

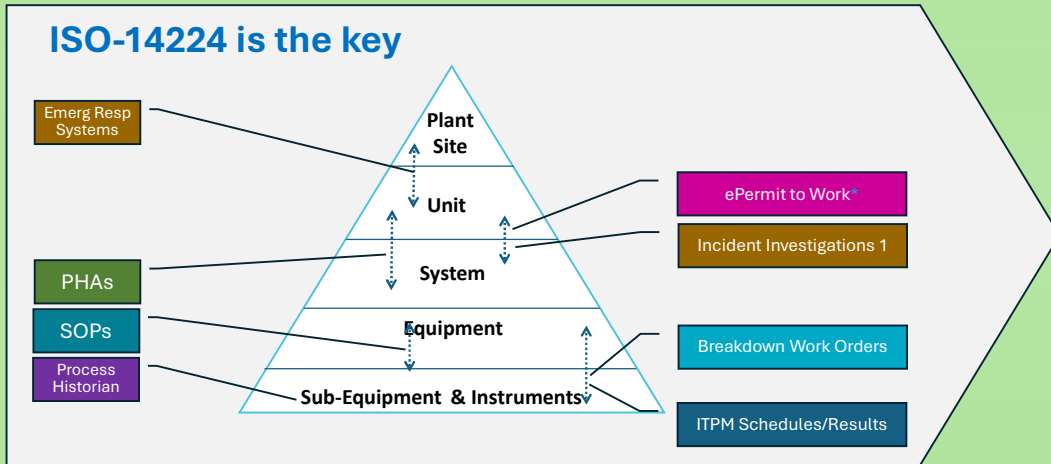
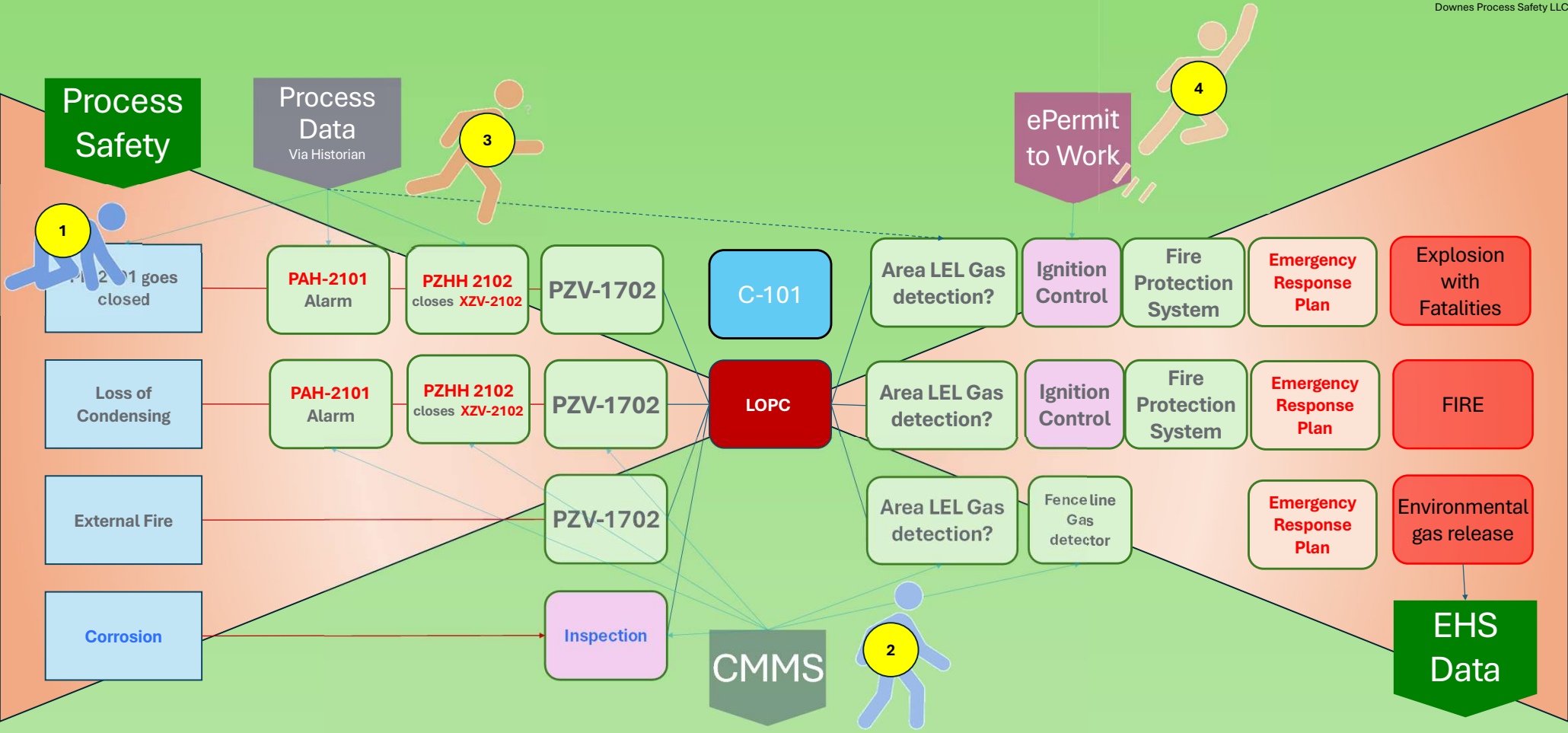
# What if you could SEE elevated risk for

# 1€?

## Here's how we did it without a big software investment



Downes Process Safety LLC



### Ex. Based on SAP PM Functional Location Number (FLN)

1. Plant  
 A. Unit  
 a) System  
 i. Sub-System  
 1. Equipment items within a Sub-System are then individually numbered and identified

**BPT-BULI-TKFRM-T604-PSV604A**

**NOTES:**

- All companies slightly different but generally follow SAP/Maximo/etc. guidance
- Differences are greatest at Sub-System & Equipment/Sub-equipment levels
- The FLOCS (Functional LOcationS) table in SAP PM is primarily for Maintenance across the Plant.
- Above the Plant level, there is a different table in SAP ERP to designate Organizational structure
- FLN sometimes includes the Tag Number, but not reliably
- Tag Numbers usually available in another field in FLOCS table

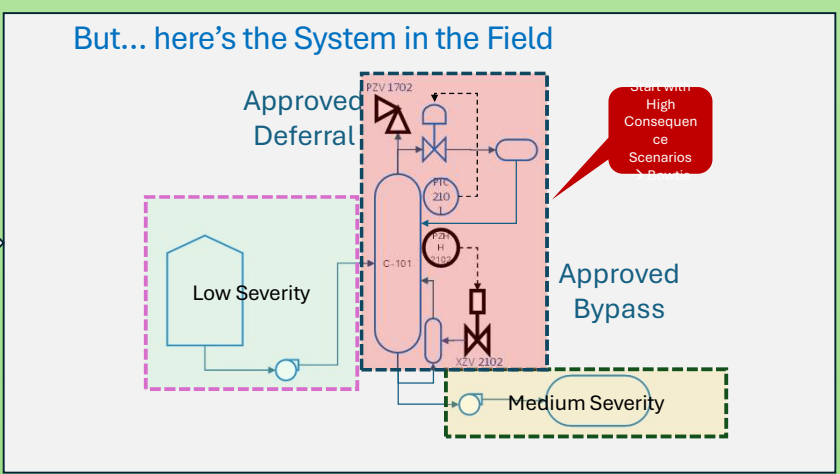
### Why is Asset Hierarchy important?

**An example of the problem/opportunity**

- An integrated petrochemicals complex
- 10 Units, 1000 employees
- Preventive Maintenance shows just 0.1% Relief Valves Overdue for testing
  - All have Deferrals that were Approved in April for the November TAR
- Maintenance data shows 960 open work notifications, but most are: "TAR"\*
- In addition to the Relief Valves, you are working on just one Approved Temporary Instrument Bypass

**Is everything OK?**

\*TAR = Scheduled for next Turn Around



### To ensure Maintenance Status for a credited safeguard:

- Which are the safety critical equipment (SCE)? **from HAZOP**
- What are they each called in the Computerized Maintenance Management System (CMMS)? **from TechID=tagname shown on P&ID**
- For each Safety Critical Device:
  - a) Does the device have an open repair work order? **Yes?**
  - b) Is there a PM schedule? **Overdue?**
  - c) Is the PM schedule current? **Overdue?****query CMMS by TechID (Tag Name)**
- No PM or Overdue or open repair WO → SCE 'impaired'. **Apply logic. Report result**

**Very Do-able. Takes a little EFFORT!**

### How to make it work at scale:

- CMMS must be used to manage PM
- CMMS must include a field with the same (identical) P&ID tag-name
- CMMS should flag a PM-identified fault for follow-up as a *Near Miss (Tier 4?)*
- HAZOP teams must select (or type) the P&ID tag-names into 3 places:
  - The Node description
  - The Safeguard field (prefer separately)
  - The Cause field
- HAZOP teams must provide list of SCEs to Maintenance and check CMMS SCE list.
  - If HAZOP team drops an item from the SCE list, someone should review it
- HAZOP teams should filter HSE's Incidents since last Revalidation based on FLN
- HSE should collect incidents at same hierarchical level as HAZOP scope