

14 January 2022

# Anshof-3 Well Logging Results Provide Further Confirmation of Oil and Gas Discovery

***“Casing to be run in well with a view to produce the primary oil zone as well as the shallower gas zone”***

## Key points in this release:

### *Logging Results*

Electric wireline logging results from the Anshof-3 exploration well provides further confirmation of the discovery of oil at the primary Eocene target as well as a potentially productive shallow gas reservoir interval. The results based on a quick look petrophysical analysis are summarised as follows:

- Oil interpreted across a gross interval of 6m at the primary Eocene oil target of which approximately 2.5 to 4m is expected to be productive net pay zone;
- Gas interpreted across a 20m gross interval of laminated sand and shale reservoirs within imbricated Miocene formations, of which 14m are anticipated to be gas pay; and
- Oil interpreted across a 11m gross interval at the secondary Cenomanian oil target, however this zone is not likely to be productive at this location due to low permeability.

The reservoir characteristics across the oil and gas intervals are analogous to productive zones encountered in nearby wells providing further confidence in the interpretation of drilling and logging results.

### *Well Testing and Production*

- The well will be cased and cemented with 7 inch casing to the total depth utilising the RED Drilling & Services GmbH E-200 rig (RED rig).
- The RED rig will be demobilised, then the well will be completed and tested using a specialised, smaller and cost-effective workover rig.
- The primary Eocene oil target will be tested first to confirm reservoir productivity and continuity, then the shallower gas zones will be tested prior to placing the well on commercial production.

### *Appraisal and Development Potential*

- The Anshof-3 results to date confirm the existence of a large structure commensurate with predrill estimates, the existence of potentially productive oil filled Eocene sands, shallower Miocene gas sands interval as well as the existence of oil filled Cenomanian reservoirs, which are not expected to be productive at the Anshof-3 location but may be elsewhere in the structure.
- ADX expects to declare a production license and initiate commercial production at Anshof-3 utilising proximal oil and gas infrastructure (pipeline connection located 50m away from Anshof-3 well location) accessible under existing commercial arrangements with RAG E&P GmbH (RAG E&P).

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- While the Eocene net reservoir thickness at Anshof-3 location came in at the lower end of predrill expectations, thicker Eocene reservoirs are expected to the East of the structure based on offset wells (refer to Figure 1) which warrant further appraisal and development.
- The Eocene reservoirs provide the most substantial reserves and value potential from the Anshof discovery while the shallow Miocene sands provide the opportunity to yield substantial additional near term cashflow from the Anshof-3 well given the currently high gas prices in Europe (EUR 79.95 per MWh equivalent to USD 35.07 per mcf).

## Notes:

*An overview of the Anshof Prospect is available in Appendix 1 at the end of this release. It includes the results of an independent prospect review undertaken by RISC Advisory Pty Ltd (RISC).*

*ADX announced a farmout to ASX listed Xstate Resources Limited to fund 40% of the Anshof-3 well costs to earn a 20% participating interest in the Anshof Prospect. Refer to ASX release dated 22 November 2021.*

**ADX Executive Chairman, Mr Ian Tchacos, said,** *“Three hydrocarbon bearing zones of interest have been intersected at the Anshof discovery in a large, high relief structure providing very significant appraisal and development potential in an onshore setting adjacent to readily available gathering, production and export infrastructure. The ability of our team on the ground to convert an exploration prospect to a discovery in a period 12 months from securing a license is extraordinary. The Anshof-3 well is expected to yield a second production asset in Austria for ADX in the near future. ADX shareholders and our partner Xstate are expected to benefit from operational synergies with our existing operations at the Vienna Basin Gaiselberg and Zistersdorf fields, positive government relations and agreements to access adjacent oil and gas infrastructure on predetermined terms. On behalf of the Board of ADX, I would like to congratulate our Austrian team for this potentially transformational discovery resulting from their technical ingenuity, hard work and professionalism.”*

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ADX Energy Ltd (**ASX Code: ADX**) is pleased to advise that the results of electric line logging operations at the Anshof-3 exploration well located in the ADX-AT-II license in Upper Austria (refer to Figure 3) have provided further confirmation of the discovery of an oil zone at the primary Eocene target as well as a potentially productive shallow Miocene gas reservoir. Based on the drilling and electric line logging results from the Anshof-3 well, ADX and its partner Xstate Resources Limited have decided to run casing and complete the well with a view to testing the oil and gas zones prior to potentially placing the well on commercial production following the declaration of a production license.

## **Logging Results**

The well was successfully open hole logged with an extensive suite of logs, including the standard “triple combo” suite of tools plus sonic and FMI (formation image) logs. Several logging runs were necessary due to poor hole conditions to acquire the comprehensive dataset enabling detailed quantification of reservoir parameters.

The petrophysical quick look interpretation was completed shortly after the last logging runs and confirmed and further substantiated the preliminary results obtained from drilling data such as oil and gas shows, gas chromatography logs and Gamma Ray logs recorded while drilling.

From top to bottom of the well the results can be summarised as follows:

1. Approximately 20m gross gas reservoir zone at around 800 meters of measured depth (MD) within the overthrust Miocene aged imbricates in a finely laminated deep water turbidites clastic section which has an estimated 14m of gas pay. The finely laminated thin bedded nature of gas sands was further evidenced by FMI logs. It is expected that these sands will contribute significantly to gas

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flow rates over an anticipated 20m perforation interval. The perforation intervals are currently under review.

2. The Eocene reservoir section starting around 2302m MD with oil shows across a 6m zone of which between 2.5 to 4m are expected to be productive net pay. This is comparable with nearby production wells.
3. The Cretaceous (Cenomanian) section has been interpreted to contain about 11m of reservoir section with oil saturation in line with the oil shows seen while drilling the well. Porosity logs (density, neutron and sonic) together with FMI data and cuttings data suggest that this zone at the Anshof-3 drilling location is unlikely to achieve economic oil flow rates. However, it is encouraging that oil presence was proven. Reservoir quality is known to be variable for this section and better reservoir quality may be encountered elsewhere on the large Anshof structure.

## **Well Testing and Production**

Current operations on the Anshof-3 well include preparation to run and cement 7 inch casing from the 9 5/8 inch casing shoe at 331m to TD of the well utilising the RED rig. After the completion of casing running and cementing operations the RED rig will be demobilised.

ADX has commenced engineering, planning and procurement to complete and test the well using a specialised, smaller and cost-effective workover rig. Much of the equipment and services required for completion and testing of the Anshof-3 well are available from ADX' operations at the Gaiselberg and Zistersdorf fields.

ADX plans to test the deeper Eocene oil target first to confirm reservoir productivity as well as continuity of the reservoirs from pressure response and production performance. The shallower gas zones will subsequently be tested prior to securing a production license and placing the well on commercial production via the nearby RAG E&P oil and gas gathering and processing infrastructure.

On the 22<sup>nd</sup> of November 2020 ADX announced an agreement with RAG E&P on commercial terms for the access of future oil and gas production from ADX exploration and appraisal licenses in Upper Austria which surround producing fields and infrastructure operated by RAG E&P. The agreement enables the reduction of capital expenditures and the time taken from drilling to commercial production due to the ability to tie into RAG E&P's existing hydrocarbon gathering, processing and storage facilities which are connected to Austria's oil and gas infrastructure network.

## **Appraisal and Development Potential**

### *Eocene oil reservoirs*

The Eocene oil reservoirs remain the primary target for the Anshof-3 well as well as follow up appraisal / development wells required to achieve the full productive potential of the Anshof discovery. Predrill reservoir thickness maps have already shown that the Anshof-3 location is situated in an area of regionally relatively thin gross Eocene reservoir section. The Anshof-3 results are slightly above the lower (P90) end of the pre-drill distribution of net reservoir thickness. Most importantly, the Eocene oil reservoir section came in as prognosed depth wise (i.e. 5m high to prognosis) which confirms the predrill mapping of a large structure with a maximum extent of 27 km<sup>2</sup> and a very significant maximum vertical relief of 440m. On this basis, ADX maintains its predrill best technical resource estimates as independently reviewed by RISC. (Refer to ASX announcement and investor presentation slide 12 from 6<sup>th</sup> December 2021 for further details – access link [here](#)).

Having confirmed the presence of a large high relief structure and the presence of oil filled reservoir at the main Eocene target level, the near-term appraisal and development activity will now focus on areas of greater reservoir net thickness. While the Anshof-3 well will be cased to TD to commence Eocene oil production into the nearby pipeline network, a side-track was considered (prior to drilling) to target thicker reservoir section expected further downdip. It should be noted that it is typical for exploration wells to be drilled at a location targeting the top of a structure to increase the chances for

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hydrocarbon presence until the relief of the structure is confirmed. The map below (Figure 1) shows that approximately 1 km to the East of Anshof-3 a predicted 18m Eocene gross reservoir interval is expected, i.e. three times more than the thickness encountered in the Anshof-3 well.

### Miocene gas reservoir

The potential of the imbricated Miocene clastic turbidite reservoir section which was recognised predrill will be tested and if successful be put on production into the nearby gas infrastructure to generate early cash flow given the currently very high gas prices in Europe. A quick look structural FMI analysis, together with 3D seismic interpretation, has indicated that the trap is potentially a hanging wall anticlinal trap, offering the potential for a relatively large trap area in the order of 2 km<sup>2</sup>. Figure 2 below shows the current structural understanding. Miocene reservoirs with similar character albeit at deeper settings have resulted in commercial production rates in excess of 1 mmcf per day.

### Cenomanian oil reservoirs

Cenomanian reservoirs are variable in quality but can be prolific producers in the Upper Austria basin. The existence of oil filled Cenomanian reservoirs, while not likely to be productive at the Anshof-3 location, may provide reserves and production potential elsewhere within the Anshof structure.

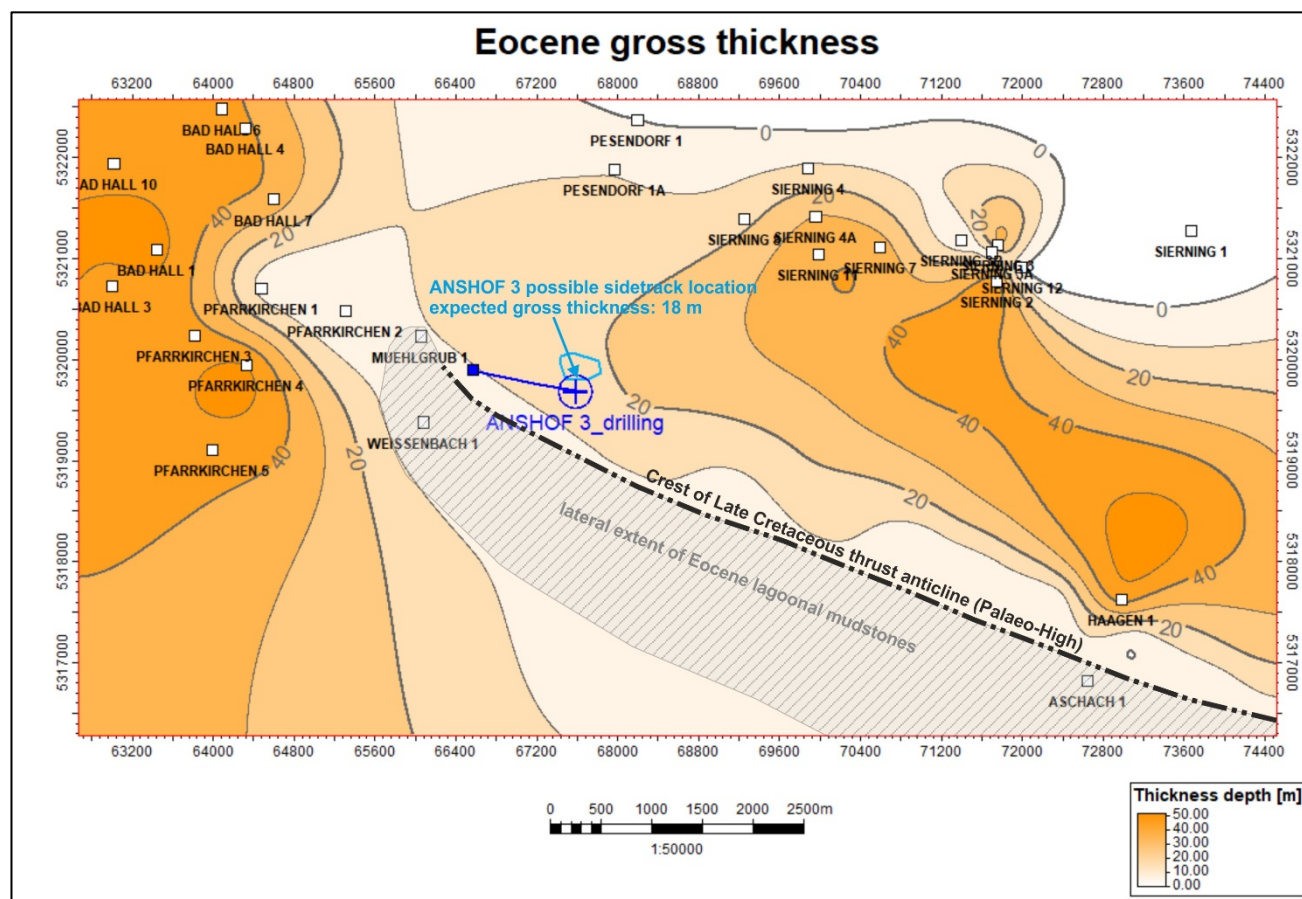
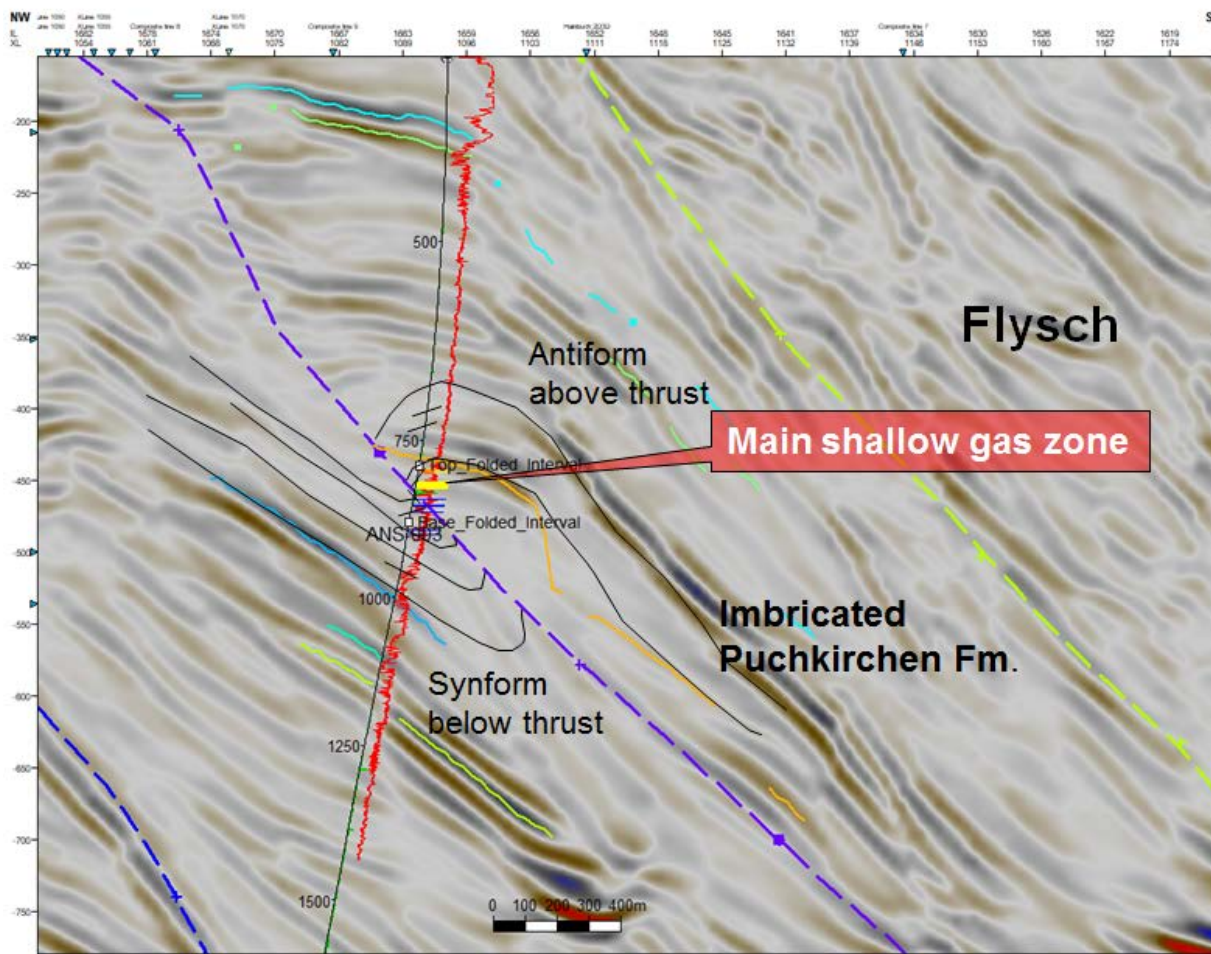


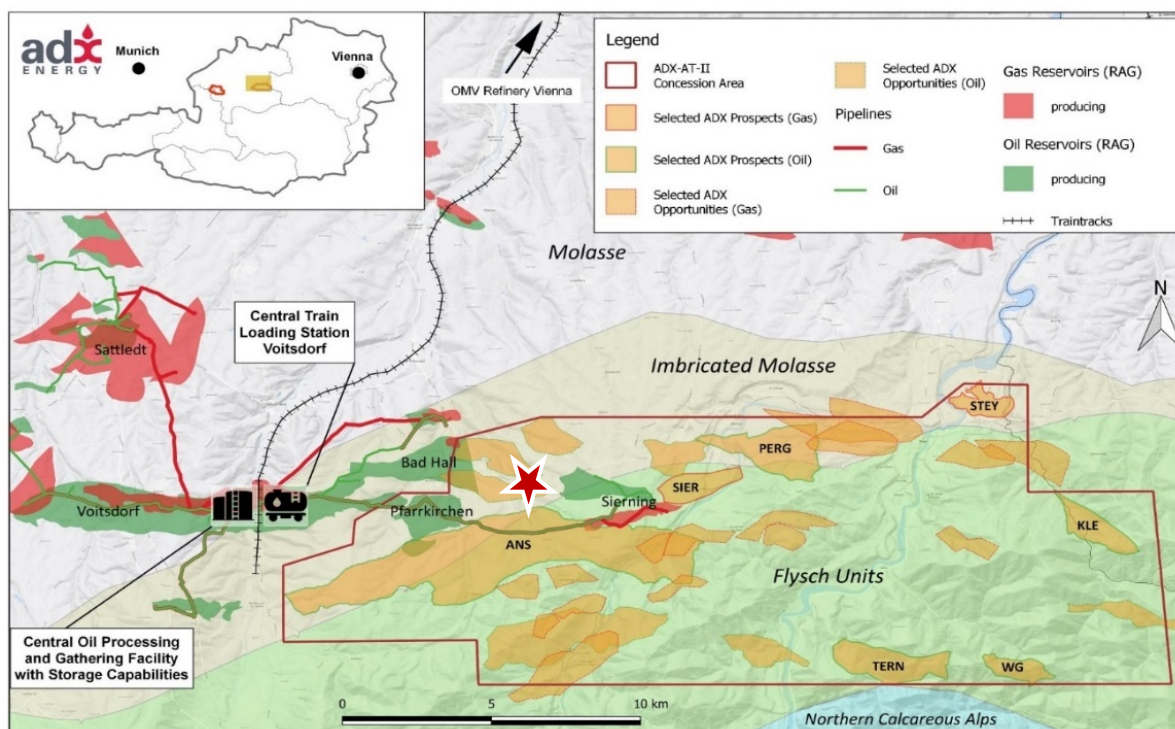
Figure 1: Map showing Eocene gross thickness based on well data only. The blue circle and cross show the Anshof-3 surface location, the small blue square represents to Eocene subsurface location



**Figure 2: Shallow Miocene gas zone trap around 800 meters is interpreted as an anticlinal trap formed by a thrust fault, offering good resource upside potential**

### *Further Operational Updates*

ADX will provide further operational updates in relation to Anshof-3 cementing completion and testing operations as they become available together with further analysis of well results.



**Figure 3: Map showing the Anshof prospect (star symbol) in relation to existing producing oil fields (green), follow up prospects (yellow) in the ADX AT-II license as well as nearby processing facilities and pipelines in ADX-AT-II exploration license**

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**Authorised for lodgement by Ian Tchacos, Executive Chairman**

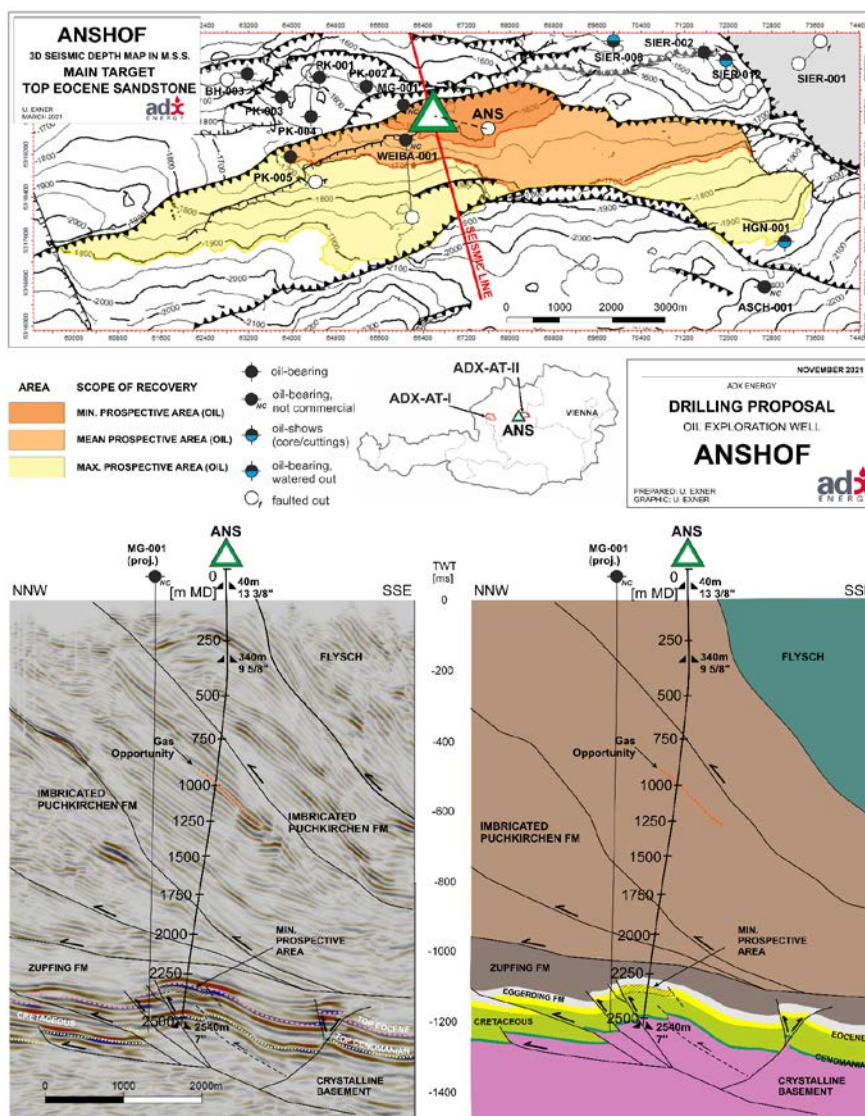
**Persons compiling information about Hydrocarbons:**

Pursuant to the requirements of the ASX Listing Rule 5.31, 5.41 and 5.42 the technical and reserves information relating to Austria contained in this release has been reviewed by Paul Fink as part of the due diligence process on behalf of ADX. Mr. Fink is Technical Director of ADX Energy Ltd is a qualified geophysicist with 23 years of technical, commercial and management experience in exploration for, appraisal and development of oil and gas resources. Mr. Fink has reviewed the results, procedures and data contained in this release and considers the resource estimates to be fairly represented. Mr. Fink has consented to the inclusion of this information in the form and context in which it appears. Mr. Fink is a member of the EAGE (European Association of Geoscientists & Engineers) and FIDIC (Federation of Consulting Engineers).

### Appendix 1: Anshof Prospect Overview

Anshof is a well defined modern 3D seismic covered Eocene - Cenomanian prospect located up-dip and on trend from existing oil production from adjacent fields (Figure A1). The ADX in house team has developed a new structural model constraining the nearby producing Voitsdorf, Bad Hall and Pfarrkirchen oil fields which has resulted in identification of a number of on trend prospects and appraisal opportunities. Success at Anshof-3 will validate the new structural model and de-risk multiple follow up prospects. Anshof-3 has a best technical case prospective resource potential of 6.6 MMBOE with significant upside potential in the primary Eocene sandstone reservoir objective. The well plan includes a deeper Cenomanian secondary target with a best technical resource potential of 2.1 MMBOE.

*Original Resources Reporting Date: Upper Austria Exploration was on 30/11/2020, estimates were further revised on 30/3/21.*



**Figure A1: Anshof prospect Eocene depth map, seismic X section and schematic interpretation (mentioned anti clockwise)**

ADX commissioned RISC to provide an independent review of the prospectivity of the Austrian ADX-AT-I & II exploration licenses. RISC has reviewed the resources in accordance with the Society of Petroleum Engineers internationally recognised Petroleum Resources Management System 2018 (PRMS). RISC’s methodology was to review the evaluation, probabilistic resource evaluation and geologic risking carried out by ADX. Details of the findings of their review were presented in a report. RISC have not conducted a site visit.

RISC has reviewed the Anshof Prospect and found the following Prospective Resource and Geological Risk assessment to be reasonable. A summary of RISC’s findings for the Anshof prospect is shown in the Table 1 below. Refer also to ASX release 10 November 2021.

**Table 1: Anshof Prospective Resource and Geological Risk Assessment**

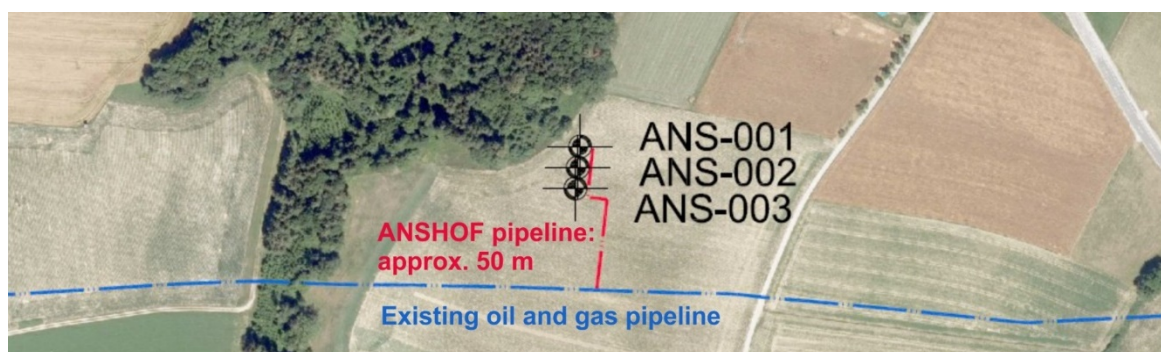
(100% Equity Interest)					
Unrisked Prospective Resource <sup>1</sup>	P(90) <sup>2</sup> (MMBOE)	P(50) <sup>3</sup> (MMBOE)	P(10) <sup>4</sup> (MMBOE)	Mean <sup>5</sup> (MMBOE) <sup>6</sup>	Probability of Success
Oil Case	0.50	3.30	16.20	6.60	43%

**Notes to Table 1:**

1. Prospective Resources are those estimated quantities of petroleum that may potentially be recovered by the application of a future development project(s) related to undiscovered accumulations. These estimates have both an associated risk of discovery and a risk of development. Further explorations appraisal and evaluation is required to determine the existence of a significant quantity of potentially moveable hydrocarbons.
2. At least a 90% probability that the quantities actually recovered will equal or exceed the estimate.
3. At least a 50% probability that the quantities actually recovered will equal or exceed the estimate.
4. At least a 10% probability that the quantities actually recovered will equal or exceed the estimate.
5. The arithmetic average of the probability distribution.
6. BOE means barrels of oil equivalent

In RISC’s opinion, the method of utilising a mapping based net-rock-volume (NRV) in the prospective resource assessment in the Anshof Prospect may result in a conservative volumetric assessment. RISC was not provided with an assessment of the deeper Cenomanian secondary objective for Anshof.

**Access to Production Infrastructure**



**Figure A2: Aerial image prior to commencement of well site preparation showing the three Anshof surface locations and the distance to an existing oil and gas pipeline bundle that can be used to access oil and gas processing and export infrastructure**



Approvals have been received from the regulatory authority for up to three drilling locations from the Anshof well site. The Anshof-3 Well location is approximately 50 metres from an oil and gas pipeline bundle which can be accessed to process and export crude.

On the 22<sup>nd</sup> of November 2020 ADX announced the agreement with RAG Exploration & Production GmbH (RAG E&P) of commercial terms for the access of future oil and gas production from ADX Upper Austria exploration and appraisal licenses in Upper Austria which surround producing fields and infrastructure operated by RAG E&P. The agreement enables the reduction of capital expenditures and the time taken from drilling to commercial production due to the ability to tie into RAG E&P's existing hydrocarbon gathering, processing and storage facilities which are connected to Austria's oil and gas infrastructure network.

### **Reporting Standards**

Reserves and resources are reported in accordance with the definitions of reserves, contingent resources and prospective resources and guidelines set out in the Petroleum Resources Management System (PRMS) prepared by the Oil and Gas Reserves Committee of the Society of Petroleum Engineers (SPE) and reviewed and jointly sponsored by the American Association of Petroleum Geologists (AAPG), World Petroleum Council (WPC), Society of Petroleum Evaluation Engineers (SPEE), Society of Exploration Geophysicists (SEG), Society of Petrophysicists and Well Log Analysts (SPWLA) and European Association of Geoscientists and Engineers (EAGE), revised June 2018.

### **RISC Independence**

RISC has no pecuniary interest, other than to the extent of the professional fees receivable for the preparation of this report, or other interest in the assets evaluated, that could reasonably be regarded as affecting our ability to give an unbiased view of these assets. RISC makes the following disclosures:

- RISC is independent with respect to ADX and confirms that there is no conflict of interest with any party involved in the assignment;
- Under the terms of engagement between RISC and ADX, RISC will receive a time-based fee, with no part of the fee contingent on the conclusions reached, or the content or future use of this report. Except for these fees, RISC has not received and will not receive any pecuniary or other benefit whether direct or indirect for or in connection with the preparation of this report;
- Neither RISC Directors nor any staff involved in the preparation of this report have any material interest in ADX or in any of the properties described herein.

### **About RISC**

RISC is an independent advisory firm offering the highest level of technical and commercial advice to a broad range of clients in the energy industries, worldwide. RISC has offices in London, Perth, Brisbane and South-East Asia and has completed assignments in more than 90 countries for over 500 clients and have grown to become an international energy advisor of choice.

### **End of this Release**