Table F-20. Emission Source Data for the Shellmounds Project Alternative 1 - Santa Barbara County Project Region.

Construction Activity/Equipment Type	*Power Rating (Hp)*	*Load Factor*	*# Active*	*Hours Per Day*	*Daily Hp-Hrs*	*Work Days*	*Total Hp-Hrs*
Caisson Demolition							
Anchor Winches	180	0.40	2	4	576	28.0	16,128
Crane - 40 ton	160	0.50	1	2	160	28.0	4,480
Dive Compressor 370	20	0.80	1	8	128	28.0	3,584
Dive Compressor 5120	38	0.80	2	8	486	28.0	13,619
Dive Vessel - Generator	135	0.80	1	24	2,592	28.0	72,576
Dive Vessel - Main Engine (1)	850	0.25	2	2	43	28.0	1,190
Jet Pumps	125	0.80	1	8	800	28.0	22,400
Rotoscrew 375 CFM	109	0.80	2	8	1,395	28.0	39,066
Water Blaster	200	0.80	1	8	1,280	28.0	35,840
Welder	63	0.80	1	8	403	28.0	11,290
Shellmounds/Caisson Removal (2)							
Clamshell Crane Barge - Main Hoist	1,200	0.50	1	16	9,600	14.5	139,200
Clamshell Crane Barge - Main Generator	900	0.50	1	16	7,200	14.5	104,400
Clamshell Crane Barge - Deck Generator	240	0.60	1	5	720	14.5	10,440
Clamshell Crane Barge - Deck Winch	318	0.50	1	6	954	8.0	7,632
Clamshell Crane Barge - Deck Winch	220	0.50	1	6	660	8.0	5,280
Tug Boat (1)	3,500	0.10	2	2	70	12.5	875
Tug Boat - Anchor Movements (1)	3,500	0.40	1	6	420	8.0	3,360
Transport - LA-2/POLB							
Tug Boat (1) (3)	3,500	0.80	2	2	560	12.5	7,000
Final Smoothing							
Tug Boat (1)	671	0.60	1	12	242	12.0	2,899
Post-Completion Survey							
Survey Vessel (1)	250	0.25	1	8	25	4.0	100

Notes: (1) Daily and Total Hp-Hrs = daily and total fuel usages in gallons for vessel main engines.

(2) Use of a 15 cubic yard (cy) bucket @ 50% water content * 30 lifts/hour = 225 cy/hour (cyh) solid material removal. Total solid material + water placed in barges/day = 225 cyh/50% water * 16 hours/day = 7,200 cy. The use of 3,600 cy capacity barges will require 2 barge trips per day. Also added 2 additional days of clamshell barge usage to remove caisson materials.

(3) Hours per day = round trip travel time only within the Santa Barbara Co. project region = 10 nm/5 kts.

Table F-21. Emission Source Data for the Shellmounds Project Alternative 2 - Santa Barbara County Project Region.

Construction Activity/Equipment Type	*Power Rating (Hp)*	*Load Factor*	*# Active*	*Hours Per Day*	*Daily Hp-Hrs*	*Work Days*	*Total Hp-Hrs*
Caisson Demolition							
Anchor Winches	180	0.40	2	4	576	28.0	16,128
Crane - 40 ton	160	0.50	1	2	160	28.0	4,480
Dive Compressor 370	20	0.80	1	8	128	28.0	3,584
Dive Compressor 5120	38	0.80	2	8	486	28.0	13,619
Dive Vessel - Generator	135	0.80	1	24	2,592	28.0	72,576
Dive Vessel - Main Engine (1)	850	0.25	2	2	43	28.0	1,190
Jet Pumps	125	0.80	1	8	800	28.0	22,400
Rotoscrew 375 CFM	109	0.80	2	8	1,395	28.0	39,066
Water Blaster	200	0.80	1	8	1,280	28.0	35,840
Welder	63	0.80	1	8	403	28.0	11,290
Spread Shellmounds/Remove Caissons (2)							
Clamshell Crane Barge - Main Hoist	1,200	0.50	1	16	9,600	6.0	57,600
Clamshell Crane Barge - Main Generator	900	0.50	1	16	7,200	6.0	43,200
Clamshell Crane Barge - Deck Generator	240	0.60	1	5	720	6.0	4,320
Clamshell Crane Barge - Deck Winch	318	0.50	1	6	954	6.0	5,724
Clamshell Crane Barge - Deck Winch	220	0.50	1	6	660	6.0	3,960
Tug Boat (1)	3,500	0.10	1	2	35	6.0	210
Tug Boat - Anchor Movements (1)	3,500	0.40	1	6	420	6.0	2,520
Transport to POLB							
Tug Boat (1) (3)	3,500	0.80	1	2	280	1.0	280
Final Smoothing							
Tug Boat (1)	671	0.60	1	12	242	12.0	2,899
Post-Completion Survey							
Survey Vessel (1)	250	0.25	1	8	25	4.0	100

Notes: (1) Daily and Total Hp-Hrs = daily and total fuel usages in gallons for vessel main engines.

(2) Assumes 2 days to remove caissons and 4 days to spread the shell mounds.

(3) Hours per day = round trip travel time only within the Santa Barbara Co. project region = 10 nm/5 kts.

Table F-22. Emission Source Data for the Shellmounds Project Alternative 3 - Santa Barbara County Project Region.

Construction Activity/Equipment Type	*Power Rating (Hp)*	*Load Factor*	*# Active*	*Hours Per Day*	*Daily Hp-Hrs*	*Work Days*	*Total Hp-Hrs*
Material Transport/Placement - 6% Slope Option (1)							
Tug Boat (2)	3,500	0.25	4	0.5	88	71.0	6,213
Tug Boat (2) (3)	3,500	0.80	4	2	1,120	71.0	79,520
Material Transport/Placement - 4% Slope Option (4)							
Tug Boat (2)	3,500	0.25	4	0.5	88	166.0	14,525
Tug Boat (2) (3)	3,500	0.80	4	2	1,120	166.0	185,920
Post-Completion Survey							
Survey Vessel (2)	250	0.25	1	8	25	4.0	100

Notes: (1) The 6% slope alternative would require 612,000 cy of material. Barge capacity = 3,600 cy. Since hydraulic dredge sediments = 40% water, solid content of barge = 3,600 * 0.6 = 2,160 cy. Total number of barges = 612,000 cy/2,160 cy = 284.

(2) Daily and Total Hp-Hrs = daily and total fuel usages in gallons for vessel main engines.

(3) Hours per day = round trip travel time only within the Santa Barbara Co. project region = 10 nm/5 kts.

(4) The 4% slope alternative would require 1,432,000 cy of material. Total number of barges = 1,432,000 cy/2,160 cy = 663.

Table F-23 Emission Source Data for the Shellmounds Project Alternative 4 - Santa Barbara County Project Region.

Construction Activity/Equipment Type	*Power Rating (Hp)*	*Load Factor*	*# Active*	*Hours Per Day*	*Hourly Hp-Hrs*	*Work Days*	*Total Hp-Hrs*
Rock Transport and Placement (1)							
Clamshell Crane Barge - Main Hoist	1,200	0.50	1	12	7,200	8.0	57,600
Clamshell Crane Barge - Main Generator	900	0.50	1	12	5,400	8.0	43,200
Clamshell Crane Barge - Deck Generator	240	0.60	1	5	720	8.0	5,760
Clamshell Crane Barge - Deck Winch	318	0.50	1	6	954	16.0	15,264
Clamshell Crane Barge - Deck Winch	220	0.50	1	6	660	16.0	10,560
Tug Boat (2)	2,200	0.10	1	2	22	8.0	176
Tug Boat - Anchor Movements (2)	2,200	0.40	1	6	264	8.0	2,112
Tug Boat (2) (3)	2,200	0.80	1	2.0	176	8.0	1,408
Dive Vessel - Main Engine (2)	850	0.25	2	2	43	8.0	340
Dive Vessel - Generator	135	0.80	1	24	2,592	8.0	20,736
Post-Completion Survey							
Survey Vessel (2)	250	0.25	1	8	25	4.0	100

Notes: (1) The alternative would require 16,000 tons of rock. Clamshell crane would unload one 2,000 ton barge per day

(2) Daily and Total Hp-Hrs = daily and total fuel usages in gallons for vessel main engines.

(3) Hours per day = round trip travel time only within the Santa Barbara Co. project region = 10 nm/5 kts.

Table F-24. Emission Source Data for the Shellmounds Project Alternative 5a - Santa Barbara County Project Region.

Construction Activity/Equipment Type	*Power Rating (Hp)*	*Load Factor*	*# Active*	*Hours Per Day*	*Daily Hp-Hrs*	*Work Days*	*Total Hp-Hrs*
Shellmounds Removal (1)							
Clamshell Crane Barge - Main Hoist	1,200	0.50	1	16	9,600	12.5	120,000
Clamshell Crane Barge - Main Generator	900	0.50	1	16	7,200	12.5	90,000
Clamshell Crane Barge - Deck Generator	240	0.60	1	5	720	12.5	9,000
Clamshell Crane Barge - Deck Winch	318	0.50	1	6	954	8.0	7,632
Clamshell Crane Barge - Deck Winch	220	0.50	1	6	660	8.0	5,280
Tug Boat (2)	3,500	0.10	2	2	70	12.5	875
Tug Boat - Anchor Movements (2)	3,500	0.40	1	6	420	8.0	3,360
Transport - LA-2/POLB							
Tug Boat (2) (3)	3,500	0.80	2	2	560	12.5	7,000
Rock Transport and Placement (4)							
Clamshell Crane Barge - Main Hoist	1,200	0.50	1	12	7,200	8.0	57,600
Clamshell Crane Barge - Main Generator	900	0.50	1	12	5,400	8.0	43,200
Clamshell Crane Barge - Deck Generator	240	0.60	1	5	720	8.0	5,760
Clamshell Crane Barge - Deck Winch	318	0.50	1	6	954	8.0	7,632
Clamshell Crane Barge - Deck Winch	220	0.50	1	6	660	8.0	5,280
Tug Boat (2)	2,200	0.10	1	2	22	8.0	176
Tug Boat - Anchor Movements (2)	2,200	0.40	1	6	264	8.0	2,112
Tug Boat (2) (3)	2,200	0.80	1	2.0	176	8.0	1,408
Dive Vessel - Main Engine (2)	850	0.25	2	2	43	8.0	340
Dive Vessel - Generator	135	0.80	1	24	2,592	8.0	20,736
Post-Completion Survey							
Survey Vessel (2)	250	0.25	1	8	25	4.0	100

Notes: (1) Use of a 15 cubic yard (cy) bucket @ 50% water content * 30 lifts/hour = 225 cy/hour (cyh) solid material removal. Total solid material + water placed in barges/day = 225 cyh/50% water * 16 hours/day = 7,200 cy. The use of 3,600 cy capacity barges will require 2 barge trips per day.

(2) Daily and Total Hp-Hrs = daily and total fuel usages in gallons for vessel main engines.

(3) Hours per day = round trip travel time only within the Santa Barbara Co. project region = 10 nm/5 kts.

(4) The alternative would require 16,000 tons of rock. Clamshell crane would unload one 2,000 ton barge per day

Table F-25. Emission Source Data for the Shellmounds Project Alternative 5b - Santa Barbara County Project Region.

Construction Activity/Equipment Type	*Power Rating (Hp)*	*Load Factor*	*# Active*	*Hours Per Day*	*Daily Hp-Hrs*	*Work Days*	*Total Hp-Hrs*
Shellmounds Spreading							
Clamshell Crane Barge - Main Hoist	1,200	0.50	1	16	9,600	4.0	38,400
Clamshell Crane Barge - Main Generator	900	0.50	1	16	7,200	4.0	28,800
Clamshell Crane Barge - Deck Generator	240	0.60	1	5	720	4.0	2,880
Clamshell Crane Barge - Deck Winch	318	0.50	1	6	954	6.0	5,724
Clamshell Crane Barge - Deck Winch	220	0.50	1	6	660	6.0	3,960
Tug Boat (1)	3,500	0.10	1	2	35	4.0	140
Tug Boat - Anchor Movements (1)	3,500	0.40	1	6	420	4.0	1,680
Final Smoothing							
Tug Boat (1)	671	0.60	1	12	242	12.0	2,899
Rock Transport and Placement (2)							
Clamshell Crane Barge - Main Hoist	1,200	0.50	1	12	7,200	8.0	57,600
Clamshell Crane Barge - Main Generator	900	0.50	1	12	5,400	8.0	43,200
Clamshell Crane Barge - Deck Generator	240	0.60	1	5	720	8.0	5,760
Clamshell Crane Barge - Deck Winch	318	0.50	1	6	954	8.0	7,632
Clamshell Crane Barge - Deck Winch	220	0.50	1	6	660	8.0	5,280
Tug Boat (1)	2,200	0.10	1	2	22	8.0	176
Tug Boat - Anchor Movements (1)	2,200	0.40	1	6	264	8.0	2,112
Tug Boat (1) (3)	2,200	0.80	1	2.0	176	8.0	1,408
Dive Vessel - Main Engine (1)	850	0.25	2	2	43	8.0	340
Dive Vessel - Generator	135	0.80	1	24	2,592	8.0	20,736
Post-Completion Survey							
Survey Vessel (1)	250	0.25	1	8	25	4.0	100

Notes: (1) Daily and Total Hp-Hrs = daily and total fuel usages in gallons for vessel main engines.

(2) The alternative would require 16,000 tons of rock. Clamshell crane would unload one 2,000 ton barge per day.

(3) Hours per day = round trip travel time only within the Santa Barbara Co. project region = 10 nm/5 kts.

Table F-26. Daily Emissions from the Shellmounds Project Alternative 1 - Santa Barbara County Project Region.

	Daily Emissions (Pounds)				
Activity/Equipment Type	*ROG*	*CO*	*NOx*	*SO2*	*PM10*
Caisson Demolition					
Anchor Winches	1.1	5.3	14.0	0.2	0.7
Crane - 40 ton	0.3	1.5	3.9	0.1	0.2
Dive Compressor 370	0.5	1.4	1.9	0.1	0.2
Dive Compressor 5120	2.0	5.4	7.4	0.2	0.8
Dive Vessel - Generator	5.0	24.0	62.9	1.0	3.1
Dive Vessel - Main Engine	0.8	2.4	17.8	1.1	0.4
Jet Pumps	1.6	7.4	19.4	0.3	1.0
Rotoscrew 375 CFM	4.4	14.8	40.0	0.6	2.6
Water Blaster	2.5	11.9	31.0	0.5	1.6
Welder	1.3	4.3	11.6	0.2	0.7
Caisson Demolition Emissions	19	78	210	4	11
Shellmounds/Caisson Removal					
Clamshell Crane Barge - Main Hoist	17.8	86.8	232.8	3.8	11.2
Clamshell Crane Barge - Main Generator	13.3	65.1	174.6	2.9	8.4
Clamshell Crane Barge - Deck Generator	1.4	6.7	17.5	0.3	0.9
Clamshell Crane Barge - Deck Winch	1.8	8.6	23.1	0.4	1.1
Clamshell Crane Barge - Deck Winch	1.3	6.1	16.0	0.3	0.8
Tug Boat	1.3	4.0	29.3	1.9	0.6
Tug Boat - Anchor Movements	7.7	23.9	176.0	11.3	3.8
Shellmounds/Caisson Removal Emissions	44	201	669	21	27
Transport - LA-2/POLB					
Tug Boat	10.2	31.9	234.6	15.1	5.0
Final Smoothing					
Tug Boat	12.0	19.7	91.8	6.5	5.8
Post-Completion Survey					
Survey Vessel	1.2	2.0	9.5	0.7	0.6
Total Daily Emissions	87	333	1,215	47	50
Peak Daily Emissions (1)	55	233	904	36	32
Mitigated Peak Daily Emissions (2)	55	233	642	36	12

Note: (1) Peak daily emissions from shell mounds removal (minus anchor tugboat) and transport of shell mounds to the SCAB.

(2) Use of emulsified diesel fuel would reduce NOx and PM emissions from these sources by 14 and 62.9 %, respectively.

Table F-27. Daily Emissions from the Shellmounds Project Alternative 2 - Santa Barbara County Project Region.

	Daily Emissions (Pounds)				
Activity/Equipment Type	*ROG*	*CO*	*NOx*	*SO2*	*PM10*
Caisson Demolition					
Anchor Winches	1.1	5.3	14.0	0.2	0.7
Crane - 40 ton	0.3	1.5	3.9	0.1	0.2
Dive Compressor 370	0.5	1.4	1.9	0.1	0.2
Dive Compressor 5120	2.0	5.4	7.4	0.2	0.8
Dive Vessel - Generator	5.0	24.0	62.9	1.0	3.1
Dive Vessel - Main Engine	0.8	2.4	17.8	1.1	0.4
Jet Pumps	1.6	7.4	19.4	0.3	1.0
Rotoscrew 375 CFM	4.4	14.8	40.0	0.6	2.6
Water Blaster	2.5	11.9	31.0	0.5	1.6
Welder	1.3	4.3	11.6	0.2	0.7
Caisson Demolition Emissions	19	78	210	4	11
Spread Shellmounds/Remove Caissons					
Clamshell Crane Barge - Main Hoist	17.8	86.8	232.8	3.8	11.2
Clamshell Crane Barge - Main Generator	13.3	65.1	174.6	2.9	8.4
Clamshell Crane Barge - Deck Generator	1.4	6.7	17.5	0.3	0.9
Clamshell Crane Barge - Deck Winch	1.8	8.6	23.1	0.4	1.1
Clamshell Crane Barge - Deck Winch	1.3	6.1	16.0	0.3	0.8
Tug Boat	0.6	2.0	14.7	0.9	0.3
Tug Boat - Anchor Movements	7.7	23.9	176.0	11.3	3.8
Spread Shellmounds/Remove Caissons Emissions	44	199	655	20	27
Transport to POLB					
Tug Boat	5.1	16.0	117.3	7.5	2.5
Final Smoothing					
Tug Boat	12.0	19.7	91.8	6.5	5.8
Post-Completion Survey					
Survey Vessel	1.2	2.0	9.5	0.7	0.6
Total Daily Emissions	82	315	1,083	39	47
Peak Daily Emissions (1)	49	215	772	27	29
Mitigated Peak Daily Emissions (2)	49	215	548	27	11

Note: (1) Peak daily emissions from shell mounds removal (minus anchor tugboat) and transport of shell mounds to the SCAB.

(2) Use of emulsified diesel fuel would reduce NOx and PM emissions from these sources by 14 and 62.9 %, respectively.

Table F-28. Daily Emissions from the Shellmounds Project Alternative 3 - Santa Barbara County Project Region.

	Daily Emissions (Pounds)				
Activity/Equipment Type	*ROG*	*CO*	*NOx*	*SO2*	*PM10*
Material Transport/Placement - 6% Slope					
Tug Boat	1.6	5.0	36.7	2.4	0.8
Tug Boat	20.4	63.8	469.3	30.1	10.1
Material Transport/Placement - 6% Slope Emissions	22	69	506	32	11
Material Transport/Placement - 4% Slope					
Tug Boat	1.6	5.0	36.7	2.4	0.8
Tug Boat	20.4	63.8	469.3	30.1	10.1
Material Transport/Placement - 4% Slope Emissions	22	69	506	32	11
Post-Completion Survey					
Survey Vessel	1.2	2.0	9.5	0.7	0.6
Total Daily Emissions - 4 or 6% Slope	23	71	515	33	11
Peak Daily Emissions - 4 or 6% Slope (1)	22	69	506	32	11
Mitigated Peak Daily Emissions - 4 or 6% Slope (2)	22	69	359	32	4

Note: (1) Peak daily emissions would occur during material transport and placement activities.

(2) Use of emulsified diesel fuel would reduce NOx and PM emissions from these sources by 14 and 62.9 %, respectively.

Table F-29. Daily Emissions from the Shellmounds Project Alternative 4 - Santa Barbara County Project Region.

	Daily Emissions (Pounds)				
Activity/Equipment Type	*ROG*	*CO*	*NOx*	*SO2*	*PM10*
Rock Transport and Placement					
Clamshell Crane Barge - Main Hoist	13.3	65.1	174.6	2.9	8.4
Clamshell Crane Barge - Main Generator	10.0	48.8	131.0	2.1	6.3
Clamshell Crane Barge - Deck Generator	1.4	6.7	17.5	0.3	0.9
Clamshell Crane Barge - Deck Winch	1.8	8.6	23.1	0.4	1.1
Clamshell Crane Barge - Deck Winch	1.3	6.1	16.0	0.3	0.8
Tug Boat	0.4	1.3	9.2	0.6	0.2
Tug Boat - Anchor Movements	4.8	15.0	110.6	7.1	2.4
Tug Boat	3.2	10.0	73.7	4.7	1.6
Dive Vessel - Main Engine	0.8	2.4	17.8	1.1	0.4
Dive Vessel - Generator	5.0	24.0	62.9	1.0	3.1
Rock Transport and Placement Emissions	42	188	636	21	25
Post-Completion Survey					
Survey Vessel	1.2	2.0	9.5	0.7	0.6
Total Daily Emissions	43	190	646	21	26
Peak Daily Emissions (1)	42	188	636	21	25
Mitigated Peak Daily Emissions (2)	42	188	452	21	9

Note: (1) Peak daily emissions from shell mounds removal (minus anchor tugboat) and transport of shell mounds to the SCAB.

(2) Use of emulsified diesel fuel would reduce NOx and PM emissions from these sources by 14 and 62.9 %, respectively.

Table F-30. Daily Emissions from the Shellmounds Project Alternative 5a - Santa Barbara County Project Region.

	Daily Emissions (Pounds)				
Activity/Equipment Type	*ROG*	*CO*	*NOx*	*SO2*	*PM10*
Shellmounds Removal					
Clamshell Crane Barge - Main Hoist	17.8	86.8	232.8	3.8	11.2
Clamshell Crane Barge - Main Generator	13.3	65.1	174.6	2.9	8.4
Clamshell Crane Barge - Deck Generator	1.4	6.7	17.5	0.3	0.9
Clamshell Crane Barge - Deck Winch	1.8	8.6	23.1	0.4	1.1
Clamshell Crane Barge - Deck Winch	1.3	6.1	16.0	0.3	0.8
Tug Boat	1.3	4.0	29.3	1.9	0.6
Tug Boat - Anchor Movements	7.7	23.9	176.0	11.3	3.8
Shellmounds Removal Emissions	44	201	669	21	27
Transport - LA-2/POLB					
Tug Boat	10.2	31.9	234.6	15.1	5.0
Rock Transport and Placement					
Clamshell Crane Barge - Main Hoist	13.3	65.1	174.6	2.9	8.4
Clamshell Crane Barge - Main Generator	10.0	48.8	131.0	2.1	6.3
Clamshell Crane Barge - Deck Generator	1.4	6.7	17.5	0.3	0.9
Clamshell Crane Barge - Deck Winch	1.8	8.6	23.1	0.4	1.1
Clamshell Crane Barge - Deck Winch	1.3	6.1	16.0	0.3	0.8
Tug Boat	0.4	1.3	9.2	0.6	0.2
Tug Boat - Anchor Movements	4.8	15.0	110.6	7.1	2.4
Tug Boat	3.2	10.0	73.7	4.7	1.6
Dive Vessel - Main Engine	0.8	2.4	17.8	1.1	0.4
Dive Vessel - Generator	5.0	24.0	62.9	1.0	3.1
Rock Transport and Placement Emissions	42	188	636	21	25
Post-Completion Survey					
Survey Vessel	20.8	34.2	159.6	11.3	10.1
Total Daily Emissions	118	455	1,700	68	67
Peak Daily Emissions (1)	55	233	904	36	32
Mitigated Peak Daily Emissions (2)	55	233	642	36	12

Note: (1) Peak daily emissions from shell mounds removal (minus anchor tugboat) and transport of shell mounds to the SCAB.

(2) Use of emulsified diesel fuel would reduce NOx and PM emissions from these sources by 14 and 62.9 %, respectively.

Table F-31. Daily Emissions from the Shellmounds Project Alternative 5b - Santa Barbara County Project Region.

	Daily Emissions (Pounds)				
Activity/Equipment Type	*ROG*	*CO*	*NOx*	*SO2*	*PM10*
Shellmounds Spreading					
Clamshell Crane Barge - Main Hoist	17.8	86.8	232.8	3.8	11.2
Clamshell Crane Barge - Main Generator	13.3	65.1	174.6	2.9	8.4
Clamshell Crane Barge - Deck Generator	1.4	6.7	17.5	0.3	0.9
Clamshell Crane Barge - Deck Winch	1.8	8.6	23.1	0.4	1.1
Clamshell Crane Barge - Deck Winch	1.3	6.1	16.0	0.3	0.8
Tug Boat	0.6	2.0	14.7	0.9	0.3
Tug Boat - Anchor Movements	7.7	23.9	176.0	11.3	3.8
Shellmounds Spreading Emissions	44	199	655	20	27
Final Smoothing					
Tug Boat	12.0	19.7	91.8	6.5	5.8
Rock Transport and Placement					
Clamshell Crane Barge - Main Hoist	13.3	65.1	174.6	2.9	8.4
Clamshell Crane Barge - Main Generator	10.0	48.8	131.0	2.1	6.3
Clamshell Crane Barge - Deck Generator	1.4	6.7	17.5	0.3	0.9
Clamshell Crane Barge - Deck Winch	1.8	8.6	23.1	0.4	1.1
Clamshell Crane Barge - Deck Winch	1.3	6.1	16.0	0.3	0.8
Tug Boat	0.4	1.3	9.2	0.6	0.2
Tug Boat - Anchor Movements	4.8	15.0	110.6	7.1	2.4
Tug Boat	3.2	10.0	73.7	4.7	1.6
Dive Vessel - Main Engine	0.8	2.4	17.8	1.1	0.4
Dive Vessel - Generator	5.0	24.0	62.9	1.0	3.1
Rock Transport and Placement Emissions	42	188	636	21	25
Post-Completion Survey					
Survey Vessel	1.2	2.0	9.5	0.7	0.6
Total Daily Emissions	99	409	1,392	48	58
Peak Daily Emissions (1)	44	199	655	20	27
Mitigated Peak Daily Emissions (2)	44	199	465	20	10

Note: (1) Peak daily emissions from shell mounds removal (minus anchor tugboat) and transport of shell mounds to the SCAB.

(2) Use of emulsified diesel fuel would reduce NOx and PM emissions from these sources by 14 and 62.9 %, respectively.

Table F-32. Total Emissions from the Shellmounds Project Alternative 1 - Santa Barbara County Project Region.

	Total Emissions (Tons)				
Activity/Equipment Type	*ROG*	*CO*	*NOx*	*SO2*	*PM10*
Caisson Demolition					
Anchor Winches	0.02	0.07	0.20	0.00	0.01
Crane - 40 ton	0.00	0.02	0.05	0.00	0.00
Dive Compressor 370	0.01	0.02	0.03	0.00	0.00
Dive Compressor 5120	0.03	0.08	0.10	0.00	0.01
Dive Vessel - Generator	0.07	0.34	0.88	0.01	0.04
Dive Vessel - Main Engine	0.01	0.03	0.25	0.02	0.01
Jet Pumps	0.02	0.10	0.27	0.00	0.01
Rotoscrew 375 CFM	0.06	0.21	0.56	0.01	0.04
Water Blaster	0.03	0.17	0.43	0.01	0.02
Welder	0.02	0.06	0.16	0.00	0.01
Caisson Demolition Emissions	0.27	1.10	2.94	0.06	0.16
Shellmounds/Caisson Removal					
Clamshell Crane Barge - Main Hoist	0.13	0.63	1.69	0.03	0.08
Clamshell Crane Barge - Main Generator	0.10	0.47	1.27	0.02	0.06
Clamshell Crane Barge - Deck Generator	0.01	0.05	0.13	0.00	0.01
Clamshell Crane Barge - Deck Winch	0.01	0.03	0.09	0.00	0.00
Clamshell Crane Barge - Deck Winch	0.01	0.02	0.06	0.00	0.00
Tug Boat	0.01	0.02	0.18	0.01	0.00
Tug Boat - Anchor Movements	0.03	0.10	0.70	0.05	0.02
Shellmounds/Caisson Removal Emissions	0.29	1.33	4.12	0.11	0.18
Transport - LA-2/POLB					
Tug Boat	0.06	0.20	1.47	0.09	0.03
Final Smoothing					
Tug Boat	0.07	0.12	0.55	0.04	0.03
Post-Completion Survey					
Survey Vessel	0.00	0.00	0.02	0.00	0.00
Total Emissions	0.70	2.75	9.10	0.30	0.40
Mitigated Total Emissions (1)	0.70	2.75	6.46	0.30	0.15

Note: (1) Use of emulsified diesel fuel would reduce NOx and PM emissions from these sources by 14 and 62.9 %, respectively.

Table F-33. Total Emissions from the Shellmounds Project Alternative 2 - Santa Barbara County Project Region.

	Total Emissions (Tons)				
Activity/Equipment Type	*ROG*	*CO*	*NOx*	*SO2*	*PM10*
Caisson Demolition					
Anchor Winches	0.02	0.07	0.20	0.00	0.01
Crane - 40 ton	0.00	0.02	0.05	0.00	0.00
Dive Compressor 370	0.01	0.02	0.03	0.00	0.00
Dive Compressor 5120	0.03	0.08	0.10	0.00	0.01
Dive Vessel - Generator	0.07	0.34	0.88	0.01	0.04
Dive Vessel - Main Engine	0.01	0.03	0.25	0.02	0.01
Jet Pumps	0.02	0.10	0.27	0.00	0.01
Rotoscrew 375 CFM	0.06	0.21	0.56	0.01	0.04
Water Blaster	0.03	0.17	0.43	0.01	0.02
Welder	0.02	0.06	0.16	0.00	0.01
Caisson Demolition Emissions	0.27	1.10	2.94	0.06	0.16
Spread Shellmounds/Remove Caissons					
Clamshell Crane Barge - Main Hoist	0.05	0.26	0.70	0.01	0.03
Clamshell Crane Barge - Main Generator	0.04	0.20	0.52	0.01	0.03
Clamshell Crane Barge - Deck Generator	0.00	0.02	0.05	0.00	0.00
Clamshell Crane Barge - Deck Winch	0.01	0.03	0.07	0.00	0.00
Clamshell Crane Barge - Deck Winch	0.00	0.02	0.05	0.00	0.00
Tug Boat	0.00	0.01	0.04	0.00	0.00
Tug Boat - Anchor Movements	0.02	0.07	0.53	0.03	0.01
Spread Shellmounds/Remove Caissons Emissions	0.13	0.60	1.96	0.06	0.08
Transport to POLB					
Tug Boat	0.00	0.01	0.06	0.00	0.00
Final Smoothing					
Tug Boat	0.07	0.12	0.55	0.04	0.03
Post-Completion Survey					
Survey Vessel	0.00	0.00	0.02	0.00	0.00
Total Emissions	0.48	1.82	5.53	0.16	0.27
Mitigated Total Emissions (1)	0.48	1.82	3.93	0.16	0.10

Note: (1) Use of emulsified diesel fuel would reduce NOx and PM emissions from these sources by 14 and 62.9 %, respectively.

Table F-34. Total Emissions from the Shellmounds Project Alternative 3 - Santa Barbara County Project Region.

	Total Emissions (Tons)				
Activity/Equipment Type	*ROG*	*CO*	*NOx*	*SO2*	*PM10*
Material Transport/Placement - 6% Slope					
Tug Boat	0.06	0.18	1.30	0.08	0.03
Tug Boat	0.73	2.27	16.66	1.07	0.36
Material Transport/Placement - 6% Slope Emissions	0.78	2.44	17.96	1.15	0.39
Material Transport/Placement - 4% Slope					
Tug Boat	0.13	0.41	3.04	0.20	0.07
Tug Boat	1.70	5.30	38.95	2.50	0.84
Material Transport/Placement - 4% Slope Emissions	1.83	5.71	41.99	2.70	0.90
Post-Completion Survey					
Survey Vessel	0.00	0.02	0.08	0.01	0.00
Total Emissions - 6% Slope	0.78	2.46	18.04	1.16	0.39
Mitigated Total Emissions - 6% Slope (1)	0.78	2.46	12.81	1.16	0.14
Total Emissions - 4% Slope	1.83	5.73	42.07	2.70	0.91
Mitigated Total Emissions - 4% Slope (1)	1.83	5.73	29.87	2.70	0.34

Note: (1) Use of emulsified diesel fuel would reduce NOx and PM emissions from these sources by 14 and 62.9 %, respectively.

Table F-35. Total Emissions from the Shellmounds Project Alternative 4 - Santa Barbara County Project Region.

	Total Emissions (Tons)				
Activity/Equipment Type	*ROG*	*CO*	*NOx*	*SO2*	*PM10*
Rock Transport and Placement					
Clamshell Crane Barge - Main Hoist	0.05	0.26	0.70	0.01	0.03
Clamshell Crane Barge - Main Generator	0.04	0.20	0.52	0.01	0.03
Clamshell Crane Barge - Deck Generator	0.01	0.03	0.07	0.00	0.00
Clamshell Crane Barge - Deck Winch	0.01	0.07	0.19	0.00	0.01
Clamshell Crane Barge - Deck Winch	0.01	0.05	0.13	0.00	0.01
Tug Boat	0.00	0.01	0.04	0.00	0.00
Tug Boat - Anchor Movements	0.02	0.06	0.44	0.03	0.01
Tug Boat	0.01	0.04	0.29	0.02	0.01
Dive Vessel - Main Engine	0.00	0.01	0.07	0.00	0.00
Dive Vessel - Generator	0.02	0.10	0.25	0.00	0.01
Rock Transport and Placement Emissions	0.18	0.81	2.70	0.08	0.11
Post-Completion Survey					
Survey Vessel	0.00	0.00	0.02	0.00	0.00
Total Emissions	0.18	0.82	2.72	0.09	0.11
Mitigated Total Emissions (1)	0.18	0.82	1.93	0.09	0.04

Note: (1) Use of emulsified diesel fuel would reduce NOx and PM emissions from these sources by 14 and 62.9 %, respectively.

Table F-36. Total Emissions from the Shellmounds Project Alternative 5a - Santa Barbara County Project Region.

	Total Emissions (Tons)				
Activity/Equipment Type	*ROG*	*CO*	*NOx*	*SO2*	*PM10*
Shellmounds Removal					
Clamshell Crane Barge - Main Hoist	0.11	0.54	1.46	0.02	0.07
Clamshell Crane Barge - Main Generator	0.08	0.41	1.09	0.02	0.05
Clamshell Crane Barge - Deck Generator	0.01	0.04	0.11	0.00	0.01
Clamshell Crane Barge - Deck Winch	0.01	0.03	0.09	0.00	0.00
Clamshell Crane Barge - Deck Winch	0.01	0.02	0.06	0.00	0.00
Tug Boat	0.01	0.02	0.18	0.01	0.00
Tug Boat - Anchor Movements	0.03	0.10	0.70	0.05	0.02
Shellmounds Removal Emissions	0.25	1.17	3.70	0.10	0.15
Transport - LA-2/POLB					
Tug Boat	0.06	0.20	1.47	0.09	0.03
Rock Transport and Placement					
Clamshell Crane Barge - Main Hoist	0.05	0.26	0.70	0.01	0.03
Clamshell Crane Barge - Main Generator	0.04	0.20	0.52	0.01	0.03
Clamshell Crane Barge - Deck Generator	0.01	0.03	0.07	0.00	0.00
Clamshell Crane Barge - Deck Winch	0.01	0.03	0.09	0.00	0.00
Clamshell Crane Barge - Deck Winch	0.01	0.02	0.06	0.00	0.00
Tug Boat	0.00	0.01	0.04	0.00	0.00
Tug Boat - Anchor Movements	0.02	0.06	0.44	0.03	0.01
Tug Boat	0.01	0.04	0.29	0.02	0.01
Dive Vessel - Main Engine	0.00	0.01	0.07	0.00	0.00
Dive Vessel - Generator	0.02	0.10	0.25	0.00	0.01
Rock Transport and Placement Emissions	0.17	0.75	2.55	0.08	0.10
Post-Completion Survey					
Survey Vessel	0.04	0.07	0.32	0.02	0.02
Total Emissions	0.53	2.19	8.03	0.30	0.31
Mitigated Total Emissions (1)	0.53	2.19	5.70	0.30	0.11

Note: (1) Use of emulsified diesel fuel would reduce NOx and PM emissions from these sources by 14 and 62.9 %, respectively.

Table F-37. Total Emissions from the Shellmounds Project Alternative 5b - Santa Barbara County Project Region.

	Total Emissions (Tons)				
Activity/Equipment Type	*ROG*	*CO*	*NOx*	*SO2*	*PM10*
Shellmounds Spreading					
Clamshell Crane Barge - Main Hoist	0.04	0.17	0.47	0.01	0.02
Clamshell Crane Barge - Main Generator	0.03	0.13	0.35	0.01	0.02
Clamshell Crane Barge - Deck Generator	0.00	0.01	0.03	0.00	0.00
Clamshell Crane Barge - Deck Winch	0.01	0.03	0.07	0.00	0.00
Clamshell Crane Barge - Deck Winch	0.00	0.02	0.05	0.00	0.00
Tug Boat	0.00	0.00	0.03	0.00	0.00
Tug Boat - Anchor Movements	0.02	0.05	0.35	0.02	0.01
Shellmounds Spreading Emissions	0.09	0.41	1.35	0.04	0.05
Final Smoothing					
Tug Boat	0.07	0.12	0.55	0.04	0.03
Rock Transport and Placement					
Clamshell Crane Barge - Main Hoist	0.05	0.26	0.70	0.01	0.03
Clamshell Crane Barge - Main Generator	0.04	0.20	0.52	0.01	0.03
Clamshell Crane Barge - Deck Generator	0.01	0.03	0.07	0.00	0.00
Clamshell Crane Barge - Deck Winch	0.01	0.03	0.09	0.00	0.00
Clamshell Crane Barge - Deck Winch	0.01	0.02	0.06	0.00	0.00
Tug Boat	0.00	0.01	0.04	0.00	0.00
Tug Boat - Anchor Movements	0.02	0.06	0.44	0.03	0.01
Tug Boat	0.01	0.04	0.29	0.02	0.01
Dive Vessel - Main Engine	0.00	0.01	0.07	0.00	0.00
Dive Vessel - Generator	0.02	0.10	0.25	0.00	0.01
Rock Transport and Placement Emissions	0.17	0.75	2.55	0.08	0.10
Post-Completion Survey					
Survey Vessel	0.00	0.00	0.02	0.00	0.00
Total Emissions	0.33	1.29	4.46	0.16	0.19
Mitigated Total Emissions (1)	0.33	1.29	3.17	0.16	0.07

Note: (1) Use of emulsified diesel fuel would reduce NOx and PM emissions from these sources by 14 and 62.9 %, respectively.