

EDUCATION AND EXAMINATION COMMITTEE
OF THE
SOCIETY OF ACTUARIES

COURSE 8 RETIREMENT BENEFITS STUDY NOTE

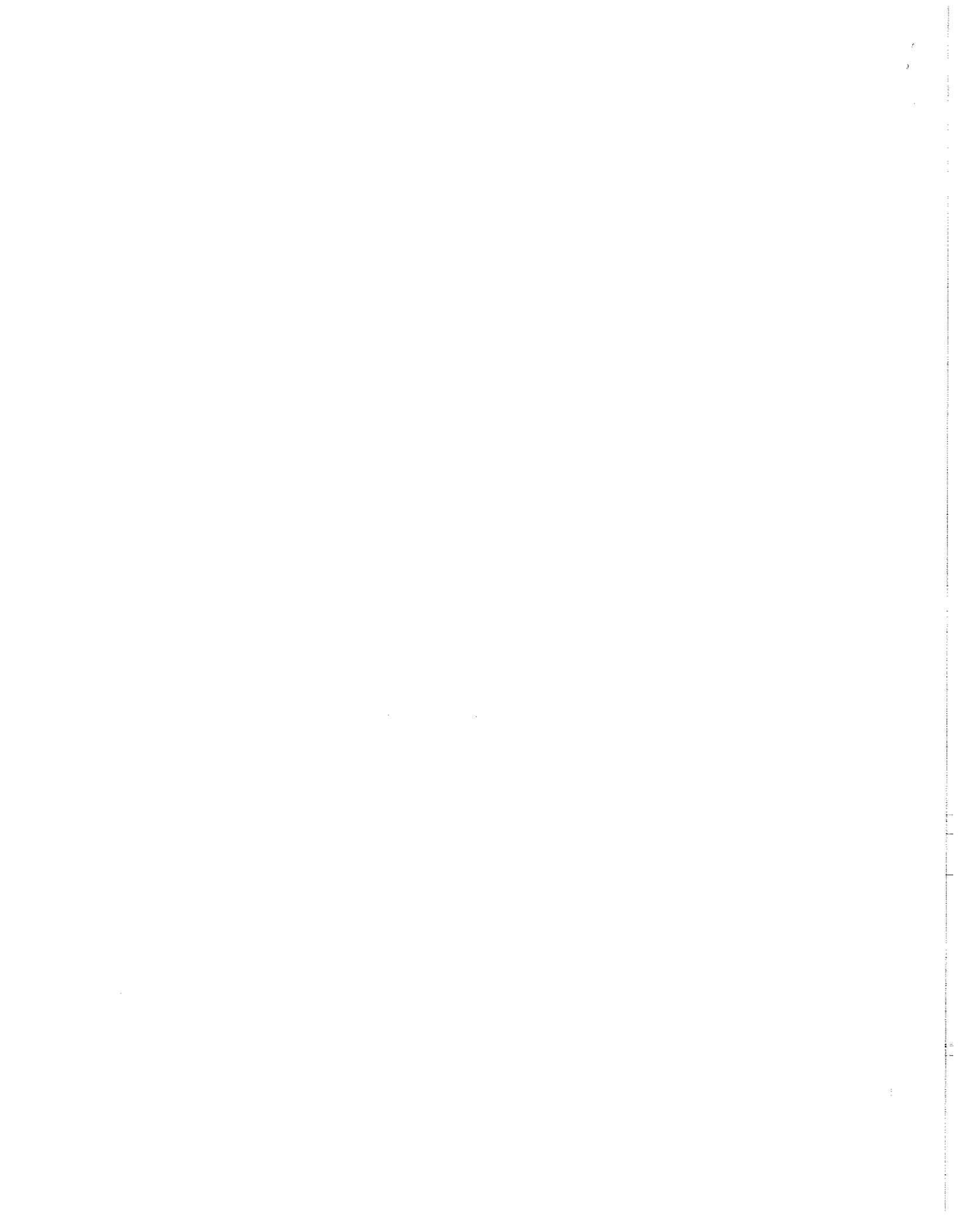
**COURSE 8 RETIREMENT BENEFITS—U.S.
CASE STUDY**

REVISED IN 2004

This case study will be used as a basis for examination questions. Be sure to answer the question asked by referring to the case study. For example, when asked for advantages of a particular plan design to the company referenced in the case study, your response should be limited to that company. Other advantages should not be listed, as they are extraneous to the question and will result in no additional credit. Further, if they conflict with the applicable advantages, no credit will be given.

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Case Study - Course 8 Retirement Benefits

National Oil Company - Background

National Oil Company (NOC) is a large well-established company that services oil wells all over the country of Vosne. NOC has been in existence for over 30 years and has more than 10,000 full-time salaried and union hourly employees and up to a further 5,000 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 in 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 Vosne. Although NOC is the largest player in the industry within Vosne, 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 Vosne – Background

Vosne 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:

General

- if a company has one or more ERPs, then all employees are entitled to be in at least one of the company's ERPs.

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
- 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

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
- no employee contributions are permitted

Vosne's tax system also encourages individuals to save for their retirement through a Personal Pension Account (PPA). The tax rules for PPAs are as follows:

Personal Pension Accounts

- individuals may contribute up to \$20,000 annually to a PPA on a defined contribution basis
- such contributions are tax deductible to the individual
- in addition to the annual contribution limit, individuals may transfer their ERP lump sum termination benefit into their PPA in which case the ERP lump sum is excluded from taxable income until withdrawn from the PPA
- investment earnings on PPAs are not taxable until withdrawn
- withdrawals are subject to tax in the hands of the individual

The tax assistance available under each of the above three arrangements does not depend on the extent of participation under the other two. For example, an individual could participate in a PPA and, if eligible under the plans' rules, also in both a DB ERP and a DC 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 Vosne 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 are not taxable to plan participants at any time.

* * *

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

For financial reporting purposes, Vosne adopted FASB Accounting Standards.

The investment market in Vosne is well developed, with substantial trading in government and corporate bonds and equities.

Summary of National Oil's Retirement Benefits

NOC maintains three defined benefit plans:

1. a final-average pay defined benefit (DB) ERP for its full-time salaried employees;
2. a unit benefit DB ERP for its full-time hourly union staff; and
3. a non-eligible pension plan (referred to as the SRP) for its executives that is supplemental to the salaried ERP. This plan has no assets.

In addition, the company has a defined contribution ERP for its seasonal workforce.

Furthermore, full-time salaried and union employees retiring with the company are covered for their lifetime by health benefits.

Extracts of Retirement Benefits Provisions and Financial Information

National Oil Full-Time Salaried Pension Plan

Eligibility	Immediate
Vesting	100% after 5 years of service
Normal Retirement Age	65
Early Retirement Age	55 with 5 years of service
Best Average Earnings	Average annual earnings during 60 consecutive months in which earnings were highest
Earnings	Basic pay, excluding overtime and bonuses
Normal Retirement Benefit	2% of best average earnings times years of service, subject to tax system maximum
Accrued Benefit	Benefit calculated as under the normal retirement benefit formula using best average earnings and service as of date of calculation
Early Retirement Benefit	Accrued benefit reduced by 0.25% per month that early retirement precedes age 62
Form of Benefit	If married, 50% joint & survivor benefit, 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 accrued benefit
Pre-Retirement Death Benefit	Lump sum equal to actuarial present value of accrued benefit payable to named beneficiary
Disability Benefit	None

National Oil Full-Time Salaried Pension Plan
Historical Actuarial Valuation Results

2001 2002 2003 2004

Participant Summary - January 1

<i>Active Participants</i>				
(a) count	4,110	4,152	4,243	4,293
(b) average age	44.2	44.8	44.9	44.7
(c) average service	14.6	15.0	15.6	15.5
(d) average future working lifetime	12.2	11.6	11.3	11.7
(e) average plan earnings (prior year)	61,500	62,600	64,000	65,000
<i>Deferred Vested Participants</i>				
(a) count	-	-	-	-
<i>Pensioners (incl beneficiaries)</i>				
(a) count	550	578	590	612
(b) average age	71.0	70.9	70.8	70.7
(c) average annual benefit	18,800	19,000	19,100	19,300

Plan Assets (numbers in \$000's) *

<i>Change in Plan Assets during Prior Year:</i>				
Market Value of Assets at January 1 of prior year	551,991	565,609	545,745	529,366
Employer Contributions during prior year	-	-	31,532	40,145
Benefit Payments during prior year	(13,640)	(14,280)	(14,660)	(15,110)
Expenses during prior year	-	-	-	-
Investment return during prior year	27,259	(5,585)	(33,251)	120,461
Market Value of Assets at January 1 of current year	565,609	545,745	529,366	674,861
Rate of return during prior year	5%	-1%	-6%	22%
<i>Average Portfolio Mix During Prior Year:</i>				
(a) Domestic Large Cap Equities	35%	33%	27%	30%
(b) Domestic Small Cap Equities	25%	27%	24%	30%
(c) Domestic Fixed Income	25%	26%	34%	25%
(d) International Equities	9%	7%	8%	11%
(e) Real Estate	3%	3%	3%	2%
(f) Cash	3%	4%	4%	2%
(g) Total	100%	100%	100%	100%
<i>Asset Class Returns during Prior Year:</i>				
(a) Domestic Large Cap Equities	4%	-10%	-14%	25%
(b) Domestic Small Cap Equities	7%	4%	-18%	30%
(c) Domestic Fixed Income	10%	8%	9%	5%
(d) International Equities	-10%	-17%	-16%	40%
(e) Real Estate	5%	6%	4%	3%
(f) Cash	3%	4%	2%	1%

* numbers may not add due to rounding

National Oil Full-Time Salaried Pension Plan
Historical Actuarial Valuation Results

2001 2002 2003 2004

Funding Valuation - January 1 (numbers in \$000's) *

1. Actuarial Accrued Liability:				
(a) Active participants	414,306	460,771	502,139	570,617
(b) Deferred vested participants	-	-	-	-
(c) Pensioners	86,856	92,249	98,040	106,304
(d) Total	501,162	553,020	600,179	676,921
2 Actuarial Value of Assets				
	565,609	545,745	529,366	674,861
3. Unfunded Actuarial Accrued Liability: (1d)-(2)				
	(64,448)	7,275	70,813	2,060
4. Normal Cost (beg. Of year)				
	28,377	30,718	32,188	36,814
5. Change in Unfunded AAL during prior year:				
(a) Unfunded AAL at prior valuation date	(101,183)	(64,448)	7,275	70,813
(b) Adjustment for Interest	(8,095)	(5,156)	582	5,665
(c) Normal Cost w/interest less contributions	28,015	30,647	382	(6,987)
(d) (Gain)/Loss on investment	16,355	50,262	77,585	(77,110)
(e) (Gain)/Loss on termination	500	700	(2,200)	(2,100)
(f) (Gain)/Loss on salary increases less than expected	900	(4,000)	(12,800)	(19,700)
(g) (Gain)/Loss on mortality	(350)	(220)	200	(1,400)
(h) (Gain)/Loss on retirement	(400)	(500)	(1,200)	(2,800)
(i) (Gain)/Loss on assumption changes	-	-	-	36,500
(j) (Gain)/Loss on expenses	-	-	-	-
(k) (Gain)/Loss on all other factors	(190)	(11)	988	(821)
(l) Unfunded AAL at current valuation date	(64,448)	7,275	70,813	2,060
6. Actuarial Basis				
(a) Interest	8.00%	8.00%	8.00%	7.00%
(b) Salary scale	5.00%	5.00%	5.00%	4.00%
(c) Consumer Price Index	3.50%	3.50%	3.50%	3.50%
(d) Mortality		GAM83		
(e) Turnover		Based on NOC experience for 1986-1988		
(f) Retirement age		Age 62		
(g) Proportion married and age difference		80% married, husbands 3 years older than wives		
(h) Expenses		Assume all expenses paid by company		
(i) Asset Valuation Method		Market value of assets		
(j) Actuarial Cost Method		Projected unit credit		

* numbers may not add due to rounding

National Oil Full-Time Salaried Pension Plan
Historical Actuarial Valuation Results

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

	2001	2002	2003	2004
1. Reconciliation of funded status at valuation date:				
(a) Accumulated Benefit Obligation	(358,331)	(428,357)	(464,953)	(520,608)
(b) Projected Benefit Obligation	(551,278)	(659,011)	(715,313)	(800,936)
(c) Market Value of Assets	565,609	545,745	529,366	674,861
(d) Surplus: (b) + (c)	14,332	(113,267)	(185,947)	(126,075)
(e) Unrecognized (gains)/losses	(77,428)	30,660	103,136	42,246
(f) Prepaid/(Accrued) expense	(63,097)	(82,607)	(82,811)	(83,829)
2 Pension Expense:				
(a) Service Cost (beg. of year)	31,215	36,862	38,626	44,434
(b) Interest Cost	40,297	44,768	48,530	52,363
(c) Expected return on assets	(50,291)	(49,893)	(48,790)	(54,865)
(d) Recognition of prior service cost	-	-	-	-
(e) Amortization of unrecognized (gain)/loss	(1,710)	-	2,797	-
(f) Pension Expense for year	19,510	31,736	41,163	41,933
3. Actuarial Basis and Supplemental Data				
(a) Discount rate	7.00%	6.50%	6.50%	6.25%
(b) Return on assets	9.00%	9.00%	9.00%	8.00%
(c) Salary scale	4.00%	4.00%	4.00%	4.00%
(d) Consumer Price Index	3.50%	3.50%	3.50%	3.50%
(e) Mortality	GAM83			
(f) Turnover	Based on NOC experience for 1986-1988			
(g) Proportion married and age difference	80% married, husbands 3 years older than wives			
(h) Retirement age	Age 62			
(i) Expenses	Assume all expenses paid by company			
(j) Asset Valuation Method	Market value of assets			
(k) Actuarial Cost Method	Projected unit credit			
(l) Employer contributions	-	31,532	40,145	37,000
(m) Benefit payments	(13,640)	(14,280)	(14,660)	(15,110)

* numbers may not add due to rounding

**National Oil Full-Time Salaried Pension Plan
Reconciliation of Plan Participants (2001-2004)**

	<u>Active</u>	<u>Pensioners/ Beneficiaries</u>	<u>Total</u>
1. Participants as of January 1, 2001	4,110	550	4,660
- New Entrants/Rehires	400	-	400
- Terminated Nonvested	(140)	-	(140)
- Terminated Vested (Lump Sum Cashout)	(180)	-	(180)
- Retirement	(35)	35	-
- Death w/ Beneficiary	(3)	3	-
- Death w/o Beneficiary	-	(10)	(10)
- Net change	42	28	70
2. Participants as of January 1, 2002	4,152	578	4,730
- New Entrants/Rehires	345	-	345
- Terminated Nonvested	(75)	-	(75)
- Terminated Vested (Lump Sum Cashout)	(165)	-	(165)
- Retirement	(13)	13	-
- Death w/ Beneficiary	(1)	1	-
- Death w/o Beneficiary	-	(2)	(2)
- Net change	91	12	103
3. Participants as of January 1, 2003	4,243	590	4,833
- New Entrants/Rehires	375	-	375
- Terminated Nonvested	(120)	-	(120)
- Terminated Vested (Lump Sum Cashout)	(175)	-	(175)
- Retirement	(28)	28	-
- Death w/ Beneficiary	(2)	2	-
- Death w/o Beneficiary	-	(8)	(8)
- Net change	50	22	72
4. Participants as of January 1, 2004	4,293	612	4,905

**National Oil Full-Time Salaried Pension Plan
Age/Svc/Earnings as of January 1, 2004**

Age (Years)	# Participants Average Salary	Service (Years)					Totals
		< 5	5-10	10-15	15-20	>20	
< 25	195 34,500	131 43,400	-	-	-	326 38,076	
25-35	200 44,700	166 55,200	96 59,400	16 62,900	-	478 51,908	
35-45	179 57,000	220 63,000	212 67,500	224 74,500	258 75,500	1,093 68,198	
45-55	190 60,000	194 62,500	205 65,500	370 74,000	768 76,000	1,727 71,048	
55-65	108 58,000	50 60,500	60 65,000	55 72,300	365 73,000	638 68,668	
> 65	3 45,100	5 50,000	10 45,000	5 55,900	8 52,800	31 49,587	
Totals	875 49,908	766 57,583	583 64,820	670 73,627	1,399 74,992	4,293 65,000	

Avg Age 44.7
Avg Svc 15.5
Avg Salary 65,000

National Oil Full-Time Salaried Supplemental Retirement Plan (SRP)

Eligibility	Immediate
Normal Retirement Age	65
Early Retirement Age	55 with 5 years of service
Accrued Benefit	Accrued Benefit calculated under the provisions of the Salaried Pension Plan without regard to tax system maximums <u>less</u> actual Accrued Benefit under the Salaried Pension Plan
Normal Retirement Benefit	Accrued Benefit
Early Retirement Benefit	Accrued Benefit reduced by 0.25% per month that early retirement preceeds age 62
Commencement Date and Form of Benefit	Must be same as under Salaried Pension Plan
Indexing	None
Termination Benefit	None
Pre-Retirement Death Benefit	None
Disability Benefit	None

Supplemental Retirement Plan
 Historical Valuation Results - January 1

2001 2002 2003 2004

Participant Summary

1. Active Participants				
(a) count	41	42	43	45
(b) average age	50.5	51.0	51.9	52.4
(c) average service	16.0	16.2	17.0	17.5
(d) average future working lifetime	8.2	7.5	7.5	7.0
(e) average earnings (prior year)	290,000	295,000	300,000	305,000
2. Deferred Vested Participants				
(a) count	-	-	-	-
3. Pensioners (incl beneficiaries)				
(a) count	11	12	12	13
(b) average age	67.0	67.5	68.5	69.0
(c) average annual benefit	11,500	12,000	12,000	12,500

Expense Valuation Results (numbers in \$000's) *

1. Reconciliation of funded status at valuation date:				
(a) Accumulated Benefit Obligation	(10,642)	(12,704)	(13,695)	(16,274)
(b) Projected Benefit Obligation	(15,736)	(18,784)	(21,151)	(25,036)
(c) Market Value of Assets	-	-	-	-
(d) Surplus: (b) + (c)	(15,736)	(18,784)	(21,151)	(25,036)
(e) Unrecognized prior service costs	-	-	-	-
(f) Unrecognized (gains)/losses	11	1,370	1,862	3,665
(g) Prepaid/(Accrued) expense	(15,724)	(17,414)	(19,289)	(21,371)
2. Pension Expense				
(a) Service cost (beg. of year)	672	753	804	911
(b) Interest cost	1,144	1,265	1,422	1,617
(c) Expected ROA	-	-	-	-
(d) Prior svc cost recognized	-	-	-	-
(e) Amort of unrec (gain)/loss	-	-	-	166
(f) Pension Expense for year	1,816	2,019	2,226	2,693
3. Benefit Payments	127	144	144	163
4. Actuarial Basis				
(a) Discount rate	7.00%	6.50%	6.50%	6.25%
(b) Return on assets	9.00%	9.00%	9.00%	8.00%
(c) Salary scale	4.00%	4.00%	4.00%	4.00%
(d) CPI	3.50%	3.50%	3.50%	3.50%
(e) All other assumptions	Same as for Full-time Salaried Pension Plan			

* numbers may not add due to rounding

National Oil Full-Time Hourly Union Pension Plan

Eligibility	Immediate
Vesting	100% after 5 years of service
Normal Retirement Age	65
Early Retirement Age	55 with 10 years of service
Normal Retirement Benefit	\$65 per month times years of service for terminations/ retirements during 2000 <i>Previously negotiated increases in benefit multiplier:</i> - \$70 per month for terminations/retirements during 2001 - \$75 per month for terminations/retirements during 2002 and beyond
Accrued Benefit	Benefit calculated as under the normal retirement benefit formula based on service and multiplier as of date of calculation.
Early Retirement Benefit	Unreduced benefit at 62 with 30 years of service, otherwise reduced by 0.25% per month that early retirement precedes Normal Retirement Age.
Form of Benefit	If married, 50% joint & survivor benefit without reduction If not married, single life annuity.
Optional Forms of Benefit	None
Post-Retirement Indexing	Lesser of 1% or CPI each year after pension commencement
Termination Benefit	Lump sum equal to actuarial present value of accrued benefit assuming no indexing
Pre-Retirement Death Benefit	Lump sum equal to actuarial present value of accrued benefit assuming no indexing, payable to named beneficiary
Disability Benefit	None

National Oil Full-Time Hourly Union Pension Plan
Historical Actuarial Valuation Results

2001 2002 2003 2004

Participant Summary - January 1

Active Participants				
(a) count	6,440	6,451	6,437	6,376
(b) average age	44.1	44.4	45.1	45.5
(c) average service	15.3	15.5	16.2	16.7
(d) average future working lifetime	12.4	12.1	11.8	11.5
(e) average plan earnings (prior year)	36,000	36,700	37,100	38,032
Deferred Vested Participants				
(a) count	-	-	-	-
Pensioners (incl beneficiaries)				
(a) count	920	972	985	1,016
(b) average age	70.3	70.4	71.0	71.5
(c) average annual benefit	9,700	9,800	9,800	9,900

Plan Assets (numbers in \$000's) *

Change in Plan Assets during Prior Year:				
Market Value of Assets at January 1 of prior year	275,865	297,614	306,848	306,622
Employer Contributions during prior year	14,500	16,000	19,000	24,000
Benefit Payments during prior year	(12,144)	(12,751)	(9,883)	(11,258)
Expenses during prior year	-	-	-	-
Investment return during prior year	19,393	5,985	(9,342)	61,315
Market Value of Assets at January 1 of current year	297,614	306,848	306,622	380,679
Rate of return during prior year	7%	2%	-3%	20%
Average Portfolio Mix During Prior Year:				
(a) Domestic Large Cap Equities	25%	23%	21%	25%
(b) Domestic Small Cap Equities	22%	24%	23%	25%
(c) Domestic Fixed Income	45%	45%	47%	35%
(d) International Equities	4%	2%	2%	10%
(e) Real Estate	2%	2%	2%	2%
(f) Cash	2%	4%	5%	3%
(g) Total	100%	100%	100%	100%
Asset Class Returns during Prior Year:				
(a) Domestic Large Cap Equities	4%	-10%	-14%	25%
(b) Domestic Small Cap Equities	7%	4%	-18%	30%
(c) Domestic Fixed Income	10%	8%	9%	5%
(d) International Equities	-10%	-17%	-16%	40%
(e) Real Estate	5%	6%	4%	3%
(f) Cash	3%	4%	2%	1%

* numbers may not add due to rounding

National Oil Full-Time Hourly Union Pension Plan
Historical Actuarial Valuation Results

2001 2002 2003 2004

Funding Valuation - January 1 (numbers in \$000's) *

1 Actuarial Accrued Liability:								
<i>Active Multiplier</i>	\$	65	\$	70	\$	75	\$	75
(a) Active participants		224,065		249,313		281,619		376,579
(b) Deferred vested participants		-		-		-		-
(c) Pensioners		84,778		90,493		91,704		96,561
(d) Total		308,843		339,806		373,323		473,140
2 Actuarial Value of Assets								
		297,614		306,848		306,622		380,679
3 Unfunded Actuarial Accrued Liability: (1d)-(2)								
		11,229		32,959		66,701		92,460
4 Normal Cost (beg. Of year)								
		14,645		16,085		17,384		22,550
5. Change in Unfunded AAL during prior year:								
(a) Unfunded AAL at prior valuation date		7,249		11,229		32,959		66,701
(b) Adjustment for Interest		580		898		2,637		5,336
(c) Normal Cost w/interest less contributions		(499)		(824)		(2,389)		(6,185)
(d) (Gain)/Loss on investment		2,770		17,954		34,255		(36,276)
(e) (Gain)/Loss on termination		(15,000)		(13,500)		(1,500)		(8,000)
(f) (Gain)/Loss on salary increases less than expected		-		-		-		-
(g) (Gain)/Loss on mortality		(100)		200		200		(1,000)
(h) (Gain)/Loss on retirement		(300)		(250)		(250)		(500)
(i) (Gain)/Loss on assumption changes		-		-		-		73,000
(j) (Gain)/Loss on expenses		-		-		-		-
(k) (Gain)/Loss on all other factors		524		630		789		(615)
(l) Change in active benefit multiplier		16,005		16,621		-		-
(m) Unfunded AAL at current valuation date		11,229		32,959		66,701		92,460
6. Actuarial Basis								
(a) Interest		8.00%		8.00%		8.00%		7.00%
(b) Salary scale								
(c) Consumer Price Index		3.50%		3.50%		3.50%		3.50%
(d) Mortality								
(e) Turnover								
(f) Retirement age								
(g) Proportion married and age difference								
(h) Expenses								
(i) Post-retirement indexing		1.00%		1.00%		1.00%		1.00%
(j) Asset Valuation Method								
(k) Actuarial Cost Method								

* numbers may not add due to rounding

National Oil Full-Time Hourly Union Pension Plan
Historical Actuarial Valuation Results

2001 2002 2003 2004

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

1. Reconciliation of funded status at valuation date:				
(active multiplier)	\$ 75	\$ 75	\$ 75	\$ 75
(a) Accumulated Benefit Obligation	(381,339)	(428,174)	(471,564)	(536,869)
(b) Projected Benefit Obligation	(381,339)	(428,174)	(471,564)	(536,869)
(c) Market Value of Assets	297,614	306,848	306,622	380,679
(d) Surplus: (b) + (c)	(83,725)	(121,327)	(164,942)	(156,189)
(e) Unrecognized prior service costs	42,587	38,750	34,913	31,077
(f) Unrecognized (gains)/losses	26,091	60,236	99,623	84,257
(g) Prepaid/(Accrued) expense	(15,047)	(22,341)	(30,406)	(40,856)
2. Pension Expense:				
(a) Service Cost (beg. Of year)	18,829	20,910	22,599	25,932
(b) Interest Cost	27,587	28,776	31,799	34,823
(c) Expected return on assets	(26,959)	(27,897)	(28,231)	(31,324)
(d) Recognition of prior service cost	3,837	3,837	3,837	3,837
(e) Amortization of unrecognized (gain)/loss	-	1,440	4,446	2,658
(f) Pension Expense	23,294	27,065	34,450	35,926
3. Actuarial Basis and Supplemental Data				
(a) Discount rate	7.00%	6.50%	6.50%	6.25%
(b) Return on assets	9.00%	9.00%	9.00%	8.00%
(c) Salary scale				
(d) Consumer Price Index	3.50%	3.50%	3.50%	3.50%
(e) Mortality	GAM83			
(f) Turnover	Based on NOC experience for 1986-1988			
(g) Retirement age	Age 62, with the appropriate early retirement reduction, if any			
(h) Proportion married and age difference	80% married, husbands 3 years older than wives			
(i) Expenses	Assume all expenses paid by company			
(j) Post-retirement indexing	1.00%	1.00%	1.00%	1.00%
(k) Asset Valuation Method	Market value of assets			
(l) Actuarial Cost Method	Projected unit credit			
(m) Employer contributions	16,000	19,000	24,000	33,000
(n) Benefit payments	(12,144)	(12,751)	(9,883)	(11,258)

* numbers may not add due to rounding

**National Oil Full-Time Hourly Union Pension Plan
Reconciliation of Plan Participants (2001-2004)**

	<u>Active</u>	<u>Pensioners/ Beneficiaries</u>	<u>Total</u>
1. Participants as of January 1, 2001	6,440	920	7,360
- New Entrants/Rehires	500	-	500
- Terminated Nonvested	(185)	-	(185)
- Terminated Vested (Lump Sum Cashout)	(250)	-	(250)
- Retirement	(50)	50	-
- Death w/ Beneficiary	(4)	4	-
- Death w/o Beneficiary	-	(2)	(2)
- Net change	11	52	63
2. Participants as of January 1, 2002	6,451	972	7,423
- New Entrants/Rehires	61	-	61
- Terminated Nonvested	(20)	-	(20)
- Terminated Vested (Lump Sum Cashout)	(23)	-	(23)
- Retirement	(30)	30	-
- Death w/ Beneficiary	(2)	2	-
- Death w/o Beneficiary	-	(19)	(19)
- Net change	(14)	13	(1)
3. Participants as of January 1, 2003	6,437	985	7,422
- New Entrants/Rehires	200	-	200
- Terminated Nonvested	(100)	-	(100)
- Terminated Vested (Lump Sum Cashout)	(120)	-	(120)
- Retirement	(40)	40	-
- Death w/ Beneficiary	(1)	1	-
- Death w/o Beneficiary	-	(10)	(10)
- Net change	(61)	31	(30)
4. Participants as of January 1, 2004	6,376	1,016	7,392

**National Oil Full-Time Hourly Union Pension Plan
Age/Svc/Earnings as of January 1, 2004**

Age (Years)	Service (Years)						Totals
	< 5	5-10	10-15	15-20	>20		
< 25	# Participants 216 Average Salary 24,000	90 29,500	- -	- -	- -	306 25,618	
25-35	# Participants 285 Average Salary 25,600	128 30,400	100 36,200	40 36,700	- -	553 29,431	
35-45	# Participants 320 Average Salary 26,000	430 31,000	365 38,000	776 42,800	382 45,000	2,273 37,801	
45-55	# Participants 107 Average Salary 24,000	153 31,000	320 37,200	625 41,500	976 45,200	2,181 40,930	
55-65	# Participants 102 Average Salary 23,900	52 28,000	74 35,500	134 39,000	687 45,300	1,049 40,865	
> 65	# Participants 2 Average Salary 20,000	5 21,000	4 25,000	1 24,000	2 24,500	14 22,714	
Totals	# Participants 1,032 Average Salary 25,044	858 30,513	863 37,220	1,576 41,795	2,047 45,176	6,376 38,032	

Avg Age 45.5
Avg Svc 16.7
Avg Salary 38,032

Retiree Health and Welfare Program
Historical Valuation Results

2001 2002 2003 2004

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

1. Reconciliation of funded status at valuation date:				
(a) Accumulated Postretirement Benefit Obligation				
(i) actives	(348,247)	(384,885)	(421,727)	(459,512)
(ii) retirees	(186,636)	(248,426)	(281,151)	(315,532)
(iii) total	(534,883)	(633,310)	(702,878)	(775,044)
(b) Market Value of Assets	0	0	0	0
(c) Surplus: (a) + (b)	(534,883)	(633,310)	(702,878)	(775,044)
(d) Unrecognized prior service costs	0	0	0	0
(e) Unrecognized (gain)/loss	(26,660)	23,491	37,273	46,463
(f) Prepaid/(accrued) expense	(561,543)	(609,819)	(665,604)	(728,580)
2. Expense				
(a) Service cost (beg. of year)	26,883	31,057	34,411	36,782
(b) Interest cost	38,717	42,603	47,314	50,130
(c) Expected ROA	0	0	0	0
(d) Prior svc cost recognized	0	0	0	0
(e) Amort of unrec (gain)/loss	0	0	0	0
(f) Expense for year	65,600	73,660	81,726	86,912
3. Benefit Payments	17,325	17,875	18,750	19,500
4. Actuarial Basis				
(a) Discount rate	7.00%	6.50%	6.50%	6.25%
(b) Return on assets	9.00%	9.00%	9.00%	8.00%
(c) Medical trend				
Initial rate	8.00%	8.00%	8.00%	8.00%
Annual decrease	0.50%	0.50%	0.50%	0.50%
Ultimate rate	4.50%	4.50%	4.50%	4.50%
Year ultimate trend rate reached	2008	2008	2008	2008
(d) CPI	3.50%	3.50%	3.50%	3.50%
(e) group premium per insured	7,750	7,850	8,125	8,300
(f) demographic assumptions	Same as those used for pension plans			

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