

UNGS

Lessons Learned - Incident Investigations

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Incidents 2018-2022

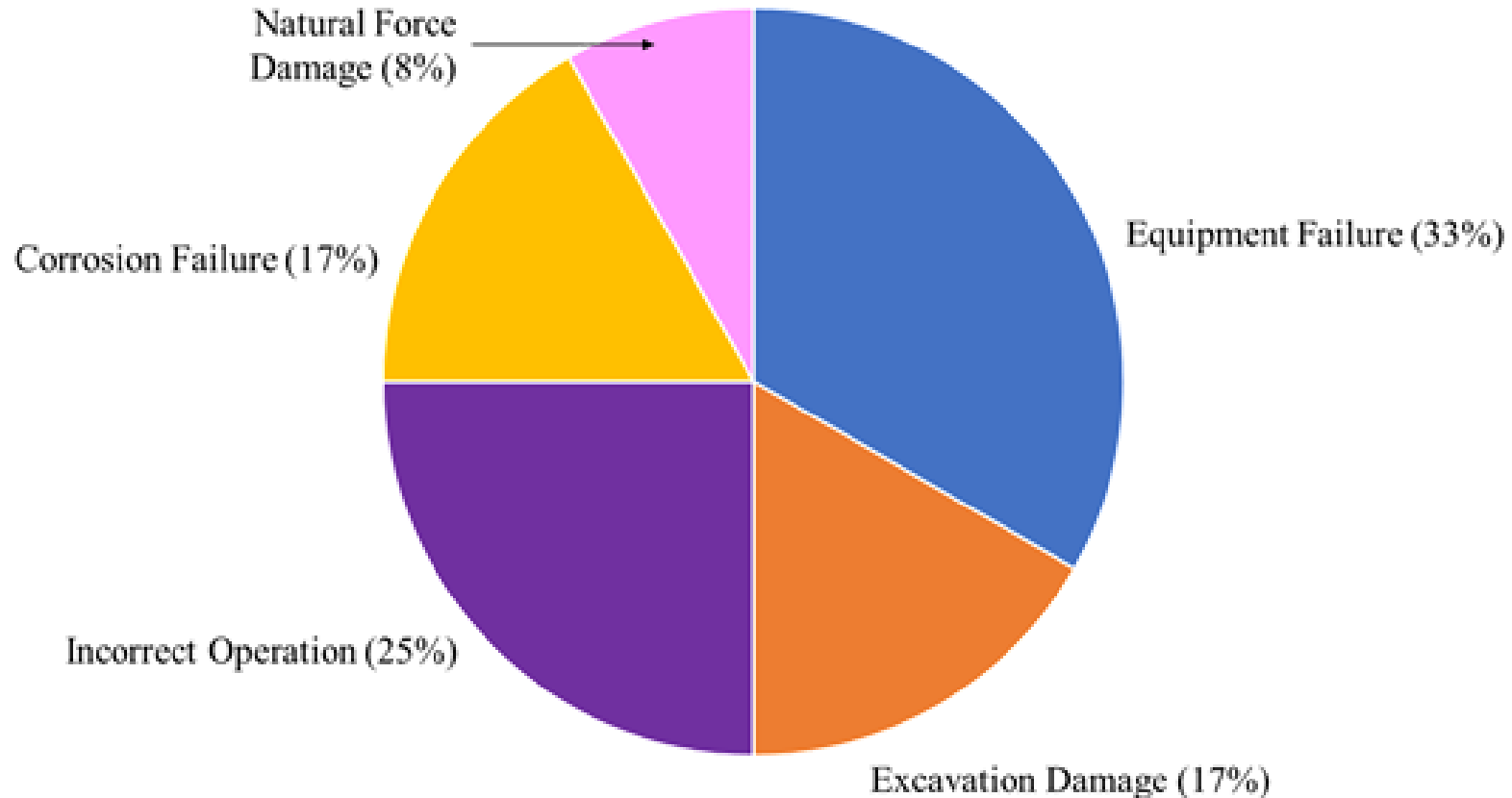
Minimize fatalities and injuries from incidents at UNGS facilities

	2018	2019	2020	2021	2022	
Number of Total UNGS Reported Incidents	3	1	5	1	2	
Number of Incidents with Human Injury or Fatality	0	0	1	0	0	
Number of Fatalities	0	0	0	0	0	
Number of Injuries	0	0	1	0	0	



UNGS Incidences by Category

UNGS Incidents by Category (Percent)



Lessons Learned

Importance of:

- A **detailed** Emergency Response/Well Control plan that has been practiced, reviewed, practiced, updated, practiced & improved
- **Mobilizing** well control specialists to the area ASAP
- **Understanding** the geology of the storage field and area
- Familiarity with **seismic activity** where applicable



Lessons Learned

Importance of:

- Understanding elevated risk of **single barrier** wells with production casing not cemented to surface
- **Awareness** of the availability of service companies in the area
- **Awareness** of information that can be acquired by different technologies (NT/CI/MFC/GRN/etc.)
- Understanding the **requirements** of the Well Control Plan (particularly the operator requirements)



Lessons Learned

Benefits of:

- LiDAR surveys for nature of release
- Observation/monitor wells in upper zones alerting operator and providing better understanding of what is taking place
- Comprehensive 3-D geological model of the storage formation and upper formations if possible



Best Practice

- Introducing additional barriers in older wells
- Conducting Job Safety Analysis (JSA's) or equivalent before, during and after projects.
- Preparing detailed procedures for workovers, P&A, new well drilling
- Peer review for risk models & data



Questions?

