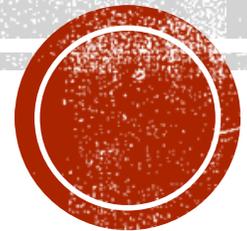


POWER OF PYRAMIDS

This is not an Amway commercial



HEINRICH'S SAFETY PYRAMID

- One of the things that gets batted around Health and Safety discussions is Heinrich's pyramid, dating back to 1931. The basic idea of this is that accidents don't just happen out of the blue. For every fatal accident there are several non-fatal but major accidents, for every major accident there's several minor accidents, and for every minor accident there's a whole heap of incidents (things that could have been accidents if circumstances had been different). The implication is then that by addressing the minor things that crop up frequently, we make the workplace a safer place and eliminate fatalities. One can eliminate fatalities by working and addressing things early or lower in the pyramid.



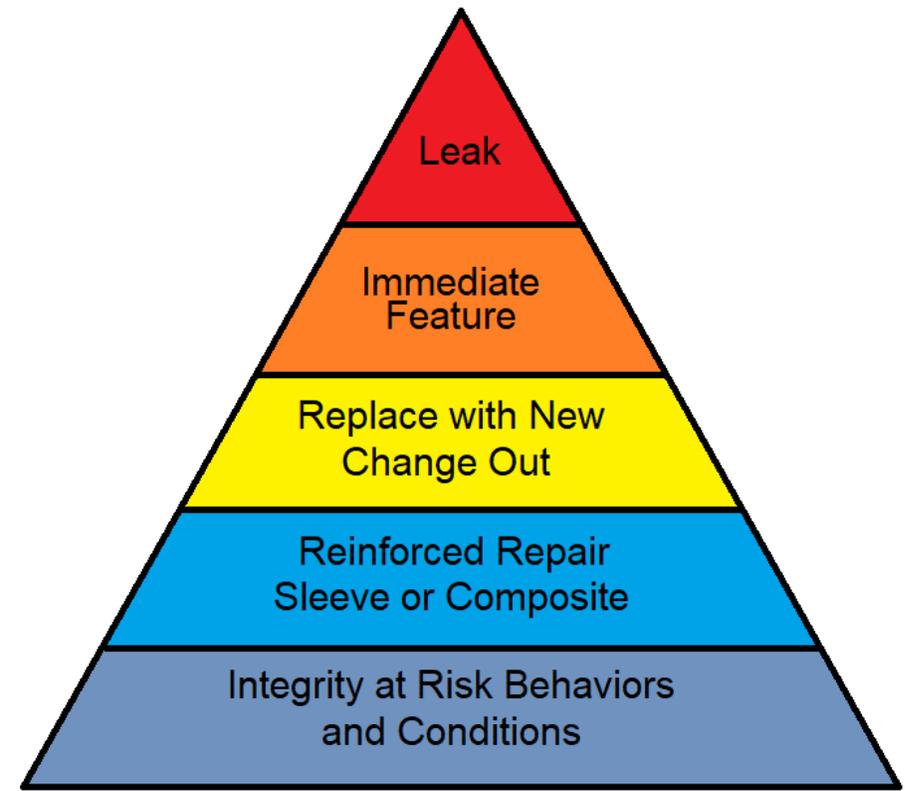
ADDITIONS TO THE SAFETY PYRAMID

- The study found that for every major injury or serious incident, there were an estimated 3,000 near misses. The increased distance in the total numbers of near misses to major injuries thus showcased drastic improvements to safety culture and mishap prevention in the workplace.
- Additional research revealed that for every major injury there were more than 300,000 at-risk behaviors. At-risk behaviors include bypassing safety components on machinery and tools or eliminating time-consuming safety steps.



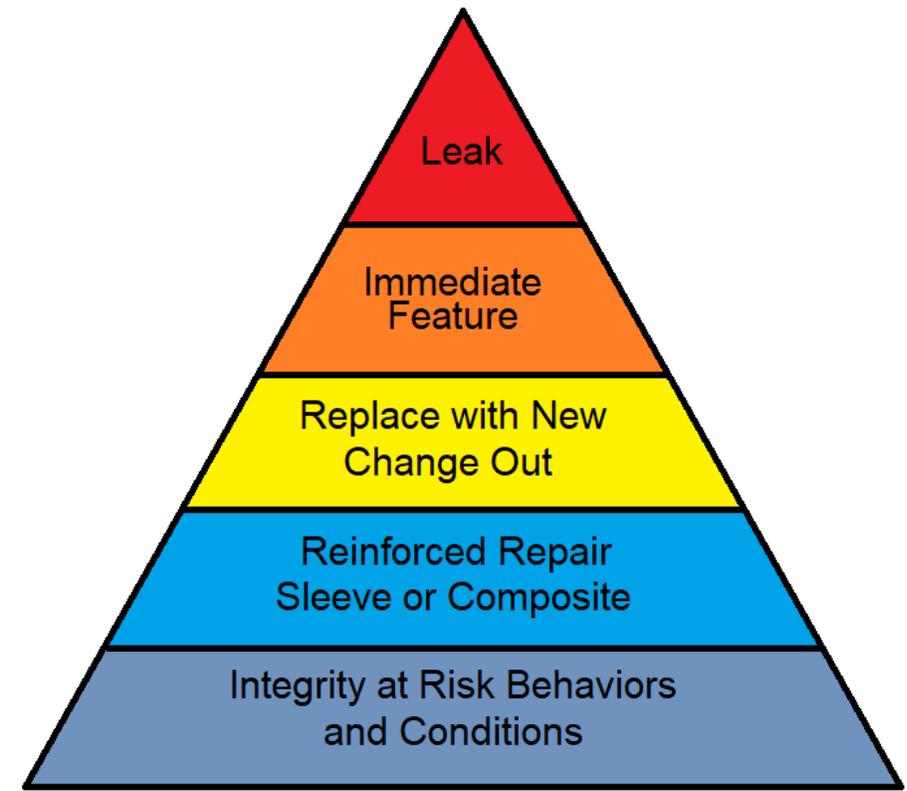
PARALLELISMS

- In comparison, the Integrity Pyramid follows the same principle in that we need to eliminate leaks. If you are focusing your resources only combating leaks and immediate features you will not likely eliminate leaks.
- Working on maintenance items is where you get the best bang for your buck
- Would you drive your car without maintenance until you had to replace the engine? Would you leave the rust (corrosion) on your car without remediating it? Changing your oil is not a law or regulatory requirement.

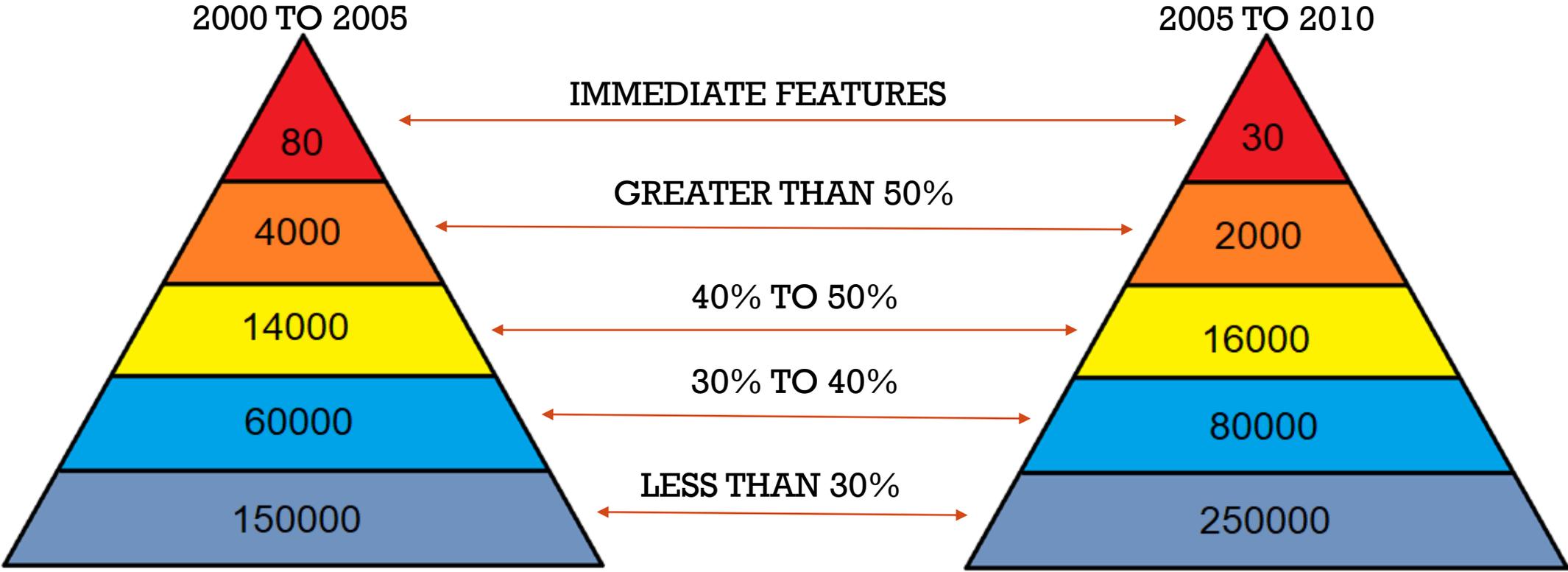


INTEGRITY FIRST PYRAMID

- Integrity has at risk behaviors much like the safety at risk behaviors like bypassing safety components and short cutting.
- Integrity at Risk Behaviors and Conditions include but are not limited to:
 - Aggressively cycling the pipeline
 - Not adequately cleaning the pipeline
 - Not maintaining adequate cathodic protection
 - Not using the right assessment techniques for the threat needing to be assessed
 - Not purging the under utilized assets
 - Not repairing coatings in time (dis-bonded coating)
 - Maintaining proper depth of cover
 - Inadequate signs and markers
 - Inadequate quality control of new assets
 - Pig and Dig/Sleeve and Leave without learning from the data



INTEGRITY FIRST PYRAMID



For example purposes only



LISTENING TO THE DATA

20,000 miles of pipe ILI metal loss between the years of 2010 – 1015

Depth Bucket	Metal Loss	Evaluated	Unevaluated	>80%	ThruWall	>80%	ThruWall
0-20	2,000,000	3,500	1,996,500	0	0	0	0
20-30	400,000	5,000	395,000	5	1	395	79
30-40	70,000	4,500	65,500	2	0	29	0
40-50	20,000	4,000	16,000	11	3	44	12
50-60	5,000	2,000	3,000	20	4	30	6
60-70	1,000	900	100	30	10	3	1
70-80	150	140	10	30	13	2	1

AS Found

Predictive

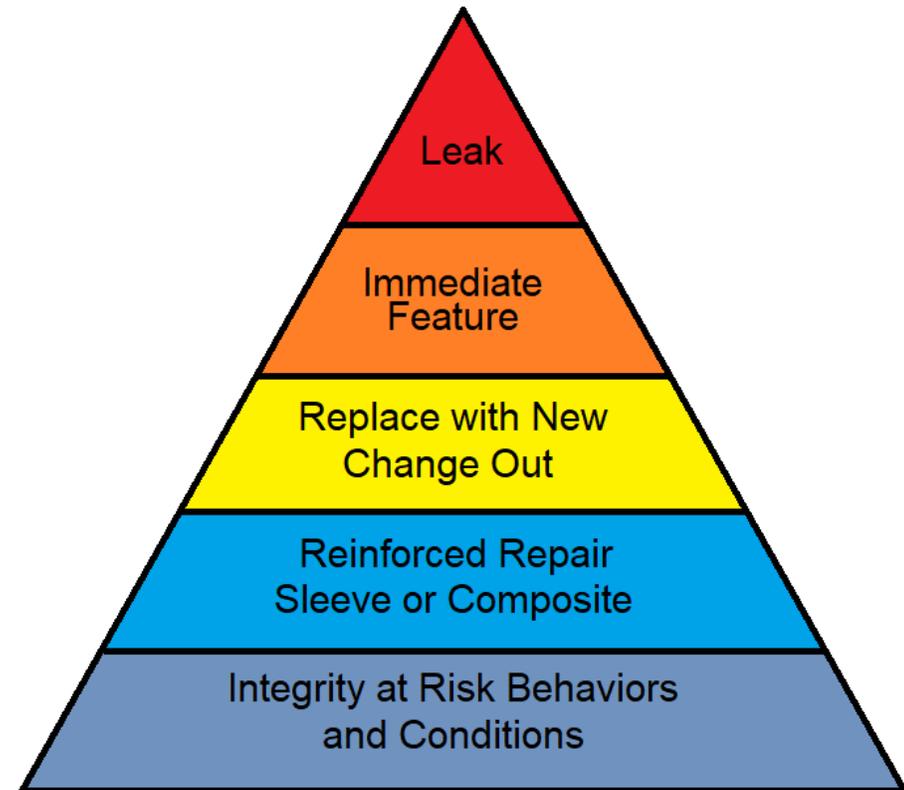
Will we ever eliminate leaks by digging just our greater than 80% metal loss anomalies as called by the ILI tools?

For example purposes only



INTEGRITY FIRST PYRAMID

- This can change a culture just like we did for safety
- Use your data and tell the story
- Listen to the data
- Make sure to focus resources on the lower side of the pyramid



WHAT DOES YOUR VEHICLE LOOK LIKE – HIGHWAY READY?

This?



Or this?



When should you fix/maintain it?



THANK YOU FOR YOUR TIME

