

FORM 51-102F3

MATERIAL CHANGE REPORT

**Item 1 Name and Address of Corporation**

Valeura Energy Inc. (“Valeura” or the “Corporation”)  
Suite 1200, 202 – 6th Avenue S.W.  
Calgary, Alberta, T2P 2R9

**Item 2 Date of Material Change**

February 6, 2018.

**Item 3 News Release**

News release reporting the material change was issued on February 6, 2018 through the services of CNW.

**Item 4 Summary of Material Change**

On February 6, 2018, the Corporation reported the results of an independent evaluation of its unconventional prospective resources in the Thrace Basin of Turkey prepared by DeGolyer and MacNaughton (“D&M”) of Dallas, Texas in its report dated February 6, 2018 (the “D&M Resources Report”). The highlights of the D&M Resources Report are as follows: (1) 10.1 Tcf of estimated working interest *unrisked* mean prospective resources of natural gas, which includes 236 MMbbl of condensate; and (2) 5.2 Tcf of estimated working interest *risked* mean prospective resources of natural gas, which includes 165 MMbbl of condensate.

**Item 5 Full Description of Material Change**

*5.1 Full Description of Material Change*

**2017 YEAR-END UNCONVENTIONAL PROSPECTIVE RESOURCES SUMMARY**

On February 6, 2018, the Corporation reported the results of the D&M Resources Report. The highlights of the D&M Resources Report are as follows: (1) 10.1 Tcf of estimated working interest *unrisked* mean prospective resources of natural gas, which includes 236 MMbbl of condensate; and (2) 5.2 Tcf of estimated working interest *risked* mean prospective resources of natural gas, which includes 165 MMbbl of condensate.

The D&M Resources Report was prepared using the guidelines outlined in the Canadian Oil and Gas Evaluation Handbook (the “COGEH”) and in accordance with National Instrument 51-101, *Standards of Disclosure for Oil and Gas Activities* (“NI 51-101”) and effective as at December 31, 2017. D&M evaluated the unconventional prospective resources attributable to the Teslimkoy/Kesan basin-centered gas prospect on Valeura’s lands in the Thrace Basin of Turkey.

The working interest lands comprise the deep formations (generally below 2,500 m depth) on the Corporation’s Banarli licenses (50% working interest), TBNG JV West Thrace lands (31.5% working interest), and TBNG JV South Thrace lands (81.5% working interest).

The D&M evaluation benefited from the Yamalik-1 natural gas-condensate discovery, which was recently drilled and tested on the Banarli licenses. Yamalik-1 discovered an approximate 1,300 m column of natural gas and condensate in over-pressured reservoirs below 2,900 m

in the Teslimkoy and Kesan formations. The well was drilled to 4,196 m, fracture stimulated and production tested in Q4 2017. As announced on December 27, 2017, four production tests from eight frac stages in the Kesan formation yielded a 24-hour aggregate test rate of 2.9 MMcf/d. Extensive coring and wireline logging information was also captured in the well.

Yamalik-1 was the first well to be extensively fracture stimulated in the basin-centered gas prospect in the Thrace Basin. However, well data from seven other legacy wells drilled in the prospective area to depths up to 4,050 m also indicate over-pressured natural gas below approximately 2,500 m and were available for D&M’s evaluation. Only one of these legacy wells (Yayli-1) was fracture stimulated with a small two-stage frac at a depth of approximately 2,800 m.

Table 1 below summarizes D&M’s estimates of Valeura’s working interest prospective natural gas resources (defined as “conventional natural gas” under NI 51-101). These numbers as reported by D&M are for the complete gas stream and explicitly include condensate resources (defined as “natural gas liquids” under NI 51-101) which are entrained in the natural gas. Sales gas volumes would be nominally lower than those presented in Table 1. Table 2 shows the amount of condensate that would be recovered associated with the production of the natural gas volumes shown in Table 1.

**Table 1 - Valeura Working Interest Natural Gas Prospective Resources at December 31, 2017**  
(6)(7)(8)(9)(10)

Valeura Working Interest Lands (1)	Unrisked				Chance of Commerciality % (11)	Risked Mean Estimate (12)
	Low Estimate (2)	Best Estimate (3)	High Estimate (4)	Mean Estimate (5)		
<b>Conventional Natural Gas (13) - Bcf</b>						
<b>Total</b>	<b>3,229</b>	<b>7,652</b>	<b>20,077</b>	<b>10,137</b>	<b>51.1</b>	<b>5,182</b>

The broad range of recoverable gas from 3.2 to more than 20 Tcf is a function of the uncertainty in the various components of the assessment, including recovery factor. There has been very limited stimulation and production testing from the over-pressured Teslimkoy and Kesan formations in the Thrace Basin, and as yet there is no production data. To determine potential recovery factors, D&M have utilized their experience in analogous basins. The prospective resources in Tables 1 and 2 assume a low recovery factor estimate of approximately 25%, a best and mean estimate of 40% and high estimate of 55%. Significantly more delineation drilling, stimulation, and testing will be required to confirm that gas can be commercially recovered from the prospect, and to generate type curves that can be used in a predictive sense. All of Valeura’s prospective resources were sub-classified into the project maturity subclass of ‘prospect’.

**Table 2 - Valeura Working Interest Natural Gas Liquids Prospective Resources at December 31, 2017** (6)(7)(8)(9)(10)

	Unrisked

Valeura Working Interest Lands <sup>(1)</sup>	Low Estimate <sup>(2)</sup>	Best Estimate <sup>(3)</sup>	High Estimate <sup>(4)</sup>	Mean Estimate <sup>(5)</sup>
<b>Condensate (Natural Gas Liquids) <sup>(14)</sup> - MMbbl</b>				
<b>Total</b>	<b>45</b>	<b>155</b>	<b>504</b>	<b>236</b>

D&M has assigned a chance of discovery of 70%. This high chance is driven by: (1) the hundreds of legacy wells drilled in the Thrace Basin which support the geological model for the Teslimkoy and Kesan formations; (2) the over-pressured natural gas which was encountered and tested at Yamalik-1; and (3) the seven legacy wells surrounding the basin, which all encountered over-pressured gas below 2,500 m. D&M has assigned a chance of development of the natural gas prospective resources of approximately 74%, which is a product of the probability of threshold economic field size and probability of development. This high chance of development reflects that existing hydraulic fracturing technology is being applied, well depths and costs are not expected to be excessive, sales pipeline infrastructure already exists in the area and there are ready domestic markets in Turkey for domestic natural gas and condensate sales. This results in an overall chance of commerciality of 51.1%, which is the product of chance of discovery and chance of development. The resulting risked mean estimates of conventional natural gas prospective resources are shown in Table 1, as risked for chance of commerciality.

Understanding of the extent of this basin-centered gas prospect in the Thrace Basin and its potential commerciality is in the early stages of exploration and appraisal. There are a number of positive and negative factors which are driving large uncertainty. The key positive factors include:

- Design work is underway for the production facilities and gathering pipeline to tie-in the Yamalik-1 well to Valeura’s existing gathering sales pipeline infrastructure to enable a long-term production test and natural gas and condensate sales from the well at an anticipated cost of approximately US\$3 MM (gross). First sales from Yamalik-1 are targeted for Q2 2018.
- Valeura and Statoil Banarli Turkey B.V. (“**Statoil**”) are planning a delineation drilling program comprising three wells expected to commence in Q3 2018 and extend into 2019. The first well in this program will be the second and final earning well under Phase 3 of the Banarli farm-in to be fully funded by Statoil.
- The follow-up delineation drilling program will benefit from the new Karaca 3D seismic in terms of finalizing drilling locations, correlating the seismic to the Yamalik-1 well results and targeting sweet-spots in the basin-centered gas prospect.
- It is expected that the follow-up delineation wells will be drilled to approximately 5,000 m given good potential to extend the column of hydrocarbon-bearing sands. The Yamalik-1 well was drilled to 4,196 m, the limit of the rig capability and well completion, but the base of the well was still in gas-bearing sands that were successfully flow tested.
- Valeura’s existing infrastructure and customer base is expected to be capable of handling sales of more than 35 MMcf/d compared to current sales through the system of less than 10 MMcf/d, thereby providing the opportunity for early production from any future delineation wells.
- Turkey is a captive natural gas market given that 99% of its natural gas demand is served by imports. This provides an attractive marketing opportunity for a domestic natural gas producer. As Valeura’s natural gas production volumes potentially grow beyond the limit of its owned infrastructure, there are multiple takeaway

opportunities. These include: a potential to tie-in to a pipeline owned by Bori Hatlari ile Petrol Tasima Anonim Sirketi (“**BOTAS**”) just north of the Banarli lands; a tie-in to another BOTAS interconnector pipeline traversing Banarli and connected to an export line to Greece; and sales to the local gas distributor who currently offtakes gas from the BOTAS pipeline to the north.

- Natural gas prices in Turkey are strong. Valeura’s average natural gas price realization in Q4 2017 was approximately CAD\$6.61/Mcf. On January 1, 2018, the reference natural gas price set by BOTAS was increased by 14%.

Negative factors with respect to the estimate of prospective resources include

- The basin-centered gas prospect is in the early exploration and delineation cycle with very sparse well control and very limited fracture stimulation and testing data.
- There is no long-term well production performance from the basin-centered prospect to establish a production type curve specific to the prospect, thereby requiring use of analogue information at this time to establish development plans and to confirm the chance of commerciality.
- Recovery efficiencies are uncertain given the absence of site specific long-term well production performance data in the basin-centered gas prospect.
- The limited deep drilling carried out in the Thrace Basin provides poor visibility on future costs to drill, frac and complete deep development wells to exploit the basin-centered gas prospect and the associated impact on the chance of commerciality.
- Although oil and gas activity has been underway for many decades in the Thrace Basin area, as activity levels increase, timelines may increase to achieve government and local landowner approvals.

5.2 *Disclosure For Restructuring Transactions*

Not applicable.

**Item 6 Reliance on Subsection 7.1(2) of National Instrument 51-102**

Not applicable.

**Item 7 Omitted Information**

Not applicable.

**Item 8 Executive Officer**

For more information, please contact:

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**Item 9 Date of Report:**

February 14, 2018.

## OIL AND GAS ADVISORIES

The prospective resources estimates provided herein are estimates only and there is no guarantee that the estimated prospective resources will be recovered.

The short production test rates disclosed in the D&M Resources Report and summarized in this material change report are preliminary in nature and may not be indicative of stabilized on-stream production rates. Initial on-stream production rates are typically disclosed with reference to the number of days in which production is measured. Initial on-stream production rates are not necessarily indicative of long-term performance or ultimate recovery. To date, Valeura's shallow gas conventional wells and fraced unconventional tight gas wells have exhibited relatively high decline rates at more than 50% and 75%, respectively, in their first year of production. Many of these shallow wells are producing from the Teslimkoy and Kesan formations targeted in Yamalik-1, but they are in a different depth and pressure environment and the type curves are not expected to be indicative of Yamalik-1 future production, or any other future deep well. A pressure transient analysis or well-test interpretation has not been carried out in respect of the production tests on the Yamalik-1 well. All natural gas rates and volumes are presented net of any load fluids.

## RESOURCES & OTHER DEFINITIONS

“**chance of discovery**” is the estimated probability that exploration activities will confirm the existence of a significant accumulation of potentially recoverable petroleum.

“**chance of development**” is the estimated probability that, once discovered, a known accumulation will be commercially developed.

“**condensate**” is defined as Natural Gas Liquids product type as per NI 51-101.

“**natural gas**” is defined as Conventional Natural Gas product type as per NI 51-101.

“**prospective resources**” are 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.

“**TBNG JV**” means the operating joint venture between Thrace Basin Natural Gas (Turkiye) Corporation (a wholly-owned affiliate of Valeura) (41.5% and operator), CRBV (a wholly-owned affiliate of Valeura) (40%) and Pinnacle Turkey, Inc. (a corporation organized pursuant to the laws of the British Virgin Islands and having a branch in Turkey) (18.5%) on lands in the Thrace Basin.

## FOOTNOTES TO TABLES

- (1) Valeura's working interest in the lands (exploration licences and production leases) that are encompassed (all or a portion thereof) in the basin-centered gas prospect in the Teslimkoy/Kesan formation is as follows: Banarli 50%, West Thrace 31.5% and South Thrace 81.5%.
- (2) The low estimate is the P<sub>90</sub> quantity. P<sub>90</sub> means there is a 90% chance that the estimated quantity will be equaled or exceeded.

- (3) The best estimate is the P<sub>50</sub> quantity. P<sub>50</sub> means there is a 50% chance that the estimated quantity will be equaled or exceeded.
- (4) The high estimate is the P<sub>10</sub> quantity. P<sub>10</sub> means there is a 10% chance that the estimated quantity will be equaled or exceeded.
- (5) The mean estimate is the probability-weighted average (expected value).
- (6) The totals are the arithmetic summation of probabilistic estimates. Arithmetic summation may produce invalid results except for the mean.
- (7) Unconventional prospective resources, as prepared by D&M, are those quantities of petroleum that are estimated, at a given date, to be potentially recoverable from undiscovered unconventional accumulations by application of future development projects. Unconventional prospective resources may exist in petroleum accumulations that are pervasive throughout a large potential production area and would not be significantly affected by hydrodynamic influences (also called continuous-type deposits). Typically such accumulations (once discovered) require specialized extraction technology (e.g. massive fracturing programs for tight gas). Tight gas occurs within low permeability reservoir rocks, which are rocks with matrix porosity of 10 percent or less and permeability of 0.1 millidarcies or less, exclusive of fractures. Tight gas can be regionally distributed (e.g. the basin-centered gas prospect in the Thrace Basin evaluated in the D&M Resources Report and summarized in this material change report), rather than accumulated in a readily producible reservoir in a discrete structural closure as in a conventional gas field.
- (8) Prospective resources have both an associated *chance of discovery* and a *chance of development*. There is no certainty that any portion of the unconventional prospective resources estimated in the D&M Resources Report and summarized in this material change report will be discovered. If discovered, there is no certainty that it will be commercially viable to produce any portion of the unconventional prospective resources evaluated. Estimates of the unconventional prospective resources should be regarded only as estimates that may change as additional information becomes available. Not only are such unconventional prospective resources estimates based on that information which is currently available, but such estimates are also subject to uncertainties inherent in the application of judgmental factors in interpreting such information. Unconventional prospective resources should not be confused with those quantities that are associated with contingent resources or reserves due to the additional risks involved. Because of the uncertainty of commerciality and the lack of sufficient exploration drilling, the unconventional prospective resources estimated in the D&M Resources Report and summarized in this material change report cannot be classified as contingent resources or reserves. The quantities that might actually be recovered, should they be discovered and developed, may differ significantly from the estimates in the D&M Resources Report and summarized in this material change report.
- (9) The unconventional prospective resources estimates contained in the D&M Resources Report are expressed as gross and working interest unconventional prospective resources. Tables 1 and 2 above summarize Valeura's working interest in unconventional prospective resources, which incorporate the fraction of potential hydrocarbon pore volume owned or partially owned by Valeura and Valeura's working interest ownership, before deduction of any associated royalty burdens. Recovery

efficiency is applied to unconventional prospective resources in Tables 1 and 2 above.

- (10) The estimation of resources quantities for a prospect is subject to both technical and commercial uncertainties and, in general, may be quoted as a range. The range of uncertainty reflects a reasonable range of estimated potentially recoverable quantities. Estimates of petroleum resources in the D&M Resources Report and summarized in this material change report are expressed using the terms low estimate, best estimate, high estimate and mean estimate (unrisked and risked) to reflect the range of uncertainty.
- (11) The chance of commerciality is defined as the product of the *chance of discovery* and the *chance of development*. *Chance of discovery* is defined in COGEH as the estimated probability that exploration activities will confirm the existence of a significant accumulation of potentially recoverable petroleum. *Chance of development* is the estimated probability that, once discovered, a known accumulation will be commercially developed.

*Chance of discovery* in the D&M Resources Report is referred to as the probability of geologic success ( $P_g$ ), which is defined as the probability of discovering reservoirs that flow hydrocarbons at a measureable rate. The  $P_g$  is estimated by quantifying with a probability, each of the following geologic chance factors: trap, source, reservoir and migration. The product of the probabilities of these four chance factors is  $P_g$ .  $P_g$  is predicated and correlated to the minimum case prospective resources gross recoverable volume(s). Consequently, the  $P_g$  is not linked to economically viable volumes, economic flow rates or economic field size distributions.

In the D&M Resources Report, two factors have been considered in determining the *chance of development* as follows:

*Chance of development* =  $P_{tefs}$  (probability of threshold economic field size) x  $P_d$  (probability of development) D&M defines  $P_{tefs}$  as the probability of discovering an accumulation that is large enough to be economically viable.  $P_{tefs}$  is estimated by using the prospective resources potential recoverable quantities distribution in conjunction with the threshold economic field size (TEFS). TEFS is the minimum amount of the producible petroleum required to recover the total capital and operating expenditure used to establish the potential accumulation as having a potential present worth at 10% equal to zero using the most likely price scenario.

D&M defines  $P_d$  as the probability that a given discovery will be a viable development project. It takes into account the chance that the discovered target zone will flow the predicted hydrocarbon phase(s) at a commercial rate. It also considers the chance that the target zone can be mechanically completed and appraised in a reasonable time and in compliance with the projected cost schedule. The  $P_d$  is estimated by the quantification and product of these two chance factors.

- (12) The risked mean estimate of conventional natural gas prospective resources = the unrisked mean estimate x *chance of discovery* x *chance of development*.
- (13) The natural gas evaluated in the D&M Resources Report is the total gas produced from the reservoir prior to processing or separation and includes all the non-hydrocarbon components as well as any gas equivalent of condensate.

- (14) The natural gas liquids prospective resources are included in the conventional natural gas prospective resources.

## ABBREVIATIONS

<b>Term</b>	<b>Meaning</b>
<b>Bcf</b>	billion cubic feet
<b>bbbl</b>	barrels
<b>boe</b>	barrels of oil equivalent
<b>m</b>	meters
<b>M</b>	thousand
<b>MM</b>	million
<b>MMcf/d</b>	million cubic feet per day
<b>Tcf</b>	trillion cubic feet

### Cautionary Note Regarding Forward-Looking Information

This material change report contains certain forward-looking statements and information (collectively referred to herein as the “**forward-looking information**”) including, but not limited to:

- the anticipated delineation drilling and development program to exploit the basin centered gas prospect on Valeura’s working interest lands;
- the plans, timelines and cost to tie-in the Yamalik-1 well to conduct a long term production test, establish production type curves and achieve gas sales;
- completion of Phase 3 of the Banarli farm-in and drilling of the second earning well to be funded by Statoil;
- the ability to target sweet spots in the basin-centered gas prospect;
- the plans to drill to 5,000m in the basin-centered gas prospect delineation program and the cost and timeline impacts;
- the capacity of Valeura’s existing infrastructure in the Thrace Basin and ability to handle up to 35 MMcf/d;
- the ability to access other pipeline systems in the Thrace Basin should future production volumes exceed the capacity of Valeura’s existing infrastructure; and
- the ability to finance future developments.

Forward-looking information typically contains statements with words such as “anticipate”, “estimate”, “expect”, “target”, “potential”, “could”, “should”, “would” or similar words suggesting future outcomes. The Corporation cautions readers and prospective investors in the Corporation’s securities to not place undue reliance on forward-looking information, as by its nature, it is based on current expectations regarding future events that involve a number of assumptions, inherent risks and uncertainties, which could cause actual results to differ materially from those anticipated by the Corporation.

Statements related to “prospective resources” are deemed forward-looking information as they involve the implied assessment, based on certain estimates and assumptions, that the prospective resources can be profitably produced in the future. Specifically, forward-looking information contained herein regarding “prospective resources” may include:

- estimated volumes of prospective resources and the ability to finance future development; and,
- the conversion of a portion of prospective resources into reserves.

Forward-looking information is based on management's current expectations and assumptions regarding, among other things:

- political stability of the areas in which the Corporation is operating and completing transactions, and in particular the aftermath of the July 2016 failed coup attempt in Turkey and April 2017 constitutional referendum;
- continued safety of operations and ability to proceed in a timely manner;
- continued operations of and approvals forthcoming from the Turkish government in a manner consistent with past conduct;
- future seismic and drilling activity on the expected timelines;
- the prospectivity of the TBNG JV lands and Banarli licences, including the deep basin-centered gas potential;
- the continued favourable pricing and operating netbacks in Turkey;
- future production rates and associated operating netbacks and cash flow;
- future sources of funding;
- future economic conditions;
- future currency exchange rates;
- the ability to meet drilling deadlines and other requirements under licences and leases; and
- the Corporation's continued ability to obtain and retain qualified staff and equipment in a timely and cost efficient manner.

In addition, the Corporation's work programs and budgets are in part based upon expected agreement among joint venture partners and associated exploration, development and marketing plans and anticipated costs and sales prices, which are subject to change based on, among other things, the actual results of drilling and related activity, availability of drilling, fracing and other specialized oilfield equipment and service providers, changes in partners' plans and unexpected delays and changes in market conditions. Although the Corporation believes the expectations and assumptions reflected in such forward-looking information are reasonable, they may prove to be incorrect.

Forward-looking information involves significant known and unknown risks and uncertainties. Exploration, appraisal, and development of oil and natural gas reserves and resources are speculative activities and involve a significant degree of risk. A number of factors could cause actual results to differ materially from those anticipated by the Corporation including, but not limited to:

- the risks of currency fluctuations;
- changes in gas prices and netbacks in Turkey;
- uncertainty regarding the contemplated timelines for the Yamalik-1 tie-in program;
- completion of the Banarli farm-in program and the basin-centered gas delineation drilling program;
- the risks of disruption to operations and access to worksites, threats to security and safety of personnel and potential property damage related to political issues, terrorist attacks, insurgencies or civil unrest in Turkey;
- political stability in Turkey, including potential changes in Turkey's constitution, political leaders or parties or a resurgence of a coup or other political turmoil;
- the uncertainty regarding government and other approvals;

- counterparty risk;
- potential changes in laws and regulations;
- risks associated with weather delays and natural disasters;
- the risk associated with international activity; and
- the uncertainty regarding the ability to fulfill the drilling commitment on the West Thrace lands.

The forward-looking information included in this material change report is expressly qualified in its entirety by this cautionary statement. The forward-looking information included herein is made as of the date hereof and Valeura assumes no obligation to update or revise any forward-looking information to reflect new events or circumstances, except as required by law. See Valeura's annual information form for the year ended December 31, 2016 for a detailed discussion of the risk factors.