



Table 3.3.10 (2) Results of the Field Survey (4th Stage)

Site Code	Site Name	Location (GPS)			Sampling		MET-OCEAN CONDITIONS								FIELD WATER PARAMETERS													
		Lat.	Long.	GPS/Chart	Date	Time	Air Temp. (°C)	Cloudiness (%)	Wind Direction (°)	Wind Speed (m/s)	Wave Height (m)	Tide	Depth (m)	Water Current Direction (°)	Water Current Speed (cm/s)	Water Temp. (°C)	Salinity (‰)	pH	DO (mg/L (%))	Turbidity (NTU)	Water Clarity (m)	Water Color	Odor	Sheen	Rubbish	Res.Cl		
																										as Total (mg/L)	as Free (mg/L)	
T6	Qatif/Anik urban drain	26° 30.55'N	50° 02.11'E	G	11.Jun.00	11:35	40.0	0	10	4-6	<0.1		0.7	50(Flow out)	4	29.64(S) 29.40(B)	4.16(S) 4.16(B)	7.43(S) 7.42(B)	2.10(28.3)(S) 1.83(24.2)(B)	21(S) 23(B)	0.3	Dark Green weak sewage smell	no	no	0.16	0.09		
T7	Qatif/Anik Drain Mouth	26° 30.53'N	50° 02.57'E	G	11.Jun.00	12:50	38.5	0	350	3-5	<0.2		0.9	-	-	30.1	42.9	8.2	4.4	0	>0.9	pale green	no	no	Edge of mangrove	0.13	0.1	
T9	Dammam Fishing Harbour - Entrance	26° 29.51'N	50° 18.15'E	G	17.Jun.00	9:50	36.0	0	338	1-2	<0.2	-	3.4	358	8	30.5(S) 30.4(B)	43.0(S) 43.1(B)	8.0(S) 8.0(B)	3.86(67.4)(S) 3.96(68.0)(B)	1.0(S) 1.7(B)	1.7	Green	no	no	no	-	-	-
T110	Dammam Fishing Harbour	26° 27.59'N	50° 08.02'E	G	17.Jun.00	9:10	36.0	0	338	5	<0.2		2.7	350	12	31.0(S) 30.0(B)	42.0(S) 43.0(B)	7.9(S) 7.9(B)	3.5(61)(S) 3.4(50)(B)	6-10(S) 46(B)	0.74	Green	no	no	no	no	0.07	0.05
T120	Swfwa	26° 38.93'N	50° 01.15'E	G	11.Jun.00	13:40	38.5	0	351	3-5	<0.3		1.5	73	2	29.1(S) 29.1(B)	48.2(S) 48.2(B)	8.11(S) 8.20(B)	4.5(79.6)(S) 4.6(80.0)(B)	24.0(S) 18.0(B)	>1.5	pale green	no	no	no	no	0.14	0.12
K1	Dammam South	26° 25.15'N	50° 14.24'E	G	14.Jun.00	9:00	34.0	0	350	2-3	<0.3		2.7	329	14	29.5(S) 29.5(2m)	42.9(S) 42.9(2m)	8.19(S) 8.20(2m)	4.0(69.6)(S) 4.2(72)(2m)	0.0(S) 0.0(2m)	>2.7	Pale Green	no	no	no	Floating seagrass	0.02	0.16
K2	SAFCO outfall	26° 24.52'N	50° 11.42'E	G	17.Jun.00	10:50	39.0	0	338	5-7	<0.1		<0.7	-	-	40.0	30.6	7.5	2.4(39)	0	>0.7	Pale Green	no	no	no	no	0.03	0.1
K3	SAFCO south	26° 24.71'N	50° 12.20'E	G	14.Jun.00	8:10	35.0	0	350	<3	<0.2		0.9	0	0	27.9	43.7	8.1	3.6(60.3)	0	>0.8	Pale Green	no	no	no	no	0.02	0.14
K4	Khobar Central	26° 14.95'N	50° 13.48'E	G	12.Jun.00	11:25	34.0	0	351	5	<0.3		5.5	0(S) 2(B)	42.9(S) 51.5(B)	28.73(S) 28.92(B)	48.46(S) 49.80(B)	8.12(S) 8.17(B)	3.59(62.8)(S) 3.53(61.9)(B)	1.7(S) 2.4(B)	1.8	pale green	no	no	no	no	0.08	0.02
K5	Khobar STP Outfall	26° 14.46'N	50° 13.38'E	G	12.Jun.00	9:35	37.0	0	350	6-8	<0.3		1.1	38	26	29.2(S) 28.9(B)	41(S) 49.1(B)	8.0(S) 8.2(B)	3.8(62.5)(S) 3.8(67.4)(B)	16(S) 25(B)	1.05	brown green	no	no	small rubbish	no	0.19	0.14
K6	Khobar South	26° 14.35'N	50° 13.55'E	G	12.Jun.00	8:40	36.0	0	307	5-6	<0.5		13.2	0(S) 4(B)	68(S) 46(B)	29.0(S) 29.0(5m)	50.1(S) 50.2(5m)	8.2(S) 8.2(5m)	4.3(70.7)(S) 4.1(70.3)(5m)	2.4(S) 3.0(5m)	2.1	pale green	no	no	small bubble	no	0.02	0.01
K7	Desalination intake	26° 10.40'N	50° 13.02'E	G	13.Jun.00	8:15	34.0	0	350	1	<0.2		7.8	45(S) 42(4m)	44(S) 42(4m)	29.2(S) 29.0(5m)	51.8(S) 52.0(5m)	8.10(S) 8.10(5m)	3.5(63.4)(S) 3.6(64.7)(5m)	0.0(S) 0.0(5m)	3.9	pale green	no	no	no (scum, near the point)	no	0.04	0.02
K8	Desalination Outfall	26° 10.48'N	50° 12.59'E	G	13.Jun.00	8:50	37.2	0	350	1	<0.2		5.9	23(S) 35(4m)	25.4(S) 24.6(4m)	31.5(S) 31.2(B)	52.5(S) 54.6(B)	8.1(S) 8.2(B)	3.7(68.8)(S) 3.8(71.2)(B)	0.0(S) 0.0(B)	2.8	dark green	little smell	no	scum	0.04	0.04	
H40	Power Station Intake	25° 51.62'N	50° 07.31'E	G	10.Jun.00	10:25	37.0	0	N	6	<0.3		4.2	-	-	29.3	54.4	7.96	3.7	0-4.5	4.2	Pale Green	little smell	no	no	no	0.23	0.06
H50	Power Station Outfall	25° 51.23'N	50° 07.57'E	G	10.Jun.00	11:15	38.9	0	18.4	4-6	-	-	1.7	-	-	36.5	53.9	7.94	4.1	-	>1.7	pale green	little smell	no	scum	0.16	0.09	

Table 3.3.10 (3) Results of the Field Survey (4th Stage)

Site Code	Site Name				SEDIMENT PARAMETERS					Observation and Comment		
		Location (GPS)			Sampling		Color	Odor	Texture	Sediment Temp. (°C)		
		Lat	Long.	GPS/Chart	Date	Time						
DD20	Gumah Island	27° 07.92'N	49° 29.22'E	G	24.Jun.00	17:30	gray with white cream sand	no	fine sand	29.6	-20	Water sampling point was 270790(N), 492911(E).
J1	Abul Ali North	27° 23.29'N	49° 44.65'E	G	25.Jun.00	11:25	gray	no	muddy	29.5	-2	Ship moving 15 degree, 2.3 Km/45min Current (S) 330 degree, 34cm/s On the way to J1 from harbor, two turtles were found at different points.
J2	Berri Oil Field	27° 10.82'N	49° 32.15'E	G	25.Jun.00	14:20	gray (little yellow)	no	sandy, silty	28	-20	Sediment color was different from 3rd stage. Influenced by drilling?
J4	North Jubail	27° 07.16'N	49° 41.85'E	G	25.Jun.00	15:20	-	-	-	-	-	
J5	Jubail Shared Outfall	27° 03.36'N	49° 37.18'E	G	24.Jun.00	11:05	dark gray	little (J12S)	muddy	33	19	Sediment sampling point was 50m far from water sampling point.
J6	Jubail Harbour	27° 02.53'N	49° 40.97'E	G	24.Jun.00	10:05	slight gray	no	coarse sand	29.7	56	
J7	South Jubail	27° 00.97'N	49° 42.27'E	G	24.Jun.00	9:10	clay	no	sandy	29.6	160	
J80	Jubail Boat Harbour	27° 05.11'N	49° 40.34'E	G	25.Jun.00	7:30	gray	little	sandy	30.2	-27	Jerry fishes with long tails could be seen in the harbour.
J90	Near Jubail Outfall	27° 03.53'N	49° 37.69'E	G	24.Jun.00	12:00	-	-	-	-	-	
H1	Half Moon Bay - North	26° 12.00'N	50° 02.24'E	G	11.Jun.00	7:40	Dark brown	no	silty sand	28.7	-20	Jerry fishes and small fishes were found.
H2	Half Moon Bay - mid	26° 04.03'N	50° 04.95'E	G	18.Jun.00	9:40	-	-	-	-	-	Harbour at Al-kholeej Village is located 260476(N), 500061(E). Two jerry fishes were found at one side of the boat.
H30	Half Moon Bay - South	26° 00.00'N	50° 09.99'E	G	18.Jun.00	8:35	-	-	-	-	-	Harbour at Al-kholeej Village is located 260476(N), 500061(E). Five jerry fishes were found at one side of the boat.
R1	Sea Island Terminal	26° 39.05'N	50° 11.00'E	G	20.Jun.00	9:00	gray	smell	muddy	29.7	180	
R2	Ras Tannura Spit	26° 37.60'N	50° 09.83'E	G	20.Jun.00	12:20	light gray	no	silty sand	29.8	96	
R40	Refinery Outfall	26° 41.84'N	50° 06.46'E	G	20.Jun.00	11:00	gray	no	sandy	31.6	83	
T1	Tarut - Zur	-	-	-	-	-	-	-	-	-	-	
T2	Tarut - Zur	26° 36.14'N	50° 04.51'E	G	19.Jun.00	8:50	gray	no	sandy	29.9	10	
T3	Tarut - East	26° 33.81'N	50° 06.66'E	G	19.Jun.00	9:50	-	-	-	-	-	
T4	Tarut - Darin	26° 32.43'N	50° 05.12'E	G	19.Jun.00	10:15	little dark gray	no	muddy	29.4	40	

Table 3.3.10 (4) Results of the Field Survey (4th Stage)

Site Code	Site Name	Location (GPS)			Sampling		SEDIMENT PARAMETERS					Observation and Comment	
		Lat.	Long.	GPS/Chart	Date	Time	Color	Odor	Texture	Sediment Temp. (°C)	ORP (mv)		
T6	Qatif/Anik urban drain	26° 30.55'N	50° 02.11'E	G	11.Jun.00	11:35	-	-	-	-	-		
T7	Qatif/Anik Drain Mouth	26° 30.53'N	50° 02.57'E	G	11.Jun.00	12:50	-	-	-	-	-		
T9	Dammam Fishing Harbour - Entrance	26° 29.51'N	50° 18.15'E	G	17.Jun.00	9:50	gray	no	silty sand	30.4	260		
T110	Dammam Fishing Harbour	26° 27.59'N	50° 08.02'E	G	17.Jun.00	9:10	gray	no	sandy	31.2	180	Extra sample (sediment) at 262650(N), 50900(E).	
T120	Swfwa	26° 38.95'N	50° 01.15'E	G	11.Jun.00	13:40	-	-	-	-	-		
K1	Dammam South	26° 25.15'N	50° 14.24'E	G	14.Jun.00	9:00	gray	no	coarse sand	29.5	73	Extra sample (water and sediment) near the landfill (approximately 80m). Sampling position was 262785(N), 501224(E). Water quality : Temp28.9, Sal42.8, pH8.22, DO3.89(65.4), Turb19.3, Sediment ORP-25mV	
K2	SAFCO outfall	26° 24.52'N	50° 11.42'E	G	17.Jun.00	10:50	dark gray	no	clayey	30.5	-15		
K3	SAFCO south	26° 24.71'N	50° 12.20'E	G	14.Jun.00	8:10	light gray	no	silty sand	27.9	-4		
K4	Khobar Central	26° 14.95'N	50° 13.48'E	G	12.Jun.00	11:25	cream	no	silty sand	28.7	-38		
K5	Khobar STP Outfall	26° 14.46'N	50° 13.38'E	G	12.Jun.00	9:35	gray	little	sand	29.1	-14	Sampling point was close to the outfall (approximately 10).	
K6	Khobar South	26° 14.35'N	50° 13.55'E	G	12.Jun.00	8:40	creamy	no	silty coarse sand	29.2	-22	Sediment was sampled at 261425(N), 501343(E) and water depth is 7.5. One crab was found.	
K7	Desalination intake	26° 10.40'N	50° 13.02'E	G	13.Jun.00	8:15	-	-	-	-	-	Jelly fishes were found. Sampling point was located about 30m far from the intake.	
K8	Desalination Outfall	26° 10.48'N	50° 12.59'E	G	13.Jun.00	8:50	dark gray	no	silty fine sand	31.2	-64	Res.Cl of Cenier Drain : 0.13 as Total, 0.01 as Free.	
H40	Power Station Intake	25° 51.62'N	50° 07.31'E	G	10.Jun.00	10:25	-	-	-	-	-		
H50	Power Station Outfall	25° 51.23'N	50° 07.57'E	G	10.Jun.00	11:15	dark gray	no	Fine sand with green algae	-	-		



**Table 3.3.11 Results of Laboratory Analysis (2)**

Site ID	SEDIMENT											TPH mg/kg	BTEX mg/kg	PCB mg/kg
	IL %	TOC %	Metals mg/kg											
			As	Cr	Hg	V	Cd	Co	Cu	Ni	Pb	Zn		
DD20	5.9	4.2	0.9	<10		<100	<1	<5	<5	12	<20	5	4400	
J1	10.5	2.4	1.5	19	<0.05	<100	<1	7	13	38	<20	17	18	<0.1
J2	5.3			10		<100	<1	6	7	23	<20	12	14	
J4														
J5	9.8	1.9	1.6	18	<0.05	<100	<1	<5	24	31	<20	39	25	
J6	3.0	0.7	1.3	<10	<0.05	<100	<1	<5	<5	<10	<20	<1	12	
J7	3.0						<1	<5	<5	<10	<20	3		
J8O	1.5			<10			<1	<5	10	<10	<20	21	70	<0.1
J9O														
R1	5.2	1.1				<100	<1	<5	31	13	<20	73	31	<0.1
R2	2.2			<10		<100	<1	<5	<5	<10	<20	2	21	
R4O	3.0		1.0	<10	<0.05	<100	<1	<5	<5	<10	<20	3	32	<0.1
T1														
T2	4.1	1.3					<1	<5	<5	<10	<20	10		
T3														
T4	9.7	3.2	1.8				<1	<5	39	27	35	1.4E+02	178	
T6	6.1	1.8		21			<1	<5	15	18	26	68	197	<0.1
T7														
T9														<0.1
T11O	3.6	0.9	1.7	11	0.52	<100	<1	<5	9	13	<20	33	33	<0.1
T12O														
K1	5.6	2.5	2.7	<10			<1	<5	<5	<10	<20	20		
K2	18.2	10.4	14.2	7.0E+02	0.19	<100	<1	<5	71	47	37	4.4E+03		
K3	3.2	0.8	1.4	23			<1	<5	<5	<10	<20	22		
K4	4.3	0.9	2.1	<10			<1	<5	6	<10	<20	10		
K5	3.1	1.0	1.9	<10			<1	<5	20	<10	<20	55	110	
K6			0.8											
K7														
K8	2.5	0.5	2.2	11			<1	<5	21	20	<20	17		
H1			0.2											
H2														
H3Oa														
H3Ob														
H4O														
H5O	10.7						<1	<5	13	18	22	71		

**Table 3.3.12 (1) Result of Plankton Survey (4th Stage)**

Site Code	Class	Order	Family	Species	Plankton Density (l.)	Frequency
J1	Copepoda	Calanoida	Acartiidae	<i>Acartia sp.</i>	18	+
	Sarcodina	Foraminifera	Globigrorinidae	<i>Globigrorinidae sp.</i>	5	+
	Gastropoda	Pteropoda	Limacinidae	<i>Limacina inflata</i>	9	+
	Mollusca	Bivalva	-	Bivalve larvae	5	+
J4	Copepoda	Cyclopoida	Oithoniidae	<i>Oithona tenuis.</i>	16	+
	Copepoda	Calanoida	Calanidae	<i>Caranus minor?</i>	23	++
	Copepoda	Calanoida	Acartiidae	<i>Acartia sp.(nauplius)</i>	2	++
	Mollusca	Bivalva	-	Bivalve larvae	107	+++
	Gastropoda	Pteropoda	Limacinidae	<i>Limacina inflata?</i>	15	+
	Arthropoda	-	-	<i>Club larvae (zoa)</i>	1.65	+
	-	-	-	<i>Fish egg?</i>	20	+
J6	Copepoda	Cyclopoida	Oithoniidae	<i>Oithona tenuis.</i>	20	++
	Copepoda	Calanoida	Acartiidae	<i>Acartia sp.</i>	12	+
	Sarcodina	Foraminifera	Globigrorinidae	<i>Globigrorinidae sp.</i>	10	+
	Mollusca	Bivalva	-	Bivalve larvae	135	+++
	Gastropoda	Pteropoda	Limacinidae	<i>Limacina inflata?</i>	59	++
J7	Copepoda	Calanoida	Acartiidae	<i>Acartia sp.</i>	23	+
	Copepoda	Cyclopoida	Oithoniidae	<i>Oithona tenuis.</i>	15	+
	Sarcodina	Foraminifera	Globigrorinidae	<i>Globigrorinidae sp.</i>	4	+
	Gastropoda	Pteropoda	Limacinidae	<i>Limacina inflata?</i>	15	+
	Mollusca	Bivalva	-	Bivalve larvae	73	+
R1	Copepoda	Calanoida	Acartiidae	<i>Acartia erythraea</i>	13	+
	Crustacea	Balanidae	Balanidae	<i>Balanus sp.(Nauplius)</i>	13	+
	Copepoda	Calanoida	Calanidae	<i>Calanus sp.</i>	67	++
	Gastropoda	Pteropoda	Limacinidae	<i>Limacina inflata?</i>	44	++
	-	-	-	<i>Fish egg?</i>	31	++
T2	Arthropoda	Eyogaysuacca	Euphausiidae	<i>Euphausia sp.(nauplius)</i>	34	++
	Mollusca	Bivalva	-	Bivalve larvae	68	++
	Gastropoda	Pteropoda	Limacinidae	<i>Limacina inflata?</i>	377	++++
	Copepoda	Cyclopoida	Oithoniidae	<i>Oithona sp. (nauplius)</i>	68	++
	Copepoda	Cyclopoida	Oithoniidae	<i>Oithona tenuis</i>	86	++
	Cyanophceac	Oscillatoriaceae	Oscillatoriaceae	<i>Trichodesmium erythraem</i>	103	++
K1	Copepoda	Calanoida	Acartiidae	<i>Acartia sp.</i>	21	+
	Copepoda	Cyclopoida	Oithoniidae	<i>Oithona tenuis.</i>	21	+
	Gastropoda	Pteropoda	Limacinidae	<i>Limacina inflata?</i>	106	++
K3	Copepoda	Calanoida	Acartiidae	<i>Acartia sp.</i>	34	++
	Copepoda	Calanoida	Calanidae	<i>Calanus sp.(nauplius)</i>	68	++
K6	Copepoda	Calanoida	Acartiidae	<i>Acartia erythraea?</i>	11	+
	Copepoda	Cyclopoida	Oithoniidae	<i>Oithona tenuis</i>	10	+
	Crustacea	Balanidae	Balanidae	<i>Balanus sp.(nauplius)</i>	2	+
	Mollusca	Bivalva	-	Bivalve larvae	19	+

**Table 3.3.12 (2) Result of Plankton Survey (4th Stage)**

Site Code	Class	Order	Family	Species	Plankton Density (l.)	Frequency
K7	Copepoda	Calanoida	Calanidae	<i>Caranus sp.</i>	23	+
	Copepoda	Cyclopoida	Oithonidae	<i>Oithona tenuis</i>	26	+
	Crustacea	Balanidae	Balanidae	<i>Balanus sp. (nauplius)</i>	20	+
	Copepoda	Calanoida	Calanidae	<i>Caranus sp. (nauplius)</i>	7	+
	Mollusca	Bivalva	-	Bivalve larvae	3	+
	-	-	-	Fish egg?	40	++
K8	Cyanophceae	Oscillatoriiales	Oscillatoriaceae	<i>Trichodesmium erythraeum</i>	23	+
	Copepoda	Cyclopoida	Oithonidae	<i>Oithona tenuis</i>	11	+
	Copepoda	Calanoida	Calanidae	<i>Caranus sp. (nauplius)</i>	26	+
	Copepoda	Cyclopoida	Oithonidae	<i>Oithona tenuis</i>	15	+
H1	-	-	-	Fish egg?	22	+
	Copepoda	Cyclopoida	Oithonidae	<i>Oithona sp. (nauplius)</i>	11	+
	Copepoda	Calanoida	Acartiidae	<i>Acartia sp.</i>	47	++
H2	Mollusca	Bivalva	-	Bivalve larvae	11	+
	Copepoda	Calanoida	Acartiidae	<i>Acartia sp.</i>	72	++
	Copepoda	Cyclopoida	Oithonidae	<i>Oithona tenuis.</i>	28	+
	Copepoda	Cyclopoida	Oithonidae	<i>Oithona sp. (Nauplius)</i>	28	+
	Gastropoda	Pteropoda	Limacinidae	<i>Limacina inflata?</i>	60	++
	Bacillariophyceae	Pennales	Nitzchiaceae	<i>Nitzchia sigma</i>	60	++
	Mollusca	Bivalva	-	Bivalve larvae	52	++

+ appear very rarely  
 ++ appear rarely  
 +++ appear commonly  
 +++, appear frequently  
 +++++ appear very frequently  
 (appearance rate, 10% or less)  
 (appearance rate, 20 to 30%)  
 (appearance rate, 40 to 60%)  
 (appearance rate, 70 to 80%)  
 (appearance rate, 90% or more)

**Table 3.3.13 RESULTS OF SEDIMENT PSA ANALYSIS (4th Stage)**

No.	Sample ID	Gravel / shell >2 mm	Coarse Sands >1 mm	Medium Sands		Fine sands		Silts & Clays >75 um	Moist (% wt)
1	J1	0.0%	0.3%	0.6%	0.3%	0.6%	9.6%	88.4%	43.6%
2	J80	5.9%	5.2%	22.9%	25.1%	15.5%	23.9%	1.5%	82.7%
3	J2	2.8%	9.5%	20.3%	20.2%	14.0%	30.2%	3.0%	72.7%
4	K3	1.2%	2.3%	8.7%	21.7%	29.0%	33.7%	3.5%	74.6%
5	T4	0.2%	0.2%	0.2%	0.5%	0.5%	9.3%	89.0%	64.9%
6	T6	14.3%	2.3%	5.2%	8.7%	13.7%	51.4%	4.5%	60.5%
7	T110	2.9%	6.7%	15.1%	14.4%	15.1%	42.1%	3.7%	73.5%
8	H50	6.9%	3.9%	19.4%	25.2%	16.2%	18.9%	9.5%	55.3%
9	R1	2.9%	11.1%	17.7%	10.9%	8.0%	44.9%	4.5%	66.9%
10	R2	14.2%	13.9%	28.0%	16.8%	17.5%	8.9%	0.6%	82.5%
11	R40	1.6%	1.4%	13.7%	35.6%	35.9%	11.2%	0.6%	80.2%
12	K6	1.3%	5.5%	17.9%	21.9%	18.7%	34.1%	0.7%	69.6%
13	K1	20.4%	5.7%	29.0%	29.7%	8.1%	6.3%	0.9%	69.3%
14	K4	2.6%	11.8%	34.8%	12.0%	12.8%	24.8%	1.2%	65.9%
15	K5	13.5%	9.8%	18.3%	15.2%	17.7%	23.5%	2.0%	73.6%
16	K2	0.9%	3.3%	4.2%	8.1%	4.8%	15.9%	62.9%	46.5%
17	K8	0.8%	0.5%	2.0%	5.7%	20.3%	69.2%	1.4%	75.9%
18	J5	1.3%	1.0%	3.5%	8.3%	5.3%	17.8%	62.8%	51.4%
19	J6	4.9%	8.8%	33.2%	26.6%	11.1%	14.3%	1.0%	75.2%
20	J7	4.8%	8.0%	35.4%	25.6%	12.8%	12.8%	0.7%	76.4%
21	T2	5.3%	2.1%	4.4%	12.6%	25.6%	49.5%	0.5%	70.0%
22	DD20	3.7%	2.3%	13.1%	23.5%	25.2%	29.5%	2.7%	74.5%
23	H1	0.8%	0.5%	2.0%	5.7%	20.3%	67.2%	3.4%	75.9%
24	Kx	4.7%	13.0%	16.8%	14.8%	6.8%	30.5%	13.3%	54.1%

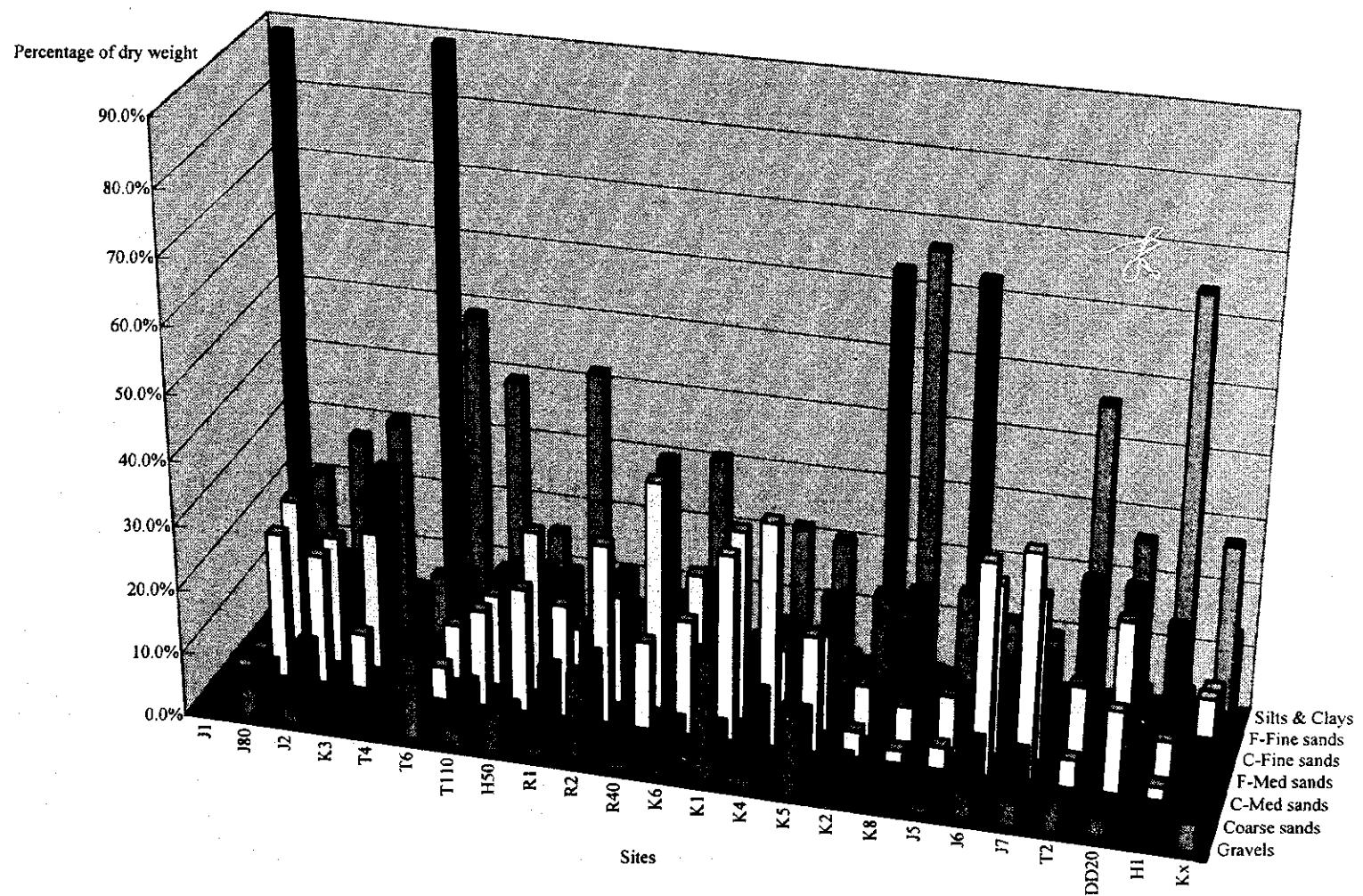


Figure 3.3.3 Results of Sediment PSA Analysis (4th Stage)

## **Attachment I**

## Attachment I

Table-1 Meteorological Monthly Data in DHAHRAN (1980-1998)

JANUARY

MONTH OF THE YEAR	TEMP °C			R.H. %			WIND (KNOT)				RAIN IN (MM)	
	MAX	MIN	MEAN	MAX	MIN	MEAN	PRV	MEAN	EXTREM			
							W.D.	W.S.	W.D.	W.S.		
1980	24.6	06.0	14.7	100	37	72	NW	08	360	30	22.5	
1981	25.5	05.0	16.9	100	31	72	NNW	08	300	27	16.3	
1982	24.0	01.8	14.9	100	21	67	W	08	310	26	02.9	
1983	25.0	05.0	13.5	100	26	67	NW	07	340	26	06.5	
1984	25.0	05.4	14.8	100	29	69	WNW	07	310	27	T	
1985	28.7	07.0	16.9	98	22	69	WNW	08	350	25	09.2	
1986	24.2	04.0	14.9	100	20	70	WNW	06	340	22	11.8	
1987	26.4	06.0	14.1	100	25	71	WNW	07	360	24	01.5	
1988	23.8	05.2	14.6	100	27	67	WNW	07	330	25	14.6	
1989	22.4	02.6	12.8	94	15	58	WNW	09	300	26	00.2	
1990	24.4	06.2	14.3	100	31	69	NNW	09	170	33	04.3	
1991	25.0	07.6	16.6	99	31	74	NW	08	090	32	46.6	
1992	24.3	02.7	12.5	97	15	63	NW	09	170	35	12.2	
1993	28.0	03.2	14.1	100	27	74	WNW	08	300	25	17.6	
1994	29.2	07.0	16.9	99	24	66	WNW	07	340	30	T	
1995	27.0	06.8	16.0	98	22	67	WNW	08	360	25	02.0	
1996	25.4	06.8	16.0	100	44	78	WNW	07	170	30	34.7	
1997	27.6	06.1	16.4	100	21	66	WNW	06	300	30	11.7	
1998	25.0	04.8	14.4	100	32	77	WNW	09	330	35	81.6	
MAX	29.2	-	-	100	-	-	-	-	-	-	-	
MIN	-	01.8	-	-	15	-	-	-	-	-	-	
MEAN	-	-	15.0	-	-	69	-	-	-	-	17.4	

## Attachment I

Table-2 Meteorological Monthly Data in DHAHRAN (1980-1998)

FEBRUARY

MONTH OF THE YEAR	TEMP °C			R.H. %			WIND (KNOT)			RAIN IN (MM)	
	MAX	MIN	MEAN	MAX	MIN	MEAN	PRV	MEAN	EXTREM		
							W.D.	W.S.	W.D.	W.S.	
1980	29.5	05.0	16.9	100	23	74	NNE	07	130	36	39.1
1981	27.0	05.5	17.1	100	19	64	N	08	310	28	00.9
1982	25.0	06.3	14.0	100	24	68	NW	08	350	29	42.9
1983	25.6	04.5	15.2	100	23	67	WNW	06	330	26	01.6
1984	29.7	05.3	16.7	100	16	63	N	08	010	25	13.7
1985	27.7	05.0	15.8	100	16	55	WNW	10	340	32	T
1986	26.0	07.0	16.0	100	26	71	NW	08	300	40	02.5
1987	30.7	08.3	18.1	100	22	66	WNW	07	320	28	04.8
1988	27.0	07.3	21.9	100	21	90	WNW	08	350	30	77.5
1989	25.5	03.2	14.7	100	18	60	N	08	340	31	00.5
1990	28.2	06.0	16.0	100	19	67	N	09	360	28	00.3
1991	25.4	07.0	17.0	96	24	66	N	09	350	31	03.9
1992	26.2	04.6	14.8	98	26	68	N	09	120	39	01.1
1993	29.0	05.0	16.2	100	29	72	N	09	350	32	37.2
1994	26.1	07.4	16.7	91	20	56	N	09	350	29	T
1995	28.5	08.5	17.7	100	27	68	N	08	160	35	13.8
1996	29.0	07.4	18.4	100	26	74	N	08	080	25	24.4
1997	29.6	06.2	15.9	91	18	55	N	09	350	30	T
1998	34.6	06.0	17.5	99	15	68	WNW	09	350	26	04.8
MAX	34.6	-	-	100	-	-	-	-	-	-	-
MIN	-	03.2	-	-	15	-	-	-	-	-	-
MEAN	-	-	16.7	-	-	67	-	-	-	-	16.8

## Attachment I

Table-3 Meteorological Monthly Data in DHAHRAN (1980-1998)

MARCH

MONTH OF THE YEAR	TEMP			R.H.			WIND (KNOT)				RAIN IN (MM)	
	°C			% %			PRV	MEAN	EXTREM			
	MAX	MIN	MEAN	MAX	MIN	MEAN	W.D.	W.S.	W.D.	W.S.		
1980	35	08.6	21.5	100	20	66	E	08	360	39	03.1	
1981	34	11.0	21.2	95	15	57	N	08	360	27	26.8	
1982	27.5	10.0	18.6	100	19	70	N	07	360	28	208.5	
1983	27	06.4	17.3	100	16	69	SE	07	340	29	73.0	
1984	36.2	07.8	21.6	100	15	58	N	09	350	35	28.5	
1985	34.7	07.2	19.7	98	10	65	N	09	340	34	T	
1986	36.2	11.2	20.3	100	18	62	E	08	320	32	15.5	
1987	37.5	09.3	20.5	100	09	65	N	08	340	31	26.6	
1988	37.3	11.4	20.6	100	12	56	N	10	350	31	02.1	
1989	33.3	11.2	20.6	95	13	58	NE	09	310	29	26.0	
1990	31.4	08.2	20.3	96	20	55	N	10	360	32	01.1	
1991	33.5	08.8	19.3	96	15	66	N	09	170	38	26.5	
1992	28.9	05.6	16.4	99	21	67	VRB	09	010	27	15.1	
1993	32.6	09.3	20.4	95	12	59	NNE	10	330	40	02.3	
1994	32.6	10.0	20.2	96	17	60	N	09	100	34	34.3	
1995	30.5	11.0	20.1	98	22	64	E	08	340	50	124.7	
1996	32.6	12.0	20.5	98	30	71	N	09	280	40	30.0	
1997	30	07.4	18.5	98	20	66	N	09	170	35	44.6	
1998	37.8	10.0	20.4	100	15	62	N	10	350	37	12.7	
MAX	37.8	-	-	100	-	-	-	-	-	-	-	
MIN	-	05.6	-	-	09	-	-	-	-	-	-	
MEAN	-	-	19.9	-	-	63	-	-	-	-	39.0	

## Attachment I

Table-4 Meteorological Monthly Data in DHAHRAN (1980-1998)

APRIL

MONTH OF THE YEAR	TEMP °C			R.H. %			WIND (KNOT)			RAIN IN (MM)	
	MAX	MIN	MEAN	MAX	MIN	MEAN	PRV	MEAN	EXTREM		
							W.D.	W.S.	W.D.	W.S.	
1980	40.0	11.0	26.6	92	11	48	N	09	350	34	T
1981	38.0	10.0	25.0	100	08	48	N	09	350	33	T
1982	38.5	12.0	25.1	94	07	48	NNW	06	350	27	01.2
1983	36.0	13.3	23.7	96	14	56	N	07	030	24	12.8
1984	41.4	15.4	26.9	89	11	39	N	09	360	33	00.4
1985	39.1	15.5	25.6	94	11	45	N	09	010	29	02.0
1986	36.7	17.0	25.5	98	17	58	N	08	030	30	09.9
1987	41.8	12.5	25.3	91	07	45	N	08	350	29	00.2
1988	40.7	15.0	26.1	88	11	46	N	08	160	40	03.8
1989	40.4	10.4	25.5	96	09	50	N	08	320	30	02.4
1990	43.6	14.0	25.7	93	09	47	N	11	010	35	02.6
1991	39.2	14.8	26.2	87	10	40	N	10	010	36	01.8
1992	38.1	14.0	24.2	97	16	50	N	09	280	38	00.6
1993	38.8	14.8	24.6	97	12	59	N	09	300	59	19.1
1994	41.8	15.3	26.6	92	11	48	NNE	08	010	31	05.9
1995	35.6	14.0	25.2	93	18	53	E	09	090	34	03.5
1996	41.6	14.2	25.4	93	13	52	N	10	010	42	01.7
1997	36.6	12.1	23.7	96	14	54	N	08	350	32	01.0
1998	40.0	15.0	26.0	85	12	47	N	13	350	35	00.5
MAX	43.6	-	-	100	-	-	-	-	-	-	-
MIN	-	10.0	-	-	07	-	-	-	-	-	-
MEAN	-	-	25.4	-	-	49	-	-	-	-	04.1

## Attachment I

Table-5 Meteorological Monthly Data in DHAHRAN (1980-1998)

MAY

MONTH OF THE YEAR	TEMP °C			R.H. %			WIND (KNOT)				RAIN IN (MM)
	MAX	MIN	MEAN	MAX	MIN	MEAN	PRV	MEAN	EXTREM		
1980	44.0	19.0	30.3	92	07	40	N	09	360	30	01.2
1981	43.0	18.5	30.4	100	08	43	N	09	350	30	T
1982	43.0	20.0	30.9	90	09	42	N	08	340	33	01.0
1983	42.8	20.3	31.6	99	14	44	N	08	360	37	T
1984	42.1	17.5	29.8	84	06	36	NNE	09	080	32	T
1985	38.5	21.0	31.6	89	10	39	N	09	270	35	03.1
1986	49.5	20.2	32.1	88	05	38	N	10	020	31	01.1
1987	44.0	21.0	32.2	100	07	42	VRB	06	360	25	T
1988	44.4	21.2	31.8	94	11	31	N	12	010	34	00.0
1989	44.6	20.8	32.0	82	09	34	N	11	350	37	00.0
1990	46.5	19.8	32.2	82	06	30	N	10	360	40	00.0
1991	43.0	16.8	28.7	79	11	30	N	11	350	37	00.0
1992	43.0	20.8	30.3	90	11	43	NNE	10	020	35	01.6
1993	41.5	18.6	30.4	97	14	46	N	11	360	40	04.7
1994	47.0	19.2	31.5	84	08	34	N	10	200	38	10.5
1995	43.0	20.0	31.1	92	08	43	N	08	360	32	00.0
1996	44.7	20.5	32.3	91	07	42	ENE	08	350	25	00.0
1997	44.6	18.4	31.1	82	11	37	N	07	360	38	00.7
1998	47.0	20.0	32.0	100	10	42	N	09	360	31	00.0
MAX	49.5	-	-	100	-	-	-	-	-	-	-
MIN	-	16.8	-	-	05	-	-	-	-	-	-
MEAN	-	-	31.2	-	-	39	-	-	-	-	01.6

## Attachment I

Table-6 Meteorological Monthly Data in DHAHRAN (1980-1998)

JUNE

MONTH OF THE YEAR	TEMP °C			R.H. %			WIND (KNOT)			RAIN IN (MM)	
	MAX	MIN	MEAN	MAX	MIN	MEAN	PRV	MEAN	EXTREM		
1980	46.0	23.0	34.3	89	05	31	N	10	350	40	00.0
1981	46.0	22.0	33.2	96	07	35	N	08	360	28	00.0
1982	46.0	21.5	34.3	92	07	33	N	09	340	35	00.0
1983	47.2	26.0	34.8	79	09	29	N	13	350	38	00.0
1984	43.5	23.3	34.3	81	07	25	N	11	360	35	00.0
1985	45.0	22.3	33.5	100	09	28	NNW	11	350	34	00.0
1986	44.2	23.7	34.2	90	07	30	N	12	330	39	00.0
1987	46.0	21.8	34.5	82	07	30	N	09	360	34	00.0
1988	47.4	24.6	34.7	87	06	28	N	10	350	34	00.0
1989	45.5	21.0	33.8	95	08	33	N	11	350	40	00.0
1990	45.9	23.2	34.4	100	06	31	N	12	350	37	00.0
1991	44.6	23.6	33.0	91	09	34	N	21	350	45	00.0
1992	46.0	23.0	34.9	85	11	35	N	10	350	45	00.0
1993	46.2	23.0	33.9	88	08	35	N	11	360	38	00.0
1994	48.4	25.8	34.7	89	07	29	N	11	350	35	00.0
1995	45.4	25.0	34.6	91	12	35	N	10	350	37	T
1996	46.6	23.6	33.8	95	10	41	N	09	350	37	00.0
1997	48.2	23.3	34.6	86	09	39	N	08	350	31	00.0
1998	47.0	26.0	36.1	98	12	40	N	10	360	35	00.0
MAX	48.4	-	-	100	-	-	-	-	-	-	-
MIN	-	21.0	-	-	05	-	-	-	-	-	-
MEAN	-	-	34.3	-	-	33	-	-	-	-	00.0

## Attachment I

Table-7 Meteorological Monthly Data in DHAHRAN (1980-1998)

JULY

MONTH OF THE YEAR	TEMP °C			R.H. %			WIND (KNOT)			RAIN IN (MM)	
	MAX	MIN	MEAN	MAX	MIN	MEAN	PRV	MEAN	EXTREM		
							W.D.	W.S.	W.D.	W.S.	
1980	49.0	26.0	35.3	96	07	40	N	08	350	30	00.0
1981	46.0	26.0	35.6	93	07	37	N	19	340	31	00.0
1982	45.3	24.5	34.7	100	07	37	N	07	360	28	00.0
1983	48.0	25.8	36.7	100	08	35	N	09	350	31	00.0
1984	46.0	25.0	35.8	95	07	32	N	09	350	30	00.0
1985	45.3	25.7	36.3	75	08	28	N	10	340	38	00.0
1986	48.8	25.5	35.8	96	05	36	N	08	340	31	00.0
1987	48.2	25.5	36.4	89	07	33	N	08	150	27	00.0
1988	46.8	26.2	35.8	91	07	37	N	08	350	37	00.0
1989	47.2	26.2	35.8	97	06	42	N	08	360	32	00.0
1990	47.3	25.8	36.3	87	08	33	N	09	350	35	00.0
1991	44.8	24.8	34.2	82	11	23	N	14	360	34	00.0
1992	45.6	23.0	34.8	85	11	35	N	10	360	39	00.0
1993	47.1	24.9	35.5	97	09	38	N	09	360	36	00.0
1994	45.4	25.0	35.9	90	08	25	N	10	350	30	00.0
1995	41.7	28.7	34.8	100	13	41	N	09	360	33	T
1996	48.0	26.2	36.3	99	08	46	E	08	360	29	00.0
1997	46.0	27.0	36.1	88	12	32	N	10	350	32	00.0
1998	47.3	28.0	36.7	97	11	41	N	10	350	31	00.0
MAX	49.0	-	-	100	-	-	-	-	-	-	-
MIN	-	23.0	-	-	05	-	-	-	-	-	-
MEAN	-	-	35.7	-	-	35	-	-	-	-	00.0

## Attachment I

Table-8 Meteorological Monthly Data in DHAHRAN (1980-1998)

AUGUST

MONTH OF THE YEAR	TEMP °C			R.H. %			WIND (KNOT)			RAIN IN (MM)	
	MAX	MIN	MEAN	MAX	MIN	MEAN	PRV	MEAN	EXTREM		
1980	46.0	23.5	33.9	100	09	42	N	08	360	31	00.0
1981	45.0	24.0	34.4	96	09	43	N	08	360	32	00.0
1982	44.0	25.0	34.6	85	09	31	N	08	350	29	00.0
1983	44.5	22.8	34.3	97	11	43	N	08	350	29	00.0
1984	42.6	23.9	33.8	86	05	26	N	12	360	31	00.0
1985	48.5	25.5	34.7	97	08	51	NNE	07	010	25	00.0
1986	46.5	25.9	35.3	98	11	56	E	06	060	31	00.0
1987	47.5	24.0	35.2	92	09	46	NE	10	340	31	00.0
1988	47.3	26.2	35.7	92	06	40	N	09	360	33	00.0
1989	47.7	26.4	35.1	96	06	41	N	08	360	34	00.0
1990	45.1	24.8	34.6	97	11	37	N	09	360	35	00.0
1991	44.4	25.1	33.6	98	11	35	N	14	360	33	00.0
1992	45.6	26.2	35.0	98	12	44	N	08	360	34	00.0
1993	48.7	25.2	35.3	96	10	43	N	09	360	30	00.0
1994	45.1	25.2	34.7	98	10	38	N	09	350	31	00.0
1995	48.0	26.0	34.9	98	10	48	N	07	350	33	00.0
1996	47.0	28.0	35.5	100	09	54	E	06	010	24	00.0
1997	46.0	23.4	34.7	84	14	35	N	11	350	32	00.0
1998	47.4	27.2	36.7	96	14	56	E	07	020	25	00.0
MAX	48.7	-	-	100	-	-	-	-	-	-	-
MIN	-	22.8	-	-	05	-	-	-	-	-	-
MEAN	-	-	34.8	-	-	43	-	-	-	-	00.0

## Attachment I

Table-9 Meteorological Monthly Data in DHAHRAN (1980-1998)

SEPTEMBER

MONTH OF THE YEAR	TEMP			R.H.			WIND			RAIN IN (MM)	
	°C			%			(KNOT)				
	MAX	MIN	MEAN	MAX	MIN	MEAN	PRV	MEAN	EXTREM		
1980	45.0	21.0	31.1	100	07	51	W	06	360	30	00.0
1981	43.0	19.4	31.9	100	06	56	E	06	360	22	00.0
1982	44.5	23.0	32.5	100	12	57	W	04	020	18	00.0
1983	42.7	21.6	31.3	100	09	42	N	08	350	27	00.0
1984	43.3	21.0	31.5	97	09	51	NNE	08	340	33	00.0
1985	43.9	22.0	31.9	99	11	57	WNW	07	010	27	00.0
1986	44.7	22.9	32.7	94	09	57	SE	06	100	25	00.0
1987	44.0	21.6	32.5	96	07	50	E	25	070	35	00.0
1988	44.6	21.2	32.8	97	08	51	NE	08	010	28	00.0
1989	44.6	21.4	31.7	96	09	54	NE	08	350	31	00.0
1990	43.7	21.6	32.2	98	10	41	N	08	020	28	00.0
1991	41.1	23.1	31.0	99	11	54	NNW	16	340	34	00.0
1992	44.7	21.6	32.1	100	12	57	VRB	07	360	20	00.0
1993	44.4	23.4	31.9	100	12	54	N	07	010	27	00.0
1994	42.8	24.0	32.8	89	11	50	N	07	010	24	00.0
1995	42.4	20.8	31.8	97	17	52	N	07	360	25	00.0
1996	44.0	22.5	32.7	91	11	48	N	08	360	28	00.0
1997	44.4	19.8	32.5	95	07	47	N	08	020	31	00.0
1998	45.0	25.0	34.0	96	09	55	N	07	010	28	00.0
MAX	45.0	-	-	100	-	-	-	-	-	-	-
MIN	-	19.4	-	-	06	-	-	-	-	-	-
MEAN	-	-	32.2	-	-	52	-	-	-	-	00.0

## Attachment I

Table-10 Meteorological Monthly Data in DHAHRAN (1980-1998)

OCTOBER

MONTH OF THE YEAR	TEMP °C			R.H. %			WIND (KNOT)			RAIN IN (MM)	
	MAX	MIN	MEAN	MAX	MIN	MEAN	PRV	MEAN	EXTREM		
							W.D.	W.S.	W.D.	W.S.	
1980	40.0	16.0	27.0	100	08	56	W	07	350	25	00.0
1981	39.0	16.4	27.5	100	11	66	W	06	360	24	00.0
1982	41.0	19.5	28.9	100	13	61	NNE	06	050	25	01.9
1983	39.2	16.5	25.7	100	09	59	WNW	07	360	24	00.0
1984	41.3	14.6	26.8	100	09	52	WNW	08	350	33	00.0
1985	42.0	16.0	27.7	100	11	58	WNW	08	360	27	00.0
1986	44.5	18.0	29.4	97	07	58	SE	06	350	23	00.0
1987	41.1	18.4	28.9	96	10	59	SE	07	360	25	00.0
1988	40.5	18.5	29.2	96	11	56	E	07	010	20	00.0
1989	40.6	17.7	27.9	98	14	58	E	07	350	35	00.0
1990	39.7	19.0	28.7	100	11	55	N	08	360	28	00.0
1991	38.6	17.8	28.0	97	15	61	SE	15	320	37	00.0
1992	40.0	16.0	26.5	97	10	57	WNW	07	350	23	00.0
1993	41.8	20.3	28.9	98	13	62	NE	05	010	22	00.0
1994	39.4	20.3	29.0	97	19	62	E	07	060	35	00.3
1995	41.0	20.8	28.0	97	20	63	N	07	360	25	00.0
1996	42.0	18.5	28.1	97	12	57	N	08	010	27	00.0
1997	43.0	19.0	29.1	98	13	58	N	07	300	29	01.0
1998	43.0	17.5	28.7	97	11	58	N	08	360	28	00.0
MAX	44.5	-	-	100	-	-	-	-	-	-	-
MIN	-	14.6	-	-	07	-	-	-	-	-	-
MEAN	-	-	28.1	-	-	59	-	-	-	-	00.2

## Attachment I

Table-11 Meteorological Monthly Data in DHAHRAN (1980-1998)

NOVEMBER

MONTH OF THE YEAR	TEMP °C			R.H. %			WIND (KNOT)			RAIN IN (MM)	
	MAX	MIN	MEAN	MAX	MIN	MEAN	PRV	MEAN	EXTREM		
							W.D.	W.S.	W.D.	W.S.	
1980	33.0	11.5	22.9	100	24	70	N	06	340	22	00.0
1981	34.0	11.0	22.1	100	14	62	WNW	07	300	25	T
1982	28.7	10.0	19.8	100	22	65	NW	07	350	28	51.5
1983	32.2	14.1	22.5	100	19	68	WNW	06	340	21	00.0
1984	31.7	12.7	23.4	100	22	67	E	07	360	25	00.4
1985	34.0	14.5	23.5	100	28	68	N	07	010	20	11.1
1986	36.7	10.8	22.5	100	13	60	NNW	08	170	31	T
1987	37.5	12.0	22.3	100	17	59	WNW	07	350	22	00.0
1988	36.0	10.3	22.3	96	16	57	WNW	08	360	31	00.0
1989	35.4	14.8	23.8	98	20	66	N	08	110	31	T
1990	33.8	14.6	23.1	100	16	61	WNW	07	350	22	00.0
1991	35.3	10.2	21.9	100	20	62	N	11	210	23	00.0
1992	33.8	09.3	22.4	97	18	65	WNW	08	360	28	T
1993	37.2	10.9	22.6	99	19	63	NW	09	180	32	00.0
1994	35.0	14.0	25.0	98	22	64	S	09	170	31	T
1995	36.2	08.8	21.9	98	21	63	NW	08	350	28	T
1996	33.3	13.8	22.0	95	18	62	N	08	350	24	T
1997	32.0	13.0	21.9	96	34	72	WNW	08	280	43	121.0
1998	35.0	15.0	23.5	100	17	62	WNW	07	360	22	00.0
MAX	37.5	-	-	100	-	-	-	-	-	-	-
MIN	-	08.8	-	-	13	-	-	-	-	-	-
MEAN	-	-	22.6	-	-	64	-	-	-	-	15.3

## Attachment I

Table-12 Meteorological Monthly Data in DHAHRAN (1980-1998)

DECEMBER

MONTH OF THE YEAR	TEMP °C			R.H. %			WIND (KNOT)			RAIN IN (MM)	
							PRV	MEAN	EXTREM		
	MAX	MIN	MEAN	MAX	MIN	MEAN	W.D.	W.S.	W.D.	W.S.	
1980	26.5	07.0	16.2	98	22	62	WNW	08	300	29	T
1981	30.0	08.0	18.1	100	17	71	WNW	06	340	23	T
1982	27.0	07.0	14.5	100	21	69	NW	06	340	25	19.9
1983	29.4	07.0	17.2	99	28	67	WNW	07	350	24	T
1984	25.7	07.0	16.2	99	48	66	WNW	09	350	26	17.2
1985	28.4	06.4	17.3	99	32	71	WNW	08	320	33	42.5
1986	27.2	05.8	15.6	100	26	69	WNW	08	320	27	25.9
1987	27.0	06.7	18.1	100	24	66	WNW	07	320	22	T
1988	27.3	05.9	18.1	98	26	66	WNW	08	360	24	03.5
1989	29.6	08.1	16.5	98	22	71	WNW	09	170	27	35.0
1990	30.7	05.0	18.7	100	19	63	WNW	07	310	25	00.0
1991	28.9	07.3	18.5	99	23	69	WNW	09	320	27	22.4
1992	29.3	06.7	16.9	100	28	75	NW	09	320	28	61.1
1993	28.2	09.3	17.9	100	19	70	WNW	07	360	22	00.5
1994	28.0	03.5	16.1	97	20	62	WNW	08	310	30	00.6
1995	25.0	09.0	16.6	100	46	79	NW	07	310	27	62.1
1996	27.6	08.6	18.7	98	25	68	WNW	06	350	26	00.0
1997	26.3	06.0	17.7	97	22	70	WNW	08	320	26	07.1
1998	31.0	10.0	20.0	100	19	67	WNW	07	010	24	00.0
MAX	31.0	-	-	100	-	-	-	-	-	-	-
MIN	-	03.5	-	-	17	-	-	-	-	-	-
MEAN	-	-	17.3	-	-	68	-	-	-	-	19.9

## **Attachment II**

## Attachment II

## Companies in Saudi EP (1)

RANK	TURNOVER (SR)	COMPANY NAME	Employee Number	City					Business Type				Classification of Business Type						
				Dammam	Jubail	Dahran	Alkhobar	Ras Tanura	Others	Agriculture	Contracting	Manufacturing Services	Trading	Classification Upper	Classification Middle	Classification Upper	Classification Middle	Classification Upper	
1	152,000,000,000	SAUDI ARABIAN OIL COMPANY	57,000		1					1		1		MANUFACTURING	CRUDE OIL GASES				
2	5,580,000,000	ARABIAN OIL COMPANY LIMITED	2,000								1	1	1	MANUFACTURING SERVICES	CRUDE OIL	TRADING			
3	4,390,000,000	YUSUF BIN AHMED KANOO	2,300									1	1	SERVICES					
4	2,580,000,000	SAUDI CONSOLIDATED ELECTRIC COMPANY IN THE EASTERN PROVINCE	6,700									1	1	SERVICES					
5	2,123,000,000	ALSUWAIKET TRADING & CONTRACTING CO. (GROUP OF	1,213								1	1		CONTRACTING					
6	1,670,000,000	AL MOUSHEGAH GROUP OF COMPANIES	2,000									1	1	SERVICES		MANUFACTURING	FOOD PROCESSING		
7	1,500,000,000	AL RUSHAID INVESTMENT CO.(ABDULLAH ALRUSHAIID GROUP OF CO'S.)	2,150									1	1	CONTRACTING		SERVICES			
8	1,500,000,000	A. A. TURKI CORPORATION GROUP OF COMPANIES	3,000									1	1	1	CONTRACTING		SERVICES	TRADING	
9	1,300,000,000	NATIONAL METHANOL COMPANY	440	1									1	MANUFACTURING	CHEMICAL GRADE METHANOL				
10	1,300,000,000	ARABIAN PETROCHEMICAL COMPANY	1,500	1									1	MANUFACTURING	PETROCHEMICALS POLYSTER & PORISTYRENE				
11	1,250,000,000	TAMIMI GROUP	4,000	1									1	MANUFACTURING	FOOD PRODUCTS				
12	928,955,000	SAUDI ARABIAN FERTILIZER COMPANY	960	1									1	AGRICULTURE	MARKETING OF FERITIZERS & AGROCHEMICALS	MANUFACTURING	FERTILIZERS & AGROCHEMICALS	PETROCHEMICAL PRODUCTS	
13	816,977,000	SAUDI CEMENT COMPANY	1,850	1									1	MANUFACTURING	CEMENT GASSES	AGRICULTURE	FARMING	SERVICES	
14	700,000,000	ABDEL HADI ABDALLAH AL-QAHTANI & SONS CO. (GROUP OF COMPANIES)	850	1									1	MANUFACTURING					
15	600,000,000	SALEH & ABDULAZIZ ABAHSAIN CO.LTD.	2,090		1								1	MANUFACTURING	LUMINARIES & FITTINGS POLES WELDING MACHINES				
16	600,000,000	MOHAMMAD AL-MOJIL GROUP	7,000									1	1	SERVICES		CEMENT	CONTRACTING		
17	512,754,000	EASTERN PROVANCE CEMENT COMPANY	752	1									1	MANUFACTURING					
18	442,000,000	ZAMIL STEEL BUILDINGS COMPANY LIMITED	1,500	1								1	1	MANUFACTURING	STEEL BUILDINGS STEEL STRUCTURES	CONTRACTING			
19	440,317,000	ALUMINUM PRODUCTS CO. LTD.	685	1									1	MANUFACTURING					
20	411,114,899	A.W.AJIAN & BROS.	930		1								1	MANUFACTURING	KITCHEN CABINET				
21	387,592,815	SAUDI SERVICES & OPERATING COMPANY LIMITED	5,000										1	SERVICES					

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## Attachment II

## Companies in Saudi EP (2)

RANK	TURNOVER (SR)	COMPANY NAME	Employee Number	City		Business Type			Classification of Business Type										
				Dammam	Jubail	Daharan	Alkhobar	Ras Tanura	Others	Agriculture	Contracting	Manufacturing	Services	Trading	Classification Upper	Classification Middle	Classification Upper		
22	365,000,000	ALSHAMRANY COMPANY FOR TRADING, INDUSTRY AND CONTRACTING	1,050	1							1				MANUFACTURING	METAL STRUCTURES PRESSURE VESSEL STORAGE TANKS TANKS TRAILERS VEHICLES			
23	350,000,000	SAID AL GHODRAN TRADING ESTABLISHMENT	260	1							1	1	1		MANUFACTURING	FOOD PRODUCTS	SERVICES		
24	350,000,000	M.S. AL-SUWAIDI ESTABLISHMENT FOR CONTRACTING	6,345								1	1			SERVICES		CONTRACTING		
25	343,000,000	ABDULAZIZ, MOHAMMAD AND ABDULLATIF ALJABR CO.	1,200	1							1	1			SERVICES		MANUFACTURING	SOFT DRINKS	
26	342,000,000	BELLELI SAUDI HEAVY INDUSTRIES LTD.	1,918	1							1	1			SERVICES		CONTRACTING		
27	334,702,970	ARABIAN MOTORS & ENGINEERING COMPANY LIMITED	650									1			SERVICES				
28	320,000,000	ALAMDAR & COMPANY LIMITED	350								1	1			CONTRACTING		SERVICES		
29	312,000,000	ABDULLA FOUAD GROUP OF COMPANIES	2,500								1		1				SERVICES		
30	305,000,000	HUSSEIN AL ALI ESTABLISHMENT	7,000								1	1			AGRICULTURE	AGRICULTURAL CONSULTANTS & OPERATIONS	SERVICES		
															AGRICULTURAL CONTRACTING				
31	300,000,000	NATIONAL PIPE CO. LTD.	280								1				MANUFACTURING	steel pipe			
32	299,014,354	CONTINENTAL CAN OF SAUDI ARABIA LTD.	194	1		1					1				MANUFACTURING	CANS FOR BEVERAGE			
															RED BRICKS & BLOCKS				
33	250,624,192	ABDULLAH A.M. AL-KHODARI SONS CO.	12,954								1	1			CONTRACTING				
34	250,000,000	HASSAN A. K. ALGAHTANI SONS COMPANY	1,300								1	1	1		SERVICES				
35	250,000,000	KHALIFA A. ALGOSAIBI COLD STORES	273									1			SERVICES				
36	250,000,000	NESMA & ALFAWL CONTRACTING CO.,LTD.	3,500								1				CONTRACTING				
37	250,000,000	HADI HAIDER & BROS. CO.	2,000								1				CONTRACTING				
38	241,500,000	SAUDI FISHERES COMPANY	1,417	1							1	1			AGRICULTURE	FISH FARMING	MANUFACTURING	PLASTIC BAGS	
39	240,000,000	ALDERBAS ROADS & MAINTENANCE CO.,LTD.	440								1	1			CONTRACTING				
40	235,146,000	BAGHLAF AL ZAFER FACTORY	151	1							1		1		MANUFACTURING	STEEL STRUCTURES			
41	230,000,000	GULF TRADING CORPORATION	250									1							
42	210,000,000	AL ABDULKARIM TRADING ESTABLISHMENT	242													CONTRACTING			
43	210,000,000	M.R. AL KHATHLAN EST.	2,400								1	1			SERVICES				

## Attachment II

## Companies in Saudi EP (3)

E-II

RANK	TURNOVER (SR)	COMPANY NAME	Employee Number	City		Business Type			Classification Upper	Classification of Business Type								
				Dammam	Jubail	Daharan	Alkhobar	Ras Tanura	Others	Agriculture	Contracting	Manufacturing Services	Trading	Classification Middle	Classification Upper	Classification Middle	Classification Upper	
44	200,000,000	HEMPEL PAINTS (SAUDI ARABIA) W.L.L.	258	1						1		MANUFACTURING		MARINE COATINGS PAINT PROTECTIVE COATINGS				
45	181,756,000	AL OSAYS CONTRACTING EST.	1,200							1	1	CONTRACTING MANUFACTURING		KITCHEN TOWELS SAINTARY NAPKINS TISSUE PAPERS & PRODUCTS	SERVICES			
46	180,000,000	OLAYAN KIMBERLY-CLARK ARABIA COMPANY	400		1													
47	180,000,000	SAUD PAPER MANUFACTURING CO.	200	1						1		MANUFACTURING		HYGIENIC PAPER PRODUCTS TISSUE PAPERS & PRODUCTS				
48	173,646,000	SAUDI STEEL PIPE COMPANY LTD.	336		1					1	1	MANUFACTURING		PIPES STEEL PIPES				
49	170,000,000	OASIS TRADING ESTABLISHMENT	510							1	1	1	SERVICES			CONTRACTING		
50	165,000,000	SIGMA PAINTS SAUDI ARABIA LIMITED	209		1						1	MANUFACTURING SERVICES		PAINT & COATINGS				
51	160,000,000	ABAHSAIN SECEM LTD. FOR ELECTRO-MECHANICAL WORKS	518									1	TRADING					
52	160,000,000	ALRUCEE TRADING & CONTRACTING EST.	150															
53	160,000,000	AL MOUWASAT MEDICAL SERVICES	1,200							1	1	1	SERVICES MANUFACTURING		IRON & STEEL IRRIGATION SYSTEMS	CONTRACTING SERVICES	CONTRACTING	
54	160,000,000	ABDULLA B. ALKHALIFA & SONS COMPANY	1,900	1							1							
55	155,000,000	AL ZAHRANI ESTABLISHMENT GROUP	800								1	1	SERVICES CONTRACTING			TRADING		
56	154,219,807	ARABIAN DRILLING COMPANY	462									1	SERVICES					
57	150,000,000	HONEYWELL TURKI ARABIA LIMITED	150									1	SERVICES					
58	150,000,000	REDLAND INDUSTRIAL SERVICES (ARABIA) LIMITED	500									1						
59	147,890,000	ABDULLA H. AL-SHUWAYER TRADING & CONTRACTING COMPANY	2,600							1	1	1	CONTRACTING		SERVICES			
60	146,876,231	ARABIAN FAL COMPANY FOR CONTRACTING & SHIPPING LTD.	4,687								1	1	CONTRACTING		SERVICES			
61	146,000,000	QANBAR DYWDAG PRECAST CONCRETE LTD.	1,000	1							1		MANUFACTURING		BOUNDARY WALLS PRECAST CONCRETE SLABS & BEAMS			
62	145,000,000	SAUDI ARABIAN KENT CO.LTD.	1,000							1	1	SERVICES MANUFACTURING		PRINTING OF COMPUTER FORMS	CONTRACTING	CONTRACTING		
63	142,000,000	AL KIFAH TRADING AND CONTRACTING	801	1								1						
64	138,000,000	GLOBE MARINE SERVICES COMPANY	4,500									1	SERVICES MANUFACTURING		ELECTRICAL TRANSFORMERS TRANSFORMERS			
65	133,000,000	THE SAUDI TRANSFORMERS COMPANY LIMITED	170	1								1						

## Attachment II

## Companies in Saudi EP (4)

-- II

RANK	TURNOVER (SR)	COMPANY NAME	Employee Number	City					Business Type		Classification of Business Type						
				Dammam	Jubail	Daharan	Alkhobar	Rasianura	Others	Agriculture	Contracting	Manufacturing	Services	Trading	Classification Upper	Classification Middle	Classification Upper
66	130,000,000	AL OUSAIMI GROUP CO.	50	1						1		MANUFACTURING		FERTILIZERS & AGROCHEMICALS WOOD PRODUCTS & FURNITURE			
67	130,000,000	EBRAHIM MOHAMMED ALMANA & BROTHERS CO.	2,000								1	SERVICES					
68	130,000,000	TAMIMI COMPANY (COMMERCIAL DIVISION)	162	1							1	MANUFACTURING		FORMGLASS INSULATION INDUSTRIAL TAPES PACKAGING MATERIALS			
69	125,000,000	SAUDI OBEROI COMPANY LIMITED	1,500								1	SERVICES					
70	125,000,000	AL HAJRY OVERSEAS	650								1	SERVICES					
71	120,000,000	WAHAB ELECTRIC SUPPLY COMPANY OF SAUDI ARABIA	250	1							1	MANUFACTURING		CABLE TRAYS, FUSE CUTOUTS PANEL BOARD SWITCHBOARDS(LAW VOLTAGE) SWITCHGEAR TRANSFORMERS			
72	120,000,000	EAST & WEST EXPRESS									1	SERVICES					
73	118,000,000	YOUSUF AHMED ALGOSAIBI TRADING EST.	300								1	TRADING					
74	117,632,000	KHONAINI INTERNATIONAL COMPANY LTD.	730	1						1	1	1	MANUFACTURING		CONCRETE BLOCKS PRECAST CONCRETE	SERVICES	CONTRACTING
75	114,300,000	DWI, DERMABIT WATERPROOFING INDUSTRIES CO.LTD.	150	1							1	MANUFACTURING		MODIFIED BITUMIN MENBARANES UNDER GROUND ROOFING LIQUID WATERPROOFING LIQUID			
76	110,000,000	AGAP ARABIA LIMITED	2,000							1	1	SERVICES			CONTRACTING		
77	110,000,000	FATHI TALEB & SONS CO.	850								1	SERVICES					
78	110,000,000	ISCOZA INDUSTRIES & MAINTENANCE LTD.	475								1	SERVICES					
79	109,066,226	SAUDI ARABIAN SAIPEM LIMITED	800								1	CONTRACTING					
80	108,000,000	TAMIMI & SAHATI TRANSPORT CO.	750								1	SERVICES					
81	105,000,000	JAMAL AL-JASSIM ELECTRONICS EST.	100								1						
82	103,000,000	NAMMA CARGO SERVICES CO. LTD.	320								1	SERVICES					
83	102,000,000	SAUDI ARABIAN INDUSTRIAL & TRADING EST.	85								1	SERVICES					
84	100,279,000	NAPCO CONSUMER PRODUCTS COMPANY	260	1							1	MANUFACTURING		CLENING FILM NAPKINS PAPER BAGS TISSUE PAPERS & PRODUCTS			

Source : TOP 1000 Saudi Companies

## Attachment II

## Companies in Saudi EP (5)

S-II

RANK	TURNOVER (SR)	COMPANY NAME	Employee Number	City		Business Type			Classification of Business Type										
				Dammam	Jubail	Daharan	Alkhobar	Rastanura	Otires	Agriculture	Contracting	Manufacturing	Services	Trading	Classification Upper	Classification Middle	Classification Upper		
85	100,000,000	AL HOSAIN & ALAFALIQ GROUP OF CO'S	600	1						1	1	1	1	1	MANUFACTURING	BAKERIES CONFECTIONERY PLASTIC PRODUCTS	SERVICES		
86	100,000,000	HAWA TRADING ESTABLISHMENT	350		1					1	1				MANUFACTURING	ELECTRICAL ACCESSORIES & PARTS MOTOR CONTROL SYSTEM PACKAGING MATERIALS PANEL BOARD	CONTRACTING		
87	100,000,000	ARABIAN CBI TANK MANUFACTURING CO.LTD.	120		1						1					MANUFACTURING	METAL PLATE STRUCTURES OIL & WATER STORAGE TANKS PRESSURE VESSEL		
88	93,500,000	AL QAHTANI PIPE COATING TERMINAL	639	1							1	1				SERVICES		MANUFACTURING	PIPE COATING
89	92,961,948	ALFALAK ELECTRONIC EQUIPMENT & SUPPLIES COMPANY	150									1							
90	92,000,000	SAUDI MARKETING COMPANY LIMITED	110									1							
91	91,806,332	ALGOSAIBI SERVICES COMPANY LIMITED	2,000									1							
92	90,000,000	AL HAIDER CO. FOR TRADING & CONTRACTING	450							1	1				AGRICULTURE	FARMING	CONTRACTING		SERVICES
93	90,000,000	MIDDLE EAST DEVELOPMENT COMPANY	90									1							
94	90,000,000	AL ABDULRAHMAN TRADING & CONTRACTING EST.	500							1	1		1		AGRICULTURE	FARMING	CONTRACTING		SERVICES
95	90,000,000	SAUDI ARABIAN DUCTILE IRON PIPES CO.LTD.	180	1								1				MANUFACTURING	Iron Pipe		
96	88,000,000	NATIONAL CONTRACTING COMPANY LIMITED	500								1	1				SERVICES	CONTRACTING		
97	87,000,000	AL HAMMAM COMPANY	1,200								1					CONTRACTING			
98	85,000,000	MODERN ARAB CONSTRUCTION CO. LTD.	1,015								1					CONTRACTING			
99	84,000,000	AL NIMRAN GROUP	87		1					1	1				CONTRACTING		MANUFACTURING	BARBED WIRE PLASTIC PRODUCTS	SERVICES
100	82,000,000	ARABIAN CBI LIMITED	600								1	1				SERVICES	CONTRACTING		
101	81,000,000	BITUMAT COMPANY LIMITED	200	1							1	1				MANUFACTURING	INSULATIONS & WATERPROOFING INDUSTRIES		
102	80,540,000	AL KHODARI & SONS COMPANY	543								1	1				CONTRACTING		SERVICES	
103	80,000,000	KHALED A. AL MULHEM & BROS. CO.	850								1					CONTRACTING		CONTRACTING	
104	80,000,000	RAYMOND SAUDI ARABIA LTD.	600								1	1				SERVICES			
105	77,467,131	INMA CONSTRUCTION MATERIALS COMPANY LTD.	272		1						1					MANUFACTURING	CONCRETE READYMIX CONCRETE		

Source : TOP 1000 Saudi Companies

## Attachment II

## Companies in Saudi EP (6)

9-II

RANK	TURNOVER (SR)	COMPANY NAME	Employee Number	City		Business Type			Classification of Business Type							
				Dammam	Jubail	Daharan	Akkodar	Ras Tanura	Others	Agriculture	Contracting	Manufacturing Services	Trading	Classification Upper	Classification Middle	Classification Upper
106	77,000,000	VETCO SAUDI ARABIA LTD.	400							1		1		SERVICES		
107	75,000,000	LULUATT INTERNATIONAL HOSPITALS GROUP LIMITED	650							1		1		SERVICES		
108	70,000,000	AL HUGAYET TRADING & CONT EST.	420							1	1	1		SERVICES		
109	69,000,000	AL BAB TRADING CO. LTD.	1,100							1		1		SERVICES		
110	67,000,000	ABDUL KARIM ALGAHTANI INSTALLATION & MAINT. SERVICES EST.	30							1		1		SERVICES		
111	66,000,000	AL DABAL COMPANY	350							1	1	1		SERVICES		
112	65,000,000	AL-HUSSAN GROUP OF COMPANIES	600							1	1	1		CONTRACTING SERVICES		
113	65,000,000	SAUDI PAN GULF ESTABLISHMENT	60		1					1		1		DESIGN, FABRICATION & INSTALLATION OF OIL & GAS STEEL STRUCTURES		
114	65,000,000	LE GULF MERIDIEN HOTEL	300							1		1		SERVICES		
115	62,000,000	BUILDING MATERIALS TRADING COMPANY LIMITED	100		1					1		1		TRADING		
116	61,271,271	ARABIAN PIPELINE & SERVICES CO. LTD.	287							1		1		SERVICES		
117	60,000,000	AL NAJIM SAUDI INTERNATIONAL CO. LTD.	220							1	1	1		SERVICES		
118	60,000,000	SAUDI INDUSTRIAL GAS COMPANY	310		1					1		1		MANUFACTURING	INDUSTRIAL GASES MEDICAL GASES	
119	60,000,000	SAUDI CONSULTING & DESIGN OFFICE	250							1		1		SERVICES		
120	60,000,000	USG MIDDLE EAST LIMITED	140	1						1		1		MANUFACTURING	FIBRE CEILING PANEL & ACCESSORIES	
121	60,000,000	PETROCON ARABIA LIMITED	270							1		1		SERVICES		
122	60,000,000	ABDULLAH M. ALYOUSEF EST. FOR TRADING & CONTRACTING	3,500							1		1		CONTRACTING		
123	60,000,000	DHAHRAN HARCO CHEMICAL INDUSTRIES LTD.	160	1						1		1		MANUFACTURING	CHEMICALS	
124	59,500,000	ABDULLA AHMAD DOSSARY TRADING ENTERPRISE	420							1	1	1		SERVICES		
125	59,407,000	DAR AL YOUTH FOR PRESS, PRINTING & PUBLICATION	567	1						1	1	1		SERVICES	MANUFACTURING	PRESS
126	58,913,920	ABDULLA M. ALOTAISHAN & SONS COMPANY	250							1	1	1		SERVICES	CONTRACTING	
127	58,600,000	ABDULLAH RASHID DOSSARY & PARTNER CO.	650		1					1	1	1		MANUFACTURING	GASKET	SERVICES
128	58,000,000	AL ERTIFAA CO. FOR TRADING & GENERAL CONTRACTING	500							1		1		CONTRACTING		
129	57,492,000	GLOBAL SUHAIMI COMPANY (W.L.L.)	350							1		1		SERVICES		

Source : TOP 1000 Saudi Companies

## Attachment II

## Companies in Saudi EP (7)

RANK	TURNOVER (SR)	COMPANY NAME	Employee Number	City		Business Type			Classification of Business Type										
				Dammam	Jubail	Daharan	Alkohbar	Rastanura	Otress	Agriculture	Contracting	Manufacturing	Services	Trading	Classification Upper	Classification Middle	Classification Upper		
130	56,000,000	SAUDI INDUSTRIAL PAINT COMPANY LTD.	130	1						1		MANUFACTURING			DECORATIVE PAINT INDUSTRIAL COATING JOINT SEALANTS PAINT RESINS				
131	55,888,000	AUTO MARKETING COMPANY	128								1	1	SERVICES MANUFACTURING			NAPKINS PAPER PRODUCTS GLYCOL POLYURETHANE & PLODUCTS TISSUE PAPERS & PRODUCTS TISSUE PRODUCTS			
132	55,000,000	NATIONAL PAPER PRODUCTS COMPANY- DAMMAM	120	1							1								
133	55,000,000	GULF STEVEDORING CONTRACTING CO. LTD.	5,500							1		SERVICES							
134	55,000,000	TIG-TESCO INTERNATIONAL LTD.	100								1	1	1	TRADING MANUFACTURING		RADIATORS & HEAT EXCHANGER	CONTRACTING		
135	55,000,000	NAHDA CONTRACTING & ENGINEERING EST.	450	1							1	1							
136	55,000,000	EBRAHM BIN JASSIM AL-JASSIM	125								1	1	1	1	TRADING CONTRACTING				
137	55,000,000	KHUDAIR GROUP	350		1						1	1				MANUFACTURING	MOSAIC TILES WOOD PRODUCTS & FURNITURE	SERVICES	
138	54,000,000	KING-WILKINSON (SAUDI ARABIA) LTD.	380								1		SERVICES						
139	53,000,000	FLUOR ARABIA LIMITED	220								1		SERVICES						
140	52,958,243	SAUDI ELECTRO-MECHANICAL CONSTRUCTION CO. LTD.	754								1	1	SERVICES						
141	52,600,000	GULF UNION INSURANCE & RISK MANAGEMENT CO (E.C.)	51								1		1						
142	52,000,000	MIDDLE EAST ENGINEERING LIMITED SAUDI ARABIA	150								1	1	1	SERVICES		CONTRACTING			
143	52,000,000	UNITED TRADING CORPORATION	175		1						1	1	1	MANUFACTURING	CHEESE				
144	51,000,000	AL QAHTANI EST. FOR TRADE &	51								1		1	SERVICES					
145	50,500,000	RAWABI TRADING & CONTRACTING	500								1		1	CONTRACTING					
146	50,000,000	SAADOUN AL SAADOUN TRADING & CONTRACTING EST	186								1		1	SERVICES		CONTRACTING			
147	50,000,000	AL MULHIM AUTO SERVICE	125								1		1	SERVICES					
148	50,000,000	HUSSEIN ALI AL-ABUDULLABBAR EST.	110								1		1	SERVICES		CONTRACTING			
149	50,000,000	KELLER TURKI CO. LIMITED	100								1		1	CONTRACTING					
150	50,000,000	ALYASEEN AGRICULTURAL COMPANY	80								1		1	AGRICULTURE	VEGETABLE PRODUCTS				
151	50,000,000	SAEED ALZAHRAINI CORPORATION	6,000								1		1	SERVICES					
152	48,500,000	ARABIAN SUPPLY & ARCHITECTURAL CONTRACTING CO. LTD.	1,300								1	1	1	AGRICULTURUE	LANDSCAPE & PARK	SERVICES		CONTRACTING	
153	47,000,000	AL TUWAIRQI TRADING AND CONTRACTING EST.	40								1		1	CONTRACTING					

Source : TOP 1000 Saudi Companies

## Attachment II

## Companies in Saudi EP (8)

RANK	TURNOVER (SAR)	COMPANY NAME	Employee Number	City					Business Type					Classification of Business Type					
				Dammam	Jubail	Dahran	Alkhobar	Ras Tanura	Citres	Agriculture	Contracting	Manufacturing	Services	Trading	Classification Upper	Classification Middle	Classification Upper	Classification Middle	Classification Upper
154	47,000,000	THE SAUDI LUCY COMPANY LIMITED	45			1				1	1			MANUFACTURING	ELECTRICAL ACCESSORIES & PARTS SWITCH GEARS & CABLE TRAYS				
155	46,523,205	KETTANEH BROTHERS SAUDI ARABIA LIMITED	934							1				CONTRACTING					
156	45,000,000	AL RASHED NATIONAL FASTENERS & ENGINEERING FABRICATION SERV.	200								1	1		MANUFACTURING	FASTENERS BOLTS & NUTS STUD BOLTS	SERVICES			
157	45,000,000	YUSUF MOHAMMED ALDOSSARY ESTABLISHMENT	200							1	1	1		SERVICES		CONTRACTING			
158	45,000,000	IBN HAYYAN TRADING	76								1	1		SERVICES					
159	45,000,000	AL IMAN FACTORIES EST.	350	1							1	1		MANUFACTURING	GASKET CEMENT BLOCKS CONCRETE CONCRETE PIPES	SERVICES			
160	45,000,000	ABDULRAHMAN & MOHAMMED A.AZIZ ALSHALAN	45									1							
161	44,235,000	SAUDI UNITED INSURANCE CO. LTD., E.C.	40									1							
162	44,000,000	PETROLITE SAUDI ARABIA LTD.	15	1							1			MANUFACTURING	CHEMICALS				
163	43,114,388	AL ITTEFAQ STEEL PRODUCTS FACTORY	70	1							1			MANUFACTURING	STEEL BARS U-CHANNEL & BEAMS				
164	42,578,589	SALMAN A. AL DUHAIM EST.	2,500							1	1		CONTRACTING						
165	42,500,000	BATOOK CHEWING GUM IND. LTD.	150		1						1	1		MANUFACTURING	CHEWING GUM	SERVICES			
166	42,487,560	ESTABLISHMENT OF ROAD CONSTRUCTION CO. LTD.	180		1						1	1	1	MANUFACTURING	CONCRETE MIX	SERVICES			CONTRACTING
167	41,000,000	KHUSHEIM COMPANY, FOR INDUSTRIAL EQUIPMENTS	100									1		CONTRACTING					
168	40,584,431	ABDUL AZIZ ALTRAIKI & PARTNERS, TRADING & CONTRACTING CO.LTD	856								1			CONTRACTING					
169	40,100,000	ARBIAN TR OIL SERVICES CO. LTD.	12								1			MANUFACTURING	SPECIALISTED TREATMENT CHEMICALS				
170	40,000,000	EL KHEREIJI TRADING & ELECTRONICS	50									1		CONTRACTING					
171	40,000,000	NALCO SAUDI CO. LTD.	43									1		SERVICES					
172	40,000,000	SAUDI DANISH CONSTRUCTION CORPORATION	250								1	1		SERVICES		CONTRACTING			
173	40,000,000	CONTRACTING & TRADING, COMPANY	526								1			CONTRACTING					
174	40,000,000	SAUDI ENGINEERING GROUP INTERNATIONAL	140								1	1		SERVICES		CONTRACTING			
175	40,000,000	SAUDI FILTERS INDUSTRY COMPANY	175	1							1	1		MANUFACTURING	Oil Filters				
176	40,000,000	NEW TRADING SERVICES AND AGENCIES COMPANY	12									1		CONTRACTING					
177	40,000,000	NAJIB ALI BO SROUR GROUP FOR TRADING & CONTRACTING	200								1	1	1	CONTRACTING		SERVICES			

Source : TOP 1000 Saudi Companies

## Attachment II

## Companies in Saudi EP (9)

RANK	TURNOVER (SR)	COMPANY NAME	Employee Number	City		Business Type			Classification of Business Type								
				Dammam	Jubail	Daharan	Aikhobar	Ras Tanura	Others	Agriculture	Contracting	Manufacturing	Services	Trading	Classification Upper	Classification Middle	Classification Upper
178	39,500,285	FOUAD ABDULLA FOUAD CO. LTD.	1,055							1	1	SERVICES			CONTRACTING		
179	38,762,000	AL NASSAR TRADING AND CONTRACTING ESTABLISHMENT.	400							1	1	CONTRACTING					
180	38,500,000	HAMED AL QAHTANI UNIVERSAL MARKETS EST.	160								1						
181	38,460,000	AL RAMAH INTERNATIONAL COMPANY	101		1					1	1	CONTRACTING			MANUFACTURING		PAFUME
182	37,000,000	AL OWAID TRADING & CONTRACTING	300							1	1	CONTRACTING					
183	37,000,000	TASECO-TMS SA LTD.	320								1	SERVICES					
184	36,100,000	HEBA FIRE & SAFETY EQUIP. CO. LTD.	172								1	SERVICES					
185	35,000,000	AL BILAD FIRE FIGHTING SYSTEMS LIMITED	144		1					1	1	MANUFACTURING	FIRE PROTECTION & ALARM SYSTEMS		SERVICES		
186	35,000,000	PETROLEUM SERVICES & CONTRACTING ESTABLISHMENT	50							1	1	SERVICES			CONTRACTING		
187	35,000,000	ALBEERI UNITED FOOD COMPANY LTD.	30								1						
188	35,000,000	AL SHAMRANY METAL INDUSTRIES	185	1							1	MANUFACTURING	TANKERS TIPPERS & DUMP BODIES				
189	34,000,000	HATHAL A. OTAIBI ESTABLISHMENT	150							1		CONTRACTING					
190	34,000,000	HAMED A. KH. ALGHAMDI CO.	55								1	1					
191	33,740,000	DAMMAM WIRE MESH & METAL GALVANIZING FACTORY	45	1							1				MANUFACTURING	PRESS	
192	33,674,000	JOREPANCO TRADING & CONTRACTING COMPANY	86								1	1	SERVICES				
193	33,000,000	AL JAZIRA EQUIPMENT COMPANY LIMITED	95								1	1	SERVICES				
194	32,000,000	ABDULLA BUSBATE & PARTNERS CO. LTD.	200							1		MANUFACTURING	PVC COMPOUNDS SAFETY HELMETS UPVC PIPES & FABRICATION OF UPVC FITTINGS				
195	32,000,000	DR. FAKHARY HOSPITAL	400								1						
196	32,000,000	OASIS AMERON PAINTS	75		1						1	MANUFACTURING	DECORATIVE PAINT MARINE COATINGS SELANTS, EMULSIONS & ROOF COATINGS				
197	32,000,000	AL HAMMAD FOOD STUFF COLD	50														
198	31,902,669	ALI HUSSAIN ALYAMI & COMPANY	1,200								1	1	SERVICES			CONTRACTING	
199	31,000,000	SAUDI PLASTIC PRODUCTS CO. LTD. (SAPPCO) DAMMAM	106	1							1	MANUFACTURING	PLASTIC PRODUCTS UPVC PIPES & FABRICATION OF UPVC FITTINGS				
200	30,000,000	KHATAM AL KHATAM TRADING EST.	75								1	1	SERVICES				
201	30,000,000	GENERAL TRADING AND EQUIPMENT CO.	35								1	1	SERVICES				

## Attachment II

## Companies in Saudi EP (10)

01-II

RANK	TURNOVER (SR)	COMPANY NAME	Employee Number	City		Business Type			Classification of Business Type									
				Dammam	Jubail	Daharan	Alkohar	Rasstanura	Others	Agriculture	Contracting	Manufacturing	Services	Trading	Classification Upper	Classification Middle	Classification Upper	
202	30,000,000	AL SHIFA MEDICAL SYRINGES MANUFACTURING COMPANY LIMITED	98	1						1	1	1	1	1	MANUFACTURING	MEDICAL DISPOSABLES MEDICAL SYRINGES		
203	30,000,000	EURABIA ENGINEERING AND CONSTRUCTION COMPANY	150								1	1	1	1	1	SERVICES		CONTRACTING
204	30,000,000	ALGOSAIBI HOTEL	300									1	1	1	1	SERVICES		
205	30,000,000	SAUDI CONDUIT COATING COMPANY	55		1						1	1	1	1	1	MANUFACTURING	CUSTOM COSTING	SERVICES
206	30,000,000	ALOWAID TRADING EST.	120										1		1	SERVICES		
207	29,350,000	SULAIMAN H. ALSAIF & SONS ESTABLISHMENT	600										1		1			
208	29,000,000	SAUD A. AL TWAJRI EST.	290		1						1	1	1	1	1	MANUFACTURING	PRECAST CONCRETE	
209	28,000,000	DELMON COMPANY LIMITED	200								1	1	1	1	1	SERVICES	REINFORCED STEEL BARS	
210	28,000,000	HEET ESTABLISHMENT FOR INDUSTRIES	120	1							1	1	1	1	1	MANUFACTURING		CONTRACTING
211	28,000,000	COLD STORE OF AL HASA REFRIGERATION CO.	35										1		1			
212	28,000,000	ABDULLATIF AL-ARFAJ TRADING CORPORATION	280								1	1	1	1	1	CONTRACTING		SERVICES
213	27,000,000	BUILDING CHEMICAL INDUSTRIES COMPANY LIMITED	88	1								1		1	1	MANUFACTURING	JOINT SEALANTS BUILDING MATERIALS PVC FLEXIBLE SHEETS PVC FLOOR TILES PVC WIRE	
214	27,000,000	AL JUBAIL INDUSTRIAL CITY HOTEL	200									1	1	1	1	SERVICES		
215	26,000,000	SAUDI GERMAN FIBERGLASS PRODUCTS CO. LTD.	150			1						1	1	1	1	MANUFACTURING	FIBRE GLASS PRODUCTS	
216	25,300,000	AL-HINDI COMPANY TRADING & CONTRACTING	300									1	1	1	1	SERVICES		CONTRACTING
217	25,000,000	DOSSARY HARDWARE & GENERAL STORES	45											1				
218	25,000,000	ARAB EQUIPMENT ESTABLISHMENT	100	1								1	1	1	1	MANUFACTURING	BUILDING MATERIALS CONSTRUCTION EQUIPMENT ENGINEERING PRODUCTS MARINE EQUIPMENT OIL FIELD EQUIPMENT	

Source : TOP 1000 Saudi Companies

## Attachment II

## Companies in Saudi EP (11)

RANK	TURNOVER (SR)	COMPANY NAME	Employee Number	City		Business Type			Classification of Business Type									
				Dammam	Jubail	Daharan	Alkhobar	Ras Tanura	Others	Agriculture	Contracting	Manufacturing	Services	Trading	Classification Upper	Classification Middle	Classification Upper	
219	25,000,000	GUARDIAN FENCING & SECURITY SYSTEMS CO.LTD.	66	1						1		MANUFACTURING			BEDSHEET & PILLOW CASES BULLETPROOF GLASS PARTITIONS ROADBLOCKERS SAFETY & SECURITY SYSTEMS & EQUIPMENT SECURITY FENCINGS SYSTEM SECURITY SCREENS			
220	25,000,000	AUJAN INDUSTRIAL SUPPLIES	40								1		SERVICES					
221	25,000,000	GULF JEWELLERY FACTORY	50	1							1	1	MANUFACTURING SERVICES		GOLD STONES			
222	25,000,000	AL HOTY STANGER LIMITED	250								1	1	SERVICES				CONTRACTING SERVICES	
223	25,000,000	SWAID ENTERPRISES	110								1	1	SERVICES					
224	25,000,000	ABDULWAHID M. ALYOUSIF & PARTNERS COMPANY	95								1	1	CONTRACTING					
225	24,000,000	AL MUTLAQ SERVICES & MANUFACTURING CO.	500		1						1		MANUFACTURING		EVAPORATORS INDUSTRIAL STEAM BOILERS MEDICAL APPLIANCE RADIATORS & HEAT EXCHANGER			
226	24,000,000	FOUZ CHEMICAL COMPANY	79	1							1	1	1	SERVICES			MANUFACTURING	WATER TREATMENT CHEMICAL
227	24,000,000	ARABIAN CONTROL SYSTEMS	110									1	1	SERVICES				
228	23,198,000	ASH-SHARQIYAH AGRICULTURAL DEVELOPMENT CO.	242								1		AGRICULTURE		AGRICULTURAL CROPS & PRODUCT FARMING VEGETABLE PRODUCTS			
229	23,000,000	KHALID AL-MUHAIDIB TRADING ESTABLISHMENT	45									1						
230	22,831,719	SAUDI ARABIAN FEED COMPANY LTD.	61	1								1		MANUFACTURING		animal feed		
231	22,005,000	ARABIAN GULF TRADING COMPANY	33									1						
232	22,000,000	ALFARES TRADING COMPANY	76									1						
233	22,000,000	KEY COMMUNICATIONS DEVELOPMENT CO. LTD.	50									1						
234	22,000,000	AL ATTAS TRADING AND CONT. EST.	20									1						
235	22,000,000	AL THOMAIRY GENERAL HOSPITAL	300									1		SERVICES				
236	21,000,000	M.K. CABLE MANAGEMENT (SAUDI ARABIA LTD)	35	1							1		MANUFACTURING		Cable			
237	21,000,000	AL HADDAD TRADING OFFICE	60		1						1	1	MANUFACTURING		READYMIX CONCRETE	CONTRACTING		
238	21,000,000	EASTERN TRADING & CONSTRUCTION ESTABLISHMENT	68															

Source : TOP 1000 Saudi Companies

## Attachment II

## Companies in Saudi EP (12)

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RANK	TURNOVER (SR)	COMPANY NAME	Employee Number	City		Business Type		Classification of Business Type											
				Dammam	Jubail	Dahran	Alkhobar	Rasitanura	Others	Agriculture	Contracting	Manufacturing	Services	Trading	Classification Upper	Classification Middle	Classification Upper	Classification Middle	Classification Upper
239	20,000,000	AL KADI TRUCK BODY FACTORY	180	1						1		1			MANUFACTURING	TANKERS TANKS TIPPERS & DUMP BODIES TRAILER TANKS TRUCKS			
240	20,000,000	CONSTRUCTION MATERIAL CHEMICAL INDUSTRIES	66	1							1		1		MANUFACTURING	JOINT SEALANTS CONCRETE MIX FLOOR FINISHES WATER PROOFING INSULATION			
241	20,000,000	TECHNICAL BIDDING COMPANY	800								1		1		SERVICES			CONTRACTING	
242	20,000,000	IBRAHIM M. AL NAJRAN	75									1							
243	20,000,000	HODAITHY INTERNATIONAL	154									1							
244	20,000,000	SALEH ZAID ALQURAISHI ESTABLISHMENT	35							1		1			CONTRACTING				
245	20,000,000	EASTERN FACTORY FOR READY HOUSES & FURNITURES	42	1							1		1		MANUFACTURING	FURNITURE PREFABRICATED HOUSES			
246	20,000,000	IBRAHIM A. ABAHSAIN EST. FOR TRADING & CONTRACTING	200								1		1		SERVICES				
247	20,000,000	BEST GROUP (MAGESTIC RENT A CAR)	50									1			SERVICES				

## **Attachment III**

Attachment III Water Quality Monitoring Data by Royal Commision in Jubail

Table 1-1 Gulf Water Quality Data (Station No. 1)

Date	Parameters																	
	Temperature (C)	Cadmium	Chromium	Copper	Iron	Lead	Mercury	Nickel	Zinc	Oil & Grease	TOC	T Ammonia	T Res Chlorine	pH (units)	T Phosphorus	Cond (mho/cm)	TSS	Turbidity
04-Jan-88	19								<0.1	1.3			7.9	0.006	60800	2.5	0.6	7.0
07-Feb-88	18								<0.1	1.1		<0.01	7.9	0.008	61600	2.0	0.8	6.8
12-Mar-88	19								<0.1	1.0		<0.01	7.9	0.005	61800	3.2	0.8	7.1
10-Apr-88	21								<0.1	1.0		<0.01	7.8	0.003	61700	2.6	0.5	6.8
10-May-88	25								0.11			<0.01	8.1	0.003	59800	1.0	0.9	6.9
05-Jun-88	29								<0.1	3.9		<0.01	7.8	0.003	59800	5.9	0.7	6.4
17-Oct-88	30								0.30	2.1			8.2	0.005	59800	1.7	0.3	5.6
12-Dec-88	22								<0.1	1.1			8.1	0.007	60600	2.6	0.3	6.5
19-Mar-89	18								<0.1	3.0			8.3	<0.002	60200	8.0	0.2	7.1
03-Apr-89	19								<0.1	4.2			8.2	0.007	60800	6.0		6.9
25-Jun-89	30								0.10	3.2			8.2	<0.002	58100	3.0	0.2	5.9
25-Jul-89	33								0.25	3.1			8.1	0.002	58400	4.9	0.2	5.6
16-Aug-89	32								<0.1	4.0			8.1	0.002	58800	3.4	0.4	5.7
16-Sep-89	32								0.17	2.8			8.2	0.002	58800	2.4	0.2	5.5
13-Nov-89									0.36	3.5	<0.01			0.007		4.1	0.6	
10-Dec-89									0.26	2.3	<0.01			0.006		2.6	0.2	
04-Feb-90	17								0.21	3.6			7.9	0.012	60000	3.4	0.3	6.7
08-Apr-90	21								<0.1	2.8			8.2	0.007	60600	3.1	0.2	5.3
06-May-90	26								0.15	3.2			8.3	0.002	60400	3.0	0.1	5.3
26-Jul-90	33								0.10	2.9			8.4	0.002	59100	5.0	0.2	5.9
22-Sep-90	30								0.08	3			8.3	0.004	59200	2.3	0.6	6.8
17-Oct-90	28								<0.1	2.7			8.5	0.005	60200	2.6	0.2	5.9
21-Nov-90	25								0.46	2.6			8.0	0.005	60500	1.5	0.3	5.9
13-Oct-91	28								0.20	2.4			8.4	0.006	59900	5.0	0.4	6.0
11-Nov-91	25								0.41	1.6			8.2	0.008	60600	4.3	0.4	5.4

Continued...

Attachment III Water Quality Monitoring Data by Royal Commision in Jubail

Table 1-2 Gulf Water Quality Data (Station No. 1)

Date	Parameters																			
	Temperature (°C)	Cadmium	Chromium	Copper	Iron	Lead	Mercury	Nickel	Zinc	Oil & Grease	TOC	T Ammonia	T Res Chlorine	pH (units)	T Phosphorus	Cond (umho/cm)	TSS	Turbidity	D Oxygen	
09-Feb-92	16									1.8	0.02		8.3	0.006	61100	3.2	0.3	7.5		
08-Mar-92	17									2.2	0.01		7.3	<b>0.011</b>	61400	3.6	0.6	7.5		
27-Apr-92	24									4.2	<0.01		7.8	<b>0.013</b>	62200	13.2	0.6	8.6		
26-May-92	27									1.2	<0.01		8.2	<b>0.009</b>	62500	6.3	0.4	5.3		
12-Jul-92	31									0.10	1.8	0.02		7.4	<b>0.012</b>	61200	15.9	0.2	6.0	
10-Aug-92	32									0.17	2.1	0.03		7.3	<b>0.011</b>	62200	18.6	0.2	6.3	
13-Sep-92	32									0.16	2.7	0.01		8.0	<b>0.012</b>	59400	5.7	0.2	6.0	
12-Oct-92	27									0.05	12.7	0.25		8.0	<b>0.012</b>	61600	23.0	0.2	6.6	
31-Mar-93	20									0.72	2.1	0.24		7.2	<b>0.014</b>	60600	5.6	0.2	7.5	
28-Apr-93										0.45	3.1	0.04			<b>0.021</b>		5.5			
18-May-93										0.51	3.6	0.05			<b>0.011</b>		10.9			
23-Jun-93										0.75	2.0	0.08			<b>0.013</b>		22.8			
19-Jul-93										0.33	2.9	0.06			0.008		10.1	0.2		
09-Aug-93										0.48	5.2	0.06			<b>0.064</b>		19.4			
18-Sep-93										0.67	2.5	0.07			8.3	<b>0.014</b>	61300	8.9	0.2	7.8
16-Oct-93										0.51	2.1	0.06			8.3	<b>0.009</b>	58100	13.4	0.1	8.1
23-Nov-93										0.34	2.2	0.06			8.2	<b>0.022</b>	57200	15.4	0.4	7.6
26-Dec-93										1.02	2.6	0.17			7.8	<b>0.012</b>	60200	0.9	0.2	8.5
26-Jan-94										0.70	2.2	0.04			8.2	<b>0.010</b>		75.6	1.1	7.9
20-Mar-94										1.70	2.5	0.96			<b>0.010</b>		7.0	0.5	6.0	
25-May-94	25									0.50	2.8	0.1	0.05	8.3	<b>0.370</b>	58500	2.8		7.0	
27-Jul-96	35	<b>0.016</b>	<0.001	0.004	0.084	0.007		0.008	0.039	0.70	9.0	0.02	<0.01	8.1	<0.01	61000	18.0	2.0	6.5	
30-Sep-96		0.005	<0.001	0.004		0.005	<b>0.0013</b>	0.003	0.024	1.80	17.0	0.33	<0.01	8.2	<0.01	47200	17.0	1.0		
10-Nov-96										0.20	31.0	0.75	<0.01	8.1	<b>0.040</b>	49200	6.0	<1		
08-Dec-96	22	0.005	<0.001	0.002		0.005	<b>0.0007</b>	0.003	0.022	0.20	25.0	1.10	<0.01	8.3	<0.01	56400	15.0	1.0		
18-May-97	27	<b>0.017</b>	0.001	0.003		0.006	<b>0.0003</b>	0.004	0.028	0.50	10.0	0.03	<0.01	8.2	<0.01	55500	5.0	2.0	6.8	
15-Jun-97	31	0.003	0.001	0.003		0.009	<0.0001	0.004	0.033	0.20	27.0	0.04	<0.01	8.3	<0.01	56200	8.0	1.0	6.2	
27-Jul-97	32	0.003	0.001	0.009	0.038	<b>0.034</b>	<0.0001	0.004	0.024	0.40	44.0	0.07	<0.01	8.1	<0.01	59700	1.0	2.0	6.2	

Continued ...

Attachment III Water Quality Monitoring Data by Royal Commision in Jubail

Table 1-3 Gulf Water Quality Data (Station No. 1)

Date	Parameters																		
	Temperature (C)	Cadmium	Chromium	Copper	Iron	Lead	Mercury	Nickel	Zinc	Oil & Grease	TOC	T Ammonia	T Res Chlorine	pH (units)	T Phosphorus	Cond (mmhu/cm)	TSS	Turbidity	D Oxygen
12-Aug-97	32	0.002	<0.001	0.004	0.043	0.008	0.0001	0.001	0.031	0.20	48.0	0.02	<0.01	8.1	<0.01	59500	6.0	2.0	5.5
12-Oct-97	30	<b>0.009</b>	0.001	0.003	0.065	<b>0.012</b>		0.011	0.019	0.20	15.0	0.04	<0.01	7.9	<0.01	63400	17.0	2.0	5.4
30-Nov-97	26	0.001	0.001	0.004	0.019	0.005	<b>0.0011</b>	0.007	0.015	0.10	8.0	<0.01	<0.01	8.2	<0.01	43200	7.0	1.0	6.8
14-Dec-97	21	0.003	<0.001	0.003	0.029	0.006	<b>0.0004</b>	0.003	0.020	0.10	6.0	0.07	<0.01	8.2	<0.01	60000	11.0		6.7
14-Jun-98	32	0.002	<0.001	0.005	0.078	0.006	<b>0.0009</b>	0.008	0.051	0.20	14.0	0.09	<0.01	8.3	<0.01	55400	4.0	2.0	6.0
29-Jul-98	34	0.002	<0.001	0.002	0.030	0.007	<b>0.0007</b>	0.006	0.021	0.10	11.0	0.15	<0.01	8.3	<b>0.010</b>	56700	4.0	2.0	5.8
19-Aug-98	35	0.002	<0.001	0.003	0.047	0.009	<b>0.0014</b>	0.004	0.022	0.10	11.0	0.12	<0.01	8.2	<0.01	57400	9.0	2.0	5.8
06-Oct-98	30	0.005	<0.001	0.002	0.037	0.006	<b>0.0005</b>	0.003	0.022	0.20	8.0	0.02	<0.01	8.3	<0.01	57000	19.0	2.0	6.2
29-Nov-98	24	0.002	0.001	0.003	0.043	0.007	<0.0001	0.007	0.013	0.10	4.0	0.05	<0.01	8.4	<0.01	53900	5.0	2.0	6.8
13-Dec-98	20									0.10	5.0	0.04	<0.01	8.3	<b>0.010</b>	54100	5.0	1.0	6.8
07-Feb-99	19									0.60	8.0	0.07	<0.01	8.3	<0.01	59200	34.0	3.0	7.5
04-Apr-99	24	0.002	<0.001	0.003	0.051	0.009	0.0001	0.005	0.020	0.10	7.0	0.07	<0.01	8.3	<0.01	55200	13.0	1.0	6.6
09-May-99	27									0.30	12.0	0.05	<0.01	8.4	<0.01	54500	20.0	2.0	6.7
01-Jun-99	30									0.30	8.0	0.27	<0.01	8.5	<0.01	53200	13.0	<1	6.2
RCEG		<b>0.005</b>	<b>0.05</b>	<b>0.1</b>		<b>0.01</b>	<b>0.0001</b>	<b>0.1</b>	<b>0.1</b>				<b>0.01</b>	<b>6.5-8.5</b>	<b>0.006</b>		<b>10</b>	<b>4(min)</b>	

Bold denotes sample not meeting RCEG

All units in mg/l unless otherwise stated





Attachment III Water Quality Monitoring Data by Royal Commision in Jubail

Table 2-3 Gulf Water Quality Data (Station No. 2)

Date	Parameters																				
	Temperature (°C)	Cadmium	Chromium	Copper	Iron	Lead	Mercury	Nickel	Zinc	Oil & Grease	TOC	T Ammonia	T Res Chlorine	pH (units)	T Phosphorus	Cond (umho/cm)	TSS	Turbidity	D Oxygen	T C (MPN/100ml)	F C (MPN/100ml)
28-Jul-97	32	0.003	0.001	0.002		<b>0.015</b>	<0.0001	0.002	0.014	0.20	37.0	0.03	<0.01	8.3	<0.01	56300	2.0	1.0	5.3	<2	<2
21-Aug-97	31	0.002	0.001	0.002	0.045	0.008	<b>0.0109</b>	<0.001	0.016	1.80	41.0	0.18	<0.01	8.3	<0.01	55900	11.0	1.0	6.1	<2	<2
10-Sep-97	31	0.002	0.001	0.002	0.018	0.010	<b>0.0014</b>	0.010	0.012	0.30	15.0	<0.01	<0.01	8.2	<0.01	56100	1.0	1.0	6.5	<2	<2
27-Oct-97	28	0.001	0.001	0.002	0.065	0.009		0.008	0.011	<0.1	79.0	0.05	<0.01	8.3	<0.01	48800	11.0	3.0		<2	<2
18-Nov-97	22	0.001	0.002	0.003	0.036	0.009	<b>0.0009</b>	0.006	0.016	0.60	5.0	0.07	<0.01	8.4	<0.01	50800	9.0	2.0	7.8	<2	<2
13-Dec-97	19	0.002	<0.001	0.003	0.017	0.008	<b>0.0004</b>	0.003	0.027	0.20	7.0	0.04	<0.01	8.3	<0.01	60200	3.0	1.0	7.2	<2	<2
25-Jan-98	19	0.002	<0.001	0.002	0.040	0.008	<b>0.0008</b>	0.005	0.045	0.10	4.0	0.10	<0.01	8.4	<0.01	59800	14.0	2.0	7.6	2	2
11-Feb-98	24	0.002	0.002	0.003	0.128	0.008	<b>0.0014</b>	0.006	0.019	0.10	12.0	0.11	<0.01	8.4	<0.01	56700	15.0	<b>12.0</b>	7.7	4	4
15-Mar-98	25	0.002	<0.001	0.002	0.043	0.007	<b>0.0010</b>	0.005	0.022	0.20	8.0	0.07	<0.01	8.4	<0.01	56700	10.0	8.0	7.6	<2	<2
13-Apr-98	29	0.001	<0.001	0.002		0.007	<b>0.0006</b>	0.005	0.015	0.20	6.0	0.04	<0.01	8.3	<0.01	57300	13.0	8.0	6.7	7	7
05-May-98	26	0.001	<0.001	0.003	0.041	0.003	<b>0.0007</b>	0.003	0.015	0.20	4.0	0.12	<0.01	8.3	<0.01	59500	25.0	2.0	7.5	<2	<2
07-Jun-98	33	0.004	<0.001	0.003	0.025	<b>0.012</b>	<b>0.0007</b>	0.001	0.019	0.10	11.0	0.11	<0.01	8.3	<0.01	56000	11.0	4.0	6.8	<2	<2
12-Jul-98	27	0.002	<0.001	0.003	0.064	0.005	<b>0.0070</b>	0.004	0.014	0.10	12.0	0.04	<0.01	8.3	<0.01	58200	8.0	8.0	6.5	<b>&lt;1600</b>	4
03-Aug-98	34	0.002	<0.001	0.001	0.014	0.006	<b>0.0005</b>	0.004	0.014	0.10	7.0	0.05	<0.01	8.3	<0.01	57600	3.0	1.0	4.0	<2	<2
16-Sep-98	33	0.003	<0.001	0.002	0.029	0.004	<b>0.0019</b>	0.002	0.013	<0.1	12.0	0.07	<0.01	8.3	<0.01	55800	18.0	1.0	6.2	<2	<2
19-Oct-98	29	0.004	<0.001	0.004	0.019	0.009	<b>0.0031</b>	0.009	0.019	0.40	4.0	0.05	<0.01	8.3	<0.01	58400	4.0	<1	5.7	<2	<2
11-Nov-98	28	0.002	<0.001	0.003	0.016	0.009	<b>0.0005</b>	0.006	0.015	0.10	1.0	0.07	<0.01	8.4	<0.01	54400	3.0	<1	6.4	<2	<2
27-Dec-98	26									0.20	5.0	0.07	<0.01	8.3	<0.01	59000	13.0	<1	6.4	<2	<2
25-Jan-99	17									0.10	19.0	0.14	<0.01	8.4	<0.01	58600	30.0	1.0	7.7	4	<2
09-Feb-99	20	0.001	<0.001	0.011		0.008	<b>0.0004</b>	0.006	0.043	0.10	6.0	0.16	<0.01	8.3	<0.01	59500	32.0	1.0	6.9	<2	<2
08-Mar-99	21									<0.1	9.0	0.20	<0.01	8.3	<0.01	60000	17.0	1.0	7.5	<2	<2
25-Apr-99	27									0.30	6.0	0.05	<0.01	8.3	<0.01	55200	30.0	<1	6.9	<2	<2
19-May-99	29	0.001	<0.001	0.004	0.024	0.006	<0.0001	0.004	0.024	0.20	10.0	0.08	<0.01	8.3	<0.01	56100	18.0	4.0	5.7	<2	<2
13-Jun-99										0.30	2.0	0.20	<0.01	8.3	<b>0.010</b>	55600	19.0	1.0	5.7	<2	<2
<b>RCEG</b>		<b>0.003</b>	<b>0.03</b>	<b>0.1</b>		<b>0.01</b>	<b>0.0001</b>	<b>0.1</b>	<b>0.1</b>				<b>0.01</b>	<b>6.3-8.5</b>	<b>0.008</b>		<b>10</b>	<b>40min</b>	<b>230</b>		

**Bold** denotes sample not meeting RCEG

All units in mg/l unless otherwise stated

Attachment III Water Quality Monitoring Data by Royal Commision in Jubail

Table 3-1 Gulf Water Quality Data (Station No. 3)

Date	Parameters																		
	Temperature (°C)	Cadmium	Chromium	Copper	Iron	Lead	Mercury	Nickel	Zinc	Oil & Grease	TOC	T Ammonia	T Res Chlorine	pH (units)	T Phosphorus	Cond (mho/cm)	TSS	Turbidity	D Oxygen
04-Jan-88	15								<0.1	3.5				7.9	0.009	61300	4.1	0.8	8.6
07-Feb-88	16								<0.1	2.2		<0.01	7.9	0.003	62200	7.4	2.4	8.1	
12-Mar-88	19								2.20	4.0		<0.01	7.9	0.003	62200	1.8	0.8	7.1	
10-Apr-88	21								3.90	1.8		<0.01	7.8	0.010	61800	3.8	0.6	6.9	
10-May-88	26								0.12			<0.01	7.8	0.005	68800	2.5	0.7	6.2	
05-Jun-88	29								<0.1	2.1		<0.01	7.7	0.003	60400	1.8	1.1	5.8	
17-Oct-88	30								<0.1	2.3			8.2	0.005	59800	3.8	0.3	5.3	
12-Dec-88	22								<0.1	2.6			8.2	0.005	60600	2.7	0.2	6.4	
19-Mar-89	19								<0.1	3.4			8.1	0.003	61200	9.9	0.6	7.1	
03-Apr-89	19								<0.1	2.9			8.3	0.005	61500	5.4		6.6	
25-Jun-89	30								0.58	3.0			8.2	<0.002	58700	5.3	0.2	5.8	
25-Jul-89	33								0.43	3.1			8.2	0.003	58300	4.2	0.2	5.9	
16-Sep-89	31								0.10	3.5			8.2	0.002	59500	3.0	0.2	5.4	
26-Nov-89									<0.1	2.4	<0.01			0.005		2.6	0.2		
10-Dec-89									<0.1	2.7	<0.01			0.008		3.3	0.2		
04-Feb-90	17								<0.1	4.0			8.0	0.009	60000	2.6	0.2	7.0	
08-Apr-90	22								<0.1	3.2			8.0	0.004	61000	3.2	0.2	6.0	
06-May-90	26								<0.1	5.7			8.3	0.002	60800	2.8	0.1	7.6	
26-Jul-90	33								0.12	2.8			8.5	0.002	58700	3.1	0.2	5.6	
22-Sep-90	30								0.04	2.7			8.3	0.004	59200	2.2	0.7	5.5	
17-Oct-90	28								0.02	2.4			8.5	0.004	60200	2.4	0.3	5.0	
27-Oct-91	27								0.12	3.0			7.7	0.005	60300	8.8	0.4	5.2	
11-Nov-91	25								0.32	1.7			7.6	0.006	60500	3.5	0.5	5.3	
09-Feb-92	16									1.3	0.05			8.0	0.006	61600	2.5	0.3	6.9
08-Mar-92	17									2.2	0.02			7.0	0.012	61000	4.8	0.5	7.2
27-Apr-92	24									2.2	0.01			8.0	0.013	62900	5.0	1.0	6.3

Continued . . .

Attachment III Water Quality Monitoring Data by Royal Commision in Jubail

Table 3-2 Gulf Water Quality Data (Station No. 3)

Date	Parameters																		
	Temperature (°C)	Cadmium	Chromium	Copper	Iron	Pearl	Mercury	Nickel	Zinc	Oil & Grease	TOC	T Ammonia	T Res Chlorine	pH (units)	TP Phosphorus	Cond (µmho/cm)	TSS	Turbidity	D Oxygen
09-Feb-92	16									1.3	0.05		8.0	0.006	61600	2.5	0.3	6.9	
08-Mar-92	17									2.2	0.02		7.0	0.012	61000	4.8	0.5	7.2	
27-Apr-92	24									2.2	0.01		8.0	0.013	62900	5.0	1.0	6.3	
26-May-92	26									1.2	<0.01		8.1	0.009	62800	4.9	0.6	5.1	
12-Jul-92	31									0.28	1.5	0.01	7.5	0.012	61200	9.4	0.2	6.1	
10-Aug-92	33									0.03	2.6	<0.01	6.5	0.012	62300	21.7	0.2	6.4	
13-Sep-92	31									0.08	2.8	0.12	8.0	0.013	61200	5.2	0.1	6.5	
12-Oct-92	28									0.01	1.8	0.12	7.9	0.012	62000	7.3	0.2	6.6	
31-Mar-93	21									0.87	2.4	0.12	7.2	0.014	60700	8.4	0.2	7.8	
28-Apr-93										0.51	3.5	0.05		0.014		7.0			
25-May-93										0.62	2.0	0.09		0.011		13.8			
23-Jun-93										0.85	1.6	0.08		0.011		19.7			
19-Jul-93										0.25	3.0	0.09		0.009		5.6	0.2		
09-Aug-93										0.42	3.0	0.11		0.009		14.3			
18-Sep-93										0.67	2.5	0.09		8.3	0.014	61300	5.4	7.6	
23-Oct-93										0.57	2.4	0.01		8.2	0.012	57800	4.8	0.1	8.0
23-Nov-93										0.54	2.8	0.06		8.2	0.011	56300	19.4	0.3	7.8
26-Jan-94										0.5	<0.01			8.3	<0.01	68.4	1.6	8.1	
20-Mar-94										1.7	2.0	0.08		0.010		22.5	0.4	6.6	
25-May-94	27									0.2	2.7	0.05	0.05	8.3	0.370	58700	15.0		
27-Jul-96	35	0.009	<0.001	0.004	0.018	0.011		0.009	0.015	0.5	9.0	0.02	<0.01	8.3	<0.01	60000	11.0	1.0	6.5
30-Sep-96	30	0.005	<0.001	0.003		0.010	0.0005	0.005	0.024	1.0	20.0	0.12	<0.01	8.3	<0.01	52000	13.0	2.0	6.5
10-Nov-96										0.3	32.0	<0.01	<0.01	8.0	0.020	48500	15.0	3.0	
08-Dec-96	23	0.001	<0.001	0.002		0.004	0.0008	0.001	0.023		43.0	0.06	<0.01	8.3	<0.01	56100	4.0	3.0	
18-May-97	27	0.002	0.001	0.006	0.008	0.001	0.0006	0.019	0.30	<0.01	10.0	0.12	<0.01	8.2	<0.01	55500	5.0	1.0	6.5
15-Jun-97	31	0.003	0.001	0.003		0.009	<0.0001	0.004	0.022	0.1	26.0	0.02	<0.01	8.3	<0.01	57000	6.0	1.0	5.9
27-Jul-97	32	0.005	0.001	0.003	0.029	0.014	<0.0001	0.002	0.017	0.4	37.0	0.06	<0.01	8.1	<0.01	59600	1.0	2.0	5.5
12-Aug-97	32	0.002	<0.001	0.005	0.044	0.011	<0.0001	0.003	0.024	0.4	45.0	0.03	<0.01	8.1	<0.01	59600	3.0	1.0	5.0

Continued...

Attachment III Water Quality Monitoring Data by Royal Commision in Jubail

Table 3-3 Gulf Water Quality Data (Station No. 3)

Date	Parameters																		
	Temperature (C)	Cadmium	Chromium	Copper	Iron	Lead	Mercury	Nickel	Zinc	Oil & Grease	TOC	T Ammonia	T Res Chlorine	pH (units)	T Phosphorus	Cond (mhh/cm)	TSS	Turbidity	D Oxygen
30-Sep-97	30	0.005	0.001	0.005	0.113	<b>0.013</b>		0.002	0.026	0.2	19.0	0.07	<0.01	8.2	<b>0.010</b>	57500	13.0	3.0	6.1
12-Oct-97		0.003	0.001	0.004	0.139	<b>0.014</b>		0.015	0.024	0.2	17.0	0.07	<0.01	8.3	<0.01	56200	13.0	4.0	6.2
14-Dec-97	22	0.003	<0.001	0.003	0.036	0.006	<b>0.0005</b>	0.003	0.026	0.4	7.0	0.09	<0.01	8.2	<0.01	59900	10.0		6.2
29-Mar-98	21	0.001	<0.001	0.002	0.041	<b>0.011</b>	<b>0.0009</b>	0.002	0.140	0.2	2.0	0.01	<0.01	8.0	<0.01	58100	9.0	1.0	7.2
29-Apr-98	25	<0.001	<0.001	0.007	0.083	0.007	<b>0.0009</b>	0.009	0.030	0.1	10.0	0.22	<0.01	8.3	<0.01	57300	24.0	2.0	7.2
27-May-98	31	0.001	<0.001	0.002	0.017	0.006	<b>0.0007</b>	<0.001	0.019	0.1	9.0	0.07	<0.01	8.2	<0.01	56300	1.0	<1	4.2
24-Jun-98	33	0.004	<0.001	0.003	0.017	0.009	<0.0001	0.008	0.016	0.1	11.0	0.09	<0.01	8.3	<0.01	55600	16.0	1.0	5.9
30-Jul-98	34	0.002	<0.001	0.003	0.023	0.007	<b>0.0007</b>	0.006	0.022	0.1	7.0	0.05	<0.01	8.3	<b>0.010</b>	55800	10.0	1.0	5.1
17-Aug-98	36	0.002	0.001	0.004	0.061	0.010	<b>0.0009</b>	0.008	0.017	0.1	6.0	0.04	<0.01	8.4	<b>0.010</b>	56800	4.0	2.0	5.6
26-Sep-98	34	0.003	<0.001	0.005	0.061	0.006	<b>0.0026</b>	0.005	0.018	0.1	8.0	0.04	<0.01	8.4	<b>0.010</b>	52900	14.0	1.0	6.4
06-Oct-98	32	<b>0.016</b>	<0.001	0.005	0.115	0.008	<b>0.0004</b>	0.009	0.022	0.1	8.0	0.05	<0.01	8.3	<0.01	56100	6.0	2.0	6.0
25-Nov-98	25	0.001	<0.001	0.004	0.052	0.007	<b>0.0008</b>	0.004	0.022	0.1	5.0	0.09	<0.01	8.3	<0.01	53700	2.0	1.0	6.6
30-Dec-98	22									0.1	4.0	0.05	<0.01	8.4	<0.01	58300	1.0	2.0	6.8
27-Jan-99	19									0.1	5.0	0.09	<0.01	8.3	<0.01	58300	10.0	1.0	7.6
24-Feb-99	20	0.001	<0.001	0.002	0.019	0.008	<b>0.0012</b>	0.005	0.019	0.1	8.0	0.36	<0.01	8.3	<0.01	58400	20.0	<1	7.2
24-Mar-99	22									0.1	7.0	0.11	<0.01	8.3	<0.01	54400	15.0	1.0	6.9
28-Apr-99	26									0.2	5.0	0.04	<0.01	8.4	<0.01	55400	20.0	1.0	6.3
26-May-99	28	0.002	<0.001	0.004	0.063	0.011	<b>0.0001</b>	<0.001	0.016	0.2	7.0	0.25	<0.01	8.3	<0.01	53500	30.0	1.0	6.0
23-Jun-99	31									0.3	23.0	0.05	<0.01	8.3	<0.01	54800	12.0	2.0	5.9
RCEG		<b>0.005</b>	0.05	0.1		0.01	<b>0.0001</b>	0.1	0.1					0.01	<b>6.5-8.5</b>	<b>0.008</b>		10	4(min)

**Bold** denotes sample not meeting RCEG

All units in mg/l unless otherwise stated