

# ***Notes on Daqing Unconventional***

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# Notes

- 2019 “successful” well A-1 (GYYP1) has a horizontal section of 1562 m (5123.36 feet), way too short from the international standard (Page 4, Ref. 1).
- A-1 frac stage length is too short (146 feet) (Page 4, Ref. 1).
- Fluid intensity of 4251 gal/ft might be too high in Well A-1 (Page 4, Ref. 1)
- Target depth of Qingshankou No. 1 is on the shallow side around 8200 feet (Page 6, Ref. 1), so the horizontal section should be even longer (2.5 to 3 miles?).
- Good Ro area is very limited (Page 9, Ref. 1)
- The best well A-1 (GYYP1) cum 14,000 t = 88,200 BO in 850 day is very low, and should be around 300,000 BO (Page 2, Ref. 2). **The table to the right** is a just so, so well production from mine in the same period and I even have two months production missing during asset purchase.
- Fig. 5, Page 4, Ref. 2 needs micro seismic and deformation fracture data to confirm the stimulation model for Gulong shale oil.
- In Fig. 8, Page 5, Ref. 2, the type log with ~100 BOPD peak production is too low, and 1000 BOPD peak is more or less international standard. Daqing has a large margin to improve.

BUZZARD SOUTH 6972 A 3H	
Date\Wells	
2021/06	615.52
2021/07	1023.74
2021/08	826.34
	Payment Start
2021/11	496.14
2021/12	891.43
2022/01	420.63
2022/02	329.24
2022/03	359.59
2022/04	316.84
2022/05	315.47
2022/06	278.25
2022/07	228.71
2022/08	258.99
2022/09	249.79
2022/10	236.64
2022/11	213.77
2022/12	191.02
2023/01	196.20
2023/02	161.33
2023/03	193.90
2023/04	184.97
2023/05	175.06
2023/06	173.67
2023/07	137.03
2023/08	164.91
2023/09	128.82
2023/10	119.36
2023/11	136.32
2023/12	122.84
2024/01	105.84
2024/02	131.50
Total	9,383.87
Total Full	286,208.02

Month\Well	Stove Pipe Federal Com 601H	Stove Pipe Federal Com 603H	Stove Pipe Federal Com 702H	Stove Pipe Federal Com 706H	Stove Pipe Federal Com 707H
2021/02 Oil (BOPD)	474.3570	364.9483	641.0643	372.8630	550.8617
2021/03 Oil (BOPD)	599.2865	400.7952	809.8177	430.2261	597.8784
2021/04 Oil (BOPD)	551.7383	361.9967	744.8670	381.2543	560.5640
2021/05 Oil (BOPD)	487.5474	302.8897	696.9294	408.5803	521.8977
2021/06 Oil (BOPD)	459.3510	252.7229	666.5450	414.1800	567.6963
2021/07 (BOPD)	424.3558	301.5135	591.3790	387.5403	519.6687
2021/08	385.9132	262.0648	568.3868	359.2268	490.4394
2021/09	348.4340	242.9323	469.7760	350.8940	455.9493
2021/10	336.1494	222.8387	472.2545	321.8687	419.1997
2021/11	298.8180	219.2267	449.3507	277.0557	355.7063
2021/12	293.6042	222.6758	440.4461	287.1865	374.1806
2022/01	281.6052	196.2613	429.8548	256.3368	314.9813
2022/02	260.1511	206.0314	385.1782	217.9957	292.6429
2022/03	263.4190	185.3077	353.1223	230.9035	331.2429
2022/04	246.3437	170.4827	345.9623	245.2833	317.6880
2022/05	247.6639	184.8258	334.9335	255.1626	301.6226
2022/06	230.1630	165.3783	311.7333	233.9860	264.9327
2022/07	130.9687	166.0435	304.3884	172.8252	222.3987
2022/08	1.5990	154.5681	315.4177	9.1258	11.4842
2022/09	0.0000	173.4030	329.8087	133.0790	152.6077
2022/10	122.9787	175.2206	282.3916	171.9187	210.5200
2022/11	270.6540	129.5743	224.2487	158.0343	177.8747
2022/12	327.6200	147.4023	250.4345	172.9184	234.7510
2023/01	325.2929	145.1739	248.5526	198.6277	263.6448
2023/02	261.9796	155.4764	205.6379	192.2493	216.9139
2023/03	277.3826	149.9203	221.7877	183.4258	210.9258
2023/04	227.6063	150.3747	215.5153	165.2643	215.6547
2023/05	262.1268	133.4029	199.5461	171.0039	205.6806
2023/06	247.9380	119.2763	222.2263	152.4790	192.2247
2023/07	252.1474	142.6681	199.6723	166.4732	202.4065
2023/08	203.5242	113.8019	184.0019	150.8297	163.9077
2023/09	211.1473	61.5917	189.5300	167.1583	175.2140
2023/10	216.0381	27.4932	161.7623	162.0332	163.5874
2023/11	171.0723	107.6253	164.4953	150.6747	148.6817
2023/12	182.2977	121.2310	204.2568	156.7800	179.8155
2024/01	224.3510	117.2606	209.5690	177.8161	110.9187
2024/02	158.1790	109.8003	165.4610	88.9403	155.8207
	10,263.80	6,864.20	13,210.31	8,532.20	10,852.19
Total in full months	313,046.03	209,358.11	402,914.31	260,232.12	330,991.65

9. In Page 6, Ref. 2,  $EUR=2.1 \times 10^4 = 132,300$  BO is very low. A ordinary US unconventional well can easily go over 200,000 BO in 3 years. The table to the right is my asset production in roughly 3 years in Lea County, NM. The bottom row is cum production.

10. In Page 7, Ref. 2, well spacing from 350-400 m might be too large.

11. In Page 7, Ref. 2, try purely water frac to compare with CO2. Daqing region does not need to save water.

12. In Fig. 13, Page 8, Ref. 2, natural fracture system and stimulated fracture system need to be characterized. Micro seismic can monitor.

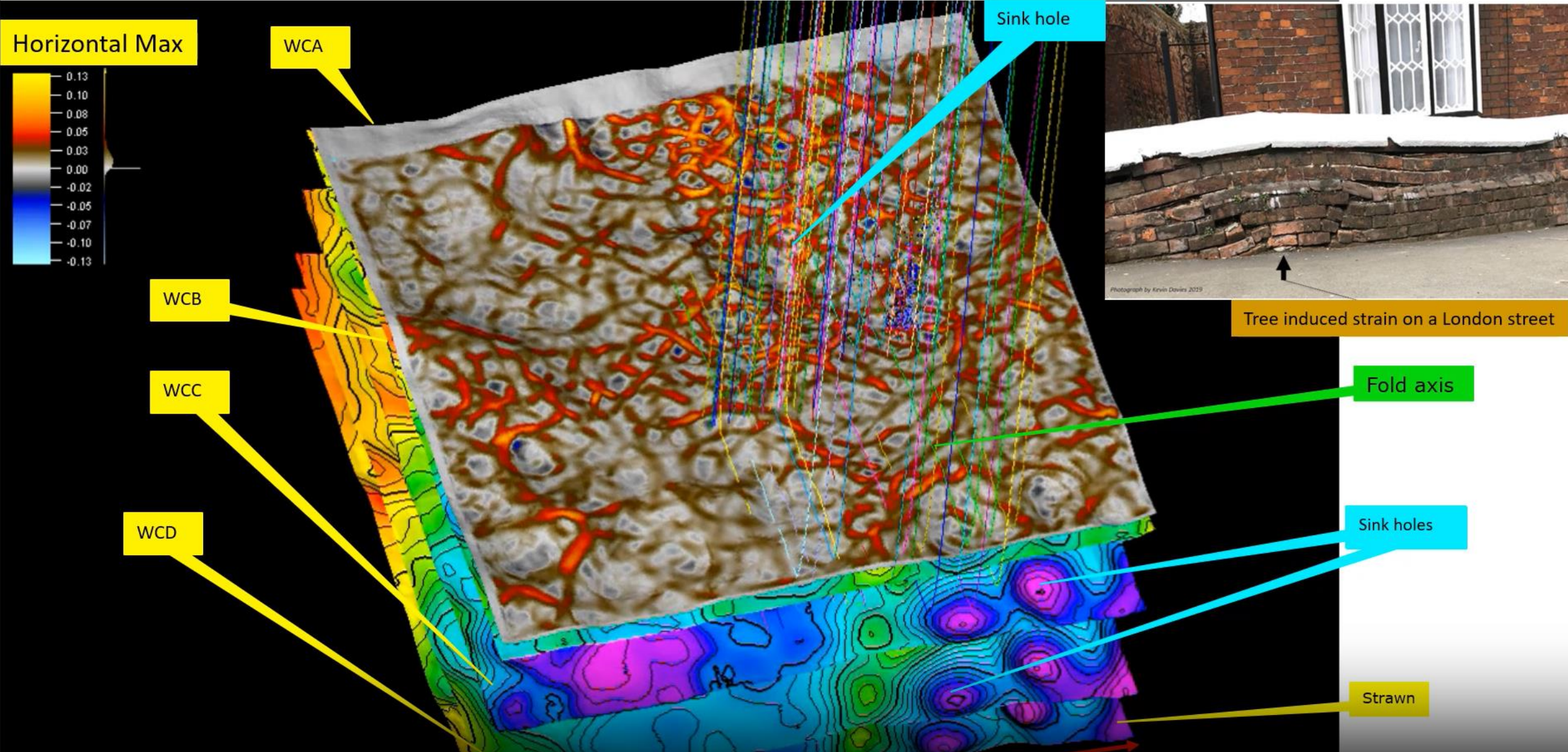
13. Sections 4.3 and 4.6 in Page 9, Ref. 2, can have a lot deep dives. The current Gulong shale production has a huge economic issue.

14. (Sec. 3, Page 5, Ref. 3) what are the exact issues in engineering part? We do not have sufficient frac trucks? Why high cost? The ductility of the shale is too high with ~30% brittle minerals (Table 1, last column)? What is the D & C cost per well?

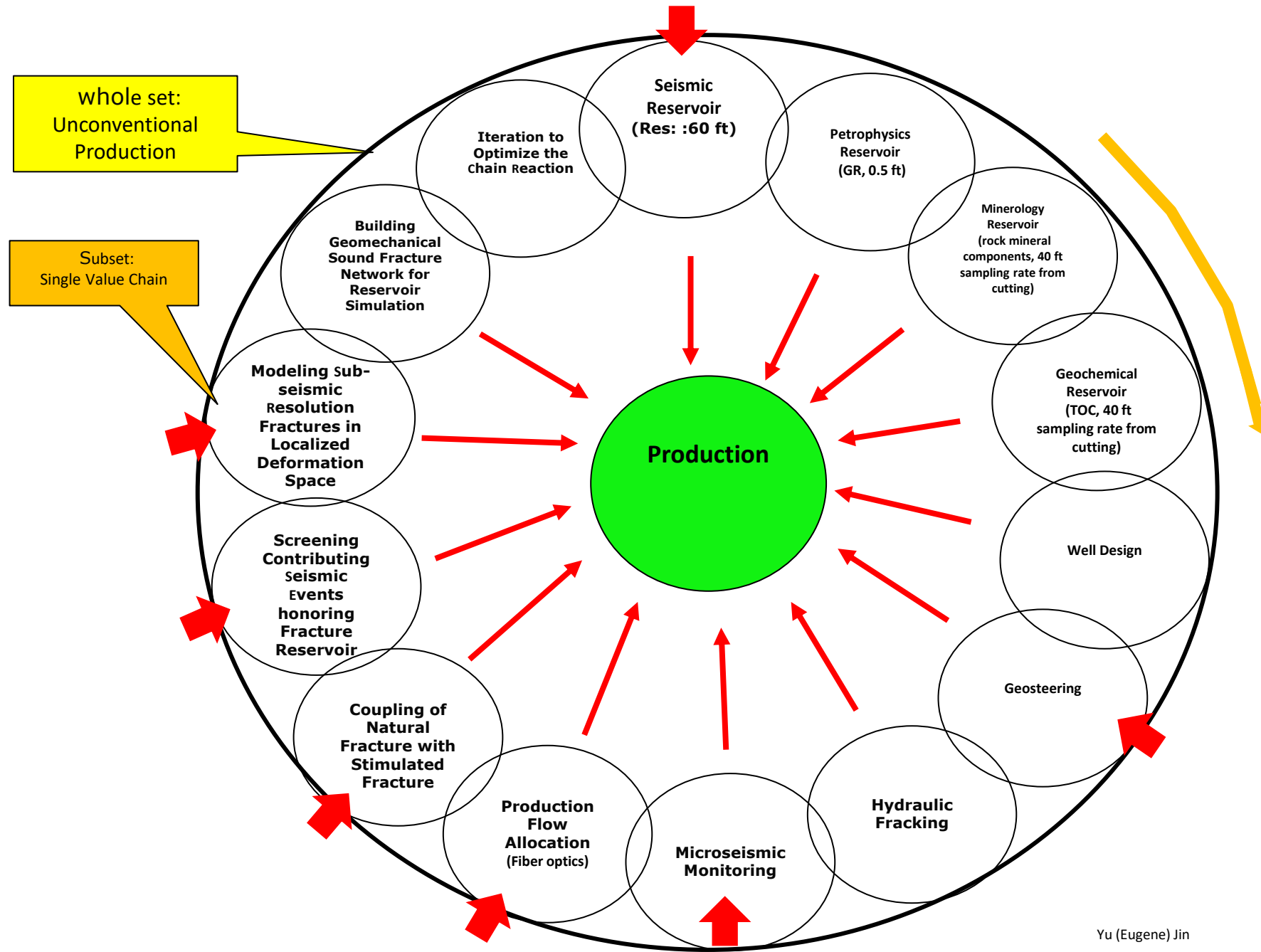
15. In Fig. 2, Ref. 4, Lab generates considerable horizontal and vertical fractures. As DOE did, post frac cores should be sampled containing injected propants, and microseismic should be acquired to monitor the preferred growth of horizontal and vertical fractures.

16. On AA' seismic section, Page 7, Ref. 5, Gulong Graben in Qingshankou formation is considerably deformed. Seismic Deformation Fracture Network Modeling is highly necessary (see the analog below).

### Seismic Deformational Fracture Reservoir Characterization in Wolfcamp, Permian Basin



# Unconventional Production Value Chain Optimization



## ***References***

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