OneEnergy Partners

Lobo Rojo Hearing Documents

Rebuttal Engineering Exhibits

CASE NOS. 15758 AND 15759

MIKE
9/14/17
Hearing

Rebuttal Response to V-F's Engineering Report

- The primary concern with V-F's Engineering Report ("V-F Report") is its use of a statistically insignificant data set (6 wells) comparing cumulative production. OneEnergy's evaluation and analysis compares a statistically significant data set (more than 100 wells). V-F's small sample size results in distorted information based on the individual characteristics of each well.

- A secondary and related problem with the V-F Report is the selective exclusion of data for calculations. V-F inexplicably excluded several months of production data for multiple wells in their report. The result is inaccurate and misleading analysis. For example, in V-F's Pygmy and Raspberry case studies, V-F only included 5 months of production data in spite of the fact that there is actually 9 months available. In addition, with like-sized facilities, there are production constraints on the 2 mile lateral that mask declines in the Raspberry compared to the Pygmy. With each month that passes, the two-mile Raspberry is out-performing the one-mile Pygmy well.

- The third issue with V-F's report is the use of the use of cumulative production to test the production performance between 1 mile and two-mile wells. This metric does not accurately represent wells' total production profile because it doesn't reflect the rate of change of production over time. Cumulative production is a snapshot of production that gives no insight into well performance over the life of the well. By contrast, EURs allow for normalized comparison of estimated performance over the life of the well, taking into account the rate of change and full cycle resource recoveries. Past performance, as measured by cumulative production, does not establish the rate of change in production over time. Finally, the V-F Report failed to compare and confirm that longer lateral wells resulted in lower or equal expected ultimate recovery or resource development than shorter lateral wells when normalized for lateral length.

- OneEnergy's analysis uses the same EUR/foot. With set-backs and toe collars, OneEnergy assumes a 4500' lateral is the max stimulated length, even though in practice, the average is sub 4300'. Doubling 4500' and adding 660' results in 9660'/4500' = 2.15. The only question is whether EUR degradation exists. OneEnergy has established that no degradation exists or occurs, whereas the V-F Report fails to address degradation at all.

BEFORE THE OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Exhibit No. 28
Submitted by: **ONEENERGY PARTNERS OP.**
Hearing Date: May 11, 2017

Pygmy 27		Raspberry		Comparison	
Monthly	Cum	Monthly	Cum	Monthly	Cum
12	12	16	16	**1.33**	**1.33**
27	39	34	49	**1.23**	**1.26**
20	59	32	81	**1.61**	**1.38**
20	79	27	108	**1.35**	**1.37**
19	97	25	133	**1.34**	**1.37**
16	113	29	162	**1.80**	**1.43**
15	128	27	189	**1.82**	**1.47**
11	139	27	216	**2.50**	**1.55**
12	151	26	242	**2.21**	**1.61**
10	161				
9	170				
8	178				
7	185				
3	187				
7	194				
7	201				
1	201				
3	204				
7	212				
9	220				
9	230				
7	237				
7	244				
6	251				
6	257				
4	261				

- The monthly production factor (Raspberry monthly production/Pygmy monthly production) by month 9 is 2.21 and the cumulative production factor (Raspberry cumulative production/Pygmy cumulative production) is 1.61, with each respective production factor increasing at a positive rate. This confirms there is no degradation in longer laterals.

- There were multiple inquiries at hearing regarding the B factor used for OneEnergy's calculation. The B factor for every well in the basin is 1.3 and 8% terminal decline. We do this because our studies across basins have shown a limited variation in b across a play. Moreover, it allows us to predict the future using a very consistent methodology. So to imply B factors were played with is just wrong – those variables were constant for the entire statistically significant dataset (n≥200+ wells).

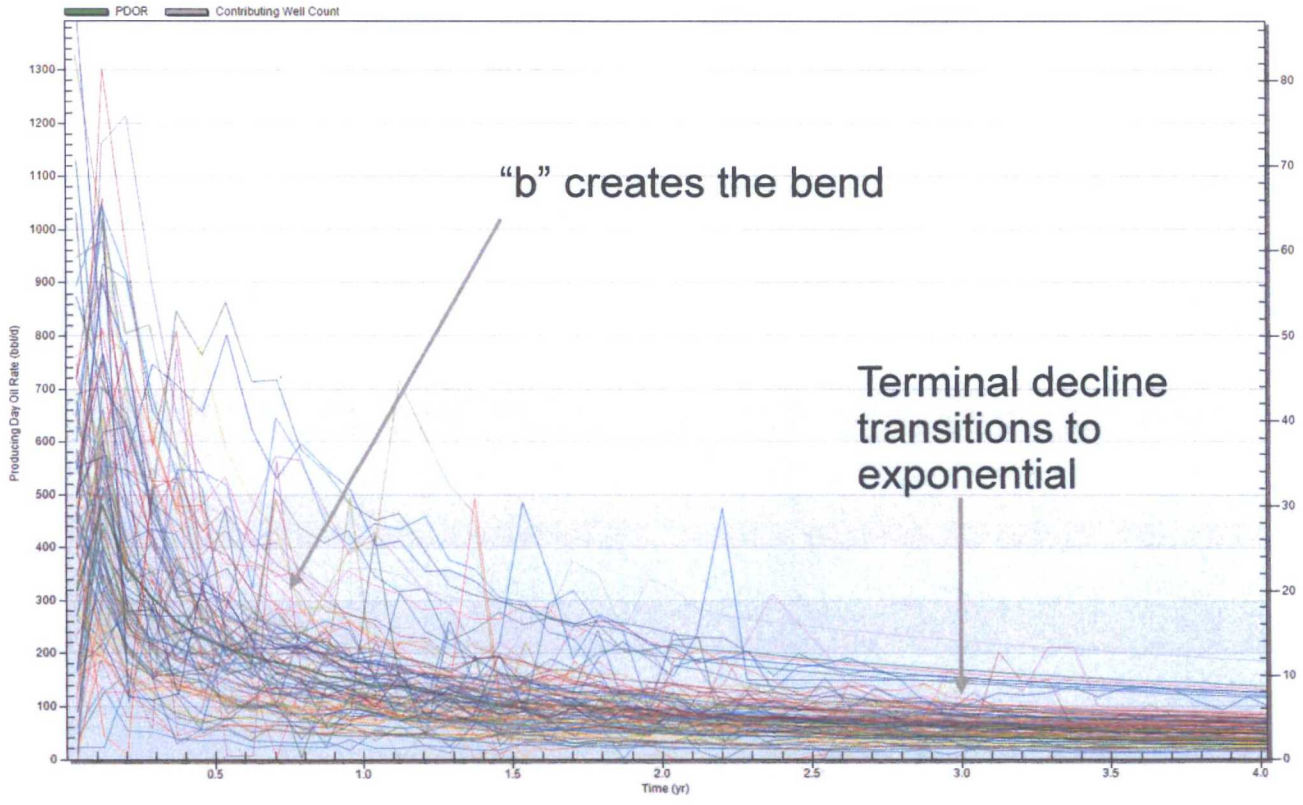
Response to V-F Petroleum Inc. August 2017 Study

- V-F study selectively excludes various months of production on their individual well analysis for each individual well case highlighted.
- Exclusion of certain months of production distorts comparability of data, resulting in an unreliable and selective data set, as shown on Slides 5, 6, 7, 10, 11, 14, 15.
- V-F study assesses cumulative production to compare 2 mile production profiles to 1 mile production profiles. Due to data manipulation (including leaving out months of production in their analysis for 2 mile and 1 mile wells) the results and observations are inaccurate and misleading, as shown on Slide 5.
- Including all monthly production data from the NMOCD website shows stronger outperformance (uplift) for longer laterals when dividing 2 mile production to 1 mile production, as shown on Slides 8, 13, 17.
- Incremental production gains in 2 mile wells versus 1 mile wells demonstrated with uplift computation, as shown on Slides 9, 12, 16.
- In contrast to V-F's analysis of cumulative production, EURs are a more comprehensive analysis of well performance than simply comparing cumulative production.
- When EUR/foot is shown to be the same (normalized for lateral length), then EUR is 100% related to lateral length. Max theoretical short lateral is 4,620' (5,280 – 660' setbacks); Max theoretical long lateral is 9,900' (5,280 – 660' setbacks + 5,280' = 9,900') → Max long lateral is 2.14x (9,900'/4,620' = 2.14) longer than max theoretical short lateral. Therefore, EUR for max theoretical long lateral must have an EUR of 2.14x max theoretical short lateral, as shown on Slide 4. Degradation of reserves is only way to disprove and V-F study fails to do so, as demonstrated in V-F study Slides 15, 16, 17 (Individual Well Analysis Slides).

Database B Factor

Always a b of 1.3 and terminal decline of 8%

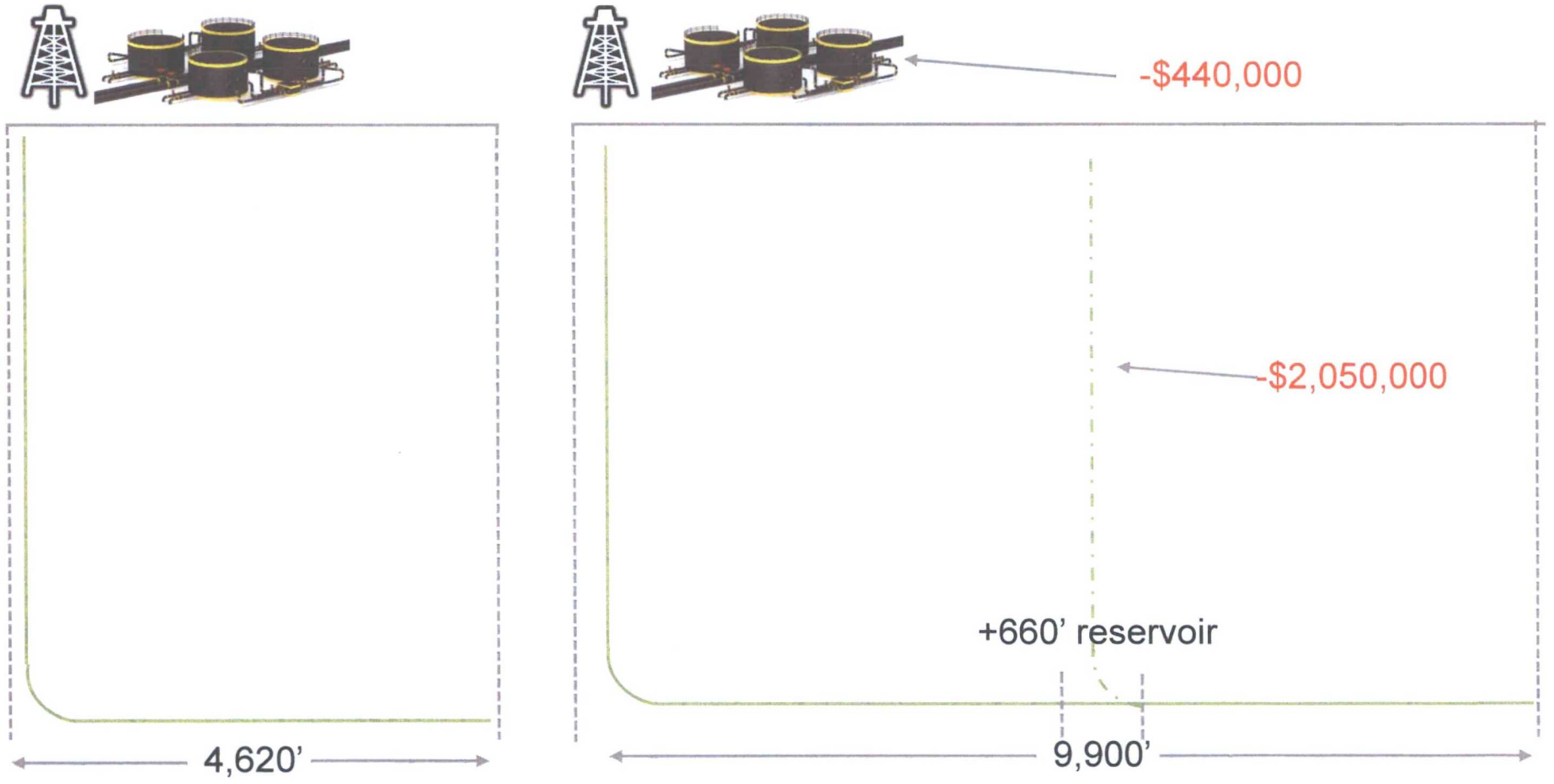
1) Normalizes all performance to exactly the same method for future performance
2) Economics are done on EUR not cumulative performance so must project the future
3) Decline Analysis is accepted as THE predictive tool for SEC reporting and reserve reports; not using it is to ignore the rate of near term decline



1 Mile vs. 2 Mile Efficiencies

EUR: Max theoretical 1 mile lateral is 4,620' (660' set backs: 330' x 2). 2 mile lateral is 9,900'.
CONCLUSION: 9,900'/4,620' is 2.14x

Cost: Assuming the same rate of penetration in the lateral- you save facilities and the vertical
CONCLUSION: It doesn't matter the relative cost, the savings aren't debatable



Raspberry Discussion- ALL AVAILABLE DATA

V-F Analysis excluded a significant amount of publicly available data: their study excluded 4 months of production from March – June 2017 for Raspberry well but only 1 month of production June 2017 for Pygmy well) → **This results in a significant selection bias.**

Long laterals typically have the same surface facilities as short laterals and can be fluid constrained in the near term- so a <6 month snap shot does not reflect accurate performance

Pygmy 27		Raspberry		Comparison	
Monthly	Cum	Monthly	Cum	Monthly	Cum
12	12	16	16	1.33	1.33
27	39	34	49	1.23	1.26
20	59	32	81	1.61	1.38
20	79	27	108	1.35	1.37
19	97	25	133	1.34	1.37
16	113	29	162	1.80	1.43
15	128	27	189	1.82	1.47
11	139	27	216	2.50	1.55
12	151	26	242	2.21	1.61
10	161				
9	170				
8	178				
7	185				
3	187				
7	194				
7	201				
1	201				
3	204				
7	212				
9	220				
9	230				
7	237				
7	244				
6	251				
6	257				
4	261				

Constrained production, limited decline

Closing the cumulative gap every month

Producing more than 2X per month now

Significant declines

PYGMY 27 STATE 3H REPORTED PRODUCTION THROUGH 06.30.17

Production Summary Report API: 30-025-42068 PYGMY 27 STATE #003H Printed On: Tuesday, September 12 2017						
		Production				
Year	Pool	Month	Oil(BBLS)	Gas(MCF)	Water(BBLS)	Days P/I
2015	[97929] WC-025 G-06 S213326D;BONE SPRING	May	11759	14031	64367	30
2015	[97929] WC-025 G-06 S213326D;BONE SPRING	Jun	27359	30738	59066	30
2015	[97929] WC-025 G-06 S213326D;BONE SPRING	Jul	19672	27433	35876	31
2015	[97929] WC-025 G-06 S213326D;BONE SPRING	Aug	19789	28639	35837	31
2015	[97929] WC-025 G-06 S213326D;BONE SPRING	Sep	18545	24283	29969	30
2015	[97929] WC-025 G-06 S213326D;BONE SPRING	Oct	16264	22663	25315	31
2015	[97929] WC-025 G-06 S213326D;BONE SPRING	Nov	14874	26357	25349	30
2015	[97929] WC-025 G-06 S213326D;BONE SPRING	Dec	10973	16733	17475	27
2016	[97929] WC-025 G-06 S213326D;BONE SPRING	Jan	11788	16201	17689	31
2016	[97929] WC-025 G-06 S213326D;BONE SPRING	Feb	9690	16739	16374	29
2016	[97929] WC-025 G-06 S213326D;BONE SPRING	Mar	9375	16196	15707	31
2016	[97929] WC-025 G-06 S213326D;BONE SPRING	Apr	7755	11480	12570	30
2016	[97929] WC-025 G-06 S213326D;BONE SPRING	May	6699	8216	9055	31
2016	[97929] WC-025 G-06 S213326D;BONE SPRING	Jun	2565	2802	2669	18
2016	[97929] WC-025 G-06 S213326D;BONE SPRING	Jul	6895	8740	9379	31
2016	[97929] WC-025 G-06 S213326D;BONE SPRING	Aug	6525	8094	8904	31
2016	[97929] WC-025 G-06 S213326D;BONE SPRING	Sep	598	674	6601	15
2016	[97929] WC-025 G-06 S213326D;BONE SPRING	Oct	3324	3325	13995	31
2016	[97929] WC-025 G-06 S213326D;BONE SPRING	Nov	7281	7143	27238	29
2016	[97929] WC-025 G-06 S213326D;BONE SPRING	Dec	8763	10635	27269	31
2017	[97929] WC-025 G-06 S213326D;BONE SPRING	Jan	9039	15789	26364	31
2017	[97929] WC-025 G-06 S213326D;BONE SPRING	Feb	7318	14410	19398	28
2017	[97929] WC-025 G-06 S213326D;BONE SPRING	Mar	7198	13557	17095	31
2017	[97929] WC-025 G-06 S213326D;BONE SPRING	Apr	6454	13633	15857	30
2017	[97929] WC-025 G-06 S213326D;BONE SPRING	May	6467	14234	16402	31
2017	[97929] WC-025 G-06 S213326D;BONE SPRING	Jun	3574	5955	7278	16
	Total Production		**260543**	**378700**	**563098**	**745**
	EXCLUDED FROM V-F STUDY					

SOURCE:
https://wwwapps.emnrd.state.nm.us/ocd/ocdpermitting/Data/WellDetails.aspx?api=30-025-42068

- **V-F study excluded one month of production data for 1-mile well**
- **Result is to distort data: data shows production uplift widening**

RASPBERRY STATE COM 1H REPORTED PRODUCTION THROUGH 06.30.17

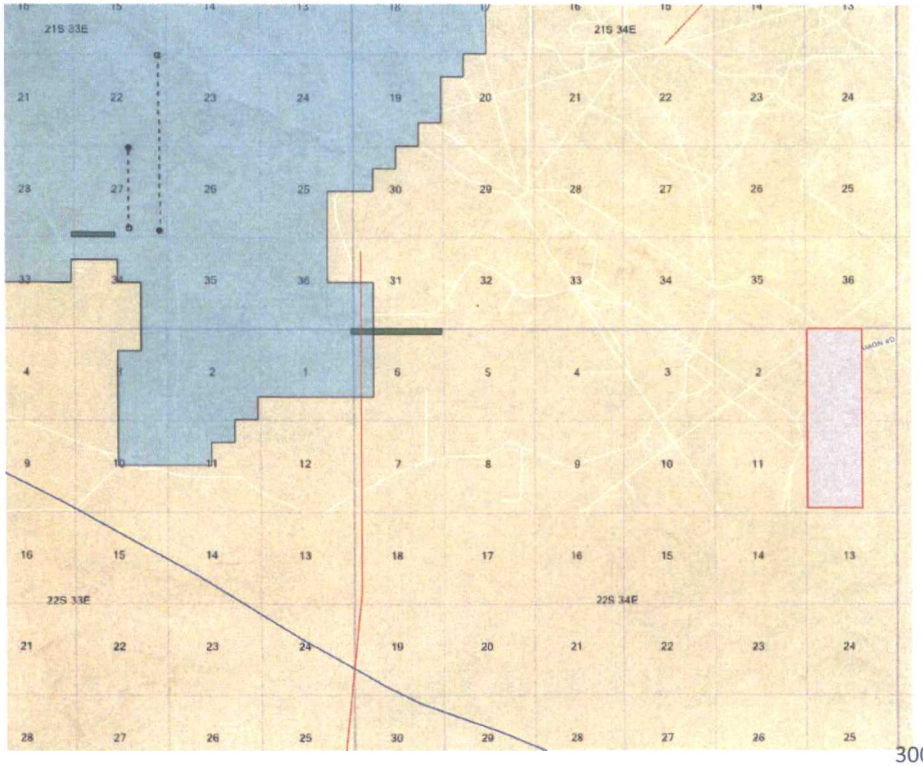
Production Summary Report API: 30-025-43179 RASPBERRY STATE COM #001H Printed On: Tuesday, September 12 2017						
		Production				
Year	Pool	Month	Oil(BBLS)	Gas(MCF)	Water(BBLS)	Days P/I
2016	[97929] WC-025 G-06 S213326D;BONE SPRING	Oct	15644	15694	98560	29
2016	[97929] WC-025 G-06 S213326D;BONE SPRING	Nov	33750	33281	85687	30
2016	[97929] WC-025 G-06 S213326D;BONE SPRING	Dec	31632	34230	65035	31
2017	[97929] WC-025 G-06 S213326D;BONE SPRING	Jan	26679	26931	48973	31
2017	[97929] WC-025 G-06 S213326D;BONE SPRING	Feb	24877	26256	46075	26
2017	[97929] WC-025 G-06 S213326D;BONE SPRING	Mar	29283	30054	52914	31
2017	[97929] WC-025 G-06 S213326D;BONE SPRING	Apr	27070	27713	45962	30
2017	[97929] WC-025 G-06 S213326D;BONE SPRING	May	27454	28512	49774	31
2017	[97929] WC-025 G-06 S213326D;BONE SPRING	Jun	26044	27440	39091	30
	TOTAL		**242433**	**250111**	**532071**	**269**

EXCLUDED FROM V-F STUDY

SOURCE: https://wwwapps.emnrd.state.nm.us/ocd/ocdpermitting/Data/WellDetails.aspx?api=30-025-43179

- **V-F study excluded four months of production data for 2-mile well**

Individual Example- 2 Mile vs 1 Mile 2BS Adjacent



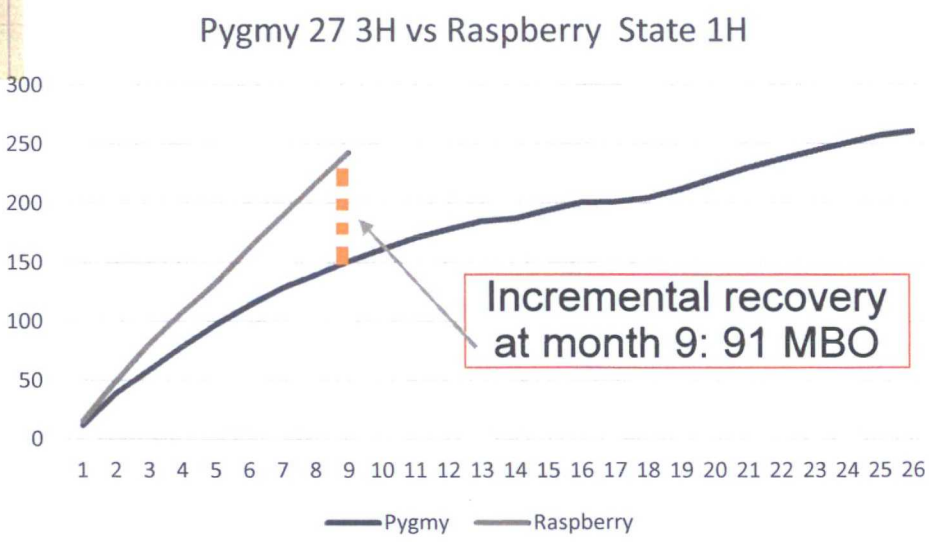
Raspberry State Com 1H: E2E2 Sec. 22 & E2E2 Sec. 27, T21S-R33E

Pygmy 27 State 3H: W2E2 Sec. 27, T21S-R33E

Note the slope/trajectory of the production profile of Pygmy in comparison to Raspberry over same point in time. Raspberry production isn't flattening out

<u>Raspberry (2 mile Lateral)</u>
2 MMBO EUR, 9739', 1955 lbs/ft

<u>Pygmy 27 (1 mile Lateral)</u>
587 MBO EUR, 4067', 1922 lbs/ft



Pygmy Raspberry Comparison with all Production Data

	Monthly Oil Production		
Month	Pygmy 27 State 3H (1 mi.)	Raspberrry State Com 1H (2 mi.)	Uplift (2 mi./1 mi.)
1	11759	15644	1.330385237
2	27359	33750	1.233597719
3	19672	31632	1.60797072
4	19789	26679	1.348173228
5	18545	24877	1.341439741
6	16264	29283	1.800479587
7	14874	27070	1.819954283
8	10973	27454	2.501959355
9	11788	26044	2.209365456
10	9690		
11	9375		
12	7755		
13	6699		
14	2565		
15	6895		
16	6525		
17	598		
18	3324		
19	7281		
20	8763		
21	9039		
22	7318		
23	7198		
24	6454		
25	6467		
26	3574		
Total Production	**260,543**	**242,433**	

WARBLER STATE COM #2Y PRODUCTION DATA THROUGH 06.30.17

Production Summary Report API: 30-025-42904 WARBLER STATE COM #002Y Printed On: Tuesday, September 12 2017						
		Production				
Year	Pool	Month	Oil(BBLS)	Gas(MCF)	Water(BBLS)	Days P/I
2016	[97929] WC-025 G-06 S213326D;BONE SPRING	Mar	0	0	0	0
2016	[97929] WC-025 G-06 S213326D;BONE SPRING	Apr	0	0	0	0
2016	[97929] WC-025 G-06 S213326D;BONE SPRING	May	13811	14404	106698	31
2016	[97929] WC-025 G-06 S213326D;BONE SPRING	Jun	13411	14555	48443	30
2016	[97929] WC-025 G-06 S213326D;BONE SPRING	Jul	15100	16156	45314	31
2016	[97929] WC-025 G-06 S213326D;BONE SPRING	Aug	8976	10348	26306	22
2016	[97929] WC-025 G-06 S213326D;BONE SPRING	Sep	11296	13407	34661	30
2016	[97929] WC-025 G-06 S213326D;BONE SPRING	Oct	10871	15729	33130	31
2016	[97929] WC-025 G-06 S213326D;BONE SPRING	Nov	9263	15221	29785	30
2016	[97929] WC-025 G-06 S213326D;BONE SPRING	Dec	8304	14890	27424	31
2017	[97929] WC-025 G-06 S213326D;BONE SPRING	Jan	7344	14802	24763	31
2017	[97929] WC-025 G-06 S213326D;BONE SPRING	Feb	6075	12050	19958	28
2017	[97929] WC-025 G-06 S213326D;BONE SPRING	Mar	6150	11282	19111	31
2017	[97929] WC-025 G-06 S213326D;BONE SPRING	Apr	5250	9651	16220	30
2017	[97929] WC-025 G-06 S213326D;BONE SPRING	May	5645	10662	18344	31
2017	[97929] WC-025 G-06 S213326D;BONE SPRING	Jun	4705	7163	13723	30
	TOTAL		**126201**	**180320**	**463880**	**417**

EXCLUDED FROM V-F STUDY

SOURCE: https://wwwapps.emnrd.state.nm.us/ocd/ocdpermitting/Data/WellDetails.aspx?api=30-025-42904

- **V-F study excluded one month of production data for 1-mile well**

WARBLER STATE COM 4H REPORTED PRODUCTION THROUGH 06.30.17

Production Summary Report API: 30-025-43310 WARBLER STATE COM #004H Printed On: Tuesday, September 12 2017						
		Production				
Year	Pool	Month	Oil(BBLS)	Gas(MCF)	Water(BBLS)	Days P/I
2016	[97895] WC-025 G-08 S213304D;BONE SPRING	Sep	2427	3363	38795	19
2016	[97895] WC-025 G-08 S213304D;BONE SPRING	Oct	11596	13791	49140	21
2016	[97895] WC-025 G-08 S213304D;BONE SPRING	Nov	15841	18466	51496	30
2016	[97895] WC-025 G-08 S213304D;BONE SPRING	Dec	14865	16645	43941	30
2017	[97895] WC-025 G-08 S213304D;BONE SPRING	Jan	16524	18935	45414	28
2017	[97895] WC-025 G-08 S213304D;BONE SPRING	Feb	17437	20874	49963	28
2017	[97895] WC-025 G-08 S213304D;BONE SPRING	Mar	17923	20399	45280	31
2017	[97895] WC-025 G-08 S213304D;BONE SPRING	Apr	15665	18792	39157	30
2017	[97895] WC-025 G-08 S213304D;BONE SPRING	May	15694	18690	38570	31
2017	[97895] WC-025 G-08 S213304D;BONE SPRING	Jun	11521	14152	27147	29
	TOTAL		**139493**	**164107**	**428903**	**277**

EXCLUDED FROM V-F STUDY

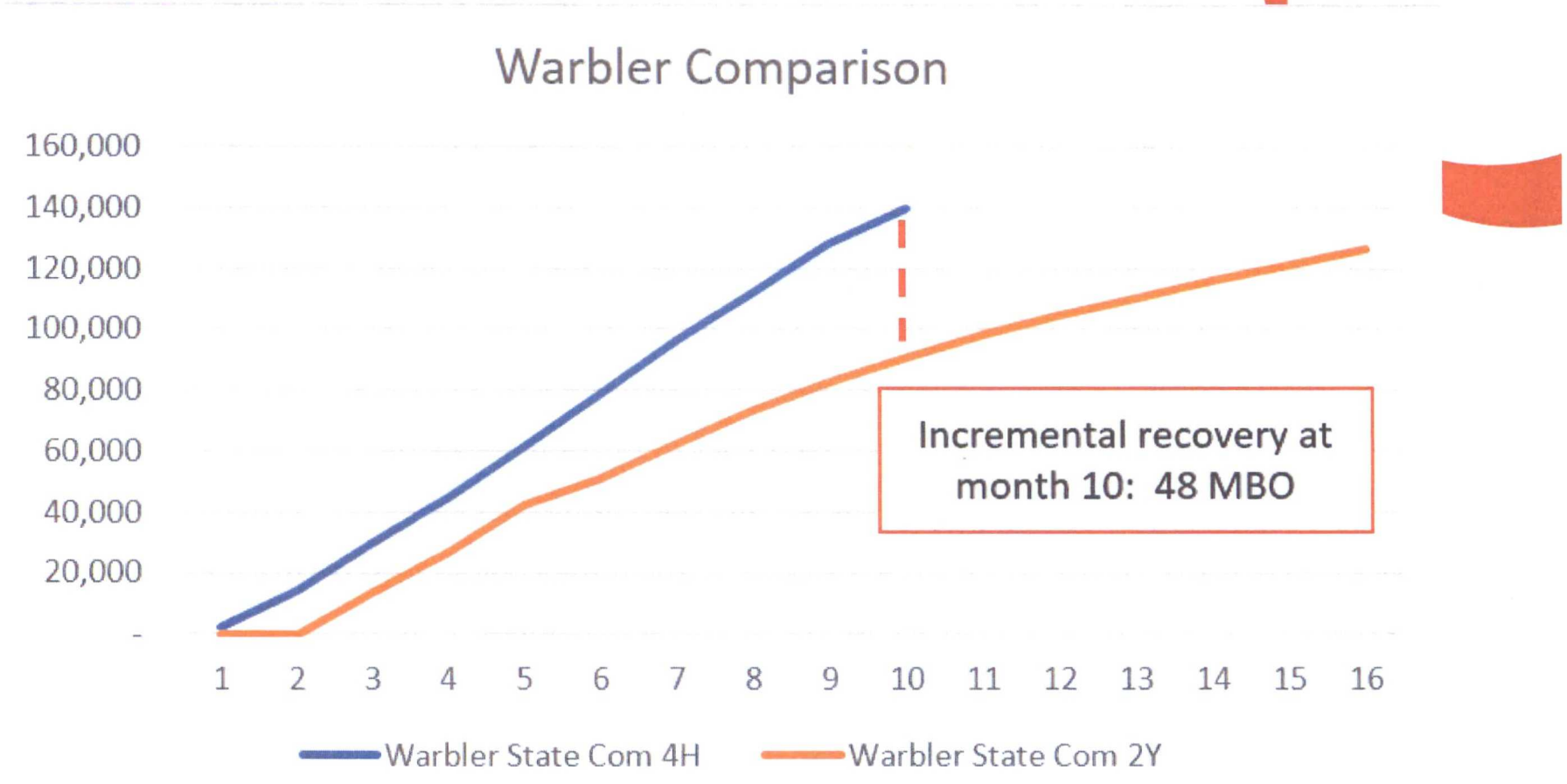
SOURCE: https://wwwapps.emnrd.state.nm.us/ocd/ocdpermitting/Data/WellDetails.aspx?api=30-025-43310

- **V-F study excluded two months of production data for 2-mile well**

Warbler Comparison with all Monthly Production Data

	Monthly Oil Production		
Month	Warbler State Com 4H (2 mi.)	Warbler State Com 2Y (1 mi.)	Uplift (2 mi./1 mi.)
1	2,427	13811	0.175729491
2	11,596	13411	0.864663336
3	15,841	15100	1.049072848
4	14,865	8976	1.656082888
5	16,524	11296	1.462818697
6	17,437	10871	1.603992273
7	17,923	9263	1.934902299
8	15,665	8304	1.88644027
9	15,694	7344	2.136982571
10	11,521	6075	1.896460905
11		6150	
12		5250	
13		5645	
14		4705	
Total Production	**139,493**	**126,201**	

Warbler Production Plot with all Monthly Production Data



NEPTUNE 10 STATE COM 502H

Production Summary Report API: 30-025-42323 NEPTUNE 10 STATE COM #502H Printed On: Tuesday, September 12 2017						
		Production				
Year	Pool	Month	Oil(BBLS)	Gas(MCF)	Water(BBLS)	Days P/I
2015	[96674] TRIPLE X;BONE SPRING, WEST	Jul	12553	15758	38626	31
2015	[96674] TRIPLE X;BONE SPRING, WEST	Aug	40698	49088	66725	31
2015	[96674] TRIPLE X;BONE SPRING, WEST	Sep	25654	29576	36451	30
2015	[96674] TRIPLE X;BONE SPRING, WEST	Oct	21846	18380	29866	30
2015	[96674] TRIPLE X;BONE SPRING, WEST	Nov	18746	21529	27239	30
2015	[96674] TRIPLE X;BONE SPRING, WEST	Dec	15712	18081	21415	31
2016	[96674] TRIPLE X;BONE SPRING, WEST	Jan	15603	18269	21681	31
2016	[96674] TRIPLE X;BONE SPRING, WEST	Feb	13441	16662	20046	29
2016	[96674] TRIPLE X;BONE SPRING, WEST	Mar	13012	17593	19012	31
2016	[96674] TRIPLE X;BONE SPRING, WEST	Apr	10939	12504	15974	30
2016	[96674] TRIPLE X;BONE SPRING, WEST	May	10996	14137	16429	31
2016	[96674] TRIPLE X;BONE SPRING, WEST	Jun	10148	15287	15279	30
2016	[96674] TRIPLE X;BONE SPRING, WEST	Jul	8620	10233	11610	31
2016	[96674] TRIPLE X;BONE SPRING, WEST	Aug	8862	11370	12638	31
2016	[96674] TRIPLE X;BONE SPRING, WEST	Sep	8223	8873	12494	30
2016	[96674] TRIPLE X;BONE SPRING, WEST	Oct	8155	12555	12257	31
2016	[96674] TRIPLE X;BONE SPRING, WEST	Nov	6810	1111	10457	30
2016	[96674] TRIPLE X;BONE SPRING, WEST	Dec	6952	11374	10669	31
2017	[96674] TRIPLE X;BONE SPRING, WEST	Jan	6887	10397	10199	31
2017	[96674] TRIPLE X;BONE SPRING, WEST	Feb	2526	4498	2725	13
2017	[96674] TRIPLE X;BONE SPRING, WEST	Mar	0	2	0	1
2017	[96674] TRIPLE X;BONE SPRING, WEST	Apr	5217	7644	6367	30
2017	[96674] TRIPLE X;BONE SPRING, WEST	May	5106	7927	4318	31
2017	[96674] TRIPLE X;BONE SPRING, WEST	Jun	5100	7036	13373	30
	TOTAL		**281806**	**339884**	**435850**	**685**

EXCLUDED FROM V-F STUDY

SOURCE: https://wwwapps.emnrd.state.nm.us/ocd/ocdpermitting/Data/WellDetails.aspx?api=30-025-42323

- **V-F study excluded six months of production data for 1-mile well**

NEPTUNE 10 STATE COM 504H PRODUCTION DATA THROUGH 06.30.17

Production Summary Report API: 30-025-43455 NEPTUNE 10 STATE COM #504H Printed On: Tuesday, September 12 2017						
		Production				
Year	Pool	Month	Oil(BBLS)	Gas(MCF)	Water(BBLS)	Days P/I
2017	[96674] TRIPLE X;BONE SPRING, WEST	Apr	77772	88858	208599	30
2017	[96674] TRIPLE X;BONE SPRING, WEST	May	69021	89481	126498	31
2017	[96674] TRIPLE X;BONE SPRING, WEST	Jun	46024	61707	79046	30
	TOTAL		**192817**	**240046**	**414143**	**91**

EXCLUDED FROM V-F STUDY

SOURCE: https://wwwapps.emnrd.state.nm.us/ocd/ocdpermitting/Data/WellDetails.aspx?api=30-025-43455

- **V-F study excluded one month of production data for 2-mile well**

Neptune Comparison with all Monthly Production Data

	Monthly Oil Production		
Month	Neptune 10 State Com 502H (1 mi.)	Neptune 10 State Com 504H (2 mi.)	Uplift (2 mi./1 mi.)
1	12553	77772	6.195491118
2	40698	69021	1.695931004
3	25654	46024	1.794028222
4	21846		
5	18746		
6	15712		
7	15603		
8	13441		
9	13012		
10	10939		
11	10996		
12	10148		
13	8620		
14	8862		
15	8223		
16	8155		
17	6810		
18	6952		
19	6887		
20	2526		
21	0		
22	5217		
23	5106		
24	5100		
Total Production	**281,806**	**192,817**	

Neptune Production Plot with all Monthly Production Data