BEFORE THE NEBRASKA PUBLIC SERVICE COMMISSION

IN THE MATTER OF THE APPLICATION OF BLACK HILLS NEBRASKA GAS, LLC, D/B/A BLACK HILLS ENERGY, RAPID CITY, SOUTH DAKOTA, SEEKING APPROVAL OF A GENERAL RATE INCREASE	**)**	**APPLICATION NO. NG-124**

DIRECT TESTIMONY OF JOHN J. SPANOS

Depreciation Expert

ON BEHALF OF BLACK HILLS NEBRASKA GAS, LLC

Date: May 1, 2025

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EXHIBITS

I. WITNESS IDENTIFICATION

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is John J. Spanos and my business address is 300 Sterling Parkway, Mechanicsburg, Pennsylvania 17050.

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A. I am employed by Gannett Fleming Valuation and Rate Consultants, LLC as President.

Q. ON WHOSE BEHALF ARE YOU TESTIFYING?

A. I am testifying on behalf of Black Hills Nebraska Gas, LLC d/b/a Black Hills Energy ("BH Nebraska Gas" or "Company").

II. STATEMENT OF QUALIFICATIONS

Q. PLEASE STATE YOUR QUALIFICATIONS.

A. I have over 38 years of depreciation experience which includes giving expert testimony in more than 480 cases before 46 regulatory commissions, including this Commission. These cases have included depreciation studies in the electric, gas, water, wastewater and pipeline industries. In addition to cases where I have submitted testimony, I have supervised over 900 other depreciation or valuation assignments. Please refer to Exhibit JJS-1 for my qualifications statement, which includes further information with respect to my work history, case experience, and leadership in the Society of Depreciation Professionals.

Q. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND PROFESSIONAL EXPERIENCE.

A. I have Bachelor of Science degrees in Industrial Management and Mathematics from Carnegie-Mellon University and a Master of Business Administration from York College.

Q. ARE YOU SPONSORING ANY EXHIBITS OR SCHEDULES?

A. Yes. I am sponsoring the following exhibits:

- **Direct Exhibit JJS – 1** Statement of Qualifications.
- **Direct Exhibit JJS – 2** Depreciation Study for BH Nebraska Gas

III. PURPOSE AND OVERVIEW OF TESTIMONY

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?

A. I sponsor the depreciation study performed for BH Nebraska Gas attached hereto as Direct Exhibit JJS-2 Depreciation Study ("Depreciation Study"). The study was conducted by me and by others working for me under my direction and control. The Depreciation Study sets forth the calculated annual depreciation accrual rates by account as of September 30, 2024. The proposed rates appropriately reflect the rates at which the Company's assets should be depreciated over their useful lives and are based on the most commonly used methods and procedures for determining depreciation rates.

Q. CAN YOU SUMMARIZE THE IMPACT ON DEPRECIATION RATES BASED ON THE DEPRECIATION STUDY?

A. Yes. The table below sets forth a comparison of a) the current depreciation rates and resultant expense to b) the proposed depreciation rates and expense by function as of September 30, 2024.

	Current		Proposed	
Function	Rates	Proforma Expense	Rates	Expense
Intangible	5.50	75,056	16.68	227,520
Transmission	0.66	42,673	0.86	55,084
Distribution	2.04	21,406,845	2.90	30,447,836
General	5.09	5,450,534	5.25	5,630,323
Reserve Amortization		212,172		444,957
Total	2.32	$27,187,280	3.12	$36,805,720

Q. CAN YOU EXPLAIN SOME OF THE MAJOR FACTORS THAT CAUSED THE CHANGES IN DEPRECIATION RATES?

A. Yes. The most significant change since the last depreciation study submitted in 2020 is the change in the net salvage estimate for Account 380.00 Services. The Company is proposing negative 60 percent for this study, which is supported by Company data, plans of the Company, and the industry range for these types of assets. The negative 60 percent is a large increase from what was previously utilized. Another factor for the increase relates to the various types of meters in Account 381.00. There has been considerable amounts of replacements and capital additions that are causing an increase in annual depreciation as well as a change in the life parameters.

IV. DEPRECIATION STUDY

Q. PLEASE DEFINE THE CONCEPT OF DEPRECIATION.

A. Depreciation refers to the loss in service value not restored by current maintenance, incurred in connection with the consumption or prospective retirement of utility plant in the course of service from causes which are known to be in current operation and against which the Company is not protected by insurance. Among the causes to be given consideration are wear and tear, decay, action of the elements, inadequacy, obsolescence, changes in the art, changes in demand and the requirements of public authorities.

Q. DID YOU PREPARE THE DEPRECIATION STUDY TO BE SUBMITTED BY BH NEBRASKA GAS TO THE COMMISSION'S STAFF IN ACCORDANCE WITH THE COMMISSION'S RULES?

A. Yes. I prepared the Depreciation Study submitted by BH Nebraska Gas. My report, which as noted is attached to this testimony as Exhibit JJS-2 Depreciation Study, is entitled: "2024 Depreciation Study - Calculated Annual Depreciation Accruals Related to Gas Plant as of September 30, 2024." This report sets forth the results of my depreciation study for BH Nebraska Gas.

Q. IN PREPARING THE DEPRECIATION STUDY, DID YOU FOLLOW GENERALLY ACCEPTED PRACTICES IN THE FIELD OF DEPRECIATION VALUATION?

A. Yes.

Q. ARE THE METHODS AND PROCEDURES OF THIS DEPRECIATION STUDY CONSISTENT WITH PAST PRACTICES?

A. The methods and procedures of this study are the same as those utilized in the last study for this Company as well as others before this Commission. Depreciation rates are determined based on the average service life procedure and the remaining life method.

Q. PLEASE DESCRIBE THE CONTENTS OF YOUR REPORT.

A. My report is presented in nine parts. Part I, Introduction, presents the scope and basis for the Depreciation Study. Part II, Estimation of Survivor Curves, includes descriptions of the methodology of estimating survivor curves. Parts III and IV set forth the analysis for determining life and net salvage estimation. Part V, Calculation of Annual and Accrued Depreciation, includes the concepts of depreciation and amortization using the remaining life. Part VI, Results of Study, presents a description of the results and a summary of the depreciation calculations. Parts VII, VIII and IX include graphs and tables that relate to the service life and net salvage analyses, and the detailed depreciation calculations.

The table on pages VI-5 through VI-7 presents the estimated survivor curve, the net salvage percent, the original cost as of September 30, 2024, the book depreciation reserve and the calculated annual depreciation accrual and rate for each account or subaccount. The section beginning on page VII-2 presents the results of the retirement rate analyses prepared as the historical bases for the service life estimates. The section beginning on page VIII-2 presents the results of the net salvage analysis. The section beginning on page IX-2 presents the depreciation calculations related to surviving original cost as of September 30, 2024.

Q. PLEASE EXPLAIN HOW YOU PERFORMED YOUR DEPRECIATION STUDY.

A. I used the straight line remaining life method of depreciation, with the average service life procedure. The annual depreciation is based on a method of depreciation accounting that seeks to distribute the unrecovered cost of fixed capital assets over the estimated remaining useful life of each unit, or group of assets, in a systematic and reasonable manner.

For General Plant Accounts 391.01, 391.03, 391.07, 393, 394, 395, 397 and 398, I used the straight line remaining life method of amortization. The account numbers identified throughout my testimony represent those in effect as of September 30, 2024. The annual amortization is based on amortization accounting that distributes the unrecovered cost of fixed capital assets over the remaining amortization period selected for each account and vintage.

Q. HOW DID YOU DETERMINE THE RECOMMENDED ANNUAL DEPRECIATION ACCRUAL RATES?

A. I did this in two phases. In the first phase, I estimated the service life and net salvage characteristics for each depreciable group, that is, each plant account or subaccount identified as having similar characteristics. In the second phase, I calculated the composite remaining lives and annual depreciation accrual rates based on the service life and net salvage estimates determined in the first phase.

Q. PLEASE DESCRIBE THE FIRST PHASE OF THE DEPRECIATION STUDY, IN WHICH YOU ESTIMATED THE SERVICE LIFE AND NET SALVAGE CHARACTERISTICS FOR EACH DEPRECIABLE GROUP.

A. The service life and net salvage study consisted of compiling historical data from records related to BH Nebraska Gas' plant; analyzing these data to obtain historical trends of survivor characteristics; obtaining supplementary information from management and operating personnel concerning practices and plans as they relate to plant operations; and interpreting the above data and the estimates used by other gas utilities to form judgments of average service life and net salvage characteristics.

Q. WHAT HISTORICAL DATA DID YOU ANALYZE FOR THE PURPOSE OF ESTIMATING SERVICE LIFE CHARACTERISTICS?

A. Generally speaking, I analyzed the Company's accounting entries that recorded plant transactions during the period 1998 through 2024. The transactions included additions, retirements, transfers, sales and the related balances.

Q. WHAT METHOD DID YOU USE TO ANALYZE THESE SERVICE LIFE DATA?

A. I used the retirement rate method. This is the most appropriate method when retirement data covering a long period of time is available because this method determines the average rates of retirement actually experienced by the Company during the period of time covered by the Depreciation Study.

Q. PLEASE DESCRIBE HOW YOU USED THE RETIREMENT RATE METHOD TO ANALYZE BH NEBRASKA GAS'S SERVICE LIFE DATA.

A. I applied the retirement rate analysis to each different group of property in the study. For each property group, I used the retirement rate data to form a life table which, when plotted, shows an original survivor curve for that property group. Each original survivor curve represents the average survivor pattern experienced by the several vintage groups during the experience band studied. The survivor patterns do not necessarily describe the life characteristics of the property group; therefore, interpretation of the original survivor curves is required in order to use them as valid considerations in estimating service life. The Iowa-type survivor curves were used to perform these interpretations.

Q. WHAT IS AN "IOWA-TYPE SURVIVOR CURVE" AND HOW DID YOU USE SUCH CURVES TO ESTIMATE THE SERVICE LIFE CHARACTERISTICS FOR EACH PROPERTY GROUP?

A. Iowa-type curves are a widely-used group of survivor curves that contain the range of survivor characteristics usually experienced by utilities and other industrial companies. The Iowa curves were developed at the Iowa State College Engineering Experiment Station through an extensive process of observing and classifying the ages at which various types of property used by utilities and other industrial companies had been retired.

Iowa-type curves are used to smooth and extrapolate original survivor curves determined by the retirement rate method. The Iowa curves and truncated Iowa curves

were used in this study to describe the forecasted rates of retirement based on the observed rates of retirement and the outlook for future retirements.

The estimated survivor curve designations for each depreciable property group indicate the average service life, the family within the Iowa system to which the property group belongs, and the relative height of the mode. For example, the Iowa 70-R2.5 indicates an average service life of seventy years; a right-moded, or R, type curve (the mode occurs after average life for right-moded curves); and a moderate height, 2.5, for the mode (possible modes for R type curves range from 0.5 to 5).

Q. WERE BH NEBRASKA GAS'S PLANT AND EQUIPMENT PHYSICALLY OBSERVED AS PART OF YOUR DEPRECIATION STUDY?

A. Not for this study, but I made field reviews of the Company's property during December 2019 to observe representative portions of plant. Field reviews are conducted to become familiar with Company operations and to obtain an understanding of the function of the plant and information with respect to the reasons for past retirements and the expected future causes of retirements. This knowledge, as well as information from other discussions with management, was incorporated in the interpretation and extrapolation of the statistical analyses.

Q. WOULD YOU EXPLAIN THE CONCEPT OF "NET SALVAGE"?

A. Net salvage is a component of the service value of capital assets that is reflected in depreciation rates. The service value of an asset is its original cost less its net salvage. Net salvage is the gross salvage value received for the asset upon retirement less the cost to retire the asset. When the cost to retire exceeds the salvage value, the result is negative net salvage.

Inasmuch as depreciation expense is the loss in service value of an asset during a defined period, e.g., one year, it must include a ratable portion of both the original cost and the net salvage. That is, the net salvage related to an asset should be incorporated in the cost of service during the same period as its original cost so that customers receiving service from the asset pay rates that include a portion of both elements of the asset's service value, the original cost and the net salvage value.

For example, the full recovery of the service value of a $20,000 regulator includes not only the $20,000 of original cost, but also, on average, $4,200 to remove the regulator at the end of its life and $200 in salvage value. In this example, the net salvage component is negative $4,000 ($200 - $4,200), and the net salvage percent is negative 20% (($200 - $4,200)/$20,000).

Q. PLEASE DESCRIBE HOW YOU ESTIMATED NET SALVAGE PERCENTAGES.

A. I estimated the net salvage percentages by reviewing the Company's account specific historical gross salvage and cost of removal data for the period 2010 through 2024 as a percentage of the associated retired plant, as well as considering industry experience in terms of net salvage estimates for other gas companies.

Q. PLEASE DESCRIBE THE SECOND PHASE OF THE PROCESS THAT YOU USED IN THE DEPRECIATION STUDY IN WHICH YOU CALCULATED COMPOSITE REMAINING LIVES AND ANNUAL DEPRECIATION ACCRUAL RATES.

A. After I estimated the service life and net salvage characteristics for each depreciable property group, I calculated the annual depreciation accrual rates for each group, using

the straight line remaining life method, and using remaining lives weighted consistent with the average service life procedure.

Q. PLEASE DESCRIBE THE STRAIGHT LINE REMAINING LIFE METHOD OF DEPRECIATION.

A. The straight line remaining life method of depreciation allocates the original cost of the property, less accumulated depreciation, less future net salvage, in equal amounts to each year of remaining service life.

Q. PLEASE DESCRIBE AMORTIZATION ACCOUNTING.

A. In amortization accounting, units of property are capitalized in the same manner as they are in depreciation accounting. Amortization accounting is used for accounts with a large number of units, but small asset values. Depreciation accounting is difficult for these assets because periodic inventories are required to properly reflect plant in service. Consequently, retirements are recorded when a vintage is fully amortized rather than as the units are removed from service. That is, there is no dispersion of retirements. All units are retired when the age of the vintage reaches the amortization period. Each plant account or group of assets is assigned a fixed period which represents an anticipated life during which the assets will render full benefit. For example, in amortization accounting, assets that have a 20-year amortization period will be fully recovered after 20 years of service and taken off the Company's books, but not necessarily removed from service. In contrast, assets that are taken out of service before 20 years remain on the books until the amortization period for that vintage has expired.

Q. FOR WHICH PLANT ACCOUNTS IS AMORTIZATION ACCOUNTING BEING UTILIZED?

A. Amortization accounting is only appropriate for certain General Plant accounts. These accounts are 391.01, 391.03, 391.07, 393, 394, 395, 397 and 398. These accounts represent slightly less than 2 percent of the Company's depreciable plant.

Q. PLEASE USE AN EXAMPLE TO ILLUSTRATE HOW THE ANNUAL DEPRECIATION ACCRUAL RATE FOR A PARTICULAR GROUP OF PROPERTY IS PRESENTED IN YOUR DEPRECIATION STUDY.

A. I will use Account 380, Services, as an example because it is one of the largest depreciable mass accounts and represents approximately 24 percent of total depreciable plant.

The retirement rate method was used to analyze the survivor characteristics of this property group. Aged plant accounting data was compiled from 1998 through 2024 and analyzed in periods that best represent the overall service life of this property. The life tables for the 1998-2024 experience band is presented on pages VII-34 through VII-36 of the report. The life table displays the retirement and surviving ratios of the aged plant data exposed to retirement by age interval. For example, page VII-34 shows $380,322 retired at age 0.5 with $220,867,791 exposed to retirement. Consequently, the retirement ratio is 0.0017 and the surviving ratio is 0.9983. These life tables, or original survivor curves, are plotted along with the estimated smooth survivor curve, the 42-S1 on page VII-33.

The net salvage percent is presented on pages VIII-7. The percentage is based on the result of annual gross salvage minus the cost to remove plant assets as compared

to the original cost of plant retired during the period 2010 through 2024. The 15-year period experienced $11,128,709 ($1 - $11,128,710) in net salvage for $12,643,781 plant retired. The result is negative net salvage of 88 percent ($11,128,709 /$12,643,781). Recent trends have shown indications of around negative 100 percent or higher, however, it was determined that based on industry ranges, historical indications and Company expectation, that negative 60 percent was the most appropriate estimate.

My calculation of the annual depreciation related to the original cost as of September 30, 2024, of gas plant is presented on pages IX-25 through IX-26. The calculation is based on the 42-S1 survivor curve, 60 percent negative net salvage, the attained age, and the allocated book reserve. The tabulation sets forth the installation year, the original cost, calculated accrued depreciation, allocated book reserve, future accruals, remaining life and annual accrual. These totals are brought forward to the table on page VI-5.

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes.

COMMONWEALTH OF PENNSYLVANIA)

) SS

COUNTY OF CUMBERLAND)

I, John J. Spanos, being first duly sworn on oath, depose and state that I am the witness identified in the foregoing prepared testimony, and I am familiar with its contents, and that the facts set forth are true to the best of my knowledge, information and belief.

John J. Spanos

Subscribed and sworn to before me this 19th day of March, 2025.

(SEAL)

Commonwealth of Pennsylvania - Notary Seal
Cheryl Ann Rutter, Notary Public
Cumberland County
My commission expires February 20, 2027
Commission number 1143028
Member, Pennsylvania Association of Notaries

Notary Public

My Commission Expires: February 20, 2027