



# Case Study

**2024**

Design & Accounting Exam–U.S.  
EXAM RETDAU

---

## U.S. Exam Case Study – Course DA Retirement

### National Oil Company Background

National Oil Company (NOC) is a large, well-established company that services oil wells all over the country of Gevrey. NOC has been in existence for over 30 years and has approximately 3,000 full-time salaried and union hourly employees and up to a further 2,000 non-skilled seasonal employees during the non-winter months. Approximately one-half of the seasonal employees return for another season. The full-time workforce is reasonably stable, but turnover in the last 5 years has been greater than desired due to competitors recruiting NOC's employees.

Normally, an undergraduate degree is a minimum requirement to obtain entry to the salaried workforce and many employees have graduate degrees. About half of NOC's salaried employees are recruited directly from university with the other half coming from competitors.

The company's financial position varies with the price of oil. As oil prices rise, oil companies become increasingly active and in turn require the services of NOC. Conversely, activity slows as oil prices drop. Despite this, the company is usually in a taxable position.

NOC has managed to be successful by staying on the cutting edge of technology. NOC prides itself on being state of the art in processes and software relevant to its industry. This has helped it to stave off competition from both inside and outside of Gevrey. Although NOC is the largest player in the industry within Gevrey, there are larger players from outside of the country, with which NOC has to compete. From time to time, there are rumors of a takeover of NOC.

### Country of Gevrey Background

Gevrey is a modern developed country with a simplified tax system. Both corporations and individuals are subject to income tax at a flat rate of 40%. Reasonable operating expenses, including contributions to Eligible Retirement Plans (ERPs), reduce taxable income.

No pension legislation exists apart from the rules outlined herein.

Rules that apply to gain ERP status are as follows:

#### *Defined Benefit Plans (DB ERPs)*

- Employer contributions may not exceed those recommended by an actuary, in accordance with generally accepted actuarial practice
- Employer contributions are an eligible expense to reduce the employer's taxable income
- Periodic pensions may not exceed \$3,000 per annum for each year of service regardless of form or commencement age
- Periodic pensions cannot commence prior to age 55
- In-service distributions are prohibited
- Investment earnings generated by the ERP pension fund are not taxable
- Pension payments are taxed as received in the hands of the recipient
- No employee contributions are permitted
- Plan sponsors have unconditional rights to a refund of surplus assets

### *Defined Contribution Plans (DC ERPs)*

- Employer contributions for any individual plan member cannot exceed \$20,000 annually
- Employer contributions are an eligible expense to reduce the employer's taxable income
- Investment earnings generated by the ERP pension fund are not taxable until withdrawn
- Benefit distributions are taxed as received in the hands of the recipient
- Employer contributions may or may not be dependent on employee contributions
- Individuals may contribute up to \$20,000 annually
- Such contributions are tax deductible to the individual

The tax assistance available under each of the above two arrangements does not depend on the extent of participation under the other one. For example, an individual could participate in a DC ERP and, if eligible under the plans' rules, also a DB ERP of his or her employer.

### *Supplemental Retirement Plans (SRPs)*

Contributions to a retirement plan that does not meet ERP status are not tax-deductible. Benefits paid to participants under such plans are tax deductible to the company and are taxable to participants, when paid to participants. Such a plan is known as a Supplemental Retirement Plan (SRP). An example of an SRP is a plan that restores the benefits lost by the imposition of the ERP maximums.

### *Retiree Health Care Plans*

Employers in Gevrey may provide health care benefits to retirees and their spouses through a separate plan which is not intended to qualify for ERP status. Benefits (including insurance premiums) paid under such plans are tax deductible to the company when paid on behalf of participants. Benefits payable as an indemnity for health related services are not taxable to plan participants at any time.

\* \* \*

No social security pension system exists in Gevrey and there are no state-provided life or health care benefits.

For financial reporting purposes, Gevrey has adopted Generally Accepted Accounting Principles (GAAP).

Gevrey has a well-developed investment market with substantial trading in government bonds, corporate bonds, and equities.

### **Summary of National Oil's Retirement Benefits**

NOC maintains two retirement plans:

1. Pension Plan: final-average pay defined benefit ERP for its full-time employees;
2. Retiree Health Benefit Program: lifetime coverage for full-time employees retiring with the company.

Seasonal employees are not covered under either plan.

## National Oil Pension Plan

### Key Plan Provisions

Eligibility	Immediate
Vesting	100% after 5 years of service
Normal Retirement Age	65
Early Retirement Age	55 with 5 years of service
Earnings	Base pay, excluding overtime and bonuses
Best Average Earnings	Average annual earnings during 60 consecutive months in which earnings were highest
Benefit Service	One year credited for any calendar year in which 1,000 or more hours are worked; otherwise zero
Normal Retirement Benefit	2% of Best Average Earnings times years of Benefit Service, subject to tax system maximum
Early Retirement Benefit	Benefit calculated as under the Normal Retirement Benefit formula using Best Average Earnings and service as of date of calculation  Normal Retirement Benefit reduced by 0.25% per month that early retirement precedes age 62
Form of Benefit	If married, 50% joint & survivor annuity without reduction  If not married, single life annuity
Optional Forms of Benefit	None
Indexing	None
Termination Benefit	Lump sum equal to actuarial present value of Normal Retirement Benefit
Pre-Retirement Death Benefit	Lump sum equal to actuarial present value of Normal Retirement Benefit payable to named beneficiary
Disability Benefit	None

## National Oil Pension Plan

Demographic Summary as of January 1, 2024

		<b>Service (Years)</b>					Totals	
		< 5	5-10	10-15	15-20	> 20		
<b>Age (Years)</b>	< 25	# Participants	50	10	-	-	-	60
		Average Salary	52,000	55,000	-	-	-	52,500
	25-35	# Participants	380	150	10	-	-	540
		Average Salary	66,000	78,000	87,000	-	-	69,700
	35-45	# Participants	310	270	160	70	30	840
		Average Salary	76,000	91,000	102,000	103,000	120,000	89,600
	45-55	# Participants	180	160	140	120	240	840
		Average Salary	76,000	90,000	103,000	107,000	117,000	99,300
	55-65	# Participants	100	110	100	90	290	690
		Average Salary	73,000	86,000	95,000	102,000	116,000	100,100
	> 65	# Participants	20	30	30	20	60	160
		Average Salary	67,000	83,000	95,000	100,000	119,000	98,900
	Totals	# Participants	1,040	730	440	300	620	3,130
		Average Salary	70,700	86,500	99,900	104,100	116,900	90,800
	Average Age		46.6					
	Average Service		10.6					
	Average Salary		90,800					

	<b>Reconciliation of Plan Participants</b>		<b>Total</b>
	<b>Actives</b>	<b>Pensioners/ Beneficiaries</b>	
<i>Participants as of January 1, 2023</i>	<b>3,100</b>	<b>1,920</b>	<b>5,020</b>
- New entrants/rehires	300	-	300
- Nonvested terminations	(100)	-	(100)
- Vested terminations (lump sum cashout)	(50)	-	(50)
- Retirements	(110)	110	-
- Deaths	(10)	(65)	(75)
- New beneficiaries	-	15	15
- Net change	30	60	90
<i>Participants as of January 1, 2024</i>	<b>3,130</b>	<b>1,980</b>	<b>5,110</b>

**National Oil Pension Plan**  
Historical Actuarial Valuation Results

	2023	2024
<b>Participant Summary – January 1</b>		
Active Participants		
(a) count	3,100	3,130
(b) average age	46.7	46.6
(c) average service	10.7	10.6
(d) average future working lifetime	12.2	12.3
(e) average future working lifetime to vesting (for those not)	2.5	2.6
(f) average plan earnings (prior year)	90,300	90,800
Deferred Vested Participants		
(a) count	-	-
Pensioners (including beneficiaries)		
(a) count	1,920	1,980
(b) average age	66.8	67.1
(c) average annual benefit	22,785	22,849
Duration of plan liabilities	12.7	12.7

<b>Plan Assets (numbers in \$000's) *</b>		
Change in Plan Assets during Prior Year		
(a) Market Value of Assets at January 1 of prior year	770,608	681,064
(b) Employer Contributions during prior year	37,590	36,640
(c) Benefit Payments during prior year	(41,750)	(43,750)
(d) Expenses during prior year	-	-
(e) Investment return during prior year	(85,383)	29,404
(f) Market Value of Assets at January 1 of current year	681,064	703,358
(g) Rate of return during prior year	-11.11%	4.34%
Average Portfolio Mix During Prior Year		
(a) Domestic Large Cap Equities	23%	25%
(b) Domestic Small Cap Equities	13%	13%
(c) Fixed Income	42%	40%
(d) International Equities	11%	12%
(e) Real Estate	8%	6%
(f) Cash	3%	4%
(g) Total	100%	100%
Duration of Domestic Fixed Income	8.5	8.8
Asset Class Returns during Prior Year		
(a) Domestic Large Cap Equities	-12%	13%
(b) Domestic Small Cap Equities	-12%	9%
(c) Fixed Income	-10%	-3%
(d) International Equities	-18%	13%
(e) Real Estate	-8%	-10%
(f) Cash	1%	4%

\* numbers may not add due to rounding

**National Oil Pension Plan**  
**Historical Actuarial Valuation Results**

**2023**

**2024**

**Expense Valuation – January 1 (numbers in \$000's) \***

<b>1. Funded Status and Deferred Costs</b>			
(a) Accumulated Benefit Obligation		(813,590)	(830,728)
(b) Projected Benefit Obligation			
(i) Vested		(915,241)	(930,658)
(ii) Non-vested		(46,147)	(48,982)
(iii) Total		(961,387)	(979,640)
(c) Fair Value of Assets		681,064	703,358
(d) Funded Status: (b)(iii) + (c)		(280,323)	(276,282)
(e) Unrecognized (gains)/losses		(127,333)	(125,722)
<b>2. Net Periodic Pension Cost</b>			
(a) Service cost (beginning of year)		43,561	44,069
(b) Interest cost		56,527	57,563
(c) Expected return on assets		(46,412)	(46,080)
(d) Amortization of prior service cost		-	-
(e) Amortization of (gain)/loss		(2,549)	(2,253)
(f) Net Periodic Pension Cost		51,128	53,299
[All plan administrative expenses are paid and accounted for outside of the plan fund]			
<b>3. Actuarial Basis and Supplemental Data</b>			
(a) Discount rate		5.75%	5.75%
(b) Return on assets		6.75%	6.50%
(c) Mortality	Pri-2012 with no mortality improvement	Pri-2012 with no mortality improvement	
(d) Salary scale		3.25%	3.25%
(e) Inflation		2.75%	2.75%
(f) Turnover	NOC experience during period 2000-05		
(g) Proportion married and age difference	80% married; male spouses 3 years older than female spouses		
(h) Retirement age	Age 62		
(i) Expenses	Assume all expenses paid by company		
(j) Asset valuation method	Market value		
(k) Actuarial cost method	Projected Unit Credit		
(l) Expected employer contributions		56,780	56,361
(m) Expected benefit payments		(43,750)	(45,240)
(n) Gain/loss amortization method	10% corridor; amortized over average future working lifetime		

\* numbers may not add due to rounding

## National Oil Retiree Health Benefit Program

### Key Plan Provisions

Eligibility	Immediate
Earliest Retirement Age	55 with 10 years of service
Retirement benefit	Retirees and their spouses may elect to participate in a self-insured health plan with 100% of the plan cost paid by the employer
Pre-retirement / termination benefits	None
Spousal coverage	Coverage continues for the life of the spouse after death of an eligible retiree
Cost sharing	\$0 deductible \$0 copay No coinsurance No lifetime maximum
Benefits covered	Office visits Hospital visits Surgery Prescription drugs
Life Insurance benefit	\$50,000 payable upon death after retirement



## National Oil Retiree Health Benefit Program

### Historical Valuation Results

	2023	2024
<b>Expense Valuation Results – January 1 (numbers in \$000's) *</b>		
1. Funded Status and Deferred Costs		
(a) Accumulated Postretirement Benefit Obligation		
(i) actives - fully vested	(330,916)	(402,285)
(ii) actives - not fully vested	(162,988)	(189,311)
(iii) retirees	(831,748)	(1,007,207)
(iv) total	(1,325,652)	(1,598,803)
(b) Fair Value of Assets	-	-
(c) Surplus: (a)(iv) + (b)	(1,325,652)	(1,598,803)
(d) Unrecognized prior service costs	-	-
(e) Unrecognized (gains)/losses	(1,305,132)	(1,029,968)
2. Net Periodic Postretirement Benefit Cost		
(a) Service cost (beginning of year)	46,159	55,811
(b) Interest cost	78,006	94,155
(c) Expected return on assets	-	-
(d) Amortization of prior service cost	-	-
(e) Amortization of (gain)/loss	(95,798)	(70,624)
(f) Net Periodic Postretirement Benefit Cost	28,367	79,342
[All plan administrative and claims expenses are included in the claims costs used to determine the plan liability]		
3. Expected Benefit Payments	(30,380)	(34,276)
4. Average Future Working Lifetime to Retirement	12.2	12.3
5. Average Future Working Lifetime to Full Eligibility Age	9.2	9.3
6. Duration of plan liabilities	16.1	16.3
7. Actuarial Assumptions and Supplemental Information		
(a) Discount rate	5.75%	5.75%
(b) Return on assets	N/A	N/A
(c) Medical trend		
– Initial rate	6.25%	7.50%
– Annual decrease	0.25%	0.25%
– Ultimate rate	4.75%	4.75%
– Year ultimate trend rate reached	2029	2035
(d) Inflation	2.75%	2.75%
(e) Annual per-capita claims cost ( <i>not in \$000's</i> )	18,100	19,400
(f) Retirement assumption	Age 62 with 10 years of service	
(g) All other demographic assumptions	Same as those used for Pension Plan	
(h) Gain/loss amortization method	10% corridor; amortized over average future working lifetime	

\* numbers may not add due to rounding