Contamination of Legacy Magnetic Tapes: Solving Stiction and Canister Deterioration Problems
• Two types of issues affecting legacy tapes:
  – STITION – When polymer binder degradation occurs
  – LEAKY SEALS – When the PVC polymer make up of the gasket begins to deteriorate

These are found for the purpose of this presentation in legacy magnetic tapes normally known as 7 track, 21 track and 9 Track tapes
Issue began to be addressed first by companies using the older 9 track media for voice or music recording.

7 track and 21 track media was used early on in the Oil and Gas industry to record well activity or recording seismic line shooting.

9 track tapes introduced in 1964 by IBM then began to be used in the energy sector also. Higher density and recording volume.
There are several White Papers and or Case Studies now available on the internet addressing this issue, some since the White Paper written by Bert Simmons and myself was published in 2004. Most address the issue with 9 track tapes since they were used in multiple industries beside the oil and gas industry. One published by National Media Lab in St. Paul, MN addresses this issue in data centers using 9 track tapes for recording or backup purposes.
• Stiction occurs on 9 track media regardless of the type of housing for the tape reel. Original 9 track tapes came in two part Plastic housing then in the early 90’s began to be produced with what was commonly known as strap tapes. The tapes that came in the in the later strap format did not experience the second issue of the leaky seal.
STICTION

- 9 Track Strap Tape as it has been referred:
LEAKY GASKET SEAL

• Legacy 7 track and 21 track media and the newer 9 track media first came out with the two part plastic housing.
• One was a bottom piece and the other a top piece with a turn handle that locked the tape inside the house.
• One of the two had a polymer gasket on it so when the two were locked together this locked out air and moisture from getting on the tapes.
LEAKY GASKET SEAL

• The issue began when this seal began to deteriorate

• As it began to deteriorate it began to shrink.

• As it shrank the seal turn back into its original polymer in liquid format.

• My history was when I first saw it I thought I had a problem with perhaps a disgruntled employee who was pouring oil on the stored tapes.
I first noticed the oil on the floor of the tape library where I had nearly one million tapes stored.
I thought to myself: Holy Cow what do I do now, how do I identify this person, how will I tell my VP and how do we tell our clients.

I spent a lot of time in the library trying to see where I found this issue. I began marking the tape racks with yellow tags to identify tapes with oil on them and on the floor under them.

I then began removing tapes and checking them to see if the oil was on the inside of the canisters.
That’s when I discovered oil inside the tapes but also saw the deterioration of the gasket seal.

Relieved that it was not an employee but a real issue with the media itself.

I notified my senior management leadership of my findings and then began to see if we were the only storage provider who knew of this issue.
LEAKY GASKET SEAL
LEAKY GASKET SEAL
LEAKY GASKET SEAL
LEAKY GASKET SEAL
LEAKY GASKET SEAL
What could be causing this problem?

These tapes were stored in a temperature and humidity controlled environment.

I then checked with the two most respected tape transcription companies I knew and those who my client base used to perform tape transcription work for them. I wanted to know if they had seen this problem.
LEAKY GASKET SEAL

- Oil Data, now Katalyst, had seen this problem in the middle east while doing work in tape libraries there for one of their clients.

- Ovation had began to see this issues with the older 21 track media.
LEAKY GASKET SEAL

- I sent two samples of canisters, a 21 track and a 9 track to a lab owned by Imation Technology Services Group to be tested to see if it confirmed my belief that the oil was from the deteriorating seal.

- Their report confirmed by belief and is added to the White Paper in your possession. Used by permission.

- I began the notification process to my clients for them to beware of the issue with the seals.
SUMMARY

• Now we know there are two major issues affecting this legacy media.

• It has been determined by industry experts that the issue of stiction and now the issue of the seals is due to the aging media for stiction and aging seals for the leaky tapes.

• There are outside factors that can expedite both issues.
Summary

1. Improper storage environment can speed up both processes. This can begin long before any information was ever written to the tapes.

2. Where was the media stored before its purchase by the end user?

3. How long was it staged in hot environments before it was sent to the proper environment?
Summary

4. Media with both issues are at greater risk. The oily polymer adds more problems to the capturing of the information on the tapes.

5. Extreme care needs to be taken by companies to use transcription providers who know how to deal with the issues. Your data can be forever lost by those who do not have the proper equipment and expertise in addressing both issues. Even at that you most likely will experience some data loss.
SUMMARY

• What should be converted?
  1. Proprietary data
  2. Group Shoot data where you are the responsible partner to maintain a reliable copy

What should be considered for destruction or disposal?

1. Licensed data
2. Group shoot data that you can obtain from the principal trustee
Caution on disposal

1. Each state may have a different law governing disposal of magnetic tape.
2. There are some Federal guidelines for disposing of this type of media. You just can't throw it away in a dumpster.
3. There are specific classes of landfills earmarked for this media. It will take centuries to degrade.
4. No dumping in the Louisiana swamps
ConocoPhillips, BP swap some assets

ConocoPhillips is acquiring much of BP’s acreage in northern Alaska, while the British oil major will take more of the Houston energy producer’s position in the United Kingdom’s North Sea.

ConocoPhillips is buying BP’s 39.2 percent interest in the greater Kuparuk area in north-central Alaska as ConocoPhillips continues to expand along Alaska’s Northern Slope. The deal also includes BP’s 38 percent interest in the Kuparuk Transportation Co. BP is selling the entirety of its position in the region.

On the other side of the pond, BP is growing its stake in the Clair oil field that sits west of Scotland’s Shetland Islands by buying ConocoPhillips’ 16.5 percent interest in the field. ConocoPhillips will still retain a 7.5 percent stake. The deal gives BP a 45.1 percent ownership interest in the offshore oilfield.

These are separate deals and are not considered a traditional acreage swap. However, the companies aren’t disclosing the sales prices.
Finally

- You are in a real bind with this legacy data!