

## **LOGOS Energy**

BP Northeast Blanco Unit Horizonal Mancos Development Program Lookback

## **Forward-Looking Statement**



Except for historical information contained herein, the statements in this presentation are forward-looking statements. Forward-looking statements include those statements made using terms such as "may," "will," "should," "expect," "anticipate," "project," "estimate," "intend," "continue," or "believe" (or negatives thereof) or other variations thereof. Forward-looking statements and the business prospects of LOGOS are subject to a number of risks and uncertainties that may cause LOGOS's actual results in future periods to differ materially from the forward-looking statements. These risks and uncertainties include, among other items, volatility of commodity prices; supply and demand for products produced by LOGOS; the impact of armed conflict, political instability or widespread outbreaks or illnesses, including COVID-19, on global and domestic economic activity and oil and gas demand; regulatory or legislative actions on LOGOS or the oil and gas exploration and production industry, including potential changes to tax laws and matters impacting LOGOS's ability to obtain drilling, environmental and other permits; competition; the ability to obtain approvals from third parties and negotiate agreements with third parties on mutually acceptable terms; potential liability resulting from pending or future litigations; cost inflation, including that caused by supply chain disruptions and operating activities; the risk of new restrictions impacting LOGOS's development activities, including restrictions on water sourcing and/or disposal, restrictions on LOGOS's water business or restrictions on LOGOSowned compression services; availability of equipment, services, personnel and resources adequate to perform LOGOS's development and operating activities; access to and availability of adequate gathering, treating and processing facilities; LOGOS's ability to implement its business plans or complete its development activities as scheduled and to achieve its ESG goals (including emissions reductions); access to and cost of capital; the financial strength of counterparties to LOGOS's credit facilities and derivative contracts; the financial strength of purchasers of LOGOS's oil, natural gas liquids and gas production; uncertainties about estimates of reserves, identification of drilling locations and future ability to add proved reserves; assumptions underlying forecasts, including forecasts of production, cash flow, well costs, capital expenditures, rates of return, and expenses; tax rates; quality of technical data; environmental and weather risks, including the possible impacts of climate change on LOGOS's operations and demand for its products; cybersecurity risks; and risks associated with the ownership and operations of LOGOS's water and compression services. In addition, LOGOS may be subject to currently unforeseen risks that may have a materially adverse effect on it or its operations. Accordingly, no assurances can be given that the actual events and results will not be materially different than the anticipated results described in the forward-looking statements. LOGOS undertakes no duty to publicly update these statements except as required by law.

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**Executive Summary** 

## **Northeast Blanco Unit Lookback – Executive Summary**



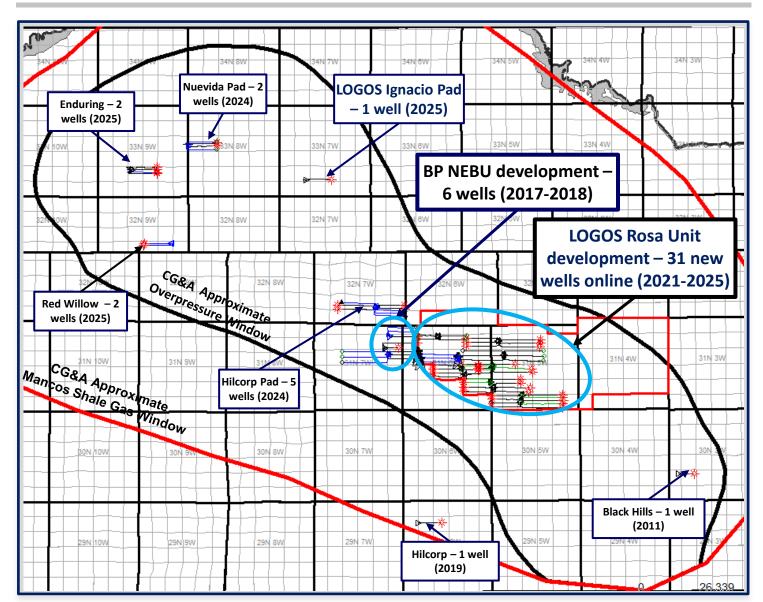
# BP drilled one 9,548' dry gas Mancos horizonal well in 2017 and 5 additional wells in 2018 in the Northeast Blanco Unit ("NEBU")

- Optimized well spacing, frack job design, landing zone, and drill timing of offsets provided superior results compared to historical offsets
- 5 wells were landed in the Black zone (~1,320 ft spacing) and 1
  well landed in the Olive zone
- Proppant concentration ranged from 2,200-2,500 lbs/ft
- Average EUR ~20.7 Bcf/10,000 ft

# BP's 2017-2018 horizontal Mancos wells delivered ~50% higher EURs/10,000 ft. than WPX's Rosa Unit 2010 and 2015 development programs

 Key variables driving the well performance difference include well spacing, frack job design (stage spacing and proppant loading), landing zone / target, and drill timing of offsets

#### Mancos Regional Locator Map & Overpressure Window



## **Northeast Blanco Unit Lookback – Executive Summary (Cont.)**



#### Well spacing and frack job design

- BP closest spacing of 1,320 ft vs WPXs 2015-2016 wells of 660 ft
- BP used a significantly more aggressive frack job including tighter stage spacing, more overall sand per ft, diverters, clay stabilizers, and higher pump rates

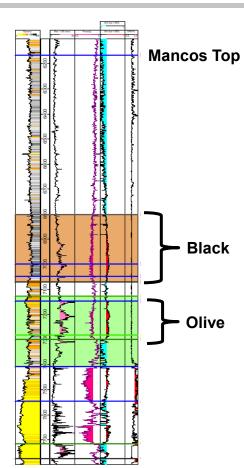
#### Landing zone and timing

- All BP wells landed in the Black bench of the Mancos except one well
  - Black wells have stronger initial performance compared to Olive well, but very little difference in long term EURs due to shallower decline seen in Olive well
- BP picked the best porosity zone in the Black bench and stayed in that zone vs WPX somewhat drilling transverse through benches
- BP wells developed within 12 months of each other vs WPX 5-year delay in development programs

## **BP NEBU 2017-2018 Mancos Horizontal Well Key Stats**

Well Name	Reservoir	Vintage	Lateral Length (ft)	# of Stages	Stage Length (ft)	Total Proppant (#/ft)	Total Fluid (bbls/ft)	EUR (Bcf)	EUR (Bcf)/10K Ft
NEBU 602 COM 1H	Black	2017	9,548	64	149	2,486	73	24.5	25.7
NEBU 604 COM 1H	Black	2018	9,566	48	199	2,502	63	19.2	20.1
NEBU 604 COM 2H	Black	2018	9,578	48	200	2,473	64	17.3	18.1
NEBU 604 COM 3H	Black	2018	9,564	47	203	2,364	62	20.7	21.7
NEBU 605 COM 1H	Olive	2018	5,090	31	164	2,201	65	10.1	19.9
NEBU 605 COM 2H	Black	2018	11,445	56	204	2,404	66	21.3	18.6
Average					187	2,405	65	18.9	20.7

#### **Mancos Type Log**



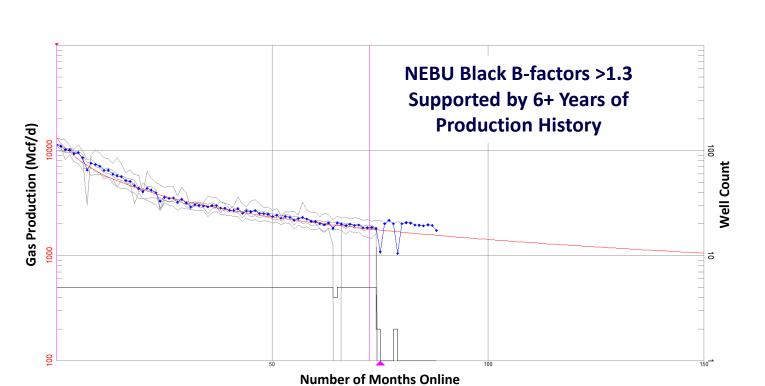


## **NEBU Reserve Forecasts**

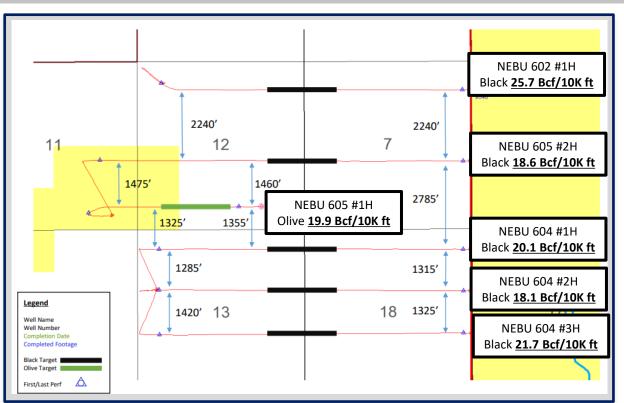
## **NEBU BP Wells Offset Rosa – 6+ Years of Production, B-Factor > 1.3**



### **BP NEBU 2017-18 Black Peak Month Align**



### **BP NEBU Mancos Locator Map & EURs**



BP NEBU wells (2017–2018), directly offset the Rosa Unit with modern completions, deliver an average EUR/ft of 20.7 Bcf per 10,000 ft

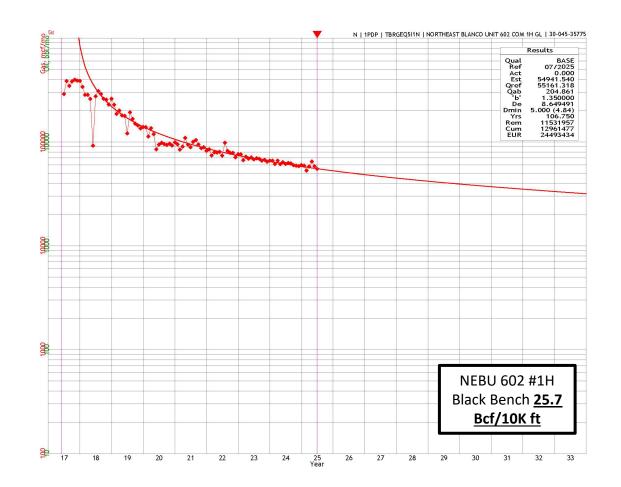
B-factors of 1.35–1.55, supported by 6+ years of production history

LOGOS' technical assessment: Higher B-factors reflect dual-porosity flow from extensive natural fracturing in the Mancos

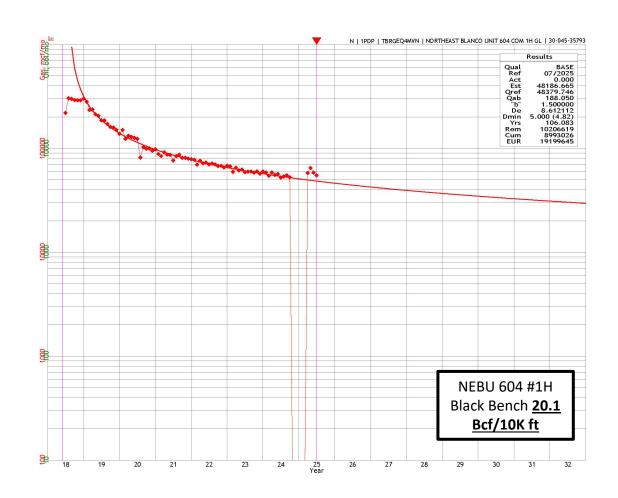
## **NEBU Reserve Forecasts**



#### **Northeast Blanco Unit 602 Com 1H**



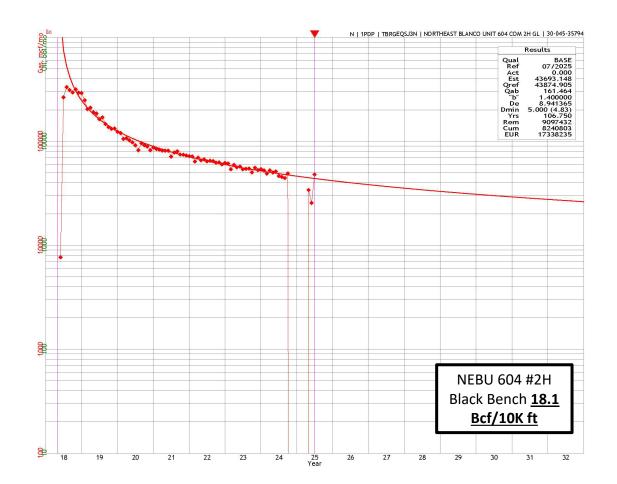
## Northeast Blanco Unit 604 Com 1H



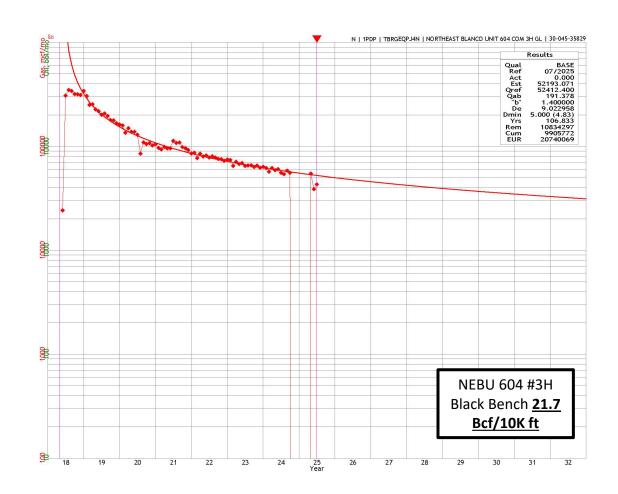
## **NEBU Reserve Forecasts (Cont.)**



#### **Northeast Blanco Unit 604 Com 2H**



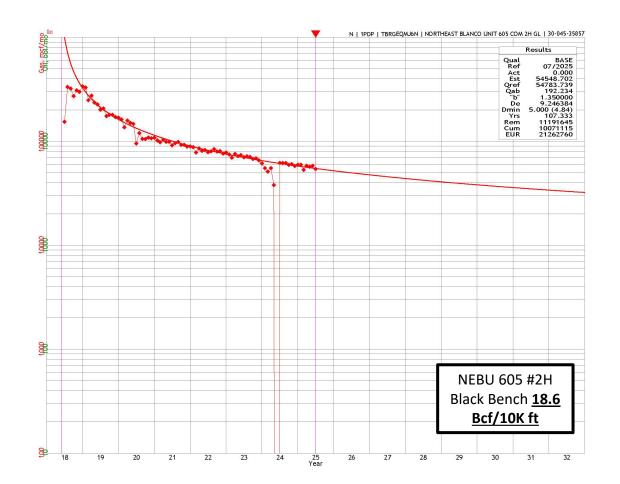
#### **Northeast Blanco Unit 604 Com 3H**



## **NEBU Reserve Forecasts (Cont.)**



## Northeast Blanco Unit 605 Com 2H



## Northeast Blanco Unit 605 Com 1H

