

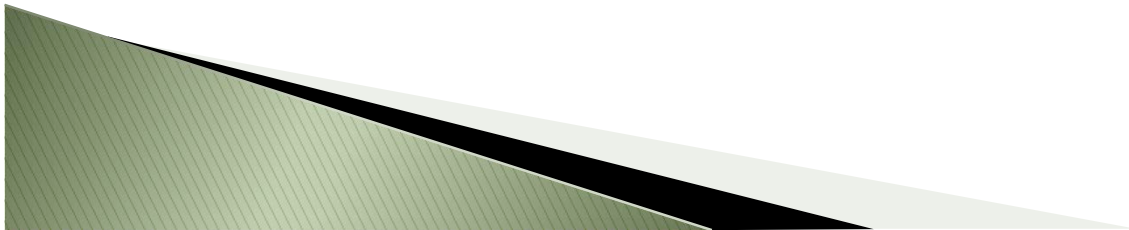


NMED
SCRAP TIRE
WORKSHOP –

MANIFEST MATH

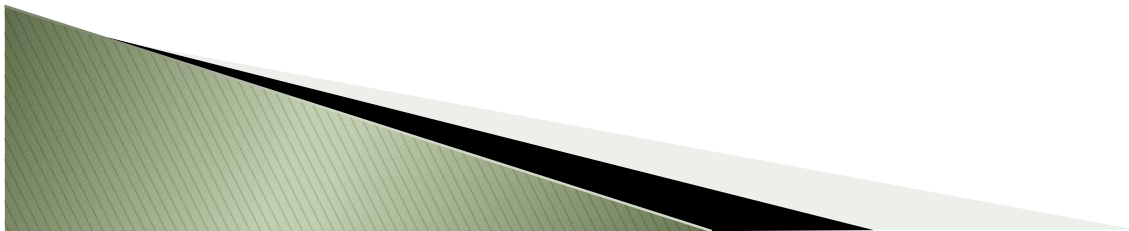
MANIFEST SYSTEM

- ▶ **Final destination - review for DISCREPANCIES**
- ▶ **Discrepancies over 20% -**
- ▶ **Report to generator, hauler and NMED.**

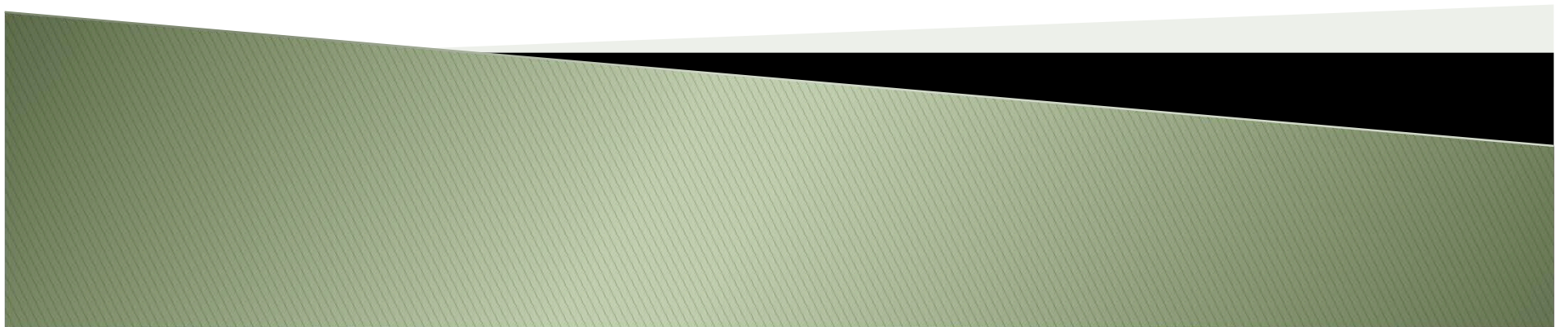


NUMBER OF TIRES VS WEIGHT

- ▶ **Most haulers and generators report by NUMBER of tires**
- ▶ **Many solid waste facilities report in WEIGHT of Tires**
- ▶ **(What does YOUR facility do???)**
- ▶ **HOW CAN YOU REPORT THE DISCREPANCY???**



**USE THE
CONVERSION
CHART!!!**



**CONVERSION CHART - PASSENGER TIRE EQUIVALENTS (PTEs)*
(NUMBER OF PTE's : TONS)**

Number of PTEs	Weight of Tires (Tons)	Number of PTEs	Weight of Tires (Tons)	Number of PTEs	Weight of Tires (Tons)	Number of PTEs	Weight of Tires (Tons)
0	0	400	4.4	800	8.8	1200	13.2
20	0.22	420	4.62	820	9.02	1220	13.42
40	0.44	440	4.84	840	9.24	1240	13.64
60	0.66	460	5.06	860	9.46	1260	13.86
80	0.88	480	5.28	880	9.68	1280	14.08
100	1.1	500	5.5	900	9.9	1300	14.3
120	1.32	520	5.72	920	10.12	1320	14.52
140	1.54	540	5.94	940	10.34	1340	14.74
160	1.76	560	6.16	960	10.56	1360	14.96
180	1.98	580	6.38	980	10.78	1380	15.18
200	2.2	600	6.6	1000	11	1400	15.4
220	2.42	620	6.82	1020	11.22	1420	15.62
240	2.64	640	7.04	1040	11.44	1440	15.84
260	2.86	660	7.26	1060	11.66	1460	16.06
280	3.08	680	7.48	1080	11.88	1480	16.28
300	3.3	700	7.7	1100	12.1	1500	16.5
320	3.52	720	7.92	1120	12.32		
340	3.74	740	8.14	1140	12.54		
360	3.96	760	8.36	1160	12.76		
380	4.18	780	8.58	1180	12.98		

*Based on the passenger tire equivalent ("PTE"), a conversion factor for converting between numbers of scrap tires and weight.

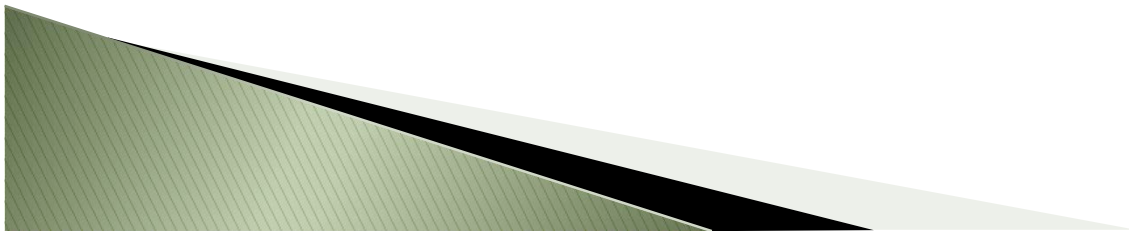
One PTE is approximately the average weight of a passenger or light truck tire in the USA. One semi-truck tire weighs approximately 5 PTEs.

BASIS FOR CONVERSION CHART

- ▶ **One passenger tire weighs approx. 22.5 lbs. –**
- ▶ **1 PTE**
- ▶ **One truck tire weighs approx. 113 lbs – 5 PTEs**

1 ton=2000 lbs.

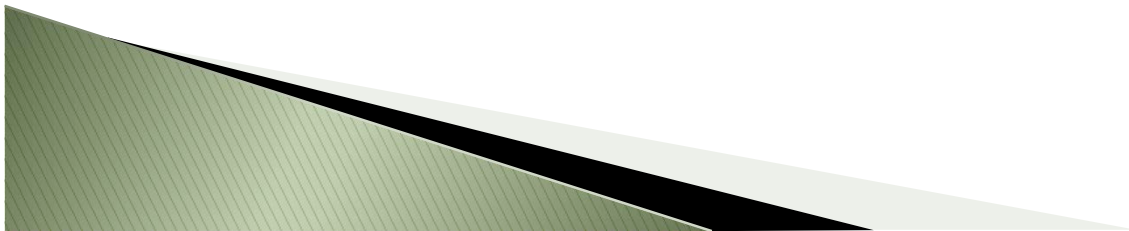
- ▶ **# of tires X 22.5 lbs. ÷ 2000 = tons on chart**



EXAMPLE 1

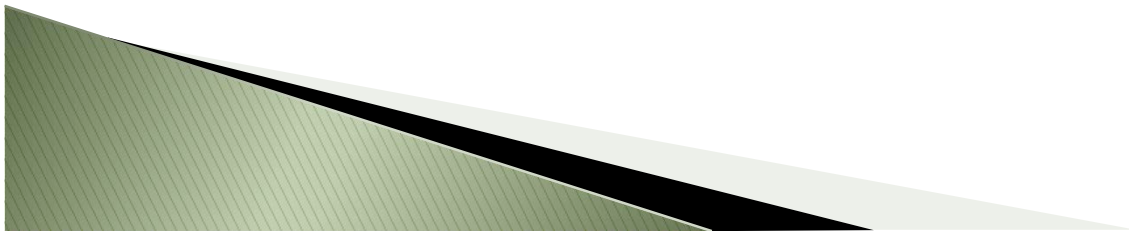
HAULER RECORDS NUMBERS / FINAL DESTINATION RECORDS WEIGHT

- ▶ **NUMBERS FROM TOP OF MANIFESTS**
 - **500 passenger + 75 truck**
- ▶ **Landfill weigh = 8.00 tons**
- ▶ **Is it OK?**



EXAMPLE 1 ctd.

- ▶ **CALCULATE WHAT WEIGHT SHOULD BE**
 - **Weight of passenger tires**
 - **500 PTEs = 5.5 tons**
 - **PTEs for truck tires = 75 TT X 5 PTEs/TT = 375 PTEs**
 - **Weight of truck tires = 4.18 tons**
 - **Total Weight = 5.5 + 4.18 = 9.68 tons**



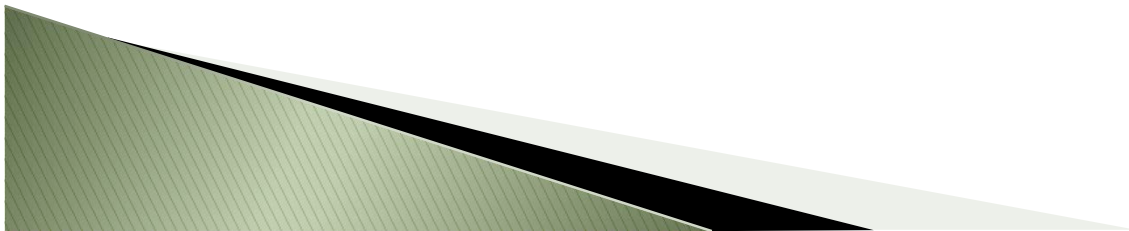
EXAMPLE 1 ctd.

Is there a 20% discrepancy?

$$9.68 - 8.00 = \text{discrepancy} = 1.68 \text{ tons}$$

$$1.68 \div 9.68 = 0.174 \text{ or } 17.4\%$$

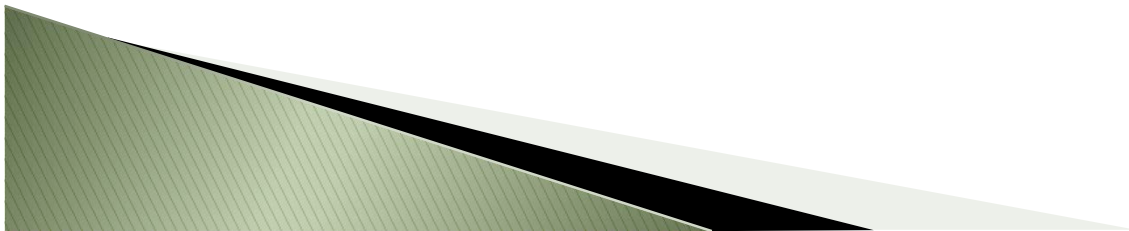
LOAD IS OK



EXAMPLE 2

HAULER REMOVES SOME FOR RESALE

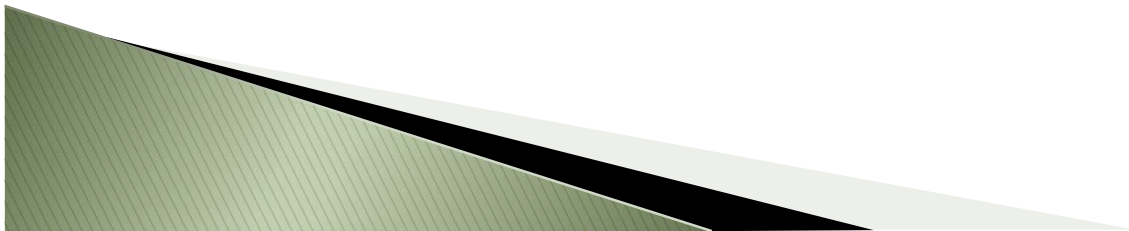
- ▶ **500 Passenger Tires Released from Generator**
- ▶ **50 Tires Removed for Resale**
- ▶ **$500 - 50 = 450$ Tires (Should Go to Landfill)**



EXAMPLE 2 ctd.

- ▶ **USE CHART FOR WEIGHT**
- ▶ **450 tires = Approximately 5 tons**

5 tons should be brought to landfill



EXAMPLE 2 ctd.

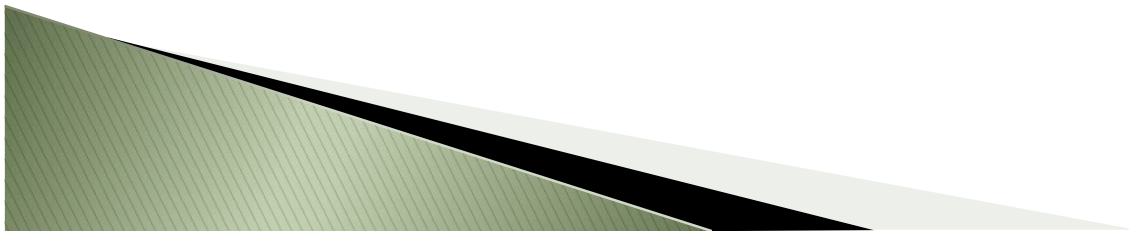
Landfill receives 3.05 tons

DISCREPANCY CALCULATION

- ▶ **5 tons - 3.05 tons = 2 tons**
- ▶ **2 tons ÷ 5 tons X 100% = 40%**

DISCREPANCY IS GREATER THAN 20%

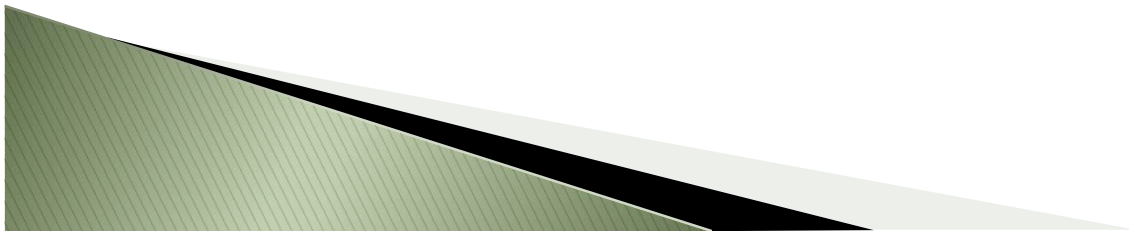
- ▶ **Should be reported to NMED, the generator, and the hauler**



EXAMPLE 3

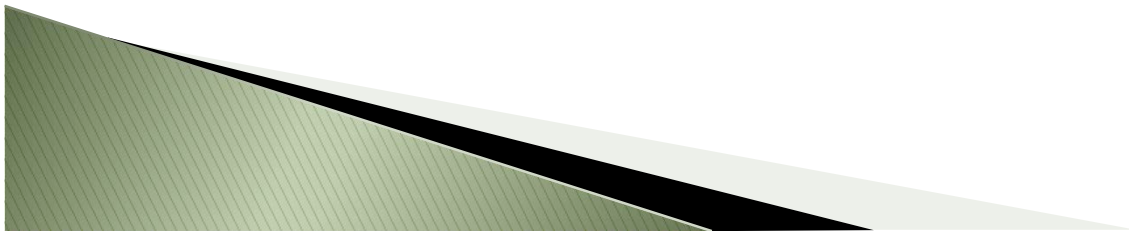
- ▶ **HAULERS THAT BRING MULTIPLE LOADS IN ONE DROP-OFF**

DOES THAT HAPPEN AT YOUR FACILITY???



EXAMPLE 3 ctd.

- ▶ **Hauler should BRING A MANIFEST FOR EACH GENERATORS**
- ▶ **To check for discrepancy, add the tires from each generator and compare that with what you received**



EXAMPLE 3 ctd.

NUMBERS FROM TOP OF MANIFESTS

- **Generator 1 – 250 passenger tires**
- **Generator 2 – 100 pass. + 100 truck**
- **Generator 3 – 50 pass. + 25 truck**
- **Total Passenger tires = $250 + 100 + 50 = 400$**
- **Total Truck tires = $100 + 25 = 125$**
- **Total all tires = 525**

EXAMPLE 3 ctd.

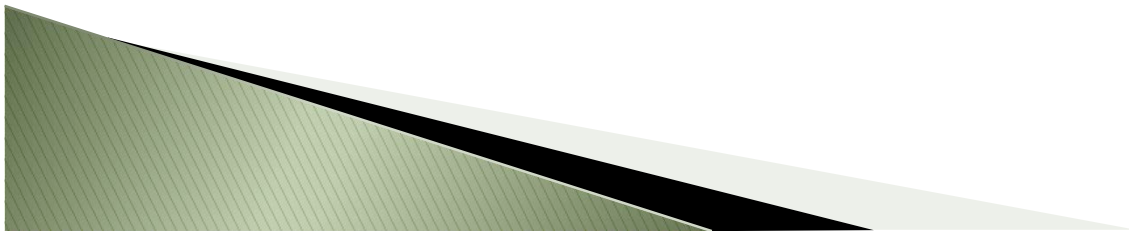
**Number received = 350 passenger +
100 truck**

Total = 450

Discrepancy = 525-450=75

$75 \div 525 = 0.143 = 14.3\%$

LOAD IS OK

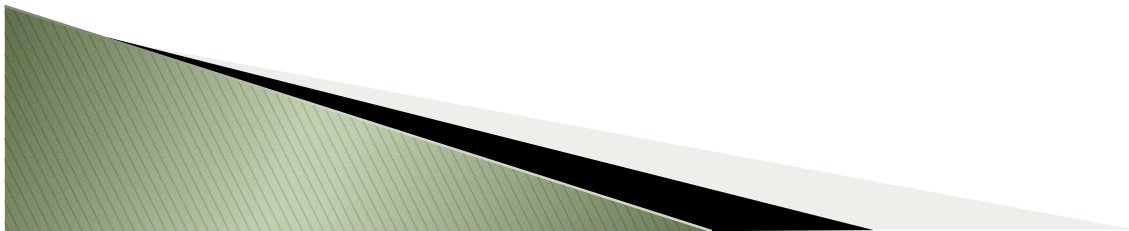


EXAMPLE 3 ctd.

mark each manifest with:

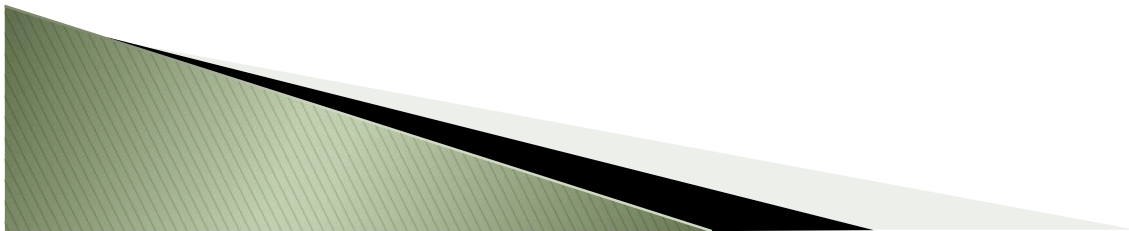
- **“The weight shown here represents 3 loads.”**

Final Destination must send back the original to each generators within 30 days



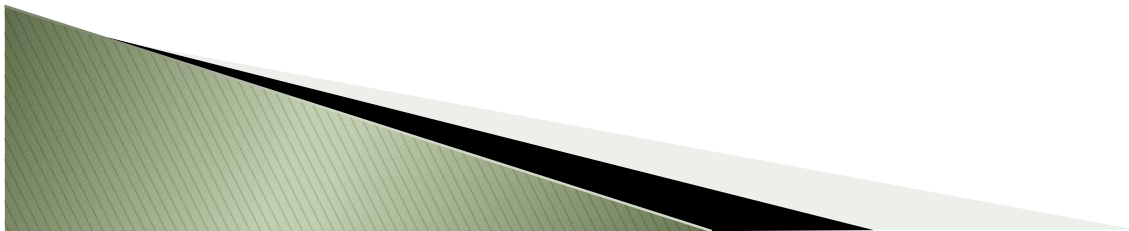
EXAMPLE 4

- ▶ **HAULERS BRINGS MULTIPLE LOADS IN ONE DROP-OFF**
 - **Hauler records number of tires**
 - **Final Destination records weight**



EXAMPLE 4 ctd.

- ▶ Add the number of tires from each load (be sure to multiply the truck tires X 5)
- ▶ Convert that number to weight
- ▶ Compare that to the weight received
- ▶ If difference is greater than 20%, contact everybody
- ▶ mark each manifest with:
 - “The weight shown here represents X loads.”



EXAMPLE 4 ctd.

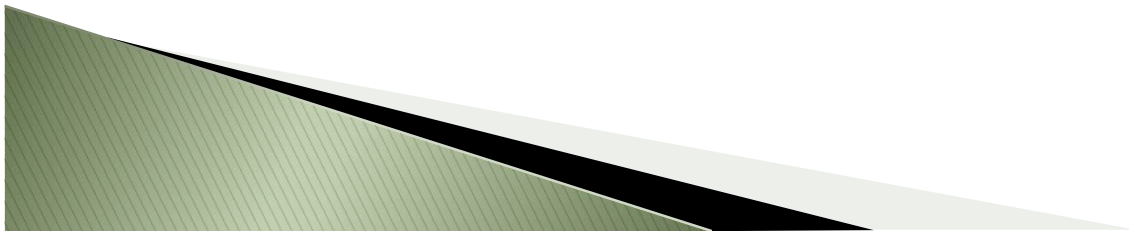
- **Generator 1 – 250 passenger tires**
- **Generator 2 – 100 pass. + 100 truck**
- **Generator 3 – 50 pass. + 25 truck**
- **Total: $250+100+(100\times 5)+50+(25\times 5)=1025$**
- **PTEs**
- **Convert to tons - Use the chart**
- **Should weigh approx. 11.22 tons**
- **Actual weight at scale house = 5.25 tons**



EXAMPLE 4 ctd.

CALCULATE THE DISCREPANCY

- ▶ **Weight released by generator – weight received = 11.22 tons - 5.25 tons = 5.97 tons**
- ▶ **Discrepancy = 5.97 tons ÷ 11.22 tons = 0.532 = 53.2%**
- ▶ **DISCREPANCY IS GREATER THAN 20%**
- ▶ **Report to NMED, the generator and hauler**



TJD INFORMATION

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