

Case Study - Course DP Retirement - United States

National Oil Company - Background

National Oil Company (NOC) is a large well-established company that services oil wells all over the United States (US). NOC has been in existence for over 30 years and has more than 10,000 full-time salaried and union hourly employees and over 6,000 part-time employees. 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 the US. Although NOC is the largest player in the industry within the US, 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.

United States legislation and social programs will apply to NOC in this case study.

Summary of National Oil's Retirement Benefits

NOC maintains three defined benefit plans:

1. a final-average pay defined benefit (DB) qualified plan for its full-time salaried employees;
2. a flat dollar defined benefit qualified plan for its full-time hourly union staff;
3. a defined contribution (DC) qualified plan for its part-time workforce; and
4. a non-eligible pension plan (referred to as the SERP) for its executives that is supplemental to the salaried plan. This plan has no assets.
5. a retiree health and welfare plan for the full-time salaried and union retirees. This plan has no assets.

Extracts of Retirement Benefits Provisions and Financial Information

National Oil Full-Time Salaried Pension Plan

Eligibility	Immediate
Vesting	100% after 2 years of plan membership
Normal Retirement Age	65
Early Retirement Age	55 with 2 years of plan membership
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, 60% joint & survivor benefit, without reduction. If not married, single life annuity
Optional Forms of Benefit	Level Income Option, Lump Sum Option, and J&S 75% Option
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	Accrual of service while on long term disability

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

2005 2006 2007 2008

Participant Summary - January 1

<i>Active Participants</i>				
(a) count	4,305	4,268	4,286	4,251
(b) average age	45.6	45.6	45.5	45.4
(c) average service	15.5	15.2	15.4	15.3
(d) average future working lifetime	11.0	11.0	11.0	11.0
(e) average plan earnings (prior year)	67,000	67,200	67,300	67,500
<i>Deferred Vested Participants</i>				
(a) count	-	-	-	-
<i>Pensioners (incl beneficiaries)</i>				
(a) count	640	665	695	720
(b) average age	70.8	70.9	69.8	68.2
(c) average annual benefit	19,500	19,700	20,100	21,800

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	674,861	772,639	860,847	959,430
Employer Contributions during prior year	37,000	39,789	-	-
Benefit Payments during prior year	(19,480)	(20,500)	(20,500)	(21,000)
Expenses during prior year	-	-	-	-
Investment return during prior year	80,257	68,919	119,084	(9,489)
Market Value of Assets at January 1 of current year	<u>772,639</u>	<u>860,847</u>	<u>959,430</u>	<u>928,941</u>
Rate of return during prior year	12%	9%	14%	-1%
<i>Average Portfolio Mix During Prior Year:</i>				
(a) Domestic Large Cap Equities	30%	29%	30%	32%
(b) Domestic Small Cap Equities	27%	28%	27%	25%
(c) Domestic Fixed Income	26%	27%	27%	23%
(d) International Equities	13%	11%	11%	15%
(e) Real Estate	2%	3%	3%	3%
(f) Cash	<u>2%</u>	<u>2%</u>	<u>2%</u>	<u>2%</u>
(g) Total	100%	100%	100%	100%
<i>Asset Class Returns during Prior Year:</i>				
(a) Domestic Large Cap Equities	15%	13%	23%	-3%
(b) Domestic Small Cap Equities	14%	7%	18%	-2%
(c) Domestic Fixed Income	7%	3%	4%	4%
(d) International Equities	12%	17%	10%	-5%
(e) Real Estate	3%	12%	8%	5%
(f) Cash	1%	2%	2%	3%

* numbers may not add due to rounding

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

	2005	2006	2007	2008
Funding Valuation - January 1 (numbers in \$000's) *				
1. Actuarial Accrued Liability:				
(a) Active participants	616,733	633,605	643,703	634,308
(b) Deferred vested participants	-	-	-	-
(c) Pensioners	114,442	134,935	143,886	161,669
(d) Total	731,175	768,540	787,589	795,977
2. Actuarial Value of Assets	772,639	860,847	959,430	928,941
3. Unfunded Actuarial Accrued Liability: (1d)-(2)	(41,464)	(92,306)	(171,841)	(132,964)
4. Normal Cost (beg. Of year)	39,789	41,685	41,799	41,458
5. Change in Unfunded AAL during prior year:				
(a) Unfunded AAL at prior valuation date	2,060	(41,464)	(92,306)	(171,841)
(b) Adjustment for Interest	144	(2,799)	(6,000)	(11,170)
(c) Normal Cost w/interest less contributions	1,096	1,343	44,394	44,516
(d) (Gain)/Loss on investment	(32,404)	(16,115)	(63,795)	71,170
(e) (Gain)/Loss on termination	(8,100)	(15,400)	(14,000)	(17,000)
(f) (Gain)/Loss on salary increases less than expected	(13,800)	(23,700)	(25,000)	(30,000)
(g) (Gain)/Loss on mortality	(4,000)	(6,800)	(6,800)	(6,900)
(h) (Gain)/Loss on retirement	(4,700)	(7,400)	(8,500)	(11,000)
(i) (Gain)/Loss on assumption changes	19,100	20,000	-	-
(j) (Gain)/Loss on expenses	-	-	-	-
(k) (Gain)/Loss on all other factors	(860)	28	166	(739)
(l) Unfunded AAL at current valuation date	(41,464)	(92,306)	(171,841)	(132,964)
6. Actuarial Basis				
(a) Interest	6.75%	6.50%	6.50%	6.50%
(b) Salary scale	3.75%	3.50%	3.50%	3.50%
(c) Consumer Price Index	3.00%	3.00%	3.00%	3.00%
(d) Mortality		GAM 1983		
(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
Reconciliation of Plan Participants (2005 - 2008)**

	<u>Active</u>	<u>Pensioners/ Beneficiaries</u>	<u>Total</u>
1. Participants as of January 1, 2005	4,305	640	4,945
- New Entrants/Rehires	250	-	250
- Terminated Nonvested	(115)	-	(115)
- Terminated Vested (Lump Sum Cashout)	(140)	-	(140)
- Retirement	(30)	30	-
- Death w/ Beneficiary	(2)	2	-
- Death w/o Beneficiary	-	(7)	(7)
- Net change	(37)	25	(12)
2. Participants as of January 1, 2006	4,268	665	4,933
- New Entrants/Rehires	300	-	300
- Terminated Nonvested	(130)	-	(130)
- Terminated Vested (Lump Sum Cashout)	(115)	-	(115)
- Retirement	(35)	35	-
- Death w/ Beneficiary	(2)	2	-
- Death w/o Beneficiary	-	(7)	(7)
- Net change	18	30	48
3. Participants as of January 1, 2007	4,286	695	4,981
- New Entrants/Rehires	250	-	250
- Terminated Nonvested	(120)	-	(120)
- Terminated Vested (Lump Sum Cashout)	(130)	-	(130)
- Retirement	(30)	30	-
- Death w/ Beneficiary	(5)	5	-
- Death w/o Beneficiary	-	(10)	(10)
- Net change	(35)	25	(10)
4. Participants as of January 1, 2008	4,251	720	4,971

National Oil Full-Time Salaried Pension Plan
Age/Svc/Earnings as of January 1, 2008

		Service (Years)					Totals	
		< 5	5-10	10-15	15-20	>20		
Age (Years)	< 25	# Participants	150	140	-	-	-	290
		Average Salary	35,900	46,100	-	-	-	40,800
	25-35	# Participants	200	160	100	55	-	515
		Average Salary	47,100	58,000	62,000	65,100	-	55,300
	35-45	# Participants	195	208	186	211	201	1,001
		Average Salary	59,400	66,300	70,200	76,300	77,800	70,100
	45-55	# Participants	184	163	187	310	740	1,584
		Average Salary	62,600	65,200	72,000	75,600	77,800	73,600
	55-65	# Participants	169	77	87	81	423	837
		Average Salary	61,200	64,100	68,100	73,900	74,200	70,000
	> 65	# Participants	4	4	5	6	5	24
		Average Salary	47,000	52,100	47,000	57,600	53,900	51,900
	Totals	# Participants	902	752	565	663	1,369	4,251
		Average Salary	53,700	60,200	68,800	74,600	76,600	67,500
		Avg Age	45.4					
		Avg Svc	15.3					
		Avg Salary	67,500					

National Oil Full-Time Salaried Supplemental Executive Retirement Plan (SERP)

Eligibility	Immediate
Normal Retirement Age	65
Early Retirement Age	55 with 2 years of plan membership
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 precedes age 62
Indexing	None
Termination Benefit	None
Pre-Retirement Death Benefit	None
Disability Benefit	None
Optional Forms of Benefit	Same as Salaried Plan

Supplemental Retirement Plan
 Historical Valuation Results - January 1

2005 2006 2007 2008

Participant Summary

1. Active Participants				
(a) count	47	49	52	60
(b) average age	52.9	53.1	53.1	52.0
(c) average service	18.1	18.2	18.2	19.1
(d) average future working lifetime	6.5	6.3	6.3	6.3
(e) average earnings (prior year)	310,000	315,000	325,000	350,000
2. Deferred Vested Participants				
(a) count	-	-	-	-
3. Pensioners (incl beneficiaries)				
(a) count	14	15	17	20
(b) average age	69.6	70.4	70.1	69.3
(c) average annual benefit	12,900	13,100	14,000	15,000

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

1. Reconciliation of funded status at valuation date:				
(a) Accrued Benefit Obligation	(28,813)	(33,762)	(42,444)	(51,793)
(b) Fair Value of Assets	-	-	-	-
(c) Funded Status: (a) + (b)	(28,813)	(33,762)	(42,444)	(51,793)
2. Service Cost	992	1,074	1,340	1,597
3. Benefit Payments	181	197	238	300
4. Actuarial Basis				
(a) Discount rate	6.00%	5.50%	5.00%	5.25%
(b) Salary scale	3.75%	3.50%	3.50%	3.50%
(c) CPI	3.00%	3.00%	3.00%	3.00%
(d) All other assumptions				

* numbers may not add due to rounding

National Oil Full-Time Hourly Union Pension Plan

Eligibility	Immediate
Vesting	100% after 2 years of plan membership
Normal Retirement Age	65
Early Retirement Age	55 with 10 years of service
Normal Retirement Benefit	\$75 per month times years of service for terminations/ retirements during 2005 \$80 per month times years of service for terminations/ retirements during 2006 and 2007 \$85 per month times years of service for terminations/ retirements during 2008 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	With a spouse, 60% joint & survivor benefit without reduction Without a spouse, single life annuity.
Optional Forms of Benefit	Level Income Option, Lump Sum Option, and J&S 75% Option
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

	2005	2006	2007	2008
Participant Summary - January 1				
<i>Active Participants</i>				
(a) count	6,295	6,253	6,321	6,395
(b) average age	46.4	46.5	46.3	46.0
(c) average service	17.3	17.4	17.2	17.0
(d) average future working lifetime	10.7	10.6	10.8	10.8
(e) average plan earnings (prior year)	39,500	39,800	39,600	39,400
<i>Deferred Vested Participants</i>				
(a) count	-	-	-	-
<i>Pensioners (incl beneficiaries)</i>				
(a) count	1,034	1,060	1,081	1,120
(b) average age	72.3	72.8	71.8	70.0
(c) average annual benefit	10,000	10,800	11,200	12,200

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	380,679	444,857	504,928	605,648
Employer Contributions during prior year	33,000	34,400	42,000	39,234
Benefit Payments during prior year	(11,340)	(12,000)	(15,000)	(17,000)
Expenses during prior year	-	-	-	-
Investment return during prior year	42,518	37,670	73,720	(6,168)
Market Value of Assets at January 1 of current year	444,857	504,928	605,648	621,714
Rate of return during prior year	11%	8%	14%	-1%
<i>Average Portfolio Mix During Prior Year:</i>				
(a) Domestic Large Cap Equities	29%	30%	30%	32%
(b) Domestic Small Cap Equities	20%	21%	27%	25%
(c) Domestic Fixed Income	38%	36%	27%	23%
(d) International Equities	8%	9%	11%	15%
(e) Real Estate	2%	2%	3%	3%
(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	15%	13%	23%	-3%
(b) Domestic Small Cap Equities	14%	7%	18%	-2%
(c) Domestic Fixed Income	7%	3%	4%	4%
(d) International Equities	12%	17%	10%	-5%
(e) Real Estate	3%	12%	8%	5%
(f) Cash	1%	2%	2%	3%

* numbers may not add due to rounding

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

	2005	2006	2007	2008
Funding Valuation - January 1 (numbers in \$000's) *				
1. Actuarial Accrued Liability:				
Active Multiplier	\$ 75	\$ 80	\$ 80	\$ 85
(a) Active participants	435,162	507,668	548,941	616,046
(b) Deferred vested participants	-	-	-	-
(c) Pensioners	98,230	117,914	124,704	140,739
(d) Total	533,392	625,582	673,645	756,785
2. Actuarial Value of Assets	444,857	504,928	605,648	621,714
3. Unfunded Actuarial Accrued Liability: (1d)-(2)	88,534	120,655	67,997	135,071
4. Normal Cost (beg. Of year)	25,154	29,176	31,915	36,238
5. Change in Unfunded AAL during prior year:				
(a) Unfunded AAL at prior valuation date	92,460	88,534	120,655	67,997
(b) Adjustment for Interest	6,472	5,976	7,843	4,420
(c) Normal Cost w/interest less contributions	(10,027)	(8,709)	(12,292)	(6,519)
(d) (Gain)/Loss on investment	(15,112)	(6,886)	(40,023)	46,257
(e) (Gain)/Loss on termination	(6,700)	(10,400)	(6,000)	(8,000)
(f) (Gain)/Loss on salary increases less than expected	-	-	-	-
(g) (Gain)/Loss on mortality	(1,200)	(1,900)	(1,900)	(3,900)
(h) (Gain)/Loss on retirement	(750)	(550)	(400)	(600)
(i) (Gain)/Loss on assumption changes	24,200	23,400	-	-
(j) (Gain)/Loss on expenses	-	-	-	-
(k) (Gain)/Loss on all other factors	(809)	(539)	114	(822)
(l) Change in active benefit multiplier	-	31,729	-	36,238
(m) Unfunded AAL at current valuation date	88,534	120,655	67,997	135,071
6. Actuarial Basis				
(a) Interest	6.75%	6.50%	6.50%	6.50%
(b) Salary scale	N/A	N/A	N/A	N/A
(c) Consumer Price Index	3.00%	3.00%	3.00%	3.00%
(d) Mortality			GAM83	
(e) Turnover			Based on NOC experience for 1986-1988	
(f) Retirement age			Age 62, with the appropriate early retirement reduction, if any	
(g) Proportion married and age difference			80% married, husbands 3 years older than wives	
(h) Expenses			Assume all expenses paid by company	
(i) Post-retirement indexing			1.00%	
(j) Asset Valuation Method			Market value of assets	
(k) Actuarial Cost Method			Unit credit	

* numbers may not add due to rounding

**National Oil Full-Time Hourly Union Pension Plan
Reconciliation of Plan Participants (2005 - 2008)**

	<u>Active</u>	<u>Pensioners/ Beneficiaries</u>	<u>Total</u>
1. Participants as of January 1, 2005	6,295	1,034	7,329
- New Entrants/Rehires	150	-	150
- Terminated Nonvested	(80)	-	(80)
- Terminated Vested (Lump Sum Cashout)	(75)	-	(75)
- Retirement	(35)	35	-
- Death w/ Beneficiary	(2)	2	-
- Death w/o Beneficiary	-	(11)	(11)
- Net change	(42)	26	(16)
2. Participants as of January 1, 2006	6,253	1,060	7,313
- New Entrants/Rehires	170	-	170
- Terminated Nonvested	(30)	-	(30)
- Terminated Vested (Lump Sum Cashout)	(40)	-	(40)
- Retirement	(30)	30	-
- Death w/ Beneficiary	(2)	2	-
- Death w/o Beneficiary	-	(11)	(11)
- Net change	68	21	89
3. Participants as of January 1, 2007	6,321	1,081	7,402
- New Entrants/Rehires	220	-	220
- Terminated Nonvested	(50)	-	(50)
- Terminated Vested (Lump Sum Cashout)	(50)	-	(50)
- Retirement	(40)	40	-
- Death w/ Beneficiary	(6)	6	-
- Death w/o Beneficiary	-	(7)	(7)
- Net change	74	39	113
4. Participants as of January 1, 2008	6,395	1,120	7,515

**National Oil Full-Time Hourly Union Pension Plan
Age/Svc/Earnings as of January 1, 2008**

		Service (Years)						
		< 5	5-10	10-15	15-20	>20	Totals	
Age (Years)	< 25	# Participants	250	120	-	-	-	370
		Average Salary	25,500	31,300	-	-	-	27,400
	25-35	# Participants	270	120	91	62	-	543
		Average Salary	26,800	31,800	37,800	38,300	-	31,100
	35-45	# Participants	275	330	320	659	441	2,025
		Average Salary	27,000	32,200	39,400	44,300	46,600	39,700
	45-55	# Participants	120	160	315	688	895	2,178
		Average Salary	25,000	32,200	38,600	43,000	46,800	42,100
	55-65	# Participants	95	62	93	186	801	1,237
		Average Salary	24,500	28,700	36,400	39,900	46,400	42,100
	> 65	# Participants	8	9	11	8	6	42
		Average Salary	20,600	21,600	25,700	24,600	25,100	23,600
	Totals	# Participants	1,018	801	830	1,603	2,143	6,395
		Average Salary	26,100	31,600	38,400	42,900	46,500	39,400
		Avg Age	46.0					
		Avg Svc	17.0					
		Avg Salary	39,400					

National Oil Part-Time DC Pension Plan

Eligibility	Immediate
Vesting	Immediate
Employer Contributions	50% match of employee contributions
Employee Contributions	3% of base pay
Plan Fund	The employer invests the contributions in a balanced fund. There are no employee investment choices.
Account Balance	Contributions are accumulated in member's individual account earning investment income at the rate of return earned by the Plan Fund.
Loans	Not permitted.
Benefit on Termination or Retirement	Account balance is transferred to a LIRA/LIF 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

2005 2006 2007 2008

Participant Summary

(a) number participating during prior year	6,300	6,250	6,500	7,000
(b) average age	30.5	30.9	28.9	29.2
(c) average base pay	24,000.00	26,000.00	29,000.00	30,000.00

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	46,792	57,871	67,779	75,248
Employee Contributions during prior year	4,536	4,875	5,655	6,300
Company Contributions during prior year	2,268	2,438	2,828	3,150
Benefit Payments during prior year	(5,670)	(5,625)	(5,850)	(6,300)
Expenses during prior year	-	-	-	-
Investment return during prior year	9,945	8,220	4,837	768
Market Value of Assets at January 1 of current year	57,871	67,779	75,248	79,166
Rate of return during prior year	21%	14%	7%	1%

* numbers may not add due to rounding

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

Eligibility	Immediate
Earliest Retirement Age	55 and 10 years of service
Retirement benefit	Retirees and their spouses may elect to participate in a self insured health plan, with 100% the of cost of the plan paid by the employer.
Death benefit	Coverage continues for the life of the spouse after death of an eligible employee
Benefits Covered	\$0 deductible; \$0 copay No lifetime maximum Office visits Hospital visits Surgery Prescription drugs

Retiree Health and Welfare Program
Historical Valuation Results

2005 2006 2007 2008

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

1. Reconciliation of funded status at valuation date:				
(a) Accumulated Postretirement Benefit Obligation				
(i) actives	(646,104)	(734,147)	(835,331)	(842,433)
(ii) retirees	(438,277)	(511,869)	(538,528)	(594,208)
(iii) total	(1,084,381)	(1,246,016)	(1,373,859)	(1,436,641)
(b) Market Value of Assets	0	0	0	0
(c) Surplus: (a) + (b)	(1,084,381)	(1,246,016)	(1,373,859)	(1,436,641)
2. Service Cost (beg. of year)	40,381	45,884	52,208	52,652
3. Benefit Payments	20,100	22,000	27,000	30,000
4. Actuarial Basis				
(a) Discount rate	6.00%	5.50%	5.00%	5.25%
(b) Return on assets	N/A	N/A	N/A	N/A
(c) Medical trend				
Initial rate	6.00%	5.50%	6.00%	7.00%
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	2010	2013
(d) CPI	3.00%	3.00%	3.00%	3.00%
(e) Per capita claims cost	8,450	8,800	9,500	10,500
(f) Retirement assumption	Age 62 with 10 years of service			
(g) All other demographic assumptions	Same as those used for pension plans			

* numbers may not add due to rounding