

EDUCATION AND EXAMINATION COMMITTEE

OF THE

SOCIETY OF ACTUARIES

COURSE 8 RETIREMENT BENEFITS STUDY NOTE

COURSE 8 RETIREMENT BENEFITS CASE STUDY

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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Course 8 - Retirement Benefits

Case Study

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National Oil Company - Background

National Oil Company (NOC) is a large well-established company that services oil wells all over the country of Belair. 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 Belair. Although NOC is the largest player in the industry within Belair, 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 Belair – Background

Belair 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

Belair'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 Belair 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 Belair and there are no state-provided life or health-care benefits.

For financial reporting purposes, Belair has adopted International Accounting Standard No. 19 (IAS 19).

The investment market in Belair 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

1998 1999 2000 2001

Participant Summary - January 1

<i>Active Participants</i>				
(a) count	3,450	3,500	4,000	4,110
(b) average age	44.8	45.0	44.6	44.2
(c) average service	15.0	15.2	14.2	14.6
(d) average future working lifetime	10.9	10.7	11.8	12.2
(e) average plan earnings (prior year)	54,200	57,800	58,000	61,500
<i>Deferred Vested Participants</i>				
(a) count	-	-	-	-
<i>Pensioners (incl beneficiaries)</i>				
(a) count	480	510	525	550
(b) average age	68.9	69.6	70.5	71.0
(c) average annual benefit	18,300	18,600	18,700	18,800

Plan Assets

<i>Change in Plan Assets during Prior Year:</i>				
Market Value of Assets at January 1 of prior year	391,335,738	372,165,851	479,905,792	551,990,760
Employer Contributions during prior year	-	22,000,000	-	-
Benefit Payments during prior year	(11,457,750)	(12,286,000)	(13,117,500)	(13,640,000)
Expenses during prior year	-	-	-	-
Investment return during prior year	(7,712,137)	98,025,941	85,202,468	27,258,538
Market Value of Assets at January 1 of current year	372,165,851	479,905,792	551,990,760	565,609,298
Rate of return during prior year	-2%	26%	18%	5%
<i>Average Portfolio Mix During Prior Year:</i>				
(a) Domestic Large Cap Equities	37%	39%	36%	35%
(b) Domestic Small Cap Equities	24%	23%	23%	25%
(c) Domestic Fixed Income	24%	23%	24%	25%
(d) International Equities	8%	8%	11%	9%
(e) Real Estate	4%	4%	3%	3%
(f) Cash	3%	3%	3%	3%
(g) Total	100%	100%	100%	100%
<i>Asset Class Returns during Prior Year:</i>				
(a) Domestic Large Cap Equities	-3%	43%	17%	4%
(b) Domestic Small Cap Equities	-12%	26%	32%	7%
(c) Domestic Fixed Income	5%	6%	9%	10%
(d) International Equities	7%	21%	18%	-10%
(e) Real Estate	3%	3%	10%	5%
(f) Cash	3%	3%	3%	3%

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

1998 1999 2000 2001

Funding Valuation - January 1

1. Actuarial Accrued Liability:				
(a) Active participants	296,908,098	325,570,240	368,341,138	414,305,592
(b) Deferred vested participants	-	-	-	-
(c) Pensioners	77,299,200	81,579,600	82,467,000	86,856,000
(d) Total	<u>374,207,298</u>	<u>407,149,840</u>	<u>450,808,138</u>	<u>501,161,592</u>
2 Actuarial Value of Assets	372,165,851	479,905,792	551,990,760	565,609,298
3 Unfunded Actuarial Accrued Liability: (1d)-(2)	2,041,447	(72,755,952)	(101,182,622)	(64,447,706)
4 Normal Cost (beg Of year)	19,793,873	21,419,095	25,939,517	28,377,095
5. Change in Unfunded AAL during prior year:				
(a) Unfunded AAL at prior valuation date	(51,022,088)	2,041,447	(72,755,952)	(101,182,622)
(b) Adjustment for interest	(4,081,767)	163,316	(5,820,476)	(8,094,610)
(c) Normal Cost w/interest less contributions	19,265,580	(622,617)	23,132,622	28,014,678
(d) (Gain)/Loss on investment	38,560,685	(67,864,113)	(47,334,704)	16,355,123
(e) (Gain)/Loss on termination	(500,000)	(300,000)	1,000,000	500,000
(f) (Gain)/Loss on salary increases less than expected	(780,000)	(5,000,000)	50,000	900,000
(g) (Gain)/Loss on mortality	100,000	(300,000)	150,000	(350,000)
(h) (Gain)/Loss on retirement	300,000	225,000	(200,000)	(400,000)
(i) (Gain)/Loss on expenses	-	-	-	-
(j) (Gain)/Loss on all other factors	199,037	(1,098,985)	595,888	(190,275)
(k) Unfunded AAL at current valuation date	<u>2,041,447</u>	<u>(72,755,952)</u>	<u>(101,182,622)</u>	<u>(64,447,706)</u>
6. Actuarial Basis				
(a) Interest	8.00%	8.00%	8.00%	8.00%
(b) Salary scale	5.00%	5.00%	5.00%	5.00%
(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			

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

1998 1999 2000 2001

Expense Valuation - January 1

1. Reconciliation of funded status at valuation date:				
(a) Obligations:				
(i) accrued benefit obligation	(265,045,994)	(272,735,197)	(293,025,290)	(358,330,538)
(ii) projected benefit obligation	(407,763,068)	(474,322,082)	(450,808,138)	(551,277,751)
(b) Market Value of Assets	372,165,851	479,905,792	551,990,760	565,609,298
(c) Surplus: (a)(ii) + (b)	(35,597,217)	5,583,710	101,182,622	14,331,547
(d) Unrecognized (gains)/losses	<u>(8,375,382)</u>	<u>(47,145,801)</u>	<u>(158,574,388)</u>	<u>(77,428,441)</u>
(e) Prepaid/(Accrued) expense	(43,972,599)	(41,562,091)	(57,391,766)	(63,096,894)
2. Pension Expense:				
(a) Service Cost (beg. of year)	21,773,261	25,167,436	25,939,517	31,214,805
(b) Interest Cost	31,785,559	33,300,890	37,615,112	40,297,079
(c) Expected return on assets	(33,969,328)	(42,638,651)	(49,088,881)	(50,291,037)
(d) Recognition of prior service cost	-	-	-	-
(e) Amortization of unrecognized (gain)/loss	-	-	(8,760,620)	(1,710,452)
(f) Pension Expense for year	<u>19,589,492</u>	<u>15,829,675</u>	<u>5,705,128</u>	<u>19,510,395</u>
3. Actuarial Basis				
(a) Discount rate	7.50%	6.75%	8.00%	7.00%
(b) Return on assets	9.00%	9.00%	9.00%	9.00%
(c) Salary scale	5.00%	4.25%	5.00%	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			

**National Oil Full-Time Salaried Pension Plan
Reconciliation of Plan Participants (1998-2001)**

	<u>Active</u>	<u>Pensioners/ Beneficiaries</u>	<u>Total</u>
1. Participants as of January 1, 1998	3,450	480	3,930
- New Entrants/Rehires	380	-	380
- Terminated Nonvested	(120)	-	(120)
- Terminated Vested (Lump Sum Cashout)	(175)	-	(175)
- Retirement	(34)	34	-
- Death w/ Beneficiary	(1)	1	-
- Death w/o Beneficiary	-	(5)	(5)
- Net change	50	30	80
2. Participants as of January 1, 1999	3,500	510	4,010
- New Entrants/Rehires	827	-	827
- Terminated Nonvested	(120)	-	(120)
- Terminated Vested (Lump Sum Cashout)	(185)	-	(185)
- Retirement	(20)	20	-
- Death w/ Beneficiary	(2)	2	-
- Death w/o Beneficiary	-	(7)	(7)
- Net change	500	15	515
3. Participants as of January 1, 2000	4,000	525	4,525
- New Entrants/Rehires	416	-	416
- Terminated Nonvested	(110)	-	(110)
- Terminated Vested (Lump Sum Cashout)	(165)	-	(165)
- Retirement	(30)	30	-
- Death w/ Beneficiary	(1)	1	-
- Death w/o Beneficiary	-	(6)	(6)
- Net change	110	25	135
4. Participants as of January 1, 2001	4,110	550	4,660

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 proceeds 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

	1998	1999	2000	2001
Participant Summary				
1. Active Participants				
(a) count	34	37	39	41
(b) average age	50.3	50.1	49.9	50.5
(c) average service	16.3	15.9	15.4	16.0
(d) average future working lifetime	7.3	7.6	7.9	8.2
(e) average earnings (prior year)	279,000	284,000	286,000	290,000
2. Deferred Vested Participants				
(a) count	0	0	0	0
3. Pensioners (incl beneficiaries)				
(a) count	8	8	10	11
(b) average age	69.0	70.0	66.5	67.0
(c) average annual benefit	12,875	12,875	11,250	11,500
Expense Valuation Results				
1. Reconciliation of funded status at valuation date:				
(a) Obligations				
(i) accrued benefit obligation	(7,025,523)	(9,194,038)	(7,404,044)	(10,641,720)
(ii) projected benefit obligation	(11,188,796)	(14,260,382)	(11,943,378)	(15,735,534)
(b) Market Value of Assets	0	0	0	0
(c) Surplus: (a)(ii) + (b)	(11,188,796)	(14,260,382)	(11,943,378)	(15,735,534)
(d) Unrecognized prior service costs	0	0	0	0
(e) Unrecognized (gain)/loss	(458,783)	1,318,772	(2,523,441)	11,147
(f) Prepaid/(accrued) expense	(11,647,578)	(12,941,610)	(14,466,819)	(15,724,387)
2. Pension Expense				
(a) Service cost (beg. of year)	522,543	626,801	543,832	672,095
(b) Interest cost	874,488	1,001,409	994,477	1,144,106
(c) Expected ROA	0	0	0	0
(d) Prior svc cost recognized	0	0	0	0
(e) Amort of unrec (gain)/loss	0	0	(168,241)	0
(f) Pension Expense for year	1,397,031	1,628,210	1,370,068	1,816,201
3. Benefit Payments				
	103,000	103,000	112,500	126,500
4. Actuarial Basis				
(a) Discount rate	7.50%	6.75%	8.00%	7.00%
(b) Return on assets	9.00%	9.00%	9.00%	9.00%
(c) Salary scale	5.00%	4.25%	5.00%	4.00%
(d) CPI	3.50%	3.50%	3.50%	3.50%
(e) All other assumptions	Same as for Full-time Salaried Pension Plan			

Supplemental Retirement Plan
Historical Valuation Results - January 1

2001

Participant Summary

1. Active Participants	
(a) count	41
(b) average age	50.5
(c) average service	16.0
(d) average future working lifetime	8.2
(e) average earnings (prior year)	290,000
2. Deferred Vested Participants	
(a) count	0
3. Pensioners (incl beneficiaries)	
(a) count	11
(b) average age	67.0
(c) average annual benefit	11,500

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	Minimum of 1% or Belair 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

1998 1999 2000 2001

Participant Summary - January 1

<i>Active Participants</i>				
(a) count	5,350	5,480	6,200	6,440
(b) average age	43.8	44.2	44.5	44.1
(c) average service	14.0	14.6	14.9	15.3
(d) average future working lifetime	12.4	12.2	12.1	12.4
(e) average plan earnings (prior year)	32,050	33,000	34,300	36,000
<i>Deferred Vested Participants</i>				
(a) count	-	-	-	-
<i>Pensioners (incl beneficiaries)</i>				
(a) count	770	830	880	920
(b) average age	67.9	68.8	69.6	70.3
(c) average annual benefit	9,300	9,400	9,600	9,700

Plan Assets

<i>Change in Plan Assets during Prior Year:</i>				
Market Value of Assets at January 1 of prior year	201,927,150	203,056,058	250,623,920	293,911,907
Employer Contributions during prior year	13,000,000	15,000,000	14,500,000	16,000,000
Benefit Payments during prior year	(9,836,000)	(10,542,000)	(11,548,000)	(12,144,000)
Expenses during prior year	-	-	-	-
Investment return during prior year	(2,035,092)	43,109,862	40,335,987	20,708,793
Market Value of Assets at January 1 of current year	203,056,058	250,623,920	293,911,907	318,476,700
Rate of return during prior year	-1%	21%	16%	7%
<i>Average Portfolio Mix During Prior Year:</i>				
(a) Domestic Large Cap Equities	24%	29%	28%	25%
(b) Domestic Small Cap Equities	24%	15%	19%	22%
(c) Domestic Fixed Income	41%	42%	43%	45%
(d) International Equities	5%	9%	6%	4%
(e) Real Estate	3%	3%	2%	2%
(f) Cash	3%	2%	2%	2%
(g) Total	100%	100%	100%	100%
<i>Asset Class Returns during Prior Year:</i>				
(a) Domestic Large Cap Equities	-3%	43%	17%	4%
(b) Domestic Small Cap Equities	-12%	26%	32%	7%
(c) Domestic Fixed Income	5%	6%	9%	10%
(d) International Equities	7%	21%	18%	-10%
(e) Real Estate	3%	3%	10%	5%
(f) Cash	3%	3%	3%	3%

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

1998 1999 2000 2001

Funding Valuation - January 1

1. Actuarial Accrued Liability:								
<i>Active Multiplier</i>								
	\$	59	\$	60	\$	65	\$	70
(a) Active participants	167,105,106		186,828,275		223,521,020		268,330,119	
(b) Deferred vested participants	-		-		-		-	
(c) Pensioners	71,610,000		76,459,600		81,945,600		84,778,000	
(d) Total	<u>238,715,106</u>		<u>263,287,875</u>		<u>305,466,620</u>		<u>353,108,119</u>	
2 Actuarial Value of Assets	203,056,058		250,623,920		293,911,907		318,476,700	
3 Unfunded Actuarial Accrued Liability: (1d)-(2)	35,659,048		12,663,955		11,554,713		34,631,419	
4 Normal Cost (beg Of year)	11,936,079		12,796,457		15,001,411		17,537,916	
5 Change in Unfunded AAL during prior year:								
(a) Unfunded AAL at prior valuation date	14,353,247		35,659,048		12,663,955		11,554,713	
(b) Adjustment for Interest	1,148,260		2,852,724		1,013,116		924,377	
(c) Normal Cost w/interest less contributions	(1,506,802)		(2,109,035)		(679,826)		201,524	
(d) (Gain)/Loss on investment	18,315,828		(26,687,057)		(20,167,994)		2,958,399	
(e) (Gain)/Loss on termination	(500,000)		(300,000)		250,000		(750,000)	
(f) (Gain)/Loss on salary increases less than expected	-		-		-		-	
(g) (Gain)/Loss on mortality	100,000		(300,000)		150,000		(100,000)	
(h) (Gain)/Loss on retirement	300,000		225,000		(200,000)		(300,000)	
(i) (Gain)/Loss on expenses	-		-		-		-	
(j) (Gain)/Loss on all other factors	616,226		209,471		1,331,537		975,969	
(k) Change in active benefit multiplier	2,832,290		3,113,805		17,193,925		19,166,437	
(l) Unfunded AAL at current valuation date	<u>35,659,048</u>		<u>12,663,955</u>		<u>11,554,713</u>		<u>34,631,419</u>	
6. Actuarial Basis								
(a) Interest	8.00%		8.00%		8.00%		8.00%	
(b) Salary scale					N/A			
(c) Consumer Price Index	3.50%		3.50%		3.50%		3.50%	
(d) Mortality								
(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					Unit credit			

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

1998 1999 2000 2001

Expense Valuation - January 1

1. Reconciliation of funded status at valuation date:				
	\$ 60	\$ 60	\$ 75	\$ 75
(a) Obligations: (active multiplier)				
(i) accrued benefit obligation	(262,121,636)	(319,552,394)	(339,854,469)	(438,251,667)
(ii) projected benefit obligation	(262,121,636)	(319,552,394)	(339,854,469)	(438,251,667)
(b) Market Value of Assets	203,056,058	250,623,920	293,911,907	318,476,700
(c) Surplus: (a)(ii) + (b)	(59,065,578)	(68,928,474)	(45,942,562)	(119,774,967)
(d) Prior Service Cost to be recognized	-	-	51,581,774	-
(e) Unrecognized (gains)/losses	<u>52,261,449</u>	<u>59,887,109</u>	<u>(18,025,077)</u>	<u>53,106,736</u>
(f) Prepaid/(Accrued) expenses	(6,804,128)	(9,041,365)	(12,385,866)	(66,668,231)
2. Pension Expense:				
(a) Service Cost (beg. Of year)	13,352,224	15,995,571	17,309,320	22,548,749
(b) Interest Cost	20,291,689	22,293,695	28,111,183	31,830,989
(c) Expected return on assets	(18,507,425)	(22,734,263)	(26,719,912)	(28,926,423)
(d) Recognition of prior service cost	-	-	51,581,774	-
(e) Amortization of unrecognized (gain)/loss	<u>2,100,749</u>	<u>2,289,497</u>	<u>-</u>	<u>748,514</u>
(f) Pension Expense	<u>17,237,237</u>	<u>17,844,500</u>	<u>70,282,365</u>	<u>26,201,829</u>
3. Actuarial Basis				
(a) Discount rate	7.50%	6.75%	8.00%	7.00%
(b) Return on assets	9.00%	9.00%	9.00%	9.00%
(c) Salary scale		N/A		
(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		
(h) Proportion married and age difference		80% married, husbands 3 years older than wives		
(i) Expenses		Assume all expenses paid by company		
(j) Asset Valuation Method		Market value of assets		
(k) Actuarial Cost Method		Projected unit credit		

**National Oil Full-Time Hourly Union Pension Plan
Reconciliation of Plan Participants (1998-2001)**

	<u>Active</u>	<u>Pensioners/ Beneficiaries</u>	<u>Total</u>
1. Participants as of January 1, 1998	5,350	770	6,120
- New Entrants/Rehires	605	-	605
- Terminated Nonvested	(175)	-	(175)
- Terminated Vested (Lump Sum Cashout)	(240)	-	(240)
- Retirement	(55)	55	-
- Death w/ Beneficiary	(5)	5	-
- Death w/o Beneficiary	-	-	-
- Net change	130	60	190
2. Participants as of January 1, 1999	5,480	830	6,310
- New Entrants/Rehires	1,100	-	1,100
- Terminated Nonvested	(175)	-	(175)
- Terminated Vested (Lump Sum Cashout)	(150)	-	(150)
- Retirement	(54)	54	-
- Death w/ Beneficiary	(1)	1	-
- Death w/o Beneficiary	-	(5)	(5)
- Net change	720	50	770
3. Participants as of January 1, 2000	6,200	880	7,080
- New Entrants/Rehires	652	-	652
- Terminated Nonvested	(165)	-	(165)
- Terminated Vested (Lump Sum Cashout)	(200)	-	(200)
- Retirement	(45)	45	-
- Death w/ Beneficiary	(2)	2	-
- Death w/o Beneficiary	-	(7)	(7)
- Net change	240	40	280
4. Participants as of January 1, 2001	6,440	920	7,360

National Oil Part-Time DC Pension Plan

Eligibility	Immediate
Vesting	Immediate
Employer Contributions	90¢ per hour worked
Plan Fund	The employer invests the contributions in GIC's. There are no employee investment choices.
Account Balance	Contributions are accumulated in member's individual account earning interest at the rate of return earned by the Plan Fund.
Loans	Not permitted.
Benefit on Termination or Retirement	Account balance is transferred to a PPA for the member after one year from date of termination or retirement, unless employee has since returned to employment with NOC.
Benefit on Death	Account balance is payable to named beneficiary

National Oil Part-Time DC Pension Plan
Historical Results - January 1

1998 1999 2000 2001

Participant Summary

(a) number participating during prior year	4,112	4,685	5,114	5,650
(b) average age	31.4	30.9	29.9	28.6
(c) average hours worked in prior year	1,120	1,200	1,185	1,250
(d) average earnings per hour in prior year	13 40	14 50	15 00	15 30

Plan Assets

<i>Change in Plan Assets during Prior Year:</i>				
Market Value of Assets at January 1 of prior year	19,031,338	21,367,242	24,347,422	27,891,100
Employer Contributions during prior year	4,144,896	5,059,800	5,454,081	6,356,250
Benefit Payments during prior year	(2,794,323)	(3,411,115)	(3,676,923)	(4,285,130)
Expenses during prior year	-	-	-	-
Investment return during prior year	985,331	1,331,495	1,766,520	1,157,066
Market Value of Assets at January 1 of current year	21,367,242	24,347,422	27,891,100	31,119,286
Rate of return during prior year	5%	6%	7%	4%

National Oil Full-Time Salaried and Union Retiree Health Benefit Program

Eligibility	Immediate		
Earliest Retirement Age	55		
Benefits	Retirees and their spouses may elect to participate in a fully insured group health plan, with the portion of premium paid by the plan as shown below:		
Annual Premium Cost-Sharing	Years of service		
	<u>at Retirement</u>	<u>Plan</u>	<u>Retiree/Spouse</u>
	0 - 4	0%	100%
	5 - 9	25%	75%
	10 - 14	50%	50%
	15 - 19	75%	25%
	20 +	100%	0%

Retiree Health and Welfare Program
Historical Valuation Results

1998 1999 2000 2001

Expense Valuation Results - January 1

1. Reconciliation of funded status at valuation date:

(a) APBO				
(i) actives	(260,521,387)	(339,772,152)	(215,887,182)	(348,246,937)
(ii) retirees	(159,674,399)	(182,954,236)	(156,332,097)	(186,636,132)
(iii) total	(420,195,786)	(522,726,388)	(372,219,279)	(534,883,069)
(b) Market Value of Assets	0	0	0	0
(c) Surplus: (a) + (b)	(420,195,786)	(522,726,388)	(372,219,279)	(534,883,069)
(d) Unrecognized prior service costs	0	0	0	0
(e) Unrecognized (gain)/loss	(41,312,246)	24,725,003	(168,738,513)	(26,660,293)
(f) Prepaid/(accrued) expense	(461,508,032)	(498,001,384)	(540,957,792)	(561,543,362)

2. Expense

(a) Service cost (beg. of year)	18,384,226	22,439,287	17,525,688	26,883,211
(b) Interest cost	32,359,126	36,267,121	30,519,597	38,717,265
(c) Expected ROA	0	0	0	0
(d) Prior svc cost recognized	0	0	0	0
(e) Amort of unrec (gain)/loss	0	0	(10,959,715)	0
(f) Expense for year	50,743,352	58,706,408	37,085,570	65,600,475

3. Benefit Payments 14,250,000 15,750,000 16,500,000 17,325,000

4. Actuarial Basis

(a) Discount rate	7.50%	6.75%	8.00%	7.00%
(b) Return on assets	9.00%	9.00%	9.00%	9.00%
(c) Medical trend				
Initial rate	7.50%	7.00%	6.50%	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	2004	2004	2004	2008
(d) CPI	3.50%	3.50%	3.50%	3.50%
(e) group premium cost	7,250	7,600	7,600	7,750