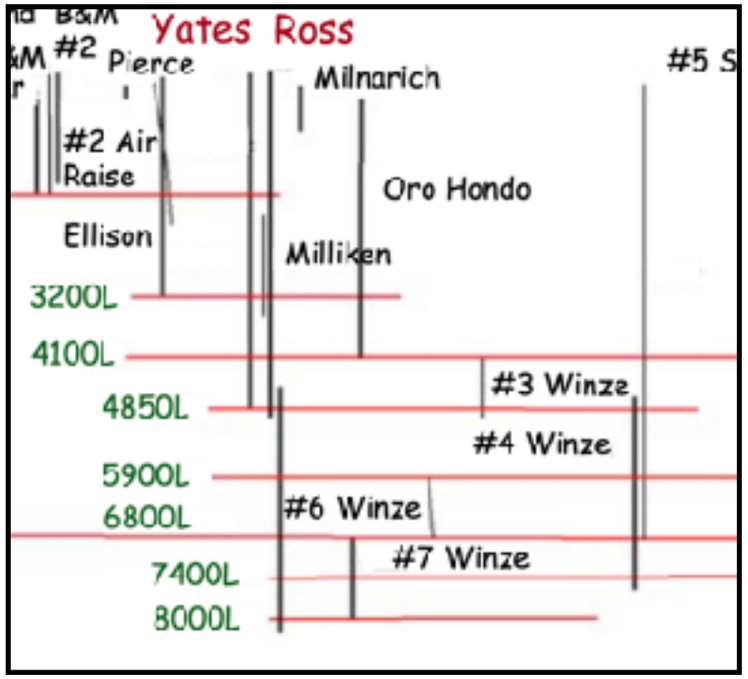
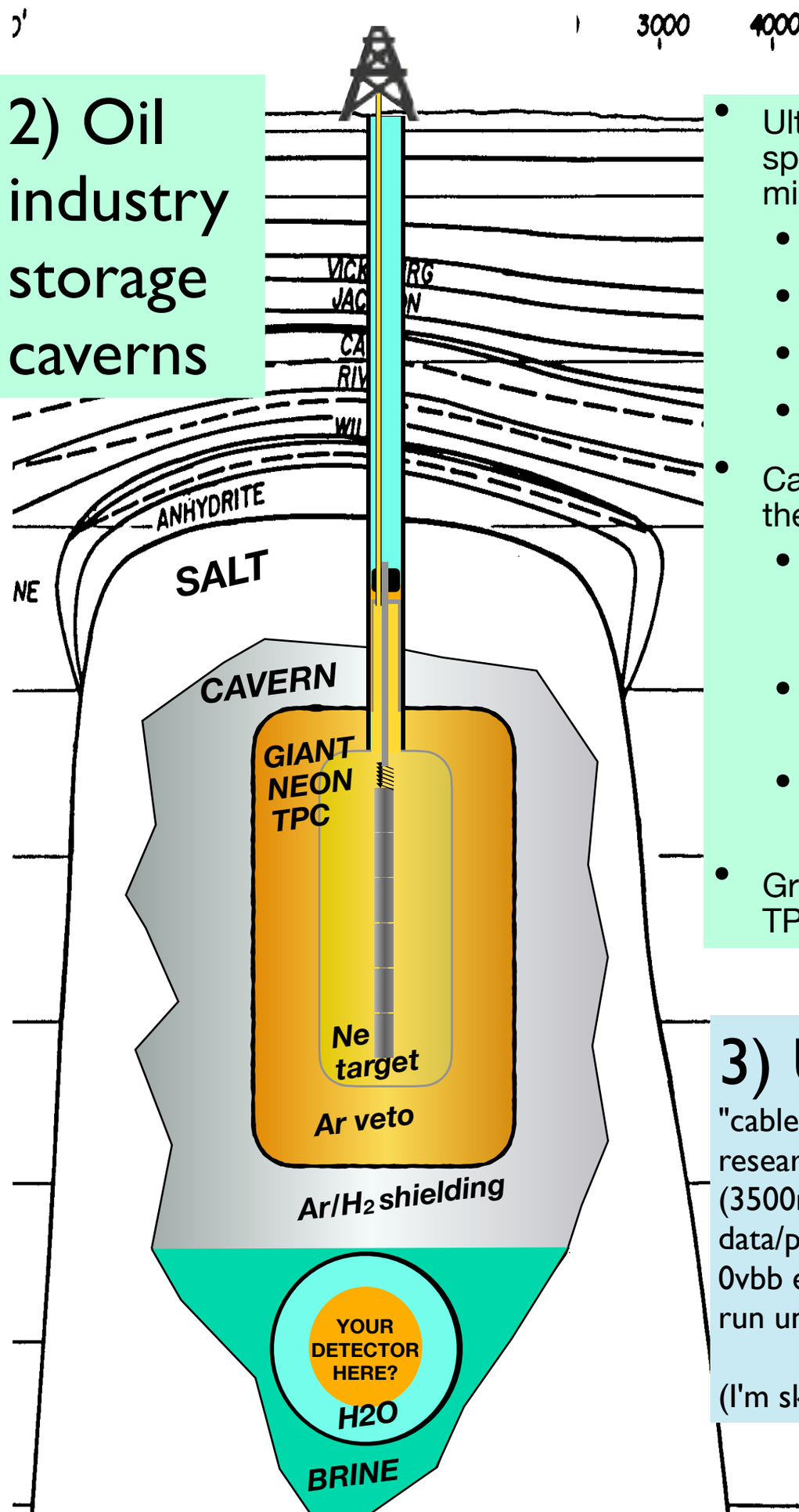
Unconventional facilities

1) Undeveloped shafts at SURF



a) package up your experiment for remote operation
b) lower down #6 or #4
c) wave goodbye
d) Earth's deepest lab!

2) Oil industry storage caverns



- Ultra-low-cost underground space can be made in solution mined salt caverns
  - Costs < $20/m^3
  - Volumes to 2×10^6 m^3
  - Depths 500-3000m
  - DOE already owns many
- Can we do experiments in them?
  - Pros: vast space, low U/Th/K, no explosion hazards, many sites
  - Cons: Experiment has to fit down a narrow well (!)
  - Pro or con?: normally flooded and pressurized
- Great place for high-pressure TPCs

3) Under water

"cabled observatories" for ocean research: MARS (900m), KM3NET (3500m), ALOHA (4728m) provide data/power junction boxes. Can any 0vbb experiment be packaged up to run unattended at very high pressure?

(I'm skeptical)

Unconventional TPC gases

a) Zero useful ionization-counter data; trying to piece together drift properties from chemistry
b) Can we drift/detect negative ions?
c) These are all TOXIC and FLAMMABLE is hard to think about underground.

Q: wouldn't it be safer in a salt cavern?
A: thanks for asking, yes, it would

	liquid density	liquid range	decays per ton/y at 50 meV	Scary?
$H_2{}^{82}Se$	3550 kg/m^3	207–234K	~22	yes
$^{100}MoF_6$	3500 kg/m^3	17.5–34C	~26	yes
$^{130}TeF_6$	2499 kg/m^3	-35–96C	~3	yes
$^{76}GeH_4$	3300 kg/m^3	108–185K	~1	yes
^{136}Xe	3100 kg/m^3	161–165K	~8	no
$^{116}Cd(CH_4)_2$	1985 kg/m^3	-4.5–106	one of the scariest toxins on Earth please do not even think about it	

Other candidates exist: $Mo(CO)_6$, SeS_2, SeF_4 ...
IANAC (I am not a chemist) but I have no candidates for Ca, Zr, Nd