Highlights

Location: Baylor Co, TX
Acreage: 890.7
100% WI and 80% NRI
Wells: 2 active and 15 P&A'd
Producing formation: Palo Pinto
PV10 of Proved Reserves from Palo Pinto @ $45/BO: $2,864,710
Additional objectives: Mississippi, Caddo, Strawn

- The Green lease is situated in a prolific hydrocarbon province with multiple conventional drilling objectives shallower than 6000' in depth
    - Palo Pinto: Depth of 3100', IP of 30 BOPD, EUR 113,000 BO
    - Mississippi: Depth of 5500; IP of 50 BOPD, EUR 109,000 BO
    - Caddo: Depth of 5000', IP of 40 BOPD, EUR 91,000 BO
- The Green lease has been historically underutilized due to multiple operators and low emphasis on collecting and analyzing geologic and engineering data
- Nearby analogous fields that have been properly managed and exploited show production to date over six times greater than the current total production from the Green
- Reservoir intervals present at the Green lease are comparable to complex limestone reservoirs that have recently entered a stage of extensive development due to improvements in completion technology (Meremac, Austin Chalk, San Andres)
- Simple improvements in facilities will allow for development to be accelerated and create field-level efficiencies that were not previously realized by past operators

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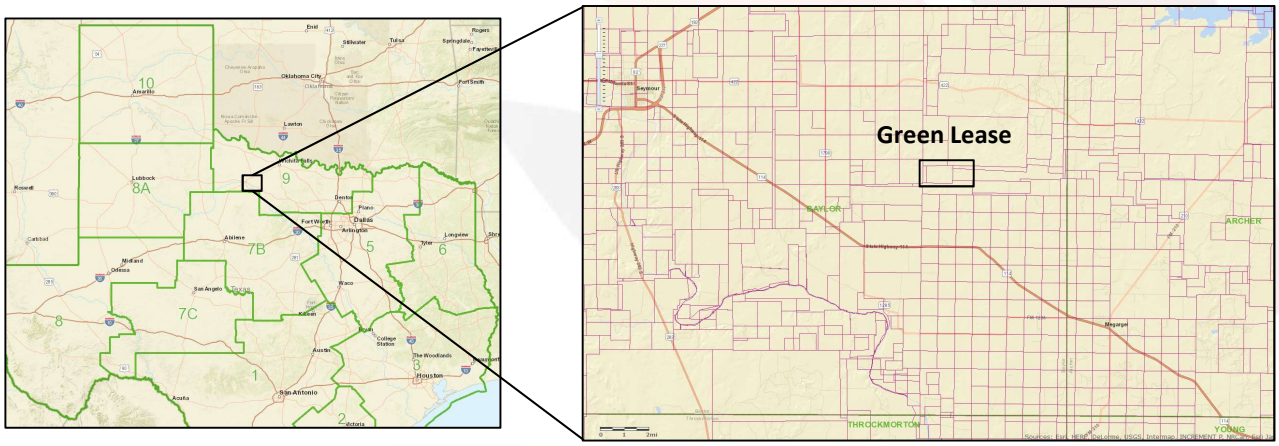
Summary

The Green lease is situated on the Bend Arch between the Midland Basin, to the west, and the Dallas-Fort Worth Basin, to the east. The area has a long history of oil and gas operations due to world class hydrocarbon sourcing from the Barnett shale and multiple stacked reservoirs in the Canyon Group, Strawn Group, Caddo Formation, Palo Pinto Formation, Marble Falls Group and Mississippi Limestone. These reservoirs can be accessed through both vertical and horizontal drilling and respond well to modern completion techniques.

The Green lease was originally drilled in the 1940s. Initial drilling was focused on the Palo Pinto reef trend. This crosses the central part of the lease and continues north onto the adjacent lease. Since these original wells there has been substantial activity focused on other formations. Production was steady until the 1980s when it was shut in due to declining commodity price. Since then it has changed hands multiple time and has been consistently under-utilized. This venture will be the first to apply the most current drilling and production practices to the lease in 50 years.

The producing reservoirs on the Green Lease and in the immediate vicinity are limestone with low matrix porosity and fracture enhancement. Previous completions did not generally treat fracture limestone reservoirs very differently from conventional sands due to a lack of understanding and industry emphasis. Now these type of mixed lithology and fracture-prone reservoirs are the most prolific plays in North America. Some key examples are the Meremac and Hunton in the Anadarko Basin and the Austin Chalk in south and east Texas. Trends in the development of these type of reservoirs have show unequivocally that they hold tremendous upside.

With new completions technology, field-level improvements and operational efficiencies the Green has the potential to generate substantial production. The Palo Pinto alone has almost $3 million in reserves on a $45/BO flat price deck. The Caddo and Mississippi Lime have shown to be strong producers in adjacent leases with simple stimulation designs. A revamped development plan would realize the remaining reserves in the Palo Pinto and access new reserves in the Caddo, Mississippi and potentially the Strawn.

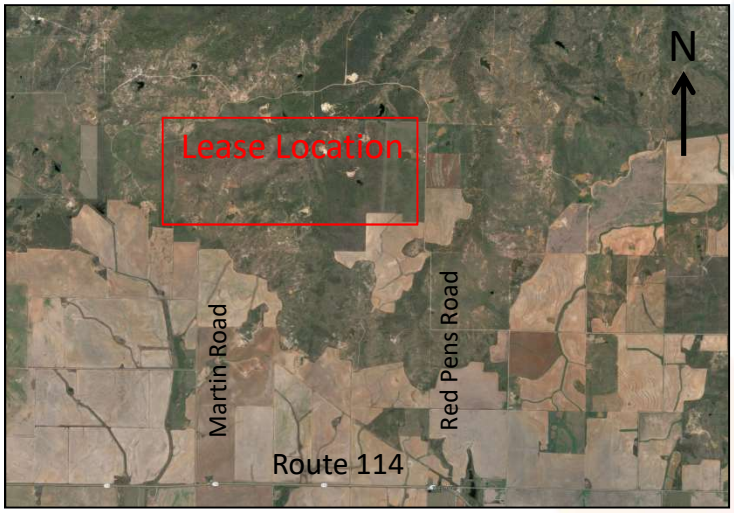


Location

The Green lease is located in Baylor county Texas in the north central part of the state. By car the lease can be reached in 2.5 hours from Dallas or Lubbock. Access is easiest off of Route 114 by either Martin Road or Red Pens Road. The lease is located just over a mile north of Route 114. The tank battery is 4 miles from the intersection of Martin Road and Route 114. Terrain is generally flat with some cross cutting streams. The lease roads are used by ranchers and hunters and are well maintained. Tank battery and active wells are all accessible by lease roads. The lease is fully electrified. The Green Lease is located in a prolific oil and gas province. Local oil field services are abundant. Infrastructure for gathering and marketing oil is well developed.

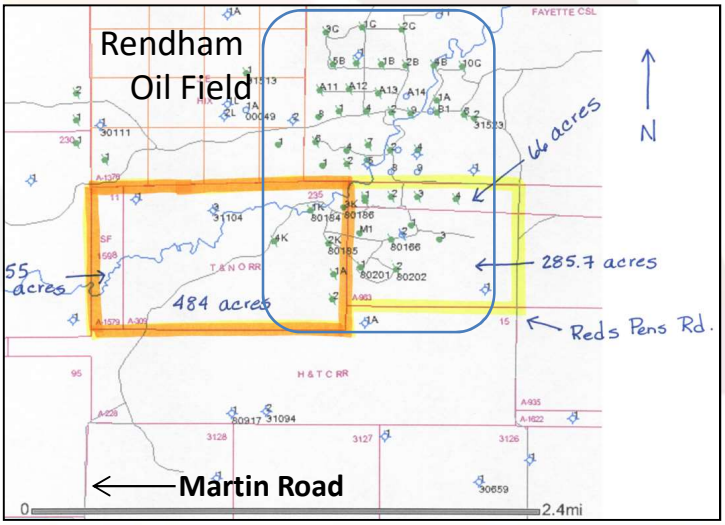
Texas RRC Lease# 01423

- Section 11, Abstract 1579 with 55 acres
- Section 235, Abstract 309 with 484 acres
- Abstract 963 with 286 acres
- Abstract 1605 with 66 acres

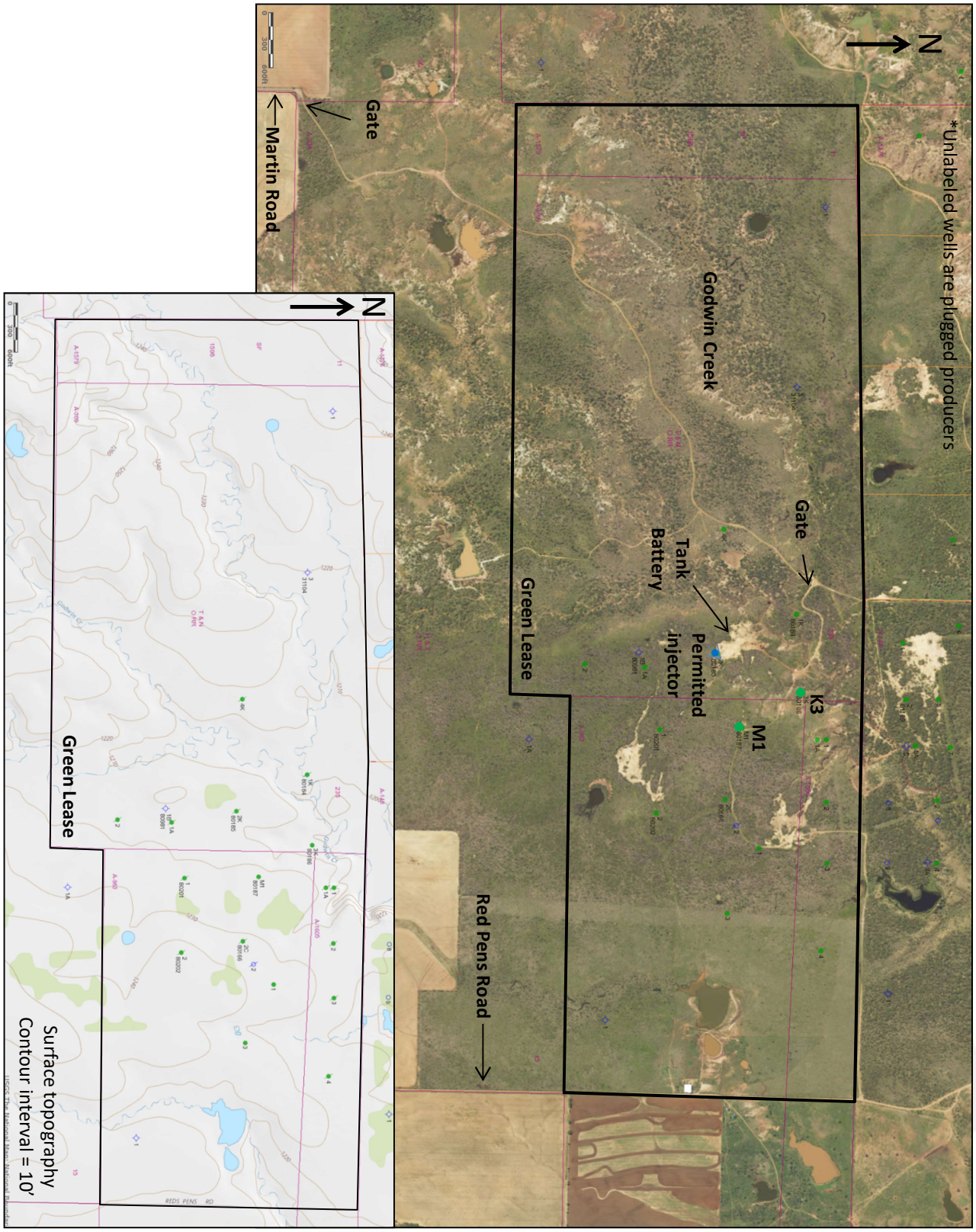


Equipment and features:
- 3 steel 210 barrel sales tanks
- 1 fiberglass 200 barrel water tank
- 2 pump jacks
- Flow lines to the two equipped wells
- Tank battery is on a 6 acre flat, open pad

The Green occupies the southern 1/3 of the Rendham Oil Field. This field experienced aggressive development in the 1940s and 1950s targeting the Palo Pinto Formation, Mississippi Lime and Caddo Formation.



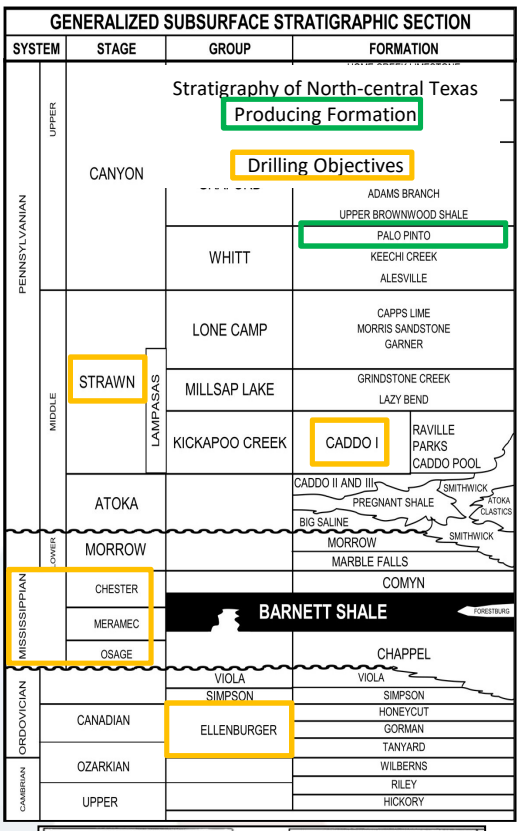
Lease Map

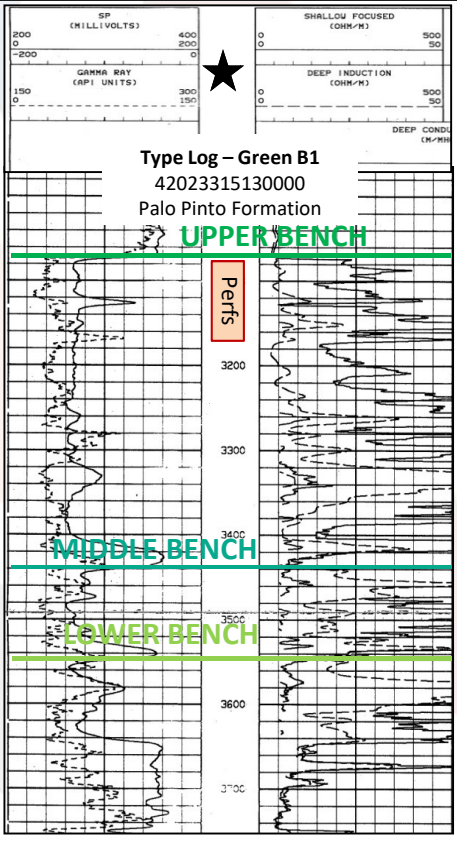

N
*Unlabeled wells are plugged producers
Gate
Martin Road
Godwin Creek
Gate
Tank Battery
Permitted injector
K3
M1
Green Lease
Red Pens Road
N
Green Lease
Surface topography
Contour interval = 10'

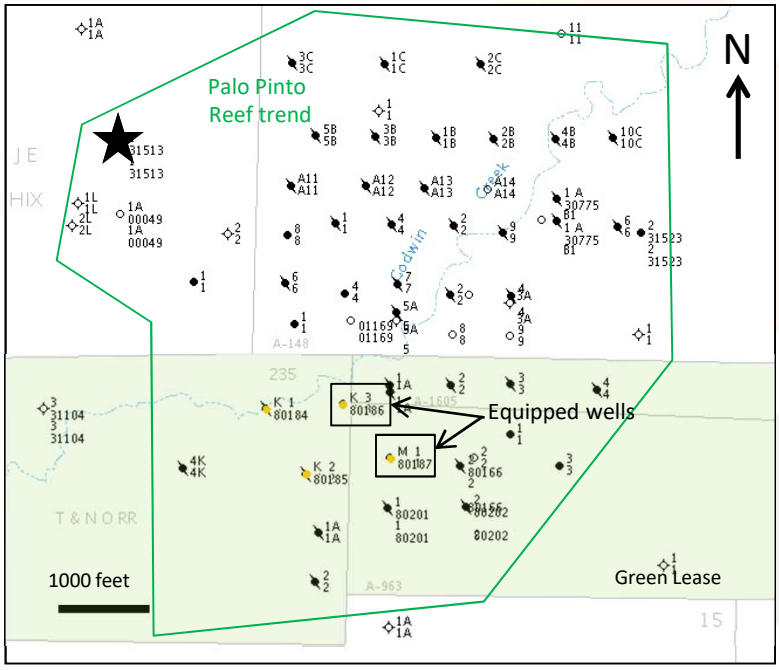
Lease History

Principal development occurred in the 1940s after discovering a prolific local Palo Pinto reef trend. During this initial phase 18 wells were drilled with 17 of them becoming producers. These were drilled on 4-5 acre spacing. Due to the age of initial drilling records are scarce. However, by the mid 1950's we know most of the lease was shut in and only 1 to 4 wells were kept online. These show a very stable decline over the next 30 years. Recently a previous operator experimented with stimulating one of the existing wells using a gas gun. This had very promising results upon flow back with a 25-50 BOPD spot rate. Currently there are 2 equipped and open well bores. The remaining 15 wells are plugged. A recent test of one of the operable wells showed it producing 3 to 5 BOPD while active only 4 hours a day.

The Palo Pinto is the one of the shallowest reservoirs in the region at 3100'. On top of the reef feature it has a gross average thickness of 500' across three benches. The top of the upper bench was the target of all drilling. Completion record are sparse but research into local activity of the same vintage suggests a simple acid job was used on all these wells. Regular acid treatments help to keep the perfs open and prevent scale build-up.





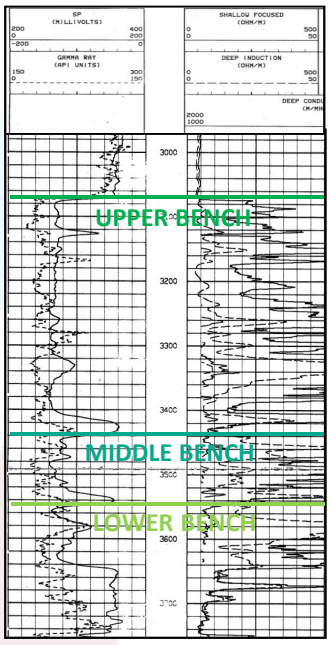


Geology

Producing Formation – Palo Pinto

The Palo Pinto Formation is highly localized reef-forming limestone. Due to it's localized extent exploitation can be challenging when trying to determine the location of patch reefs. This has already been done on the Green lease. Reef formations typically have high primary porosity due to the higher depositional energy regime. This primary porosity is enhanced due to regional-scale deformation during the Ouachita Orogeny which formed the Bend Arch. Porosity is 16-18% as seen in the few available density logs. The Palo Pinto is substantially thick locally and can exceed 500' in gross thickness. Depth to the top of the formation ranges from 3000' to 3500' TVD. Three distinct benches can be seen in logs but historically only the uppermost portion of the upper bench has been completed. Resistivity response in the middle and lower benches suggests they are hydrocarbon bearing. Due to insufficient stimulation these wells have a fairly aggressive spacing of about 5 acres. With historic production falling below the local type curve it's clear that these wells can be re-stimulated, re-drilled, downspaced further or exploited with lateral drilling to enhance recovery.

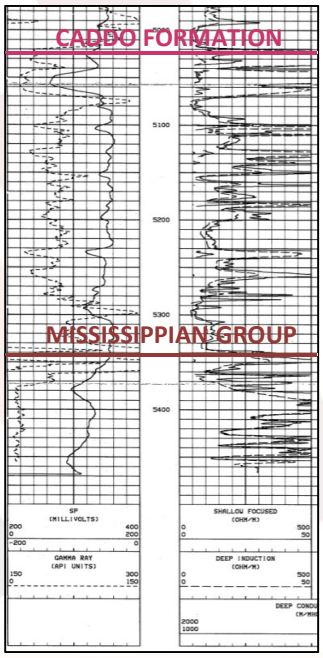
Type Log – Green B1
42023315130000
Palo Pinto Formation



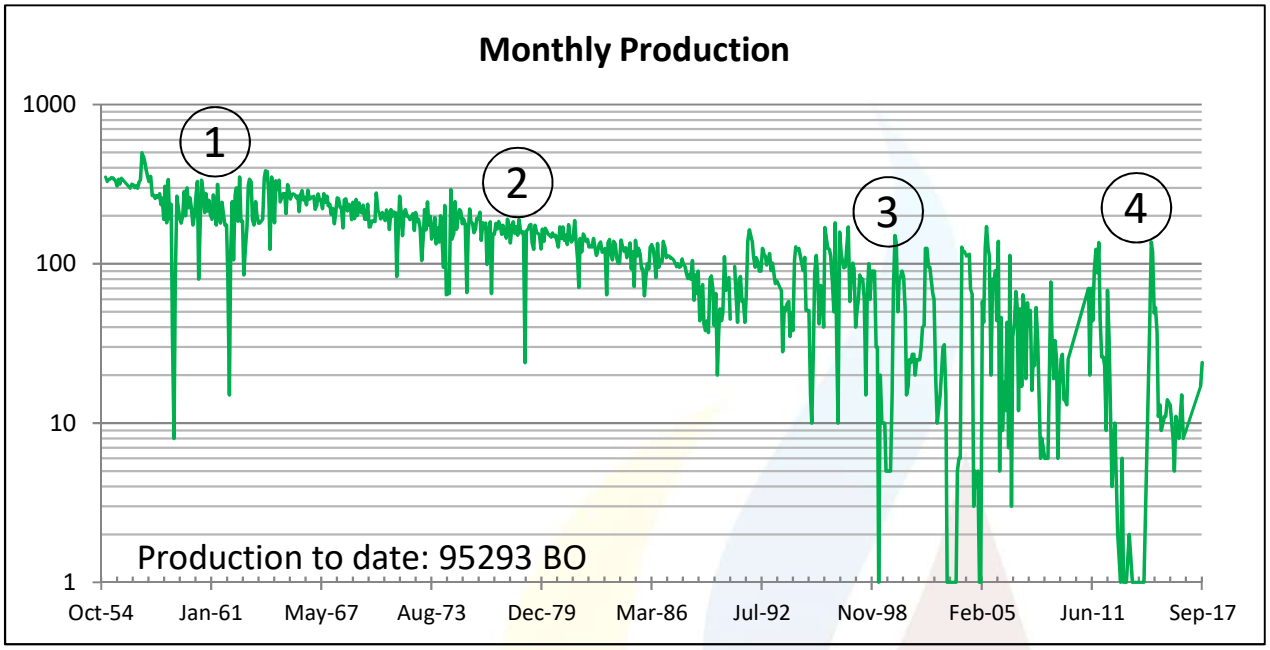
Additional Objectives – Caddo Formation and Mississippian

The Caddo and Mississippian have experienced more intense activity than the Palo Pinto around the Green lease. Initial production from these objectives ranges from 50 to 70 BOPD. A well test adjacent to the Green northern lease line came in at 192 BOPD. The Caddo Formation and Mississippian section are two geologically discrete entities. The Caddo is a stratigraphic formation and the Mississippian section encompasses multiple formations. Additionally, the Mississippian section contains the Barnett shale source rock. Some components of the Mississippian section are the Meremac, Chester and Osage. These distinct formations have become prolific in the Anadarko basin to the north in Oklahoma. Local to the Green lease the Mississippian section is condensed and these subdivisions become difficult to separate. The Caddo directly overlies the Mississippi and compositionally they are very similar to the Palo Pinto and to each other. Both the Caddo and Mississippi are shallow water limestones and each have the propensity for reef formation. The Caddo tends to have more abundant shale and sand interbeds whereas the Mississippi is more of a pure limestone. Both are heavily fractured.

Type Log – Green Estate 1
42023315130000
Caddo formation &
Mississippian group



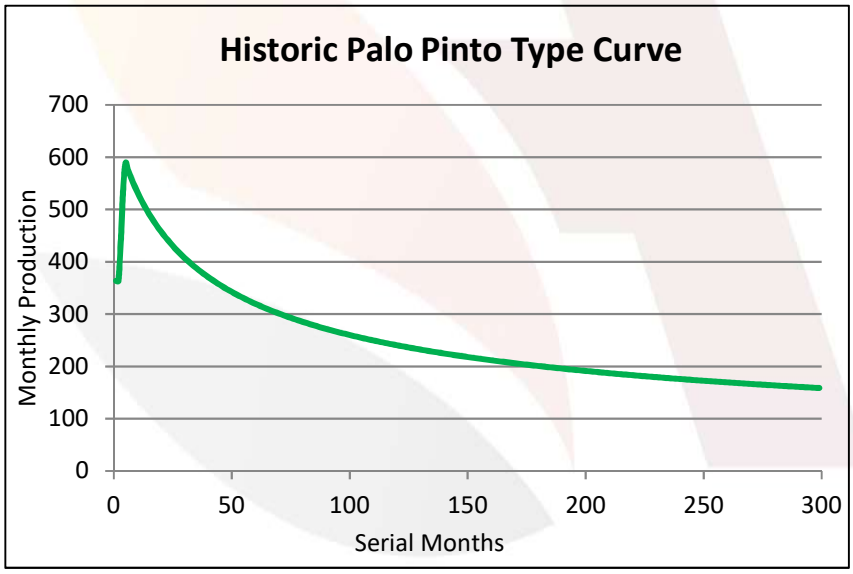
Production History



1) Available production history begins in 1954 but the wells were drilled in the early 1940s. At this phase only 1 to 4 of the wells are still active. Production levels out at 250 BO per month for 10 years.
2) Natural decline over 30 years brings production to 100 BO per month.
3) Only 1 to 2 wells online. Lease changes hands and is only produced intermittently.
4) One well produced intermittently. Lack of local water disposal leads to shut-in after decline in oil price.

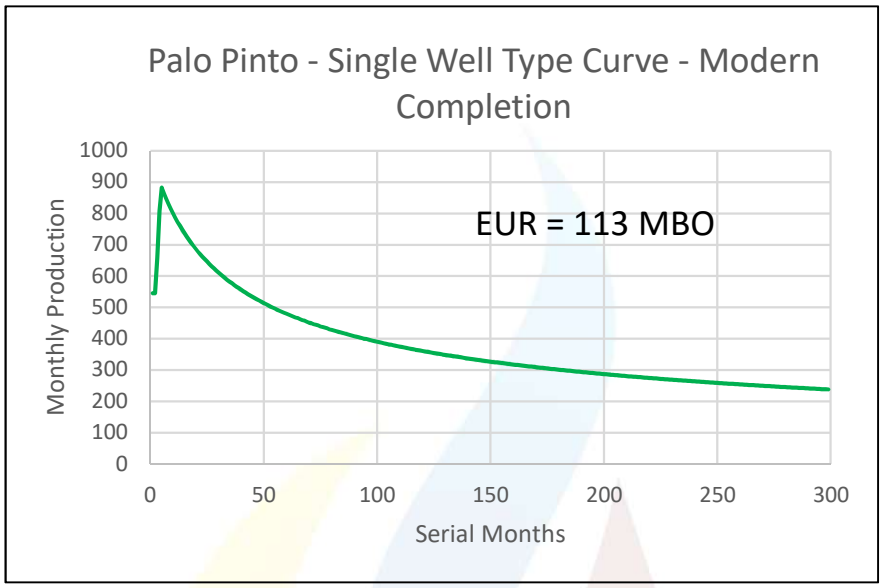
Historic Type Curve – Palo Pinto

Modeled single-well type curve for similar vintage Palo Pinto wells shows 75 MBO recoverable in 25 years. Given the 17 wells on the Green lease produced 95 MBO there is supportive evidence that there are substantial reserves left within the Palo Pinto. Producible reserves on the Green lease using this curve are 1275 MMBO or 1180 MMBO if accounting for what has already been produced.



Palo Pinto Potential

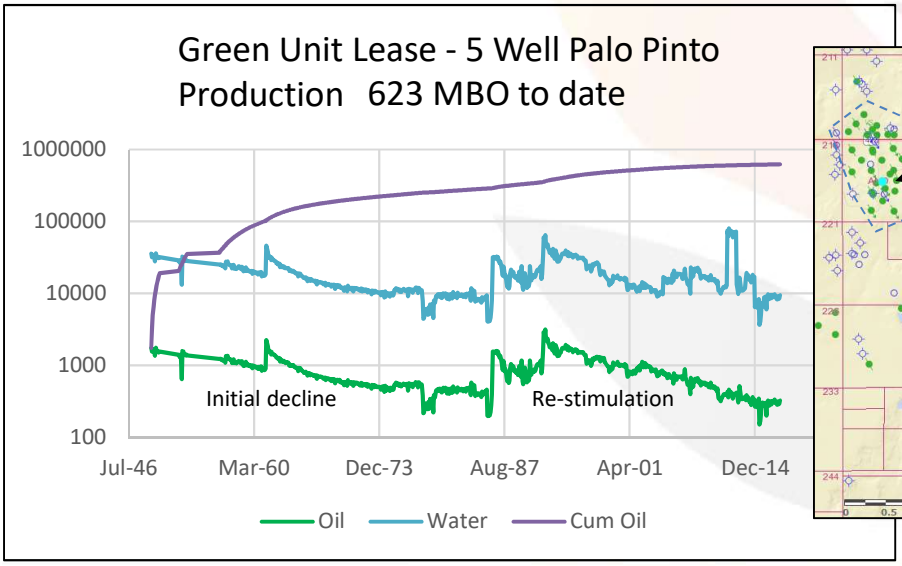
25 year type curve for Palo Pinto with modern completion design applied. This results in the same decline characteristics but with a 50% boost in initial production. Initial production is projected to be 30 BOPD. Historic production is very long lived and low decline leading to relatively high b-factor of 2.00.

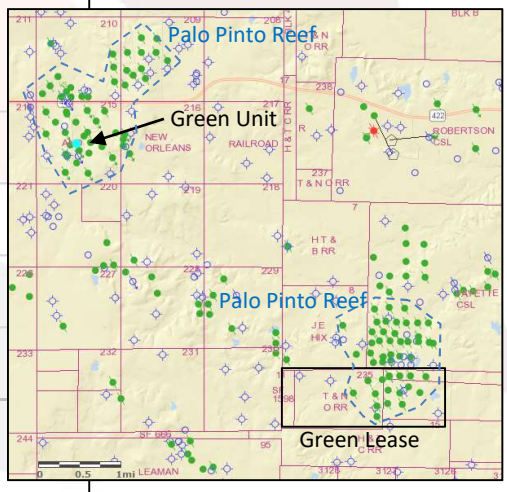


Sample Economics - Palo Pinto	Year 1	Year 2	Year 3	Year 4	Year 5
Gross production	9156	8441	7313	6544	5976
Net production (75% NRI)	6867	6331	5485	4908	4482
Annual net revenue ($55/BO flat)	$ 377,679	$ 348,202	$ 301,667	$ 269,935	$ 246,508
Cummulative annual net rev	$ 377,679	$ 725,882	$ 1,027,549	$ 1,297,484	$ 1,543,992

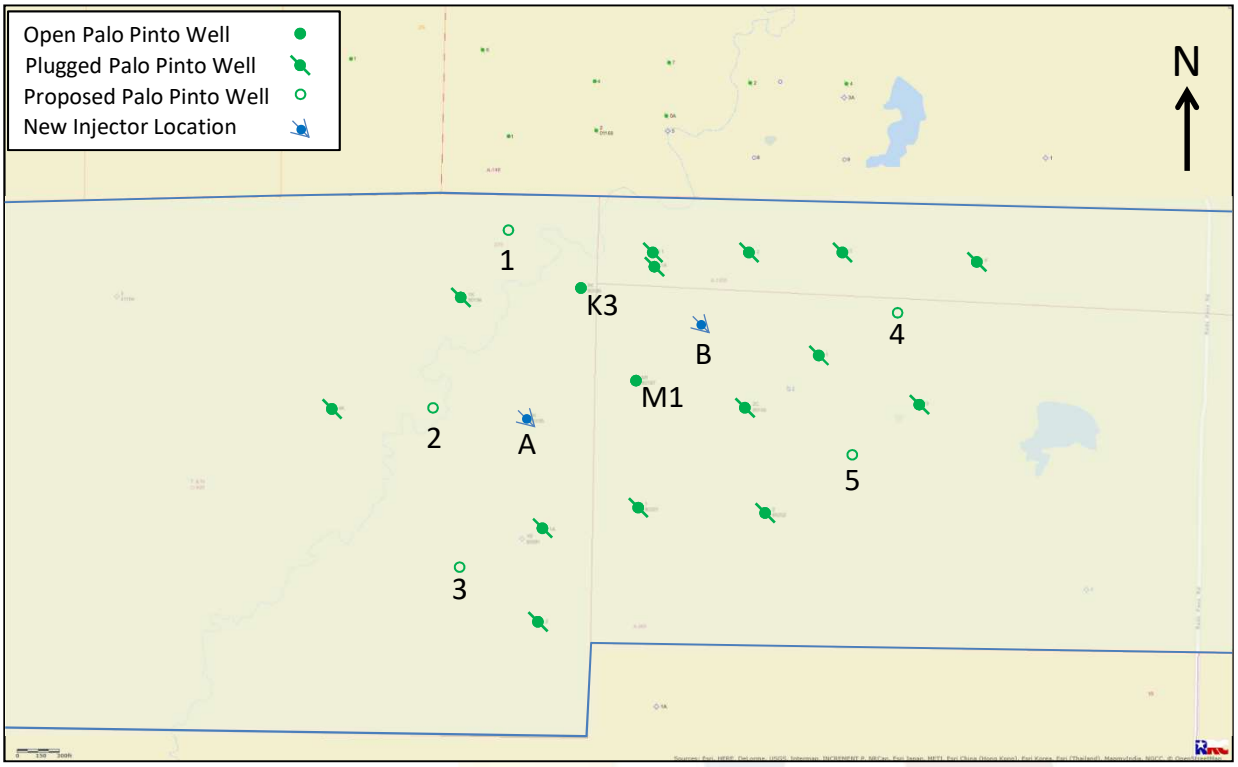
Proper exploitation of a Palo Pinto Reef – The Green Unit

Just under 4 miles northwest of the Green is the Green Unit lease. It is situated on another Palo Pinto reef feature. The Green Unit experienced near continuous stewardship since it was initially drilled in 1946. The benefits of this can be seen in the production. As wells reached the end of their natural decline re-stimulation efforts were enacted and EUR was doubled. Compare the drop off in 1986 to same feature on page 6 on the Green. The Green was essentially abandoned at this time but the Green Unit production was extended for another 30 years.





Development – Palo Pinto



Phase I: Establish on-site water disposal and re-stimulate existing producers. The Green M1 is fully equipped and will be activated after an acid stimulation. The Green K3 will be pulled to fix potential rod issue and then connected to electricity. After an acid stimulation the K3 can be activated. With both existing wells the lease will produce 10 to 20 BOPD. Plugged producer Green K2 (A) has an existing permit to convert to injector/disposal at 1500' into the Gunsight Formation. This disposal well can accept 300 BWPD at first but it's capacity can be increased.

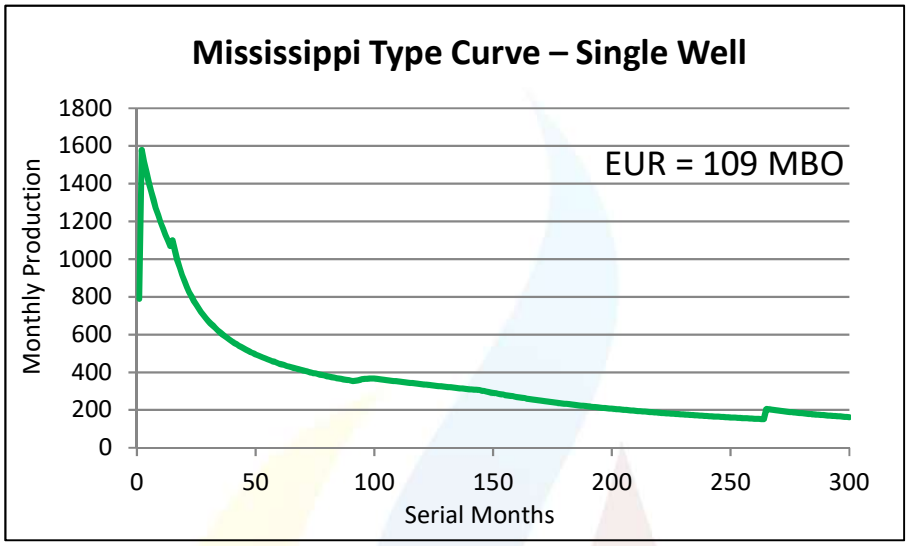
Phase II: Drill new Palo Pinto well/data well and expand on-site disposal capacity. The first new Palo Pinto well (1) will be drilled down through the Mississippi (5500' TVD). A triple-combo log will be collected for Caddo and Mississippi development. It can be brought online as a Mississippi, Caddo or Palo Pinto well but in this version of the plan it will be a Palo Pinto producer. Log data will be used to maximize completion strategy for future Palo Pinto wells. Furthermore, a new injector/disposal well (B) will be permitted and drilled to accommodate additional water production from Palo Pinto drilling program.

Phase III: Complete Palo Pinto infill drilling. Four additional Palo Pinto wells (2-5) drilled at 660' spaced from existing wells. Expected initial production is 30 BOPD to stabilize at 20 BOPD for each well. Stabilized production from all new Palo Pinto wells will be ~100 BOPD. With contribution from older wells total lease production will be between around 115 BOPD.

Note: Palo Pinto development and Mississippi/Caddo development can occur concurrently

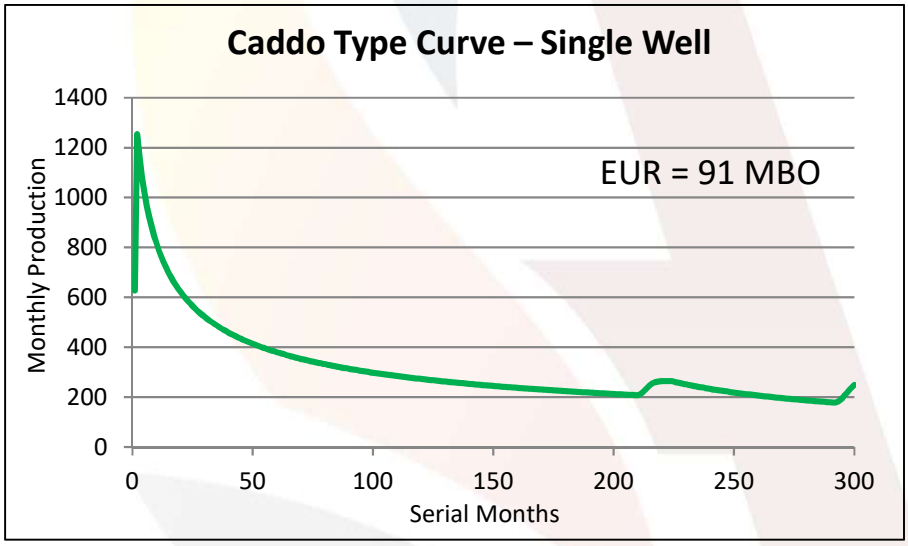
Caddo and Mississippi Potential

25 year type curve for Mississippi wells in a 6 mile radius of the Green lease. Completion was typically targeting the upper portion of the interval and used gelled acid. Initial production adjusted to 50 BOPD based on results in the immediate vicinity of the Green and to reflect the use of optimized completion design.



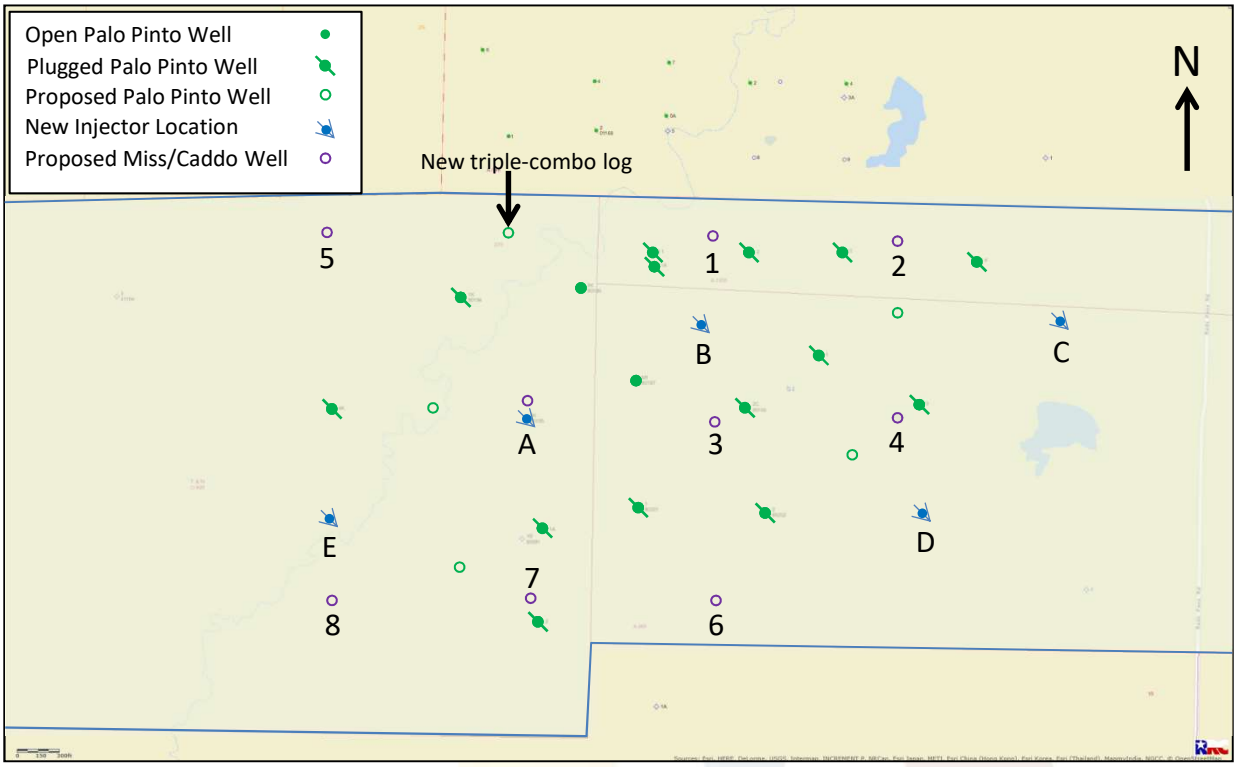
Sample Economics - Mississippi	Year 1	Year 2	Year 3	Year 4	Year 5
Gross production	15417	11318	8058	6555	5663
Net production (75% NRI)	11563	8488	6044	4916	4247
Annual net revenue ($55/BO flat)	$ 635,958	$ 466,850	$ 332,403	$ 270,403	$ 233,610
Cummulative annual net rev	$ 635,958	$ 1,102,807	$ 1,435,210	$ 1,705,613	$ 1,939,223

25 year type curve for Caddo wells in a 6 mile radius of the Green lease. Completion can target three benches within the Caddo, upper, middle or lower. Stimulation is typically a simple acid job. Initial production adjusted to 40 BOPD based on results in the immediate vicinity of the Green and to reflect the use of optimized completion design.



Sample Economics - Caddo	Year 1	Year 2	Year 3	Year 4	Year 5
Gross production	11126	7777	6240	5363	4776
Net production (75% NRI)	8344	5833	4680	4022	3582
Annual net revenue ($55/BO flat)	$ 458,942	$ 320,794	$ 257,405	$ 221,219	$ 197,016
Cummulative annual net rev	$ 458,942	$ 779,736	$ 1,037,141	$ 1,258,360	$ 1,455,377

Development – Mississippi and Caddo



Phase I: Concurrent with Palo Pinto development, the first new well on the lease will drill through the Mississippi to a TVD of 5500'. A triple-combo open hole log will be collected to better describe porosity and fluid systems across the Mississippi, Caddo and Palo Pinto. With this data Caddo and Mississippi drilling can commence in parallel with Palo Pinto drilling.

Phase II: Drill new Mississippi/Caddo wells 1 and 2. These two locations are the closest to a Mississippi well (API 31523) drilled on the lease to the north that flowed 192 BOPD. Location 1 is 1200' away and location 2 is 1000' away. It's the recommendation of this report that triple-combo logs are collected on these wells to guide completions.

Phase III: Complete Mississippi/Caddo infill drilling and expand disposal capacity. New Mississippi/Caddo wells will be drilled in twos in a staggered schedule with one new injector/disposal well. The schedule is as follows: producers 3 and 4, injector C, producers 5 and 6, injector D, producers 7 and 8, injector E. It's the recommendation of this report that triple-combo logs are collected on these wells to guide completions. These wells will complete the Mississippi first with the expectation that they can be recompleted ~500' uphole in the Caddo. Stabilized initial production is projected to be 50 BOPD from Mississippi and 40 BOPD from the Caddo. Total lease production will average 400 BOPD upon completion of the Mississippi/Caddo drilling program from the Mississippi only.

Note: Palo Pinto development and Mississippi/Caddo development can occur concurrently

Reserves

Proven

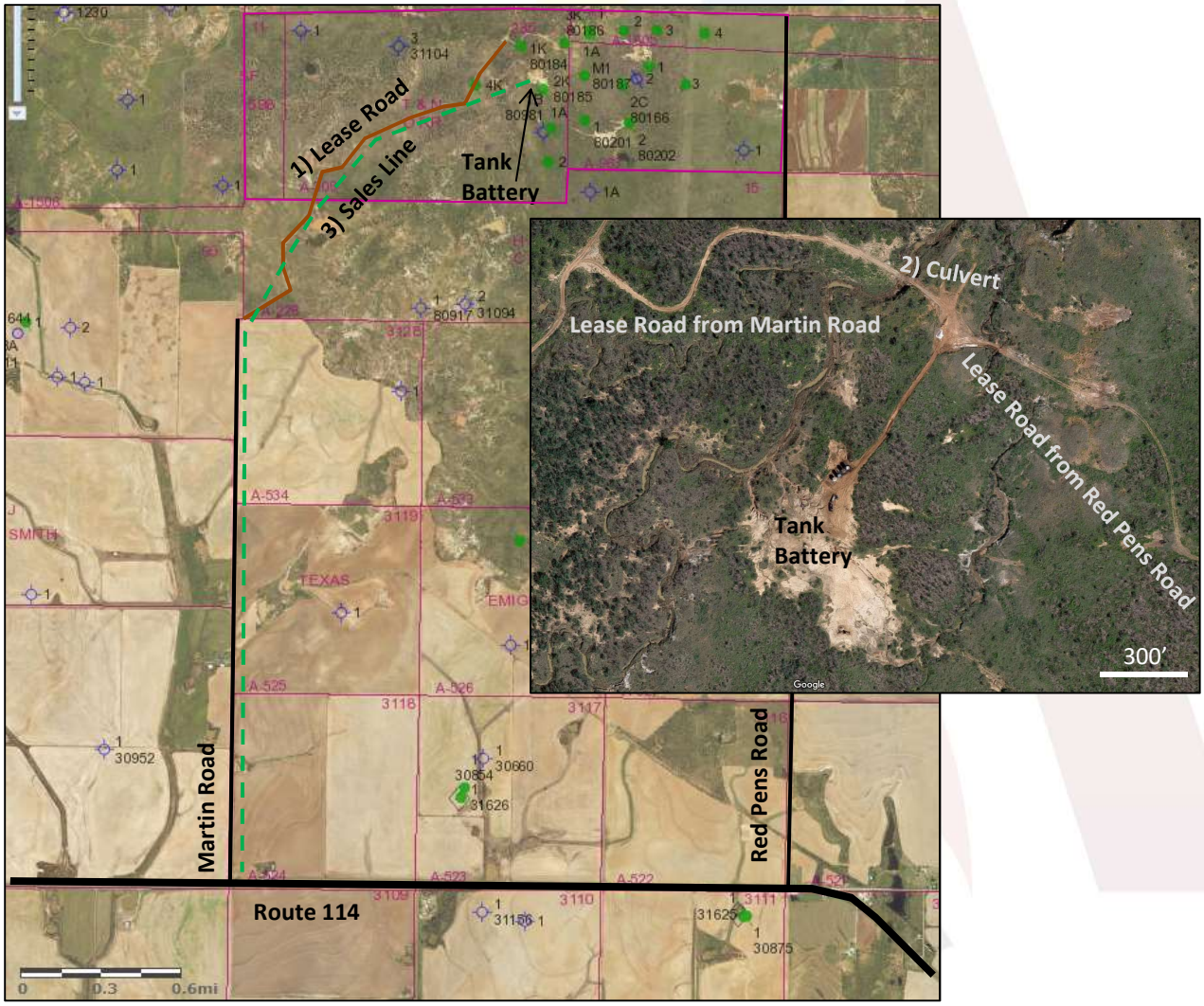
CT 51-101 Proven	Producing	Non-Producing	Undeveloped	Total Proved
Net Reserves of Properties				
Gas –MCF	0	0	0	0
Ct 51-101 Oil Bbls	**37,111**	**37,111**	**72,468**	**109,578**
CT 51-101				**after ROI**
NPV - 0 % ($)				
Oil/Gas (@$45.08.0/2.80)	$ 1,299,642	$ 1,299,642	$ 2,537,858	**$ 5,137,142**
NPV-10% ($)	$ 778,229	$ 778.229	$ 1,288,252	**$ 2,864,710**
CAPEX $ USD	**$ 0**	**$ 100,000**	**$ 1,147,420**	**$ 1,247,420**
SEC Proven				
Net Reserves of Properties				
Gas –MCF	0	0	0	0
SEC Oil Bbls	**37,418**	**37,418**	**73,857**	**111,275**
SEC NPV-10% ($)				**after ROI**
NPV-10% Value				
Oil/Gas (@ $ 48.05/2.80)	$ 1,025,083	$ 1,025,083	$ 2,023,346	**$ 4,073,512**
CAPEX $ USD	**$ 0**	**$ 100,000**	**$ 1,147,420**	**$ 1,247,420**

Probable

CT 51-101 Probable	Producing	Non-Producing	Undeveloped	Total Proved
Net Reserves of Properties				
Gas –MCF	0	0	0	0
CT 51-101 Oil Bbls	**0**	**0**	**289,872**	**289,872**
CT 51-101				**after ROI**
NPV - 0 % ($)				
Oil/Gas (@$45.08/2.80)	$ 0	$ 0	$ 10,151,434	**$ 10,151,434**
NPV-10% ($)	$ 0	$ 0	$ 6,078,703	**$ 6,078,703**
CAPEX $ USD	**$ 0**	**$ 0**	**$ 4,589,681**	**$ 4,589,682**
SEC Probable				
Net Reserves of Properties				
Gas –MCF	0	0	0	0
SEC Oil Bbls	**0**	**0**	**295,428**	**295,428**
SEC PV-10% ($)				**after ROI**
NPV-10% Value				
Oil/Gas (@ $ 48.05/2.10)	$ 0	0	$ 8,093,383	$ 8,093,383
CAPEX $ USD	**$ 0**	**0**	**$ 4,589,682**	**$ 4,589,682**

Notes:

1) Reserves are for <u>Palo Pinto Formation only from existing wells</u>
2) SEC price deck is **$48.05/BO** and $2.10/MCF
3) CT 51-101 price deck is **$45.08/BO** and $2.80/MCF

Facilities

Production facilities and access to the Green lease will have to be improved to accommodate increase in activity and production. The lease road (1) from Martin road is currently maintained by the ranch owner and local hunters. While it is sufficient for pick-up trucks it will need to be stoned in several places to allow regular traffic of equipment trucks and sales trucks. Concurrent with this effort a ramp and culvert will need to be build where the road crosses a stream (2). This stream is typically low energy and even dry at times but water level can rise by 2-4 feet during rains. This is enough to erode the lease road here. This can be mitigated with a simple buried culvert. Finally, the high production potential of the lease will ultimately require a more efficient way to sell oil. This can be achieved by burying a sales line (3) along the road to Route 114 and connecting to sales battery there with at least 500 BO of capacity.