Competent Persons Report for Certain Assets in Offshore Guyana

Prepared in accordance with the AIM Note for Mining and Oil and Gas Companies

Date of this Report: February 1, 2020

Prepared for:

ECO (Atlantic) Oil & Gas Ltd

Prepared By:

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Registered Petroleum Engineer
State of Colorado #34214

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1. EXECUTIVE SUMMARY

This report addresses the ECO (Atlantic) Oil and Gas Ltd ("ECO Atlantic", "ECO", "The Company") exploratory and discovered oil and gas assets in offshore Guyana. The assets owned by ECO Atlantic are summarized in **Table 1-1**. The report covers only the assets on the Orinduik Block offshore Guyana and does not cover The Company's assets in Namibia.

Table 1-1 Summary of Assets owned by ECO (Atlantic) Oil and Gas Ltd

Asset	Operator	Working Interest (%)	Status	Expiry Date	License Area (km2)[1]	Water Depth, meters
Orinduik Block	Tullow	15.0	Exploration	January 2026	1,800	70 to 1,450

This report is an update to the report dated March 15, 2019 and reflects a change in some of the parameters based on the results from the drilling of two of the Prospects, public information from offblock wells and additional Leads. Based on probabilistic estimates, the Gross (100%) and Net (15%) Unrisked Prospective Resources for the Orinduik Block offshore of Guyana in millions of barrels of oil equivalent ($MMBOE_6$) are listed below in **Table 1-2**. This is based on a 6:1 gas to oil equivalency. The Gross Unrisked Prospective Oil and Gas Resources are presented in **Table 1-3** and the Net Unrisked Prospective Resources for the Orinduik Block offshore of Guyana are listed in **Table 1-4** below.

Table 1-2 Gross and Net Barrels of Oil Equivalent Unrisked Prospective Resources

	Gross Prospective Oil Equivalent Resources, $MMBOE_6$			**Net Prospective Oil Equivalent Resources, $MMBOE_6$**		
Orinduik Block	Low Estimate	Best Estimate	High Estimate	Low Estimate	Best Estimate	High Estimate
TOTAL	2,614.6	5,141.3	9,313.8	392.2	771.2	1,397.1

[1] Approximate

Table 1-3 Gross Unrisked Prospective Resource Estimates for Orinduik Block

	Oil in Place, MMBbl			Total Oil Resources, MMBbl			Total Associated Gas Resources, BCF		
	Low Estimate	Best Estimate	High Estimate	Low Estimate	Best Estimate	High Estimate	Low Estimate	Best Estimate	High Estimate
Orinduik Block	9,353.8	18,001.9	31,696.6	2,315.0	4,537.0	8,178.7	1,797.8	3,625.8	6,810.5
TOTAL	9,353.8	18,001.9	31,696.6	2,315.0	4,537.0	8,178.7	1,797.8	3,625.8	6,810.5

(MMBbl = million barrels of oil; BCF = billion cubic feet)

Table 1-4 Net Unrisked Prospective Resource Estimates for Orinduik Block and Risk %

	Oil in Place, MMBbl			Prospective Oil Resources, MMBbl			Prospective Associated Gas Resources, BCF			Risk*
	Low Estimate	Best Estimate	High Estimate	Low Estimate	Best Estimate	High Estimate	Low Estimate	Best Estimate	High Estimate	**POS Range, %**
Orinduik Block	1,403.1	2,700.3	4,754.5	347.3	680.5	1,226.8	269.7	543.9	1,021.6	26.4 – 100
TOTAL	1,403.1	2,700.3	4,754.5	347.3	680.5	1,226.8	269.7	543.9	1,021.6	

(MMBbl = million barrels of oil; BCF = billion cubic feet)
* - Risk for each Lead and Prospect is detailed on page 23

The results from the drilling of the Jethro 1 and Joe 1 wells indicated the presence of oil and gas; however, the level of testing of these hydrocarbon accumulations was not sufficient to change the category of those resources from Prospective to Contingent. Note that these estimates do not include consideration for the risk of failure in exploring for these resources.

Prospective Resources are defined as "those quantities of petroleum estimated, as of a given date, to be potentially recoverable from undiscovered accumulations by application of future development projects. Prospective resources have both an associated chance of discovery and a chance of development. Prospective Resources are further subdivided in accordance with the level of certainty associated with recoverable estimates assuming their discovery and development and may be sub-classified based on project maturity." [2] There is no certainty that any portion of the resources will be discovered. If discovered, there is no certainty that it will be commercially viable to produce any portion of the resources. The Low Estimate represents the P_{90} values from the probabilistic analysis (in other words, the value is greater than or equal to the P_{90} value 90% of the time), while the Best Estimate represents the P_{50} and the High Estimate represents the P_{10}. The totals given are simple arithmetic summations of values and are not themselves P_{90}, P_{50}, or P_{10} probabilistic values.

[2] Society of Petroleum Evaluation Engineers, (Calgary Chapter): *Canadian Oil and Gas Evaluation Handbook, Third Edition*, August 2018, updated October 2019, pg. 13.

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2. INTRODUCTION

2.1 AUTHORIZATION

Gustavson Associates LLC (the Consultant) has been retained by ECO (Atlantic) Oil and Gas Ltd ("ECO Atlantic", "ECO", "The Company", "The Client") to prepare a Competent Persons Report for them prepared in accordance with the AIM Note for Mining and Oil and Gas Companies. This report covers only the assets on the Orinduik Block offshore Guyana and does not cover the Company's assets in Namibia.

2.2 INTENDED PURPOSE AND USERS OF REPORT

The purpose of this Report is to update the Client's Prospective Resources on their assets in offshore Guyana based on new and additional data analysis and future operations.

2.3 OWNER CONTACT AND PROPERTY INSPECTION

This Consultant has had frequent contact with the Client. This Consultant has not personally inspected the subject property.

2.4 SCOPE OF WORK

This report is intended to describe and quantify the Prospective Resources contained within the Orinduik Block in the offshore of Guyana that is subject to a petroleum license agreement with the government of Guyana.

2.5 APPLICABLE STANDARDS

This report has been prepared in accordance with Canadian National Instrument 51-101 and the AIM rules for Companies, which includes specifically the Note for Mining and Oil and Gas Companies. The National Instrument requires disclosure of specific information concerning prospects, as are provided in this Report. The Prospective Resources on the assets in Guyana have been estimated in accordance with the Petroleum Resources Management System 2018, as set out in Appendix A.

2.6 ASSUMPTIONS AND LIMITING CONDITIONS

The accuracy of any estimate is a function of available time, data and of geological, engineering, and commercial interpretation and judgment. While the interpretation and estimates presented herein are believed to be reasonable, they should be viewed with the understanding that additional analysis or new data may justify their revision. Gustavson Associates reserves the right to revise its opinions, if new information is deemed sufficiently credible to do so.

2.7 INDEPENDENCE/DISCLAIMER OF INTEREST

Gustavson Associates LLC has acted independently in the preparation of this Report. The company and its employees have no direct or indirect ownership in the property appraised or the area of study described. Mr. Kevin Weller is signing off on this Report, which has been prepared by him as a Qualified Reserves Evaluator, with the assistance of others on Gustavson's staff. Our fee for this Report and the other services that may be provided is not dependent on the amount of resources estimated.

3. DISCLOSURES REGARDING ASSETS

3.1 LOCATION AND BASIN NAME: GUYANA

The Guyana-Suriname Basin located in the northeastern offshore of South America off the countries of Venezuela, Guyana, Suriname and French Guiana (Figure 3-1). The Orinduik Block is located offshore of the country of Guyana in the Guyana-Suriname Basin (Figure 3-2).

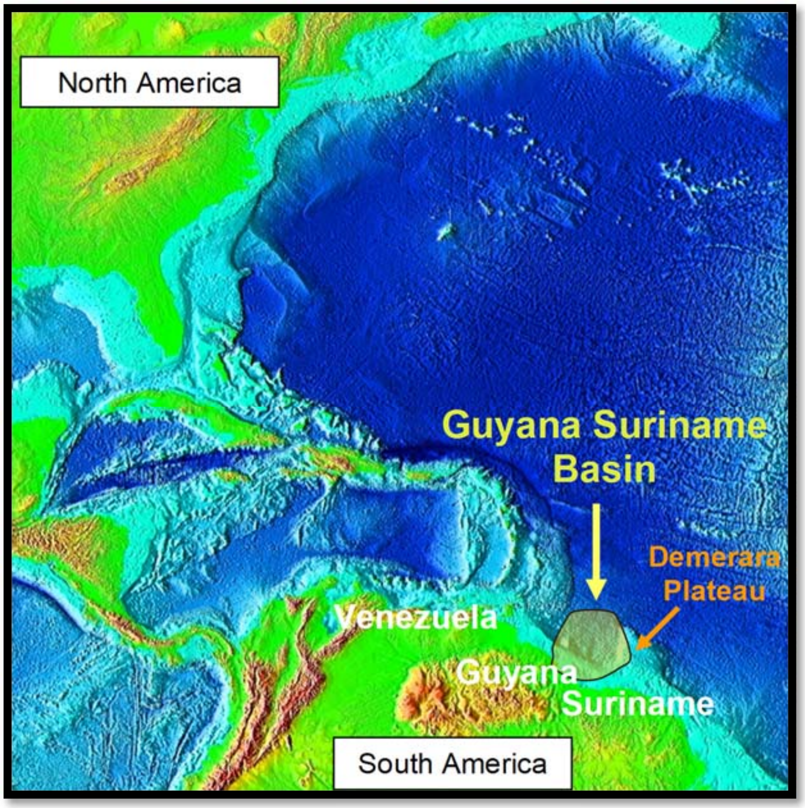


Figure 3-1 Location map of the Guyana Suriname Basin

The Guyana-Suriname Basin had been a lightly explored basin with eleven wells drilled between 1967 and 2000. Three additional wells were drilled between mid-2000 and 2012 but in 2015, activity increased dramatically with the Liza oil and gas discovery by ExxonMobil in the Stabroek Block, which is adjacent to the Orinduik Block. As of the date of this report, ExxonMobil has discovered 16 accumulations of oil and gas including the Hammerhead that is located seven kilometers east of the Orinduik block. In addition, Tullow has drilled two successful wells in

Orinduik Block known as the Jethro 1 and the Joe 1 wells and Repsol has drilled a successful Cretaceous well, the Carapa 1, to the south. The potential for large conventional accumulations in stratigraphic and subtle structural traps in this area has been proven with recent drilling with an estimated 9.5 Billion Barrels of oil equivalent in the Stabroek Block and 5.1 Billion Barrels of oil equivalent in Orinduik Block. The basin is characterized by moderate to high-risk, high-reward exploration potential in a low-risk, favorable political and economic environment.

3.1.1 Gross and Net Interest in the Property

The Orinduik Block license area is 1,800 square kilometers (444,789 acres) where ECO Guyana Inc., after buying out the minority interest partners, had a 40.0% net working interest (WI) (Figure 3-2). ECO sold a 25.0% Working Interest on 28 November 2018 to Total E&P Activités Pétrolières SA (Total) a subsidiary of Total Petroleum for US$ 12.5MM to reduce the ECO interest to 15.0%. Based on recent reports, Total Petroleum has in turn sold 40% of their 25% stake in the block to Qatar Petroleum. Tullow Oil Plc (Tullow) is the designated Operator holding the remaining WI and has carried ECO Guyana Inc. for a portion of the initial exploration program work commitment. ECO Guyana Inc. is owned 100.0% by ECO (Guyana) Barbados Ltd. who in turn is wholly owned by ECO (Atlantic) Oil and Gas Ltd.

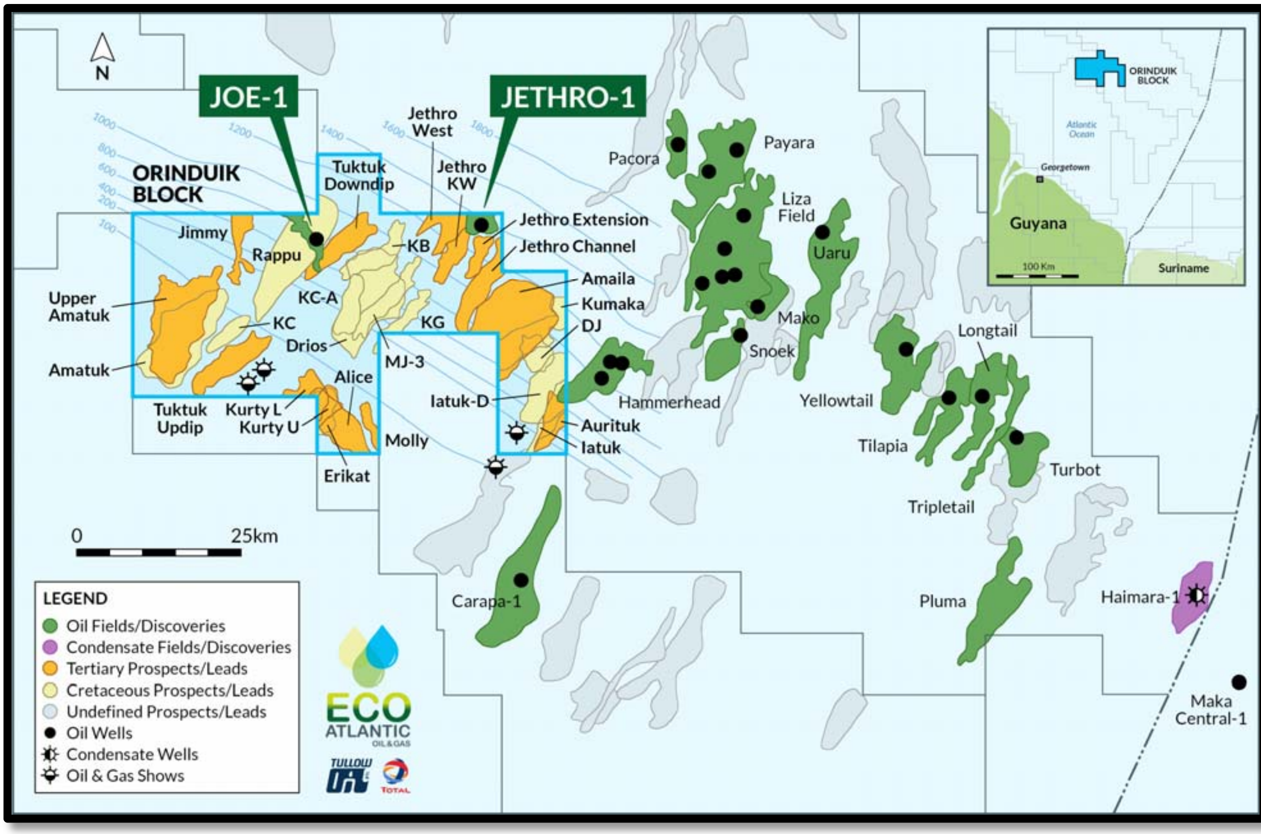


Figure 3-2 Index map of Offshore Guyana Orinduik Block

3.1.2 Expiry Date of Interest

The license was awarded in January 2016 for an initial term of four years in which the work obligations were to review the existing 2D seismic data and by the end of the fourth year acquire and process a 3D seismic survey over the area of interest. The partners, to date, have fulfilled these obligations and in addition have drilled 2 wells. The partners have approved the license entry into the First Three Year Renewal Period on 14 January 2020 that includes an obligation to drill one exploration well, which has been fulfilled with the drilling of the Jethro #1 well and therefore no part of the block has to be relinquished. The Second Three Year Renewal Period that would commence in January 2023 has a 20% Relinquishment requirement.

3.1.3 Range of Water Depths

The Orinduik Block has water depths ranging from less than 300 meters to the southwest to 1,450 meters to the northeast. (Figure 3-2). The majority of the block is in water depths of less than 500 meters.

3.1.4 Description of Target Zones

The Guyana-Suriname Basin is a passive margin basin resulting from the Jurassic aged rifting apart of Africa and South America followed by Cretaceous time drifting of the continents to form the Atlantic Ocean. The basin has received clastic deposits in shelf, slope, and basin depositional environments during the Cretaceous to Recent times. The Guyana basin has more than 7,000 meters of sedimentary fill in certain areas.

The target reservoir rocks for the Orinduik Block are sandstones deposited as shelf margin, channel fill and overbank deposits, slope and basin turbidite fans as well as carbonates in the form of reefs and shallow water limestones. These rocks are of Cretaceous and younger age and are expected to be similar to the Cretaceous and Tertiary age reservoirs discovered on the neighboring Stabroek Block by ExxonMobil at Liza, Liza Deep, Payara, Pacora, Ranger, Snoek, Longtail, Pluma, Haimara, Hammerhead, Tripletail, Yellowtail, Uaru, Mako and Turbot. These sandstones and limestones are interbedded and capped with shales and marls, which provide seals to these reservoir units. The relative positions of the current discoveries including the Tertiary Hammerhead, Joe and Jethro fields and the Cretaceous Liza and Carapa fields and certain leads are seen in the cross section in Figure 3-3. The Tertiary sandstones discovered by the Jethro 1 and Joe 1 wells are made up of high quality well sorted sands.

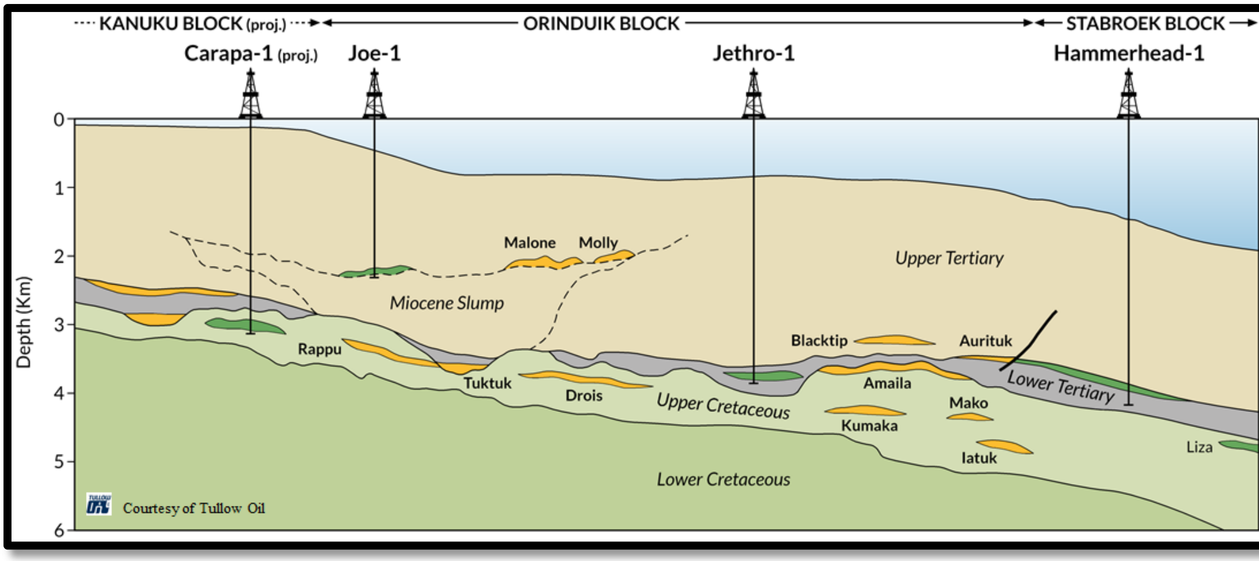


Figure 3-3 Schematic of Major Discoveries (courtesy of Tullow Oil Plc)

The Upper Cretaceous section includes Slope Channel Complex deposits, which are dependent on stratigraphic pinchouts as well as well-developed basin floor fan deposystems. Additional targets are characterized as terraced slopes where sand has 'pooled' in a flat spot or a gradient change along the slope (Figure 3-4). The Liza sand fan complex analog has been identified as being specifically Maastrichtian in age in the Late Cretaceous. The Hammerhead discovery less than 7 kilometers east of the Orinduik Block boundary and the Jethro 1 and Joe 1 wells have proven that the Tertiary section has commercial accumulations of hydrocarbons in stratigraphic sand traps. Figure 3-5 shows the relative positions of the various Orinduik, Stabroek and Kanuku Block leads, prospects, and discoveries.

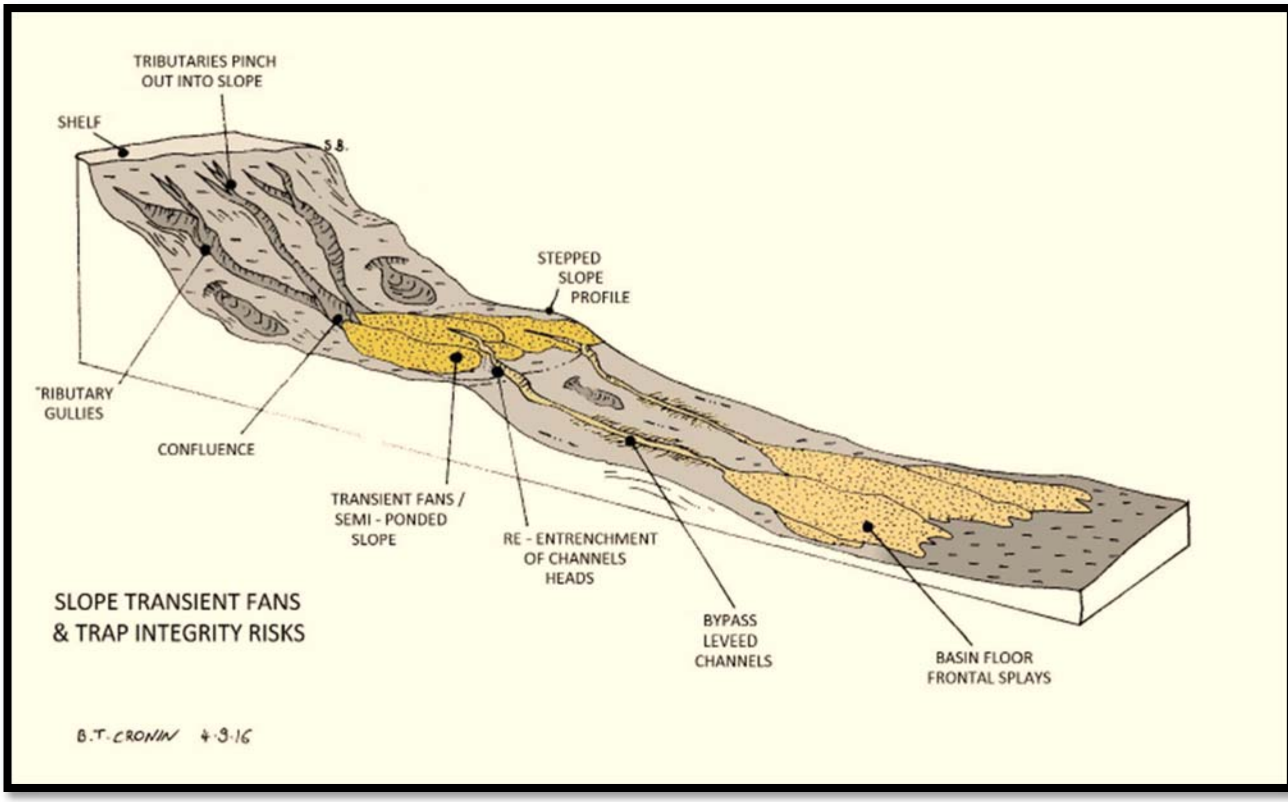


Figure 3-4 Diagram of Terraced or Stepped Slope Sand Accumulations

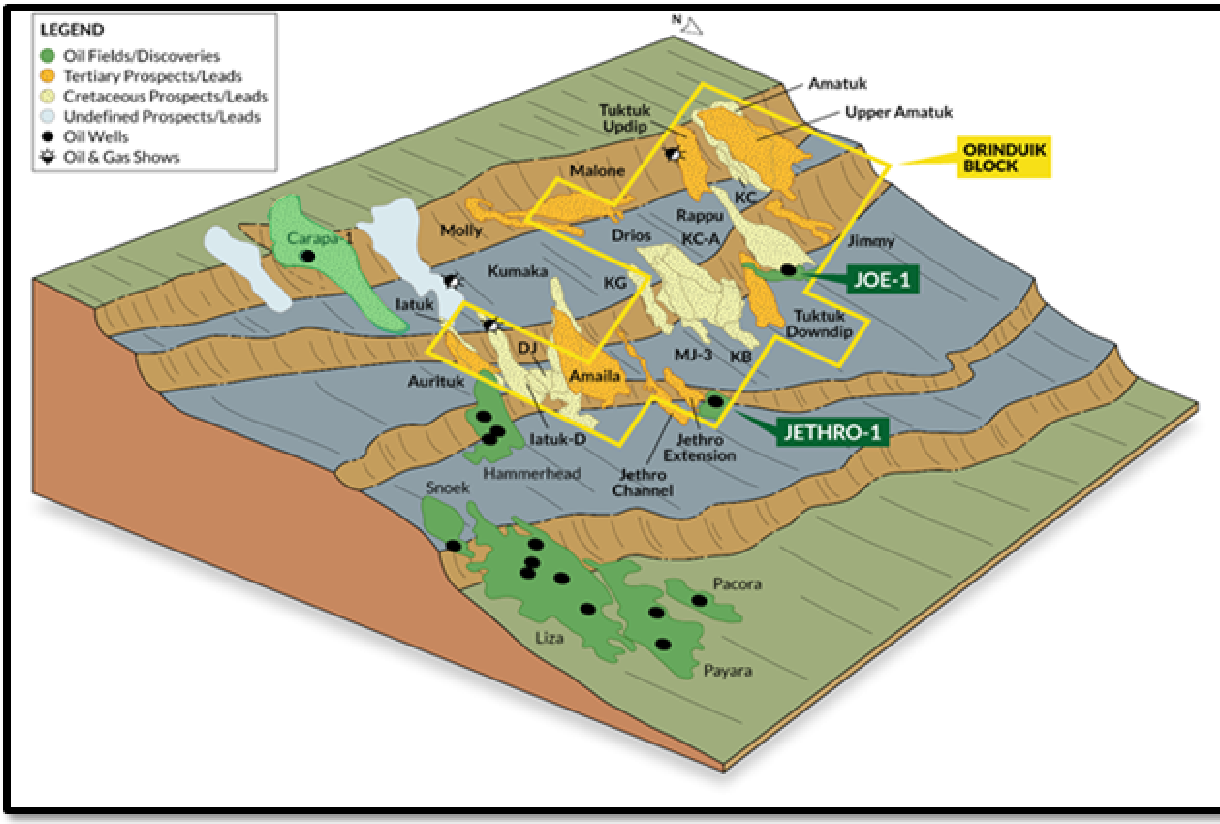


Figure 3-5 Relative Positions of the Orinduik, Stabroek and Kanuku Block Leads and Discoveries

3.1.5 Distance to Nearest Commercial Production

The nearest current hydrocarbon production is located to the north from the Liza Field on ExxonMobil's Stabroek Block and southeast, onshore in Suriname in the Tambaredjo field and the adjacent Calcutta field just to the west. The ExxonMobil has initiated production in the Liza Field in December 2019 at a rate of 25,000 BOPD as reported by Hess. The Tambaredjo, Tambaredjo Northwest and Calcutta fields that are located onshore in Suriname are currently producing 16,000 BOPD from an estimated STOIIP of 1 billion barrels.[3] These fields are more than 300 kilometers southeast of the prospective area.

[3] http://opportunities.staatsolie.com/en/geology-of-the-guyana-suriname-basin

The discovery by ExxonMobil of Liza, Liza Deep, Payara, Pacora, Ranger, Snoek, Longtail, Pluma, Haimara, Hammerhead, Tripletail, Yellowtail, Mako, Uaru and Turbot fields which are just to the east and north of the Orinduik Block is reportedly significant with more than 9.5 Billion barrels

Table 3-1 of recoverable oil equivalent resources contained in thick oil bearing Upper Cretaceous and Tertiary sandstone and limestone reservoirs. The map below (Figure 3-6) shows the location of each field discovered on the Stabroek Block at the time of this report. The Hammerhead discovery, which is less than 7 kilometers away from the Orinduik Block boundary, found a significant oil sand in the Tertiary aged section. The Liza Phase 1 development, sanctioned June 2017, is progressing rapidly, with first production started in December 2019. Liza Phase 1 will consist of 17 wells connected to a floating production, storage and offloading (FPSO) vessel designed to produce up to 120,000 barrels of oil per day, currently production is 75,000 barrels per day. The second phase of the Liza development will utilize a second FPSO with gross production capacity of approximately 220,000 barrels of oil per day, with start-up expected by mid-2022. Planning is underway for a third phase of development, which is targeted to be sanctioned in 2020 and will use an FPSO designed to produce approximately 180,000 barrels of oil per day, with first production as early as 2023. Up to five production units are expected to be online by 2025 with production of 750,000 barrels of oil per day anticipated.

The Jethro 1 and Joe 1 discoveries on the Orinduik block are currently being evaluated by the operator for future development.

Table 3-1 ExxonMobil Discovery Summary on Stabroek Block (Source: ExxonMobil)

Exhibit 2: We estimate total gross resource potential in Guyana from existing discoveries at about 9.5 bn BOE, vs. management guidance of >6 bn BOE (which does not incorporate most recent discoveries)

	Thickness (feet)	Gross size (K acre-feet)	Yield (BOE/acre-ft)	Gross size (MMBOE)
Liza discovery	295	7,906	225	1,639
Payara discovery	95	2,375	225	534
Pacora discovery	65	1,625	225	366
Longtail discovery	256	6,400	175	1,120
Snoek	82	2,050	225	461
Turbot discovery	75	1,875	225	422
Ranger discovery	230	5,750	175	1,006
Hammerhead discovery	197	4,925	175	862
Pluma	121	3,025	175	-
Tilapia discovery	305	7,625	175	1,334
Haimara discovery	207	5,175	175	-
Yellowtail dcovery	292	7,300	175	1,278
Tripletail discovery	108	2,700	175	473
Total		**58,731**	**162**	**9,495**

Note: We are currently not giving credit to Pluma/Haimara discoveries, as they are gas condensate vs. oil, pending greater discloarue on resource/economics of gas condensate

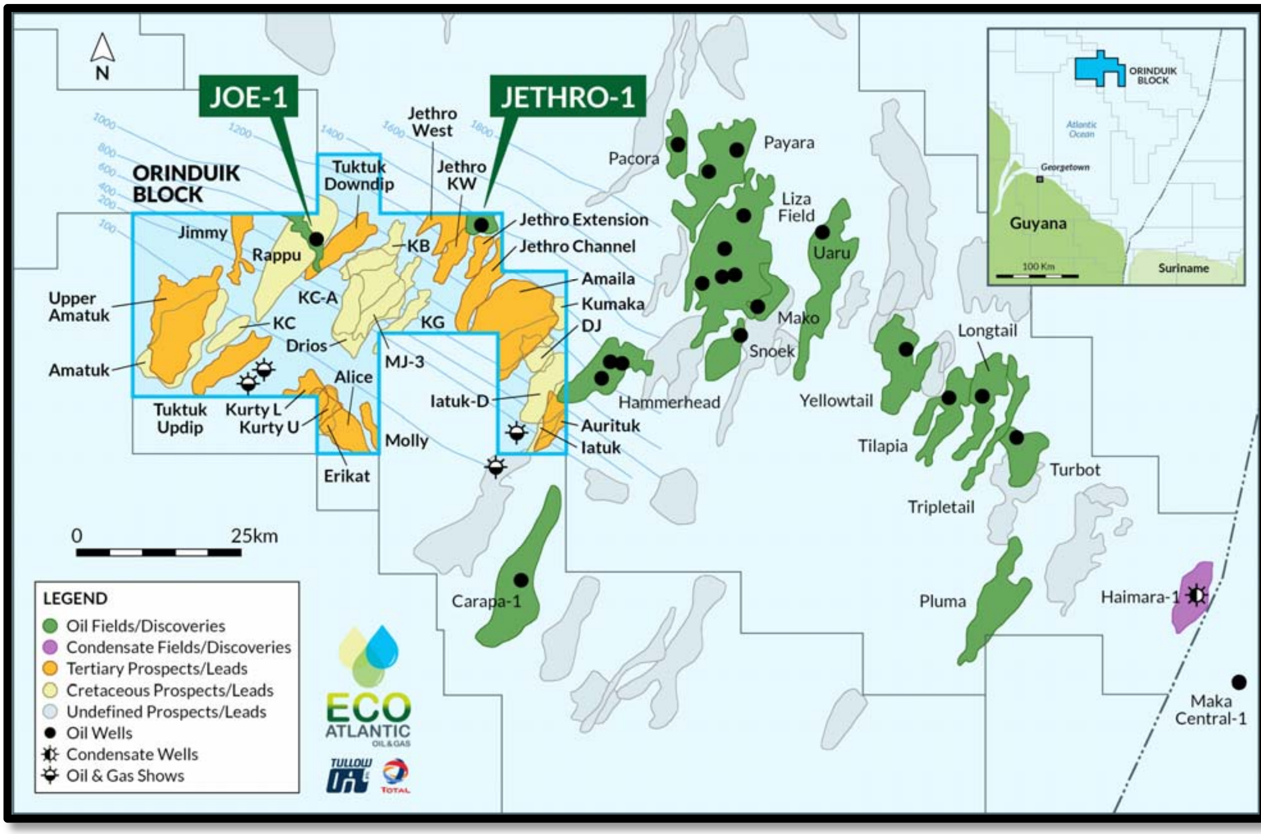


Figure 3-6 Index Map of Orinduik Block Discoveries and Proximity to ExxonMobil Discoveries

3.1.6 Product Types Reasonably Expected

Oil and associated gas in the Tertiary have been encountered by Tullow Oil, the operator, on the Orinduik Block based on the Jethro and Joe discoveries on Orinduik Block. The oil from these discoveries is reported by the operator to be similar to the ExxonMobil Hammerhead oil, in the 12^{o} to 15^{o} API range although a Final PVT analysis has not been provided by the operator at the time of this report. In addition, the Repsol Carapa 1 well located less than 40 kilometers southeast of the Hammerhead area and 55 kilometers south of the Jethro well has discovered 27^{o} API oil in the Cretaceous.

Unconventional oils - mainly heavy oils, extra heavy oils and bitumens - represent a significant share of the total oil world reserves. Oil companies have expressed interest in unconventional oil as alternative resources for the energy supply. These resources are composed usually of viscous oils and, for this reason, their use requires additional efforts to guarantee the viability of the oil recovery from the reservoir and its subsequent transportation to production wells and to ports and refineries.[4] The use of diluents such as diesel oil can aid in the producibility and marketing of heavy oils.

3.1.7 Range of Pool or Field Sizes

The current leads in this report are based on areas from maps derived from the interpretation of the time and depth 3D seismic data and the areas range from 95 to 0.75 square kilometers. These areas are the parameters used in the estimate of the Prospective Resources in this report.

3.1.8 Depth of the Target Zones

The depth ranges for the target zones for the leads described in this report are based on the PSDM 3D seismic data, where available, and estimated by converting time to depth for the leads on the PSTM data. These depths, which are the parameters used in the estimate of Prospective Resources range from 1,425 to 5,150 meters.

3.1.9 Identity and Relevant Experience of the Operator

Tullow Oil Plc is the designated operator of the Orinduik Block. Tullow is an independent international oil and gas company headquartered in London UK. Tullow has over 30 years of experience in the exploration and development to production of offshore and onshore assets around the world. Tullow has had numerous meetings with the partners relative to the ongoing technical work and has provided the seismic data products utilized in the interpretations.

[4] AN OVERVIEW OF HEAVY OIL PROPERTIES
AND ITS RECOVERY AND TRANSPORTATION
METHODS; R. G. Santos1*, W. Loh2, A. C. Bannwart3 and O. V. Trevisan3

ECO (Atlantic) Oil and Gas Ltd, with a team of highly experienced exploration scientists and technologists has operated its own offshore 2D and 3D seismic surveys on behalf of the Company and its partners.

3.1.10 Risks and Probability of Success

The recent drilling activity has confirmed the presence of accumulations of hydrocarbons in the Tertiary section on Orinduik Block; however, the data from the Cretaceous discoveries on Stabroek and Karapa blocks is limited to publicly available information. The discovery of oil in the Cretaceous section updip to the Orinduik Block mitigates some of the risk in the subject Cretaceous leads; however, they still have a relatively higher level of risk compared to the Tertiary because of the results from the two discoveries on Orinduik. The available database is limited to several 3D seismic data sets and derivatives, the incomplete data from the new wells and the information from the few 'legacy' wells drilled in the area and public information. The lead sections, Upper to Lower Cretaceous and Tertiary, have been evaluated in several wells drilled in the area with oil shows and reservoir quality rock present. The wells drilled by ExxonMobil have reportedly found hydrocarbons in the Upper Cretaceous and Tertiary and confirmed by Tullow; and commercial production by ExxonMobil is expected to commence in the immediate area as of the date of this report. The quantification of risk or the chance of finding commercial quantities of hydrocarbons in any single lead for the plays in this area can be characterized with the following variables:

Trap: defined as the presence of a structural or stratigraphic feature that could act as a trap for hydrocarbons;

Seal: defined as an impermeable barrier that would prevent hydrocarbons from leaking out of the structure;

Reservoir: defined as the rock that is in a structurally favorable position having sufficient void space present whether it be matrix porosity or fracture porosity to accumulate hydrocarbons in sufficient quantities to be commercial; and

Presence of Hydrocarbons: defined as the occurrence of hydrocarbon source rocks that could have generated hydrocarbons during a time that was favorable for accumulation in the structure.

The Probability of Success (POS) or favorability that the above defined variables would occur and the Overall POS for any single Lead is the product of all four variables.

Due to the stratigraphic nature of the traps, the predominant risks in the subject block relate to the presence of intact seals both vertical and lateral, and the quality of the reservoir rock for the creation of commercial accumulations of oil and gas. This range of risk values is typical of leads for wildcat exploratory prospects where data is scarce but commercial hydrocarbons have been discovered in the same environmental system nearby. The variations in POS numbers are generally based on the type of seismic data that support the Leads and Prospect. There is higher confidence in the leads interpreted and modeled on the various data that was calibrated to the Hammerhead discovery.

Table 3-2 shows the Orinduik Leads and the resulting Probability or Chance of Success in percent based on the risk variables. Table 3-3 is a list of the Orinduik Leads with the Minimum, Most Likely, and Maximum areas in square kilometers along with the Gross Unrisked (P50) Prospective Oil Resources in MMBOE6 and the associated risk.

Table 3-2 Leads with Probability of Success Values, in %

Lead	KB (Cret)	DJ (U Cret)	KG (U Cret)	Jethro Ch (Tert)	Amaila/Kumaka (U Cret)
Trap	70.00%	70.00%	80.00%	70.00%	80.00%
Seal	50.00%	50.00%	50.00%	90.00%	50.00%
Reservoir	80.00%	75.00%	70.00%	70.00%	70.00%
Presence of HC	100.00%	100.00%	100.00%	100.00%	100.00%
Overall	28.00%	26.25%	28.00%	44.10%	28.00%
Lead	KC (U Cret)	EriKat (U Cret)	Amatuk (U Cret)	MJ-3 (U Cret)	Jimmy (Tert)
Trap	80.00%	90.00%	80.00%	80.00%	95.00%
Seal	50.00%	60.00%	50.00%	50.00%	85.00%
Reservoir	60.00%	60.00%	60.00%	60.00%	80.00%
Presence of HC	100.00%	100.00%	100.00%	100.00%	100.00%
Overall	24.00%	32.40%	24.00%	24.00%	64.60%
Lead	Jethro Ext (Tert)	Rappu (U Cret)	HH (Tert)	Kurty L (Tert)	Kurty U (Tert)
Trap	90.00%	70.00%	90.00%	90.00%	90.00%
Seal	60.00%	60.00%	90.00%	80.00%	80.00%
Reservoir	80.00%	60.00%	100.00%	60.00%	60.00%
Presence of HC	100.00%	100.00%	100.00%	100.00%	100.00%
Overall	43.20%	25.20%	81.00%	43.20%	43.20%
Lead	KC-A (U Cret)	Joe (Tert)	Jethro (Tert)	Alice (Tert)	Iatuk-D (U Cret)
Trap	80.00%	100.00%	100.00%	80.00%	80.00%
Seal	50.00%	100.00%	100.00%	60.00%	50.00%
Reservoir	60.00%	100.00%	100.00%	90.00%	70.00%
Presence of HC	100.00%	100.00%	100.00%	100.00%	100.00%
Overall	24.00%	100.00%	100.00%	43.20%	28.00%

Table 3-3 Orinduik Block Leads and Areas and P50 Gross Unrisked Prospective Resources with POS

Lead	Minimum (P90) km^2	Most Likely (P50) km^2	Maximum (P10) km^2	Gross Unrisked Prospective Oil Resources (P50) MMBOE6	Risk POS%
Jethro	8	15	21	208.3	100.0%
Hammerhead	0.75	1	1.5	15.0	81.0%
Joe	5	12	27	104.4	100.0%
Rappu	35	65	95	500.1	35.1%
Jethro Ext	2	5	7	53.8	43.2%
KB	17	27	43	339.6	31.5%
DJ	14	24	30	173.9	33.7%
KG	17	30	34	724.7	31.2%
Amaila/Kumaka	32	51	77	775.8	31.5%
Iatuk-D	37	50	73	725.3	31.2%
KC	6	11	15	47.5	26.4%
Amatuk	35	68	90	267.3	28.8%
MJ-3	18	25	37	263.5	28.8%
Jimmy	6	12	18	68.4	64.6%
KC-A	7	9	12	73.8	26.4%
Jethro Chan	8	11	16	137.3	41.7%
EriKat	6	10.5	15	45.1	30.6%
Alice	8	23	47	196.7	31.2%
Kurty U	1.5	5.7	9.9	42.8	29.7%
Kurty L	3	8.8	14.5	35.8	29.7%
Jethro KW	8	14	19	158.5	33.6%
Jethro West	12	16	20	183.8	33.6%

Several additional leads have been identified by ECO and their partners, which have not been evaluated at the time of this report.

3.1.11 Future Work Plans and Expenditures

The partners are evaluating the results after the drilling of the Tullow Jethro #1 and Joe #1 wells. These wells were drilled by the Stena Forth Drillship (Figure 3-7). The data collected is currently still being analyzed and the results of the analyses will play a large part in the final plan of action and budget for 2020 and 2021. The current proposal includes further evaluation of the Jethro reservoir by sidetracking the current well or drilling a new delineation well and the drilling of a new well that would test the Cretaceous on the block. These options will be reviewed by the partners in the first quarter of 2020 and will be subject to the approval of the operating committee. Future operations will need to be based in Georgetown, Guyana due to new Guyanian regulations which will result in the construction of marine facilities at an estimated cost to the partners of US$1.2 MM.

Figure 3-7 The Stena Forth Drillship – Sister Drillship to the Stena Carron

3.1.12 Market and Infrastructure

Infrastructure for the transport and marketing of hydrocarbons is currently present as of December 2019 in the form of a floating production storage and offloading (FPSO) unit on the large oil discovery known as Liza on the Stabroek Block by ExxonMobil. Additional FPSO facilities are planned by ExxonMobil and current and future discoveries in Orinduik and Kanuku as well as nearby in Suriname will spur development of more extensive offshore production networks to bring that crude and associated gas to market. Other strategies could have produced oil stored either in a Fixed Storage Platform (FSP) or a guyed or anchored Floating Storage and Offloading (FSO) tanker. Oil would then be transported by tanker from the FPSO, FSO or FSP to markets in North America, Europe, Asia, or South America.

3.1.13 Petroleum Systems

Oil production from the onshore Tambaredjo, Tambaredjo Northeast and Calcutta fields and that of the newly discovered Liza field indicate that a proven active petroleum system (Magoon, 1988) or systems are present in the Guyana-Suriname Basin.

Two source rock intervals have been identified in the Guyana-Suriname Basin, the Upper Albian to Santonian Canje Formation and an unnamed Jurassic interval. Oils in the Tambaredjo, Tambaredjo Northwest, and Calcutta fields located onshore in Suriname have been sourced from rocks in the Canje Formation.[5] The Canje Formation is presently in the oil window in the offshore Guyana and Suriname area (Schwarzer and Krabbe, 2009) (Figure 3-8). Significant oil generation from this source rock began during the Late Paleocene and continues.

The Canje Formation source rock consists dominantly of organic-rich black mudstones with Total Organic Carbon (TOC) contents ranging from 2% to 5%. Values as high as 20% have been measured in equivalent Cenomanian to Santonian age black mudstones drilled during ODP Leg 207 (Erbacher, 2004) on the Demerara Plateau. Source rocks are dominantly algal Type II marine organic material with increasing terrestrial components in nearshore locations. Equivalent age source rocks of the Guyana Suriname Basin are now within the oil generation window with many ‘shows’ of oil and gas from several wells indicating the presence of hydrocarbons (Ginger, 1990). In this portion of the Guyana Suriname basin, the top of the oil window may be near 3,500 meters based on a locally higher thermal gradient than other areas in the basin. The mature pod of Cretaceous source rocks is located offshore in an area of the basin along the Guyana and Suriname coast (Figure 3-8). This source rock is up to 550 meters thick. Migration to the producing oil fields onshore has been primarily lateral and updip for 100 to 150 kilometers (Ginger, 1990; Staatsolie.com, 2016).

[5] http://opportunities.staatsolie.com/en/geology-of-the-guyana-suriname-basin/petroleum-systems/

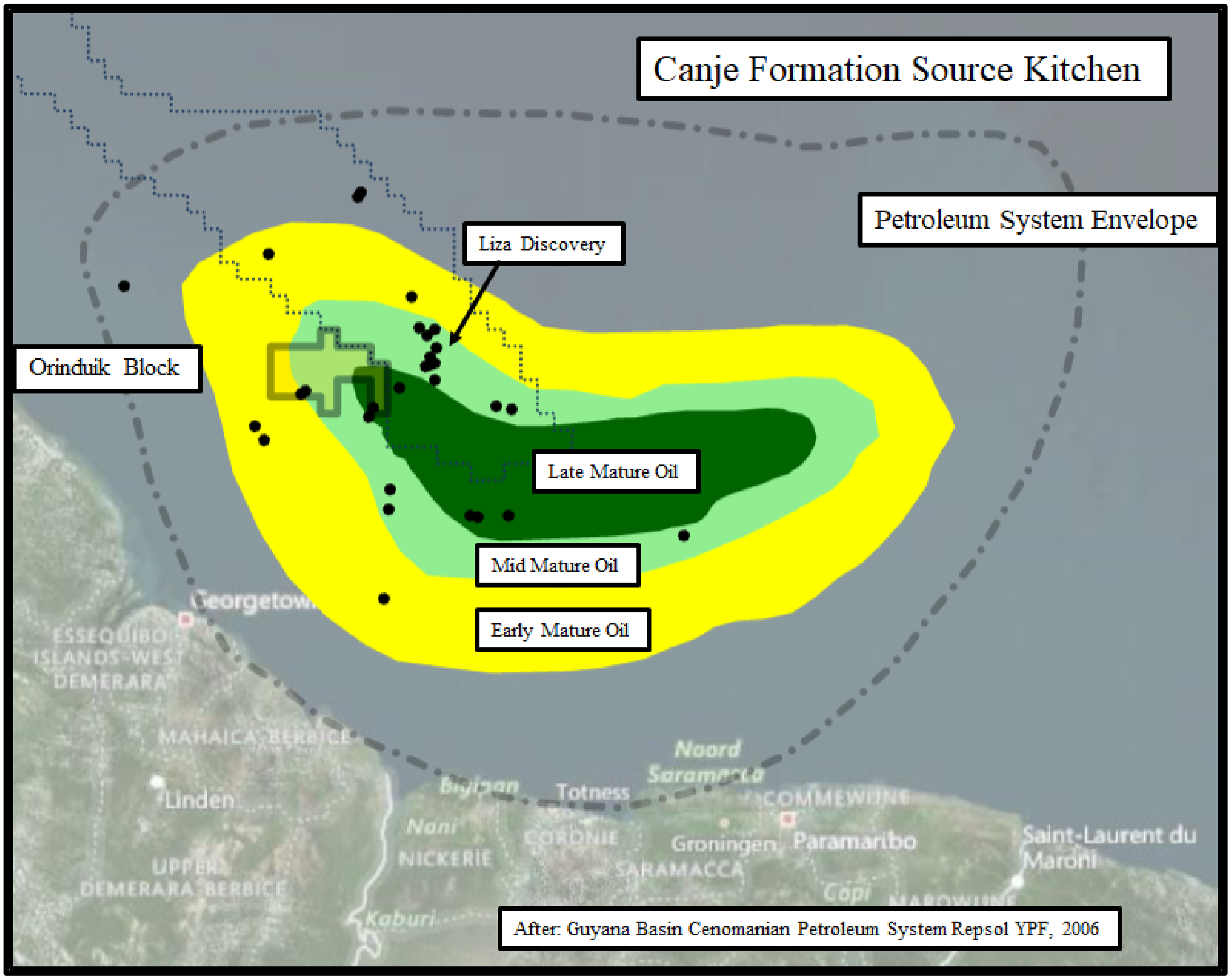


Figure 3-8 Map of Offshore Suriname Showing Mature Canje Formation Source Rock Maturation Level

Evidence of Jurassic source rocks in the basin comes from analysis of oil in Suriname that is unlike the Cretaceous sourced oil (Bihariesingh, 2014). These Jurassic source rocks are interpreted to have been deposited in pre-rift and rift depositional environments. These rocks include lacustrine shales with Type I oil-prone organic material. More than one rift half-graben may be present under the basin where lacustrine or restricted marine source rocks are mature and generating oil.

Based on the results from the Hammerhead in Stabroek Block and the Jethro and Joe wells on Orinduik Block that have a different type of oil in the Tertiary than that found in the Cretaceous in the Carapa well and the Cretaceous discoveries in Stabroek there is likely additional source rocks that have not been fully identified in the Tertiary interval. The Tertiary section appears to have a low gravity (12º to 18º API) high sulfur oil where the Cretaceous has a higher gravity (27º to 32º API) and low sulfur oil as seen in the Carapa well south of Orinduik and Liza north of Orinduik.

3.1.14 Analogous Fields

3.1.14.1 Tertiary

Several offshore fields in Brazil with heavy oil have been put on production or are being developed. These include:

- Atlanta Field Brazil – The field is being developed with high (88 degree) angle wells and will utilize ESP's to produce the 14º Gravity API high viscosity oil. The FPSO selected for the EPS will have a 180,000 Bbl storage capacity and 30,000 BOPD processing capacity. Average expected production rate is 12,000 BOPD per well.
- Marlim Sul Field Brazil in 402 m water Depth; 16º to 20º API; Reservoir depth 2,808 meters; Peak rate 200,000 BO/D
- Jubarte Field Brazil – 1,500 m WD; 17º API;
- Parque de Conchas Brazil – 1,752 m WD; 17º API; 886 m reservoir depth
- Peregrino Field Brazil – 100 m WD; 14.5º API; 2,250 m reservoir repth; FPSO; horizontal wells with a 2,000 m lateral; over 74,000 b/d peak production started April 2011

A comparable field in the North Sea would be the Mariner Field UK with 110 meter WD; 14º API; 1,492 m reservoir depth.

3.1.14.2 Cretaceous

ExxonMobil has discovered several accumulations of oil and gas in the Cretaceous in the neighboring Stabroek Block. The Liza fields and other discoveries in Stabroek establish the presence of hydrocarbon accumulations in the area with 32.1º API low sulfur oil and in the Repsol Carapa well located south of Orinduik which has 27º API low sulfur oil, based on preliminary reports.

3.1.15 Exploration History for the Offshore of Guyana

Exploration activity in the offshore of Guyana began in 1958 when the California Oil Company conducted seismic surveys but did not drill a well. The first wells in the Guyana offshore area was drilled by Conoco and Tenneco in 1967. The Guyana Offshore #1 well encountered gas shows while the subsequent Guyana Offshore #2 well was a dry hole. Shell and Conoco drilled the Berbice #1 well in 1971 that had oil and gas shows in the Miocene but was abandoned after a gas kick at 2,171 meters (7,124 feet) in the Eocene. The Berbice #2 well found minor gas shows and oil stains in the Pliocene and Oligocene. Shell drilled the Mahaica #1 and #2 wells in 1974 with no success. In 1975, Shell drilled the Abary #1 well which found oil and gas shows and flowed 37^{o} API oil from a turbidite at a depth of 3,990 meters (13,091 feet). Deminex drilled the Essequibo #1 well which had several oil and gas shows in the Miocene and Upper Cretaceous in 1977 but the subsequent well, the Essiquibo #2 drilled nearby had only minor shows of methane in the Upper Cretaceous. The Essiquibo wells and the Berbice wells were located on the extreme southern part of the Orinduik Block. The Arapaima #1 was drilled by Total in 1992 with gas tested in the Lower Cretaceous. In mid-2000, CGX Energy was prepared to drill the Eagle #1 well but the rig had to abandon the location because a Surinamese gunboat threatened to fire on it. The rig was moved to the Horseshoe West #1 location closer to shore which was abandoned as a dry hole. Drilling activity resumed in 2012, after the 2007 agreement between Guyana and Suriname to resolve the border dispute, with the drilling of the Eagle #1 and Jaguar #1 wells. The Eagle well found reservoir quality sands with shows of hydrocarbons in the Eocene and Upper Cretaceous while the Jaguar well was abandoned due to unexpected high pressures encountered in the well. ExxonMobil then drilled the Liza #1 well which discovered commercial quantities of oil and gas in 2015 in the Stabroek Block, which is adjacent to the Orinduik Block. This discovery was followed by several additional successes which resulted in an estimated recoverable resource of 4 billion oil-equivalent barrels. ExxonMobil has drilled over 18 wells with 16 discoveries to date on the Stabroek Block including the Hammerhead #1 well and has initiated production from the Liza field as of December 2019 and plans to further develop the discovered fields and continue exploratory drilling.

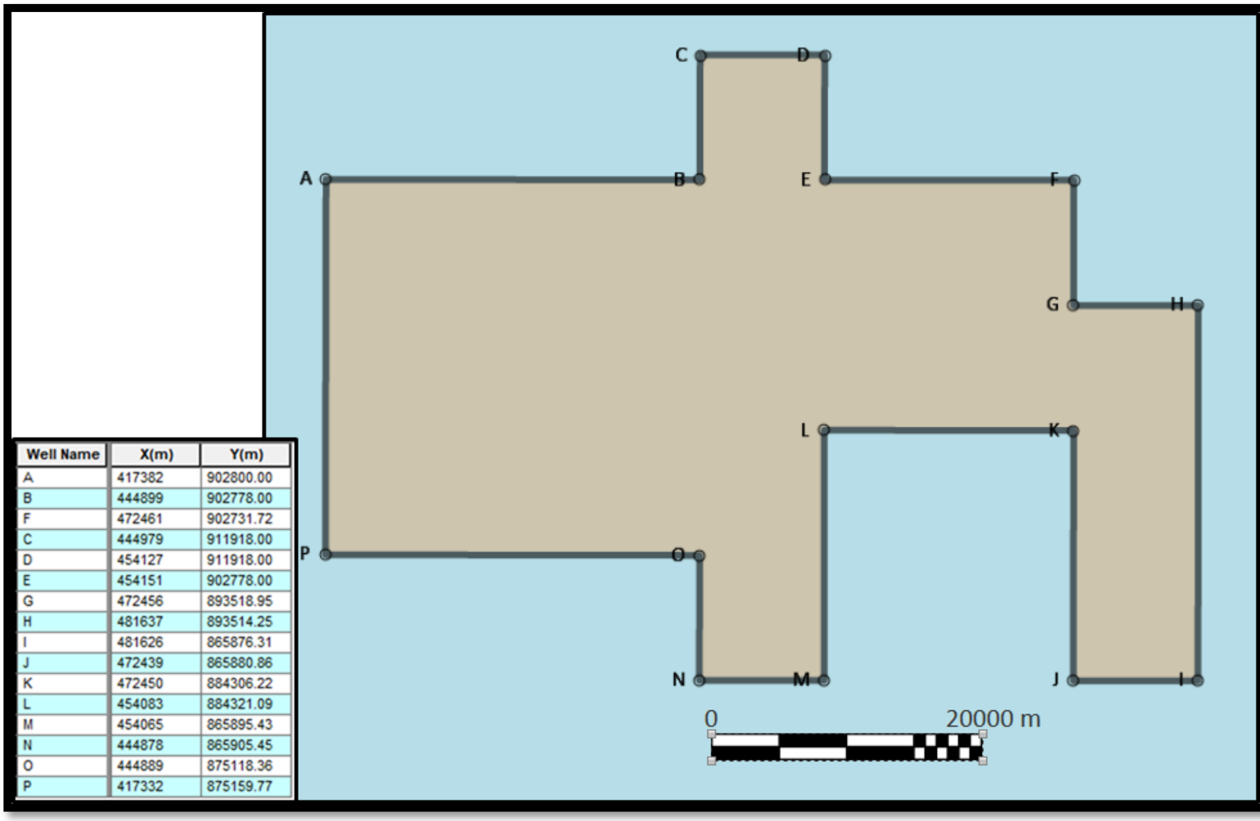
Tullow Jethro #1 well was drilled in a Water Depth of 1,364 meters to a TD of 4,400 meters. The well was spud on 4 July 2019 using the drillship Stena Carron (Figure 3-7) and took 59 Days including logging, at a total cost of US$51.5 MM. The well discovered an Early Oligocene (Rupelian) aged high quality sand at 4,178.5 meters down to 4,233 meters with 12^{o} to 15^{o} API high sulfur oil based on preliminary studies by the operator.

Tullow Joe #1 well was drilled in a Water Depth of 776 meters to a TD of 2,175 meters. The well was spud on 25 August 2019 using the drillship Stena Carron and took 27 Days including a sidetrack, logging and abandonment at a total cost of US$21.0 MM. The well discovered Tertiary aged high quality sand at 2,102 meters along with a silty sand package at 2,085 meters. The oil samples from this well are reported by the operator to be 13^{o} API based on preliminary studies. Note that final PVT analyses are not available as yet.

The Repsol Carapa 1 well was drilled in late 2019 to a depth of 3,290 meters in 68 meters of water in Kanuku Block. The well, which is southeast of the Orinduik Block, discovered 4 meters of Upper Cretaceous sand with 27^{o} API oil with less than 1% sulfur.

3.1.16 Contract Areas

The Orinduik Block license area is 1,800 square kilometers (444,789 acres) where ECO Guyana Inc. has a 15.0% net working interest (WI) (Figure 3-9). Tullow Oil Plc (Tullow) is the designated Operator holding 60.0% WI and Total E&P Activités Pétrolières SA owns 25.0% WI by way of a Farm-In Agreement with ECO. ECO Guyana Inc. is owned 100.0% by ECO (Guyana) Barbados Ltd. who in turn is wholly owned by ECO (Atlantic) Oil and Gas Ltd.



Well Name	X(m)	Y(m)
A	417382	902800.00
B	444899	902778.00
F	472461	902731.72
C	444979	911918.00
D	454127	911918.00
E	454151	902778.00
G	472456	893518.95
H	481637	893514.25
I	481626	865876.31
J	472439	865880.86
K	472450	884306.22
L	454083	884321.09
M	454065	865895.43
N	444878	865905.45
O	444889	875118.36
P	417332	875159.77

Figure 3-9 Map of the Orinduik Block License Area

3.1.17 <u>Discoveries and Leads</u>

At the time of this report, there were several different 3D seismic data sets with various derivative volumes used as the basis for the interpretations for the Leads. The DJ, KG, KD, and Iatuk-D Leads are based on an early PSDM or depth converted data while the KB, KC, Amatuk, MJ-3, MJ-4 and KC-A are based on the early PSTM or time data and the more recent leads are derived from a new PSTM merged dataset. The majority of these leads are considered analogous to the Stabroek Liza and Hammerhead plays. There are additional lead ideas observed on the seismic data that are not included in this report. The twenty leads and two discoveries included in this report are listed in Table 3-4.

Table 3-4 List of Discoveries and Leads on Orinduik Block

Lead	Play type	Age	Average Depth, m	Minimum (P90) Area, km^2	Maximum (P10) Area, km^2
Jethro	Strat Trap	Tertiary	4,232	8	21
Joe	Strat Trap	Tertiary	2,025	5	27
Jethro Ext	Strat Trap	Tertiary	4,100	2	7
Hammerhead	Strat Trap	Tertiary	3,550	0.75	1.5
Rappu	Strat Trap	U. Cret	3,650	35	95
KB	Strat Trap	Tertiary	3,700	17	43
DJ	Strat Trap	U. Cret	4,160	14	30
KG	Strat Trap	U. Cret	3,900	17	34
Amaila/Kumaka	Strat Trap	U. Cret	4,250	32	77
Iatuk-D	Strat Trap	U. Cret	4,850	37	73
KC	Strat Trap	U. Cret	2,460	6	15
Amatuk	Channel Fill	U. Cret	2,415	35	90
MJ-3	Strat Trap	U. Cret	3,700	18	37
Jimmy	Strat Trap	U. Cret	2,120	6	18
KC-A	Strat Trap	U. Cret	3,225	7	12
Jethro Chan	Strat Trap	Tertiary	4,350	8	16
Alice	Strat Trap	Tertiary	1,465	8	47
Kurty U	Strat Trap	Tertiary	2,678	2	10
Kurty L	Strat Trap	Tertiary	2,777	3	15
EriKat	Strat Trap	U. Cret	3,118	6	15
Jethro KW	Strat Trap	Tertiary	4,131	8	19
Jethro West	Strat Trap	Tertiary	4,212	12	20

4. PROBABILISTIC RESOURCE ANALYSIS

4.1 GENERAL

A probabilistic resource analysis is most applicable for projects such as evaluating the potential resources of an exploratory area like the Orinduik Block, where a range of values exists in the reservoir parameters. The range of the expected reservoir data is quantified by probability distributions, and an iterative approach yields an expected probability distribution for potential resources. This approach allows consideration of most likely resources for planning purposes, while gaining an understanding of what volumes of resources may have higher certainty, and what potential upside may exist for the project. The analysis for this project was carried out considering the range of values for all parameters in the volumetric resource equations. Resource estimates were calculated only for the Orinduik Block in Guyana for this report.

4.2 INPUT PARAMETERS

This method involves estimating probability distributions for the range of reservoir parameters and performing a statistical risk analysis involving multiple iterations of resource calculations generated by random numbers and the specified distributions of reservoir parameters. To do this, each parameter incorporated in our resource calculation was evaluated for its expected probability distribution. The parameters for porosity, water saturation, pressure, temperature, GOR, and Net/Gross are based on data from similar depositional environments and reservoirs to the subject leads.

Because few data are available about the likely distribution of the reservoir parameters, simple triangular distributions with specification of minimum, most likely or mode, and maximum values were used for most of the parameters. Note that these parameters represent average parameters over the entire lead or prospect. So, for example, the porosity ranges do not represent the range of what porosity might be in a particular well or a particular interval, but rather the reasonable range of the average porosity for the whole lead or prospect. A summary of input parameters is shown in Table 4-1.

Table 4-1 Input Parameters for All Leads

LEAD	Hammerhead (Tert)			Jethro (Tert)			Jethro Chan (Tert)			Jethro Ext (Tert)		
	Minimum	Most Likely	Maximum	Minimum	Most Likely	Maximum	Minimum	Most Likely	Maximum	Minimum	Most Likely	Maximum
Oil Gravity	11	12	18	11	12	18	11	12	18	11	12	18
Gas-Oil Ratio	100	270	500	100	270	500	100	270	500	100	270	500
Gas Gravity	0.65	0.70	0.75	0.65	0.70	0.75	0.65	0.70	0.75	0.65	0.70	0.75
Pgr, psi	0.55	0.62	0.65	0.55	0.62	0.65	0.55	0.62	0.65	0.55	0.62	0.65
Depth, m	3,200	3,550	3,700	4,178	4,232	4,300	4,210	4,350	4,550	4,000	4,100	4,200
Porosity	20	28	32	22	27	31	22	27	31	22	27	31
Water Sat.	10	20	30	10	20	25	10	20	25	10	20	30
Drainage area, km^2	0.75	1	1..5	8	15	21	8	11	16	2	5	7
Gross Thickness, m	45	58	80	45	58	80	45	58	80	45	58	80
Net/Gross, fraction	0.85	0.90	0.95	0.85	0.90	0.95	0.70	0.75	0.80	0.70	0.75	0.80
% Recovery	12.00	20.00	30.00	12.00	20.00	30.00	12.00	20.00	30.00	12.00	20.00	30.00
LEAD	**Jethro KW (Tert)**			**Jethro West (Tert)**			**Jimmy (Tert)**			**Joe (Tert)**		
	Minimum	Most Likely	Maximum	Minimum	Most Likely	Maximum	Minimum	Most Likely	Maximum	Minimum	Most Likely	Maximum
Oil Gravity	11	12	18	11	12	18	12	19	21	12	14	18
Gas-Oil Ratio	100	270	500	100	270	500	100	270	500	100	270	500
Gas Gravity	0.65	0.70	0.75	0.65	0.70	0.75	0.65	0.70	0.75	0.65	0.70	0.75
Pgr, psi	0.55	0.62	0.65	0.55	0.62	0.65	0.55	0.62	0.65	0.55	0.62	0.65
Depth, m	3,962	4,131	4,300	4,023	4,212	4,400	2,000	2,120	2,245	1,950	2,025	2,150
Porosity	22	27	31	22	27	31	20	28	32	23	28	32
Water Sat.	10	20	30	10	20	30	10	20	30	13	26	35
Drainage area, km^2	8	14	19	12	16	20	6	12	18	5	12	27
Gross Thickness, m	45	58	80	45	58	80	25	33	50	25	33	50
Net/Gross, fraction	0.70	0.75	0.80	0.70	0.75	0.80	0.45	0.65	0.85	0.75	0.82	0.85
% Recovery	12.00	20.00	30.00	12.00	20.00	30.00	12.00	20.00	30.00	12.00	20.00	30.00
LEAD	**Kurty L (Tert)**			**Kurty U (Tert)**			**Maggie (Tert)**			**Amaila/Kumaka (U Cret)**		
	Minimum	Most Likely	Maximum	Minimum	Most Likely	Maximum	Minimum	Most Likely	Maximum	Minimum	Most Likely	Maximum
Oil Gravity	12	19	21	12	19	21	12	19	21	25	30	40
Gas-Oil Ratio	100	270	500	100	270	500	100	270	500	500	1,000	1,500
Gas Gravity	0.65	0.70	0.75	0.65	0.70	0.75	0.65	0.70	0.75	0.65	0.70	0.75
Pgr, psi	0.55	0.62	0.65	0.55	0.62	0.65	0.55	0.62	0.65	0.44	0.45	0.48
Depth, m	2,670	2,777	2,884	2,570	2,678	2,785	1,425	1,465	1,485	4,000	4,250	4,550
Porosity	23	28	32	23	28	32	23	28	32	15	25	35
Water Sat.	10	20	30	10	20	30	10	20	30	20	30	40
Drainage area, km^2	3	8.75	14.5	1.5	5.7	9.9	8	23	47	32	51	77
Gross Thickness, m	25	33	50	25	33	50	25	33	50	100	140	180
Net/Gross, fraction	0.25	0.45	0.65	0.75	0.82	0.85	0.75	0.82	0.85	0.25	0.45	0.65
% Recovery	12.00	20.00	30.00	12.00	20.00	30.00	12.00	20.00	30.00	19.00	28.00	35.00

LEAD	Amatuk (U Cret)			DJ (U Cret)			EriKat (U Cret)			Iatuk-D (U Cret)		
	Minimum	Most Likely	Maximum	Minimum	Most Likely	Maximum	Minimum	Most Likely	Maximum	Minimum	Most Likely	Maximum
Oil Gravity	25	30	40	25	30	40	25	30	40	25	30	40
Gas-Oil Ratio	500	1,000	1,500	500	1,000	1,500	500	1,000	1,500	500	1,000	1,500
Gas Gravity	0.65	0.70	0.75	0.65	0.70	0.75	0.65	0.70	0.75	0.65	0.70	0.75
Pgr, psi	0.44	0.45	0.48	0.44	0.45	0.48	0.44	0.45	0.48	0.44	0.45	0.48
Depth, m	2,360	2,415	2,470	4,060	4,160	4,230	3,055	3,118	3,180	4,625	4,850	5,150
Porosity	15	22	30	15	22	30	15	22	30	15	22	30
Water Sat.	20	30	40	20	30	40	20	30	40	20	30	40
Drainage area, km^2	35	68	90	14	24	30	6	10.5	15	37	50	73
Gross Thickness, m	20	40	50	40	50	60	30	40	50	100	125	175
Net/Gross, fraction	0.25	0.45	0.65	0.50	0.70	0.80	0.25	0.45	0.65	0.25	0.45	0.65
% Recovery	19.00	28.00	35.00	19.00	28.00	35.00	19.00	28.00	35.00	18.00	28.00	35.00

LEAD	KC (U Cret)			KC-A (U Cret)			KG (U Cret)			MJ-3 (U Cret)		
	Minimum	Most Likely	Maximum	Minimum	Most Likely	Maximum	Minimum	Most Likely	Maximum	Minimum	Most Likely	Maximum
Oil Gravity	25	30	40	25	30	40	25	30	40	25	30	40
Gas-Oil Ratio	500	1,000	1,500	500	1,000	1,500	500	1,000	1,500	500	1,000	1,500
Gas Gravity	0.65	0.70	0.75	0.65	0.70	0.75	0.65	0.70	0.75	0.65	0.70	0.75
Pgr, psi	0.44	0.45	0.48	0.44	0.45	0.48	0.44	0.45	0.48	0.44	0.45	0.48
Depth, m	2,360	2,460	2,560	2,950	3,225	3,500	3,400	3,900	4,050	2,780	3,700	4,130
Porosity	15	25	35	15	25	35	15	25	35	15	25	35
Water Sat.	20	30	40	20	30	40	20	30	40	20	30	40
Drainage area, km^2	6	11	15	7	9	12	17	30	34	18	25	37
Gross Thickness, m	30	40	50	50	75	100	200	275	325	70	95	120
Net/Gross, fraction	0.25	0.45	0.65	0.25	0.45	0.65	0.25	0.45	0.65	0.25	0.45	0.65
% Recovery	19.00	28.00	35.00	19.00	28.00	35.00	19.00	28.00	35.00	19.00	28.00	35.00

LEAD	Rappu (U Cret)			KB (Cret)		
	Minimum	Most Likely	Maximum	Minimum	Most Likely	Maximum
Oil Gravity	25	30	40	25	30	40
Gas-Oil Ratio	500	1,000	1,500	500	1,000	1,500
Gas Gravity	0.65	0.70	0.75	0.65	0.70	0.75
Pgr, psi	0.44	0.45	0.48	0.44	0.45	0.48
Depth, m	3,400	3,650	3,850	3,660	3,700	3,740
Porosity	15	25	35	15	25	35
Water Sat.	20	30	40	20	30	40
Drainage area, km^2	35	65	95	17	27	43
Gross Thickness, m	50	75	100	60	70	125
Net/Gross, fraction	0.25	0.45	0.65	0.45	0.55	0.75
% Recovery	19.00	28.00	35.00	19.00	28.00	35.00

In a probabilistic analysis, dependent relationships can be established between parameters if appropriate. For this analysis a correlation was set up between gross thickness and drainage area. The low end of the gross thickness distributions for this prospective accumulation would generally be expected to occur when the productive area is small; therefore, a positive correlation of 0.95 was assigned to gross thickness and productive area.

4.3 PROBABILISTIC SIMULATION

Probabilistic resource analysis was performed using the Monte Carlo simulation software called @ Risk[6]. This software allows for input of a variety of probability distributions for any parameter. The program performs a large number of iterations, either a number specified by the user, or until

[6] Palisade Corporation

a specified level of stability is achieved in the output. The results include a probability distribution for the output, sampled probability for the inputs, and sensitivity analysis showing which input parameters have the most effect on the uncertainty in each output parameter.

After distributions and relationships between input parameters were defined, a series of simulations were run wherein points from the distributions were randomly selected and used to calculate a single iteration of estimated potential resources. The iterations were repeated until stable statistics (mean and standard deviation) result from the resulting output distribution. This generally occurred after about 5,000 iterations.

4.4 RESULTS

The output distributions from the Probabilistic simulation were then used to characterize the Prospective Resources. The Gross 100% Prospective Resources are summarized in Table 4-2. Note that these estimates do not include consideration for the risk of failure in exploring for these resources. The Net to ECO Interest, which is 15.0% at the time of this report, Prospective Unrisked Resource Estimates by Lead are tabulated in **Table 4-3**.

Table 4-2 Gross Prospective Unrisked Resource Estimates by Lead

Lead	Prospective Oil Resources, MMBbl		
	Low Estimate	Best Estimate	High Estimate
Jethro (Tert)	102.7	199.1	345.1
Joe (Tert)	35.7	99.8	221.6
Hammerhead (Tert)	8.3	14.3	24.4
Jethro Chan (Tert)	77.3	131.2	218.9
Jethro Ext (Tert)	22.4	51.4	93.3
Jethro KW (Tert)	81.7	151.5	257.4
Jethro West (Tert)	110.3	175.6	272.6
Jimmy (Tert)	29.7	65.3	126.9
Kurty L (Tert)	12.4	34.2	72.6
Kurty U (Tert)	13.1	40.9	87.1
Alice (Tert)	64.6	188.0	410.3
Amaila-Kumaka (U Cret)	339.7	667.2	1,216.5
Amatuk (U Cret)	101.4	229.9	429.2
DJ (U Cret)	84.5	149.6	242.6
EriKat (U Cret)	18.9	38.8	70.5
Iatuk-D (U Cret)	346.2	623.7	1,096.2
KC (U Cret)	20.6	40.8	72.8
KC-A (U Cret)	35.8	63.4	108.2
KG (U Cret)	340.0	623.5	1,034.6
MJ-3 (U Cret)	124.3	226.6	396.7
Rappu (U Cret)	199.7	430.2	809.6
KB (Cret)	145.8	291.9	571.7
Total	2,315.0	4,537.0	8,178.7

Table 4-3 Net to ECO Interest Unrisked Prospective Resource Estimates by Lead

Lead	Prospective Oil Resources, MMBbl		
	Low Estimate	Best Estimate	High Estimate
Jethro (Tert)	15.4	29.9	51.8
Joe (Tert)	5.4	15.0	33.2
Hammerhead (Tert)	1.2	2.1	3.7
Jethro Chan (Tert)	11.6	19.7	32.8
Jethro Ext (Tert)	3.4	7.7	14.0
Jethro KW (Tert)	12.3	22.7	38.6
Jethro West (Tert)	16.5	26.3	40.9
Jimmy (Tert)	4.5	9.8	19.0
Kurty L (Tert)	1.9	5.1	10.9
Kurty U (Tert)	2.0	6.1	13.1
Alice (Tert)	9.7	28.2	61.5
Amaila-Kumaka (U Cret)	51.0	100.1	182.5
Amatuk (U Cret)	15.2	34.5	64.4
DJ (U Cret)	12.7	22.4	36.4
EriKat (U Cret)	2.8	5.8	10.6
Iatuk-D (U Cret)	51.9	93.6	164.4
KC (U Cret)	3.1	6.1	10.9
KC-A (U Cret)	5.4	9.5	16.2
KG (U Cret)	51.0	93.5	155.2
MJ-3 (U Cret)	18.6	34.0	59.5
Rappu (U Cret)	29.9	64.5	121.4
KB (Cret)	21.9	43.8	85.8
Total	347.3	680.5	1,226.8

The Gross and Net Prospective Resource estimates expressed in Millions of Barrels of Oil Equivalent based on a 6:1 gas to oil equivalency are presented in **Table 4-4** and **Table 4-5** below.

Table 4-4 Gross Prospective Resources Oil Equivalent by Lead

Lead	Gross Prospective Oil Resources, MMBOE6		
	Low Estimate	Best Estimate	High Estimate
Jethro (Tert)	107.0	208.3	362.6
Joe (Tert)	37.3	104.4	232.6
Hammerhead (Tert)	8.6	15.0	25.6
Jethro Chan (Tert)	80.5	137.3	230.1
Jethro Ext (Tert)	23.3	53.8	98.0
Jethro KW (Tert)	85.2	158.5	270.6
Jethro West (Tert)	114.8	183.8	286.7
Jimmy (Tert)	30.9	68.4	133.3
Kurty L (Tert)	12.9	35.8	76.2
Kurty U (Tert)	13.7	42.8	91.4
Alice (Tert)	67.4	196.7	430.7
Amaila-Kumaka (U Cret)	393.0	775.8	1,422.3
Amatuk (U Cret)	117.2	267.3	503.0
DJ (U Cret)	97.8	173.9	283.9
EriKat (U Cret)	21.8	45.1	82.6
Iatuk-D (U Cret)	401.1	725.3	1,281.3
KC (U Cret)	23.7	47.5	85.3
KC-A (U Cret)	41.4	73.8	126.8
KG (U Cret)	393.4	724.7	1,211.4
MJ-3 (U Cret)	143.7	263.5	464.2
Rappu (U Cret)	231.0	500.1	947.1
KB (Cret)	168.8	339.6	668.0
Total	2,614.6	5,141.3	9,313.8

Table 4-5 Net Prospective Resources Oil Equivalent by Lead

Lead	Prospective Oil Equivalent Resource, MMBOE6		
	Low Estimate	Best Estimate	High Estimate
Jethro (Tert)	16.1	31.2	54.4
Joe (Tert)	5.6	15.7	34.9
Hammerhead (Tert)	1.3	2.2	3.8
Jethro Chan (Tert)	12.1	20.6	34.5
Jethro Ext (Tert)	3.5	8.1	14.7
Jethro KW (Tert)	12.8	23.8	40.6
Jethro West (Tert)	17.2	27.6	43.0
Jimmy (Tert)	4.6	10.3	20.0
Kurty L (Tert)	1.9	5.4	11.4
Kurty U (Tert)	2.0	6.4	13.7
Alice (Tert)	10.1	29.5	64.6
Amaila-Kumaka (U Cret)	59.0	116.4	213.3
Amatuk (U Cret)	17.6	40.1	75.5
DJ (U Cret)	14.7	26.1	42.6
EriKat (U Cret)	3.3	6.8	12.4
Iatuk-D (U Cret)	60.2	108.8	192.2
KC (U Cret)	3.6	7.1	12.8
KC-A (U Cret)	6.2	11.1	19.0
KG (U Cret)	59.0	108.7	181.7
MJ-3 (U Cret)	21.6	39.5	69.6
Rappu (U Cret)	34.6	75.0	142.1
KB (Cret)	25.3	50.9	100.2
Total	392.2	771.2	1,397.1

Prospective Resources are defined as "those quantities of petroleum estimated, as of a given date, to be potentially recoverable from undiscovered accumulations by application of future development projects. Prospective Resources have both an associated chance of discovery and a chance of development. Prospective Resources are further subdivided in accordance with the level of certainty associated with recoverable estimates assuming their discovery and development and may be sub-classified based on project maturity."[7] There is no certainty that any portion of the

[7] Society of Petroleum Evaluation Engineers, (Calgary Chapter): Canadian Oil and Gas Evaluation Handbook, Third Edition, August 2018, updated October 2019, pg. 13.

resources will be discovered. If discovered, there is no certainty that it will be commercially viable to produce any portion of the resources. The Low Estimate represents the P_{90} values from the probabilistic analysis (in other words, the value is greater than or equal to the P_{90} value 90% of the time), while the Best Estimate represents the P_{50} and the High Estimate represents the P_{10}.[8]

Note that a deterministic calculation with any set of the input parameters will not necessarily be close to any of the results shown in **Table 4-2**. Specifically, the most likely input parameters do not necessarily yield a result very close to the Best Estimate. This is because some of the distributions are skewed towards the minimum value rather than the maximum value where the minimum to maximum range is large, so that the mean is rather different from the most likely value.

The distribution graphs for the resource estimates can be found in Figure 4-1 through Figure 4-22. It should be noted that the probability distributions show a wide spacing between the minimum and maximum expected resources. This is reflective of the high degree of uncertainty associated with any evaluation such as this one prior to actual field discovery, development, and production. Also note that, in general, the high probability resource estimates at the left side of these distributions represents downside risk, while the low probability estimates on the right side of the distributions represent upside potential. These distributions do not include consideration of the probability of success of discovering commercial quantities of oil, but rather represent the likely distribution of oil discoveries, if successfully found.

[8] Ibid.

4.4.1 Orinduik Block Distribution Plots

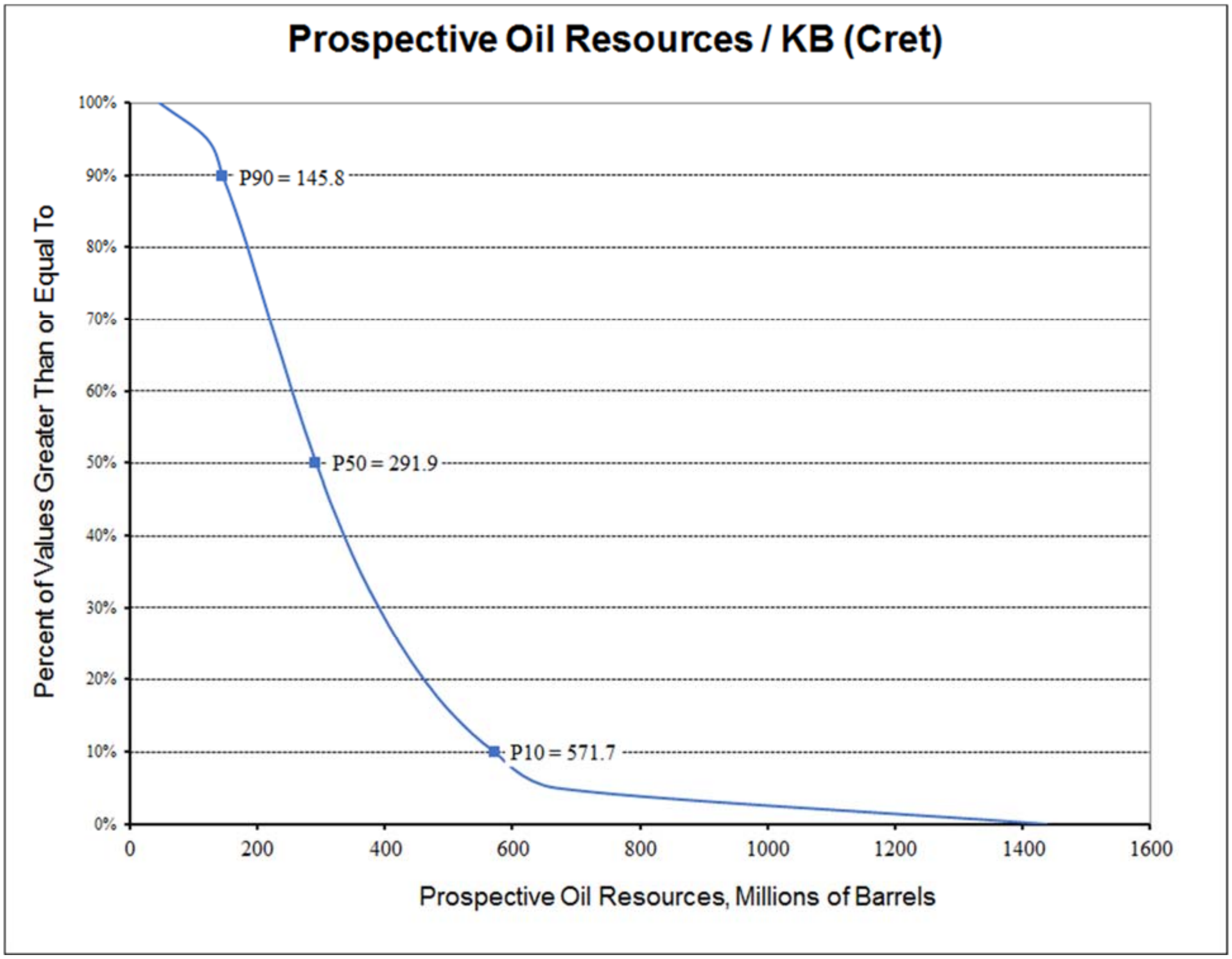


Figure 4-1 Prospective Oil Resources / KB Lead

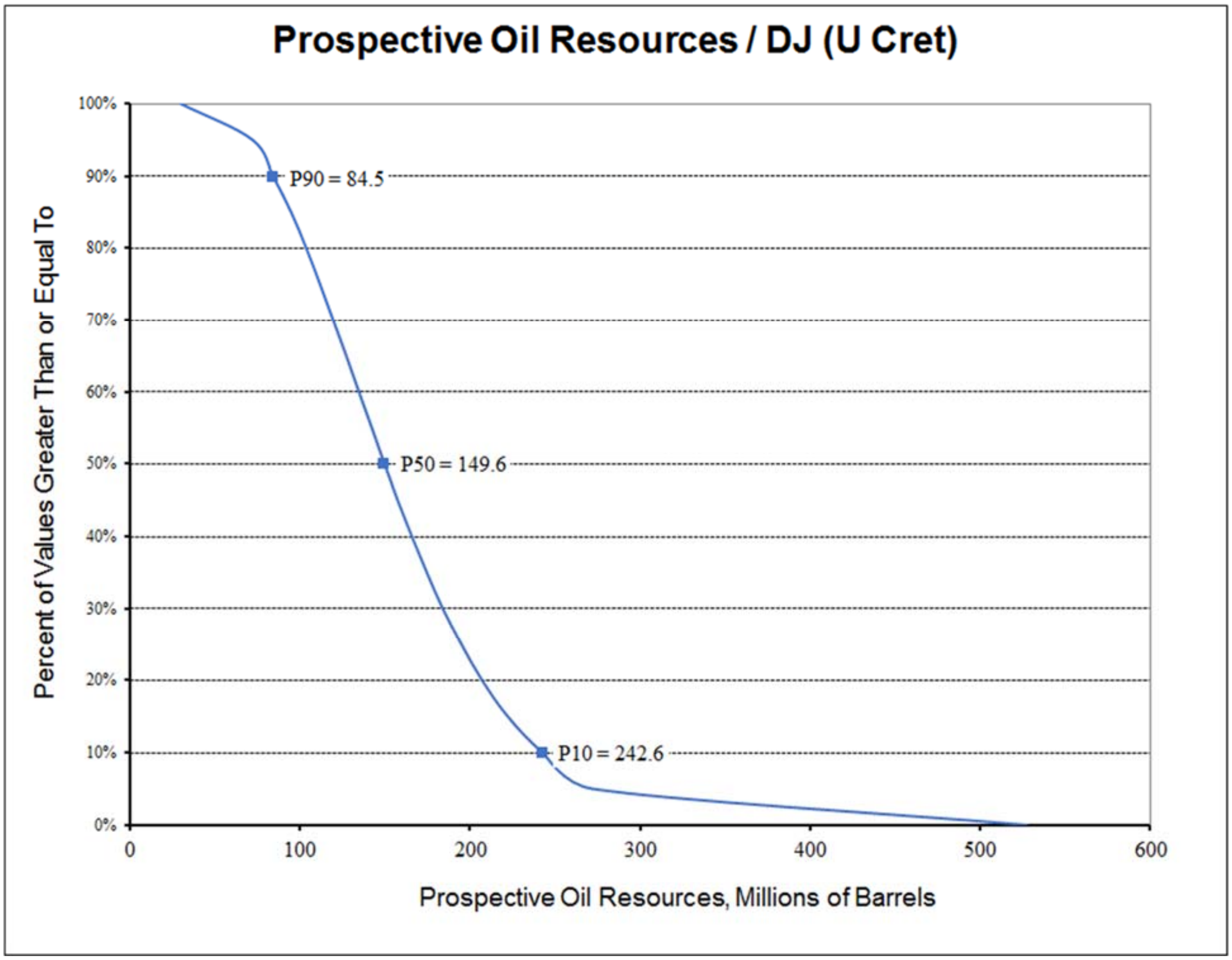


Figure 4-2 Prospective Oil Resources / DJ Lead

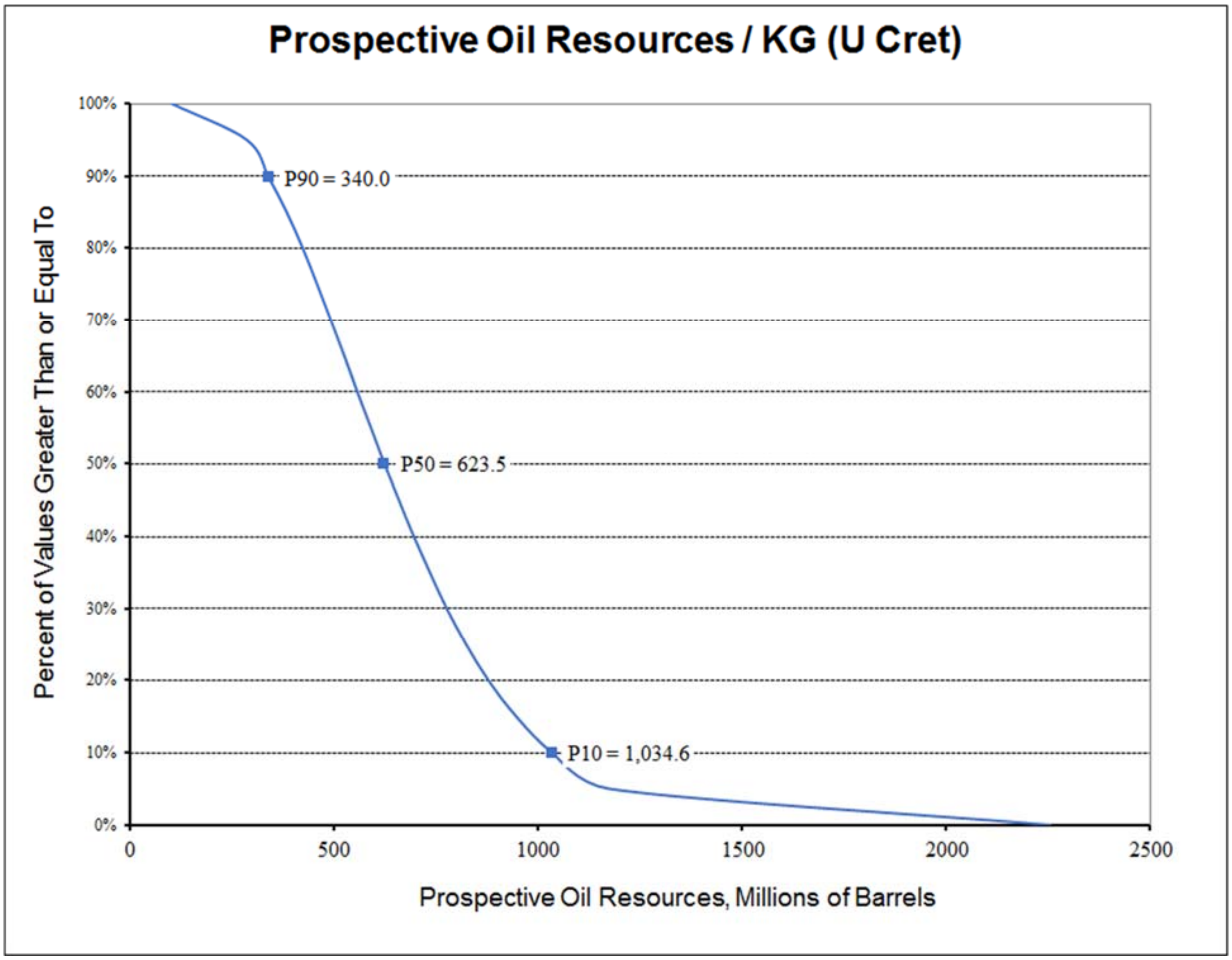


Figure 4-3 Prospective Oil Resources / KG Lead

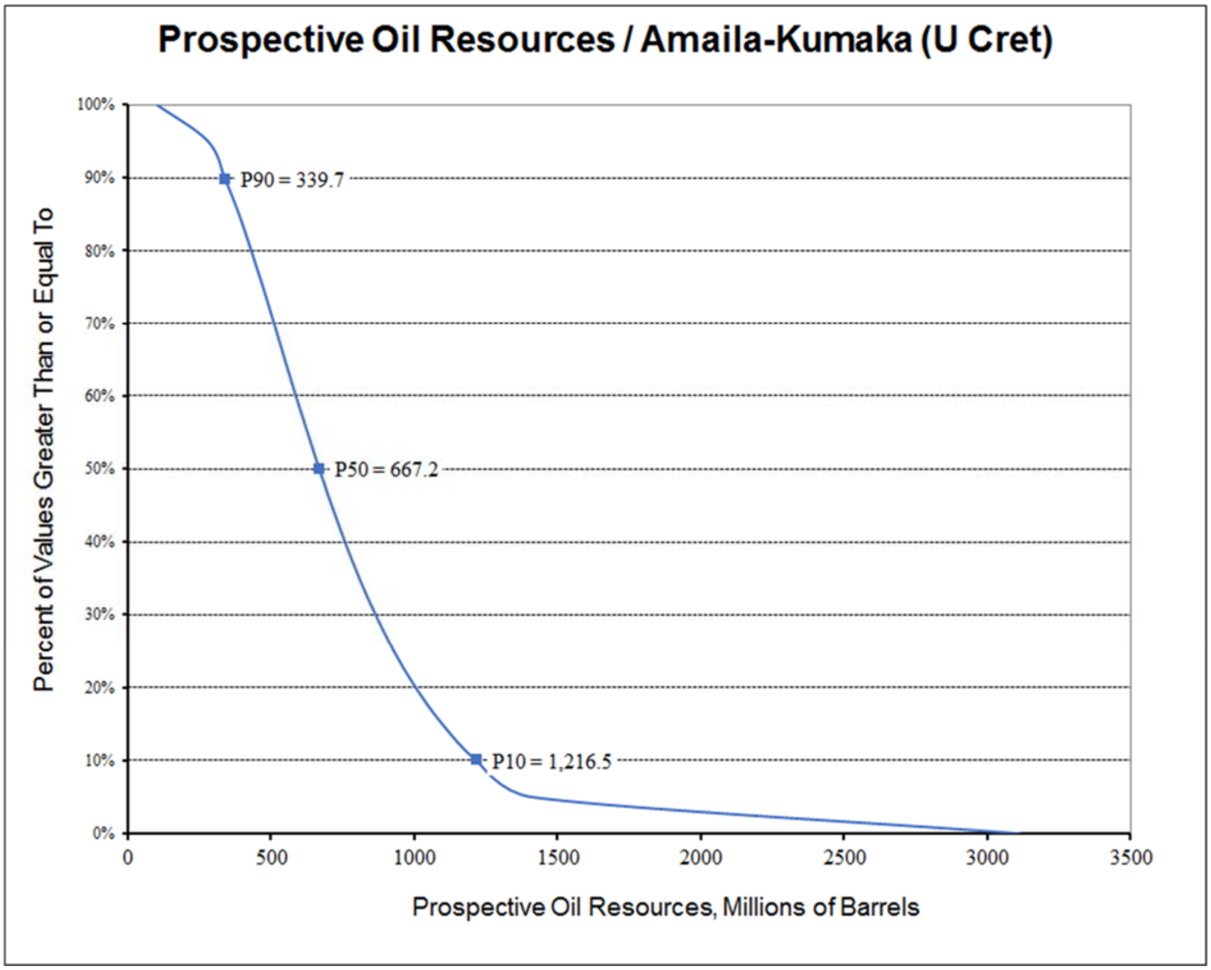


Figure 4-4 Prospective Oil Resources / Amaila-Kumaka Lead

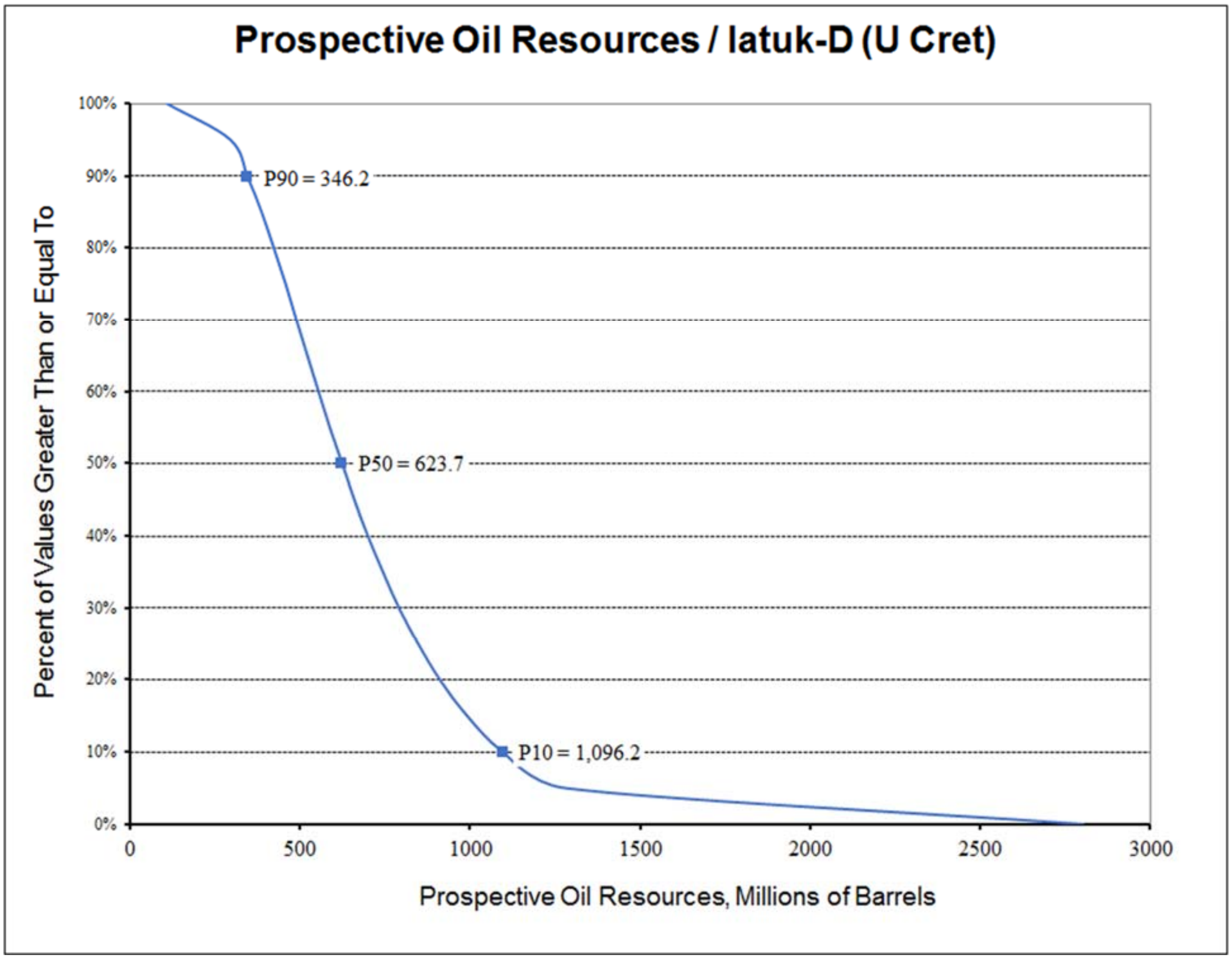


Figure 4-5 Prospective Oil Resources / Iatuk-D Lead

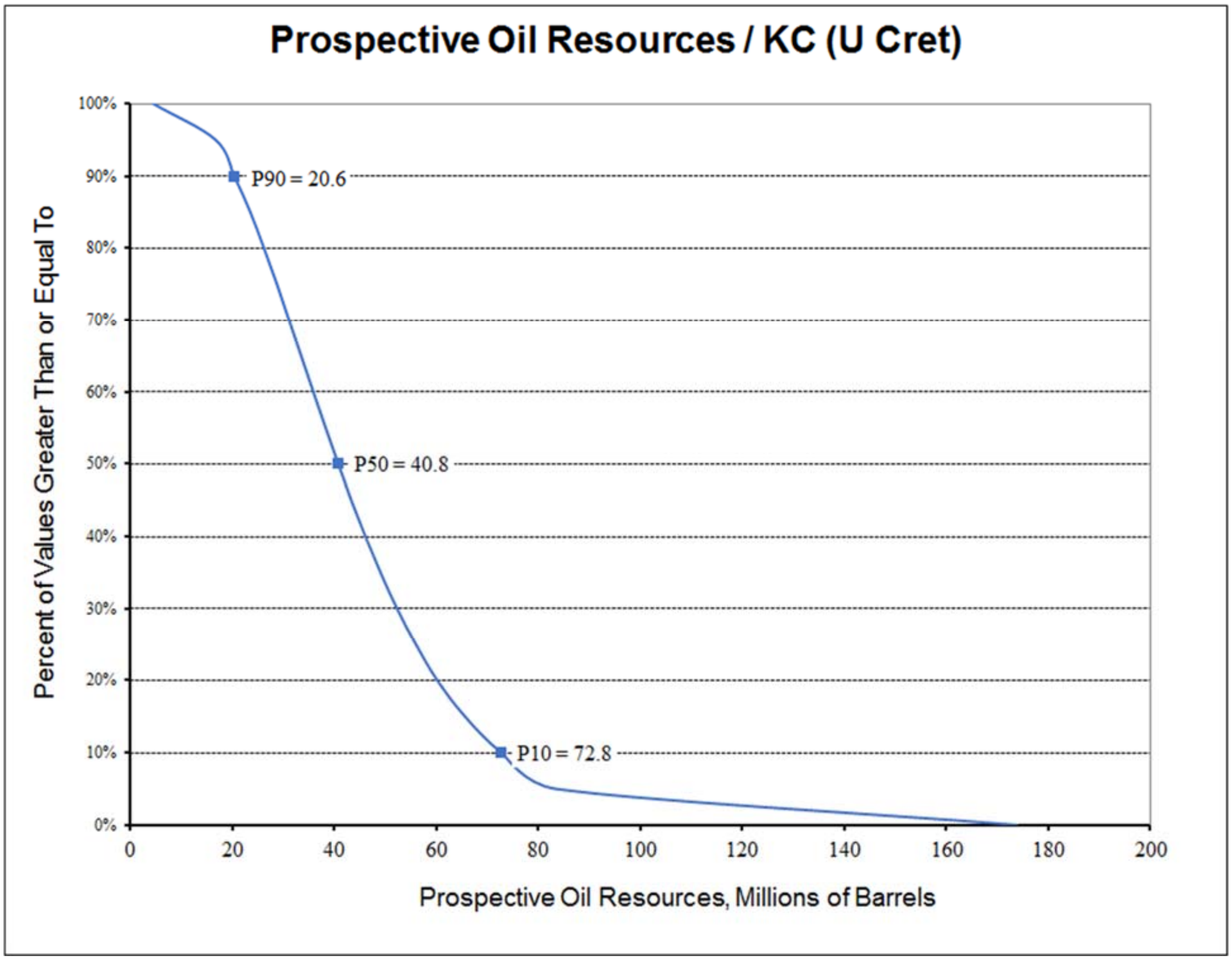


Figure 4-6 Prospective Oil Resources / KC Lead

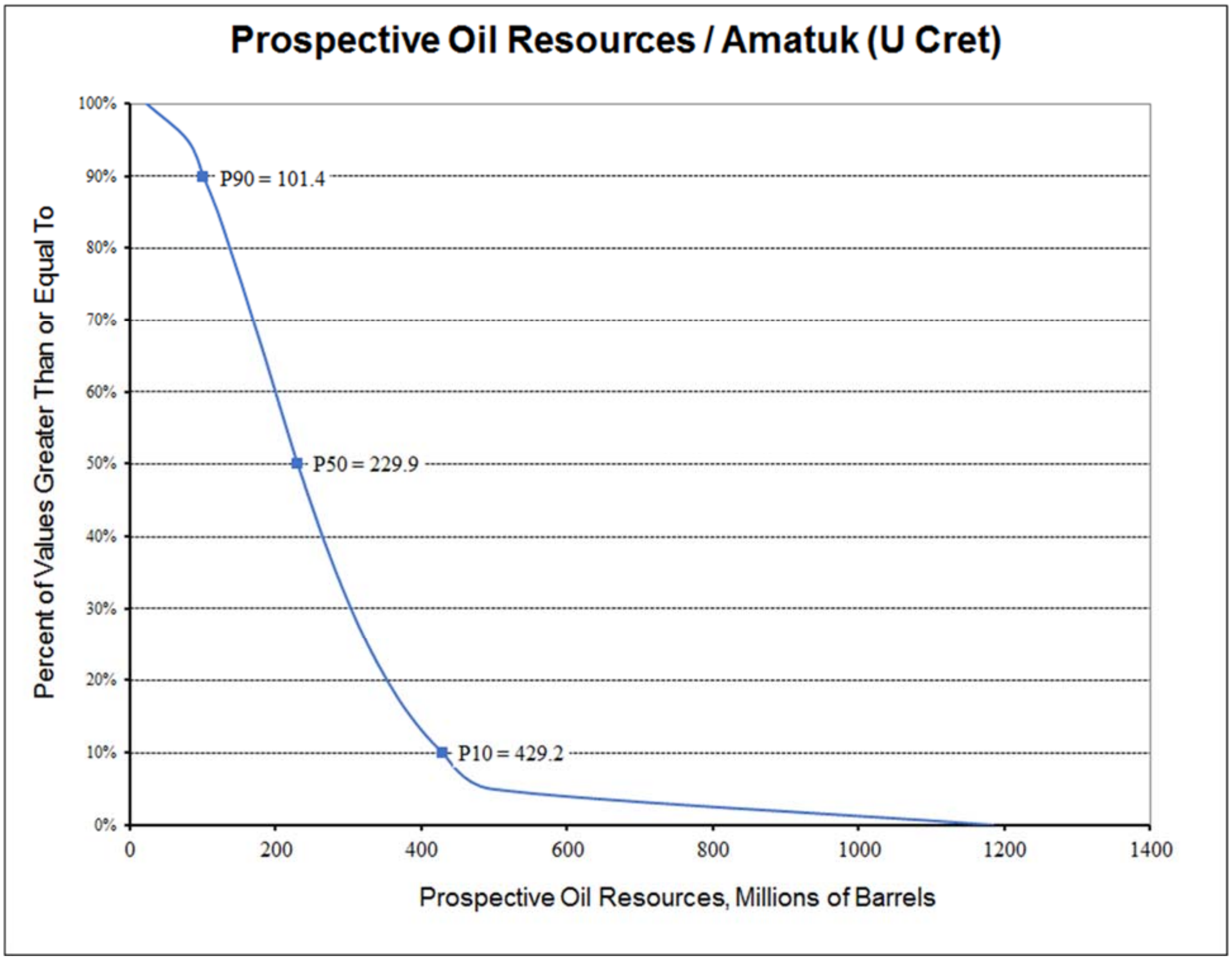


Figure 4-7 Prospective Oil Resources / Amatuk Lead

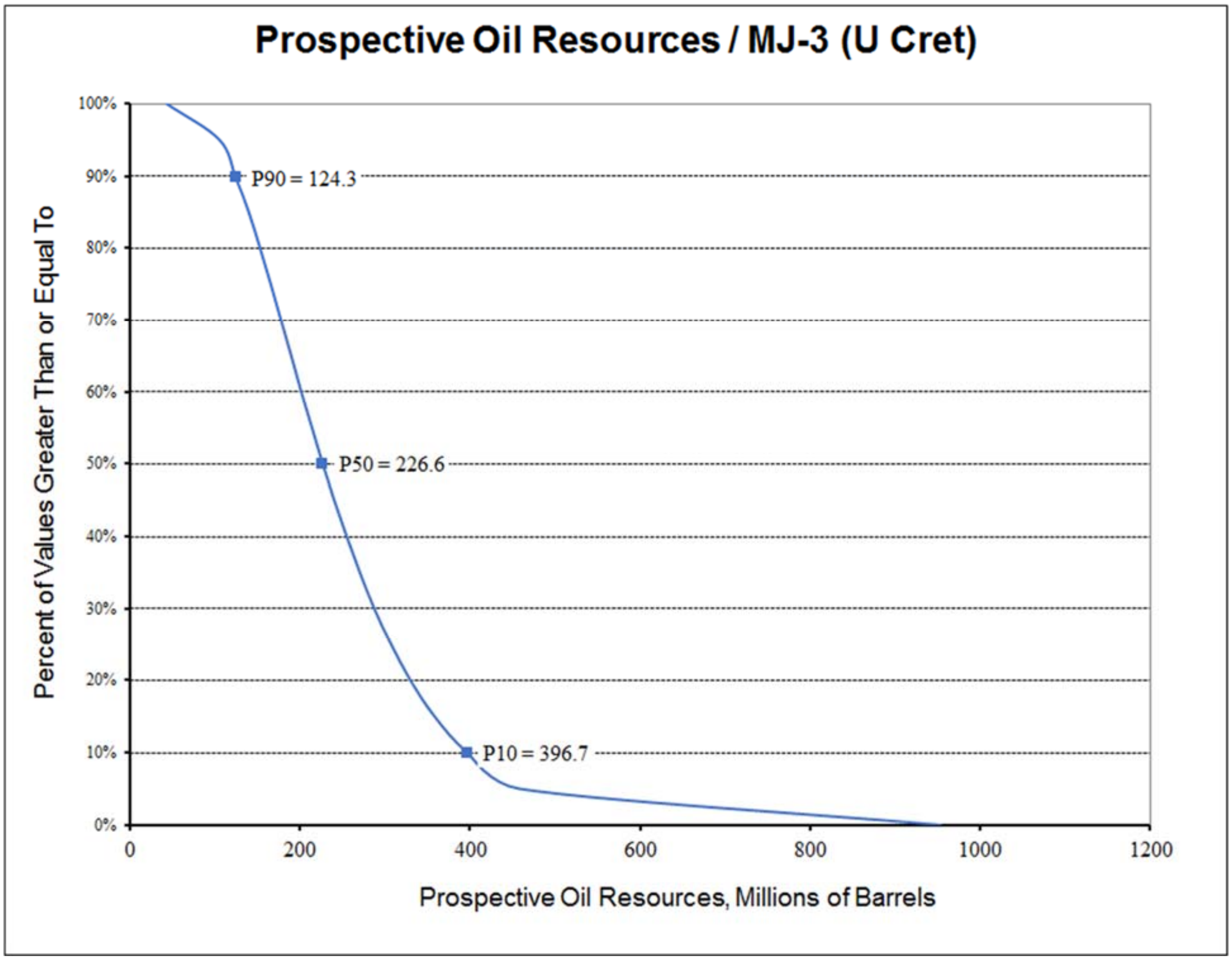


Figure 4-8 Prospective Oil Resources / MJ-3 Lead

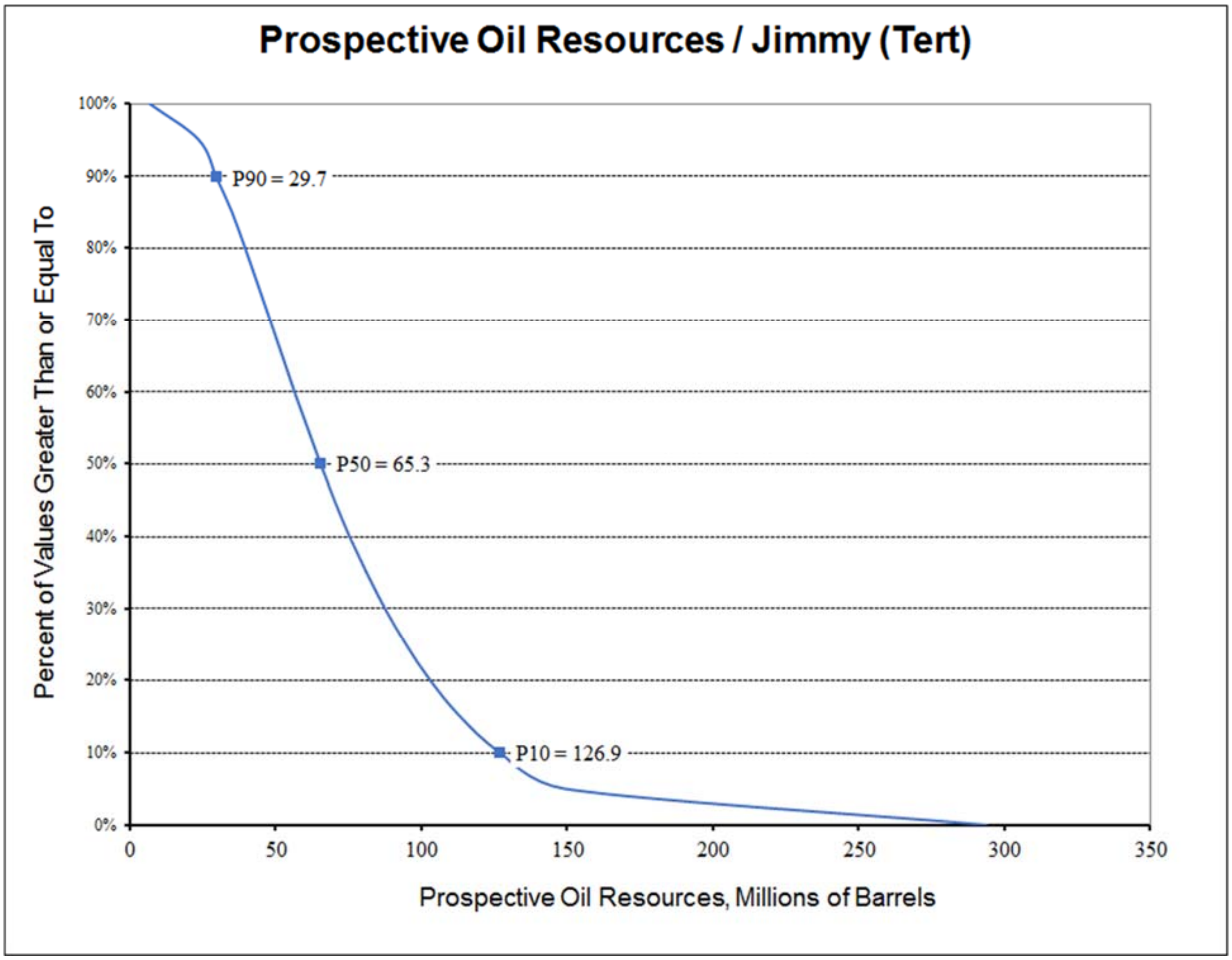


Figure 4-9 Prospective Oil Resources / Jimmy

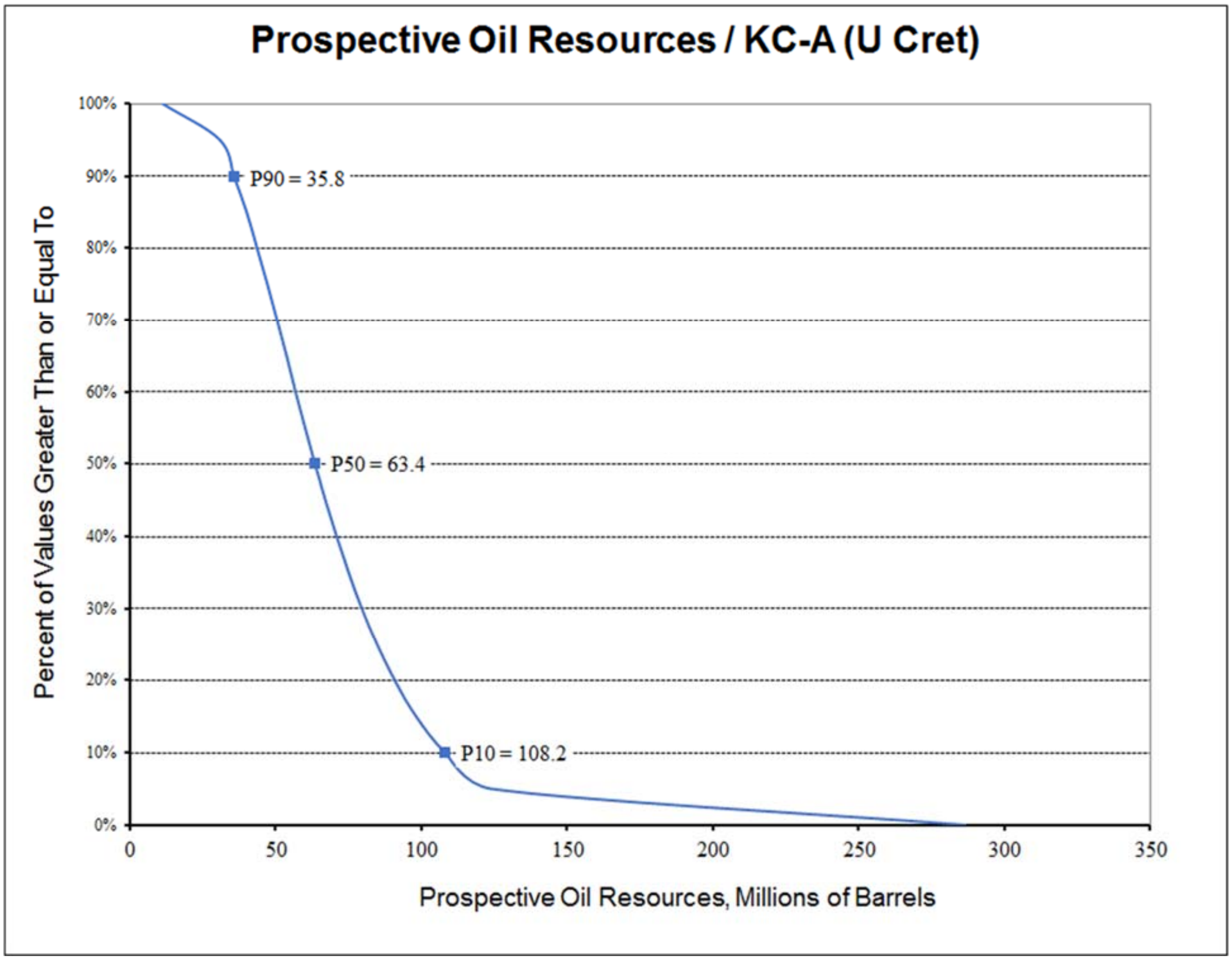


Figure 4-10 Prospective Oil Resources / KC-A

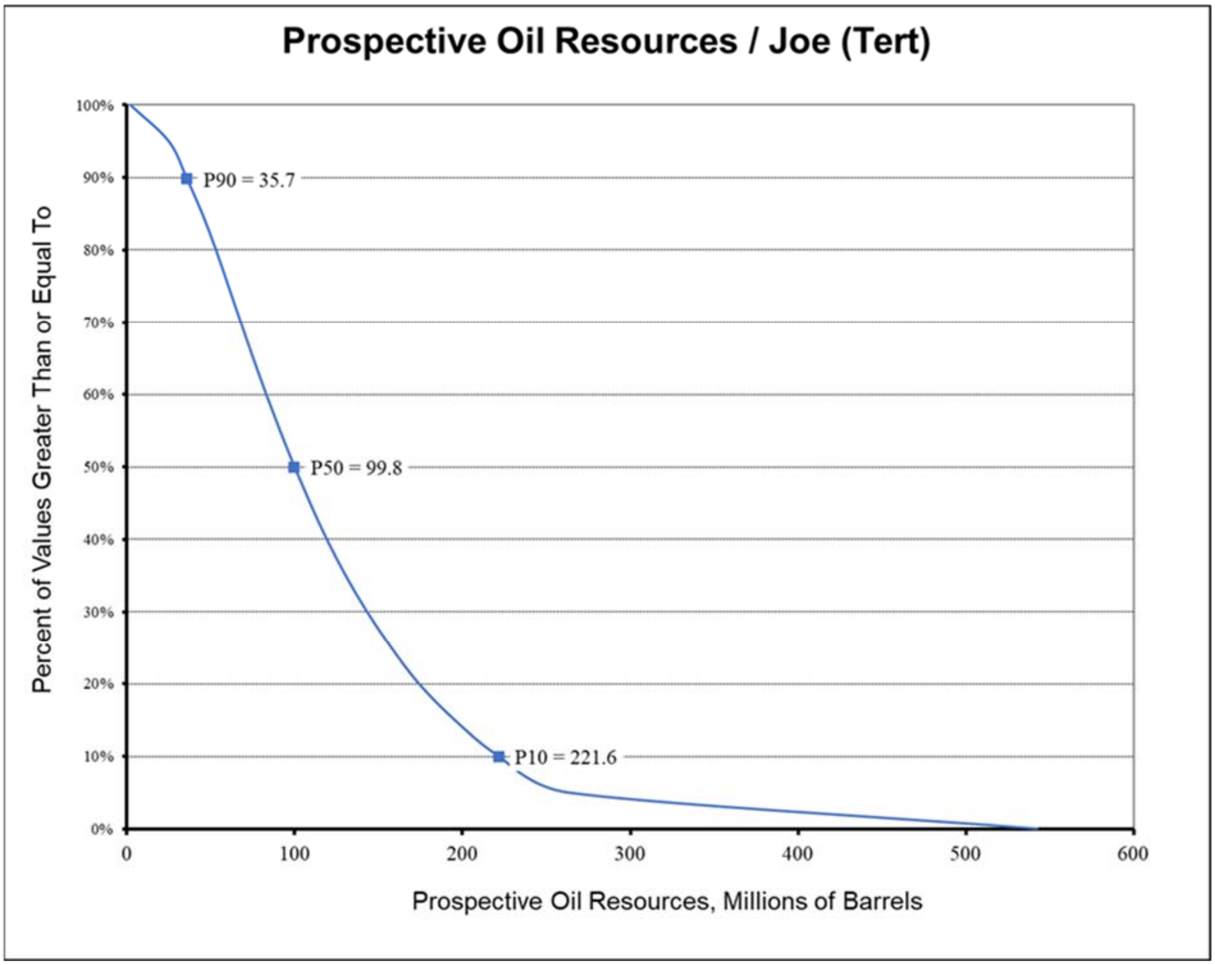


Figure 4-11 Prospective Oil Resources / Joe

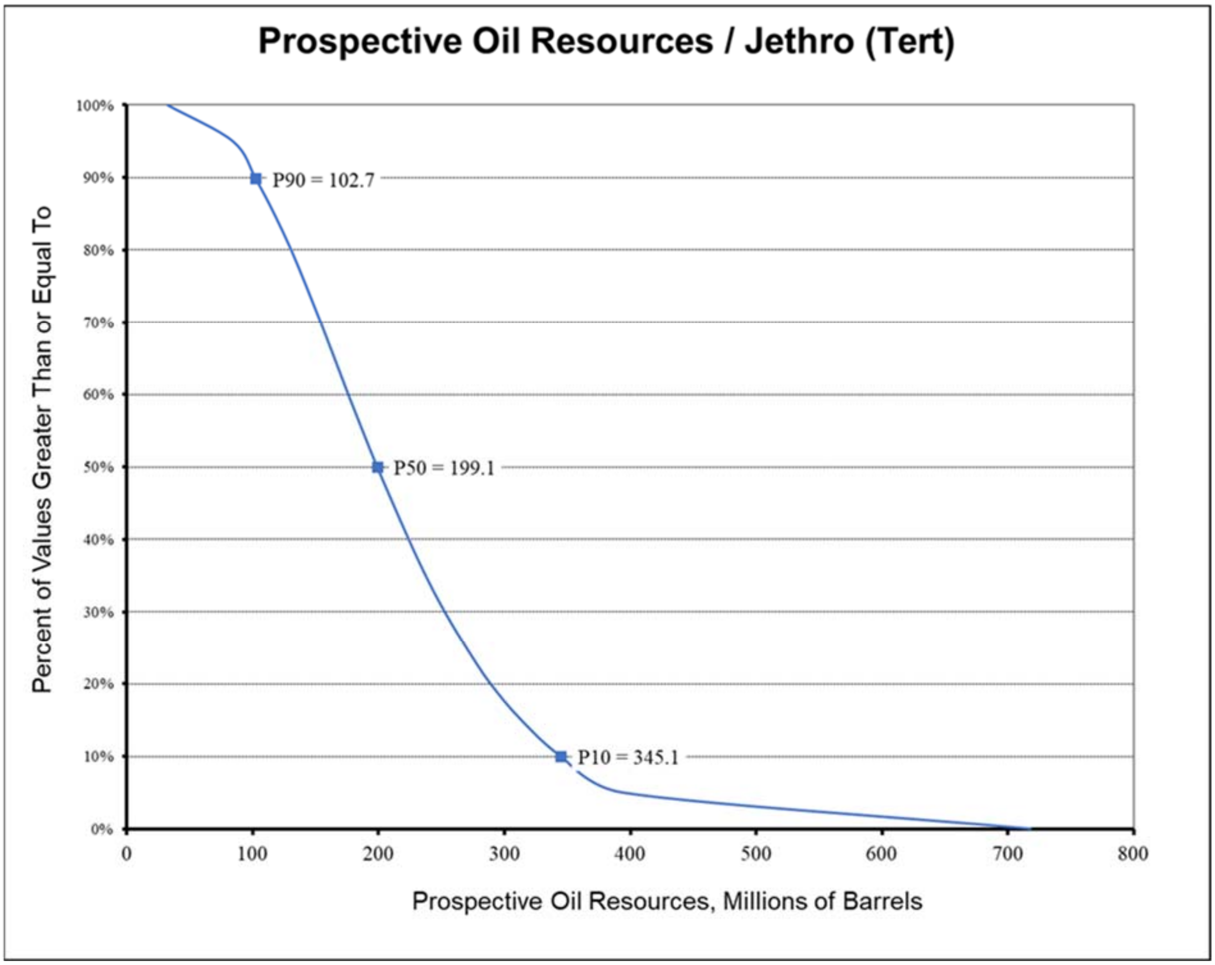


Figure 4-12 Prospective Oil Resources / Jethro

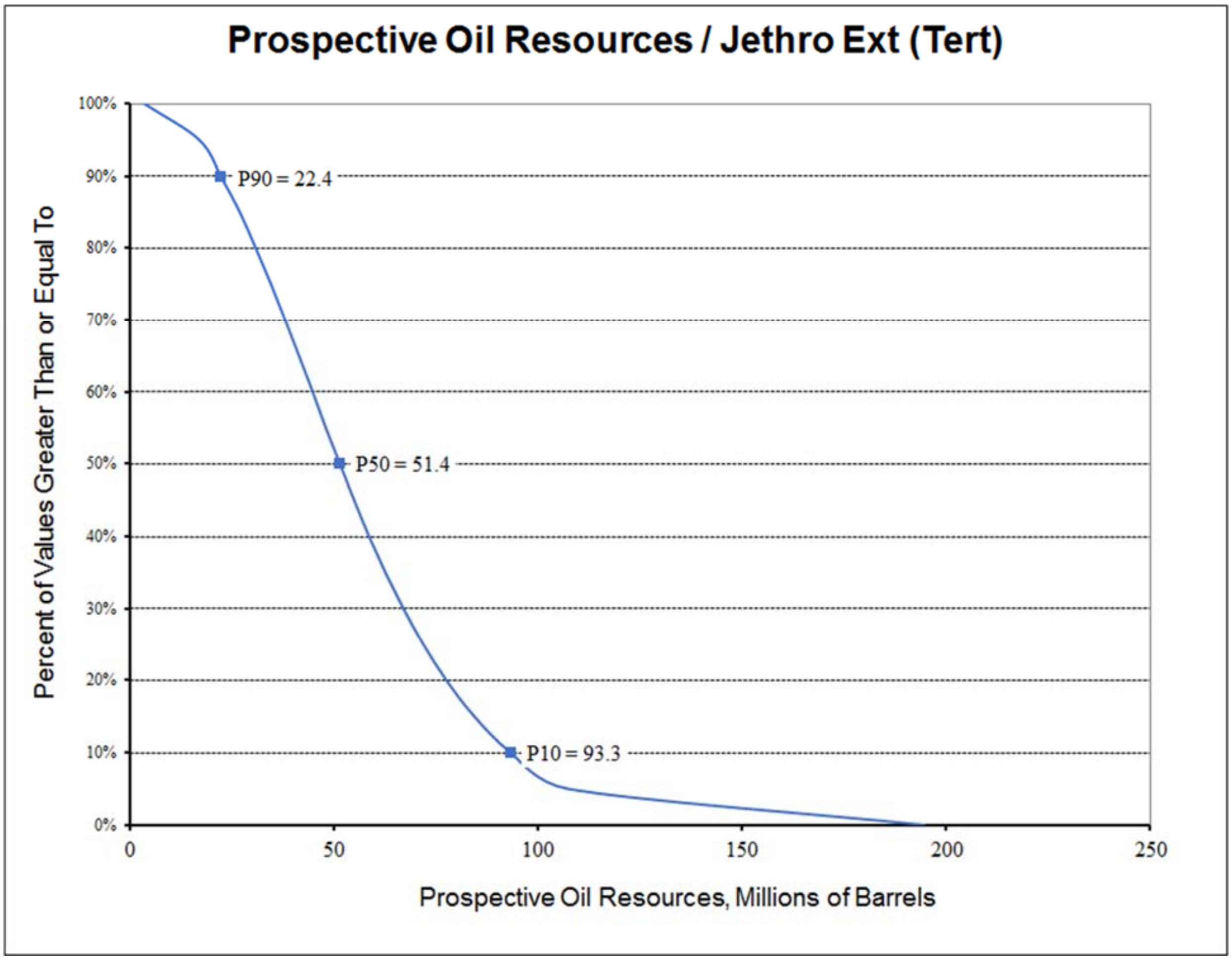


Figure 4-13 Prospective Oil Resources / Jethro Ext

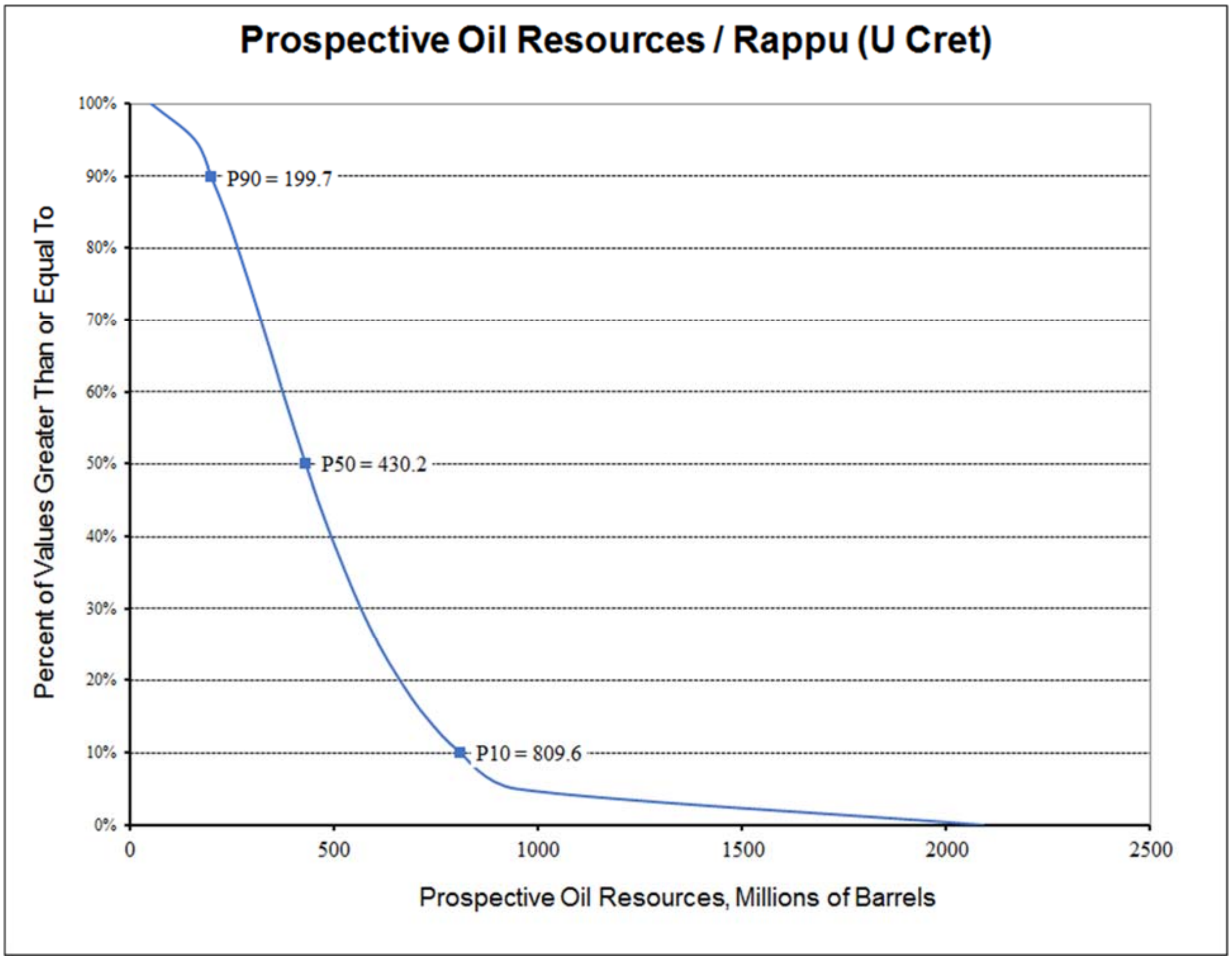


Figure 4-14 Prospective Oil Resources / Rappu

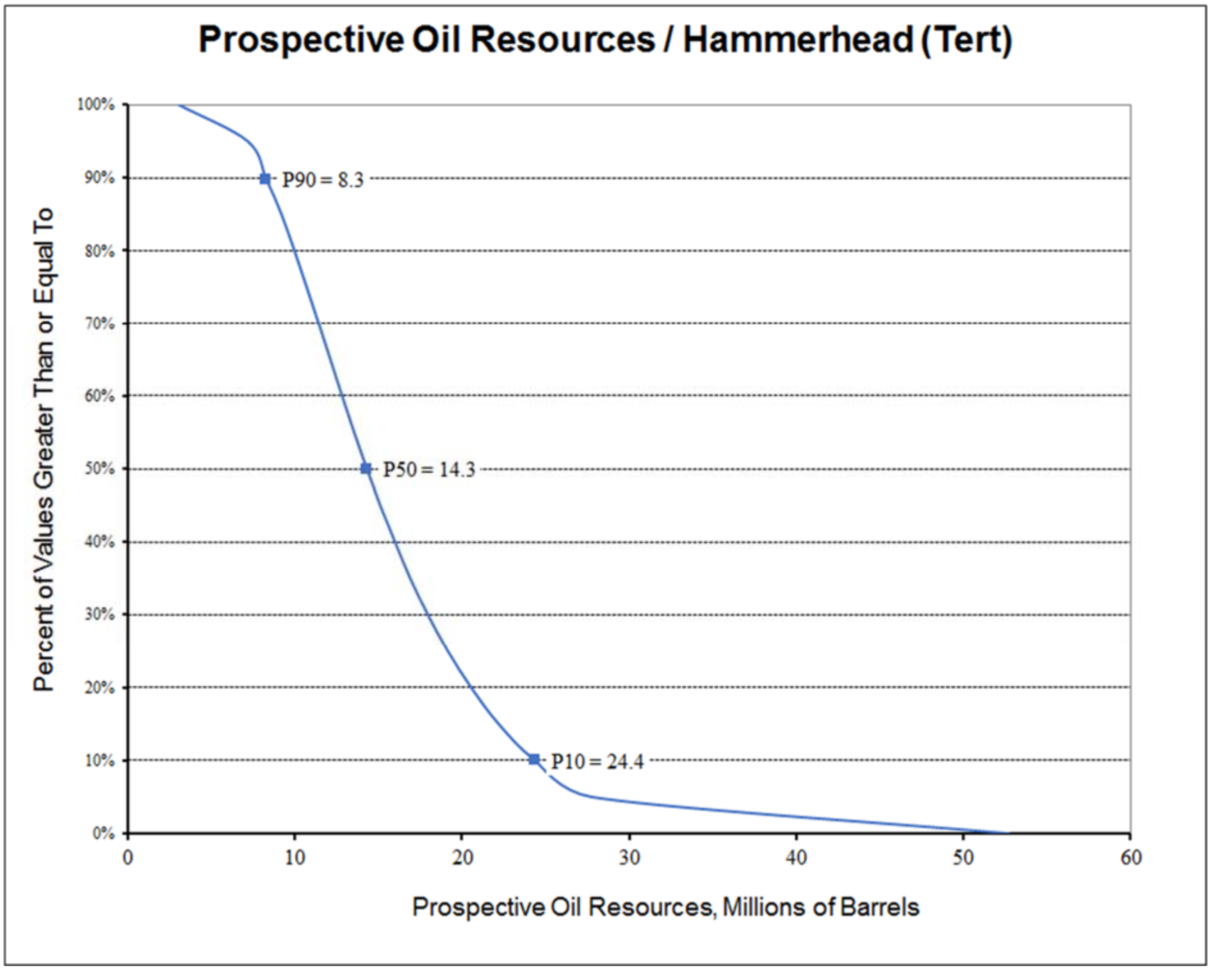


Figure 4-15 Prospective Oil Resources / Hammerhead

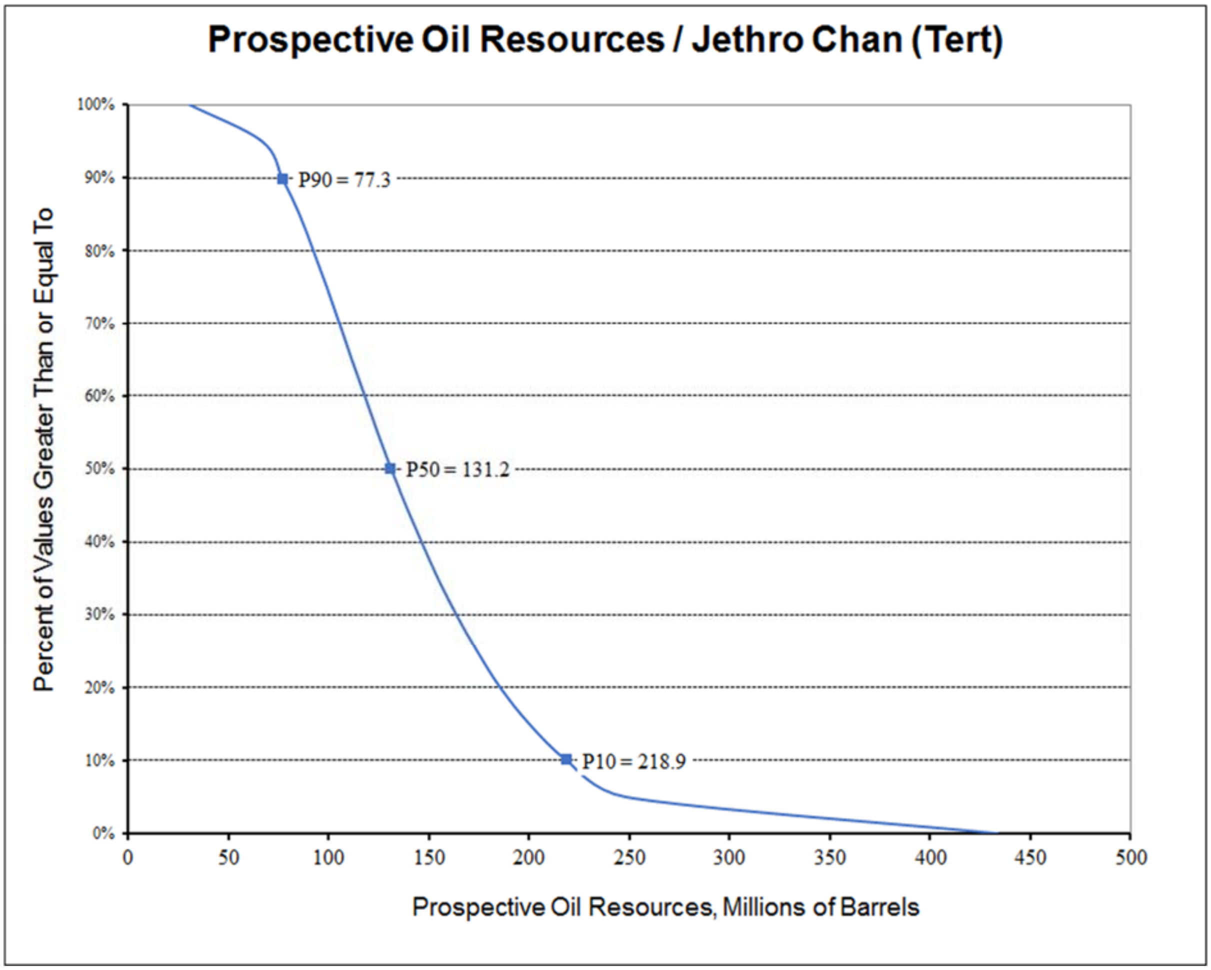


Figure 4-16 Prospective Oil Resources / Jethro Channel

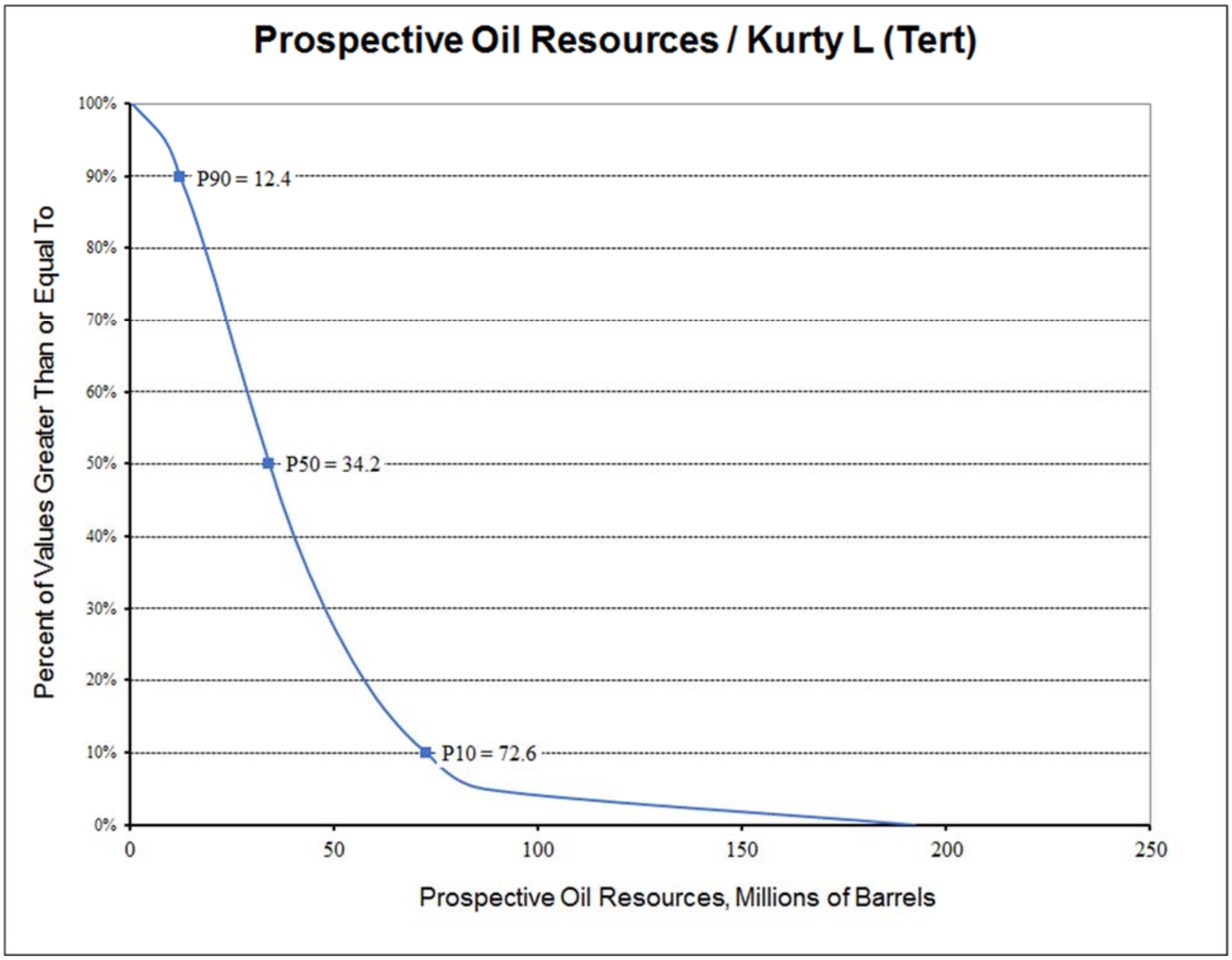


Figure 4-17 Prospective Oil Resources / Kurty L

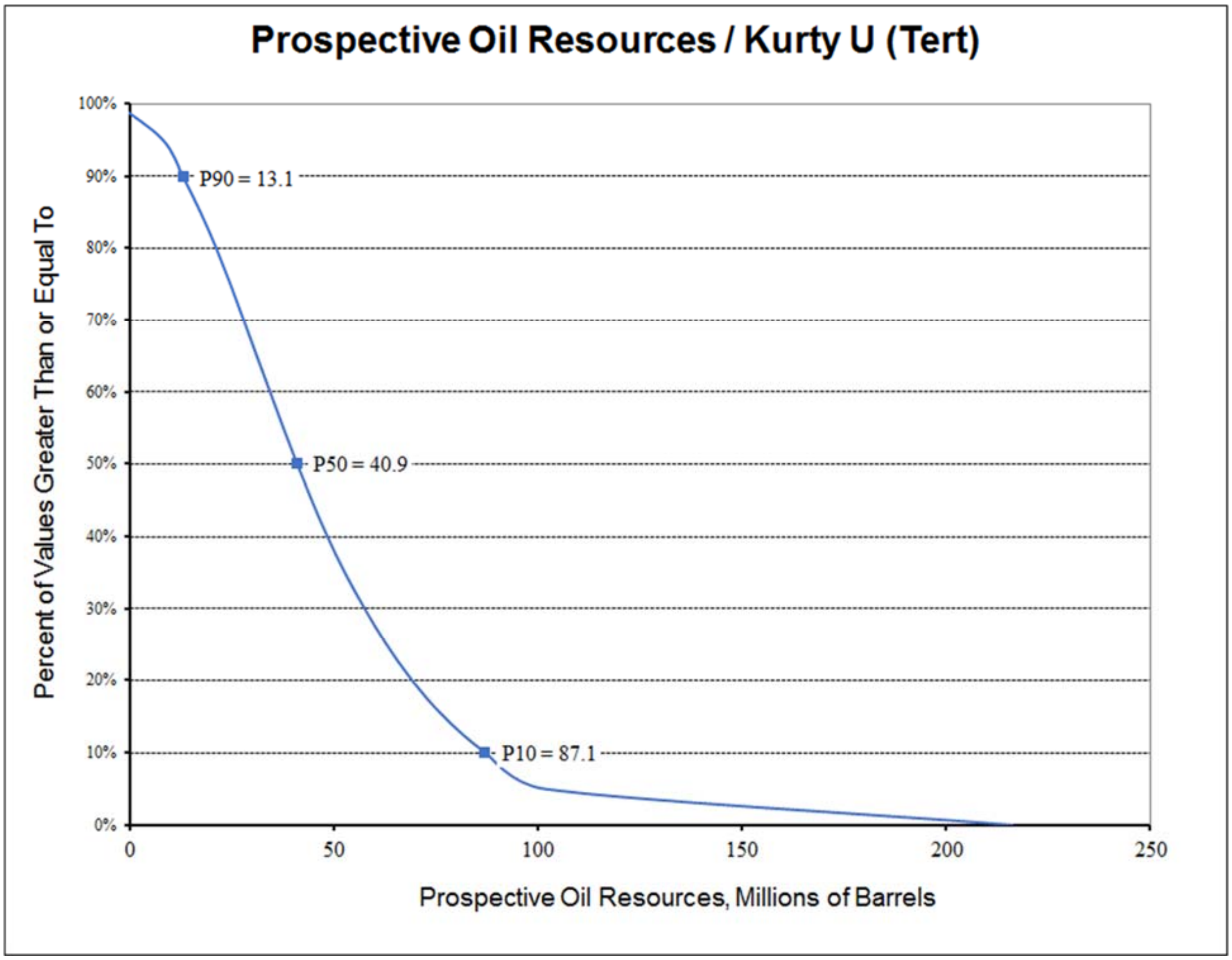


Figure 4-18 Prospective Oil Resources / Kurty U

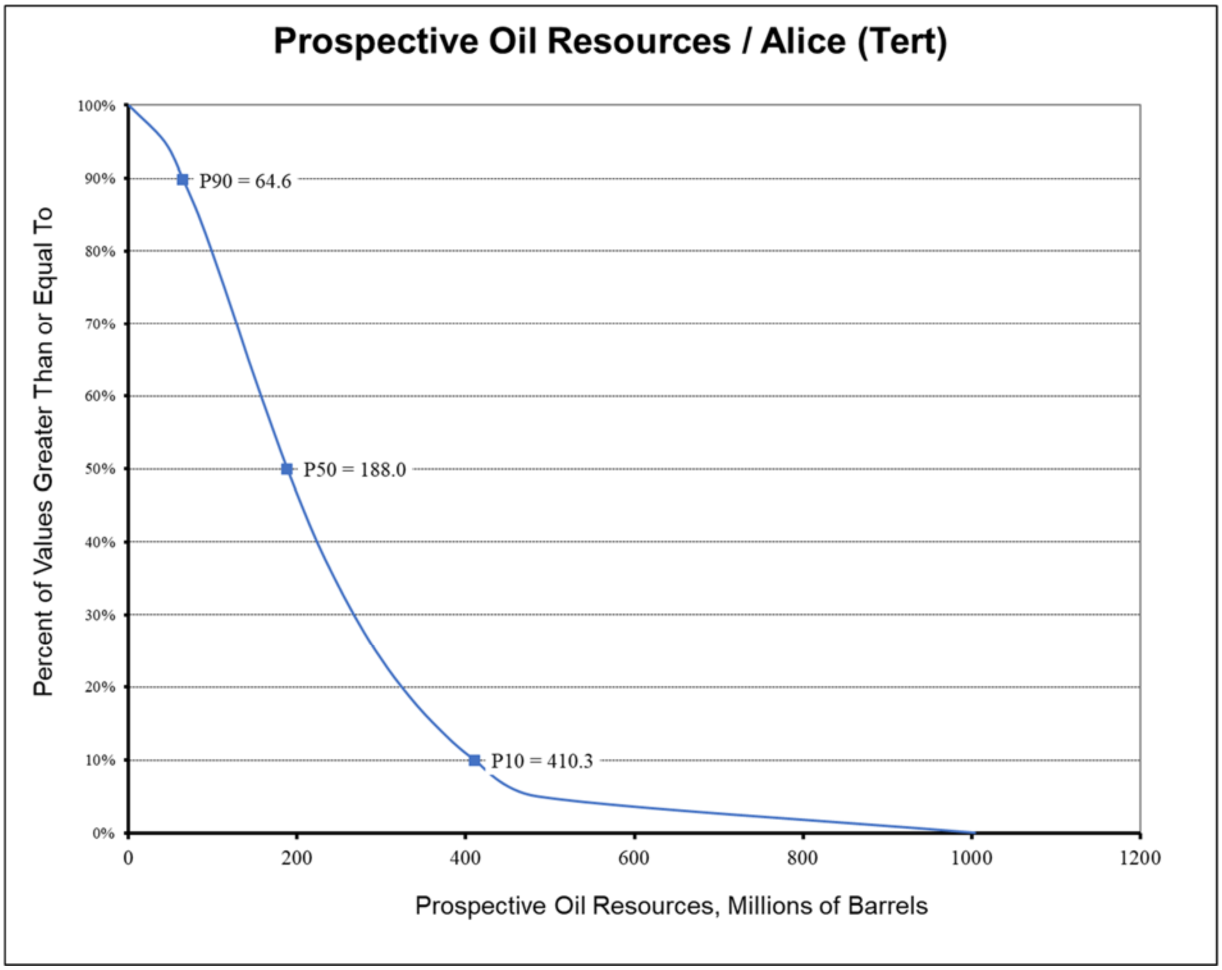


Figure 4-19 Prospective Oil Resources / Alice

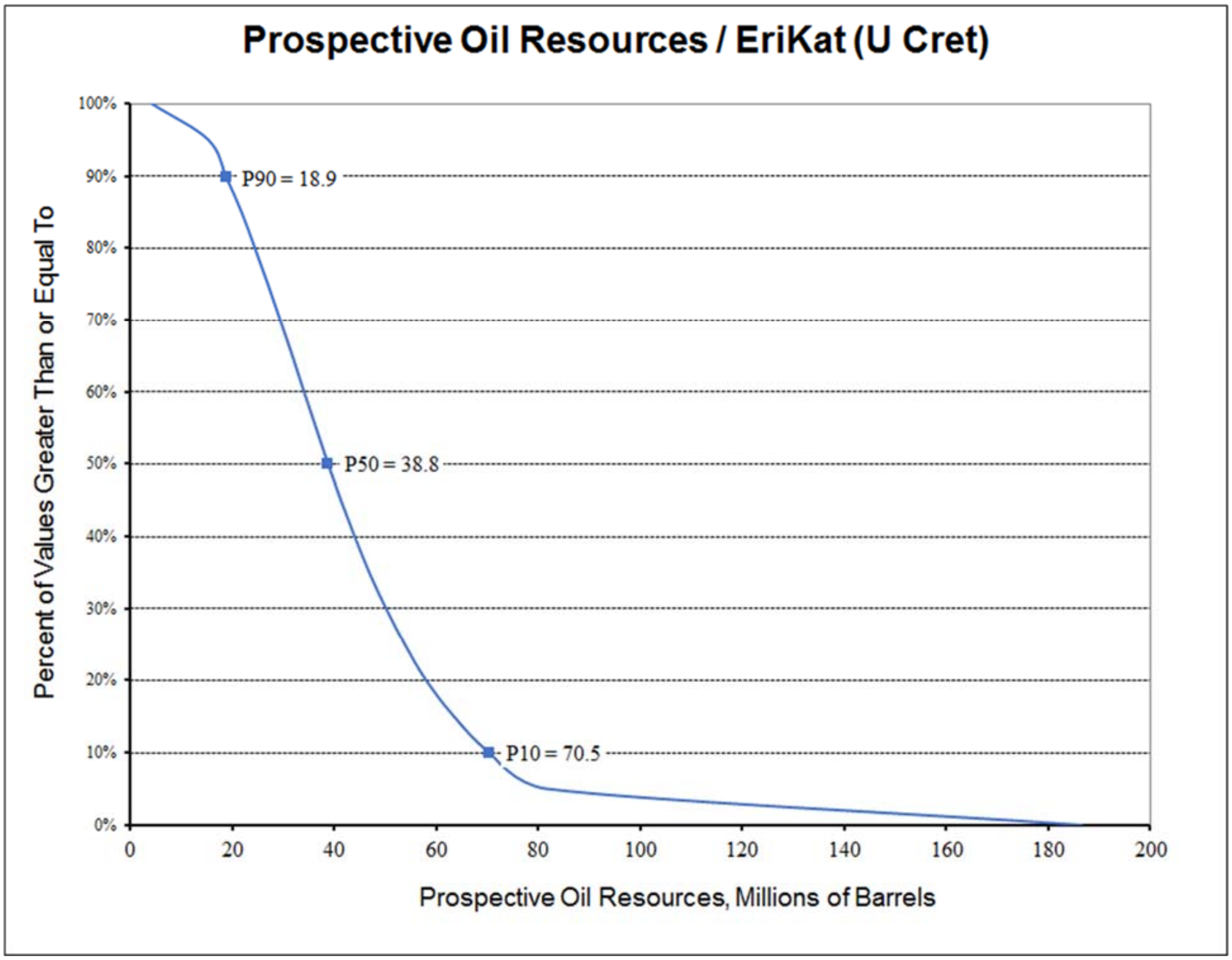


Figure 4-20 Prospective Oil Resources / EriKat

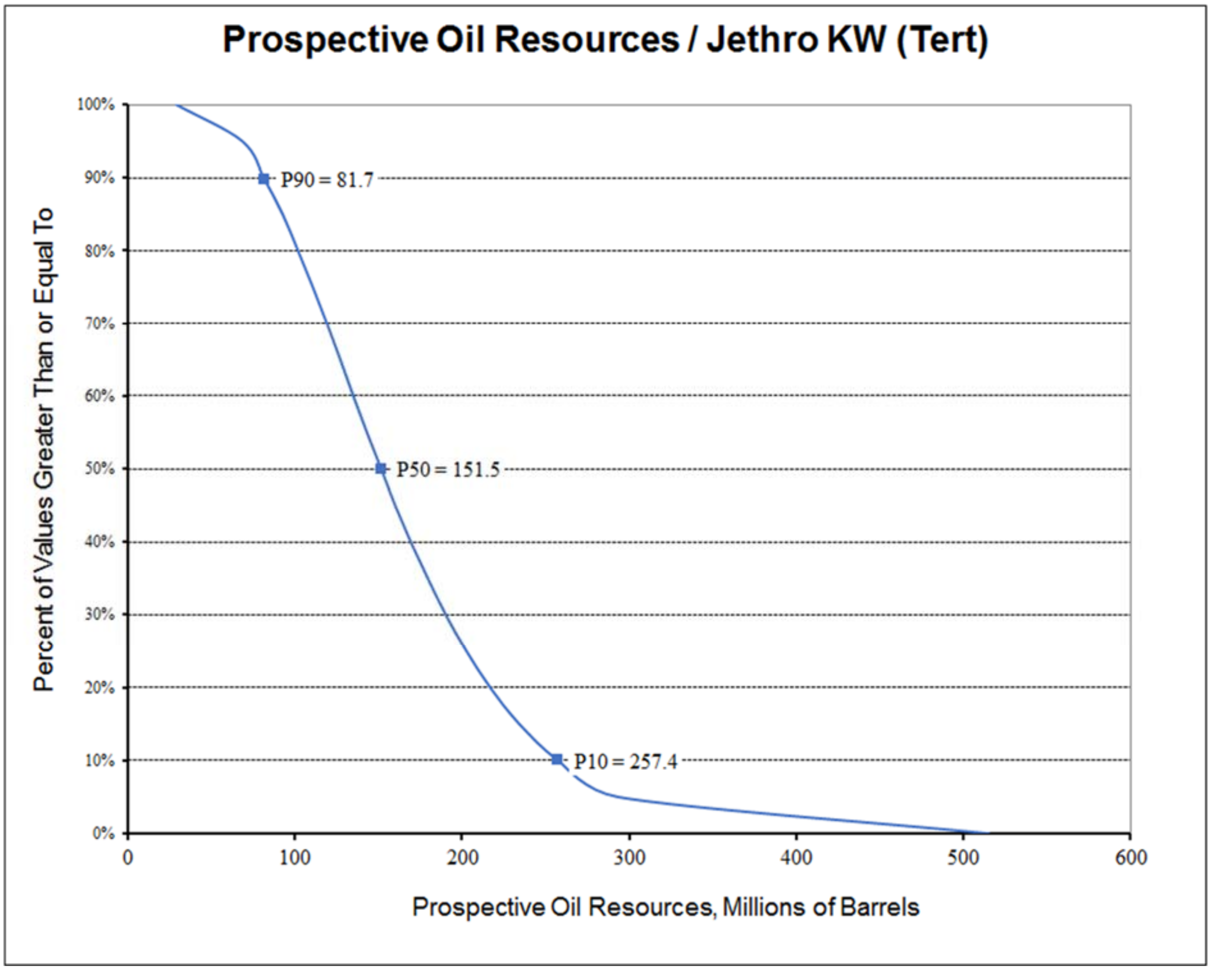


Figure 4-21 Prospective Oil Resources / Jethro KW

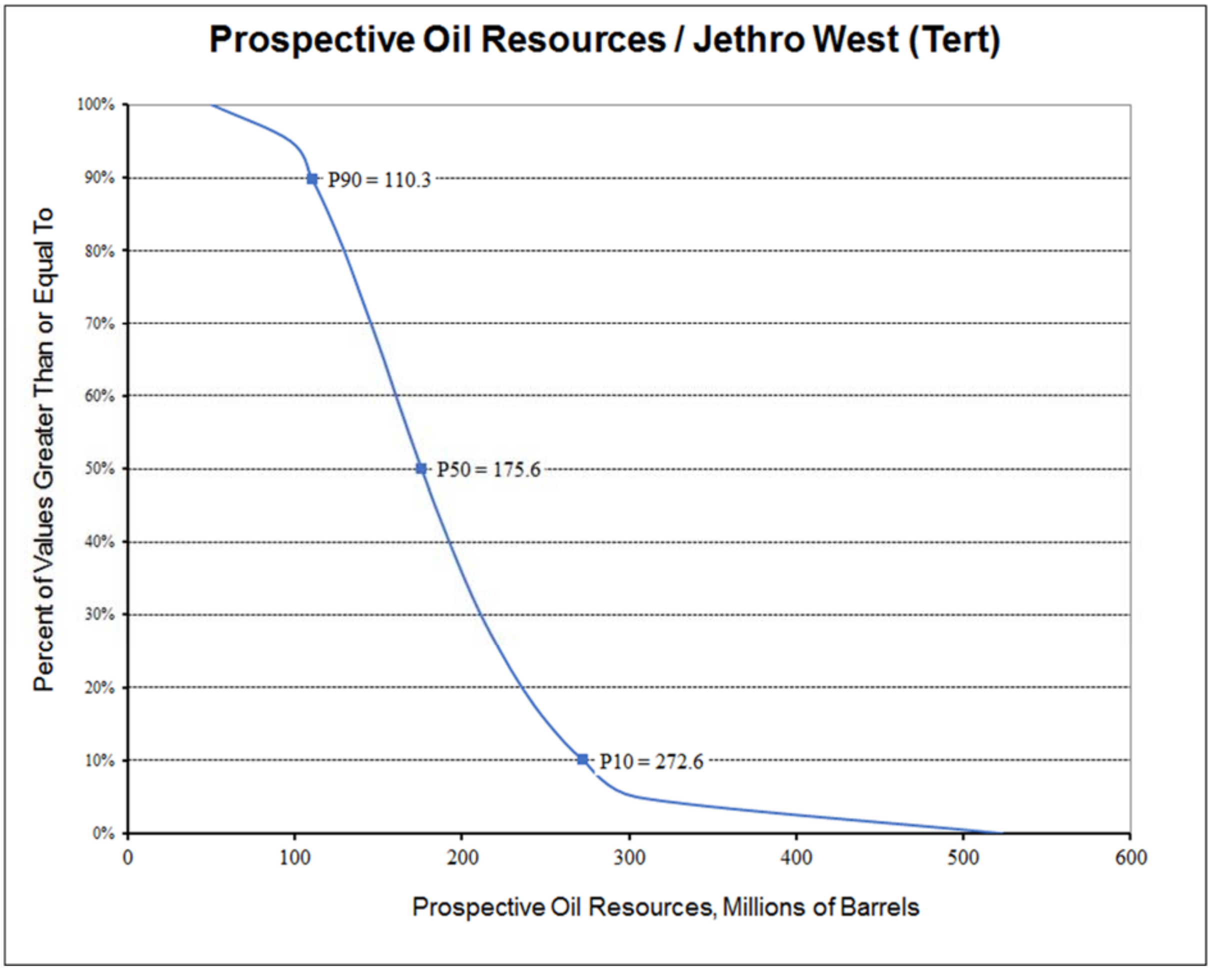


Figure 4-22 Prospective Oil Resources /Jethro West

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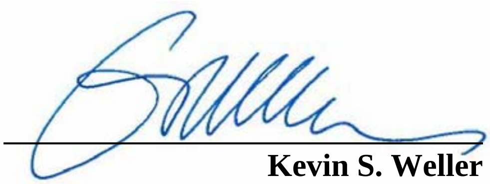
6. CONSENT LETTER

Gustavson Associates LLC hereby consents to the use of all or any part of this Resource Evaluation Report for the Orinduik Block concession, as of February 1, 2020 in any document filed with any London Stock Exchange (AIM) by ECO (Atlantic) Oil and Gas Ltd.

Prepared By:



Kevin S. Weller
Registered Petroleum Engineer
State of Colorado #34214

7. CERTIFICATE OF QUALIFICATION

I, Kevin S. Weller, Professional Engineer of 5665 Flatiron Pkwy, Suite 250, Boulder, Colorado, 80301, USA, hereby certify:

1. I am an employee of Gustavson Associates, which prepared a detailed analysis of the oil and gas properties of ECO (Atlantic) Oil and Gas Ltd. The effective date of this evaluation is February 1, 2020.
2. I do not have, nor do I expect to receive, any direct or indirect interest in the securities of ECO (Atlantic) Oil and Gas Ltd. or their affiliated companies, nor any interest in the subject property.
3. I attended the Colorado School of Mines and I graduated with a Bachelor of Science Degree in Geological Engineering in 1981; I am a Registered Professional Engineer in the State of Colorado, and I have in excess of 35 years' experience in the conduct of evaluation and engineering studies relating to oil and gas fields.
4. A personal field inspection of the properties was not made; however, such an inspection was not considered necessary in view of information available from public information and records, and the files of ECO (Atlantic) Oil and Gas Ltd.

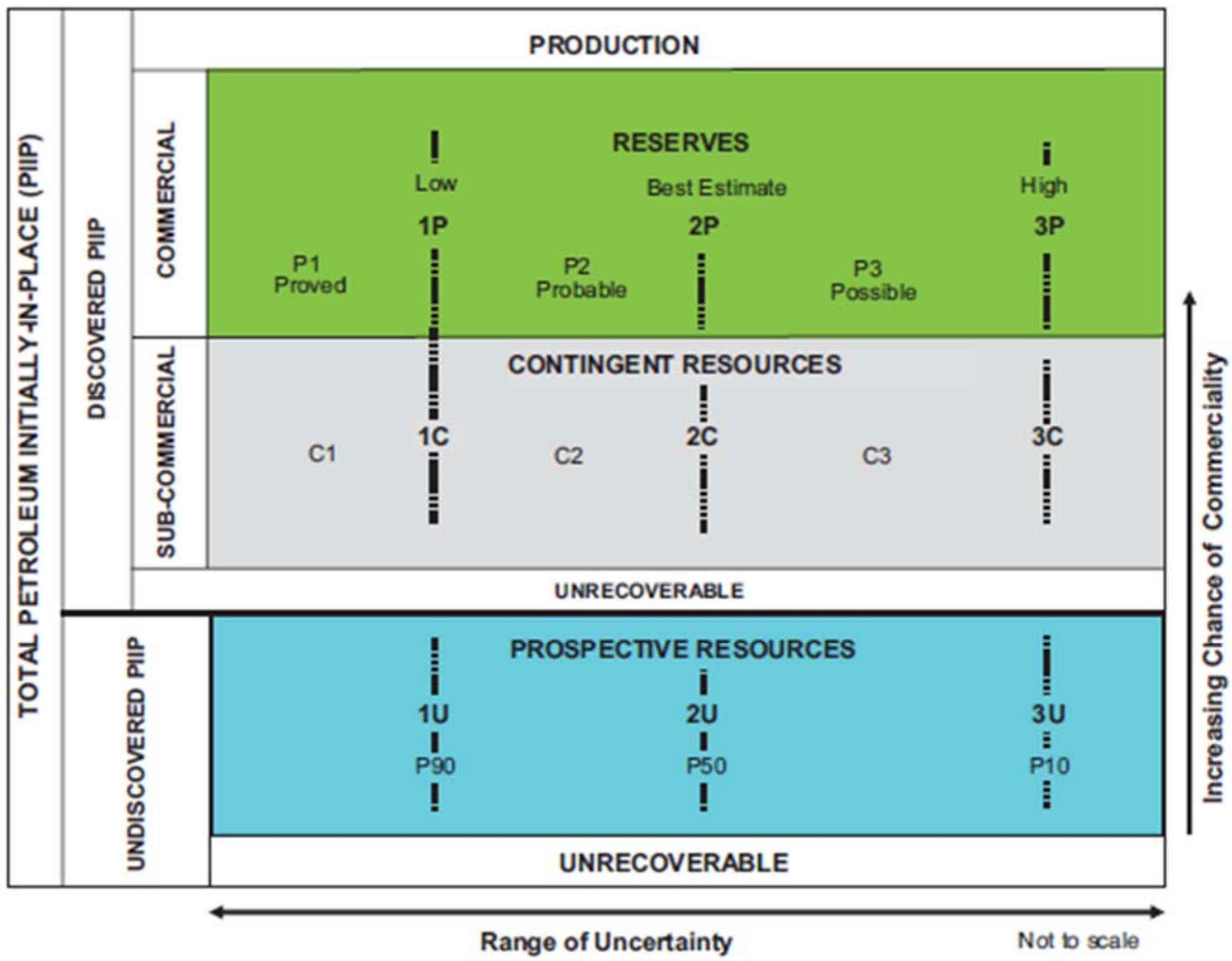
Prepared By:

Kevin S. Weller
Registered Petroleum Engineer
State of Colorado #34214

Appendix A

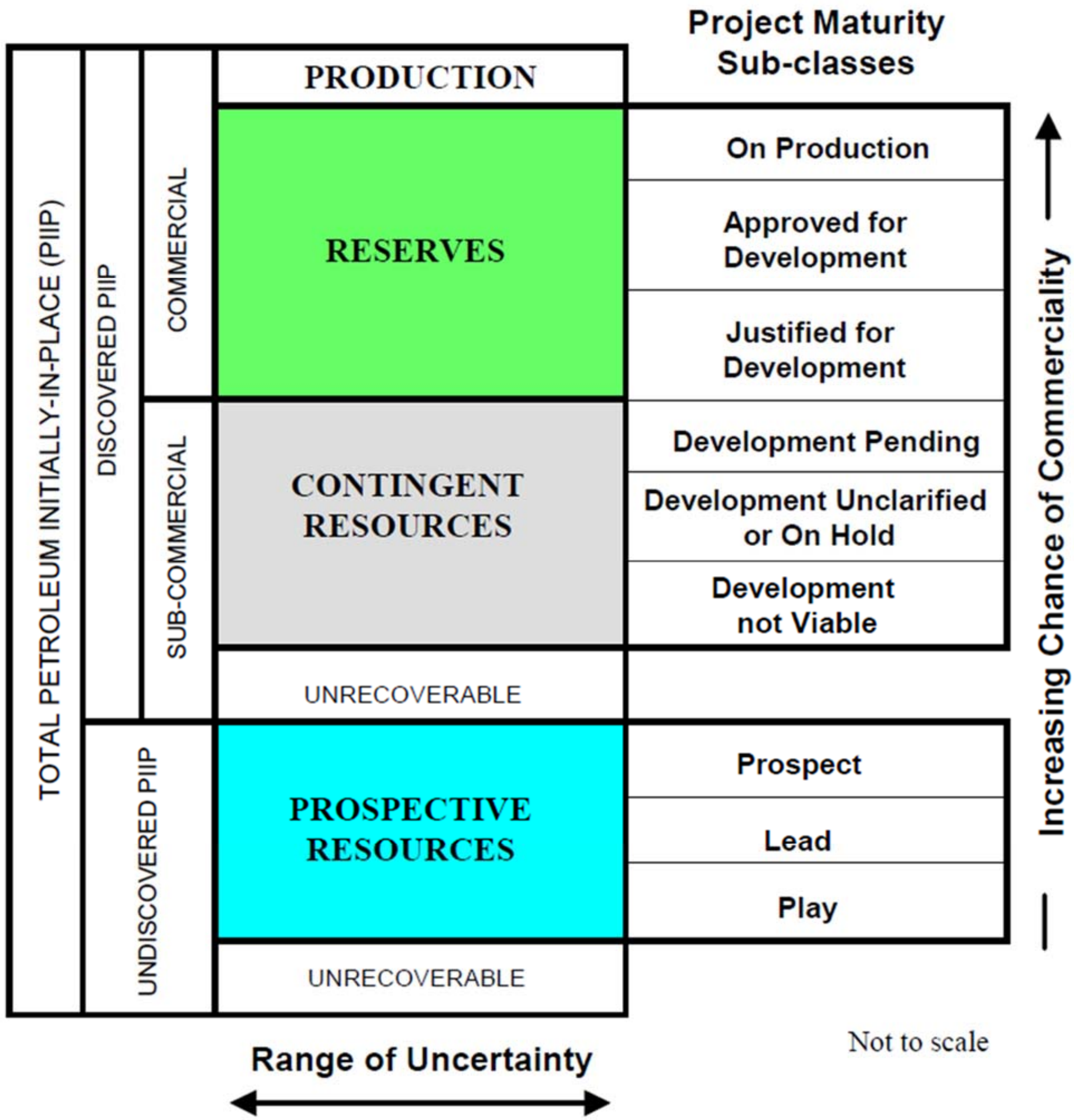
Glossary of Terms and Abbreviations

The following are select terms or phrases as defined by Society of Petroleum Engineers (SPE), American Association of Petroleum Geologists (AAPG), World Petroleum Council (WPC), and Society of Petroleum Evaluation Engineers (SPEE) in Petroleum Resources Management System, revised 2018, see figures below. Note that these figures and definitions are consistent with the figures and definitions provided in the COGEH[9]: the PRMS versions are reproduced here due to their completeness.



Resources Classification Framework

[9] Canadian Oil and Gas Evaluation Handbook as referenced earlier in this report.



Sub-Classes based on Project Maturity

An **Accumulation** is an individual body of naturally occurring petroleum in a reservoir.

Contingent Resources are those quantities of petroleum estimated, as of a given date, to be potentially recoverable from known accumulations by application of development projects, but which are not currently considered to be commercially recoverable due to one or more contingencies.

Conventional Resources exist in discrete petroleum accumulations related to localized geological structural features and/or stratigraphic conditions, typically with each accumulation bounded by a downdip contact with an aquifer, and which is significantly affected by hydrodynamic influences such as buoyancy of petroleum in water.

Developed Reserves are expected quantities to be recovered from existing wells and facilities.

Developed Producing Reserves are expected to be recovered from completion intervals that are open and producing at the time of estimate.

Developed Non-Producing Reserves include shut-in and behind-pipe Reserves.

Estimated Ultimate Recovery (EUR) are those quantities of petroleum which are estimated, on a given date, to be potentially recoverable from an accumulation, plus those quantities already produced therefrom.

A **Lead** is a project associated with a potential accumulation that is currently poorly defined and requires more data acquisition and/or evaluation in order to be classified as a prospect.

Low/Best/High Estimates are the range of uncertainty that reflects a reasonable range of estimated potentially recoverable volumes at varying degrees of uncertainty (using the cumulative scenario approach) for an individual accumulation or a project.

A **Play** is a project associated with a prospective trend of potential prospects, but which requires more data acquisition and/or evaluation in order to define specific leads or prospects.

A **Pool** is an individual and separate accumulation of petroleum in a reservoir.

Possible Reserves are those additional Reserves which analysis of geoscience and engineering data indicate are less likely to be recoverable that Probable Reserves.

Probable Reserves are those additional Reserves which analysis of geoscience and engineering data indicate are less likely to be recovered than Proved Reserves but more certain to be recovered than Possible Reserves.

Probabilistic Method is the method of estimation used when the known geoscience, engineering, and economic data are used to generate a continuous range of estimates and their associated probabilities.

A **Prospect** is a project associated with a potential accumulation that is sufficiently well defined to represent a viable drilling target.

Prospective Resources are those quantities of petroleum which are estimated, as of a given date, to be potentially recoverable from undiscovered accumulations.

Proved Reserves are those quantities of petroleum, which by analysis of geoscience and engineering data, can be estimated with reasonable certainty to be commercially recoverable, from a given date forward, from known reservoirs and under defined economic conditions, operating methods, and government regulations.

Reserves are those quantities of petroleum anticipated to be commercially recoverable by application of development projects to known accumulations from a given date forward under defined conditions.

Unconventional Resources exist in petroleum accumulations that are pervasive throughout a large area and lack well-defined OWC or GWC (also called “continuous-type deposits”). Such resources cannot be recovered using traditional recovery projects owing to fluid viscosity (e.g., oil sands) and/or reservoir permeability (e.g., tight gas/oil/CBM) that impede natural mobility. Moreover, the extracted petroleum may require significant processing before sale (e.g., bitumen upgraders).

Undeveloped Reserves are quantities expected to be recovered through future investments.

The following are abbreviations and definitions for common petroleum terms.

10^3m^3	thousands of cubic meters
AVO	amplitude versus offset
Bbl, Bbls	barrel, barrels
BCF	billions of cubic feet
BCM	billions of cubic meters
B_g	gas formation volume factor
BHT	bottom hole temperature
BHP	bottom hole pressure
B_o	oil formation volume factor
BOE	barrels of oil equivalent
BOPD	barrels of oil per day
BPD	barrels per day
Btu	British thermal units
BV	bulk volume
CNG	compressed natural gas
CO_2	carbon dioxide
DHI	direct hydrocarbon indicators
DHC	dry hole cost
DST	drill-stem test
E & P	exploration and production
EOR	enhanced oil recovery
EUR	estimated ultimate recovery
ft	feet
ft^2	square feet
FVF	formation volume factor
G & A	general and administrative
G & G	geological and geophysical
g/cm^3	grams per cubic centimeter
Ga	billion (10^9) years
GIIP	gas initially in place
GOC	gas-oil contact
GOR	gas-oil ratio
GR	gamma ray (log)
GRV	gross rock volume
GWC	gas-water contact
ha	hectare
Hz	hertz
IDC	intangible drilling cost
IOR	improved oil recovery
IRR	internal rate of return
J & A	junked and abandoned
km	kilometers
km^2	square kilometers
LoF	life of field

M & A	mergers and acquisitions
m	meters
M	thousands
MM	million
m^3/day	cubic meters per day
Ma	million years (before present)
max	maximum
MBOPD	thousand barrels of oil per day
MCFD	thousand cubic feet per day
MCFGD	thousand cubic feet of gas per day
MD	measured depth
mD	millidarcies
MDSS	measured depth subsea
min	minimum
ML	most likely
MMBO	million barrels of oil
MMBOE	million barrels of oil equivalent
MMBOPD	million barrels of oil per day
MMCFGD	million cubic feet of gas per day
MMTOE	million tons of oil equivalent
mSS	meters subsea
NGL	natural gas liquids
NPV	net present value
NTG	net-to-gross ratio
OGIP	original gas in place
OOIP	original oil in place
OWC	oil-water contact
P10	high estimate
P50	best estimate
P90	low estimate
P & A	plugged and abandoned
ppm	parts per million
PRMS	Petroleum Resources Management System
PSDM	Pre-Stack Depth Migrated Seismic Data
PSTM	Pre-Stack Time Migrated Seismic Data
psi	pounds per square inch
RB	reservoir barrels
RCF	reservoir cubic feet
RF	recovery factor
ROI	return on investment
ROP	rate of penetration
SCF	standard cubic feet
SS	subsea
STB	stock tank barrel
STOIIP	stock tank oil initially in place
S_g	gas saturation

S_o	oil saturation
S_w	water saturation
TCF	trillion cubic feet
TD	total depth
TDC	tangible drilling cost
TVD	true vertical depth
TVDSS	true vertical depth subsea
TWT	two-way time
US$	US dollar