.
3. Compute average of four previous weeks (keeping +/- sign).
4. Compare results to the above chart.
5. Keep a record of each month's reading (see following form).

### Equipment:

- Stick
- Tank chart
- Log book (see following form)
- Calculator

**Advantages:** A very simple test with minimal equipment requirements. Precision tightness test not required for tanks of 1000 gallons or less. Can also be substituted for inventory control (reconciliation) method for tanks of 551-2000 gallons.

**Disadvantages:** Limited to tanks of 2,000 gallons or less. Must have a precision tightness test (every year or every 5 years) for tanks between 1001 and 2,000 gallon capacity. Tank must remain idle for at least 36 hours on a weekly basis.

# MANUAL TANK GAUGING WORKSHEET

MONTH/YEAR \_\_\_\_\_  
 FACILITY NAME \_\_\_\_\_  
 TANK CONTENTS \_\_\_\_\_  
 TANK CAPACITY \_\_\_\_\_

WEEK #1	DATE	TIME	STICK READING #1	STICK READING #2	AVERAGE OF #1 & #2
BEGINNING					
ENDING					

WEEK #2	DATE	TIME	STICK READING #1	STICK READING #2	AVERAGE OF #1 & #2
BEGINNING					
ENDING					

WEEK #3	DATE	TIME	STICK READING #1	STICK READING #2	AVERAGE OF #1 & #2
BEGINNING					
ENDING					

WEEK #4	DATE	TIME	STICK READING #1	STICK READING #2	AVERAGE OF #1 & #2
BEGINNING					
ENDING					

## SUMMARY OF MANUAL TANK GAUGING REGULATORY REQUIREMENTS

TANK SIZE (CAPACITY/DIAMETER)	TEST LENGTH (HOURS)	WEEKLY TEST STANDARD (GALLONS)	MONTHLY TEST STANDARD (GALLONS)	TIGHTNESS TEST REQUIRED	VALID UNTIL
550 GAL	36	10	5	NO	TANK REMOVED
1,000 GAL/64'	44	9	4	NO	TANK REMOVED
1,000 GAL/48'	58	12	6	NO	TANK REMOVED
551 GAL TO 1,000 GAL	36	13	7	YES	1998 OR 10 YRS
1,001 GAL TO 2,000 GAL	36	26	13	YES	1998 OR 10 YRS
2,001 + GAL	<<<<<<<< NOT ALLOWED >>>>>>>>				

KEEP THIS RECORD ON FILE FOR AT LEAST ONE YEAR



**SAMPLE**

**MANUAL TANK GAUGING WORKSHEET**

FACILITY NAME: Ed's Premium Autos

TANK CONTENTS: diesel

TANK CAPACITY: 1500 gallons

MINIMUM TEST LENGTH: 36 hours

TO PASS THE WEEKLY TEST THE WEEKLY CHANGE IN VOLUME MUST BE LESS THAN **26** GALLONS.

TO PASS THE MONTHLY TEST THE FOUR WEEK AVERAGE CHANGE IN VOLUME MUST BE LESS THAN **13** GALLONS.

YEAR: '93 START DATE (MONTH/DAY)	LENGTH OF TEST (HOURS)	START		END		CHANGE IN VOLUME (WEEKLY)	PASS WEEKLY TEST	CHANGE IN VOLUME (MONTHLY AVERAGE)	PASS MONTHLY TEST
		AVG INCH	GAL	AVG INCH	GAL				
2-1	48	45	1101	45 1/2	1119	18	<input checked="" type="radio"/> Y <input type="radio"/> N	9	<input checked="" type="radio"/> Y <input type="radio"/> N
2-8	48	7	89	6	71	18	<input checked="" type="radio"/> Y <input type="radio"/> N		
2-15	48	10	150	10	150	0	<input checked="" type="radio"/> Y <input type="radio"/> N		
2-22	48	25	906	25	906	0	<input checked="" type="radio"/> Y <input type="radio"/> N		
							<input type="radio"/> Y <input type="radio"/> N		<input type="radio"/> Y <input type="radio"/> N
							<input type="radio"/> Y <input type="radio"/> N		
							<input type="radio"/> Y <input type="radio"/> N		
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							<input type="radio"/> Y <input type="radio"/> N		
							<input type="radio"/> Y <input type="radio"/> N		

IF YOU DO NOT PASS ANY OF THE WEEKLY OR MONTHLY TESTS, YOU MUST REPORT A SUSPECTED LEAK TO:

MISSOURI DEPARTMENT OF NATURAL RESOURCES AT (314) 634-2436

KEEP THIS RECORD ON FILE FOR AT LEAST ONE YEAR