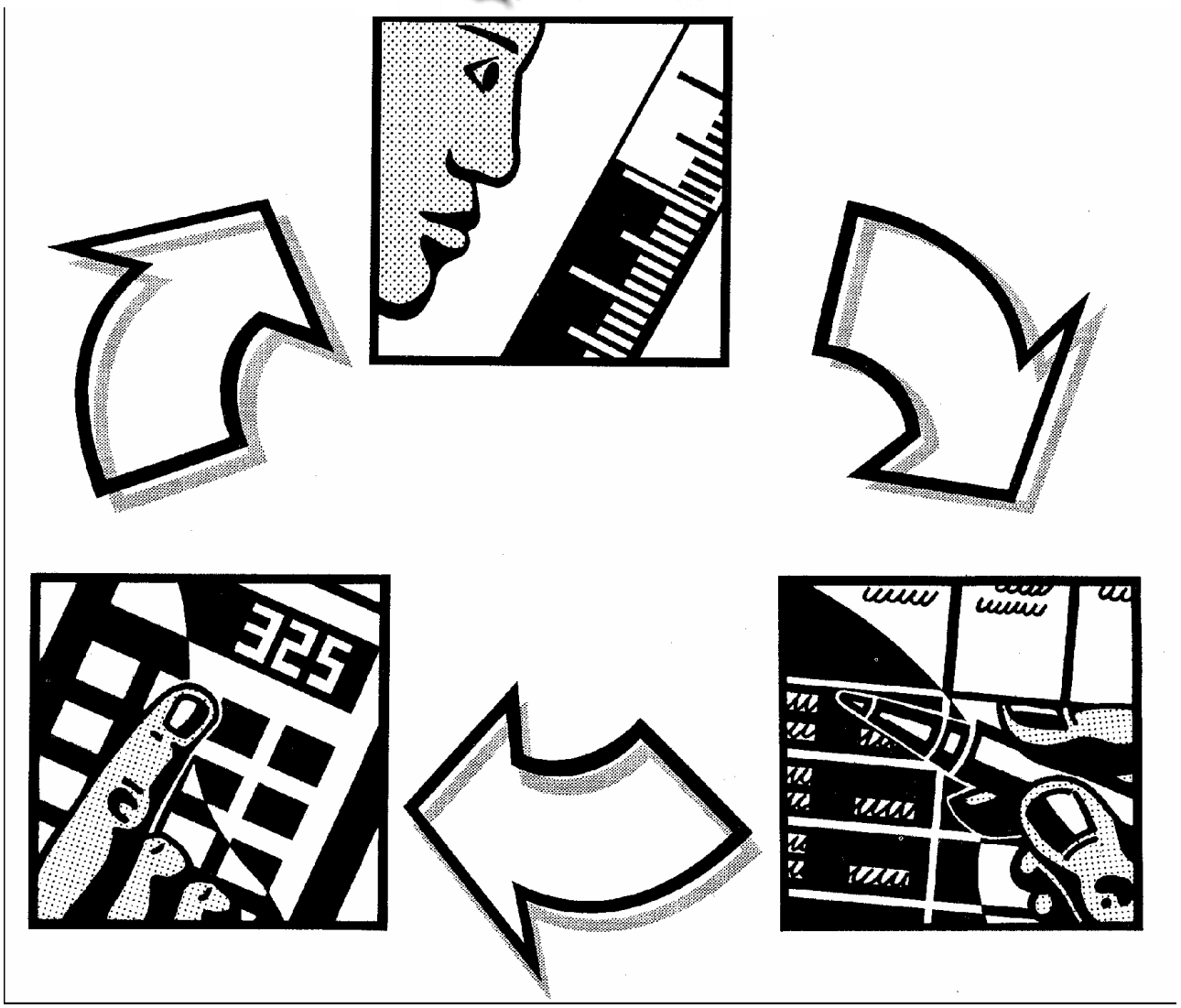
Manual Tank Gauging For Small Underground Storage Tanks

South Dakota
Department of Environment & Natural Resources
Ground Water Quality



Manual Tank Gauging

This leak detection method can be used for tanks 2,000 gallons and smaller only. Manual tank gauging may be used without tank tightness testing on tanks 1,000 gallons or smaller. Manual tank gauging must be used in combination with tank tightness testing for 1,000- to 2,000-gallon tanks.

Manual tank gauging consists of measuring product in the tank before and after a "rest period." Product input or output may not occur during the rest period. Two measurements, from which you will take an average, are required before and after each rest period. The chart on page 3 will tell you the length of the rest periods and the allowable product loss/gain standard for your tank's size and dimension.

To Properly Conduct Manual Tank Gauging

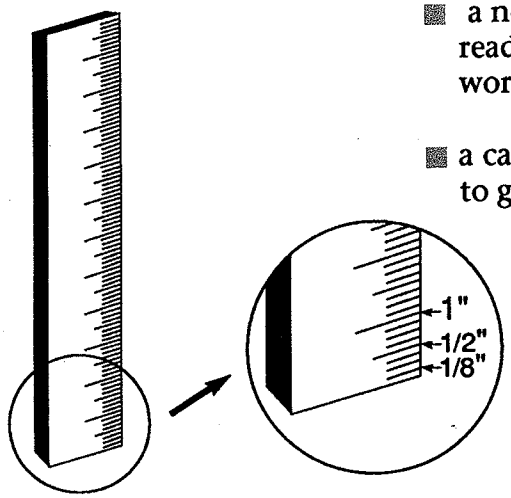
You Must:

- Have proper equipment
- Stick the tank before and after the rest period
- Reconcile inventory weekly and monthly
- Document & save records for all items listed above

Proper Equipment

Minimum equipment needed includes:

- a non-sparking gauge stick (dipstick) that can be read in 1/8th-inch increments and is not warped or worn at the bottom,
- a calibration chart that converts gauge stick readings to gallons for your specific tank type and size



Stick readings before and after each "rest period"

The tank inventory must be measured twice and averaged before and after each "rest period." The more consistent the stick readings are, the more accurate the inventory will be. This means that product level should be read by the same person using the same stick and the same tank calibration chart. Consistency is vital!

Weekly and monthly reconciliation

NOTE: Under no circumstances should you attempt to artificially adjust numbers to make daily over/short numbers come out to zero (0). This would defeat the whole purpose of inventory control and could mask a leak.

Inventory readings must be reconciled weekly and monthly. (The chart on page 3 shows the reconciliation standard per week and per month.) The standard for allowable product loss or gain depends on the tank capacity and dimension. If you are short or over more than either the allowable weekly or monthly standard, you may have a leak. If this happens, carefully monitor your inventory for another month. If either of the standards are exceeded again, contact your federal or state UST agency.

Documentation

You must keep documentation of all monitoring for at least one year. This includes monthly manual tank gauging records and the latest tank tightness test results (if required).

Tank Capacity (gallons)	Tank Dimensions	Weekly/Monthly Standard (gallons)	Minimum Rest Period Duration
550	N/A	10/5	36 hours
551 - 1,000	N/A	9/7	36 hours
1,000	64"(diameter) X 73 (length)	9/4	44 hours
1,000	48"(diameter) X 1 28"(length)	12/6	58 hours
1,001 - 2,000	N/A	26/13	36 hours

Steps To Follow For Using Manual Tank Gauging Record Sheet.

1. Stick the tank twice before the rest period and average the readings.
2. Allow no product input or withdrawal during the rest period, which is a specific time period based on your tank's size and dimension (see chart on page 5).
3. At the end of the rest period, stick the tank twice and average the readings.
4. Reconcile the stick readings on both a weekly and monthly basis and compare overages/shortages to the allowable ranges on the chart. If the overage/shortage figure exceeds the allowable range, carefully watch the inventory for another 30 days. If the trend continues, contact your UST implementing agency.

MANUAL TANK GAUGING RECORD

SAMPLE

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	45½	1119	18	(Y) N	9	(Y) N
2-8	48	7	89	6	71	18	(Y) N		
2-15	48	10	150	10	150	0	(Y) N		
2-22	48	25	906	25	906	0	(Y) N		
							Y N		Y N
							Y N		
							Y N		
							Y N		
							Y N		Y N
							Y N		
							Y N		
							Y N		
							Y N		Y N
							Y N		
							Y N		
							Y N		

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

KEEP THIS PIECE OF PAPER ON FILE FOR AT LEAST ONE YEAR

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 AND #2
BEGINNING					
ENDING					

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

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

WEEK #4	DATE	TIME	STICK READING #1	STICK READING #2	AVERAGE OF #1 AND #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	9	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 > > > > > > >				

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MANUAL TANK GAUGING RECORD

FACILITY NAME _____

TANK CONTENTS _____

TANK CAPACITY _____

MINIMUM TEST LENGTH _____

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

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

YEAR:____ 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				
							Y N		
							Y N		Y N
							Y N		
							Y N		
							Y N		
							Y N		Y N
							Y N		
							Y N		
							Y N		
							Y N		Y N
							Y N		
							Y N		
							Y N		
							Y N		Y N
							Y N		
							Y N		

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