

**Missouri Department of Natural Resources
Water Pollution Control Program**

UST Technical Bulletin
Leak Detection Methods
#1 of 8

INVENTORY CONTROL

What is it? Inventory control is a method of detecting leaks that consists of comparing daily stick readings of the tank against deliveries and sales, reconciled each month. A leak is suspected and must be reported if the monthly difference exceeds 1% of throughput plus 130 gallons for 2 consecutive months.

Inventory control requires annual tank tightness tests. These tests can be extended to once every five (5) years if the tank is upgraded, the piping is upgraded, and spill/overflow devices are installed. After 1998, use of inventory control as a method of leak detection is limited to the first decade of tank life or since upgrade.

Requirements:

1. Stick tank every operating day.
2. Stick must read full range of tank, to within 1/8 inch.
3. Stick before and after delivery.
4. Drop tube must extend to within 1 foot of bottom.
5. Dispensers must be certified by Missouri Department of Agriculture or accurate to 6 cubic inches per 5 gallons.
6. Measure water to nearest 1/8 inch once per month.
7. Once a month reconcile inventory:
 - A. Sum the daily shortages/overages (i.e., add '+'s, subtract '-'s);
 - B. Determine total sales for month (in gallons for each tank), multiply total sales by 1 per cent (x 0.01); add 130 gallons to the result;
(Sales x 0.01) + 130 = _____
 - C. Compare A. to B.
The monthly difference (A.) should not exceed (B.) in either negative or positive direction.
8. Keep a record of each month's reading (see following forms).

Equipment Required:

- Stick accurately marked in 1/8 inch increments (or read to nearest 1/8 inch)
- Gallon chart for each tank
- Product finding paste (optional)
- Water finding paste
- Log book (see following forms)
- Calculator

Advantages: Minimal equipment requirements.

Disadvantages: Reliable, accurate readings require trained personnel. You must combine this test with periodic precision tightness tests (once per year or once every 5 years). The method will be phased out; either by the end of 1998 or 10 years after tank upgrade, whichever is later.

Fuel Delivery Record

Facility Name: _____

DATE OF DELIVERY:			DELIVERY COMPANY:			
TYPE OF FUEL						
	INCHES	GALLONS	INCHES	GALLONS	INCHES	GALLONS
FUEL BEFORE DELIVERY						
FUEL AFTER DELIVERY						
GALLONS DELIVERED (STICK)						
GROSS GALLONS DELIVERED (RECEIPT)						

DATE OF DELIVERY:			DELIVERY COMPANY:			
TYPE OF FUEL						
	INCHES	GALLONS	INCHES	GALLONS	INCHES	GALLONS
FUEL BEFORE DELIVERY						
FUEL AFTER DELIVERY						
GALLONS DELIVERED (STICK)						
GROSS GALLONS DELIVERED (RECEIPT)						

DATE OF DELIVERY:			DELIVERY COMPANY:			
TYPE OF FUEL						
	INCHES	GALLONS	INCHES	GALLONS	INCHES	GALLONS
FUEL BEFORE DELIVERY						
FUEL AFTER DELIVERY						
GALLONS DELIVERED (STICK)						
GROSS GALLONS DELIVERED (RECEIPT)						

KEEP THIS RECORD ON FILE FOR AT LEAST ONE YEAR

DAILY SALES RECORD

FACILITY NAME: _____

DATE:				
TYPE OF FUEL / TANK				
Totalizer Reading				
Totalizer Reading				
Totalizer Reading				
Totalizer Reading				
Totalizer Reading				
Totalizer Reading				
Today's Sum of Totalizers				
Yesterday's Sum of Totalizers				
AMOUNT PUMPED TODAY				

DATE:				
TYPE OF FUEL / TANK				
Totalizer Reading				
Totalizer Reading				
Totalizer Reading				
Totalizer Reading				
Totalizer Reading				
Totalizer Reading				
Today's Sum of Totalizers				
Yesterday's Sum of Totalizers				
AMOUNT PUMPED TODAY				

KEEP THIS RECORD ON FILE FOR AT LEAST ONE YEAR

MONTHLY INVENTORY RECORD

MONTH/YEAR: _____

FACILITY NAME: _____

TANK CONTENTS: _____

DATE OF THIS MONTH'S WATER LEVEL CHECK: _____ AMOUNT OF WATER (INCHES): _____

DATE	Start Stick Inventory	+ Gallons Delivered	- Gallons Pumped	= Book Inventory	End Stick Inventory		DAILY OVER OR <SHORT>	INITIALS
					INCHES	GALLONS		
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								
31								

TOTAL GALLONS PUMPED:

TOTAL GALLONS OVER OR SHORT:

LEAK CHECK: (TOTAL GALLONS PUMPED) X .01 + 130 = _____

TOTAL OF 'DAILY OVER OR SHORT' IS LARGER THAN THE 'LEAK CHECK' RESULT: YES NO (CIRCLE ONE)

IF ANSWER IS "YES" TWO MONTHS IN A ROW, NOTIFY:

Missouri Department of Natural Resources at (314) 634-2436

MONTHLY INVENTORY RECORD **SAMPLE**

MONTH/YEAR: 2/93

FACILITY NAME: Ed's Premium Autos

TANK CONTENTS: Diesel

DATE OF THIS MONTH'S WATER LEVEL CHECK: 2/21 AMOUNT OF WATER (INCHES): 0

DATE	Start Stick Inventory	+ Gallons Delivered	- Gallons Pumped	= Book Inventory	End Stick Inventory		DAILY OVER OR <SHORT>	INITIALS
					INCHES	GALLONS		
1	4047	----	333	3714	38 1/4"	3690	<24>	js
2	3690	----	44	3646	38"	3658	12	js
3	3658	----	329	3329	35 3/8"	3323	<6>	js
4	3323	----	60	3263	35"	3275	12	js
5	3275	----	145	3130	33 3/4"	3117	<13>	js
6	3117	----	238	2879	31 1-8"	2790	<89>	js
7	2790	6134	117	8807	80"	8844	37	js
8	8844	----	127	8717	78 7/8"	8732	15	js
9	8732	----	182	8550	77 1/2"	8591	41	js
10	8591	----	205	8386	75 1/2"	8379	<7>	js
11	8379	----	204	8175	73 5/8"	8173	<2>	js
12	8173	----	166	8007	72"	7991	<16>	js
13	7991	----	320	7671	69 3/4"	7730	89	js
14	7730	----	307	7423	67"	7402	<21>	js
15	7402	----	76	7326	66 1/2"	7342	16	js
16	7342	----	224	7118	64 1/8"	7050	<68>	js
17	7050	----	390	6440	61"	6657	<3>	js
18	6657	----	296	6361	58 5/8"	6354	<7>	js
19	6354	----	78	6276	58 1/8"	6290	14	js
20	6290	----	424	5866	54 7/8"	5869	3	js
21	5869	----	205	5664	53 1/8"	5639	<25>	js
22	5639	4177	403	9413	86 1/2"	9423	10	js
23	9423	----	87	9336	85 1/2"	9343	7	js
24	9343	----	311	9032	82"	9036	4	js
25	9036	----	239	8797	79 1/8"	8757	<40>	js
26	8757	----	256	8501	76 7/8"	8526	25	js
27	8526	----	264	8262	74 1/2"	8270	8	js
28	8270	----	263	8007	72"	7991	<16>	js
29								
30								
31								

TOTAL GALLONS PUMPED: **6293**

TOTAL GALLONS OVER OR SHORT: **<74>**

TOTAL GALLONS PUMPED

LEAK CHECK: (**6293**) X .01 + 130 = **193**

TOTAL OF 'DAILY OVER OR SHORT' IS LARGER THAN THE 'LEAK CHECK' RESULT: YES **NO** (CIRCLE ONE)
 IF ANSWER IS "YES" TWO MONTHS IN A ROW, NOTIFY:

Missouri Department of Natural Resources at (314) 634-2436