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February 26, 2015

VIA ELECTRONIC FILING

Public Utility Commission of Oregon
3930 Fairview Industrial Drive SE
Post Office Box 1088
Salem, Oregon 97308-1088

Attn: Filing Center

Re: **UM___ Application for Prudence Review of Costs of Post-Carry Wells**

Northwest Natural Gas Company, dba NW Natural (“NW Natural” or “Company”), files herewith an original and five copies of its Application for Prudence Review of Costs of Post-Carry Wells and testimony of Barbara Summers and C. Alex Miller.

Please call me if you have any questions.

Sincerely,

/s/ Mark R. Thompson

Mark R. Thompson
Manager, Rates and Regulation

enclosures

BEFORE THE PUBLIC UTILITY COMMISSION OF OREGON

UM _____

In the Matter of PUBLIC UTILITY COMMISSION OF OREGON, Application for Prudence Review of Costs of Post-Carry Wells	**NORTHWEST NATURAL GAS COMPANY'S APPLICATION FOR PRUDENCE REVIEW OF COSTS OF POST-CARRY WELLS**

I. INTRODUCTION

This Application concerns NW Natural's investments in gas wells made in 2014 under the Company's joint venture agreement, originally entered into with Encana Oil and Gas (USA), Inc. (Encana) and later transferred to Jonah Energy, LLC. As discussed below, and in the supporting testimony of C. Alex Miller and Barbara Summers, NW Natural's decision to invest in these wells was reasonable, and NW Natural therefore requests that the Commission issue an order finding that (1) the investment was prudent; and (2) the costs of the investment should be included in customer rates through the 2015 PGA, and subsequent PGAs as additional costs are incurred.

II. BACKGROUND

A. Original Agreement

In 2011, NW Natural negotiated an agreement to enter into a joint venture with Encana to develop natural gas wells in Wyoming's Jonah Field. Under the original transaction (Original Agreement) NW Natural expected to invest approximately $251 million over five years and to receive approximately 93 billion cubic feet (BCF) of gas

over a 30 year term. The majority of the gas was expected to be received in the first ten years. The purpose of the transaction was to provide NW Natural's customers with a reasonably-priced, long-term, stable source of gas —in other terms, a long-term hedge. In analyzing the transaction, NW Natural relied on well volume forecasts prepared by oil and gas consultants, Netherland Sewell & Associates, Inc., (NSAI).

Under the Original Agreement, NW Natural and Encana were obligated to jointly fund 102 "carry wells" in three separate sections of Jonah Field. The wells were referred to as "carry wells" because NW Natural had agreed to "carry" a portion of Encana's pro rata share of the drilling costs in three separate sections of Jonah Field. In exchange, NW Natural would receive a share in the total production of the field in which the well was drilled, and, in some cases, a share in the individual well's production as well. In addition, after the drilling of the carry wells had been completed, NW Natural would have the option to participate in the drilling of additional elective "post-carry" wells. For each post-carry well for which NW Natural helped fund the drilling, NW Natural would receive a percentage of the gas produced from that specific well (as opposed to a percentage from one of the sections). Importantly, for the post-carry wells, NW Natural was required to fund only its own pro rata share of the drilling costs—equivalent to its interest in the relevant section.

In January of 2011 the Company filed for regulatory approval of the Original Agreement. Specifically, the Company requested that the Commission find the transaction prudent, and approve the costs for inclusion in customer rates. The Commission opened an investigative docket, UM 1520, and ultimately adopted a stipulation filed by all parties agreeing that the investment was prudent. Importantly for

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this Application, the Commission accepted the following provision in the stipulation without comment:

> [T]he Parties agree that a prudence finding by the Commission at this time should apply only to the Company's decision to enter into the Proposed Transaction, and not to any subsequent decisions the Company might make in terms of exercising its discretion to manage the contract. ***The Parties specifically agree that a prudence finding by the Commission at this time should not, for example, extend to a future decision by the Company to participate in drilling Elective [post-carry] Wells, as that term is defined in the Carry and Earning Agreement (NWN/501). If the Company does choose to participate in drilling Elective Wells, the Parties agree that such decisions would be subject to separate determinations of prudence in future proceedings.***[1]

B. Second Amended Agreement

After 72 of the 102 carry wells had been drilled under the Original Agreement, Encana notified NW Natural that it intended to sell its interests in Jonah Field. At that same time, Encana requested that NW Natural agree to terminate its obligation to fund and drill the remaining 30 carry wells, in order to remove certain conditions of the Original Agreement that Encana believed might make the asset harder to sell. After weighing its options, NW Natural agreed to release Encana from the obligation to drill additional carry wells in return for certain accommodations—the most important being Encana's agreement to increase NW Natural's ownership share of the drilling that had occurred to date. The parties implemented these changes in the Second Amended Agreement, or Second Amendment.[2] Importantly all other rights and obligations

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[1] Order No. 11-180, Appendix A at 6 (emphasis added).

[2] The parties had previously entered into a first amendment of the agreement when NW Natural transferred its interests in the Original Transaction to an affiliate, in order to ensure entitlement to certain tax credits. The Commission approved the transfer in Order No.13-065.

conferred by the Original Agreement remained in place, including the terms governing the drilling of post-carry wells.

C. NW Natural's Decision to Invest in Post-Carry Wells

In December of 2013, Encana sold its interests in Jonah Field to Jonah Energy LLC ("Jonah Energy"), a newly formed subsidiary of TPG Capital, and in April, Jonah Energy informed NW Natural that it was tentatively planning to propose the drilling of four post-carry wells in the near future. On May 7, Jonah Energy followed up this notice with formal requests to drill two wells and requests for another seven wells following close behind. Under the Second Amended Agreement, NW Natural had 30 days to respond.

NSAI's data suggested that the gas from the post-carry wells would be very favorably priced. However, NW Natural viewed the risks raised by participation in those wells as significantly higher than participation in the carry well. When the Company invested in drilling a carry well, it had received an increased ownership percentage in all producing wells in the section, including those that had been drilled prior to the date of the Original Agreement. Accordingly, any risk that the specific well drilled might underperform was mitigated by the increased interest in the other producing wells. On the other hand, when the Company invested in a post-carry well, it received an interest only in that particular well. Thus, because of the riskier nature of the investment, NW Natural approached the parties and suggested that NW Natural shareholders invest in the post-carry wells, accepting both the benefits and the risks presented. Staff and the parties disagreed with that approach. They viewed the opportunity to participate in the post-carry wells as a customer asset, and stated that the Company would need to make a prudent decision ***on behalf of customers*** as to whether or not to invest.

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NW Natural accepted the parties' view and developed a framework by which to analyze each of the first nine requests for consent presented by Jonah Energy. Given that the investment in the Original Agreement was intended to act as a long-term hedge, NW Natural consented to any well for which the expected cost of gas compared favorably to the costs of a ten-year financial hedge. The Company calculated the estimated cost of gas for each and based on its analysis, NW Natural agreed to invest in seven of nine of the wells proposed.

In early October of 2014, NW Natural began receiving reports on the early performance of the seven post-carry wells. This preliminary data showed that initial volumes were below forecasts, and suggested that ultimate recovery might fall short as well. NW Natural engaged NSAI to investigate the possible causes of the apparent underperformance, and to update its forecasts for these and the remaining post-carry wells. Based on this analysis, NSAI has revised downward its forecasts, and as a result, NW Natural did not consent to the additional two wells proposed by Jonah Energy in October.

While the economics of the post-carry wells, as updated by NSAI, are not attractive under current market conditions, they could serve as a beneficial hedge if gas prices were to rise significantly.

D. Request for Finding of Prudence

In a prudence review, the Commission examines the objective reasonableness of a utility's actions at the time the utility acted, and not with the advantage of hindsight.

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"Prudence is determined by the reasonableness of the actions 'based on information that was available (or could reasonably have been available) at the time.'"[3]

The Company believes its decision to invest in these seven wells was prudent and requests that the Commission issue an order approving the related costs for inclusion in customer rates through the PGA process in the same fashion that NW Natural has included the costs associated with the carry wells. As with the original carry wells, the costs of the post-carry wells would be tracked and recovered on an annual basis through NW Natural's PGA mechanism. Any variances would be shared between customers and the Company on the same basis as all commodity costs.

III. CONCLUSION

For all of these reasons, NW Natural requests that the Commission find that its investments in the seven post-carry consented to in 2014 are prudent and to approve the ratemaking treatment as described herein.

[3] *Re Portland General Electric Co.*, Docket UE 196, Order No. 10-051 at 6 (Feb. 11, 2010). See also, *Re PacifiCorp*, Dockets UM 995/UE 121/UC 578, Order No. 02-469 at 76 (July 18, 2002) ("prudence is measured from the point of time of the decision at issue, not with the advantage of hindsight . . . we must take the position of a reasonable person at the time the decisions had to be made").

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Respectfully submitted this 26th day of February, 2015.

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/s/ Lisa F. Rackner
Lisa F. Rackner
Adam Lowney
Attorneys for Northwest Natural Gas Company

NORTHWEST NATURAL GAS COMPANY
Zachary Kravitz
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BEFORE THE

PUBLIC UTILITY COMMISSION OF OREGON

UM ____

NW Natural

Direct Testimony of Barbara Summers

February 26, 2015

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1 **I. INTRODUCTION AND SUMMARY**

2 **Q. Please state your name and position with Northwest Natural Gas Company**
3 **("NW Natural" or the "Company").**

4 A. My name is Barbara Summers. My business address is 220 NW Second Avenue,
5 Portland, Oregon 97209. My current position is Director of Business
6 Development for Northwest Natural Gas Company, d/b/a NW Natural ("NW
7 Natural" or the "Company").

8 **Q. Please summarize your educational background and business experience.**

9 A. Prior to joining NW Natural as Director of Business Development, I held similar
10 positions with PacifiCorp and Scottish Power as Vice President, Business
11 Development and Vice President PacifiCorp Power Marketing, now PPM. In
12 addition to my natural gas and electric utility experience in business development
13 and transactions, I worked for five years in the telecommunications industry
14 where I was responsible for negotiating and evaluating acquisitions and joint
15 ventures as well as potential start-up businesses. I have a BS in Business
16 Administration from Portland State University.

17 **Q. What is the purpose of your testimony?**

18 A. The purpose of my testimony is to explain the Company's actions leading to its
19 decision to participate in the development of certain additional gas reserves
20 referred to as "post-carry wells". This will include our decision to enter into an
21 amendment to the original transaction with Encana Oil & Gas (USA) Inc.
22 (hereinafter, "Encana"), terminating the "carry well" drilling program. The original
23 transaction is referred to as the "Original Agreement" and the transaction as

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1 amended is referred to as the "Second Amended Agreement" or "Second
2 Amendment." I will describe the reasons behind the Second Amendment and the
3 terms of the amendment. Finally I will discuss the preliminary results we are
4 seeing from the post-carry wells we have drilled to date and the implications for
5 future drilling decisions.

6 **Q. Please summarize your testimony.**

7 A. In 2011, NW Natural and Encana entered into the Original Agreement with
8 Encana to develop certain gas reserves in the Jonah Field in Sublette County,
9 Wyoming. The purpose of the transaction was to provide NW Natural's
10 customers with a reasonably priced long-term, stable source of gas – in other
11 terms, a long-term hedge. Based on reserve forecasts provided by Netherland
12 and Sewell & Associates (NSAI), the Company estimated that the transaction
13 would provide it with 93.1 Bcf of gas over thirty years—with the majority received
14 in the first ten years—priced at an average of $0.529 per therm.

15 The Original Agreement called for NW Natural and Encana to jointly fund
16 the drilling of 102 "carry wells". In return for each well drilled, NW Natural would
17 receive a share of the gas produced in specific sections of the field, and,
18 depending on where the carry well was drilled, a share of the gas produced by a
19 specific well. In addition, after the drilling of the carry wells had been completed,
20 NW Natural would have the option to participate in the drilling of additional
21 elective post-carry wells. For each post-carry well for which NW Natural helped
22 fund the drilling, NW Natural would receive a percentage of the gas produced
23 from that specific well.

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1 In January of 2014 Encana informed NW Natural of its intention to sell its
2 interests in the Jonah Field, and requested that NW Natural terminate Encana's
3 obligation to drill and NW Natural's obligation to fund the remainder of the carry
4 wells. After negotiations, NW Natural and Encana agreed to terminate the carry
5 well program after 72 of the originally-planned 102 wells had been drilled; in
6 exchange NW Natural would receive increased ownership percentages in the
7 sections designated in the Original Agreement. NW Natural retained the right to
8 participate in the development of any future reserves – the post-carry wells –
9 within NW Natural ownership sections.
10 Encana subsequently sold its interests in Jonah Field to Jonah Energy
11 LLC ("Jonah Energy"), an affiliate of TPG Capital, and beginning in May of last
12 year, Jonah Energy began proposing that NW Natural consent to participating in
13 the development of eleven post carry wells. NW Natural has consented to
14 participate with Jonah Energy in the drilling of seven post-carry wells, based on
15 its analysis showing that the gas expected from the wells would be well-priced in
16 comparison to other potentially-available long-term hedges.
17 Early reports of volumes produced by the seven post-carry wells in which
18 NW Natural participated have been substantially below the levels expected, and
19 as a result, NW Natural did not consent to the last two wells proposed. In
20 addition, NW Natural asked NSAI to perform additional analysis to determine
21 whether disappointing initial volumes were indicative of lower-than-expected
22 volumes over the life of the wells, the cause of the underperformance, and to
23 revise its previous analysis, as necessary, in light of the results to date. Based

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1 on its new analysis NSAI has revised its forecast volumes downward.
2 Consequently, the Company would not participate in additional post-carry wells
3 unless market conditions change dramatically—or new data shows better results.

4 ## II. BACKGROUND ON THE ORIGINAL AGREEMENT

5 **Q. Please describe the general terms of the Original Agreement?**

6 A. The Original Agreement called for NW Natural and Encana to jointly fund the
7 drilling of 102 "carry wells" in exchange for a share of the gas produced in certain
8 sections of the Jonah Field. The wells are referred to as "carry wells" because
9 NW Natural was required to "carry" a portion of Encana's pro rata share of the
10 drilling costs.

11 Approximately 54 carry wells were to be drilled in Sections 32, 33, and 34
12 (the "Updip Area") while 48 carry wells were to be drilled in Sections 8 through
13 17, (the "Downdip Area"). For each carry well drilled in the Updip Area, NW
14 Natural would receive a share of the gas produced in Sections 32, 33, or 34; for
15 each carry well drilled in the Downdip Area, the Company would receive a share
16 of gas produced in Sections 32, 33 or 34, plus an interest in the gas produced
17 from the specific Downdip well drilled. Interests assigned to NW Natural with
18 each well would begin in Section 32 until the Company's interest reached 45%,
19 then move to Section 33 until the Company's interests reached 45%, and then
20 move to Section 34 where interests would be assigned until the Company's
21 interest reached 32.5%.

22 In addition, after all of the carry wells had been drilled, NW Natural would
23 have the option to participate in drilling additional elective post-carry wells. For

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1 each post-carry well for which NW Natural helped fund the drilling, NW Natural
2 would receive a percentage of the gas produced from that specific well (as
3 opposed to a percentage from one of the sections). Importantly, for the post-
4 carry wells, NW Natural is required to fund only its own pro rata share of the
5 costs—equivalent to its interest in the relevant section.

6 **Q. Did the Commission find that the Original Agreement was prudent?**

7 A. Yes. In consolidated dockets UM 1520 and UG 204, NW Natural filed the
8 Original Agreement with the Public Utility Commission of Oregon ("Commission").
9 After an investigation, the Commission approved the parties' Stipulation
10 requesting that the Commission find the Original Agreement prudent, subject to
11 conditions and qualifications, and requesting that the Commission approve
12 certain ratemaking treatment for the costs of the transaction. In its order
13 adopting the Stipulation—Order No. 11-176—the Commission clarified that its
14 prudence finding applied only to NW Natural's decision to enter into the Original
15 Agreement and not to any subsequent decisions NW Natural might make in
16 exercising its discretion to manage the Agreement.

17 **Q. Has the Company amended the Original Agreement, since it was**
18 **approved?**

19 Yes. In February 2013, the Commission approved NW Natural's request to
20 assign the Original Agreement to NW Natural's wholly-owned subsidiary NWN
21 Gas Resources LLC (NWN Gas Reserves).[1] The assignment was necessary to

[1] *In the Matter of NW Natural Gas Company's Application for Approval of Affiliated Interest Transaction*, UI 329, UP 284, Order No. 13-065 (Feb. 26, 2013).

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1 ensure that the Company realize the tax benefits that were expected when the
2 Company entered into the Original Agreement. Then, in March of last year, NW
3 Natural and Encana executed the Second Amendment.

4 **III. NW NATURAL'S DECISION TO ENTER INTO THE SECOND AMENDMENT**

5 **Q. What prompted the Second Amendment?**

6 A. On January 14, 2014, Encana notified NW Natural of its intent to sell its interest
7 in the Jonah Field. Encana also asked that NW Natural consider terminating the
8 Company's obligation to fund, and Encana's obligation to drill, the carry wells that
9 had not yet been drilled.

10 **Q. Why did Encana propose terminating the obligation to fund and drill carry**
11 **wells?**

12 A. Under Section 4.1 of the Original Agreement, Encana had warranted that until all
13 carry wells had been drilled, its interest in the Jonah Field was free and clear of
14 any encumbrances, liens, or security interests other than those specifically
15 permitted by the terms of the Original Agreement (such as royalties, easements,
16 and similar types of encumbrances). Encana believed that any potential buyer
17 would likely require the ability to place liens on its interest for financing purposes.
18 Therefore, in order to facilitate the sale, Encana wished to terminate the carry
19 well program. Encana did not request that NW Natural terminate its rights to
20 participate in future post-carry wells that the buyer might propose to develop.

21 **Q. What were NW Natural's options at the time?**

22 A. Under the Original Agreement, in the event of a sale by Encana, NW Natural had
23 the option to either: (1) retain its interests, including the carry well drilling

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1 program, under the terms of the Original Agreement, with the new buyer as
2 partner; (2) sell its interests (including the production of the carry wells that had
3 been drilled) along with Encana's interests; or (3) terminate the obligation to fund
4 and drill carry wells, but retain all other rights under the Original Agreement,
5 including the option to consent to the development of future post-carry wells.
6 As a practical matter, NW Natural saw that it might be able to negotiate
7 more favorable terms in exchange for terminating the carry well obligation,
8 because Encana was interested in NW Natural taking an action for which it did
9 not have a legal obligation. For that reason, the Company initiated discussions
10 with Encana to determine if it could achieve certain accommodations to benefit
11 customers.
12 **Q. What accommodations did NW Natural seek?**
13 A. The main accommodation was related to the volumes NW Natural was receiving
14 from the carry wells that had been drilled under the Original Agreement. Due to
15 lower well production than had been forecast, and also due to some changes to
16 the drilling schedule, NW Natural was receiving lower volumes than it had
17 expected at the time it entered the Original Agreement. NW Natural believed that
18 Encana's request to terminate the carry well program presented the Company
19 with an opportunity to negotiate with Encana to potentially mitigate the lower
20 volumes. Given Encana's desire to sell, NW Natural now proposed to Encana
21 that it would be willing to terminate its carry well drilling obligations in exchange
22 for an increase in the ownership interest in the Jonah Field, thereby increasing its
23 expected gas reserves to a number closer to that originally forecast.

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1 **Q. Was Encana willing to grant this accommodation?**

2 A. Yes. As a result, the carry well program was terminated after the parties had
3 jointly drilled 72 out of the originally-agreed upon 102 wells.[2]

4 **Q. Please describe the adjustment to NW Natural's ownership interests.**

5 A. As described above, under the Original Agreement, as wells were drilled the
6 ownership interests were to be assigned starting with Section 32 and then
7 continuing with Sections 33 and 34. As of the time the Second Amended
8 Agreement was executed, NW Natural had been assigned a 45 percent interest
9 in Section 32, a 41.4 percent interest in Section 33, and no interest in Section 34.
10 Paragraph 3.3 of the Second Amendment provides that NW Natural's ownership
11 interest be increased to 45 percent in Section 32, 45 percent in Section 33, and
12 49 percent in Section 34.

13

Section	Before Amendment	After Amendment
32	45%	45%
33	41.4%	45%
34	0%	49%

14 **Q. How do the increased ownership interests impact the volumes from the 72**
15 **carry wells that NW Natural expects to receive?**

16 A. At the time the Original Agreement was executed, the Company expected to
17 receive 93.1 Bcf under the original ownership percentages, assuming that all of
18 the carry wells were drilled. Because only 72 wells were drilled, the Company
19 would have expected to receive 65.7 Bcf, or 72/102 of the original volume. As

[2] Encana also agreed to complete a "tubing" project that at the time the parties believed constituted an economical step to increase volumes.

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1 discussed above, the Company had been receiving less gas than originally
2 forecast. After the ownership interest adjustments, the Company now expects to
3 receive from the carry wells between 65 and 67.1 Bcf, which is nearly the same
4 volume (prorated) that the Company expected to receive from the carry wells
5 under the Original Agreement.

6 **Q. How did you determine which option would be most beneficial for**
7 **customers?**

8 A. As discussed, NW Natural determined that in the event of a sale by Encana, the
9 Company had three options. It could: (1) hold Encana and a new buyer to the
10 terms and conditions of the Original Agreement and proceed to drill the
11 remaining carry wells ("Original Agreement"); (2) sell its interests along with
12 Encana's interests ("Sell"); or (3) agree to terminate the obligation to fund and
13 drill carry wells but retain all other rights under the Original Agreement, including
14 the option to consent to the development of future post-carry wells in exchange
15 for adjusted ownership percentages ("Terminate").

16 While continuing the carry program maintained NW Natural's target long-
17 term hedge and its investment opportunity, NW Natural determined that not to be
18 in the best interest of customers given current and forecast natural gas prices.
19 We also saw that the *Sell* option would be disadvantageous. While we did not
20 know the price at which Encana would be selling its interests, we were able to
21 estimate a sales price based on recent market activity. We determined that a
22 sale would require a substantial write-down of customer investment and was
23 therefore unacceptable. Accordingly, our analysis and negotiations focused on

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1 terminating the agreement and securing an upward adjustment in our ownership
2 interests.
3 **Q. Have you performed any analysis to confirm that the Terminate presented**
4 **the least cost option at the time the decision was made?**
5 A. Yes. To confirm our decision to terminate the carry well program in exchange for
6 increased ownership percentages, we calculated the net present value ("NPV") of
7 the total cost of gas under each option.
8 To evaluate these costs, we started by determining the gas reserves
9 volumes that would be expected under each scenario, as well as the costs of
10 those volumes. For the *Sell* option, the cost of reserve gas was offset by the
11 expected revenue from the sale of reserve interests.
12 Next, because the volumes under the *Terminate* and *Sell* options were
13 less than those expected under the *Original Agreement* option, we determined
14 the volumes of any replacement gas required to bring all alternatives to the
15 equivalent volumes, and priced the replacement gas using a forward curve price.
16 Once we had determined the cost of the reserve gas and the cost of replacement
17 gas, for equivalent volumes under each scenario, we brought that total cost to an
18 NPV number.
19 The table below shows that the *Terminate* alternative is the lowest cost
20 option, with a total NPV cost of $243 million for 64.7 Bcf. The *Sell* alternative has
21 a total NPV cost of $260 million for 67.4 Bcf; and the *Original Agreement*
22 alternative is the highest cost option at an NPV of $299 million for 64.7 Bcf.
23

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Investment Alternatives	Projected Remaining Gas Reserves for Cost Estimates (Bcf)			Projected Cost Estimates for the Cost/Price of Gas (NPV)			Replacement Cost	Total Cost (NPV) @ 64.7 Bcf
	Reserve Volumes	Replacement Gas Estimates	Total	Cost of Gas	Sales Cost	**Total**	**Total (NPV)**	
Option I - Original Agreement	64.7	0.0	64.7	$299	$0	**$299**	**$0**	**$299**
Option II - Sell*	32.5	64.7	64.7	$0	$59	**$59**	**$201**	**$260**
Option III - Terminate	55.5	9.2	64.7	$225	$0	**$225**	**$18**	**$243**

**The reserve estimate for the price of gas is used to calculate the costs of selling NW Natural's ownership rights. The Company would still need to purchase 64.7 Bcf in replacement gas to acquire the same amount of gas under the Original Agreement.*

1

2 **Q. Did you include the value associated with post-carry wells in your analysis**
3 **of the option to terminate the carry well program?**
4 A. No. When we were making the decision, we did not know if we would consent to
5 participate in the drilling of post-carry wells, or the extent of our participation if we
6 chose to do so. Therefore, while we believed that the post-carry wells *might*
7 provide significant benefits to our customers, we did not consider those benefits
8 in our analysis. That approach was consistent with our analysis supporting the
9 Original Agreement. We assigned no value to post carry wells in the Original
10 Agreement.
11 **Q. Please describe the provision of the Second Amendment terminating the**
12 **parties' obligations to fund and drill carry wells.**
13 A. Paragraph 4.1 of the Second Amendment provides that the obligations to fund
14 and drill carry wells terminated upon the effective date. Importantly however,
15 paragraph 4.2 states that other than the provisions specific to any ongoing
16 obligation to drill and fund carry wells, all other provisions of the Original
17 Agreement remain in full force and effect.
18 **Q. Do all of the other terms of the Original Agreement remain in force?**
19 A. Yes. Section 4.2 expressly recognizes that the rest of the Original Agreement
20 will continue in full force and effect until all wells have been plugged and
21 abandoned and all necessary reclamation has been completed. Thus, the terms
22 related to producing wells remain the same, including NW Natural's entitlement

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1 to receive a percentage of the gas produced by all wells in sections 32, 33 and
2 34—even those that will be drilled in the future. In addition, terms regarding the
3 post-carry wells will remain in force.

4 **Q. Did Encana ultimately sell its interests in the Jonah Field?**

5 A. Yes. On March 28, 2014, Encana signed an agreement to sell its interests in the
6 Jonah Field to Jonah Energy, a subsidiary of TPG Capital, for a purchase price of
7 approximately $1.8 billion.

8 **Q. Please describe NW Natural's right to participate in the post-carry wells.**

9 A. As I discussed above, under the Original Agreement, Encana and NW Natural
10 committed to participate in drilling 102 carry wells. For each carry well drilled,
11 NW Natural received an ownership interest in the gas produced by all of the wells
12 in the current earning section plus an interest in the individual well if the well was
13 drilled in the Down Dip section. After all 102 carry wells had been drilled, NW
14 Natural had the ***option*** to participate in the development of future reserves drilled
15 in Sections 32, 33 and 34. These future reserves were referred to as post-carry
16 wells because each side would bear its respective share of the costs and
17 therefore NW Natural would not be required to "carry" any portion of
18 Encana's/Jonah Energy's drilling costs. For each post-carry well in which NW
19 Natural consented to participate, the Company would receive a share of the gas
20 produced from that well. Under the terms of the Second Amended Agreement,
21 the additional wells that may be drilled in sections 32, 33, and 34, including the
22 30 former carry wells that were not drilled, will be classified as post-carry wells.

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1 This means that NW Natural has the option to participate in the drilling of the
2 wells but is not required to do so.
3 **Q. Does the development of post-carry wells present any risks that are**
4 **different from those associated with the carry wells?**
5 A. Yes. As explained above, the Second Amended Agreement provides many of
6 the same protections as were provided for the carry wells. However, there are
7 two areas of increased risk presented by the post-carry wells: volume risk and
8 the risk of capital cost over-runs. In the Original Agreement, for each carry well
9 drilled NW Natural received an increased percentage of the gas in all producing
10 wells in a section, including wells that had been drilled before the date of the
11 Original Agreement. In Downdip sections NW Natural also received an additional
12 interest in the specific well drilled. For this reason, if the specific well drilled
13 produced significantly less than expected, the risk was mitigated as the Company
14 would receive an increased percentage of other producing wells and so would
15 still be compensated to a significant extent. For post-carry wells, NW Natural
16 receives an interest in the output of only the specific well drilled. Therefore, if a
17 post-carry well produces 50% of forecast volumes, and comes in at the expected
18 cost, the value received by NW Natural for that specific investment will be 50% of
19 that expected.
20 The second difference pertains to the risk in development costs. While
21 NW Natural bears only its own pro rata share of capital investment in each post-
22 carry well, the cost is not capped, as it was for carry wells. The deal does not
23 mitigate the risk that capital costs will exceed estimates.

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1 **Q. Is there an agreed-upon schedule for the development of the post-carry**
2 **well locations in Sections 32, 33, and 34?**
3 A. There is no set drilling schedule for the development of post-carry wells. Instead,
4 either NW Natural or Jonah Energy can propose the development of any well
5 location. As a practical matter, because Jonah Energy is the operator of the
6 field, it is likely that only Jonah Energy would be the "proposer."
7 **Q. What is the process to develop additional post-carry well locations?**
8 A. Once Jonah Energy proposes to drill a well, NW Natural can choose whether to
9 participate in the development of the well. Typically, NW Natural will have 30
10 days to consent to a proposed well unless a drilling rig is on site. If a drilling rig is
11 on site, then NW Natural must consent within 48 hours.
12 **Q. What happens if NW Natural consents?**
13 A. If NW Natural consents, then NW Natural must pay its "working interest" share of
14 the costs to drill, complete, and equip the well. That means that NW Natural
15 pays costs on the same basis on which it is entitled to the gas in the relevant
16 section-- 45% in section 33 and 49% in section 34, for example. Once the well is
17 operational, NW Natural will pay its working interest share of the costs to operate
18 the well, and will receive its pro rata share of the gas.
19 **Q. What happens if NW Natural does not consent?**
20 A. If NW Natural does not consent, the Company will forego NW Natural's share of
21 gas from that well until Jonah Energy's proceeds from the sale of that gas equal
22 200 percent of what would have been NW Natural's capital share of the
23 development costs. At that point, NW Natural will receive any subsequently-

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1 produced gas from that well based on the Company's pro rata share of the gas
2 for the relevant section. Importantly, based on volume forecasts, NW Natural
3 does not ascribe significant value to this right.

4 **IV. CONSENT ANALYSIS FOR POST-CARRY WELLS**

5 **Q. How did NW Natural analyze the nine new well proposals to determine**
6 **whether the Company should consent and participate in the drilling?**

7 A. Like the original carry wells, the new post-carry wells would act as long-term
8 hedges in our gas portfolio. For that reason, the Company considered the
9 threshold question as to whether it made sense for us to continue to enter into
10 additional long-term hedges on customers' behalf. In the Commission's order
11 approving the Original Agreement, the Commission recognized that over the next
12 10 years the transaction would, on average, provide 10 percent of the
13 Company's annual gas supply. However, the Company had terminated the carry
14 well program, and for that reason, the amount of its portfolio invested in long-
15 term hedges was expected to fall well below 10 percent over the succeeding
16 years. Investment in post-carry wells would help maintain the percentage of
17 long-term hedges in NW Natural's portfolio closer to ten percent for a few
18 additional years.

19 We then determined whether the post-carry wells represented a good deal
20 for customers. To answer this question, we compared the expected cost of gas
21 from each of the proposed wells to the benchmark cost of a 10-year financial
22 hedge (including the cost of a credit facility). If the forecast cost of gas from the
23 proposed well was lower than the cost of a 10-year hedge, then the Company

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1 consented to participate in the well. This is the same basic approach that the
2 Company used to analyze the decision to enter into the Original Agreement.
3 **Q. How did the Company calculate the costs of gas from the proposed wells?**
4 A. Estimating the cost of gas is a two-step process. First, we estimated the costs,
5 both capital and ongoing, that would be incurred to drill and operate the wells.
6 Like the cost modeling for the original Encana deal, the cost modeling here
7 includes three components: operating costs; depletion costs, and carrying costs.
8 The cost of gas is the sum of these three components and is modeled by month
9 over the expected life of each well. We then divide these costs by the expected
10 volumes each month to develop a cost per therm, which allows a direct
11 comparison to the benchmark 10-year hedge price.
12 **Q. Please describe the operating costs.**
13 A. Operating costs are variable costs that reflect the costs of actually operating the
14 wells to provide NW Natural with its share of the gas output. The cost
15 components for the day-to-day operation of the wells include daily site visits,
16 maintenance of pumps and equipment, and water disposal issues, among other
17 activities. This cost is allocated to us at our ownership share in a section. We
18 will be charged the operating costs of the specific new well in addition to the
19 overhead costs that are allocated to each well.
20 In addition, the operating costs include severance and ad valorem taxes
21 levied by the state of Wyoming, which are based on the volumes produced, the
22 market price, and the tax rate. The operating costs also include midstream
23 costs, which are the costs of gathering and processing the gas between the

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1 wellhead and the interstate pipeline. The midstream and gathering costs and
2 taxes have a direct relationship to the gas being produced and we have
3 continued to use the same formulae that we have found to be accurate in our
4 original Encana deal.
5 The operating costs are estimated by NSAI and corroborated by our
6 experience with the operation of wells in the Jonah Field thus far.
7 **Q. Please describe the depletion costs.**
8 A. Depletion cost is essentially amortization and is based on the total capital cost of
9 the wells. It is calculated on a dollar per therm basis and recorded based on
10 volumes produced. For example, if the Company spends $1.5 million to drill a
11 well and is expected to receive 10 million therms over the life of the well, the
12 depletion rate would be 15 cents per therm.
13 **Q. Please describe the carrying costs.**
14 A. As described above, the Company will be funding its share of the capital costs
15 Jonah incurs in drilling the wells. Carrying costs are the financing costs incurred
16 by the Company to fund the capital investment. By including carrying costs in the
17 cost of this gas we are assuming recovery of our regulated return on this
18 investment.
19 **Q. Did the Company use more than one approach to estimate expected**
20 **volumes from the proposed wells?**
21 A. Yes, we used three approaches to estimate projected costs of gas.
22 - **First** we estimated volumes by looking at NSAI's average forecasts for the
23 remaining undrilled economic wells—or Proved Undeveloped reserves

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1 ("PUDs")—for the sections in which we would be drilling. We called this the
2 **"Section Average"** approach. NSAI's gas volume modeling is based on a
3 type curve, or a "PUD profile". The PUD profile projects the expected gross
4 gas volume from the wells in a section on average and displays the result as
5 a volume string for one well by month over the forecasted life of a well. To
6 determine NW Natural's expected volumes, we multiplied total volumes by the
7 Company's net ownership interest in the applicable section. The net
8 ownership interest is a function of the Company's ownership percentage in
9 the section less the royalties that will be paid. This calculation yields the net
10 gas that would be produced under our interest.

11 • **Second,** we estimated volumes by looking at the forecast provided by NSAI
12 for the individual well proposed for drilling. We called this the **"Individual**
13 **Well"** approach. As discussed above, NSAI uses a type curve to estimate
14 production from each PUD in a section. Instead of averaging these
15 estimates, as in the Section Average Approach, for the Individual Well
16 approach we simply looked at the forecast for the individual well proposed.

17 • **Third**, we used the actual volumes produced by the carry wells in which NW
18 Natural had participated to date to estimate expected volumes for future post-
19 carry wells on a section average basis. We referred to this as the **"Historical**
20 **Performance"** approach**.**

21 We consented to participate in the drilling of an individual proposed post-
22 carry well if the highest of the three forecast costs of gas for that well was less
23 than the benchmark 10-year hedge.

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1 **Q. What did you use for price comparisons for the long-term gas hedge?**
2 A. As the majority of the gas volumes from these wells are expected to be produced
3 in the first 10 years of the well's life, we used quotes for 10-year financial
4 derivative swaps. We obtained quotes from two financial counterparties for 10-
5 year swaps which came in at $4.35 per dekatherm and $4.545 per dekatherm,
6 respectively.
7 In addition to the price of the hedge itself, we also considered the
8 additional cost the Company would incur if it purchased financial hedges to
9 secure an appropriate credit facility. The credit facility is essentially an insurance
10 policy which is necessary to protect the Company and customers in the event
11 that the counterparty to the 10-year hedge is unable to fulfill its end of the
12 obligation. For this reason, the estimated cost of a credit facility of 18 cents per
13 dekatherm is added to the hedge quote, producing a total long-term hedge
14 benchmark price range between $4.53 and $4.725.
15 Based on the above, and current gas price forecasts, we determined that
16 any post-carry well forecast to produce 1.6 Bcf of gas or better would be
17 economical compared to a long-term financial hedge.
18 **Q. Please describe the analysis for the first four proposed post-carry wells.**
19 A. The Company received the proposals for the first four post-carry wells—all
20 located in Section 34—at about the same time. As discussed above, and as
21 with all of the post carry wells proposed, we looked at volumes using all three
22 approaches—*Section Average, Individual Well* and *Historical Performance*. We
23 performed the *Section Average* test for these wells by looking at the combined

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1 averages of Sections 33 and 34. For the *Historical Performance* approach we
2 used our own calculations of future volumes based on NSAI data showing the
3 performance of the carry wells drilled to date. All of the analyses – as
4 summarized below-- supported the decision to consent. [3]
5

Well Number	Section Average	Historical Performance	Individual Well	Hedge Benchmark[4]	Economic or Non-economic
83-34	$0.322	$0.363	$0.290	$0.435 - $0.455	Economic
98-34	$0.322	$0.363	$0.294	$0.435 - $0.455	Economic
84-34	$0.322	$0.363	$0.315	$0.435 - $0.455	Economic
97-34	$0.322	$0.363	$0.328	$0.435 - $0.455	Economic

6 **Q. Please describe the analysis for the fifth well proposed?**
7 A. The fifth well was located in Section 33. As with the first four wells, we performed
8 the *Individual Well* test, and we performed the *Section Average* test by combining
9 the averages from Sections 33 and 34. For the *Historical Performance*

[3] In addition to these analyses we also performed the NPV calculation and evaluated the value of the gas that we might receive if we did not consent As discussed above, under the agreement, if the Company decided not to participate in a post-carry well, it would forego its share of gas from that well until Jonah Energy's proceeds from the sale of gas from that well equaled 200 percent of what would have been NW Natural's capital share of the development costs. These tests supported the Company's decisions to consent in all cases.

[4] At the time we ran the analysis, we did not add the credit facility to the cost of the hedge.

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1 approach, we did not at this point have historical data for Section 33 and so we
2 performed our projections of future volumes based on the performance of the
3 carry wells drilled to-date in Section 34. Also, at this point we received some
4 information from NSAI that prompted us to make corrections to the way we were
5 applying their type curve information. All three approaches indicated that we
6 should participate in drilling this well, and we therefore consented.
7

Well Number	Section Average	Historical Performance	Individual Well	Hedge Benchmark	Economic or Non-economic
109-33	$0.369	$0.387	$0.412	$0.435 - $0.455	Economic

8 **Q. Please describe the analysis for the sixth through ninth wells proposed?**
9 A. NW Natural received the proposals for wells six through nine close in time and
10 conducted the analysis for these wells at the same time. Two of these proposed
11 wells are in Section 33 and the other two are in Section 34. By this point we had
12 determined that we could improve the validity of the *Section Average* approach
13 by looking at each section individually. Accordingly, we used the Section 34
14 average volume for wells in Section 34, and Section 33 average volume for wells
15 in Section 33. In addition, for the *Historical Performance* test, instead of
16 performing our own forecasts based on historical data as we had for the first five
17 wells, we substituted NSAI forecasts based on historical data, which we judged
18 to be more accurate. Based on this analysis, we consented to the two wells in
19 Section 34 and non-consented to the two wells in Section 33.

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Well Number	Section Average	Historical Performance	Individual Well	Hedge Benchmark	Economic or Non-economic
99-33	$0.398	$0.525	$0.573	$0.453 - $0.473	Non-economic
72-34	$0.359	$0.387	$0.338	$0.453 - $0.473	Economic
41-33	$0.398	$0.525	$0.572	$0.453 - $0.473	Non-economic
105-34	$0.359	$0.387	$0.347	$0.453 - $0.473	Economic

1 **Q. It appears that by the time the Company analyzed the sixth through ninth**
2 **wells, it had acquired more information from NSAI and had refined its**
3 **methodologies. Have you performed an analysis to determine whether the**
4 **Company would have made different decisions had it refined its approach**
5 ***prior* to considering whether to drill the first five wells?**
6 A. Yes, we did. To answer the question, we updated our analyses and included the
7 more refined data we ultimately obtained from NSAI. In particular, we revised the
8 following inputs for the first four wells:
9 (a) We corrected our application of NSAI's type curve information in all
10 analyses;
11 (b) for the *Section Average* calculation, we used the section average value
12 corresponding to the section in which the specific well was located; and

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1 (c) for the *Historical Performance* calculation we substituted NSAI-
2 calculated data for the historical calculations initially performed by the
3 Company.
4 As you can see, an analysis using the updated data supports our decision
5 to participate in drilling the first four wells.
6

Well Number	Section Average	Historical Performance	Individual Well	Hedge Benchmark	Economic or Non-economic
83-34	$0.359	$0.387	$0.335	$0.453 - $0.473	Economic
98-34	$0.359	$0.387	$0.340	$0.453 - $0.473	Economic
84-34	$0.359	$0.387	$0.366	$0.453 - $0.473	Economic
97-34	$0.359	$0.387	$0.384	$0.453 - $0.473	Economic

7 For the fifth well, we revised the following inputs:
8 (a) For the *Section Average* calculation, we used the section average value
9 corresponding to the section in which the specific well was located; and
10 (b) for the *Historical Performance* calculation we substituted NSAI-calculated
11 data for the historical calculations initially performed by the Company.
12 As you can see, the results of this refined analysis supported our decision to
13 consent to the fifth well using the *Section Average* and *Individual Well*
14 approaches, but not using the *Historical Performance* test.

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1

Well Number	Section Average	Historical Performance	Individual Well	Hedge Benchmark	Economic or Non-economic
109-33	$0.398	$0.525	$0.429	$0.453 - $0.473	Mixed result

2

3 ## V. EARLY RESULTS FROM WELLS DRILLED

4 **Q. Has the Company received any early reports on the performance of the**
5 **seven wells in which it participated?**
6 A. The Company periodically receives raw production data from Jonah Energy.
7 Although it is still somewhat early in the production life of these wells, the initial
8 volumes received from the seven wells has been materially below expectations.
9 In October, when we received requests to consent to an additional two wells, the
10 production data we were receiving was low enough that we decided that we
11 needed to call a "time-out" on drilling until we got more information.
12 **Q. What actions did the Company take?**
13 A. First, we contacted Jonah Energy to request that it withdraw its request for
14 consent to the two wells proposed in October 2014 that were still under
15 consideration, to give us more time to investigate and to determine the prudent
16 course. However, Jonah Energy had already moved rigs into place and,
17 therefore, declined to withdraw the request, and proceeded to drill these two
18 wells on its own.
19 Second, because the initial volumes raised a red flag, the Company
20 questioned whether the disappointing initial volumes would be indicative of

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1 overall lower-than-expected results. The Company questioned whether these
2 wells would produce at a lower rate but not experience the same annual decline
3 as the rest of the field. To answer our questions, NW Natural engaged NSAI to
4 conduct additional analysis to (a) identify the causes for the underperformance;
5 (b) determine whether the recent data suggested that its volume and market
6 value forecasts for new wells should be revised; and (c) review the Company's
7 criteria for future consents based on revised assumptions or forecasts.

8 **Q. Has NSAI completed its analysis?**

9 A. Yes. NSAI provided the Company with the preliminary results of its analysis. In
10 summary, NSAI found the following:

11 - Recent wells drilled in the north and east sections of Jonah Field have
12 performed as forecast in terms of volume, the rate at which gas volume
13 declines over time, and the percentage of the gas in place that could be
14 recovered with current practices. However, recent wells drilled in the
15 south and west sections***, where Sections 32, 33 and 34 are located***, have
16 performed differently from the rest of the field.
17 - As a result of its analysis, NSAI updated its methodology for the south and
18 west sections of Jonah field (the methodology for the north and east
19 sections remained unchanged) resulting in lower total forecast economic
20 production from the additional wells in Sections 32, 33 and 34;

21 **Q. What does this mean for the volumes that NW Natural can expect from the**
22 **carry and post-carry wells it has drilled to date?**

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1 A. Fortunately, NSAI's findings do not affect the expected volumes from the original
2 72 carry wells drilled by NW Natural. While, as explained above, these wells
3 have been performing below original expectations, NW Natural received an
4 adjustment to its ownership interest when we entered into the Second
5 Amendment with Encana. With that adjustment, NW Natural is receiving the
6 volumes forecast when we entered the Original Agreement. On the other hand,
7 NSAI, has revised downward its volume projections for the post-carry wells quite
8 substantially. NSAI is now projecting that the post-carry wells drilled to date will
9 produce on average 1.1 Bcf—well below our 1.6 Bcf break-even threshold.

10 **Q. Has the Company calculated the forecast cost of the gas from the post-**
11 **carry wells drilled to date based on this new data?**

12 A. Yes. We have incorporated NSAI data and current actual capital costs into our
13 forecast to calculate the cost of gas produced from the post-carry wells drilled to
14 date. We currently forecast that the gas will come in at an average of $0.664 per
15 therm. This forecast assumes an average well production of 1.1 Bcf and total
16 capital costs of $10.8M.

17 **Q. Given the revised volume forecasts is it possible that the Company might**
18 **consent to any additional post-carry wells that may be proposed in the**
19 **future?**

20 **A.** Yes, but only in the event of significant price increases--in which case these wells
21 could prove a valuable hedge.

22 **Q. Does this conclude your testimony?**

23 A. Yes.

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BEFORE THE

PUBLIC UTILITY COMMISSION OF OREGON

UM ____

NW Natural

Direct Testimony of C. Alex Miller

February 26, 2015

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1 **I. INTRODUCTION AND SUMMARY**

2 **Q. Please state your name and position with Northwest Natural Gas Company**
3 **("NW Natural" or the "Company").**

4 A. My name is C. Alex Miller. My current position is Treasurer and Vice President of
5 Regulation for NW Natural. I am responsible for Rates & Regulatory Affairs, as
6 well as Treasury operations.

7 **Q. Please summarize your educational background and business experience.**

8 A. I received a B.A. in economics from the University of Oregon in 1980. I received
9 an M.B.A. from Claremont Graduate School in 1984. From 1981 through 1997, I
10 worked at Southern California Edison in various rate and finance positions,
11 including Vice President and Treasurer. From 1997 to 2001, I worked at
12 PacifiCorp in various positions, including Vice President of Business
13 Development. I joined NW Natural in 2002.

14 **Q. What is the purpose of your testimony?**

15 A. The purpose of my testimony, along with the testimony of Barbara Summers, is
16 to provide the Public Utility Commission of Oregon ("Commission") with sufficient
17 information and analysis to determine that the Company's decision to participate
18 in the drilling of certain post-carry wells, pursuant to its Second Amended
19 Agreement with Encana Oil & Gas (USA), Inc. ("Encana")[1] is prudent, and that
20 the costs of the gas received under this arrangement should be recoverable

[1] As discussed in the Testimony of Barbara Summers, Encana sold its interest to Jonah Energy, LLC.

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1 through customer rates through NW Natural's Purchased Gas Adjustment
2 mechanism ("PGA").
3 I will also explain the Company's cost of service calculations, its proposed
4 ratemaking, and accounting treatment for the Company's investment in and
5 operation of the post-carry wells.

6 **II. NW NATURAL'S ACTIONS DURING ANALYSIS OF POST-CARRY WELLS**

7 **Q. When did Jonah Energy first propose the drilling of post-carry wells and**
8 **what was NW Natural's initial response?**
9 **A.** In April of 2014, Jonah Energy first notified NW Natural that it intended to
10 propose four carry wells in the near future, and that it might propose additional
11 wells in the following months. In response, NW Natural began evaluating the
12 economics of the potential post-carry wells using data provided by Netherland
13 Sewell & Associates, Inc. (NSAI)—the oil and gas consultants that provided well
14 forecasts used to evaluate the original transaction with Encana ("Original
15 Agreement"). Based on NSAI's forecasts for the post-carry wells and NSAI's
16 actual historical data from our carry wells, NW Natural came to the conclusion
17 that the first four post-carry wells, overall, presented an attractive hedging
18 opportunity for its customers.
19 At the same time, however, NW Natural viewed the risks raised by
20 participation in the post-carry wells as significantly higher than participation in the
21 carry wells. When the Company invested in drilling a carry well, it had received
22 an increased ownership percentage in all producing wells in the section,
23 including those that had been drilled prior to the date of the Original Agreement.

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1 Accordingly, any risk that the specific well drilled might underperform was
2 mitigated by the increased interest in the other producing wells. On the other
3 hand, when the Company invests in a post-carry well, it receives an interest only
4 in that particular well; as a result, the decision to invest in a particular post-carry
5 well presents a more concentrated risk.

6 **Q. Given NW Natural's evaluation of the benefits and risks of the post-carry**
7 **wells, what actions did it take?**

8 A. NW Natural developed a written proposal for the regulatory treatment of the post-
9 carry wells opportunity. NW Natural provided this proposal to stakeholders—
10 OPUC Staff, CUB, and NWIGU—and met with them to describe the opportunity,
11 and to seek their views on whether they believed NW Natural should pursue
12 these wells as part of its gas supply strategy.

13 **Q. What was NW Natural's proposal to the stakeholders?**

14 A. NW Natural presented a primary proposal and an alternative for stakeholders to
15 consider. NW Natural's primary proposal was to participate in the post-carry
16 wells on a non-regulated basis, and then to provide all relevant data from the
17 post-carry wells to the stakeholders and Commission, so that they could better
18 assess the risks and opportunities presented by the post-carry wells drilling
19 opportunity in the Jonah Field.

20 NW Natural's secondary proposal was to include the costs in rates in the
21 same manner as the costs of the Original Agreement.

22 **Q. Can you explain the reasons for NW Natural's primary proposal?**

23 A. Yes. First, as discussed above, NW Natural noted that the different deal
24 structure for the post-carry wells meant that NW Natural will be required to bear

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1 ‘dry hole’ risk and that NW Natural would bear all of the price risk associated with
2 our proportionate share of the wells.
3 Second, we explained that NW Natural was required to make a decision
4 about whether to participate in the wells within 30 days from the date proposed,
5 and that it would be difficult for the parties to fully evaluate the risks and benefits
6 in such a short timeline.
7 In light of these factors, we proposed that:
8 1. NW Natural participate in the drilling of the post-carry wells proposed by
9 Jonah Energy on a non-regulated basis, without requesting cost recovery
10 through the PGA, and consequently having the Company accept all of the
11 risks and benefits associated with the wells;
12 2. NW Natural would make available to the Commission and stakeholders all of
13 the information about the wells, their performance and cost; and
14 3. NW Natural would seek to open a docket in the future in which this
15 information could be reviewed, and where more time could be taken to
16 determine whether future wells should be added to NW Natural’s resource
17 portfolio.
18 **Q. Why did NW Natural believe it would be appropriate to participate in the**
19 **post-carry wells on a non-regulated basis?**
20 A. We believed it would be appropriate only in the circumstances that were
21 presented, which involved making a very quick decision to participate in an
22 untested arrangement. We believed it presented a fair way to gain information
23 and experience with the post-carry wells without presenting risk to customers, but

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1 in a way that preserved the potential benefits for customers of further drilling in
2 the Jonah Field.

3 **Q. Was NW Natural willing to bear all of the risks of the post-carry wells in the**
4 **primary proposal?**

5 A. Yes, NW Natural was willing to bear all of the risks of the post-carry wells to the
6 extent that the Company would also receive the potential benefits. It would not
7 have been reasonable for NW Natural to enter into a one-sided arrangement to
8 bear the risks but not receive the benefits of its investment.

9 **Q. How did the stakeholders react to NW Natural's primary proposal?**

10 A. They rejected the proposal. Representatives from Staff, CUB, and NWIGU all
11 indicated that they could not support NW Natural participating in the wells on a
12 non-regulated basis. Instead, they stated their belief that the opportunity to
13 participate in the post carry wells was a utility asset, and that to the extent it was
14 prudent to participate in the wells, the costs and benefits should be included in
15 customers' rates.

16 **Q. How did NW Natural respond to the stakeholders' position?**

17 A. We stated that we could agree to participate in the post-carry wells on a
18 regulated basis if there was a clear understanding of the regulatory context.
19 Specifically, we wanted to make sure that all agreed that the prudence of the
20 Company's decisions—and ultimate rate recovery of any costs incurred—would
21 be based on the reasonableness of the Company's actions based on the
22 information available at the time. In short, we wanted to make sure that drilling
23 decisions were not judged in hindsight based on the results achieved.

24 **Q. How did the parties resolve the issue?**

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1 A. The parties agreed that the costs and benefits of the post-carry wells should be
2 included if the Company acted prudently regardless of the outcome. We entered
3 a Memorandum of Understanding (MOU) to memorialize this agreement,
4 attached as NWN/201, Miller.

5 **Q. What does the MOU say?**

6 A. The MOU describes the context surrounding the post-carry wells opportunity,
7 sets forth some agreements on process, and documents the parties' agreement
8 on other key issues, which include:

9 1. Pursuant to the Second Amended Agreement, Jonah Energy presented
10 NW Natural with a necessary, time-sensitive decision with respect to
11 whether it would participate in the post-carry wells;
12 2. NW Natural's decision to participate in the post-carry wells will be subject
13 to a prudence determination, and that the parties will take a position on
14 prudence consistent with the Commission's established standard for
15 judging prudence;
16 3. If NW Natural's decision to participate in the post-carry wells was prudent,
17 then the costs, including the associated capital costs, and benefits should
18 be included in customers rates through the PGA, as was done under the
19 Original Agreement; and
20 4. NW Natural will track the costs and production of gas from the post-carry
21 wells separately from the wells drilled under the Original Agreement, to
22 facilitate review and monitoring of the post-carry wells' performance.

23 **Q. After the MOU was signed, what did NW Natural do?**

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1 A. We continued to refine our analysis of the opportunity and, based on that
2 analysis, made the decision to drill 7 of the 11 post-carry wells presented to us by
3 Jonah Energy as of this date. That analysis and the decisions made are
4 described in the testimony of Barbara Summers.

5 **III. REGULATORY CONSTRUCT**

6 **Q. What action is NW Natural requesting the Commission take?**
7 A. NW Natural is seeking a Commission order that:
8 1) Establishes that NW Natural's actions in participating in the seven post-
9 carry wells were prudent; and
10 2) Orders that the costs of the gas produced by the post carry wells will be
11 included in the PGA in the same manner as the carry wells, as approved
12 in UM 1520.
13 **Q. How has NW Natural demonstrated that its actions were prudent?**
14 A. The testimony of NW Natural witness, Barbara Summers, demonstrates the
15 prudence of NW Natural's actions. Specifically, Ms. Summers describes the
16 analysis NW Natural undertook to inform its decisions to invest in the seven post-
17 carry wells. In taking this approach, NW Natural acted reasonably, in good faith,
18 and in a manner that satisfies the Commission's prudence standard.
19 **Q. What ratemaking methodology should be used for including the costs of**
20 **the post-carry wells in rates?**
21 A. The same methodology that was used for the ratemaking under the original Carry
22 and Earnings Agreement with Encana works for the post-carry wells. That
23 methodology placed into rates each year the cost of service associated with the
24 production of the gas from the Jonah Field.

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1 **Q. What comprises the cost of service included in rates under that approach?**

2 A. The cost of service includes depletion costs, carrying costs, operating costs,
3 severance and ad valorem taxes, and midstream costs.

4 **Q. Under the ratemaking approach you describe above, would there be any**
5 **sharing of cost variations by NW Natural?**

6 A. As implemented for the original carry wells,, NW Natural would share its regular
7 PGA sharing percentage (*i.e*. either 10% or 20%) of the costs, to the extent those
8 costs vary from the amount that is updated and included in the PGA each year,
9 up to the first $10 million of the variance in any annual period, whether that
10 variance is positive or negative. All variance in excess of $10 million (whether
11 positive or negative) would be passed through to customers through the PGA.

12 **Q. Do you anticipate that the variance in an annual period could exceed $10**
13 **million?**

14 A. No, the Company does not anticipate that the variances will exceed $10 million.
15 The volumes of gas involved from seven wells will simply be too small to reach
16 such a high variance.

17 **Q. Can you provide the Company's current forecast of the cost of gas from**
18 **the post-carry wells drilled to date?**

19 A. Yes, as explained more fully in the testimony of Barbara Summers, the Company
20 currently forecasts that the average cost per therm of the gas from the seven
21 post-carry wells is $0.664.

22 **Q. How will customers' rates be impacted by the post-carry wells based on the**
23 **Company's forecasts?**

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1 A. In relation to the Company's WACOG, the forecasted volumes of gas from the
2 post-carry wells is nominal compared to the Company's total throughput and
3 would have a negligible impact on customers' rates. If the rate impact of the
4 seven post-carry wells is analyzed in combination with the 72 carry wells, the
5 overall forecasted cost of gas of the 79 wells is $0.538. This figure is meant for
6 illustrative purposes only; the Company is accounting for the post-carry wells on
7 a separate basis from the carry wells.

8 ## IV. FUTURE GAS RESERVES TRANSACTIONS

9 **Q. Is NW Natural intending to pursue additional gas reserves transactions in**
10 **the future?**

11 A. NW Natural is currently conducting analysis to determine the parameters of
12 future long-term hedging opportunities. To the extent that this analysis shows
13 that long-term hedging continues to be a valuable gas supply strategy, we
14 believe that gas reserves may be an important tool in achieving those long-term
15 hedges. For the reasons described in the testimony of Barbara Summers, we do
16 not anticipate that continued drilling of the post-carry wells in the Jonah Field
17 would be the method of obtaining those reserves.

18 **Q. Does this conclude your testimony?**

19 A. Yes.

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MEMORANDUM OF UNDERSTANDING REGARDING RATE TREATMENT OF ELECTIVE NON-CARRY WELLS

This Memorandum of Understanding is entered into by NW Natural Gas Company (NW Natural), Citizens' Utility Board of Oregon (CUB); Northwest Industrial Gas Users (NWIGU) and the Staff of the Public Utility Commission of Oregon (Commission) (collectively, the Parties).

I. Recitals

Whereas, NW Natural and Encana Oil & Gas (USA) Inc., (Encana) entered into a Carry and Earning Agreement (Agreement) to develop certain gas reserves in the Jonah Field in Sublette County, Wyoming, for the benefit of NW Natural's utility customers. The Agreement called for NW Natural and Encana to jointly fund the drilling of 102 "carry wells" and in return NW Natural would receive a share of the gas produced in specific sections of the field. In addition, after the drilling of the carry wells had been completed, NW Natural would have the opportunity to participate in the drilling of additional elective "non-carry wells." For each non-carry well for which NW Natural helped fund the drilling, NW Natural would receive a percentage of the gas produced from that specific well;

Whereas, in consolidated dockets UM 1520 and UG 204, NW Natural requested approval of the Agreement from the Public Utility Commission of Oregon (Commission). In those dockets the Parties entered into a Stipulation requesting that the Commission find the Agreement prudent, subject to conditions and qualifications, and requesting that the Commission approve certain ratemaking treatment for the costs of the transaction;

Whereas, on May 25, 2011, the Commission issued Order No. 11-176, adopting the Stipulation and clarifying that its prudence finding applied to only NW Natural's decision to enter into the Agreement and not to any subsequent decisions NW Natural might make in exercising its discretion to manage the Agreement;

Whereas, NW Natural (through NW Natural Gas Reserves) and Encana have drilled 72 of the 102 carry wells;

Whereas, NW Natural informed the Parties that on March 28, 2014, Encana signed an agreement to sell its interests in the Jonah Field to an affiliate of TPG Capital (TPG) for a purchase price of approximately $1.8 billion;

Whereas, in March 2014 NW Natural and Encana executed an amendment to the Agreement, terminating NW Natural's obligation to participate in the drilling of the last 30 carry wells and NW Natural's associated required funding;

Whereas, NW Natural has informed the Parties that due to the amendment to the Agreement, 30 of the original 102 carry wells will not be developed pursuant to the terms of the Agreement; and there were also an additional eight carry wells that would have been left undeveloped even

if the drilling program had been completed. These undeveloped well locations are now considered non-carry wells, and NW Natural or Encana/TPG can propose development of any non-carry well location under the amended Agreement and once proposed, the other party can choose to consent or not consent to participating in the development of the well(s);

Whereas, NW Natural has informed the Parties that TPG has now proposed to NW Natural that it participate in the development of certain non-carry wells and NW Natural is currently analyzing the proposal; and

Whereas, the Parties wish to confirm the regulatory framework for the Company's decision.

Therefore, the Parties agree as follows:

1. NW Natural's determination as to whether it will participate in the funding of the four proposed non-carry wells—and any future non-carry wells—is a decision NW Natural must make in managing the Agreement. Consistent with the Commission's Order 11-176, NW Natural's decision has not been preapproved for prudence.

2. If Northwest Natural does decide to participate in non-carry wells, now or in the future, the decision to do so will be subject to a prudence determination. NW Natural agrees to submit its request for a prudence determination to the Commission separate from its PGA filing. NW Natural further agrees that its request for a prudence determination will be accompanied by supporting testimony and related documents. The Commission set forth its standard for determining prudence in its Order No. 12-493 at 25-27 and the Parties will use this standard in supporting their respective recommendations in the prudence determination.

3. If the Commission determines that NW Natural's decision to participate in a non-carry well or wells was prudent, the Parties agree that NW Natural may include the costs and benefits of the non-carry well(s) as part of its hedged gas reserves and include as such in the WACOG in the next PGA after the prudence determination, as was done with the gas associated with the Agreement prior to its amendment. All parties recognize that the need for a separate prudence determination likely eliminates the possibility that prudently incurred costs will be included in this year's PGA filing. In this and future years, to the extent the timing of NWN's request for prudency determination does not give the parties sufficient time for review before the PGA, NWN may file for a deferral but Staff and the Intervenors take no position as to their support or opposition for such a filing if made.

4. NW Natural also agrees that it will track the costs of, and production of gas from, the non-carry wells as a line item separate from the wells previously drilled under the Agreement, to facilitate review and monitoring of the non-carry well activity.

PARTY NW Natural

By: [signature]

Date: 7-15-2014

PARTY

By: ______________________________

Date: ______________________________

PARTY

By: ______________________________

Date: ______________________________

PARTY

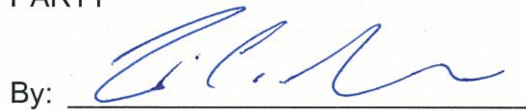
By: ______________________________

Date: ______________________________

PARTY	PARTY
By: Mike W[illegible]	By: ______________________
Date: Attorney for PUC Staff 7/15/14	Date: ______________________

PARTY	PARTY
By: ______________________	By: ______________________
Date: ______________________	Date: ______________________

PARTY Citizens' Utility Board



By: ______________________________

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By: ____________________________

Date: ____________________________

PARTY Northwest Industrial Gas Users

By: [signature]

Date: 7/15/14