C & C MAGNETIC ANOMALY TABLE

Line Number	Recorded Shot Point	Corrected Shot Point	Amplitude (Gammas)	Monopole/ Dipole	Duration (ft)	Sensor Ht (ft)	Description	Coordinates	
								X	Y
210	51.00	51.60	4	D	600	17	DEBRIS MO910	1260512	10927148
210	54.60	55.20	4	D	450	17	DEBRIS MO910	1260731	10925390
210	55.90	56.50	5	D	400	17	DEBRIS MO910	1260817	10924754
212	37.80	38.40	3	M	75	16	DEBRIS MO866	1259440	10933564
212	44.00	44.60	9	D	400	17	DEBRIS MO866	1259781	10930530
212	61.50	62.10	9	D	210	17	DEBRIS MO910	1260782	10921977
212	78.80	79.40	5	M	1100	9	DEBRIS MO954	1261791	10913522
212	83.72	84.32	3	D	130	8	DEBRIS MO954	1262076	10911118
213	48.45	47.85	8	M	450	17	DEBRIS MO910	1259806	10928916
213	50.05	49.45	230	D	450	17	DEBRIS MO910	1259907	10928133
213	82.05	82.45	6	M	800	9	DEBRIS MO954	1261800	10912005
214	48.30	48.90	7	M	200	17	DEBRIS MO910	1259719	10928391
215	45.60	45.00	90	D	240	17	DEBRIS MO866	1259333	10930269
215	47.90	47.30	4	D	125	17	DEBRIS MO910	1259454	10929148
215	55.65	55.05	5	M	170	17	DEBRIS MO910	1259912	10925361
215	77.90	77.30	2	M	410	10	DEBRIS MO910	1261173	10914485
215	82.50	81.90	5	M	1500	9	DEBRIS MO954	1261433	10912234
216	49.74	50.34	17	D	200	17	DEBRIS MO910	1259464	10927650
216	80.40	81.00	4	M	550	9	DEBRIS MO954	1261197	10912659
217	48.27	47.67	7	M	350	17	DEBRIS MO910	1259158	10928930
217	88.85	88.25	15	M	160	17	DEBRIS MO954	1261484	10909093
218	44.55	45.15	5	D	375	17	DEBRIS MO866	1258839	10930146
218	54.05	54.65	10	M	110	17	DEBRIS MO910	1259384	10925504
218	58.80	59.40	9	M	160	17	DEBRIS MO910	1259657	10923180
218	59.74	60.34	3	M	100	17	DEBRIS MO910	1259703	10922722
219	48.25	47.65	8	D	370	17	DEBRIS MO910	1258830	10928901
220	46.78	46.18	4	D	70	17	DEBRIS MO910	1258563	10929603
220	57.95	58.55	104	D	360	17	DEBRIS MO910	1259299	10923559

C & C MAGNETIC ANOMALY TABLE

Line Number	Recorded Shot Point	Corrected Shot Point	Amplitude (Gammas)	Monopole/ Dipole	Duration (ft)	Sensor Ht (ft)	Description	Coordinates	
								X	Y
220	61.38	61.98	137	D	220	17	DEBRIS MO955	1259488	10921879
222	84.00	84.60	5	M	200	17	DEBRIS MO955	1260464	10910779
225	2.28	1.68	23	D	220	7	DEBRIS MO955	1273160	10908182
225	19.44	18.84	21	M	410	13	Murphy 6" P/L		
226	14.92	15.52	4	D	200	13	DEBRIS MO955	1273785	10901403
226	17.25	17.85	12	M	300	14	DEBRIS MO955	1273921	10900269
227	19.49	18.89	30	M	355	14	Murphy 6" P/L		
228	18.28	18.88	24	M	450	15	Murphy 6" P/L		
229	19.55	18.95	93	D	550	15	Murphy 6" P/L		
230	7.70	8.30	3	M	75	11	DEBRIS MO955	1272716	10904855
230	18.33	18.93	90	M	200	15	Murphy 6" P/L		
231	13.90	13.30	224	M	670	14	Well #1 OCS-G-05757		
231	19.62	19.02	6	D	200	15	Murphy 6" P/L		
231	22.75	22.15	40	D	400	14	DEBRIS MO955	1273355	10898061
232	12.70	13.30	688	M	950	14	Well #1 OSC-G-05757		
232	18.38	18.98	89	M	260	15	Murphy 6" P/L		
233	3.70	3.10	4	D	250	7	DEBRIS MO955	1271979	10906842
233	10.42	9.82	4	M	150	11	DEBRIS MO955	1272369	10903562
233	14.10	13.50	29	D	950	13	Well #1 OSC-G-05757		
233	19.60	19.00	45	M	180	15	Murphy 6" P/L		
234	12.70	13.30	7	M	2000	13	Well #1 OSC-G-05757		
234	18.40	19.00	38	M	300	15	Murphy 6" P/L		
235	19.65	19.05	48	M	350	15	Murphy 6" P/L		
236	18.42	19.02	25	M	175	15	Murphy 6" P/L		
237	19.70	19.10	14	D	250	15	Murphy 6" P/L		
237	26.95	26.35	8	D	160	17	DEBRIS MO999	1272626	10895895
238	18.48	19.08	56	M	225	16	Murphy 6" P/L		
239	19.76	19.16	33	M	250	16	Murphy 6" P/L		

C & C MAGNETIC ANOMALY TABLE

Line Number	Recorded Shot Point	Corrected Shot Point	Amplitude (Gammas)	Monopole/ Dipole	Duration (ft)	Sensor Ht (ft)	Description	Coordinates X	Coordinates Y
240	5.26	5.86	3	M	110	10	DEBRIS MO955	1270944	10905851
240	18.53	19.13	11	D	450	16	Murphy 6" P/L		
241	0.80	0.20	1135	D	450	6	DEBRIS MO955	1270458	10908598
241	19.80	19.20	19	M	210	16	Murphy 6" P/L		
242	18.60	19.20	33	M	330	16	Murphy 6" P/L		
243	19.84	19.24	16	M	260	17	Murphy 6" P/L		
244	18.59	19.19	18	M	250	17	Murphy 6" P/L		
245	6.63	6.03	3	M	110	11	DEBRIS MO955	1270146	10905673
245	8.32	7.72	4	M	90	11	DEBRIS MO955	1270247	10904847
245	19.88	19.28	12	M	300	16	Murphy 6" P/L		
246	18.64	19.24	29	M	310	17	Murphy 6" P/L		
248	46.34	47.14	10	D	260	19	DEBRIS VK164	1285825	10820854
248	74.98	75.75	4	M	150	20	DEBRIS VK208	1287466	10806873
251	71.59	70.79	8	D	265	21	DEBRIS VK208	1284266	10808948
251	76.50	75.70	4	D	200	21	DEBRIS VK208	1284539	10806546
253	36.96	36.16	7	M	550	24	DEBRIS VK163	1280308	10825641
256	41.46	42.26	5	M	325	24	DEBRIS VK251	1273790	10795496
257	19.10	18.30	6	M	2200	29	OCS-G-13980 Well #1		
257	78.60	77.80	32	D	450	23	DEBRIS VK259	1274886	10778109
259	43.70	42.90	6	D	1025	26	DEBRIS VK251	1270951	10794841
300	3.00	2.40	178	D	230	5	Chevron 10" Pipeline		
300	9.00	8.40	7	D	350	5	DEBRIS MO822	1261659	10948767
300	47.28	46.68	10	D	320	17	DEBRIS MO866	1261965	10929930
300	50.00	49.40	8	D	460	17	DEBRIS MO910	1262010	10928589
301	21.25	20.65	3	M	110	11	DEBRIS MO955	1267848	10907229
302	10.15	9.55	19	M	165	15	DEBRIS MO955	1271492	10898818
302	29.72	29.12	98	D	800	18	Dauphin 12" Pipeline		
304	3.10	3.90	3	M	150	17	DEBRIS VK119	1274851	10837523

C & C MAGNETIC ANOMALY TABLE

Line Number	Recorded Shot Point	Corrected Shot Point	Amplitude (Gammas)	Monopole/ Dipole	Duration (ft)	Sensor Ht (ft)	Description	Coordinates	
								X	Y
PQ1	4.41	3.41	25	M	300	42	Centana 20" Pipeline		
RS3	12.1	11.1	15	M	1250	45	Well Nos. 1 & 2		

TABLE OF MAGNETIC ANOMALIES TO AVOID

LINE NO.	CORRECTED POSITION	AMPLITUDE (GAMMAS)	WIDTH (FEET)	DIPOLE/ MONOPOLE	AVOIDANCE DISTANCE (FEET)	DESCRIPTION	"X" COORDINATE	"Y" COORDINATE
38	6.90	200+	100	DIPOLE	150	DEBRIS (MO-910)	1,261,897'	10,922,531'
38	50.80	200	125	DIPOLE	175	DEBRIS (MO-954)	1,264,410'	10,901,079'
39	10.20	73	40	DIPOLE	90	DEBRIS (MO-910)	1,262,240'	10,920,941'
39	37.80	100	80	DIPOLE	130	DEBRIS (MO-954)	1,263,857'	10,907,453'
39	64.20	650	150	DIPOLE	200	DEBRIS (MO-998)	1,265,352'	10,894,547'
39	111.10	70	90	DIPOLE	140	DEBRIS (VK-31)	1,268,063'	10,871,624'
40	69.40	70	25	DIPOLE	75	DEBRIS (MO-998)	1,265,836'	10,892,029'
40	99.70	68	25	MONOPOLE	75	DEBRIS (VK-31)	1,267,560'	10,877,216'
41	74.60	63	40	DIPOLE	90	DEBRIS (MO-998)	1,266,280'	10,889,505'
41	114.80	210	50	DIPOLE	50	DEBRIS (VK-31)	1,268,595'	10,869,855'
42	53.50	80	75	DIPOLE	50	DEBRIS (MO-954)	1,264,674'	10,904,527'
43	43.40	340	60	DIPOLE	110	DEBRIS (MO-954)	1,264,823'	10,904,794'
43	54.70	61	75	DIPOLE	100	DEBRIS (MO-954)	1,265,441'	10,899,263'
44	4.30	840	100	DIPOLE	150	DEBRIS (MO-910)	1,262,714'	10,923,916'
44	4.60	660	100	DIPOLE	150	DEBRIS (MO-910)	1,262,726'	10,923,771'
44	48.20	70	90	DIPOLE	140	DEBRIS (MO-954)	1,265,237'	10,902,460'
44	107.70	50	50	DIPOLE	100	DEBRIS (VK-31)	1,268,667'	10,873,384'
45	43.10	59	50	DIPOLE	100	DEBRIS (MO-954)	1,265,112'	10,904,969'
45	68.20	75	25	DIPOLE	75	DEBRIS (MO-998)	1,266,564'	10,892,708'
50	2.90	90	50	DIPOLE	100	DEBRIS (MO-910)	1,263,608'	10,924,717'
51	41.80	420	80	DIPOLE	130	DEBRIS (MO-954)	1,266,015'	10,905,722'
51	45.70	220	100	DIPOLE	150	DEBRIS (MO-954)	1,266,244'	10,903,815'
51	108.00	92	40	DIPOLE	90	DEBRIS (VK-31)	1,269,827'	10,873,379'
52	41.45	107	125	DIPOLE	175	DEBRIS (MO-954)	1,266,165'	10,905,917'
52	41.60	120	125	DIPOLE	175	DEBRIS (MO-954)	1,266,172'	10,905,843'
52	85.00	76	60	MONOPOLE	110	DEBRIS (MO-999)	1,268,668'	10,884,631'
53	41.30	180	100	DIPOLE	150	DEBRIS (MO-954)	1,266,311'	10,906,011'

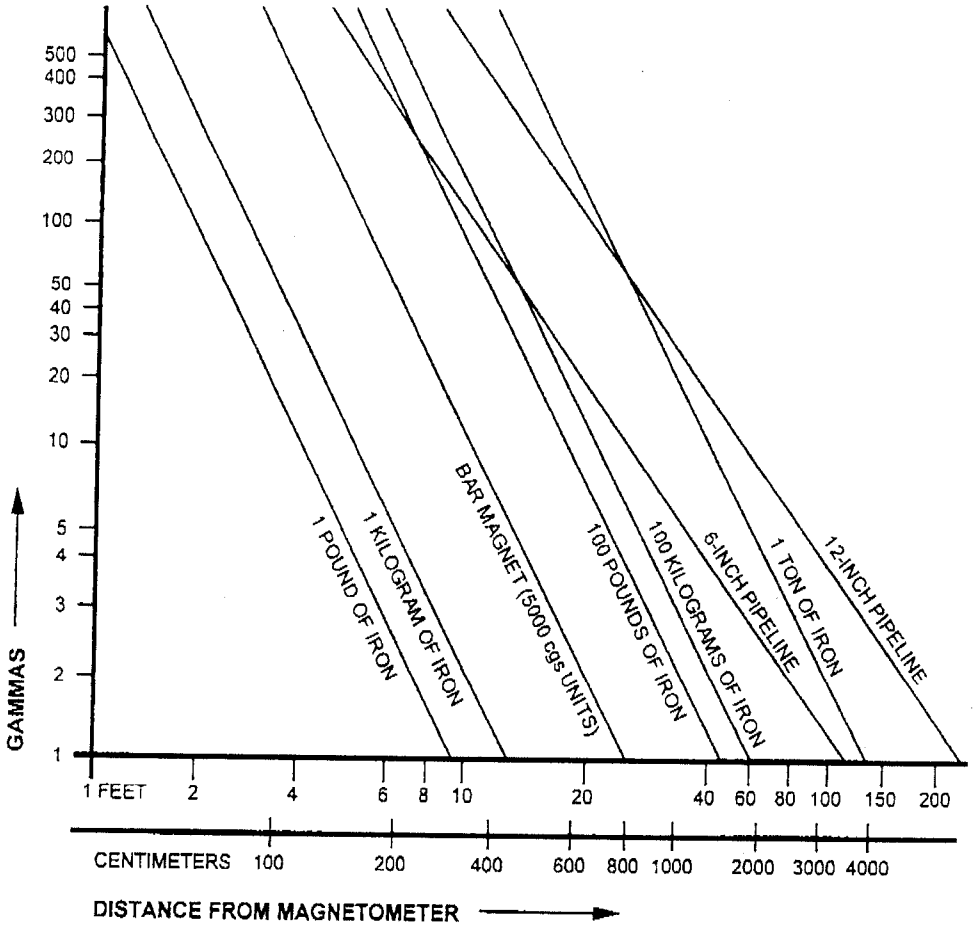
TABLE OF MAGNETIC ANOMALIES TO AVOID

LINE NO.	CORRECTED POSITION	AMPLITUDE (GAMMAS)	WIDTH (FEET)	DIPOLE/ MONOPOLE	AVOIDANCE DISTANCE (FEET)	DESCRIPTION	"X" COORDINATE	"Y" COORDINATE
54	41.00	340	100	DIPOLE	150	DEBRIS (MO-954)	1,266,461'	10,906,174'
57	54.00	70	75	DIPOLE	125	DEBRIS (MO-955)	1,267,709'	10,899,884'
58	121.10	50	150	DIPOLE	200	DEBRIS (VK-31)	1,271,718'	10,867,099'
60	39.70	53	75	MONOPOLE	125	DEBRIS (MO-955)	1,267,364'	10,906,921'
60	65.10	86	50	DIPOLE	100	DEBRIS (MO-999)	1,268,848'	10,894,511'
60	74.50	63	20	DIPOLE	70	DEBRIS (MO-999)	1,269,382'	10,889,919'
60	85.10	180	150	DIPOLE	200	DEBRIS (MO-999)	1,269,980'	10,884,733'
60	86.20	105	100	DIPOLE	150	DEBRIS (MO-999)	1,270,047'	10,884,199'
61	23.00	135	100	DIPOLE	150	DEBRIS (MO-910)	1,266,560'	10,915,102'
61	39.50	98	50	DIPOLE	120	DEBRIS (MO-955)	1,267,515'	10,907,040'
61	63.70	815	150	DIPOLE	200	DEBRIS (MO-999)	1,268,902'	10,895,213'
61	66.40	210	60	DIPOLE	110	DEBRIS (MO-999)	1,269,064'	10,893,890'
62	30.30	65	100	MONOPOLE	150	DEBRIS (MO-954)	1,267,143'	10,911,556'
63	8.10	170	100	DIPOLE	150	DEBRIS (MO-910)	1,266,025'	10,922,428'
63	69.60	54	70	DIPOLE	120	DEBRIS (MO-999)	1,269,566'	10,892,368'
64	38.80	65	60	DIPOLE	110	DEBRIS (MO-955)	1,267,955'	10,907,441'
65	7.70	310	50	DIPOLE	100	DEBRIS (MO-910)	1,266,341'	10,922,654'
65	25.80	85	40	DIPOLE	90	DEBRIS (MO-911)	1,267,376'	10,913,815'
66	38.40	95	100	DIPOLE	150	DEBRIS (MO-955)	1,268,262'	10,907,674'
67	79.00	155	350	DIPOLE	150	DEBRIS (MO-999)	1,270,770'	10,887,851'
67	105.30	98	100	DIPOLE	150	SHIPWRECK		
68	78.90	55	300	DIPOLE	350	DEBRIS (MO-955)	1,270,910'	10,887,921'
68	105.10	275	300	DIPOLE	350	SHIPWRECK		
69	106.60	1000+	750	DIPOLE	750	SHIPWRECK		
70	73.90	400	50	DIPOLE	100	DEBRIS (MO-999)	1,270,955'	10,890,397'
70	75.10	90	30	MONOPOLE	100	DEBRIS (MO-999)	1,271,023'	10,889,814'
70	105.40	250	300	MONOPOLE	350	SHIPWRECK		

TABLE OF MAGNETIC ANOMALIES TO AVOID

LINE NO.	CORRECTED POSITION	AMPLITUDE (GAMMAS)	WIDTH (FEET)	DIPOLE/ MONOPOLE	AVOIDANCE DISTANCE (FEET)	DESCRIPTION	"X" COORDINATE	"Y" COORDINATE
213	49.45	230	450	DIPOLE	500	DEBRIS (MO-910)	1,259,907	10,928,133
215	45.00	90	240	DIPOLE	300	DEBRIS (MO-866)	1,259,333	11,0930,269
220	61.98	137	220	DIPOLE	300	DEBRIS (MO-910)	1,259,488	10,921,879
231	22.15	40	400	DIPOLE	450	DEBRIS (MO-955)	1,273,355	10,898,061
241	0.20	1135	450	DIPOLE	500	DEBRIS (MO-955)	1,270,458	10,908,598

NOMOGRAM FOR ESTIMATING ANOMALIES FROM TYPICAL OBJECTS (BREINER, 1973)



INSTRUCTIONS FOR USE:

To use the nomogram, select a given weight or type of object from among the diagonal labeled lines. Then choose a distance along the bottom line (abscissa) of the graph and follow a vertical line upwards from that distance until it intersects the diagonal line of the selected object. At that point, move horizontally to the left to a value on the vertical axis (ordinate) of the graph and read the intensity in gammas.

At a given distance, the intensity is proportional to the weight of the object. Therefore, for an object whose weight is not precisely that of the labeled lines, simply multiply the intensity in gammas by the ratio of the desired weight to the labeled weight on the graph. If the distance desired does not appear on the graph, remember that for a typical object the intensity is inversely proportional to the cube of the distance and for a long pipeline the intensity is inversely proportional to the square of the distance between magnetometer sensor and object. Due to many uncertainties described herein the estimates derived from this nomogram may be larger or smaller by a factor of 2 to 5 or perhaps more.

SIDE SCAN SONAR TABLE

CONTACT NO.	BLOCK NO. and AREA	X and Y COORDINATE	SIZE and DESCRIPTION	ASSOCIATED MAGNETIC ANOMALY	MAP and FIGURE NO.
1	Block 191 Main Pass	Y=10,719,199 X=1,284,625	10'x 4'x 2.5' 5'x. 5'x. 2' Two Debris	7 gammas 100' width	Map 4 Figure 12
2	Block 207 Vioska Knoll	Y=10,810,478 X=1,275,776	16' diameter Debris	None	Map 9
3	Block 207 Vioska Knoll	Y=10,810,673 X=1,275,451	20' diameter Debris	None	Map 9
4	Block 75 Vioska Knoll	Y=10,866,061 X=1,273,903	16'x 2' Debris	15 gammas 150' width	Map 11
5	Block 75 Vioska Knoll	Y=10,866,045 X=1,274,060	10'x 3' Debris	15 gammas 150' width	Map 11
6	Block 31 Vioska Knoll	Y=10,867,832 X=1,271,542	12'x 2'x .5' Linear Debris	35 gammas 50' width	Map 11
7	Block 31 Vioska Knoll	Y=10,867,857 X=1,271,681	4' diameter Debris	35 gammas 50' width	Map 11
8	Block 31 Vioska Knoll	Y=10,868,231 X=1,273,176	8'x 1' Debris	6 gammas 75' width	Map 11
9	Block 31 Vioska Knoll	Y=10,871,568 X=1,271,406	2'x 2' Debris	13 gammas 100' width	Map 11
10	Block 31 Vioska Knoll	Y=10,872,316 X=1,271,494	3' diameter Debris	13 gammas 40' width	Map 12
11	Block 31 Vioska Knoll	Y=10,873,446 X=1,270,414	6' diameter Debris	None	Map 12
12	Block 31 Vioska Knoll	Y=10,874,380 X=1,268,436	15' diameter Debris	None	Map 12
13	Block 31 Vioska Knoll	Y=10,874,643 X=1,268,399	20'x 4' Linear Debris	None	Map 12
14	Block 31 Vioska Knoll	Y=10,875,822 X=1,269,642	33' diameter Debris	None	Map 12
15	Block 31 Vioska Knoll	Y=10,875,996 X=1,269,638	30' diameter Debris	None	Map 12
16	Block 31 Vioska Knoll	Y=10,875,667 X=1,267,466	3" diameter Debris	None	Map 12
17	Block 31 Vioska Knoll	Y=10,876,189 X=1,268,417	6'x 2' Three Debris	None	Map 12
18	Block 31 Vioska Knoll	Y=10,876,567 X=1,268,686	15' diameter Debris	None	Map 12
19	Block 31 Vioska Knoll	Y=10,876,729 X=1,268,836	Multiple Contacts Debris Field	None	Map 12
20	Block 31 Vioska Knoll	Y=10,876,834 X=1,268,352	8'x 2' Two Debris	None	Map 12
21	Block 31 Vioska Knoll	Y=10,874,970 X=1,273,197	3' diameter Debris	7 gammas 500' width	Map 12

SIDE SCAN SONAR TABLE

CONTACT NO.	BLOCK NO. and AREA	X and Y COORDINATE	SIZE and DESCRIPTION	ASSOCIATED MAGNETIC ANOMALY	MAP and FIGURE NO.
22	Block 31 Vioska Knoll	Y=10,875,100 X=1,272,628	120'x 50'x 10' Sunken Barge	9 individual contacts	Map 12 Figure 11
23	Block 31 Vioska Knoll	Y=10,875,388 X=1,272,295	3' diameter Debris	None	Map 12
24	Block 31 Vioska Knoll	Y=10,875,356 X=1,271,818	16'x 3' Crescent-shape Debris	4 gammas 50' width	Map 12
25	Block 31 Vioska Knoll	Y=10,875,195 X=1,271,179	Three small targets Debris	45 gammas 150' width	Map 12
26	Block 31 Vioska Knoll	Y=10,875,543 X=1,270,448	3' diameter Debris	30 gammas 70' width	Map 12
27	Block 31 Vioska Knoll	Y=10,880,450 X=1,269,881	12'x 3' Linear Debris	None	Map 12
28	Block 30 Vioska Knoll	Y=10,881,050 X=1,267,022	6' diameter Debris	None	Map 12
29	Block 31 Vioska Knoll	Y=10,881,720 X=1,271,498	15'x 1' Linear Debris	14 gammas 150' width	Map 12
30	Block 31 Vioska Knoll	Y=10,881,399 X=1,272,264	Debris Field	6 gammas 40' width	Map 12
31	Block 999 Mobile Area	Y=10,887,353 X=1,270,732	10' diameter Debris	None	Map 12
32	Block 999 Mobile Area	Y=10,887,911 X=1,270,818	20'x 4' Two Linear Debris	155 gammas 350' width	Map 12
33	Block 999 Mobile Area	Y=10,886,294 X=1,268,885	10'x 10'x 1' Debris in crater	16 gammas 100' width	Map 12 Figure 13
34	Block 998 Mobile Area	Y=10,889,259 X=1,266,071	3' diameter Debris in depression	30 gammas 50' width	Map 12
35	Block 999 Mobile Area	Y=10,893,065 X=1,271,064	3' diameter Debris	4 gammas 50' width	Map 12
36	Block 998 Mobile Area	Y=10,897,601 X=1,265,245	10'x 8' Debris	6 gammas 50' width	Map 13
37	Block 995 Mobile Area	Y=10,898,404 X=1,270,758	3' diameter Debris	60 gammas 100' width	Map 13
38	Block 995 Mobile Area	Y=10,900,195 X=1,268,573	3' diameter Debris	35 gammas 90' width	Map 13
39	Block 995 Mobile Area	Y=10,902,116 X=1,268,385	2'x 2'x .5' Debris	13 gammas 25' width	Map 13
40	Block 994 Mobile Area	Y=10,902,411 X=1,264,550	8'x 1' Linear Debris	11 gammas 160' width	Map 13
41	Block 994 Mobile Area	Y=10,902,325 X=1,265,215	15'x 6' Debris	70 gammas 90' width	Map 13
42	Block 994 Mobile Area	Y=10,905,586 X=1,264,656	Debris Field In Fairway	3 gammas 75' width	Map 13

SIDE SCAN SONAR TABLE

CONTACT NO.	BLOCK NO. and AREA	X and Y COORDINATE	SIZE and DESCRIPTION	ASSOCIATED MAGNETIC ANOMALY	MAP and FIGURE NO.
43	Block 955 Mobile Area	Y=10,906,577 X=1,268,344	12'x 2' Debris in Fairway	5 gammas 60' width	Map 13
44	Block 955 Mobile Area	Y=10,913,511 X=1,267,670	5' diameter Debris in Fairway	22 gammas 40' width	Map 13
45	Block 910 Mobile Area	Y=10,915,152 X=1,264,977	16' diameter Debris	5 gammas 45' width	Map 14
46	Block 910 Mobile Area	Y=10,918,391 X=1,267,619	3' diameter Debris	8 gammas 25' width	Map 14
47	Block 910 Mobile Area	Y=10,919,242 X=1,266,327	3' diameter Debris	4 gammas 50' width	Map 14
48	Block 910 Mobile Area	Y=10,922,865 X=1,261,720	7'x 3'x .5' Debris	None	Map 14
49	Block 910 Mobile Area	Y=10,923,571 X=1,264,353	15' long Debris	None	Map 14

C & C Side Scan Sonar Contacts				
TARGET NO.	MAP NO.	X-COORDINATE	Y-COORDINATE	DESCRIPTION (L x W x H)
1	9	1,286,202'	10,819,267'	20' x 16' x 1.6'
2	9	1,285,979'	10,818,848'	8' x 5' x 1.2'
3	8 & 9	1,287,322'	10,807,067'	21' x 8' x 3.7'
4	10	1,282,392'	10,840,649'	20' x 11' x 4'
5	9 & 10	1,283,713'	10,831,000'	10' x 4' x 3.5'
6	9 & 10	1,283,818'	10,830,852'	40' x 4' x 2.6'
7	8 & 9	1,285,315'	10,807,861'	13' x 3' x 6.6'
8	9	1,283,924'	10,816,966'	19.6' x 11' x 1'
9	9 & 10	1,281,664'	10,832,271'	60' x 3' x 8.5'
10	9 & 10	1,281,859'	10,830,532'	20' x 5' x 1.7'
11	10	1,279,391'	10,840,809'	40' x 6' x 5.3'
12	10	1,279,513'	10,840,419'	19' x 10' x 5.6'
13	10	1,278,883'	10,839,045'	21' x 11' x 1.2'
14	10	1,278,658'	10,837,996'	30' x 10' x 4.1'
15	10	1,279,145'	10,834,689'	51' x 9' x 7.2'
16	9	1,271,851'	10,813,514'	41' x 1' x 7'
17	8	1,274,339'	10,791,888'	23' x 10' x 1'
18	9	1,270,268'	10,815,211'	16' x 8' x 1.4'
19	13	1,273,405'	10,898,098'	20' x 6' x 1'
20	13	1,272,851'	10,901,403'	30' x 5' x 8'
21	14	1,261,560'	10,922,844'	15' x 9' x 6'

APPENDIX C

EQUIPMENT DESCRIPTIONS
INSTRUMENT SETTINGS
BOAT SETBACK DIAGRAMS
PERSONNEL LISTS
SURVEY LOGS

SATLOC® DIFFERENTIAL GPS

The United States Department of Defense (DOD) has deployed a satellite based navigation system which incorporates 24 satellites known as the Global Positioning System (GPS). This navigation system allows its users to determine position, velocity, and time anywhere on earth 24 hours a day. The basic stand alone accuracy of GPS is 15-20 meters. The DOD does not want the users of the GPS to be allowed such accurate positioning, so deliberate range degradation, known as Selective Availibility (SA) may be applied. This makes GPS's stand alone accuracy 50-100 meters. This performance will not meet the accuracy of the client or the MMS for geophysical data acquision. In order to achieve survey quality accuracy of GPS, differential corrections must be applied.

The pseudo- range errors which are dithered by DOD and transmitted through the GPS satellites can be determined by placing a GPS receiver at a known geodetic point, thus determining the required corrections. By determining the range and bearing of the erroneous signal, the error or differential correction can be relayed via satellite or radio telemetry link to users who are located within the base station coverage area. This GPS technique has proven to be particularly effective and accuracies in the submeter range have been achieved when utilizing a Wide Area Differential GPS network.

The SATLOC® differential GPS system is a wide area differential system which utilizes fourteen base stations scattered across the United States and Canada. The algorithms used for the network were developed and tested at the Jet Propulsion Laboratory (JPL) prior to being used commercially. User position accuracy for single-frequency receiver is at the level of a 1 to 3 meters in the dynamic state. Some of the precision positioning applications for which the system may be used include:

SATLOC® DIFFERENTIAL GPS

topographic mapping, ocean and land altimetry, satellite remote sensing, precision farming in the areas of yield mapping and soil sampling, air traffic control and precision survey mapping.

The SATLOC® network consists of 14 fixed Ashtech Z12 ground receivers located across the United States and Canada. These receivers return data to the central processing units located in Scottsdale, Arizona and Reston, Virginia. The data are reformatted and processed with a latency from time of reception at the receiver of about 1.6 seconds. GPS orbits and troposphere delays at the receiver are determined at 15 minute update intervals using precise dynamic models with the dual frequency data smoothed to 3 minutes. Ionosphere calibrations for single frequency users are updated every 15 minutes using data smoothed to 5 minutes. The slowly varying inter-frequency biases at all the receivers and the GPS satellite transmitters are determined once and monitored at 2 week intervals. Range corrections to the GPS constellation, dominated by SA clock dither, are determined every second and projected a few seconds into the future to account for the system latency which is dominated by network communications.

SONARDYNE ULTRA-SHORT BASELINE SYSTEM (USBL)

The Sonardyne, Inc Model 7784 USBL System is an integrated, ultra-short baseline acoustic tracking system designed to operate with up to ten targets for a wide range of subsea navigation and relocation tasks. The target types consist of transponders or responders. The system is microprocessor-based, and consists of a hydrophone assembly, interconnecting deck cable and command/display module. Configurations for towed fish tracking, vessel positioning, and subsea relocation are operator controlled using a keypad entry system. The USBL transducer was mounted on a pole over the side of the vessel. The transducer is aligned with the bow heading as accurately as possible.

The USBL system presents the user with a video display of the underwater position of the target relative to a chosen reference point on the surface vessel. In addition to the graphic display of the target position, the USBL system displays digital values for azimuth and range to each target. Up to ten targets may be tracked and displayed simultaneously. For this application, updates on position are set at 5-second updates.

The system measures the range and direction of a beacon relative to the known location and orientation of the transceiver housing. Beacon range may be calculated by measuring the elapsed time between the interrogation signal and the detection of the beacon reply. Beacon bearing may be calculated by measuring the difference in "time - phase" between signals in a number of pairs of acoustic receiving elements on the front face of the transceiver. The USBL transducer head contains three or more elements that can both transmit an interrogation and receive the acoustic reply. The elements are positioned such that each element is in a different plane. In other words, the elements are in a phased array describing an equilateral triangle. The separations between elements are known

SONARDYNE ULTRA-SHORT BASELINE SYSTEM (USBL)

and fixed. The baselines between elements are only a few centimeters in length, hence the term "ultra-short baseline". When the acoustic interrogation frequency is transmitted to a transponder in the water, a timer begins. The transponder sends back an acoustic response through the water column. Upon reception of the acoustic response by each of the elements in the transducer head, the timer stops. The central processing unit (CPU) calculates the time from send to receive and the phase difference in the reception of the return acoustic transmission by each element in the transducer head. The CPU can then determine by resection the azimuth, slant range depression angle to the transponder or responder.

There are four (4) major areas of concern to the overall accuracy of the absolute position of a USBL tie. At the top of the list is the accuracy of the surface positioning system used. The accuracy of the SATLOC® differential GPS System used on the project was 2 to 3 meters. The second item that is subject to degrade the accuracy of the USBL position is the gyrocompass (gyro). Most gyros in use today have some drift and are subject to error for latitude above or below the equator. Typically, the accuracy of a survey standard gyro is plus or minus one degree ($\pm 1°$). Since the azimuth of the remote unit is relative to the bow heading of the vessel, the actual position of the remote transponder being tracked is subject to this gyro error. If the remote unit is directly below the USBL transducer, there is no appreciable error in the calculated position that is directly attributable to the gyro error. However, as the remote moves out in any direction from being directly beneath the USBL transducer, the horizontal position calculated by the acoustic positioning computer will have a certain amount of error that is attributable to the gyro error. The farther the transducer and remote are separated in the horizontal plane, the more error in the position.

SONARDYNE ULTRA-SHORT BASELINE SYSTEM (USBL)

Next on the list of major areas of influential error for the USBL position is the effect of heave, pitch, and roll of the USBL transducer caused by sea conditions. A state-of-the-art compensator is tied to the CPU to null the dynamics of the sea conditions. The speed of sound through the water column is also of great concern. Since the slant ranges measured with the USBL System is determined by the actual speed of sound through the water column, it is particularly important to measure the speed of sound through water as accurately as possible. Using the velocimeter data, a harmonic mean velocity function can be generated to convert the traveltime between the vessel and remote vehicle.

DATASONICS SIS MODEL 1000 SEAFLOOR IMAGING SYSTEM

The SIS Model 1000 Seafloor Imaging System is a combined side scan sonar and subbottom profiling system. The system is comprised of two major subsystems, the shipboard processor and tow vehicle electronics. This is a fully integrated Chirp side scan sonar/Chirp subbottom profiling system designed for water depths less than 1000 meters. The SIS-1000 uses Digital Signal Processing (DSP) technology to produce real-time processing of multi-channel Chirp sensor data. The Chirp Link Multiplexor provides for digital sonar and status data uplink, and command and control downlink communications using a coaxial or fiber-optic tow cable. Chirp sonar technology employs swept FM (frequency modulated) transmitted signals along with digital signal processing for matched-filter processing of reflected energy. A greater dynamic range is attained as long FM pulses provide an additional 20 dB to 30 dB over conventional side scan and subbottom sonar systems. In sonar and subbottom systems, higher frequency content is associated with increased resolution. The drawback to using higher frequencies is increased attenuation resulting in reduced penetration of a subbottom signal or a reduction in range of a sonar system.

The hydrodynamic tow vehicle is designed for speeds up to 10 knots and is approximately 5 feet long by 1.5 feet in diameter. The side scan provides a 0.5 degree effective horizontal beam width, and a 70 degree vertical beam width. The side scan sonar operates in the 90 kHz to 110 kHz band with the port and starboard channels sweeping in opposite directions. The system can be operated in ranges varying from 25 to 750 meters. The wide-band Chirp DSP matched filter processing allows for a combination of very high resolution and long range data acquisition.

The subbottom profiler transducer consists of a four element projector array and a eight element hydrophone array. The frequency is swept in a bandwidth of 2 kHz to 7 kHz. Fixed gain can be

DATASONICS SIS MODEL 1000 SEAFLOOR IMAGING SYSTEM

applied to the subbottom signals by the operator. The transmitter transducers are located in the bow section of the fish in a square formation. This results in a conical transmit beam in that the vertical beam is narrow and the horizontal beam is omnidirectional.

Optional sensors include a depth sensor, CTD, Motion reference unit, magnetometer, altimeter, and responders/transponders for towfish tracking.

The integrated Sonar Display and Control Workstation is responsible for acquiring, processing and displaying subsea sensor data in a windows software environment. The system consists of a Pentium computer running under the Windows operating system. The display is a water fall image of the three sonar channels with status and control functions displayed. Control functions include external navigation, tow vehicle pitch, roll, and heading etc. All data is stored on Exabyte 8 mm tape or magneto optical disks in Q-MIPS or SEG-Y format. Recording of the data from all 3 channels has 16 bit resolution, plus status information. Slant range and speed correction of data is also accomplished for true plan view imaging. Hard copy output can be logged either to an inkjet printer or a thermal chart recorder.

SIMRAD EM-1000 MULTIBEAM ECHOSOUNDER

The Simrad EM-1000 series of multibeam echosounders operate in water depths that provide as little as 3 meters of clearance below the transducer to the maximum water depth of 800 meters. The system provides a total of 120 echo soundings over 2-ping cycle. Employing a hybrid of amplitude detection and interferometry, the Simrad EM-1000 achieves accurate ultrawide swaths (up to 7.4 times water depth) at greater data densities (up to 240 soundings per second) than other currently available systems. Both amplitude and phase detection are performed independently on all return echos in the EM-1000. Although the method chosen is based exclusively on quality measurements calculated for the two selection techniques, a weighted preference is given to the phase detection method because of its inherently better accuracy. Thus, each detection method used is not dependent upon history, but may adapt instantly to changing bottom topography.

Hydrographers experienced with multibeam echosounders are familiar with the insidious problems created by variations in the near-surface sound velocity. Simrad addresses this problem with the introduction of a unique transducer, semi-circular in shape, which ensures that all beams are transmitted and received at near 90 degree angles to its face. This advancement, coupled with real time surface velocity corrections, ensures virtually no effect on data by variations in the near-surface velocity of sound.

The EM-1000's high ping rate (a fan of 60 beams, interlaced at up to 4 times per second, resulting in 120 beams across the total swath) is partially the result of beamforming on receive only. This provides a very high density of sounding data, thereby yielding greater confidence in the statistical reduction of selected sounding data.

SIMRAD EM-1000 MULTIBEAM ECHOSOUNDER

The receive beams of the EM-1000 are electronically stabilized for vessel roll. In addition to providing ease in processing, this gives even swaths with straight sides that minimize the need for high overlap and the resulting low productivity.

The EM-1000 incorporates an "equidistant beam spacing" mode, which provides an even distribution of soundings across the entire swath, increasing productivity, economy, and statistical accuracy. In addition to equidistant spacing, the EM-1000 offers a swath choice of either 7.4, 5.5, 4.1, or 1.5 times water depth to give the operator a choice of coverage and data densities in various depths of water.

Simrad addresses the ray bending situation by incorporating the ability for an operator to download a velocity profile directly into the EM-1000 operator unit prior to data collection. This can be accomplished through manual input, or by RS-232 or ethernet interface. The EM-1000 then automatically compensates in real time for raybending.

The EM-1000 also compensates in real-time for heave, pitch, roll, draft, tide, and velocity of sound effects. This results in data that is easily and speedily processed, enabling real-time quality control.

Processing hardware consists of a Sun SPARC workstation 20 with 2.5 GB hard drive and 64 MB of RAM, expandable to 512 MB. Data storage options are Exabyte or DAT tape.

In house software, developed by the engineers at C & C Technologies, is used for data collection, presentation, and processing. A color-coded bathymetry waterfall display is presented in real time

SIMRAD EM-1000 MULTIBEAM ECHOSOUNDER

data as each survey swath is gathered. A swath coverage map of the entire survey area, color-coded for depth, is also displayed on the multitasking workstation in real time. This coverage map incorporates pan and zoom features for either detailed or widespread representations. In addition, a real time color-coded sonar waterfall display is simultaneously presented. All menus are user friendly point and click options, written in the Unix / Xwindows / Motif environment.

This is characterized on the following page in this "screen dump" taken from our onboard Sun SPARCstation hydrographic data collection and processing computer.

The **upper-left** corner provides line-running status to the boat operator, superimposed over selectable real-time processing parameters.

The **lower-left** window reveals the survey vessel traversing a predefined survey line projected in the local (or any) geodetic coordinate system. Color-coded bathymetric contours are being generated in real-time. This "coverage map" displays the entire survey area and incorporates pan and zoom features for either detailed or widespread representations.

The **upper-right** window is a "waterfall" display of all raw soundings collected at a rate of 240 per second and color-coded for depth.

The **lower-right** window is a collocated, geometrically correct, side scan sonar image created from the acoustic backscatter returns of each of the EM-1000 soundings.

SIMRAD EM-1000 MULTIBEAM ECHOSOUNDER

The bulk of all data processing is done in real time during the collection process. Minimal time is demanded for data post processing due to the speed C & C software, coupled with the precision of EM-1000 signal processing. This provides the operator with the option of displaying raw bathymetry and sonar data in real time, or processing and buffering "on the fly," prior to visual display.

C & C Technologies' data processing results in generic X,Y,Z points that can be imported into a variety of CAD or modeling packages. Here, presentation of contours, profiles, 3-D images, etc. are limited only by the package and imagination of the user.

SIMRAD EM-1000 MULTIBEAM ECHOSOUNDER

MANUFACTURER'S SPECIFICATIONS:

Frequency:	95 kHz.
Bandwidth:	10 kHz.
Total Power:	6 kW.
Source Level:	224 dB.
Pulse length:	0.2 ms.
Roll Stabilization:	Electronic to +/- 15 degrees.
Beams:	60 each, 3.3 degrees x 3.3 degrees. 120 each/ 2 pings.
Ray Bending:	Real Time Corrections.
Heave, Pitch, Roll:	Real Time Corrections.
Ping rate:	4 per second to 50 meter.
Range:	7.4 times water depth to 200 meters. 4 times water depth to 800 meters.

Operating modes:

150 degree equal angle. 120 beams/2 pings.
150 degree equal distance. 120 beams/2 pings.
140 degree equal angle. 120 beams/2 pings.
140 degree equal spacing.120 beams/2 pings.
128 degree equal angle. 120 beams/2 pings.
128 degree equal spacing. 120 beams/ 2 pings.
75 degree equal spacing. 120 beams/ 2 pings.
Port bank.
Starboard bank.
Channel.

Each ping is shifted ½ beam width across track to increase across track resolution.

Resolution:

Time:	0.01 seconds.
Depth:	0.02 meters.
Heading:	0.1 degrees.
Pitch angle:	0.01 degrees.
Transducer Pitch:	0.01 degrees.
Heave:	0.01 on transmit, 0.1 on receive.
Offset:	
Across track:	0.1 meter.
Along track:	0.1 meter.

Typical Accuracy: 15 cm or 0.3% of water depth across swath.

GEOMETRICS G-880 MARINE MAGNETOMETER

The GeoMetrics G-880 marine magnetometer employs a Cesium atomic magnetic resonance system operating as the frequency controlling element of an oscillator. The frequency of the oscillator varies directly with the external magnetic field and is used to measure the earth's ambient magnetic field with great accuracy. Magnetometers are used to locate ferromagnetic sources which cause a deviation in the earth's magnetic field. The magnetometer is used the marine environment to locate shipwrecks, abandoned wellheads, buried pipelines, electrical cables, and areas of potential cultural resources. "Anomalies", departures from the earth's ambient magnetic field, are generated by these ferromagnetic sources on the magnetometer recording media. The G-880 is a totally digital magnetometer which allows options for sensor depth and towfish altitude recording.

The basic unit of recording for the magnetometer is the gamma. The G-880 produces a Cesium Larmor output frequency of 3.49872 Hz per gamma. The amplitude (departure from the ambient magnetic field), the signature width (distance the ambient magnetic field is disrupted), the distance the magnetometer sensor is from the source, are measurements which are used to provide information on the physical characteristics of the anomaly. The amplitude, signature width, sensor height off bottom, and X and Y coordinates are generally listed in reports to describe the magnetic anomalies.

The principle of the Cesium magnetometer lies in the sensor. The electronics package contains a mini-counter which converts the Larmor frequency into a magnetometer reading in gammas. This reading is transmitted via RS-232 to the topside logging software. The principal elements of the sensor include a lamp, filter, polarizer, absorption cell, coil, photocell, and two lenses. To initiate

GEOMETRICS G-880 MARINE MAGNETOMETER

operation of the sensor, power is applied to the lamp which ignites plasma and fluoresces. The lamp heats the absorption cell until a Cesium vapor is produced. A lens in front of the lamp creates parallel rays of light. The system is only interested in a section of the infrared band and the remaining light is blocked by a high grade optical filter. The light passing through the Cesium absorption cell causes the Cesium atom to have a net magnetic dipole moment. Magnetic field variations cause the Cesium atoms to obtain different electron energy levels. Measurement of the atomic energy level of the electrons of Cesium allows the ambient magnetic field to be calculated.

The digital data are recorded with a 486 PC running MagSea software. Sensitivity of the system is .05 gammas at .1 second cycle rates. The system can be operated in the range of 17 to 100 kilogammas. The paper record is produced on a high-speed dot matrix printer with the recorder scales being user selectable. A remote event mark is available, and annotation of sensitivity, scale factors, sample interval, and date are output to the hard copy records on demand. The marine sensor is 4.5" in diameter, 83" in length, and weighs 38 lbs. The magnetometer can be operated to depths of 4,000 feet.

SEABIRD SEACAT 19 CTD PROFILER

The Seacat SBE 19-01 Profiler, from Sea-Bird Electronics, Inc., measures electrical conductivity and temperature versus pressure (depth) in marine environments to depths up to 6,800 meters (22,309 feet). The maximum sampling rate is 2 scans per second. Self-powered and self-contained, the SBE 19 features proven Sea-Bird conductivity and temperature sensors and a precision semiconductor strain-gauge pressure transducer. A 64 kilobyte solid-state memory allows 1.5 hours of recording (6 hours with optional 256 kilobyte memory) while sampling at two scans per second. Set-up, check-out, and data extraction are performed without opening the housing. Simultaneous real time monitoring is possible using the Seacat Profiler's two wire RS-232C transmit capability. Sea-Bird's powerful Seasoft CTD software derives salinity, density, sound velocity, and other ocean parameters from stored CTD (conductivity, temperature, depth) and may be used for data analysis, plotting and archival. Small external sensors may be powered and their frequency or voltage outputs acquired by the SBE 19.

Seacat Profiler options include 1) aluminum housings for use to 3,400 or 6,800 meters; 2) 256 kilobyte memory; 3) an extra bulkhead connector for auxiliary inputs; 4) SBE 5 submersible pump for pumped conductivity; 5) an opto-isolated junction box for supplying power and interconnecting Seacat Profiler and a companion computer which is necessary when using the Profiler in real-time mode.

Use of conductivity, temperature, and depth measurement for determination of sound velocity is appealing because these instruments are simpler and more rugged and because resolution, accuracy, and stability lead to better precision than can be obtained with direct sound velocity measuring

SEABIRD SEACAT 19 CTD PROFILER

devices. Three equations are widely used for deriving sound velocity from CTD data (Wilson, 1959; Del Grosso, 1972: Millero and Chen, 1977). Absolute sound velocities derived from these equations differ on the order of .5 meter/second for various combinations of water temperature, salinity, and pressure. The work of Millero and Chen is the most modern and builds upon and attempts to incorporate the work of the earlier investigators. Millero and Chen's 1977 equation is used in the Sea-Bird Seasoft software, and is the one which is endorsed by the Unesco/SCOR/ICES/IASPO Joint Panel on Oceanographic Tables and Standards which comprises the internationally recognized authority for measurements of ocean parameters.

DESCRIPTION

The O.R.E. Subbottom Profiling System incorporates a variable frequency transducer array, which consists of four transducers mounted on a plate at the end of an over-the-side gimbaled staff (Model 132) or the plate is installed within a tow body (Model 136). Survey vessels owned and operated by JECA are equipped with a transducer array (Model 132) which is raised and lowered on an extending ram through the hull, amidships. The transducer array of each system can be operated in:

1) a "combined" mode where all four elements are driven by O.R.E.'s Model 140 10 kilowatt, variable frequency Transceiver for maximum power;

2) and a "separate" mode with two elements driven by the transceiver and two used for listening (useful when a wider beam width is desirable).

Records are obtained by first transmitting pulses of acoustic energy into the water column. Reflecting pulses from the seafloor and substrata are received by the same transducer array used for transmission. Controlling beam widths of 55° (3.5 kHz) to 30° (7.0 kHz) permit the operator to trade off between penetration and resolution while observing real-time recordings. Other features include range gating, which allows scale changes to enhance structure details, and Time Varying Gain, which triggers as the first bottom echo returns to optimize penetration without masking deeper reflections.

APPLICATIONS

The O.R.E. Model 140 Transceiver combines a variable frequency, high power transmitter with an adjustable bandwidth, variable frequency, time varying gain receiver, to form a multi-purpose system applicable to bathymetric surveys and/or subbottom profiling. The 3.5 kHz frequency in conjunction with the 10 kilowatt power output generally achieves 20 to 100 milliseconds, or approximately 50 to 250 feet, of bottom penetration, detailing the near-surface strata and density layers. The two-way travel time of the acoustic signal, from firing to receiving, is recorded on an EPC Model 4800 (electrostatic) or Model 9700 (thermal) chart recorder. Travel time

measurements are subsequently applied to water column velocity information. system delays. and appropriate tow depth corrections to calculate water depths and/or depths to subsurface events. The degree of ocean bottom penetration is variable depending on properties of the bottom and near-surface materials, the output power, and carrier frequency. The pinger is often used to supplement higher energy seismic systems or coring data to obtain accurate profiles of large areas.

When the pinger system is used in conjunction with the TSS Model 320 Heave Compensator, a portable system for measuring the vertical motion of the transducer array, recorded images of the seafloor and subbottom profile are enhanced. The obvious effect of unwanted vessel motion or varying depths of a towed transducer in deep water seafloor mapping surveys is removed by integrating the heave compensator into the profiling system. Thus, the analog output of the pinger profiles is effectively smoothed, permitting detailed interpretations of rugged terrain and complex subbottom strata.

SPECIFICATIONS

Transducer Array

Model 132

Frequency	3.5 kHz to 7.0 kHz
Maximum Power	10 kW at 1% duty cycle
Beam Width	55° at 3.5 kHz 40° at 5.0 kHz 30° at 7.0 kHz
Source Level	114 dB ref. 1 mb at 1 yd.
Dimensions	16" x 16" x 16"
Weight	135 lbs.

Model 136

Same transducer specifications in four-transducer configuration, but mounted in a tow vehicle.

Dimensions	60" x 18" x 14"
Vehicle Weight	270 lbs.
Cable	74' armored conducting cable with lower 24' faired.

Model 140 Transceiver

Power Output	10 kW
Transmit Frequency	Adjustable 1 to 12 kHz
Pulse Length	Adjustable .2 to 10 Ms.
Repetition Rate	Adjustable 1 to 10/sec.
Receiver Frequency	Adjustable 1 to 12 kHz
Receiver Bandwidth	Adjustable
Time Varying Gain	Adjustable rate and delay with automatic bottom tracking.
Power Requirement	115 VAC ±10% 57-63 Hz, consumption 200 watts
Dimensions	17" x 17" x 7"
Weight	50 lbs.

Graphic Recorder

EPC 19" dry or thermal paper recorder.

DESCRIPTION

The Echotrac DF3200 echo sounder by ODOM Hydrographic Systems, Inc. collects analog paper records as well as digitized depth information for output to a data logger. Digital depth data can be logged direct to the navigation computer along with date, time, and position for later post processing and mapping. The system can be deployed on a small work boat or inflatable, and includes a recording unit with built in digitizer and transceiver, and a side mounted transducer. The unit utilizes a combination of dynamic gating and velocity fit to track the true bottom through advanced microprocessor technology, solving the normal problems associated with conventional depth sounders. For example, if the "fixed gate" mode is activated, signal digitizing can be restricted to a user defined range, rejecting unwanted returns during bar-check calibrations.

The acoustic pulse is generated with the Model OHS 200-24/9-19 dual frequency transducer which operates with a beam width of 9° at 200 kHz and 19° at 24 kHz. The shipborn transceiver automatically adjusts power output in proportion to the return signal yielding a clear, unambiguous record in shallow as well as deep water. The self adjusting power varies from 1 to 225 watts at 200 kHz or 1 to 500 watts at 24 kHz. Return signals are optimized by Time Varied Gain and Automatic Gain Control.

A thermal paper recording is printed in real-time where automated scale changes prevent the bottom from "running" off the chart. Scale widths are selectable in either meters, 2 to 1,000, or feet, 10 to 3,000, however, routine operating scales are 10 to 100 feet. Key system parameters, i.e., velocity of sound, draft, and time, are input from the recorder's front panel. A tide correction may be introduced without altering the analog record in any way. A line is added to the chart to indicate where the bottom would be if corrected for water level.

APPLICATIONS

Recording resolutions of the Echotrac, ranging from 8 mm to 4 meters dependent upon the selected scale width, permit detailed assessments of local water depths. Reference to a tidal datum permits the evaluation of navigable waterways, subsidence and scour features around seafloor based structures, and pre/post dredging or construction water bottom conditions.

SPECIFICATIONS

ECHOTRAC MODEL DF3200

General

Depth Range:	1 to 1,000 m @ 24 kHz (3.3' to 3,000') 0.5 to 200 m @ 200 kHz (1.6' to 700')
Sounding Rate:	25/second to every 1.3 seconds (depth, scale, and chart speed dependent).
Event Mark:	Contact Closure, ASCII input.
Input Power:	24 ±6 VDC or 115 ±17 VAC
Dimensions:	34.4 cm x 43.1 cm x 36.8 cm (15" x 17" x 11")
Weight:	20 kg (44 lb.)

Recorder

Resolution:	8 mm to 4 m (dependent on scale)
Print:	Thermal. 256 dot linear array, on 12.5 cm wide paper (blue printing).
Paper Speeds:	0, 2, 6, 8. 10, and 12 cm/min. (0, 1, 2, 3, 4, 5, and 6 in/min)
Scales:	Widths of 2 to 1,000 m (10' to 3,000')

Built-in Digitizer

Resolution:	1.0 cm (0.1')
Accuracy:	0.001%
Tracking:	Automatic or fixed gate w/ velocity fit.
Digital Input/Output:	RS232 / ASCII RS232

Built-in Transceiver

Output Power:	Automatic control from .1-500 watts @ 24 kHz; .1-225 watts @ 200 kHz.
Pulse Length:	Self-adjusting from 0.5 to 1.5 msec @ 24 kHz; 0.1 to 0.8 msec @ 200 kHz.

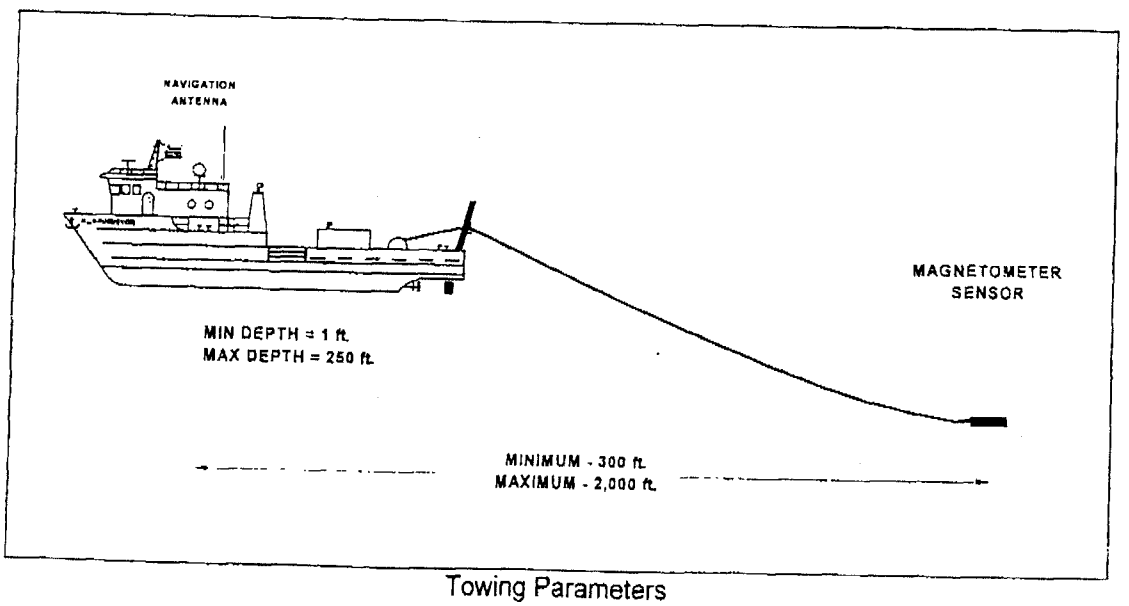
Model OHS 200-24 Transducer

Dual Frequency:	200 and 24 kHz
Impedance:	50 Ohms
Beam Widths:	19° @ 24 kHz; 9° @ 200 kHz

DESCRIPTION

The GeoMetrics Marine Proton Magnetometer Model 801/3 utilizes the precession of spinning protons of the hydrogen atom in a sample hydrocarbon fluid to measure total magnetic intensity. The spinning protons within the diesel filled marine sensor behave as small magnetic dipoles which temporarily align by application of a uniform magnetic field. Three planes of the magnetic field are measured with an electric current passing through three separate wire coils housed in the sensor. When the current is removed, the spin of the protons causes them to precess about the ambient, or earth's, magnetic field, generating a small signal whose frequency is proportional to the total magnetic field intensity. The precession frequency is measured by digital counters as the absolute value of total magnetic field intensity with an accuracy of one gamma, in the earth's field of approximately 50,000 gammas.

The Model G-801/3 magnetometer offers absolute, drift-free measurements and freedom from calibration and orientation errors. The system features a master console unit with digital display and dual pen strip chart recorder providing both high resolution and large dynamic range for definition of small anomalies as well as better slope determination on large anomalies. Typical user defined scales are 100 and 1,000 gammas.



Towing Parameters

APPLICATIONS

Through the utilization of this system, ferrous objects, such as pipelines, wellheads, debris, shipwrecks, power cables, etc., can be detected. The recorded signature is evaluated and compared to file data to make a comprehensive interpretation of known and anomalous contacts, in a particular study area. Applications of setback distances from the remote sensor to the navigation antennae are applied to post-plots, determining an "XY" location of the magnetic contact. A depth sensor, mounted within the remote sensor, aids in the estimation of ferrous mass, as well as improves the relocation of the contact for additional investigation by divers or an ROV.

The use of a magnetometer in conjunction with side scan sonar systems or subbottom profilers. allow further definition of seafloor and near-surface features. The archeologist and geologist utilize the recorded magnetic fields to evaluate the potential for buried prehistoric cultural sites and construction hazards, respectively.

SPECIFICATIONS

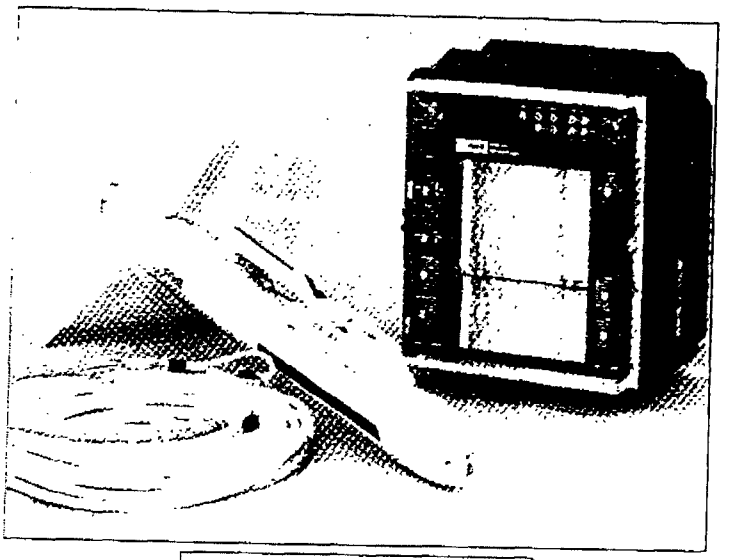
Sensitivity:	1 gamma
Sampling Rate:	1 second (keyed externally)
Range:	20,000 to 100,000 gammas
Analog Resolution:	100 and 1,000 gammas
Digital Recording:	BCD code - four line output "0" state = 0 to +0.5 V "1" state = 2.6 to +4 V
Absolute Field Accuracy:	±0.5 gamma
External Trigger	
Relay:	Closure to ground.
Transistor:	Collector to ground
Std. IC:	+4 to 0 V transition

Power Requirements:	250 watts, 115-220V AC at 50 60 HZ
Dimensions	
Console w/Recorder:	49.5 cm x 30.5 cm x 48 cm (19.5" x 12" x 19")
Marine Sensor:	18 cm dia. x 51 cm (7" dia. x 20")
Weights	
Console w/Recorder:	36 kg (80 lb.)
Marine Sensor:	18 kg (40 lb.)
Accessories:	Various tow cable lengths, depth sensor and power converters.

DESCRIPTION

The EG&G Model 260 Image Correcting Side Scan Sonar is a portable digital sonar system which employs state-of-the-art microelectronic technology to provide sonar images that are fully corrected for slant range, ship speed, and amplitude. Thermal paper output from the recorder presents a high resolution image with a pixel size of 1/800th of the selected range to each side (port and starboard) and 16 tones of gray available per pixel. The system includes a towfish, tow cable, and Model 260 Control Unit.

The dual frequency towfish is 4.5' long, hydrodynamically stable, with standard (105 kHz) and high resolution (500 kHz) capabilities. Towfish transducers generate the high power, short duration, acoustic pulses required for the extreme high resolution of the system. The sonar pulses are emitted in a fan shaped pattern perpendicular to the tow path, from a point directly beneath the fish and extending outward to a selected range from 25 meters to 600 meters on either side. Hard copy records are printed at a constant line print spacing of 200 lines per inch over the full 0 to 12.7 knot range of speed correction. Every pixel along the tow fish track is automatically displayed at its true position (±1% of distance traveled) using an interface with the ship's navigation computers to update vessel speed at 2 second intervals.



Model 260 Unit & Towfish

APPLICATIONS

As with most underwater sonar devices the Model 260 derives its information from reflected acoustic energy, bearing a similarity to radar in that it produces a continuous, coherent plan

view of a relatively broad scanned area. Acoustic energy reflected from ocean floor and waterborne contacts are received by the transducers, then amplified and transmitted to the shipboard Control Unit where the signal is converted to hard copy or digitally recorded. Signal strength variations due to range are automatically compensated by a fixed analog TVG circuit where the fish height variable is included to adjust slant range corrections for grazing angle and beam pattern. All corrections within the sonar equation are implemented digitally for a nominal beam pattern and seafloor model.

Good acoustic reflectors, i.e., rocks, ledges, metal objects, and sand ripples, are represented by darkened areas on the record. Depressions and soft bottom sediments are samples of those features which will be indicated by light areas. Scale markings at 25 meter intervals on the records permit direct measurements of the size, shape, and location of seafloor contacts. The hard copy data can be pieced together into a mosaic display to form an acoustic picture of the seafloor for the entire survey area or a specific area of interest. Continuous slant range and vessel speed corrections allow the mosaic to be used as a reference for spacial relationships of seafloor features. The final product, similar to an aerial photograph, will be to scale and at a high degree of accuracy.

Digital storage of the sonar data can be performed with an optional Exabyte tape drive or through an interface with a Triton Q-MIPS image processing system. Digital recording permits the application of 2-D sonar mosaic software which electronically constructs a graphic plan view of the seafloor, printed to a user defined scale.

SPECIFICATIONS

MODEL 260 UNIT

Graphic Recorder

Type:	Thermal Paper
No of Gray Tones:	6, each pixel (23 Db from black to white
Display Width:	256 mm
Pixels/Line:	2048
Pixel Size:	0.125 mm
Line Width:	0.125 mm
Printing Speed:	0-50 lines/second
Print Line Density:	8 lines/mm (independent of speed)
Scale Markers:	25-meter intervals along and across the tow fish track.
Annotations:	Time/Line No./Shot No. at each event mark.

Speed Correction

General:	Input speed from any one of several sources is used to position each data point at its true distance along the track of the tow fish.
Accuracy:	±1% of distanced traveled
Speed Range:	0 to 12.7 knots

Slant Range Correction

General:	To each sonar transmission, a new height determination is made and used to position each data point (pixel) at its true horizontal distance from the towfish.
Accuracy:	±1 pixel (1/800 of range)

Amplitude Correction

General:	Display darkness relative to back-scattering strength via fixed TVG, convert Analog to Digital, auto correct grazing angle and beam pattern.

Inputs/Outputs

Tow Fish:	Standard Interface
Tape recording:	2 Channel, FM, DC to 6 kHz at 50-meter range; proportionally less at longer ranges.
Remote Event Mark:	Contact Closure (isolated 20 MA current loop)
Trigger Output:	Contact Closure (isolated 20 MA current loop)
Speed Input:	Contact Closure, 0.1 MS pulse at 5 volts.

Input Power

AC Power Module:	105 to 125 or 210 to 250 VAC selectable, 47 to 63 Hz at 250 watts maximum (100 watts typical)
DC Power Module:	Optional: 22 to 30 VDC, reverse polarity detected.

Dimensions

Size:	45 cm x 57 cm x 57 cm (17.5" x 22.5" x 22.5")
Weight:	43 kg (95 lb)

MODEL 272TD TOW FISH

	Standard 100 kHz	High-Res 500 kHz
Frequency:	105 ±10 kHz	400 kHz
Pulse Length:	0.1 msec	0.01 msec
Peak Output:	228 dB ref 1 mpascal at 1 meter	222 dB ref 1 mpascal at 1 meter
Beam Width		
Horizontal:	1.2°	0.5°
Vertical:	50° tilted down 20°	Same
Max Depth:	600 Meters (2,000 feet)	Same
Dimensions:	140 cm x 70 cm x 11.4 cm (55" x 28" x 4.5")	
Weight:	25 kg (55 lb.)	

The basic idea of Long Range or Wide Area Multi-Site DGPS is to extend the range of operation of typical stand-alone DGPS systems from 300 km to at least 1000 km. The degradation of accuracy with distances longer than 300 km occurs due to the decorrelation of errors. These errors do not cancel out in the differencing process. However, the errors tend to be a linear function of the distance and frequently tend to affect the individual DGPS position solutions with opposite signs depending on relative location of DGPS stations with respect to satellite passes. Therefore the combined solution of several DGPS baselines has an advantage of canceling out most of the systematic errors that are present in individual stand-alone DGPS solutions. An additional important advantage of Multi-Site DGPS is a redundancy necessary for monitoring integrity of pseudo-range corrections from DGPS stations.

The JECA Multi-Site DGPS is the first system in the industry that implements the concept of Wide Area DGPS. The JECA system uses the MX 4200 GPS receiver and differential corrections from the JECA DGPS network transmitted via STARFIX®. The current JECA DGPS network covers the continental United States.

The software package computes the individual stand-alone solutions from user-defined DGPS stations, checks for outliers and combines into a composite solution; with weights assigned according to distance and geometric dilution of precision (DGOP) of individual solutions. A sequential least-squares filter is used to process carrier smoothed pseudorange data. It provides robust Quality Control (QC) for system performance.

The software also adjusts the pseudo-range corrections for differential tropo and iono effects. Test results show an accuracy of 2 meters rms in 2D mode for 24 hours during "normal SA activity". The test used 3 DGPS stations in the Gulf of Mexico separated from the user by more than 500 km with reasonable intersection geometry and a DOP mask of 3.5.

DESCRIPTION

The Applied Microsystems Ltd. Model SVP-16 is a miniature probe for measuring and recording velocity of sound profiles. The SVP-16 was developed to meet the requirements of acquiring a sound velocity profile within a water column to calibrate automated sounding systems and other acoustic instruments. The Sound Velocity Profiler is a self contained, solid state recording probe which logs sound velocity, pressure (depth), temperature and time based on an algorithm which ensures that the samples are logged corresponding to every meter of depth and for every change in sound velocity of one meter per second. The sensor data can be stored within internal memory and output at a later time, or alternately, the data can be monitored in real time as the instrument is profiling. The SVP-16 is used in conjunction with a portable computer (PC) for in house playback and data manipulation.

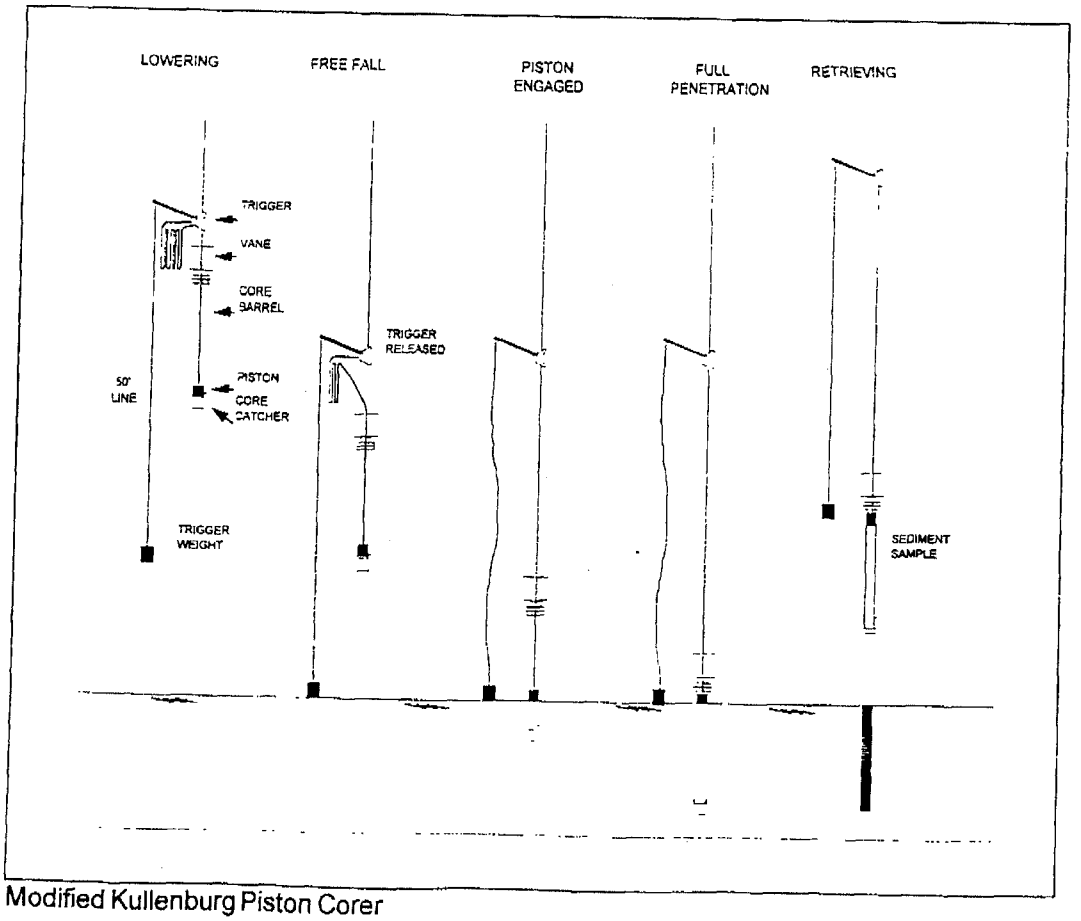
The SVP-16 velocimeter operates within a range of sound velocity from 1,400 meter/second (4,592 feet/second) to 1,550 meter/second (5,084 feet/second). Recording accuracy is ±0.25 meter/second including temperature and pressure effects on the sensor. Pressure is logged every 0.25 meters at an accuracy of ±0.25% full scale. Maximum operating depth is 5,000 meters. Operating temperatures fall between -20° C to +40° C. Temperature resolution is ±0.05° C at a tested accuracy of ±0.1° C.

APPLICATIONS

The recorded velocity data is used on board the survey vessel or in house to convert recorded two-way travel times on the seismic profiles to a distance in feet or meters for water depth conversion and stratigraphy interpretation.

DESCRIPTION

A piston coring device is utilized to obtain sediment samples to a depth greater than that made possible with a normal grab sampler. The coring device consists of an 8-foot long, 2-inch diameter, steel pipe (core barrel) equipped with a hard metal nose piece (core cutter) at one end and a vane with dead weights added toward the other end. The corer is lowered with an electro-hydraulic winch until a tripping mechanism (30' - 50' weighted line) senses the ocean bottom, releasing the corer so that the last part of the descent is made in free fall. Drag across the vane stabilizes the corer during the free fall and the weights drive the core barrel into the sediments. To facilitate the extraction of the sediment core, the barrel is equipped with a plastic liner which can be slipped out and sealed to retain the core sample for analysis. A piston, located inside the liner and toward the core cutter, moves up the liner as the core barrel penetrates the sediments, permitting hydrostatic pressures to draw in the sample while removing the water. A brass, orange-peel like core catcher is located between the core cutter and the liner, preventing the sediment sample from washing out during retrieval.



Modified Kullenburg Piston Corer

APPLICATIONS

Cores locations can be either predetermined or designated in the field, where anomalous areas are highlighted by the seismic and side scan sonar systems. Piston core operations can be performed in water depths greater than 15 feet, up to 2,000 feet. The potential to obtain samples from deeper depths may be arranged upon special request.

In house laboratory analysis is preformed on three samples per core (top, middle, bottom) and sediment descriptions are prepared on the whole core. Laboratory tests available are:

Mass Specific Gravity*	Triaxial Compression	Void Ratio
Moisture Content*	Percent Carbonate	Atterburg Limits
Vane Shear Strength*	Sieve Analysis	Soil Sensitivity
Wet Density*	Remolded Shear Strength	Submerged Unit Weight
Dry Density*	Porosity	Degree of Saturation
Unconfined Compression*		

Those soils tests marked by an asterisk (*) are the standard, or defaults, performed on all samples. The remaining tests are performed at special request. Any desired tests not listed are usually subcontracted through a registered soils laboratory.

INSTRUMENT SETTINGS

TRANSCONTINENTAL PIPELINE CORPORATION
ARCHAEOLOGICAL, ENGINEERING AND HAZARD STUDY
PROPOSED 24" & 30" PIPELINE ROUTE

DATASONICS SIS-1000 SUBBOTTOM PROFILER
Acoustic Source Level = ~207 dB re 1μPa @ 1 m, user adjustable
Transducer Radiation = 45° conical, combined transmit and receive
Receiver Gain = User adjustable from 0 to 42 dB in 3 dB increments
Record Length = variable
Record Divisions = 10 meters
Delay = None
Setback = None (acoustically positioned)
Frequency = 2 to 7 kilohertz (Chirped)
Pulse Width = 2 msec.

DATASONICS SIS-1000 SIDE SCAN SONAR
Acoustic Source Level = +207 dB re 1μPa @ 1 m .
Transducer Radiation = 0.5° horizontal composite, 70° vertical
Side Lobe Suppression = -20 dB, by shading
Receiver Gain = User adjustable from 0 to 42 dB in 3 dB increments; time varied from -20 to 40 dB in discrete steps
Range = 90 or 187 meters per channel
Record Divisions = 25 meters
Setback = 0 (acoustically positioned)
Swept Frequency = 95 to 105 kiloHertz (Chirped): Starboard and Port Channels swept in opposite directions.

SIMRAD EM-1000 MULTIBEAM AND IMAGING SYSTEM
Setback = 0 feet
Frequency = 95 feet
Bandwidth = 10 kHz
Total Power = 6 kW
Source Level = 224 dB
Pulse Length = .2 msec.
No. Of Channels Across Swath = 120

GEOMETRICS CESIUM MAGNETOMETER
Sensitivity = .1 gamma
Sampling rate = 0.1 second
Scales: 100 gammas & 1000 gammas
Setback = 300-400 feet from antenna

SURVEY VESSEL
M/V Ocean Surveyor
Average speed during survey = 3.5 knots
Sea state during the survey = 2-3 foot seas

M/V POLO PONY
September 29, October 19-25, 28-31, and November 1, 18-24, 1996

O.R.E. PINGER PROFILER	Scale = 75 milliseconds Record Divisions = 7.5 - 10 milliseconds Setback = 15 feet behind antenna Power = 10 kilowatts Frequency = 3.5 kilohertz Transducer depth = 8 feet
ECHOTRAC DEPTH SOUNDER	Scale = 40 feet Record Divisions = 1 foot Setback = 22 feet behind antenna Frequency = 200 kilohertz Transducer depth = 8 feet
PROTON MAGNETOMETER	Sensitivity = 1 gamma Sampling rate = .5 second Background noise level = +1.0 gamma Scales: Black = 100 gammas, Red = 1000 gammas Setback = 450-1,700 feet behind antenna
SIDE SCAN SONAR	Scale = 50-200 meters per channel Record Divisions = 25 meters Setback = At the bow and 105 - 650 feet behind antenna Frequency = 100 kilohertz
SURVEY VESSEL	*M/V Polo Pony* Average speed during survey = 3-4 knots STARFIX® antenna position = 75 feet ahead of stern Sea state during the survey = 2-5 feet

R/V KIT JONES
September 16-19, 1996

BOOMER PROFILER	Scale = 100 milliseconds Record Divisions =10 milliseconds Setback = 100 feet behind antenna Power = 100 Joules Transducer depth = 1 foot
ECHOTRAC DEPTH SOUNDER	Scale = 40 feet Record Divisions = 1 foot Setback = 105 feet behind antenna Frequency = 200 Kilohertz Transducer depth = 2 feet
PROTON MAGNETOMETER	Sensitivity = 1 gamma Sampling rate = .5 second Background noise level = +1.0 gamma Scales: Black = 100 gammas, Red = 1000 gammas Setback = 150 feet behind antenna
SIDE SCAN SONAR	Scale = 50 meters per channel Record Divisions = 25 meters Setback = At the bow Frequency = 100 kilohertz
SURVEY VESSEL	*R/V Kit Jones* Average speed during survey = 3-4 knots STARFIX® antenna position = 53 feet ahead of stern Sea state during the survey = 1-3 feet

M/V MR. ADAM
September 24-26, 1996

ODOM ECHOTRAC

Scale = 40 feet
Record Divisions = 1 foot
Setback = 1.5 feet to center of navigation
Frequency = 24 kilohertz
Transducer depth = 2 feet

PROTON MAGNETOMETER

Sensitivity = 1 gamma
Sampling rate = .5 second
Background noise level = +1.0 gamma
Scales: Black = 100 gammas, Red = 1000 gammas
Setback = 100 feet behind antenna

SURVEY VESSEL

M/V Mr. Adam
Average speed during survey = 3-4 knots
STARFIX® antenna position = 10 feet ahead of stern
Sea state during the survey = 2-5 feet

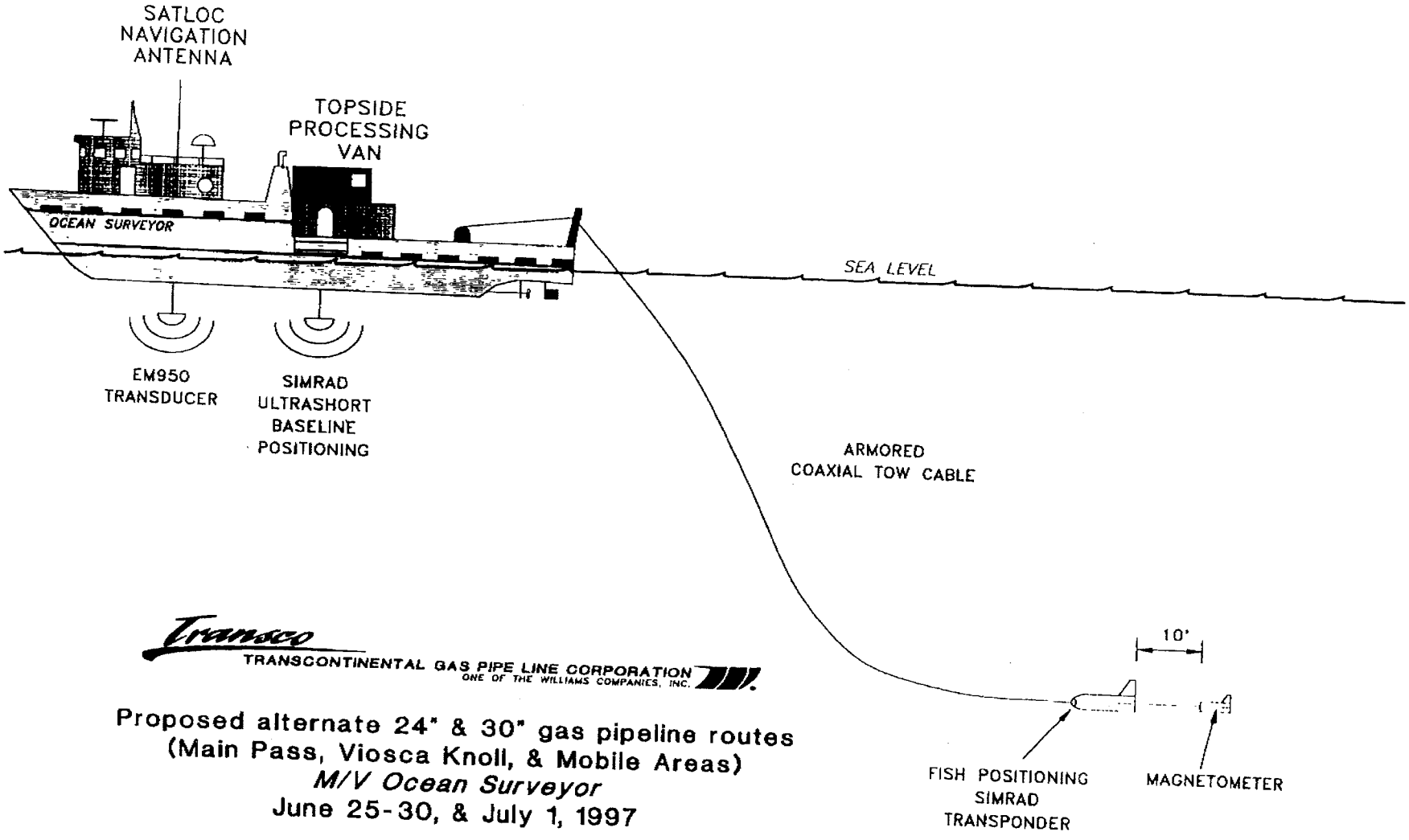
M/V MILLER DIVERS III
January 18, 1997

ODOM ECHOTRAC	Scale = 40 feet Record Divisions = 1 foot Setback = 8.8 feet to center of navigation Frequency = 24 kilohertz Transducer depth = 2 feet
PROTON MAGNETOMETER	Sensitivity = 1 gamma Sampling rate = .5 second Background noise level = +1.0 gamma Scales: Black = 100 gammas, Red = 1000 gammas Setback = 50 feet to center of navigation
SURVEY VESSEL	*M/V Miller Divers III* Average speed during survey = 3-4 knots STARFIX® antenna position = 10 feet ahead of stern Sea state during the survey = 2-5 feet

M/V L'ARPENTEUR
February 3-5, 1997

O.R.E. PINGER PROFILER	Scale = 100 milliseconds Record Divisions = 10 milliseconds Setback = 15 feet behind antenna Power = 10 kilowatts Frequency = 3.5 kilohertz Transducer depth = 11 feet
ECHOTRAC DEPTH SOUNDER	Scale = 100 feet Record Divisions = 10 feet Setback = 13 feet behind antenna Frequency = 200 kilohertz Transducer depth = 6 feet
PROTON MAGNETOMETER	Sensitivity = 1 gamma Sampling rate = .5 second Background noise level = +1.0 gamma Scales: Black = 100 gammas, Red = 1000 gammas Setback = 700-1,400 feet behind antenna
SIDE SCAN SONAR	Scale = 200 meters per channel Record Divisions = 25 meters Setback = 200-1.000 feet behind antenna Frequency = 100 kilohertz
SURVEY VESSEL	*M/V L'Arpenteur* Average speed during survey = 3-4 knots STARFIX® antenna position = 80 feet ahead of stern Sea state during the survey = 3-5 feet

SIS1000 SYSTEM DIAGRAM

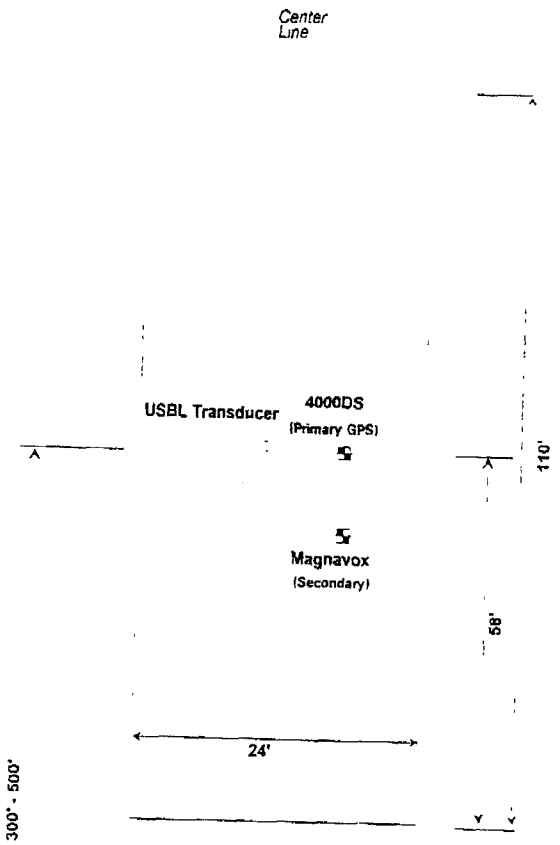


Transco
TRANSCONTINENTAL GAS PIPE LINE CORPORATION
ONE OF THE WILLIAMS COMPANIES, INC.

Proposed alternate 24" & 30" gas pipeline routes
(Main Pass, Viosca Knoll, & Mobile Areas)
M/V Ocean Surveyor
June 25-30, & July 1, 1997

Antenna Offsets for R/V Ocean Surveyor

June 25-July 1, 1997

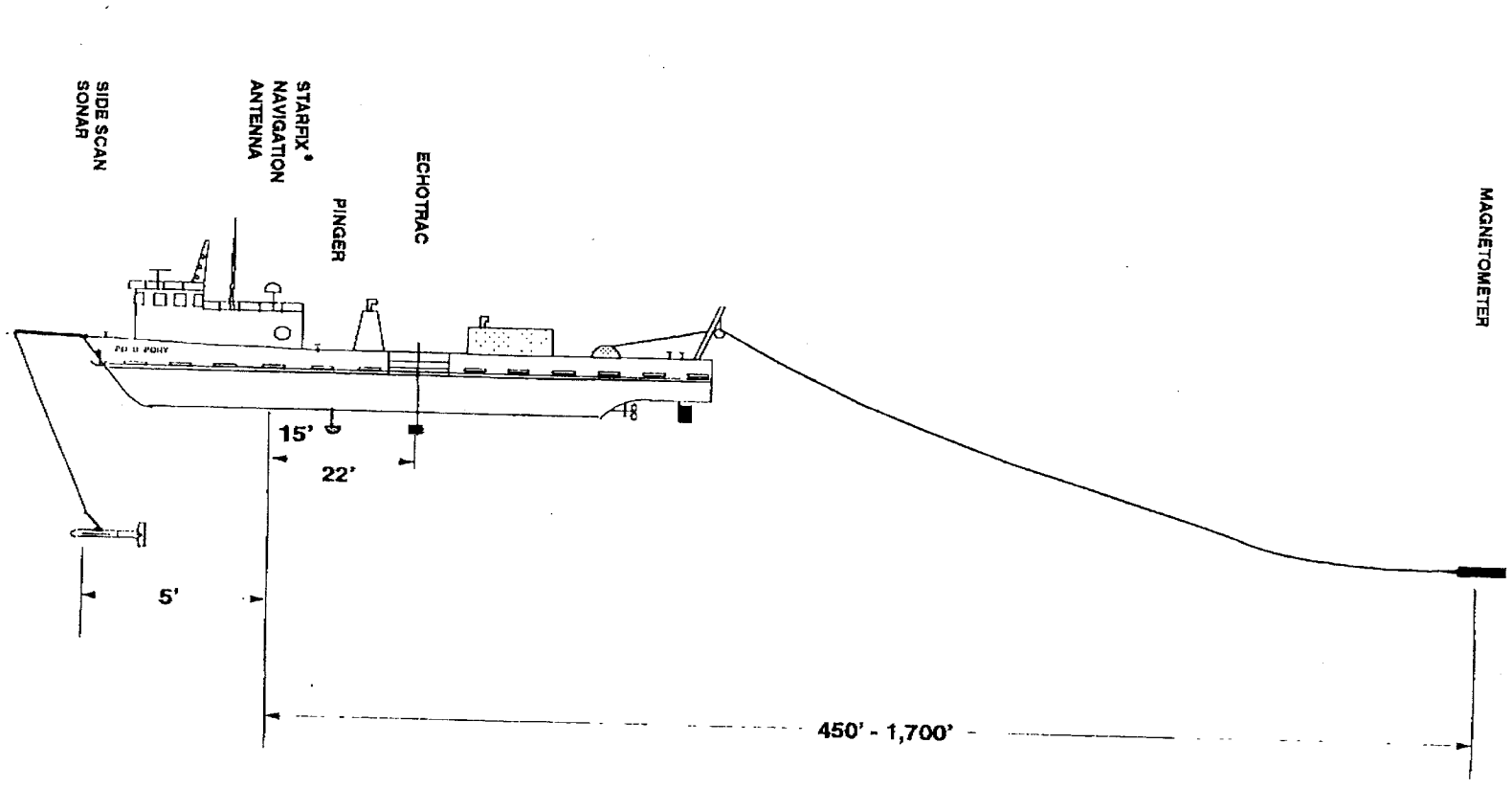


TRANSCO

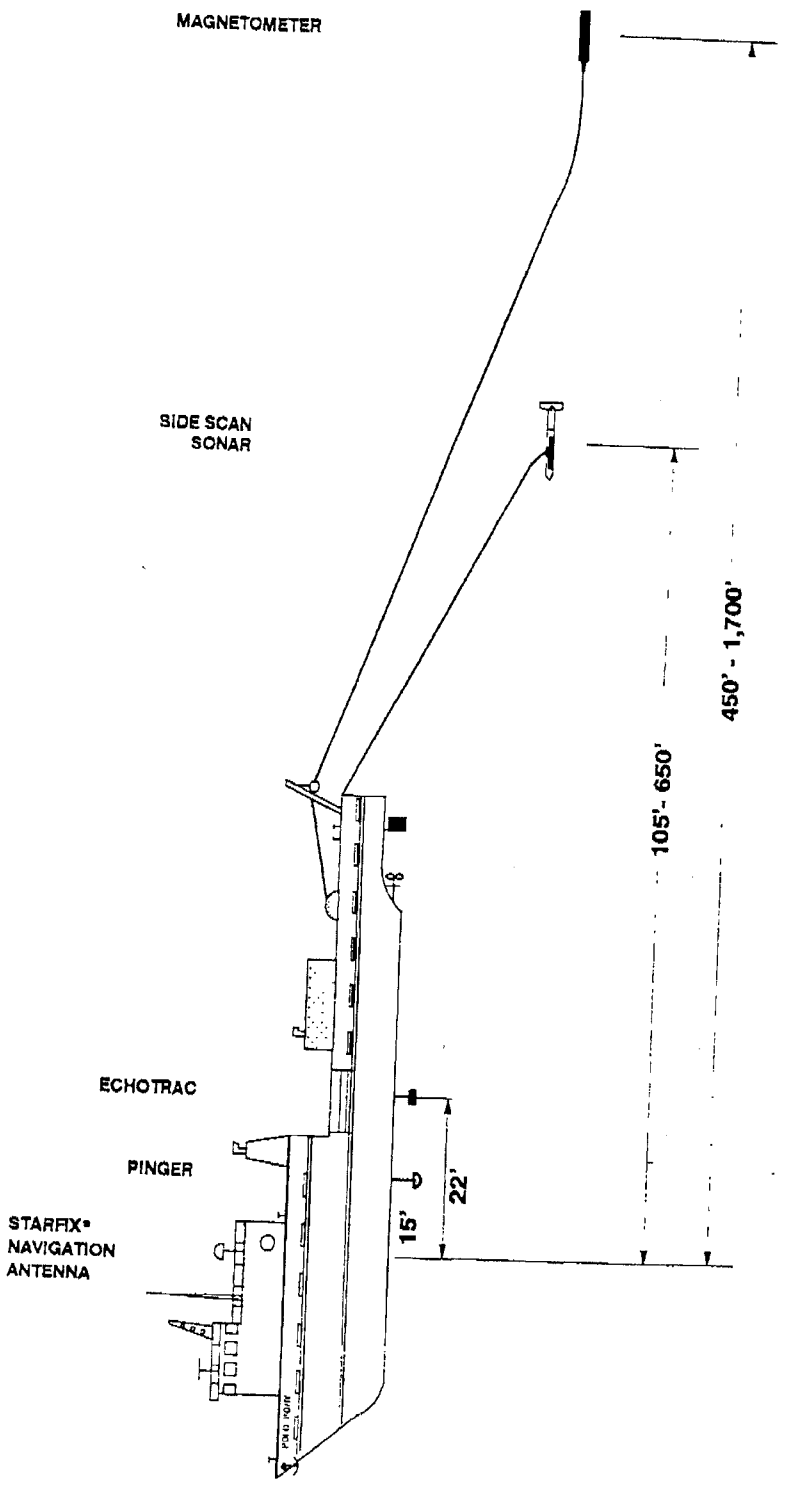
Archaeological, Engineering and Hazard Survey

Proposed 24" & 30" Gas Pipeline Route

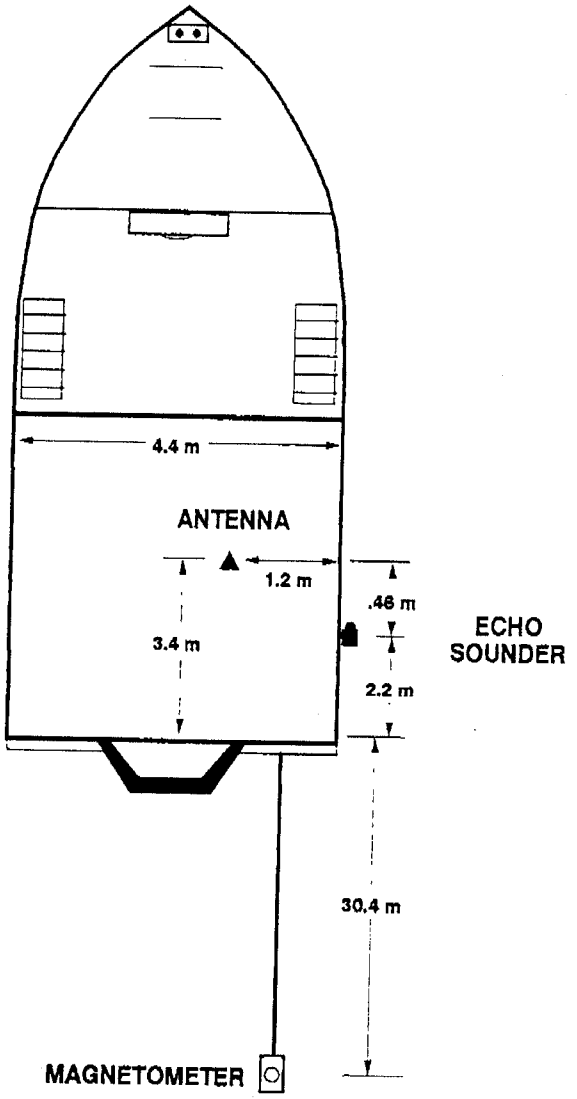
Mag Sensor



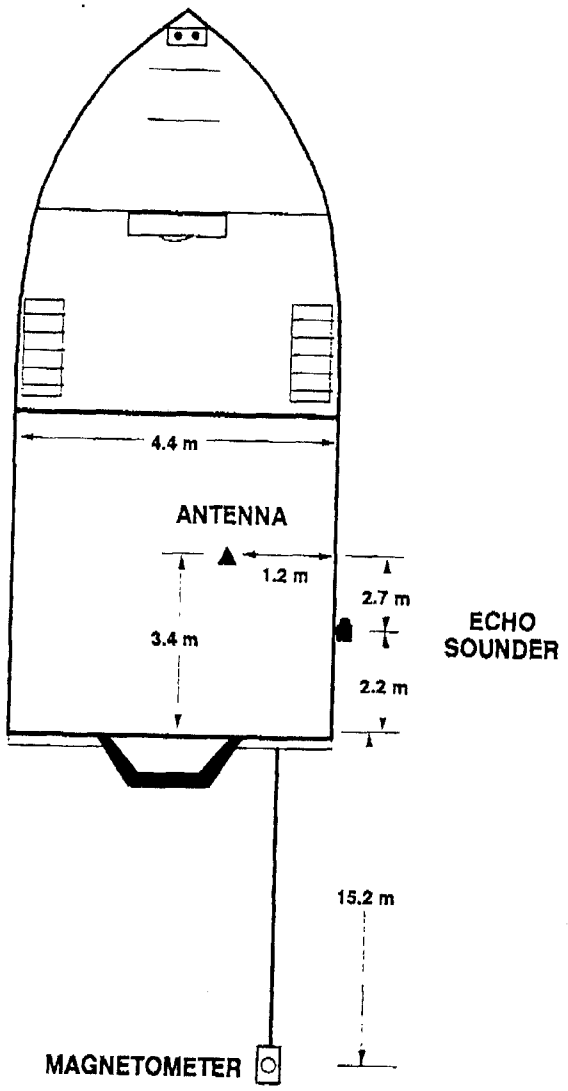
TRANSCO
PROPOSED PIPELINE ROUTE
MAIN PASS AREA TO SHORE
M/V POLO PONY
SHALLOW WATER OPERATIONS
SEPT. 29, OCT. 19-25, 28-31, and NOV. 1, 18-24, 1996



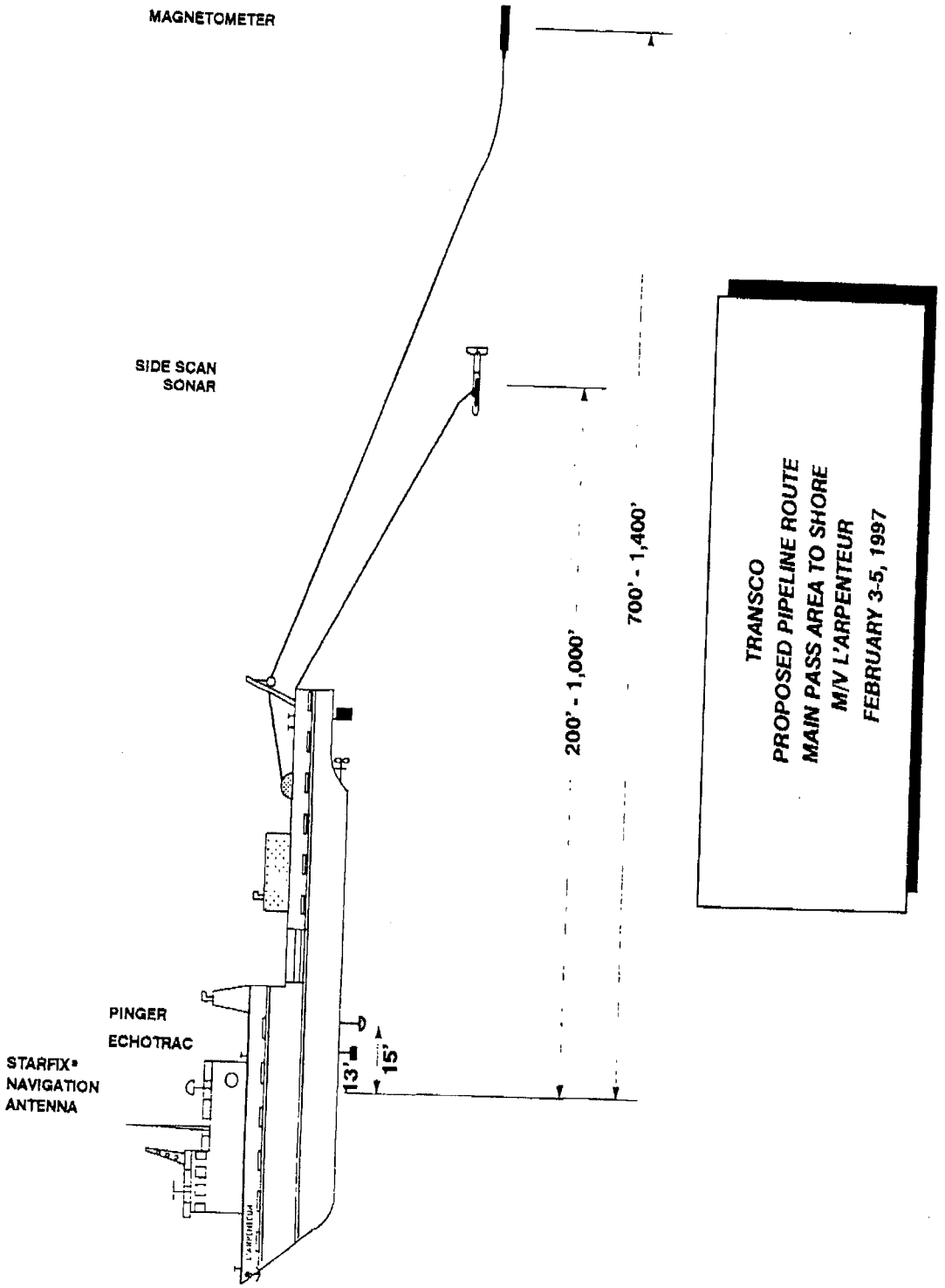
TRANSCO
PROPOSED PIPELINE ROUTE
MAIN PASS AREA TO SHORE
M/V POLO PONY
DEEP WATER OPERATION
SEPT. 29, OCT. 19-25, 28-31, and NOV. 1, 18-24, 1996



TRANSCO
BLOCK 252
MAIN PASS AREA
M/V MR. ADAM
SEPTEMBER 24-26, 1996



TRANSCO
PROPOSED PIPELINE ROUTE
MAIN PASS AREA TO SHORE
M/V MILLER DIVERS III
JANUARY 18, 1997


MAGNETOMETER
SIDE SCAN SONAR
PINGER
ECHOTRAC
STARFIX® NAVIGATION ANTENNA
13'
15'
200' - 1,000'
700' - 1,400'
TRANSCO
PROPOSED PIPELINE ROUTE
MAIN PASS AREA TO SHORE
M/V L'ARPENTEUR
FEBRUARY 3-5, 1997

PERSONNEL

Offshore Personnel

Jake Klara - Party Chief

Charlie Spann - Geophysical Supervisor

Jarrod Landry - Geophysical Operator

Paul Reeves - Surveyor/Geophysical Operator

Conrad Daigle - Senior Surveyor

Curtis Calloway - Computer Scientist/Multibeam Processor

Office Staff

Glenn Malone - Project Manager

Tony George - Senior Geophysicist

Ave McBride - AutoCAD Technician

Ralph Coleman - Professional Land Surveyor

Laura Ann Landry

Marine Archaeologist

PERSONAL INFORMATION:

Date of Birth: 3 July 1955
Nationality: United States of America

EDUCATION:

B.A. Anthropology and Geography, Louisiana State University, Baton Rouge, Louisiana, 1976.
M.A. Anthropology, Louisiana State University, Baton Rouge, Louisiana, 1990.

QUALIFICATIONS:

Registered archeologist with the Council of Texas Archeologists, approved archeologist with the USDI MMS OCS, in Louisiana, and with the Army Corps of Engineers, Mobile District, Mobile Alabama

EXPERIENCE:

President, L.A. Landry & Associates, Inc., providing marine archeological, geophysical and geological surveys and interpretation to the offshore oil and gas industry, marine survey companies, and engineering firms for lease blocks and pipeline rights-of-way in the Gulf of Mexico with over ten years consulting experience. Consulting archivist, ethnohistorian and archeologist for various archaeological survey firms and state agencies; responsible for archival research, interviews, marine and terrestrial archeological field work, and report preparation.

Consulting anthropologist to the Louisiana Folklife Program, Office of Cultural Development, Department of Culture, Recreation, and Tourism, State of Louisiana, conducting field work and interviews with fishermen and shrimpers in southeastern Louisiana; presenter and participant in 1989 and 1990 Louisiana Folklife Festivals.

Historic Site Manager for the Plaquemine Lock State Commemorative Area, a medium-size facility of the Louisiana State Parks system. Responsible for researching, planning and acquiring museum exhibits, designing and conducting tours, and managing and maintaining the site's grounds, facilities, and staff.

PROFESSIONAL AFFILIATIONS:

Society for Explorations Geophysicists
Society for American Archaeology
Society for Historical Archaeology
American Anthropological Association

7/26/93

OFFSHORE PERSONNEL: *M/V POLO PONY*

September 29 and October 19-22, 1996

Kirk Deshotels - Offshore Supervisor
Jonah Fuselier - Assistant Supervisor
Matthew Bridges - Geophysical Operator
David Barron - Geophysical Operator
Andrew Jason - Surveyor
Ricky Horne - Surveyor

October 23-25, 1996

Kirk Deshotels - Offshore Supervisor
Jonah Fuselier - Assistant Supervisor
Matthew Bridges - Geophysical Operator
David Barron - Geophysical Operator
Rod Walch - Surveyor
Greg Barrilleaux - Surveyor

October 28-31, 1996

Kirk Deshotels - Offshore Supervisor
Robby Ancelet - Assistant Supervisor
Jonah Fuselier - Geophysical Operator
David Barron - Geophysical Operator
Ricky Horne - Surveyor
Kevin Barron - Surveyor

November 1, 1996

Kirk Deshotels - Offshore Supervisor
Pat English - Assistant Supervisor
David Barron - Geophysical Operator
Ted Tremblay - Geophysical Operator
Ricky Horne - Surveyor
Kevin Barron - Surveyor

November 19-21, 1996

Kirk Deshotels - Offshore Supervisor
Jonah Fuselier - Assistant Supervisor
David Barron - Geophysical Operator
John Guillory - Geophysical Operator
Darren Donatto - Surveyor
Al Pounds - Surveyor

November 22-24, 1996

Kirk Deshotels - Offshore Supervisor
Gene Benoit - Assistant Supervisor
David Barron - Geophysical Operator
John Guillory - Geophysical Operator
Darren Donatto - Surveyor
Al Pounds - Surveyor

OFFSHORE PERSONNEL: R/V KIT JONES

September 17-19, 1996

Jonah Fuselier - Offshore Supervisor
John Grosvenor - Geophysical Operator
Ted Tremblay - Geophysical Operator
Tim Atkins - Surveyor

University of Mississippi Coring Crew

Dr. Bob Woosley
Brian Noakes
Andy Gossett

OFFSHORE PERSONNEL: M/V MR. ADAMS

September 24-26, 1996

Ted Tremblay - Geophysical Supervisor
Mike Welch - Surveyor

OFFSHORE PERSONNEL: R/V SEIS SURVEYOR

December 5, 1996

Koral Gabik - Offshore Supervisor
Billy Robichaux - Assistant Supervisor
Berry Comeaux - Geophysical Operator
Donald Baron - Geophysical Operator
John Thompson - Surveyor
James Caison - Surveyor

PERSONNEL LIST

OFFSHORE PERSONNEL: ***M/V MILLER DIVERS III***

January 18, 1997

Greg Barrilleaux - Offshore Supervisor
Ted Tremblay - Geophysical Operator
Bryan Barron - Surveyor

OFFSHORE PERSONNEL: ***M/V L'ARPENTEUR***

December 5, 1996

Wayne Labrie - Offshore Supervisor
Al Hebert- Assistant Supervisor
Koral Gabik - Assistant Supervisor
Jonah Fuselier - Geophysical Operator
Blas Juarez - Geophysical Operator
John Grovsenor - Geophysical Operator
Kevin Barron - Surveyor
Ron Ball - Surveyor

OFFICE PERSONNEL

Mike Kaluza - Marine Geophysicist
Barbara DuVal - Geophysicist
Mark Savarino - Marine Geophysicist
Laura Landry - Consulting Marine Archeologist
John Anslem - Supervisor Cad Services
Rick Garza - Cad/GIS Supervisor
Liliana Orosco - Cad Specialist
Lon Guillory - Professional Assistant
Chris Cring - Professional Assistant
Brian Ronkartz - Professional Assistant

Gas Pipelines – Transco
2800 Post Oak Boulevard
Houston, Texas 77056
713.215.2000

By Certified Mail; Return Receipt Requested

Bates: 03042

February 19, 2015

Mr. James Giattina
U. S. Environmental Protection Agency Region 4
Water Protection Division
Pollution Control and Implementation Branch
Atlanta Federal Center
61 Forsyth Street, SW
Atlanta, Georgia 30303-8960

RE: NPDES General Permit No. GEG460000
Coverage No. GEG460924
Transcontinental Gas Pipe Line Company, LLC (Transco)
Pipeline Junction Platform MO822, OCS No. G18794

Dear Mr. Giattina,

In accordance with National Pollutant Discharge Elimination System (NPDES) General Permit No. GEG460000, Part I.A.8, Transcontinental Gas Pipe Line Company, LLC (Transco) hereby requests coverage under a subsequent NPDES General Permit. This request letter is being submitted prior to the March 31, 2015 permit expiration date. Please note that the information required by Part I.A.8 is included in Attachment A.

Should you have any questions, please feel free to contact me at (713) 215-2641, or by e-mail at rafael.castillo@williams.com.

Sincerely,

Rafael Castillo
Senior Environmental Specialist

2015 FEB 24 12:32 OWES

Attachment A

General Permit No. GEG460000, Part I.A.8 Requirements

Facilities to be covered under the subsequent permit

Company: Transcontinental Gas Pipe Line Company, LLC (Transco)
Block: MO 822
OCS number: G18794
Structure Platform A

Current permit coverage number

Coverage No. GEG460924

Certification in accordance with Part II.D.13

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Brady McNew
Manager, Operations

2/16/15
Date

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

MAR 21 2018

CERTIFIED MAIL 7017 1450 0000 7972 6907
RETURN RECEIPT REQUESTED

Ms. Karen Vanacor
ANKOR Energy, LLC.
Suite 1100
1615 Poydras Street
New Orleans, LA 70112

Subject: National Pollutant Discharge Elimination System General Permit Coverage
Permit No.: GEG460000

Dear Ms. Vanacor:

We have received your letter postmarked February 6, 2018, in which you submitted one (1) Notice of Intent (NOI) for coverage under the National Pollutant Discharge Elimination System (NPDES) General Permit (GEG460000). In accordance with Part I.A.4 of the General Permit, Notification Requirements (Existing Sources and New Sources), your NOI fulfills the notification requirements in the General Permit, allowing Region 4 to determine that your filing contains the necessary information to include this facility under the General Permit as an existing source.

Permit coverage is hereby authorized under the NPDES General Permit for the operational facilities listed in the enclosure. In accordance with Part I.A.4 of the General Permit, coverage for these facilities is effective on the postmarked date for submittal of the NOI, February 6, 2018. General Permit coverage will terminate on January 19, 2023 unless EPA Region 4 is otherwise notified.

If you have any questions, please contact Ms. Bridget Staples of the NPDES Permitting and Enforcement Branch at (404) 562-9783.

Sincerely,

Mary S. Walker
Director
Water Protection Division

Enclosure

February 6, 2018

U. S. Environmental Protection Agency Region 4
Water Management Division
Permits, Grants and Technical Assistance Branch
Atlanta Federal Center
61 Forsyth Street, SW
Atlanta, Georgia 30303-8960

Notification of Intent of Coverage Under Final NPDES General Permit No. GEG460000 For Offshore Oil and Gas Activities in the Eastern Gulf of Mexico, Mobile Block 870, OCS G 05068, "A" Platform and Production Activities

Dear Director:

ANKOR Energy LLC (ANKOR) is requesting coverage in accordance with the Final General Permit No. GEG460000 for Offshore Oil and Gas Activities in the Eastern Gulf of Mexico under an existing source at Mobile Block 870 "A" Platform. The requested and attached information responds to the inquiries (a. thru v. noted below) and is furnished insofar and only insofar as to ANKOR's being operator of the lease via assignment and Designation of Operatorship effective June 18, 2012.

a. **Legal name and address of the operator:**
ANKOR Energy, LLC
Suite 1100
1615 Poydras Street
New Orleans, LA 70112

b. **Type of Operator –**
Primary Operator – Producer

c. **Facility name, OCS number location, lease block assigned by BOEM name assigned to the lease area:**

February 6, 2018

Notification of Intent of Coverage Under Final NPDES General Permit No. GEG460000 For Offshore Oil and Gas Activities in the Eastern Gulf of Mexico, Mobile Block 870, OCS G 05068, "A" Platform and Production Activities

The facility name is MO 870 "A", OCS- G 5068 , and Attachment C-1 is a copy of the Serial Register Page from the BOEM/BSEE website that advises that the lease, OCS – G 5068, named MO 870, originated in Lease Sale #67, and dated 2/9/1982.

Attachment C-2 is correspondence dated February 1, 1989 advising the installation of the "A" Platform was completed. Correspondence dated July 11, 1994, attachment C-2. 1, advises the production equipment was completed on June 27, 1994.

d. **Number and type of facilities and activities proposed within the lease block**: There is one facility, "A" and one caisson #2 within the lease block. ANKOR at present conducts production operations from the existing "A" Platform and #2 caissons.

e. **Map with longitude and latitude of the facility location and expected discharges**:
Attached as E-1

f. **Date operator will commence on-site construction:**
Not applicable – No further construction operations are planned

g. **Date operator plans to commence exploration activities:**
Not applicable – No additional exploration activities.

h. **Date operator entered into a contract to purchase facilities or equipment:**
ANKOR Energy LLC acquired the property via an assignment and bill of sale on 11/30/2011 with an effective date of 10/1/2011. Subsequently, ANKOR became the Designated Operator of the MO 870 lease, OCS- G 5068 on 6/18/2012. No other contracts have been have been entered into for facilities or additional new equipment.

i. **Date operator plans to commence development:**

MO 870 lease was a producing property when acquired. No plans for lease development. See attachment I-1

February 6, 2018

Notification of Intent of Coverage Under Final NPDES General Permit No. GEG460000 For Offshore Oil and Gas Activities in the Eastern Gulf of Mexico, Mobile Block 870, OCS G 05068, "A" Platform and Production Activities

j. **Date operator plans to commence production:**
MO 870 lease was producing at acquisition of the lease.

k. **Technical information on the characteristics of the sea bottom in accordance with MMS Notice of Lessees number 98-20:**
MO 870 was producing in 1994 or four (4) years prior to the 1998 NTL. Refer to Exhibit I-1. Attachment K via correspondence dated December 17, 1986 to the EPA and December 18, 1986 indicates the live bottoms in accordance with Lease Stipulation 10 were considered and found that via a hazard survey none existed at this location.

l. **If the facility is in less than 100 meters water depth for offshore Mississippi and Alabama in Mobile and Visoca Knoll lease blocks, attach a Live Bottom survey):** .
Attachment "K"

m. **Type of all drilling fluids to be used:**

No additional drilling is planned for the lease

n. **Attach documentation that an APD, EP, DOCO or DPP has been submitted to BOEM:**
Attachment N-1 provides a copy of the DOCD filed with the Minerals Management Service on February 25, 1988.

o. **For facilities installed after March 4, 1993, identify the facility as a new source and state the date on which the facility's protection from more stringent new source performance standards or technology-based limitations ends:**
Not applicable. Attached as O-1 is the approval letter from the Minerals Management Service, dated 1-9-1989, for the installation of the "A" platform.

February 6, 2018

Notification of Intent of Coverage Under Final NPDES General Permit No. GEG460000 For Offshore Oil and Gas Activities in the Eastern Gulf of Mexico, Mobile Block 870, OCS G 05068, "A" Platform and Production Activities

1. **General permit coverage number for the previous general permit (GMG460000) if applicable:**

   Previously ANKOR's permit number **GEG460 0457**

p. **For production platforms, indicate the estimated distance (in meters) from the platform to the nearest Federally Designated Dredged Material Ocean Disposal Site:**
Over 1000 meters to the Mobile AL DMD site See attached P-1 and P-2

q. **Identify any permit violations under the previous Region 4 General Permit (NPDES No. GMG460000 issued December 9, 2004) for the facility:**
None

r. **Indicate if Phase III of EPA's Cooling Water Intake Structure Rule (CWIS) applies to the facility:**
Not applicable to this facility.

s. **Provide the name and NPDES permit coverage number under GEG460000 for contractors that are, or will be, performing work at your facility that are new oil and gas facilities subject to Phase III of the CWIS Rule:**
Not applicable to this property.

t. **Information on specific chemical composition of any additives currently being used or proposed for well fluids or biocides.**

   No chemicals or additives are added to the production stream or injected into the well.

February 6, 2018

Notification of Intent of Coverage Under Final NPDES General Permit No. GEG460000 For Offshore Oil and Gas Activities in the Eastern Gulf of Mexico, Mobile Block 870, OCS G 05068, "A" Platform and Production Activities

u. I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment for knowing violations.

v. **Intent to participate in the Industry Wide Study for testing of Well Fluids:**

See Attachment V-1 for ANKOR's expression of interest in the fluids study.

If you need any assistance or have any questions, please contact Karen Vanacor at (504) 596-2420 or kvanacor@ankorenergy.com.

Sincerely,

W. S. Goff
V. P. Operations

Enclosures

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Chevron

BC

Chevron U. S. A. Inc.
100 Northpark Blvd
Covington, La. 70433
Tel 985-773-7157

3/24/2015

FEDERAL EXPRESS NUMBER: 7731 8965 1514

U. S. Environmental Protection Agency Region 4, NPDES
Water Protection Division
Atlanta Federal Center
61 Forsyth Street, SW
Atlanta, Georgia 30303

ATTN: Ms. Bridget Staples, M.P.H.
Environmental Scientist

RE: Notice of Intent for Coverage under NPDES General Permit GEG460000
OCS Federal Waters, Gulf of Mexico

Dear Ms. Staples,

CHEVRON U.S.A Inc. hereby respectfully submits our request to administratively continue coverage under EPA Region IV NPDES General Permit GEG460000 (when issued) for the following facilities that are currently covered under the general permit issued April 1, 2010.

CHEVRON U.S.A Inc. understands that complete NOIs are required for each facility and must be submitted within 30 days after the effective date of the subsequently issued general permit. Attached are the Notification Requirements (Existing Sources and New Sources) as specified in the EPA Region IV Permit GEG460000.

Should you have any questions, please call Jim Floyd at (985) 773-6628.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Regards,

Signature: G. J. Chiasson Name: G. J. Chiasson

Company: CHEVRON U.S.A. Title: GOM East Operations Manager

Chevron

BS

Union Oil Company of California
Subsidiary of Chevron Corporation
100 Northpark Blvd
Covington, LA 70433
Tel 985-773-7157

3/24/2015

Federal Express Number: 7731 8954 6545

U. S. Environmental Protection Agency Region 4, NPDES
Water Protection Division
Atlanta Federal Center
61 Forsyth Street, SW
Atlanta, Georgia 30303

ATTN: Ms. Bridget Staples, M.P.H.
Environmental Scientist

RE: Notice of Intent for Coverage under NPDES General Permit GEG460000
OCS Federal Waters, Gulf of Mexico

Dear Ms. Staples,

UNION OIL COMPANY OF CALIFORNIA (UNOCAL), an indirect, wholly owned subsidiary of Chevron Corporation, hereby respectfully submits our request to administratively continue coverage under EPA Region IV NPDES General Permit GEG460000 (when issued) for the following facilities that are currently covered under the general permit issued April 1, 2010.

UNOCAL understands that complete NOIs are required for each facility and must be submitted within 30 days after the effective date of the subsequently issued general permit. Attached are the Notification Requirements (Existing Sources and New Sources) as specified in the EPA Region IV Permit GEG460000.

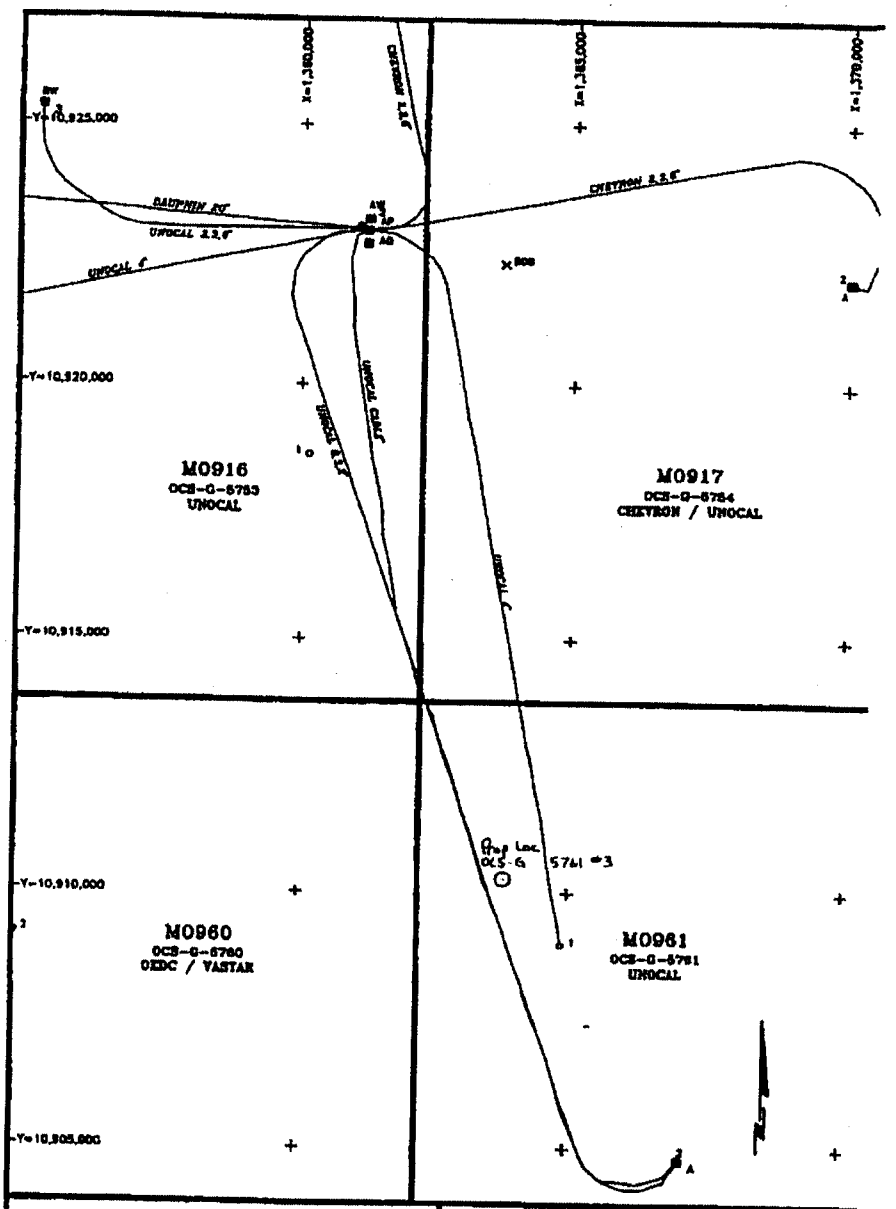
Should you have any questions, please call Jim Floyd at (985) 773-6628.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Regards,

Signature: G. J. Chiasson Name: G.J. Chiasson

Company: UNOCAL Title: GOM East Operations Manager



UNOCAL

Unocal Energy Resources Division
Unocal Corporation
4001 Ambassador Caffery Pkwy
Lafayette, LA 70503

JOHN E. CHANCE & ASSOCIATES, INC.

CIVIL ENGINEERS & LAND SURVEYORS - LAFAYETTE, LOUISIANA
A MEMBER OF THE FUGRO GROUP OF COMPANIES

SCALE IN FEET

GEODETIC DATUM: NAD 1927
CLIFFORD CLARKE 1866
PROJECTION: U.T.M.
ZONE: 16
GRID UNITS: FEET

BASE MAP

PORTION OF BLOCKS 916,917,960 & 961
MOBILE AREA
GULF OF MEXICO

JOB NO.: 97-6345	DATE: JANUARY 29, 1997	SHEET NO
FILE: CJA/976345.DWG	PRINT: JANUARY 29, 1997	1 OF 1

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1615 Poydras Street, Suite 830
New Orleans, LA 70112
Ph-504-267-9138, Fax-504-267-9139

March 22, 2018

Attention: Director
U. S. Environmental Protection Agency - Region 4
Water Protection Division
Sam Nunn Atlanta Federal Center
61 Forsyth Street, S.W.
Atlanta, Georgia 30303-8960

Re: Updated Notification of Intent for Coverage under Final NPDES General Permit No. GEG460000 for Offshore Oil and Gas Activities in the Eastern Gulf of Mexico, Mobile 916 AQ
Current Permit No. GEG460470 / new number given

Director: GEG460968

In accordance with part I.A.4 of the *Final NPDES General Permit for New and Existing Sources in the Offshore Subcategory of the Oil and Gas Extraction Category for the Eastern Portion of the Outer Continental Shelf of the Gulf of Mexico*, GEG460000 (Permit), Cox Operating, LLC is requesting general permit coverage for the Mobile 916 AQ facility. This facility is currently covered under the 2010 administratively continued permit. It is covered under Permit No. GEG460470. This paper Notice of Intent (NOI) is being submitted within 30 days from the effective date of the recently promulgated final renewed Permit and because the eNOI system is currently not operational for NOI submittal. Once the system becomes operational, an eNOI will be submitted in accordance with the Permit. Per instruction of Ms. Bridget Staples, this is an updated NOI for the original NOI dated February 15, 2018.

In accordance with Part I.A.4 of the Permit, information required in a) - w) is provided in the attached NOI table.

In accordance with Part II.D.13.d. (Certification) of General Permit No. GEG460000,

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

1615 Poydras Street, Suite 830
New Orleans, LA 70112
Ph-504-267-9138, Fax-504-267-9139

The review and approval of our request for coverage is greatly appreciated. If you have any questions or need additional information, please contact me via phone at (504) 267-9138 or via email at jrl@coxoil.com, or our environmental consultant, James Durbin (CK Associates) via phone at (225) 755-1000 or via e-mail at james.durbin@c-ka.com.

Sincerely,
Cox Operating, LLC

Mr. Jason Rains-Love
HSE Manager

Enclosures: As stated.

	ii) the clearing or removal of existing structures or facilities	
g.	The date on which the facility plans to commence exploration activities at the site, if applicable:	Not applicable - This is an existing facility that is currently permitted. There are no exploration activities planned.
h.	The date on which the owner/operator entered into a binding contract for the purchase of facilities or equipment intended to be used in its operation within a reasonable time (if applicable):	June 1, 2016 – This facility was bought from Union Oil Company of California (UNOCAL) (Owned and operated by Chevron USA, Inc.). Permit coverage was transferred on this date.
i.	The date on which the owner/operator plans to commence development:	Not applicable - This is an existing facility that is currently permitted. There are no development activities planned.
j.	The date on which the owner/operator plans to commence production:	This is an existing facility that is currently permitted. Production commenced prior to purchase of the facility on June 1, 2016 by the previous owner.
k.	Technical information on the characteristics of the sea bottom in accordance with BOEM Notice to Lessees (NTL) no. 2008-G05, *Shallow Hazards Program*, or the most current BOEM guidelines for shallow hazard investigation and analysis within 300 meters (965 feet) of the discharge point. For those facilities that submitted this information to EPA-Region 4 as part of the previous NPDES general permit (GEG460000), only indicate the previous submittal date of the information to meet the requirement of this NOI element:	Not Applicable - This is an existing facility that is currently permitted. This facility was bought from Union Oil Company of California (UNOCAL) (Owned and operated by Chevron USA, Inc.) June 1, 2016. This information would have been submitted by the previous owner.
l.	For facilities in less than 100 meters water depth for offshore Mississippi and Alabama in the Mobile and Viosca Knoll lease blocks, permittees must submit a Live-Bottom Survey using either digital high-resolution acoustic data (sidescan sonar) or photo documentation...(etc):	Not Applicable – Although this facility is less than 100 meters water depth, it is an existing facility that is currently permitted. This facility was bought from Union Oil Company of California (UNOCAL) (Owned and operated by Chevron USA, Inc.) June 1, 2016. This information would have been submitted by the previous owner.
m.	The type of drilling fluids to be used (e.g., water-based and/or synthetic-based):	Not applicable - This is an existing facility that is currently permitted. There are no drilling activities planned and thus, no drilling fluids will be used.

n.	Documentation that an Application for Permit to Drill (APD) has been submitted to BSEE and the EP, DOCD or DPP has been submitted to BOEM or approved by BOEM:	Not applicable - This is an existing facility that is currently permitted.
o.	For facilities installed after March 4, 1993, the NOI must also identify that the facility is a new source and state the date on which the facility's protection from more stringent new source performance standards or technology-based limitations ends. That data is the soonest of ten years from the date that construction is completed, ten years from the date the source begins to discharge process or non-construction related wastewater, or the end of the period of depreciation or amortization of the facility for the purposes of Section 167 or 169 (or both) of the Internal Revenue Code of 1954:	The Mobile 916 AQ was installed after March 4, 1993. The facility discharges Sanitary Waste and Domestic Waste. This is an existing facility that is currently permitted. This facility was bought from Union Oil Company of California (UNOCAL) (Owned and operated by Chevron USA, Inc.) June 1, 2016. This information would have been submitted by the previous owner.
p.	The general permit coverage number for the previous general permit (GMG460000) and/or the individual NPDES permit number of any individual permit issued by EPA Region 4 for this activity:	The current permit number for this facility is GEG460470.
q.	For production platforms, indicate the estimated distance (in meters) from the platform to the nearest Federally Designated Dredged Material Ocean Disposal Site:	The estimated distance from the complex to the nearest Federally Designated Dredged Material Ocean Disposal Site is 20,111 m. A location map is attached.
r.	Any permit violations under the previous Region 4 General Permit for the facility:	There were no permit violations under the previous Region 4 General Permit GEG460470.
s.	Indicate if Phase III of EPA's Cooling Water Intake Structure Rule (CWIS) applies to the facility for which you are applying for coverage under this permit. Also indicate if the facility plans to comply under Track I or Track II of the CWIS. See Part I.D.3. Note that the Phase III CWIS rule applies to new offshore oil and gas	Phase III of EPA's Cooling Water Intake Structure (CWIS) Rule does not apply to this facility. The facility was constructed before July 17, 2006 and does not have any CWIS.

	extraction facilities for which construction commenced after July 17, 2006, that meet the following criteria 1) it is a point source that uses or proposes to use a cooling water intake structure; 2) it has at least one cooling water intake structure that uses at least 25% of the water it withdraws for cooling purposes; 3) it has a design intake flow greater than two million gallon per day (MGD). Use of a cooling water intake structure includes obtaining cooling water by any sort of contract or arrangement with an independent supplier (or multiple suppliers) of cooling water if the supplier or suppliers withdraw(s) water from the waters of the United States. The threshold requirement that at least 25% of water withdrawn be used for cooling purposes must be measured on an average monthly basis. A new offshore oil and extraction facility meets the 25% cooling water threshold if, based on the new facility's design, any monthly average over a year for the percentage of cooling water withdrawn is expected to equal or exceed 25% of the total water withdrawn:	
t.	If known, indicate the name and NPDES permit coverage number under GEG460000 for vessel operators/contractors that are, or will be, performing work at your facility that are new oil and gas facilities subject to Phase III of the CWIS Rule:	Not applicable – There are no planned work operations that would require a vessel operator/contractor.

u.	Information on the specific chemical composition of any additives currently being used or proposed for use in well treatment, completion or workover operations or as biocides for sump/drain systems. If the information on the additive is not known at the time of the submittal of this NOI, operators shall include the information in a report that shall be submitted on to EPA Region 4 on September 30th of each year. Aside from submitting this information with the NOI, this information is also required to be recorded and retained on site for no less than five years from the issuance of the permit. These record retention requirements in this section supersede the general record keeping requirements for all NPDES permits in Part II.C.5, of this permit,	There are no planned well treatment, completion or workover operations.
v.	Certification statement per 40 C.F.R. §§ 122.22(d) and signature of the responsible party per 40 C.F.R. §§ 122.22(a)	See below following the NOI table.
w.	Statement indicating intent, or not, to participate in the alternative Industry-wide Study regarding Whole Effluent Toxicity Testing of Well Treatment, Completion and Workover Fluids (Part I.B.6.b. page 50).	There are no planned well treatment, completion or workover operations for this facility in this permit area. However, Cox Operating, LLC does intend to participate in the alternative Industry-Wide Study for the GOM.

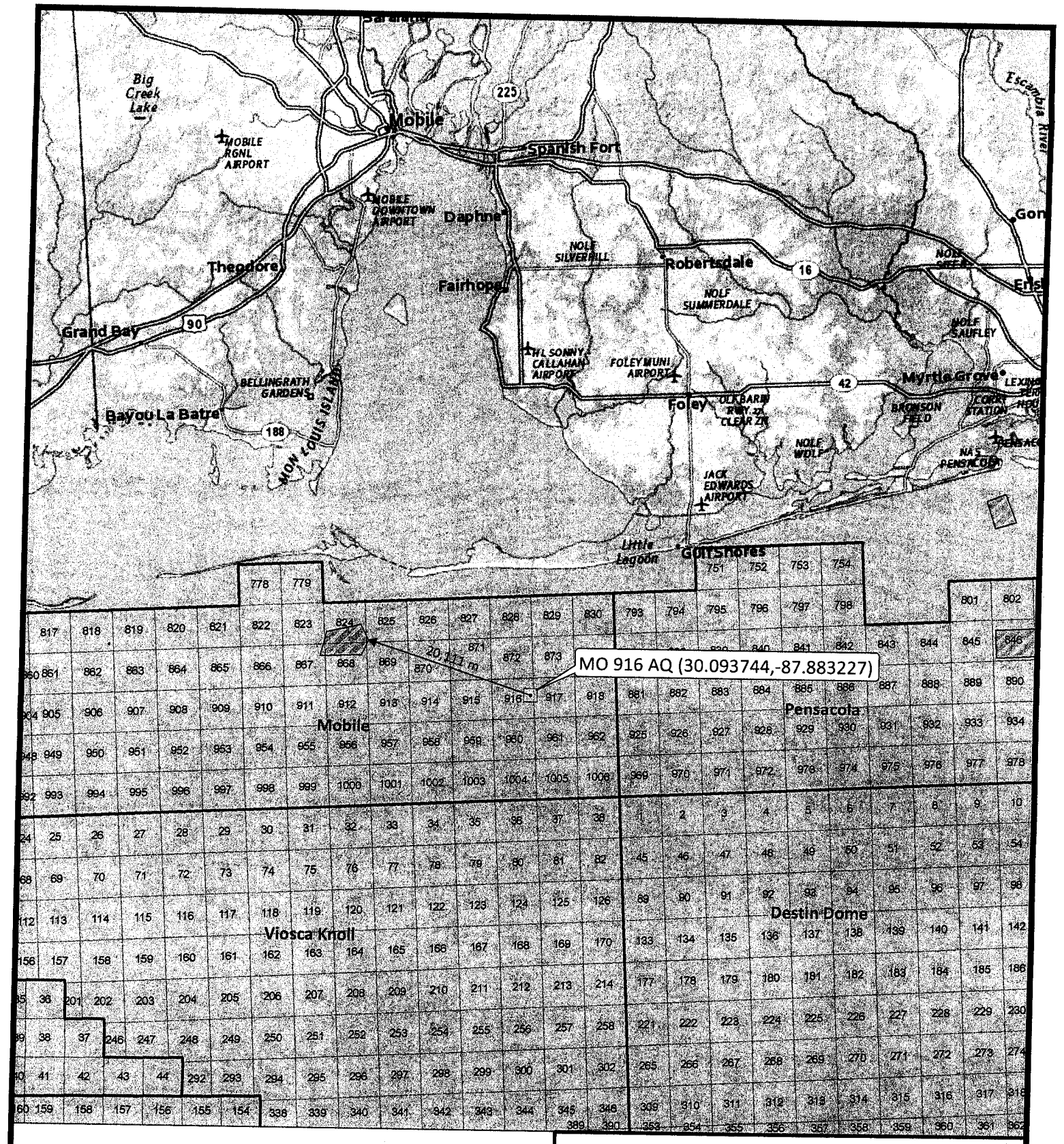
Part 1.A.4 of GEG460000
GEG460470 Mobile (MO) Block 916 AQ
Notice of Intent
Cox Operating, LLC

I certify that I am an authorized official of my Company as described in 40 CFR 122.22(d) and as set forth in Part II.D.10 of the permit. I further certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature: _____ Name: Jason Rains-Love

Company: Cox Operating, LLC Title: HSE Manager

Date: 20 MAR 2018



MO 916 AQ

Protraction Areas (BOEM)

Dredged Material Disposal Area (BOEM)

N

S

0 10

Miles

Base Map: National Geographic World Map

esri Partner Network Silver

Cox Operating

New Orleans, Louisiana

COX OPERATING

Notice of Intent (NOI)

Site Location Map

Gulf of Mexico

CK ASSOCIATES Environmental Consultants

Drawn:	CAL	Checked:	JLD
Date:	03/21/18	Approved:	JLD
Dwg. No.:	A15955-07		**Figure 1**

1615 Poydras Street, Suite 830
New Orleans, LA 70112
Ph-504-267-9138, Fax-504-267-9139

February 15, 2018

Attention: Director
U. S. Environmental Protection Agency - Region 4
Water Protection Division
Sam Nunn Atlanta Federal Center
61 Forsyth Street, S.W.
Atlanta, Georgia 30303-8960

Re: Notification of Intent for Coverage under Final NPDES General Permit No. GEG460000 for Offshore Oil and Gas Activities in the Eastern Gulf of Mexico,
Mobile 872 A
Current Permit No. GEG460559

Director:

In accordance with part I.A.4 of the *Final NPDES General Permit for New and Existing Sources in the Offshore Subcategory of the Oil and Gas Extraction Category for the Eastern Portion of the Outer Continental Shelf of the Gulf of Mexico*, GEG460000 (Permit), Cox Operating, LLC is requesting general permit coverage for the Mobile 872 A facility. This facility is currently covered under the 2010 administratively continued permit. It is covered under Permit No. GEG460559. This paper Notice of Intent (NOI) is being submitted within 30 days from the effective date of the recently promulgated final renewed Permit and because the eNOI system is currently not operational for NOI submittal. Once the system becomes operational, an eNOI will be submitted in accordance with the Permit.

In accordance with Part I.A.4 of the Permit, information required in a) - w) is provided in the attached NOI table.

In accordance with Part II.D.13.d. (Certification) of General Permit No. GEG460000,

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

1615 Poydras Street, Suite 830
New Orleans, LA 70112
Ph-504-267-9138, Fax-504-267-9139

The review and approval of our request for coverage is greatly appreciated. If you have any questions or need additional information, please contact Mr. Jason Rains-Love, HSE Training Special Projects Manager via phone at (504) 267-91383 or via email at jrl@coxoil.com, or our environmental consultant, James Durbin (CK Associates) via phone at (225) 755-1000 or via e-mail at james.durbin@c-ka.com.

Sincerely,
Cox Operating, LLC

Rodney Dykes
President/COO

Enclosures: As stated.

g.	The date on which the facility plans to commence exploration activities at the site, if applicable:	Not applicable - This is an existing production facility that is currently permitted. There are no exploration activities planned.
h.	The date on which the owner/operator entered into a binding contract for the purchase of facilities or equipment intended to be used in its operation within a reasonable time (if applicable):	June 1, 2016 – This facility was bought from Union Oil Company of California (UNOCAL) (Owned and operated by Chevron USA, Inc.). Permit coverage was transferred on this date.
i.	The date on which the owner/operator plans to commence development:	Not applicable - This is an existing production facility that is currently permitted. There are no development activities planned.
j.	The date on which the owner/operator plans to commence production:	This is an existing production facility that is currently permitted. Production commenced prior to purchase of the facility on June 1, 2016 by the previous owner.
k.	Technical information on the characteristics of the sea bottom in accordance with BOEM Notice to Lessees (NTL) no. 2008-G05, *Shallow Hazards Program*, or the most current BOEM guidelines for shallow hazard investigation and analysis within 300 meters (965 feet) of the discharge point. For those facilities that submitted this information to EPA-Region 4 as part of the previous NPDES general permit (GEG460000), only indicate the previous submittal date of the information to meet the requirement of this NOI element:	Not Applicable - This is an existing production facility that is currently permitted. This facility was bought from Union Oil Company of California (UNOCAL) (Owned and operated by Chevron USA, Inc.) June 1, 2016. This information would have been submitted by the previous owner.
l.	For facilities in less than 100 meters water depth for offshore Mississippi and Alabama in the Mobile and Viosca Knoll lease blocks, permittees must submit a Live-Bottom Survey using either digital high-resolution acoustic data (sidescan sonar) or photo documentation...(etc):	Not Applicable – Although this facility is less than 100 meters water depth, it is an existing production facility that is currently permitted. This facility was bought from Union Oil Company of California (UNOCAL) (Owned and operated by Chevron USA, Inc.) June 1, 2016. This information would have been submitted by the previous owner.
m.	The type of drilling fluids to be used (e.g., water-based and/or synthetic-based):	Not applicable - This is an existing production facility that is currently permitted. There are no drilling activities planned and thus, no drilling fluids will be used.

n.	Documentation that an Application for Permit to Drill (APD) has been submitted to BSEE and the EP, DOCD or DPP has been submitted to BOEM or approved by BOEM:	Not applicable - This is an existing production facility that is currently permitted.
o.	For facilities installed after March 4, 1993, the NOI must also identify that the facility is a new source and state the date on which the facility's protection from more stringent new source performance standards or technology-based limitations ends. That data is the soonest of ten years from the date that construction is completed, ten years from the date the source begins to discharge process or non-construction related wastewater, or the end of the period of depreciation or amortization of the facility for the purposes of Section 167 or 169 (or both) of the Internal Revenue Code of 1954:	Mobile 872 A is a caisson that was installed January 1, 1996. The facility discharges Deck Drainage. This is an existing production facility that is currently permitted. This facility was bought from Union Oil Company of California (UNOCAL) (Owned and operated by Chevron USA, Inc.) June 1, 2016. This information would have been submitted by the previous owner.
p.	The general permit coverage number for the previous general permit (GMG460000) and/or the individual NPDES permit number of any individual permit issued by EPA Region 4 for this activity:	The current permit number for this facility is GEG460559.
q.	For production platforms, indicate the estimated distance (in meters) from the platform to the nearest Federally Designated Dredged Material Ocean Disposal Site:	The estimated distance from the complex to the nearest Federally Designated Dredged Material Ocean Disposal Site is 17,831 m. A location map is attached.
r.	Any permit violations under the previous Region 4 General Permit for the facility:	There were no permit violations under the previous Region 4 General Permit, GEG460559.

s.	Indicate if Phase III of EPA's Cooling Water Intake Structure Rule (CWIS) applies to the facility for which you are applying for coverage under this permit. Also indicate if the facility plans to comply under Track I or Track II of the CWIS. See Part I.D.3. Note that the Phase III CWIS rule applies to new offshore oil and gas extraction facilities for which construction commenced after July 17, 2006, that meet the following criteria 1) it is a point source that uses or proposes to use a cooling water intake structure; 2) it has at least one cooling water intake structure that uses at least 25% of the water it withdraws for cooling purposes; 3) it has a design intake flow greater than two million gallon per day (MGD). Use of a cooling water intake structure includes obtaining cooling water by any sort of contract or arrangement with an independent supplier (or multiple suppliers) of cooling water if the supplier or suppliers withdraw(s) water from the waters of the United States. The threshold requirement that at least 25% of water withdrawn be used for cooling purposes must be measured on an average monthly basis. A new offshore oil and extraction facility meets the 25% cooling water threshold if, based on the new facility's design, any monthly average over a year for the percentage of cooling water withdrawn is expected to equal or exceed 25% of the total water withdrawn:	Phase III of EPA's Cooling Water Intake Structure (CWIS) Rule does not apply to this facility. The facility was constructed before July 17, 2006 and does not have any CWIS.

t.	If known, indicate the name and NPDES permit coverage number under GEG460000 for vessel operators/contractors that are, or will be, performing work at your facility that are new oil and gas facilities subject to Phase III of the CWIS Rule:	Not applicable – There are no planned work operations that would require a vessel operator/contractor.
u.	Information on the specific chemical composition of any additives currently being used or proposed for use in well treatment, completion or workover operations or as biocides for sump/drain systems. If the information on the additive is not known at the time of the submittal of this NOI, operators shall include the information in a report that shall be submitted on to EPA Region 4 on September 30th of each year. Aside from submitting this information with the NOI, this information is also required to be recorded and retained on site for no less than five years from the issuance of the permit. These record retention requirements in this section supersede the general record keeping requirements for all NPDES permits in Part II.C.5, of this permit,	There are no planned well treatment, completion or workover operations. Currently a biocide, Nalco, Bactron K-103 Antimicrobial (see attached Safety Data Sheet) is being used intermittently to comply with proper operation and maintenance requirements of the sump/drain system. This biocide meets the requirements of 40 CFR 122.42(a)(2)(i-iii).
v.	Certification statement per 40 C.F.R. §§ 122.22(d) and signature of the responsible party per 40 C.F.R. §§ 122.22(a)	See below following the NOI table.
w.	Statement indicating intent, or not, to participate in the alternative Industry-wide Study regarding Whole Effluent Toxicity Testing of Well Treatment, Completion and Workover Fluids (Part I.B.6.b. page 50).	There are no planned well treatment, completion or workover operations for this facility in this permit area. However, Cox Operating, LLC does intend to participate in the alternative Industry-Wide Study for the GOM.

I certify that I am an authorized official of my Company as described in 40 CFR 122.22(d) and as set forth in Part II.D.10 of the permit. I further certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

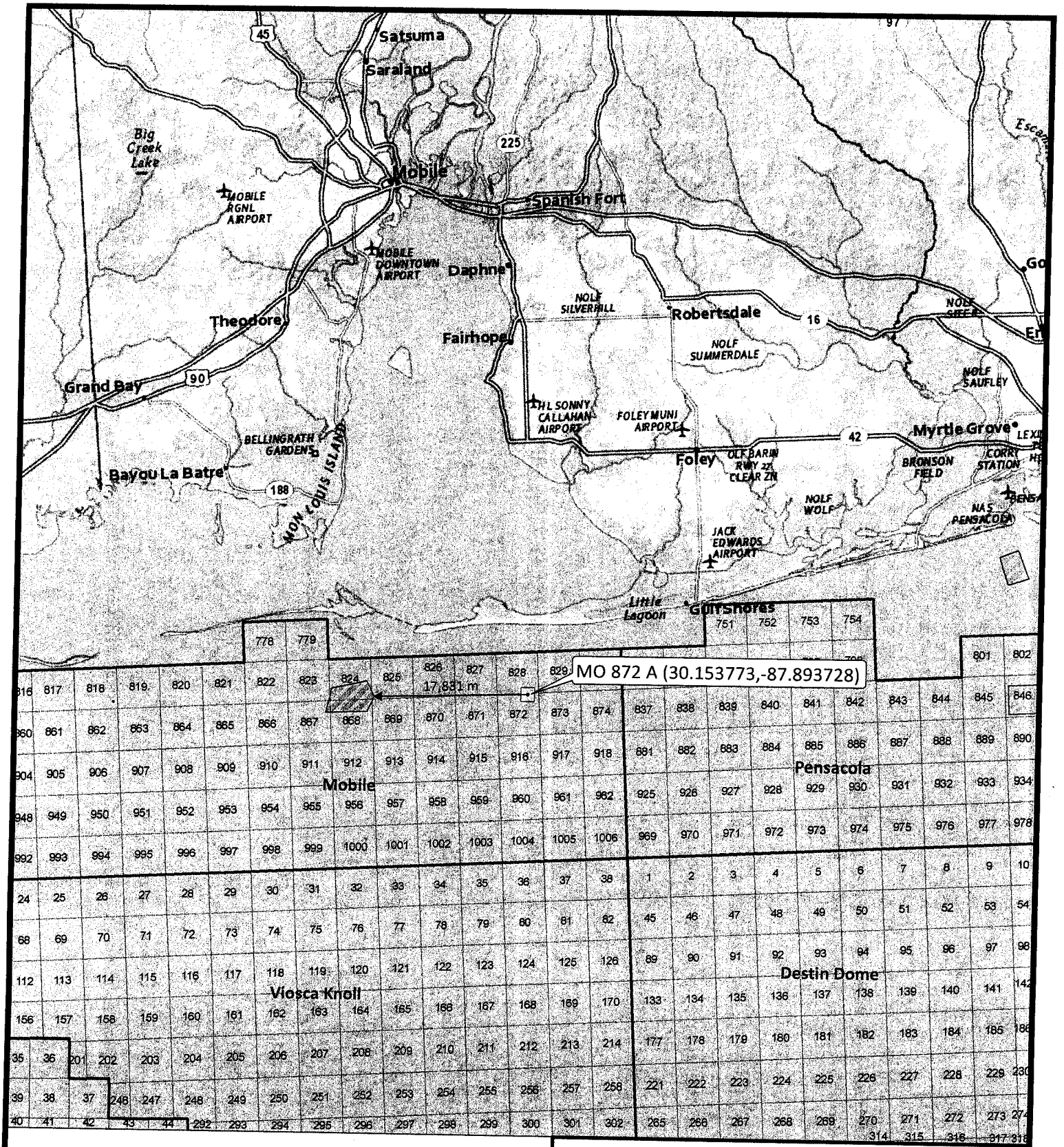
Signature: Rodney Dykes

Name: Rodney Dykes

Company: Cox Operating, LLC

Title: President/COO

Date: 02/15/2018



MO 872 A

Protraction Areas (BOEM)

Dredged Material Disposal Area (BOEM)

N

S

0 10

Miles

Base Map: National Geographic World Map

esri Partner Network

Cox Operating

New Orleans, Louisiana

COX OPERATING

Notice of Intent (NOI)

Site Location Map

Gulf of Mexico

CK Associates Environmental Consultants

Drawn:	CAL	Checked:	JLD
Date:	02/09/18	Approved:	JLD
Dwg. No.:	A13753-01	**Figure 1**	

NALCO Champion
An Ecolab Company

SAFETY DATA SHEET

Bactron® K-103 Antimicrobial

Section: 1. PRODUCT AND COMPANY IDENTIFICATION

Product name	:	Bactron® K-103 Antimicrobial
Other means of identification	:	Not applicable.
Recommended use	:	BIOCIDE
Restrictions on use	:	Refer to available product literature or ask your local Sales Representative for restrictions on use and dose limits.
Company	:	Nalco Champion Company 7705 Highway 90-A Sugar Land, Texas 77478 USA TEL: (281) 263-7000
Emergency telephone number	:	(800) 424-9300 (24 Hours) CHEMTREC
Issuing date	:	04/01/2015

Section: 2. HAZARDS IDENTIFICATION

GHS Classification

Acute toxicity (Inhalation)	:	Category 4
Acute toxicity (Oral)	:	Category 3
Acute toxicity (Dermal)	:	Category 4
Serious eye damage	:	Category 1
Skin sensitization	:	Category 1
Reproductive toxicity	:	Category 2

GHS Label element

Hazard pictograms :

Signal Word : Danger

Hazard Statements : Causes serious eye damage.
Toxic if swallowed.
Harmful in contact with skin or if inhaled
May cause an allergic skin reaction.
Suspected of damaging fertility or the unborn child.

Precautionary Statements : **Prevention:**
Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray. Use only outdoors or in a well-ventilated area. Contaminated work clothing should not be allowed out of the workplace. Wear eye protection/face protection. Wear protective gloves. Use personal protective equipment as required.
Response:

IF ON SKIN: Wash with plenty of soap and water. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. IF exposed or concerned: Get medical advice/attention. Immediately call a POISON CENTER or doctor/ physician. If skin irritation or rash occurs: Get medical advice/ attention. Wash contaminated clothing before reuse.

Storage:

Store in a well-ventilated place. Keep container tightly closed. Store locked up.

Disposal:

Dispose of contents/ container to an approved waste disposal plant.

Other hazards : None known.

Section: 3. COMPOSITION/INFORMATION ON INGREDIENTS

Pure substance/mixture : Mixture

Chemical Name	CAS-No.	Concentration: (%)
Tetrakis(hydroxymethyl) phosphonium sulfate	55566-30-8	10 - 30

Section: 4. FIRST AID MEASURES

In case of eye contact : Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention immediately.

In case of skin contact : Wash off immediately with plenty of water for at least 15 minutes. Use a mild soap if available. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

If swallowed : Rinse mouth with water. Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Get medical attention immediately.

If inhaled : Remove to fresh air. Treat symptomatically. Get medical attention.

Protection of first-aiders : In event of emergency assess the danger before taking action. Do not put yourself at risk of injury. If in doubt, contact emergency responders.Use personal protective equipment as required.

Notes to physician : Treat symptomatically.

Most important symptoms and effects, both acute and delayed : See Section 11 for more detailed information on health effects and symptoms.

Section: 5. FIREFIGHTING MEASURES

Suitable extinguishing media : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media : None known.

Specific hazards during firefighting	:	Not flammable or combustible.
Hazardous combustion products	:	Decomposition products may include the following materials: Carbon oxides Sulphur oxides Oxides of phosphorus
Special protective equipment for firefighters	:	Use personal protective equipment.
Specific extinguishing methods	:	Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. In the event of fire and/or explosion do not breathe fumes.

Section: 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	Ensure adequate ventilation. Keep people away from and upwind of spill/leak. Avoid inhalation, ingestion and contact with skin and eyes. When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. Ensure clean-up is conducted by trained personnel only. Refer to protective measures listed in sections 7 and 8.
Environmental precautions	:	Do not allow contact with soil, surface or ground water.
Methods and materials for containment and cleaning up	:	Stop leak if safe to do so. Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13). For large spills, dike spilled material or otherwise contain material to ensure runoff does not reach a waterway. Flush away traces with water.

Section: 7. HANDLING AND STORAGE

Advice on safe handling	:	Do not ingest. Do not breathe dust/fume/gas/mist/vapours/spray. Do not get in eyes, on skin, or on clothing. Wash hands thoroughly after handling. Use only with adequate ventilation.
Conditions for safe storage	:	Keep out of reach of children. Keep container tightly closed. Store in suitable labeled containers.
Suitable material	:	Keep in properly labelled containers.
Unsuitable material	:	not determined

Section: 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Form of exposure	Permissible concentration	Basis
Tetrakis(hydroxymethyl) phosphonium sulfate	55566-30-8	TWA	2 mg/m3	ACGIH

Engineering measures : Effective exhaust ventilation system Maintain air concentrations

below occupational exposure standards.

Personal protective equipment

Eye protection	:	Safety goggles Face-shield
Hand protection	:	Wear the following personal protective equipment: Standard glove type. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.
Skin protection	:	Wear suitable protective clothing.
Respiratory protection	:	When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.
Hygiene measures	:	Handle in accordance with good industrial hygiene and safety practice. Remove and wash contaminated clothing before re-use. Wash face, hands and any exposed skin thoroughly after handling. Provide suitable facilities for quick drenching or flushing of the eyes and body in case of contact or splash hazard.

Section: 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	liquid
Colour	:	colourless
Odour	:	no data available
Flash point	:	> 93.3 °C Method: Pensky-Martens closed cup
pH	:	3.0 - 5.0, (undiluted)
Odour Threshold	:	no data available
Melting point/freezing point	:	pour point: -3.9 °C
Initial boiling point and boiling range	:	no data available
Evaporation rate	:	no data available
Flammability (solid, gas)	:	no data available
Upper explosion limit	:	no data available
Lower explosion limit	:	no data available
Vapour pressure	:	6.89467 hPa (37.8 °C)
Relative vapour density	:	no data available
Relative density	:	1.0739 - 1.1039 (15.6 °C)
Density	:	1.0721 - 1.102 g/cm3
Water solubility	:	soluble
Solubility in other solvents	:	no data available
Partition coefficient: n-octanol/water	:	no data available
Auto-ignition temperature	:	no data available

Thermal decomposition temperature	:	no data available
Viscosity, dynamic	:	1 - 3 mPa.s
Viscosity, kinematic	:	1.2 mm2/s (40 °C)
VOC	:	no data available

Section: 10. STABILITY AND REACTIVITY

Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	No dangerous reaction known under conditions of normal use.
Conditions to avoid	:	None known.
Incompatible materials	:	no data available
Hazardous decomposition products	:	Decomposition products may include the following materials: Carbon oxides Sulphur oxides Oxides of phosphorus

Section: 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure	:	Inhalation, Eye contact, Skin contact

Potential Health Effects

Eyes	:	Causes serious eye damage.
Skin	:	Harmful in contact with skin. May cause allergic skin reaction.
Ingestion	:	Toxic if swallowed.
Inhalation	:	Harmful if inhaled.
Chronic Exposure	:	Suspected of damaging fertility or the unborn child.

Experience with human exposure

Eye contact	:	Redness, Pain, Corrosion
Skin contact	:	Redness, Irritation, Allergic reactions
Ingestion	:	No information available.
Inhalation	:	No information available.

Toxicity

Product

Acute oral toxicity	:	Acute toxicity estimate : < 300 mg/kg

Acute inhalation toxicity	: Acute toxicity estimate : 2.2 mg/l Exposure time: 4 h
Acute dermal toxicity	: no data available
Skin corrosion/irritation	: no data available
Serious eye damage/eye irritation	: no data available
Respiratory or skin sensitization	: no data available
Carcinogenicity	: no data available
Reproductive effects	: no data available
Germ cell mutagenicity	: no data available
Teratogenicity	: no data available
STOT - single exposure	: no data available
STOT - repeated exposure	: no data available
Aspiration toxicity	: no data available

Components

Acute dermal toxicity	: Tetrakis(hydroxymethyl) phosphonium sulfate LD50 rat: > 1,500 mg/kg

Section: 12. ECOLOGICAL INFORMATION

Ecotoxicity

Environmental Effects	: Toxic to aquatic life. Harmful to aquatic life with long lasting effects.

Components

Toxicity to daphnia and other aquatic invertebrates	: Tetrakis(hydroxymethyl) phosphonium sulfate LC50 : 0.16 mg/l Exposure time: 48 h

Persistence and degradability

no data available

Mobility

no data available

Bioaccumulative potential

no data available

Other information

no data available

Section: 13. DISPOSAL CONSIDERATIONS

Disposal methods : The product should not be allowed to enter drains, water courses or the soil. Where possible recycling is preferred to disposal or incineration. If recycling is not practicable, dispose of in compliance with local regulations. Dispose of wastes in an approved waste disposal facility.

Disposal considerations : Dispose of as unused product. Empty containers should be taken to an approved waste handling site for recycling or disposal. Do not re-use empty containers.

Section: 14. TRANSPORT INFORMATION

The shipper/consignor/sender is responsible to ensure that the packaging, labeling, and markings are in compliance with the selected mode of transport.

Land transport (DOT)

Proper shipping name : PRODUCT IS NOT REGULATED DURING TRANSPORTATION

Air transport (IATA)

Proper shipping name : PRODUCT IS NOT REGULATED DURING TRANSPORTATION

Sea transport (IMDG/IMO)

Proper shipping name : PRODUCT IS NOT REGULATED DURING TRANSPORTATION

Section: 15. REGULATORY INFORMATION

EPCRA - Emergency Planning and Community Right-to-Know Act

CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
Formaldehyde	50-00-0	100	111111

SARA 304 Extremely Hazardous Substances Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
Formaldehyde	50-00-0	100	111111

SARA 311/312 Hazards : Acute Health Hazard
Chronic Health Hazard

SARA 302 : No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

California Prop 65
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

INTERNATIONAL CHEMICAL CONTROL LAWS :

TOXIC SUBSTANCES CONTROL ACT (TSCA)
On TSCA Inventory

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA)
All components of this product are on the Canadian DSL.

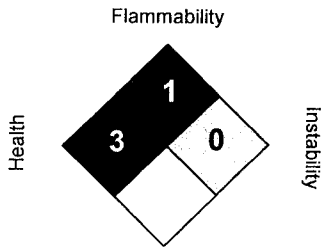
AUSTRALIA
On the inventory, or in compliance with the inventory

CHINA
On the inventory, or in compliance with the inventory

NEW ZEALAND
On the inventory, or in compliance with the inventory

Section: 16. OTHER INFORMATION

NFPA:



HMIS III:

HEALTH	3*
FLAMMABILITY	1
PHYSICAL HAZARD	0

0 = not significant, 1 =Slight,
2 = Moderate, 3 = High
4 = Extreme, * = Chronic

Revision Date : 04/01/2015
Version Number : 1.0
Prepared By : Regulatory Affairs

REVISED INFORMATION: Significant changes to regulatory or health information for this revision is indicated by a bar in the left-hand margin of the SDS.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific

material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.
For additional copies of an MSDS visit www.nalco.com and request access.

1615 Poydras Street, Suite 830
New Orleans, LA 70112
Ph-504-267-9138, Fax-504-267-9139

February 15, 2018

Attention: Director
U. S. Environmental Protection Agency - Region 4
Water Protection Division
Sam Nunn Atlanta Federal Center
61 Forsyth Street, S.W.
Atlanta, Georgia 30303-8960

Re: Notification of Intent for Coverage under Final NPDES General Permit No. GEG460000 for Offshore Oil and Gas Activities in the Eastern Gulf of Mexico,
Mobile 917 A
Current Permit No. GEG460492

Director:

In accordance with part I.A.4 of the *Final NPDES General Permit for New and Existing Sources in the Offshore Subcategory of the Oil and Gas Extraction Category for the Eastern Portion of the Outer Continental Shelf of the Gulf of Mexico*, GEG460000 (Permit), Cox Operating, LLC is requesting general permit coverage for the Mobile 917 A facility. This facility is currently covered under the 2010 administratively continued permit. It is covered under Permit No. GEG460492. This paper Notice of Intent (NOI) is being submitted within 30 days from the effective date of the recently promulgated final renewed Permit and because the eNOI system is currently not operational for NOI submittal. Once the system becomes operational, an eNOI will be submitted in accordance with the Permit.

In accordance with Part I.A.4 of the Permit, information required in a) - w) is provided in the attached NOI table.

In accordance with Part II.D.13.d. (Certification) of General Permit No. GEG460000,

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

1615 Poydras Street, Suite 830
New Orleans, LA 70112
Ph-504-267-9138, Fax-504-267-9139

The review and approval of our request for coverage is greatly appreciated. If you have any questions or need additional information, please contact Mr. Jason Rains-Love, HSE Training Special Projects Manager via phone at (504) 267-91383 or via email at jrl@coxoil.com, or our environmental consultant, James Durbin (CK Associates) via phone at (225) 755-1000 or via e-mail at james.durbin@c-ka.com.

Sincerely,
Cox Operating, LLC

Rodney Dykes
President/COO

Enclosures: As stated.

g.	The date on which the facility plans to commence exploration activities at the site, if applicable:	Not applicable - This is an existing production facility that is currently permitted. There are no exploration activities planned.
h.	The date on which the owner/operator entered into a binding contract for the purchase of facilities or equipment intended to be used in its operation within a reasonable time (if applicable):	June 1, 2016 – This facility was bought from Union Oil Company of California (UNOCAL) (Owned and operated by Chevron USA, Inc.). Permit coverage was transferred on this date.
i.	The date on which the owner/operator plans to commence development:	Not applicable - This is an existing production facility that is currently permitted. There are no development activities planned.
j.	The date on which the owner/operator plans to commence production:	This is an existing production facility that is currently permitted. Production commenced prior to purchase of the facility on June 1, 2016 by the previous owner.
k.	Technical information on the characteristics of the sea bottom in accordance with BOEM Notice to Lessees (NTL) no. 2008-G05, *Shallow Hazards Program*, or the most current BOEM guidelines for shallow hazard investigation and analysis within 300 meters (965 feet) of the discharge point. For those facilities that submitted this information to EPA-Region 4 as part of the previous NPDES general permit (GEG460000), only indicate the previous submittal date of the information to meet the requirement of this NOI element:	Not Applicable - This is an existing production facility that is currently permitted. This facility was bought from Union Oil Company of California (UNOCAL) (Owned and operated by Chevron USA, Inc.) June 1, 2016. This information would have been submitted by the previous owner.
l.	For facilities in less than 100 meters water depth for offshore Mississippi and Alabama in the Mobile and Viosca Knoll lease blocks, permittees must submit a Live-Bottom Survey using either digital high-resolution acoustic data (sidescan sonar) or photo documentation...(etc):	Not Applicable – Although this facility is less than 100 meters water depth, it is an existing production facility that is currently permitted. This facility was bought from Union Oil Company of California (UNOCAL) (Owned and operated by Chevron USA, Inc.) June 1, 2016. This information would have been submitted by the previous owner.
m.	The type of drilling fluids to be used (e.g., water-based and/or synthetic-based):	Not applicable - This is an existing production facility that is currently permitted. There are no drilling activities planned and thus, no drilling fluids will be used.

n.	Documentation that an Application for Permit to Drill (APD) has been submitted to BSEE and the EP, DOCD or DPP has been submitted to BOEM or approved by BOEM:	Not applicable - This is an existing production facility that is currently permitted.
o.	For facilities installed after March 4, 1993, the NOI must also identify that the facility is a new source and state the date on which the facility's protection from more stringent new source performance standards or technology-based limitations ends. That data is the soonest of ten years from the date that construction is completed, ten years from the date the source begins to discharge process or non-construction related wastewater, or the end of the period of depreciation or amortization of the facility for the purposes of Section 167 or 169 (or both) of the Internal Revenue Code of 1954:	Mobile 917 A is a platform that was installed October 28, 1994. The facility discharges Deck Drainage. This is an existing production facility that is currently permitted. This facility was bought from Union Oil Company of California (UNOCAL) (Owned and operated by Chevron USA, Inc.) June 1, 2016. This information would have been submitted by the previous owner.
p.	The general permit coverage number for the previous general permit (GMG460000) and/or the individual NPDES permit number of any individual permit issued by EPA Region 4 for this activity:	The current permit number for this facility is GEG460492.
q.	For production platforms, indicate the estimated distance (in meters) from the platform to the nearest Federally Designated Dredged Material Ocean Disposal Site:	The estimated distance from the complex to the nearest Federally Designated Dredged Material Ocean Disposal Site is 22,723 m. A location map is attached.
r.	Any permit violations under the previous Region 4 General Permit for the facility:	There were no permit violations under the previous Region 4 General Permit, GEG460492.

s.	Indicate if Phase III of EPA's Cooling Water Intake Structure Rule (CWIS) applies to the facility for which you are applying for coverage under this permit. Also indicate if the facility plans to comply under Track I or Track II of the CWIS. See Part I.D.3. Note that the Phase III CWIS rule applies to new offshore oil and gas extraction facilities for which construction commenced after July 17, 2006, that meet the following criteria 1) it is a point source that uses or proposes to use a cooling water intake structure; 2) it has at least one cooling water intake structure that uses at least 25% of the water it withdraws for cooling purposes; 3) it has a design intake flow greater than two million gallon per day (MGD). Use of a cooling water intake structure includes obtaining cooling water by any sort of contract or arrangement with an independent supplier (or multiple suppliers) of cooling water if the supplier or suppliers withdraw(s) water from the waters of the United States. The threshold requirement that at least 25% of water withdrawn be used for cooling purposes must be measured on an average monthly basis. A new offshore oil and extraction facility meets the 25% cooling water threshold if, based on the new facility's design, any monthly average over a year for the percentage of cooling water withdrawn is expected to equal or exceed 25% of the total water withdrawn:	Phase III of EPA's Cooling Water Intake Structure (CWIS) Rule does not apply to this facility. The facility was constructed before July 17, 2006 and does not have any CWIS.

t.	If known, indicate the name and NPDES permit coverage number under GEG460000 for vessel operators/contractors that are, or will be, performing work at your facility that are new oil and gas facilities subject to Phase III of the CWIS Rule:	Not applicable – There are no planned work operations that would require a vessel operator/contractor.
u.	Information on the specific chemical composition of any additives currently being used or proposed for use in well treatment, completion or workover operations or as biocides for sump/drain systems. If the information on the additive is not known at the time of the submittal of this NOI, operators shall include the information in a report that shall be submitted on to EPA Region 4 on September 30th of each year. Aside from submitting this information with the NOI, this information is also required to be recorded and retained on site for no less than five years from the issuance of the permit. These record retention requirements in this section supersede the general record keeping requirements for all NPDES permits in Part II.C.5, of this permit,	There are no planned well treatment, completion or workover operations. Currently a biocide, Nalco, Bactron K-103 Antimicrobial (see attached Safety Data Sheet) is being used intermittently to comply with proper operation and maintenance requirements of the sump/drain system. This biocide meets the requirements of 40 CFR 122.42(a)(2)(i-iii).
v.	Certification statement per 40 C.F.R. §§ 122.22(d) and signature of the responsible party per 40 C.F.R. §§ 122.22(a)	See below following the NOI table.
w.	Statement indicating intent, or not, to participate in the alternative Industry-wide Study regarding Whole Effluent Toxicity Testing of Well Treatment, Completion and Workover Fluids (Part I.B.6.b. page 50).	There are no planned well treatment, completion or workover operations for this facility in this permit area. However, Cox Operating, LLC does intend to participate in the alternative Industry-Wide Study for the GOM.

I certify that I am an authorized official of my Company as described in 40 CFR 122.22(d) and as set forth in Part II.D.10 of the permit. I further certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

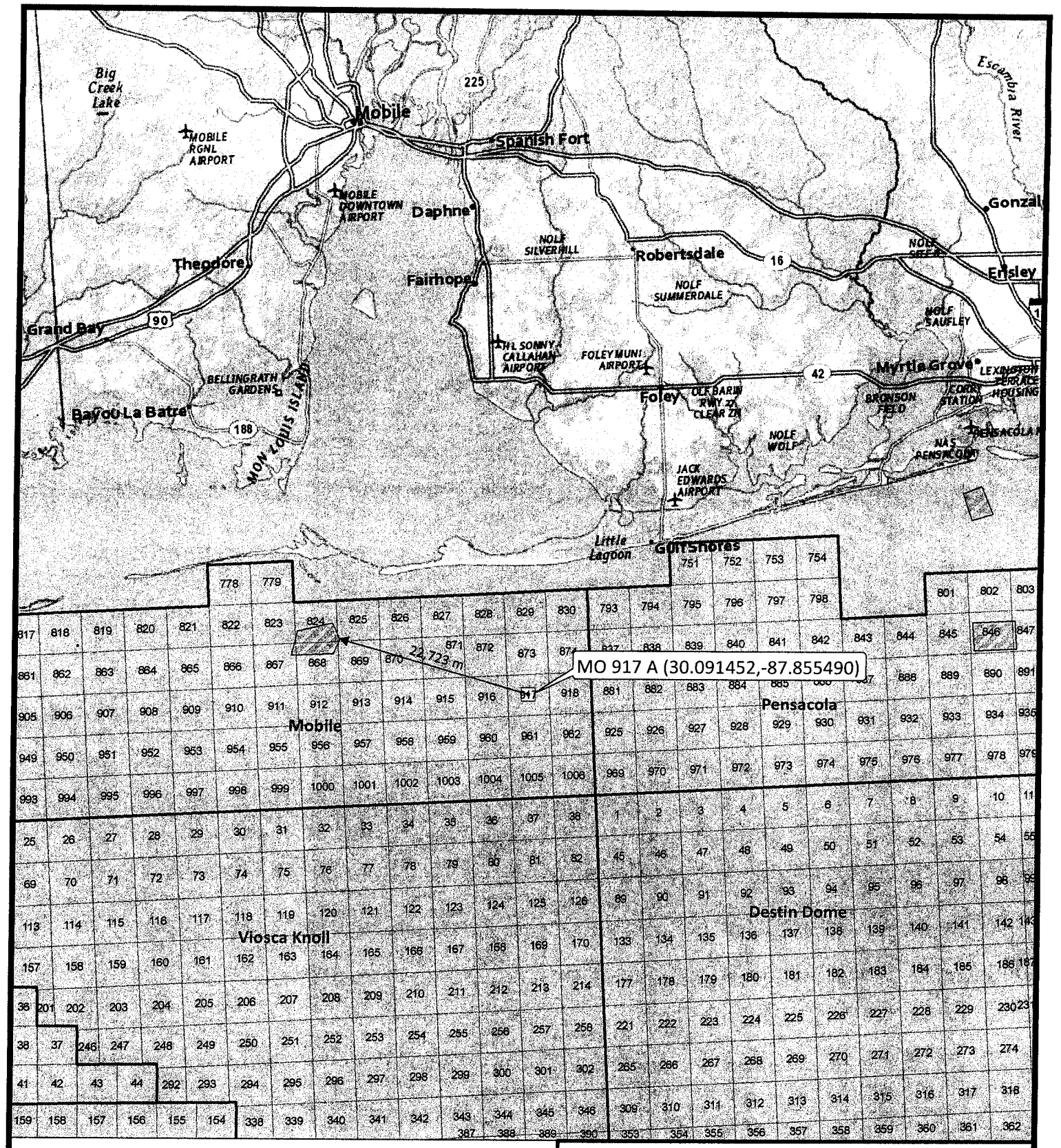
Signature: Rodney Dykes

Name: Rodney Dykes

Company: Cox Operating, LLC

Title: President/COO

Date: 02/15/2018



MO 917 A

Protraction Areas (BOEM)

Dredged Material Disposal Area (BOEM)

0 10 Miles

Base Map: National Geographic World Map

esri Partner Network Silver

Cox Operating
New Orleans, Louisiana

COX OPERATING

Notice of Intent (NOI)

Site Location Map

Gulf of Mexico

CK Associates Environmental Consultants

Drawn:	CAL	Checked:	JLD
Date:	02/09/18	Approved:	JLD
Dwg. No.:	A13753-04		**Figure 1**

NALCO Champion
An Ecolab Company

SAFETY DATA SHEET

Bactron® K-103 Antimicrobial

Section: 1. PRODUCT AND COMPANY IDENTIFICATION

Product name	:	Bactron® K-103 Antimicrobial
Other means of identification	:	Not applicable.
Recommended use	:	BIOCIDE
Restrictions on use	:	Refer to available product literature or ask your local Sales Representative for restrictions on use and dose limits.
Company	:	Nalco Champion Company 7705 Highway 90-A Sugar Land, Texas 77478 USA TEL: (281) 263-7000
Emergency telephone number	:	(800) 424-9300 (24 Hours) CHEMTREC
Issuing date	:	04/01/2015

Section: 2. HAZARDS IDENTIFICATION

GHS Classification

Acute toxicity (Inhalation)	:	Category 4
Acute toxicity (Oral)	:	Category 3
Acute toxicity (Dermal)	:	Category 4
Serious eye damage	:	Category 1
Skin sensitization	:	Category 1
Reproductive toxicity	:	Category 2

GHS Label element

Hazard pictograms :

Signal Word : Danger

Hazard Statements : Causes serious eye damage.
Toxic if swallowed.
Harmful in contact with skin or if inhaled
May cause an allergic skin reaction.
Suspected of damaging fertility or the unborn child.

Precautionary Statements : **Prevention:**
Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray. Use only outdoors or in a well-ventilated area. Contaminated work clothing should not be allowed out of the workplace. Wear eye protection/face protection. Wear protective gloves. Use personal protective equipment as required.
Response:

IF ON SKIN: Wash with plenty of soap and water. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. IF exposed or concerned: Get medical advice/attention. Immediately call a POISON CENTER or doctor/ physician. If skin irritation or rash occurs: Get medical advice/ attention. Wash contaminated clothing before reuse.

Storage:

Store in a well-ventilated place. Keep container tightly closed. Store locked up.

Disposal:

Dispose of contents/ container to an approved waste disposal plant.

Other hazards : None known.

Section: 3. COMPOSITION/INFORMATION ON INGREDIENTS

Pure substance/mixture : Mixture

Chemical Name	CAS-No.	Concentration: (%)
Tetrakis(hydroxymethyl) phosphonium sulfate	55566-30-8	10 - 30

Section: 4. FIRST AID MEASURES

In case of eye contact : Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention immediately.

In case of skin contact : Wash off immediately with plenty of water for at least 15 minutes. Use a mild soap if available. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

If swallowed : Rinse mouth with water. Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Get medical attention immediately.

If inhaled : Remove to fresh air. Treat symptomatically. Get medical attention.

Protection of first-aiders : In event of emergency assess the danger before taking action. Do not put yourself at risk of injury. If in doubt, contact emergency responders.Use personal protective equipment as required.

Notes to physician : Treat symptomatically.

Most important symptoms and effects, both acute and delayed : See Section 11 for more detailed information on health effects and symptoms.

Section: 5. FIREFIGHTING MEASURES

Suitable extinguishing media : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media : None known.

Specific hazards during firefighting	:	Not flammable or combustible.
Hazardous combustion products	:	Decomposition products may include the following materials: Carbon oxides Sulphur oxides Oxides of phosphorus
Special protective equipment for firefighters	:	Use personal protective equipment.
Specific extinguishing methods	:	Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. In the event of fire and/or explosion do not breathe fumes.

Section: 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	Ensure adequate ventilation. Keep people away from and upwind of spill/leak. Avoid inhalation, ingestion and contact with skin and eyes. When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. Ensure clean-up is conducted by trained personnel only. Refer to protective measures listed in sections 7 and 8.
Environmental precautions	:	Do not allow contact with soil, surface or ground water.
Methods and materials for containment and cleaning up	:	Stop leak if safe to do so. Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13). For large spills, dike spilled material or otherwise contain material to ensure runoff does not reach a waterway. Flush away traces with water.

Section: 7. HANDLING AND STORAGE

Advice on safe handling	:	Do not ingest. Do not breathe dust/fume/gas/mist/vapours/spray. Do not get in eyes, on skin, or on clothing. Wash hands thoroughly after handling. Use only with adequate ventilation.
Conditions for safe storage	:	Keep out of reach of children. Keep container tightly closed. Store in suitable labeled containers.
Suitable material	:	Keep in properly labelled containers.
Unsuitable material	:	not determined

Section: 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Form of exposure	Permissible concentration	Basis
Tetrakis(hydroxymethyl) phosphonium sulfate	55566-30-8	TWA	2 mg/m3	ACGIH

Engineering measures : Effective exhaust ventilation system Maintain air concentrations

below occupational exposure standards.

Personal protective equipment

Eye protection	:	Safety goggles Face-shield
Hand protection	:	Wear the following personal protective equipment: Standard glove type. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.
Skin protection	:	Wear suitable protective clothing.
Respiratory protection	:	When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.
Hygiene measures	:	Handle in accordance with good industrial hygiene and safety practice. Remove and wash contaminated clothing before re-use. Wash face, hands and any exposed skin thoroughly after handling. Provide suitable facilities for quick drenching or flushing of the eyes and body in case of contact or splash hazard.

Section: 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	liquid
Colour	:	colourless
Odour	:	no data available
Flash point	:	> 93.3 °C Method: Pensky-Martens closed cup
pH	:	3.0 - 5.0, (undiluted)
Odour Threshold	:	no data available
Melting point/freezing point	:	pour point: -3.9 °C
Initial boiling point and boiling range	:	no data available
Evaporation rate	:	no data available
Flammability (solid, gas)	:	no data available
Upper explosion limit	:	no data available
Lower explosion limit	:	no data available
Vapour pressure	:	6.89467 hPa (37.8 °C)
Relative vapour density	:	no data available
Relative density	:	1.0739 - 1.1039 (15.6 °C)
Density	:	1.0721 - 1.102 g/cm3
Water solubility	:	soluble
Solubility in other solvents	:	no data available
Partition coefficient: n-octanol/water	:	no data available
Auto-ignition temperature	:	no data available

Thermal decomposition temperature	:	no data available
Viscosity, dynamic	:	1 - 3 mPa.s
Viscosity, kinematic	:	1.2 mm2/s (40 °C)
VOC	:	no data available

Section: 10. STABILITY AND REACTIVITY

Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	No dangerous reaction known under conditions of normal use.
Conditions to avoid	:	None known.
Incompatible materials	:	no data available
Hazardous decomposition products	:	Decomposition products may include the following materials: Carbon oxides Sulphur oxides Oxides of phosphorus

Section: 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure	:	Inhalation, Eye contact, Skin contact

Potential Health Effects

Eyes	:	Causes serious eye damage.
Skin	:	Harmful in contact with skin. May cause allergic skin reaction.
Ingestion	:	Toxic if swallowed.
Inhalation	:	Harmful if inhaled.
Chronic Exposure	:	Suspected of damaging fertility or the unborn child.

Experience with human exposure

Eye contact	:	Redness, Pain, Corrosion
Skin contact	:	Redness, Irritation, Allergic reactions
Ingestion	:	No information available.
Inhalation	:	No information available.

Toxicity

Product

Acute oral toxicity	:	Acute toxicity estimate : < 300 mg/kg

Acute inhalation toxicity	:	Acute toxicity estimate : 2.2 mg/l Exposure time: 4 h
Acute dermal toxicity	:	no data available
Skin corrosion/irritation	:	no data available
Serious eye damage/eye irritation	:	no data available
Respiratory or skin sensitization	:	no data available
Carcinogenicity	:	no data available
Reproductive effects	:	no data available
Germ cell mutagenicity	:	no data available
Teratogenicity	:	no data available
STOT - single exposure	:	no data available
STOT - repeated exposure	:	no data available
Aspiration toxicity	:	no data available

Components

Acute dermal toxicity	:	Tetrakis(hydroxymethyl) phosphonium sulfate LD50 rat: > 1,500 mg/kg

Section: 12. ECOLOGICAL INFORMATION

Ecotoxicity

Environmental Effects	:	Toxic to aquatic life. Harmful to aquatic life with long lasting effects.

Components

Toxicity to daphnia and other aquatic invertebrates	:	Tetrakis(hydroxymethyl) phosphonium sulfate LC50 : 0.16 mg/l Exposure time: 48 h

Persistence and degradability

no data available

Mobility

no data available

Bioaccumulative potential

no data available

Other information

no data available

Section: 13. DISPOSAL CONSIDERATIONS

Disposal methods : The product should not be allowed to enter drains, water courses or the soil. Where possible recycling is preferred to disposal or incineration. If recycling is not practicable, dispose of in compliance with local regulations. Dispose of wastes in an approved waste disposal facility.

Disposal considerations : Dispose of as unused product. Empty containers should be taken to an approved waste handling site for recycling or disposal. Do not re-use empty containers.

Section: 14. TRANSPORT INFORMATION

The shipper/consignor/sender is responsible to ensure that the packaging, labeling, and markings are in compliance with the selected mode of transport.

Land transport (DOT)

Proper shipping name : PRODUCT IS NOT REGULATED DURING TRANSPORTATION

Air transport (IATA)

Proper shipping name : PRODUCT IS NOT REGULATED DURING TRANSPORTATION

Sea transport (IMDG/IMO)

Proper shipping name : PRODUCT IS NOT REGULATED DURING TRANSPORTATION

Section: 15. REGULATORY INFORMATION

EPCRA - Emergency Planning and Community Right-to-Know Act

CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
Formaldehyde	50-00-0	100	111111

SARA 304 Extremely Hazardous Substances Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
Formaldehyde	50-00-0	100	111111

SARA 311/312 Hazards : Acute Health Hazard
Chronic Health Hazard

SARA 302 : No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

California Prop 65
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

INTERNATIONAL CHEMICAL CONTROL LAWS :

TOXIC SUBSTANCES CONTROL ACT (TSCA)
On TSCA Inventory

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA)
All components of this product are on the Canadian DSL.

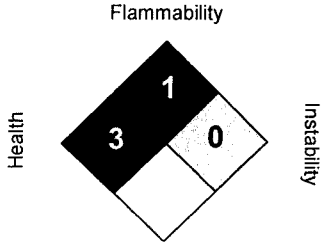
AUSTRALIA
On the inventory, or in compliance with the inventory

CHINA
On the inventory, or in compliance with the inventory

NEW ZEALAND
On the inventory, or in compliance with the inventory

Section: 16. OTHER INFORMATION

NFPA:



HMIS III:

HEALTH	3*
FLAMMABILITY	1
PHYSICAL HAZARD	0

0 = not significant, 1 =Slight,
2 = Moderate, 3 = High
4 = Extreme, * = Chronic

Revision Date : 04/01/2015
Version Number : 1.0
Prepared By : Regulatory Affairs

REVISED INFORMATION: Significant changes to regulatory or health information for this revision is indicated by a bar in the left-hand margin of the SDS.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific

material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.
For additional copies of an MSDS visit www.nalco.com and request access.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

MAR 22 2018

CERTIFIED MAIL 7017 1450 0000 7972 7065
RETURN RECEIPT REQUESTED

Mr. Rodney Dikes
COX Operating, LLC.
1615 Poydras street
Suite 830
New Orleans, Louisiana 70112

Subject: National Pollutant Discharge Elimination System General Permit Coverage
Permit No.: GEG460000

Dear Mr. Dikes:

We received your letter postmarked February 15, 2018, in which you submitted three (3) Notices of Intent (NOIs) for coverage under the National Pollutant Discharge Elimination System (NPDES) General Permit (GEG460000). In accordance with Part I.A.4 of the General Permit, Notification Requirements (Existing Sources and New Sources), your NOIs fulfill the notification requirements in the General Permit, allowing Region 4 to determine that your filing contains the necessary information to include these facilities under the General Permit as existing sources.

Permit coverage is hereby authorized under the NPDES General Permit for the operational facilities listed on the enclosure. In accordance with Part I.A.4 of the General Permit, coverage for these facilities is effective on the postmarked date for submittal of the NOIs, February 15, 2018. General Permit coverage will terminate on January 19, 2023, unless EPA Region 4 is otherwise notified.

If you have any questions, please contact Mrs. Bridget Staples of the Municipal and Industrial NPDES Permit Section at (404) 562-9783.

Sincerely,

Mary S. Walker
Director
Water Protection Division

Enclosure

1615 Poydras Street, Suite 830
New Orleans, LA 70112
Ph-504-267-9138, Fax-504-267-9139

March 22, 2018

Attention: Director
U. S. Environmental Protection Agency - Region 4
Water Protection Division
Sam Nunn Atlanta Federal Center
61 Forsyth Street, S.W.
Atlanta, Georgia 30303-8960

Re: Updated Notification of Intent for Coverage under Final NPDES General Permit No. GEG460000 for Offshore Oil and Gas Activities in the Eastern Gulf of Mexico, Mobile 904 AW
Current Permit No. ~~GEG460501~~ new number given.
GEG460966

Director:

In accordance with part I.A.4 of the *Final NPDES General Permit for New and Existing Sources in the Offshore Subcategory of the Oil and Gas Extraction Category for the Eastern Portion of the Outer Continental Shelf of the Gulf of Mexico*, GEG460000 (Permit), Cox Operating, LLC is requesting general permit coverage for the Mobile 904 AW facility. This facility is currently covered under the 2010 administratively continued permit. It is covered under Permit No. GEG460501. This paper Notice of Intent (NOI) is being submitted within 30 days from the effective date of the recently promulgated final renewed Permit and because the eNOI system is currently not operational for NOI submittal. Once the system becomes operational, an eNOI will be submitted in accordance with the Permit. Per instruction of Ms. Bridget Staples, this is an updated NOI for the original NOI dated February 15, 2018.

In accordance with Part I.A.4 of the Permit, information required in a) - w) is provided in the attached NOI table.

In accordance with Part II.D.13.d. (Certification) of General Permit No. GEG460000,

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

1615 Poydras Street, Suite 830
New Orleans, LA 70112
Ph-504-267-9138, Fax-504-267-9139

The review and approval of our request for coverage is greatly appreciated. If you have any questions or need additional information, please contact me via phone at (504) 267-9138 or via email at jrl@coxoil.com, or our environmental consultant, James Durbin (CK Associates) via phone at (225) 755-1000 or via e-mail at james.durbin@c-ka.com.

Sincerely,
Cox Operating, LLC

Mr. Jason Rains-Love
HSE Manager

Enclosures: As stated.

	ii) facilities or equipment; or the clearing or removal of existing structures or facilities	
g.	The date on which the facility plans to commence exploration activities at the site, if applicable:	Not applicable - This is an existing facility that is currently permitted. There are no exploration activities planned.
h.	The date on which the owner/operator entered into a binding contract for the purchase of facilities or equipment intended to be used in its operation within a reasonable time (if applicable):	June 1, 2016 – This facility was bought from Union Oil Company of California (UNOCAL) (Owned and operated by Chevron USA, Inc.). Permit coverage was transferred on this date.
i.	The date on which the owner/operator plans to commence development:	Not applicable - This is an existing facility that is currently permitted. There are no development activities planned.
j.	The date on which the owner/operator plans to commence production:	This is an existing facility that is currently permitted. Production commenced prior to purchase of the facility on June 1, 2016 by the previous owner.
k.	Technical information on the characteristics of the sea bottom in accordance with BOEM Notice to Lessees (NTL) no. 2008-G05, *Shallow Hazards Program*, or the most current BOEM guidelines for shallow hazard investigation and analysis within 300 meters (965 feet) of the discharge point. For those facilities that submitted this information to EPA-Region 4 as part of the previous NPDES general permit (GEG460000), only indicate the previous submittal date of the information to meet the requirement of this NOI element:	Not Applicable - This is an existing facility that is currently permitted. This facility was bought from Union Oil Company of California (UNOCAL) (Owned and operated by Chevron USA, Inc.) June 1, 2016. This information would have been submitted by the previous owner.
l.	For facilities in less than 100 meters water depth for offshore Mississippi and Alabama in the Mobile and Viosca Knoll lease blocks, permittees must submit a Live-Bottom Survey using either digital high-resolution acoustic data (sidescan sonar) or photo documentation...(etc):	Not Applicable – Although this facility is less than 100 meters water depth, it is an existing facility that is currently permitted. This facility was bought from Union Oil Company of California (UNOCAL) (Owned and operated by Chevron USA, Inc.) June 1, 2016. This information would have been submitted by the previous owner.

m.	The type of drilling fluids to be used (e.g., water-based and/or synthetic-based):	Not applicable - This is an existing facility that is currently permitted. There are no drilling activities planned and thus, no drilling fluids will be used.
n.	Documentation that an Application for Permit to Drill (APD) has been submitted to BSEE and the EP, DOCD or DPP has been submitted to BOEM or approved by BOEM:	Not applicable - This is an existing facility that is currently permitted.
o.	For facilities installed after March 4, 1993, the NOI must also identify that the facility is a new source and state the date on which the facility's protection from more stringent new source performance standards or technology-based limitations ends. That data is the soonest of ten years from the date that construction is completed, ten years from the date the source begins to discharge process or non-construction related wastewater, or the end of the period of depreciation or amortization of the facility for the purposes of Section 167 or 169 (or both) of the Internal Revenue Code of 1954:	Not applicable for Mobile 904 AW. This facility was installed prior to March 4, 1993. . This is an existing facility that is currently permitted. This facility was bought from Union Oil Company of California (UNOCAL) (Owned and operated by Chevron USA, Inc.) June 1, 2016. This information would have been submitted by the previous owner.
p.	The general permit coverage number for the previous general permit (GMG460000) and/or the individual NPDES permit number of any individual permit issued by EPA Region 4 for this activity:	The current permit number for this facility is GEG460501.
q.	For production platforms, indicate the estimated distance (in meters) from the platform to the nearest Federally Designated Dredged Material Ocean Disposal Site:	The estimated distance from the facility to the nearest Federally Designated Dredged Material Ocean Disposal Site is 13,240 m. A location map is attached.
r.	Any permit violations under the previous Region 4 General Permit for the facility:	There were no permit violations under the previous Region 4 General Permit, GEG460501.
s.	Indicate if Phase III of EPA's Cooling Water Intake Structure Rule (CWIS) applies to the facility for which you are applying for coverage under this permit. Also indicate if the facility plans to comply	Phase III of EPA's Cooling Water Intake Structure (CWIS) Rule does not apply to this facility. The facility was constructed before July 17, 2006 and does not have any CWIS.

	under Track I or Track II of the CWIS. See Part I.D.3. Note that the Phase III CWIS rule applies to new offshore oil and gas extraction facilities for which construction commenced after July 17, 2006, that meet the following criteria 1) it is a point source that uses or proposes to use a cooling water intake structure; 2) it has at least one cooling water intake structure that uses at least 25% of the water it withdraws for cooling purposes; 3) it has a design intake flow greater than two million gallon per day (MGD). Use of a cooling water intake structure includes obtaining cooling water by any sort of contract or arrangement with an independent supplier (or multiple suppliers) of cooling water if the supplier or suppliers withdraw(s) water from the waters of the United States. The threshold requirement that at least 25% of water withdrawn be used for cooling purposes must be measured on an average monthly basis. A new offshore oil and extraction facility meets the 25% cooling water threshold if, based on the new facility's design, any monthly average over a year for the percentage of cooling water withdrawn is expected to equal or exceed 25% of the total water withdrawn:	
t.	If known, indicate the name and NPDES permit coverage number under GEG460000 for vessel operators/contractors that are, or will be, performing work at your facility that are new oil and gas facilities subject to Phase III of the CWIS Rule:	Not applicable – There are no planned work operations that would require a vessel operator/contractor.

u.	Information on the specific chemical composition of any additives currently being used or proposed for use in well treatment, completion or workover operations or as biocides for sump/drain systems. If the information on the additive is not known at the time of the submittal of this NOI, operators shall include the information in a report that shall be submitted on to EPA Region 4 on September 30th of each year. Aside from submitting this information with the NOI, this information is also required to be recorded and retained on site for no less than five years from the issuance of the permit. These record retention requirements in this section supersede the general record keeping requirements for all NPDES permits in Part II.C.5, of this permit,	There are no planned well treatment, completion or workover operations.
v.	Certification statement per 40 C.F.R. §§ 122.22(d) and signature of the responsible party per 40 C.F.R. §§ 122.22(a)	See below following the NOI table.
w.	Statement indicating intent, or not, to participate in the alternative Industry-wide Study regarding Whole Effluent Toxicity Testing of Well Treatment, Completion and Workover Fluids (Part I.B.6.b. page 50).	There are no planned well treatment, completion or workover operations for this facility in this permit area. However, Cox Operating, LLC does intend to participate in the alternative Industry-Wide Study for the GOM.

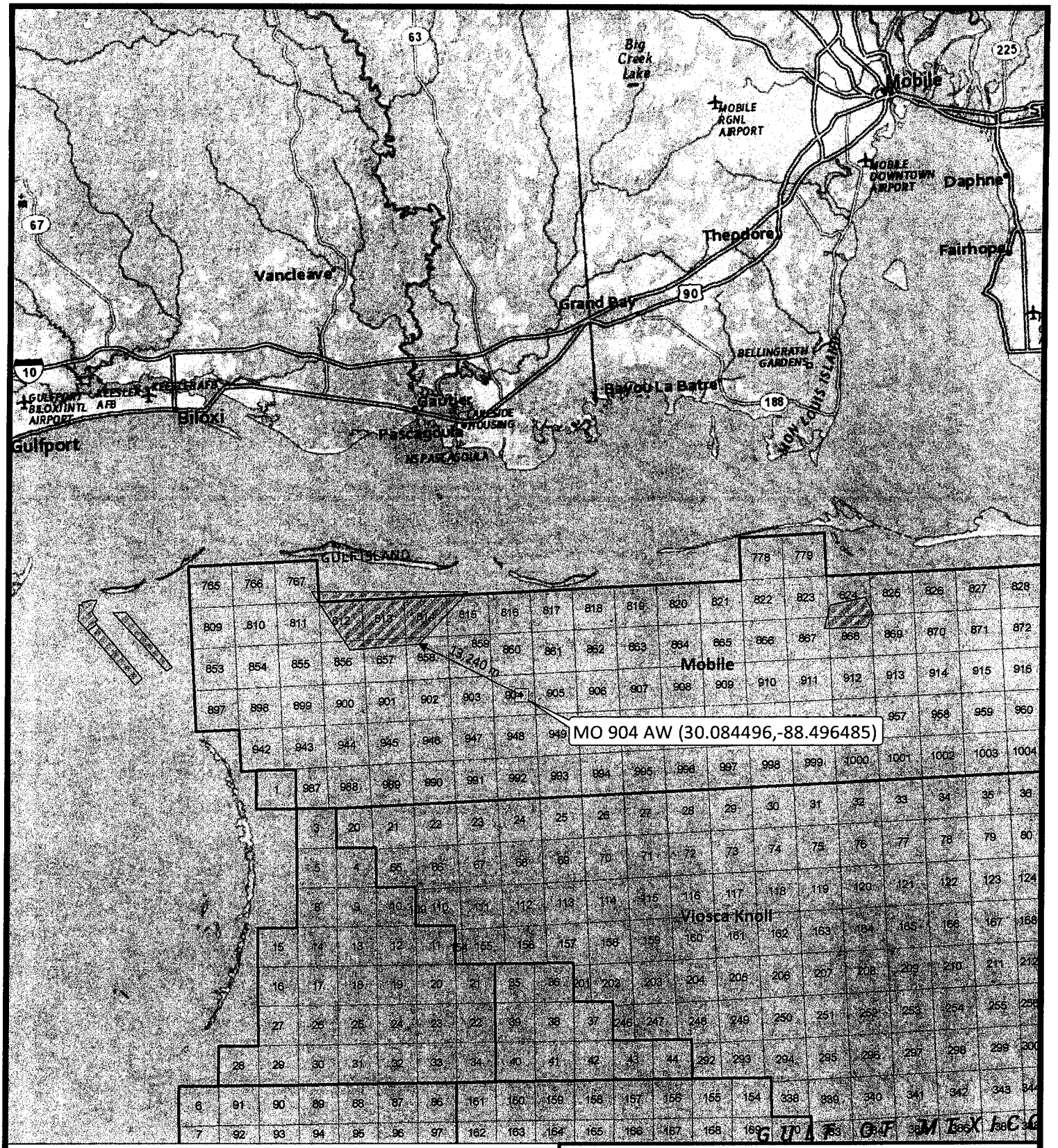
Part 1.A.4 of GEG460000
GEG460501 Mobile (MO) Block 904 AW
Notice of Intent
Cox Operating, LLC

I certify that I am an authorized official of my Company as described in 40 CFR 122.22(d) and as set forth in Part II.D.10 of the permit. I further certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature: _____ Name: Jason Rains-Love

Company: Cox Operating, LLC Title: HSE Manager

Date: 22MAR2018



MO 904 AW

Protraction Areas (BOEM)

Dredged Material Disposal Area (BOEM)

N

S

0 10

Miles

Base Map: National Geographic World Map

esri Partner Network Silver

Cox Operating

New Orleans, Louisiana

COX OPERATING

Notice of Intent (NOI)

Site Location Map

Gulf of Mexico

CK Associates Environmental Consultants

Drawn: CAL		Checked: JLD	
Date: 03/21/18		Approved: JLD	
Dwg. No.: A15955-04		**Figure 1**	

1615 Poydras Street, Suite 830
New Orleans, LA 70112
Ph-504-267-9138, Fax-504-267-9139

March 22, 2018

Attention: Director
U. S. Environmental Protection Agency - Region 4
Water Protection Division
Sam Nunn Atlanta Federal Center
61 Forsyth Street, S.W.
Atlanta, Georgia 30303-8960

Re: Updated Notification of Intent for Coverage under Final NPDES General Permit No. GEG460000 for Offshore Oil and Gas Activities in the Eastern Gulf of Mexico, Mobile 904 AP
Current Permit No. ~~GEG460501~~ new number given GEG460965

Director:

In accordance with part I.A.4 of the *Final NPDES General Permit for New and Existing Sources in the Offshore Subcategory of the Oil and Gas Extraction Category for the Eastern Portion of the Outer Continental Shelf of the Gulf of Mexico*, GEG460000 (Permit), Cox Operating, LLC is requesting general permit coverage for the Mobile 904 AP facility. This facility is currently covered under the 2010 administratively continued permit. It is covered under Permit No. GEG460501. This paper Notice of Intent (NOI) is being submitted within 30 days from the effective date of the recently promulgated final renewed Permit and because the eNOI system is currently not operational for NOI submittal. Once the system becomes operational, an eNOI will be submitted in accordance with the Permit. Per instruction of Ms. Bridget Staples, this is an updated NOI for the original NOI dated February 15, 2018.

In accordance with Part I.A.4 of the Permit, information required in a) - w) is provided in the attached NOI table.

In accordance with Part II.D.13.d. (Certification) of General Permit No. GEG460000,

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

1615 Poydras Street, Suite 830
New Orleans, LA 70112
Ph-504-267-9138, Fax-504-267-9139

The review and approval of our request for coverage is greatly appreciated. If you have any questions or need additional information, please contact me via phone at (504) 267-9138 or via email at jrl@coxoil.com, or our environmental consultant, James Durbin (CK Associates) via phone at (225) 755-1000 or via e-mail at james.durbin@c-ka.com.

Sincerely,
Cox Operating, LLC

Mr. Jason Rains-Love
HSE Manager

Enclosures: As stated.

	ii) facilities or equipment; or the clearing or removal of existing structures or facilities	
g.	The date on which the facility plans to commence exploration activities at the site, if applicable:	Not applicable - This is an existing production facility that is currently permitted. There are no exploration activities planned.
h.	The date on which the owner/operator entered into a binding contract for the purchase of facilities or equipment intended to be used in its operation within a reasonable time (if applicable):	June 1, 2016 – This facility was bought from Union Oil Company of California (UNOCAL) (Owned and operated by Chevron USA, Inc.). Permit coverage was transferred on this date.
i.	The date on which the owner/operator plans to commence development:	Not applicable - This is an existing production facility that is currently permitted. There are no development activities planned.
j.	The date on which the owner/operator plans to commence production:	This is an existing production facility that is currently permitted. Discharges commenced prior to purchase of the facility on June 1, 2016 by the previous owner.
k.	Technical information on the characteristics of the sea bottom in accordance with BOEM Notice to Lessees (NTL) no. 2008-G05, *Shallow Hazards Program*, or the most current BOEM guidelines for shallow hazard investigation and analysis within 300 meters (965 feet) of the discharge point. For those facilities that submitted this information to EPA-Region 4 as part of the previous NPDES general permit (GEG460000), only indicate the previous submittal date of the information to meet the requirement of this NOI element:	Not Applicable - This is an existing production facility that is currently permitted. This facility was bought from Union Oil Company of California (UNOCAL) (Owned and operated by Chevron USA, Inc.) June 1, 2016. This information would have been submitted by the previous owner.
l.	For facilities in less than 100 meters water depth for offshore Mississippi and Alabama in the Mobile and Viosca Knoll lease blocks, permittees must submit a Live-Bottom Survey using either digital high-resolution acoustic data (sidescan sonar) or photo documentation...(etc):	Not Applicable – Although this facility is less than 100 meters water depth, it is an existing production facility that is currently permitted. This facility was bought from Union Oil Company of California (UNOCAL) (Owned and operated by Chevron USA, Inc.) June 1, 2016. This information would have been submitted by the previous owner.
m.	The type of drilling fluids to be used (e.g., water-based and/or synthetic-based):	Not applicable - This is an existing production facility that is currently permitted. There are no drilling activities planned and thus, no drilling fluids will be used.

n.	Documentation that an Application for Permit to Drill (APD) has been submitted to BSEE and the EP, DOCD or DPP has been submitted to BOEM or approved by BOEM:	Not applicable - This is an existing production facility that is currently permitted.
o.	For facilities installed after March 4, 1993, the NOI must also identify that the facility is a new source and state the date on which the facility's protection from more stringent new source performance standards or technology-based limitations ends. That data is the soonest of ten years from the date that construction is completed, ten years from the date the source begins to discharge process or non-construction related wastewater, or the end of the period of depreciation or amortization of the facility for the purposes of Section 167 or 169 (or both) of the Internal Revenue Code of 1954:	Not applicable for Mobile 904 AP. This facility was installed prior to March 4, 1993. . This is an existing facility that is currently permitted. This facility was bought from Union Oil Company of California (UNOCAL) (Owned and operated by Chevron USA, Inc.) June 1, 2016. This information would have been submitted by the previous owner.
p.	The general permit coverage number for the previous general permit (GMG460000) and/or the individual NPDES permit number of any individual permit issued by EPA Region 4 for this activity:	The current permit number for this facility is GEG460501.
q.	For production platforms, indicate the estimated distance (in meters) from the platform to the nearest Federally Designated Dredged Material Ocean Disposal Site:	The estimated distance from the facility to the nearest Federally Designated Dredged Material Ocean Disposal Site is 13,268 m. A location map is attached.
r.	Any permit violations under the previous Region 4 General Permit for the facility:	There were no permit violations under the previous Region 4 General Permit, GEG460501.
s.	Indicate if Phase III of EPA's Cooling Water Intake Structure Rule (CWIS) applies to the facility for which you are applying for coverage under this permit. Also indicate if the facility plans to comply under Track I or Track II of the CWIS. See Part I.D.3. Note that the Phase III CWIS rule applies to new	Phase III of EPA's Cooling Water Intake Structure (CWIS) Rule does not apply to this facility. The facility was constructed before July 17, 2006 and does not have any CWIS.

	offshore oil and gas extraction facilities for which construction commenced after July 17, 2006, that meet the following criteria 1) it is a point source that uses or proposes to use a cooling water intake structure; 2) it has at least one cooling water intake structure that uses at least 25% of the water it withdraws for cooling purposes; 3) it has a design intake flow greater than two million gallon per day (MGD). Use of a cooling water intake structure includes obtaining cooling water by any sort of contract or arrangement with an independent supplier (or multiple suppliers) of cooling water if the supplier or suppliers withdraw(s) water from the waters of the United States. The threshold requirement that at least 25% of water withdrawn be used for cooling purposes must be measured on an average monthly basis. A new offshore oil and extraction facility meets the 25% cooling water threshold if, based on the new facility's design, any monthly average over a year for the percentage of cooling water withdrawn is expected to equal or exceed 25% of the total water withdrawn:	
t.	If known, indicate the name and NPDES permit coverage number under GEG460000 for vessel operators/contractors that are, or will be, performing work at your facility that are new oil and gas facilities subject to Phase III of the CWIS Rule:	Not applicable – There are no planned work operations that would require a vessel operator/contractor.
u.	Information on the specific chemical composition of any additives currently being used or proposed for	There are no planned well treatment, completion or workover operations.

	use in well treatment, completion or workover operations or as biocides for sump/drain systems. If the information on the additive is not known at the time of the submittal of this NOI, operators shall include the information in a report that shall be submitted on to EPA Region 4 on September 30th of each year. Aside from submitting this information with the NOI, this information is also required to be recorded and retained on site for no less than five years from the issuance of the permit. These record retention requirements in this section supersede the general record keeping requirements for all NPDES permits in Part II.C.5, of this permit,	Currently a biocide, Nalco, Bactron K-103 Antimicrobial (see attached Safety Data Sheet) is being used intermittently to comply with proper operation and maintenance requirements of the sump/drain system. This biocide meets the requirements of 40 CFR 122.42(a)(2)(i-iii).
v.	Certification statement per 40 C.F.R. §§ 122.22(d) and signature of the responsible party per 40 C.F.R. §§ 122.22(a)	See below following the NOI table.
w.	Statement indicating intent, or not, to participate in the alternative Industry-wide Study regarding Whole Effluent Toxicity Testing of Well Treatment, Completion and Workover Fluids (Part I.B.6.b. page 50).	There are no planned well treatment, completion or workover operations for this facility in this permit area. However, Cox Operating, LLC does intend to participate in the alternative Industry-Wide Study for the GOM.

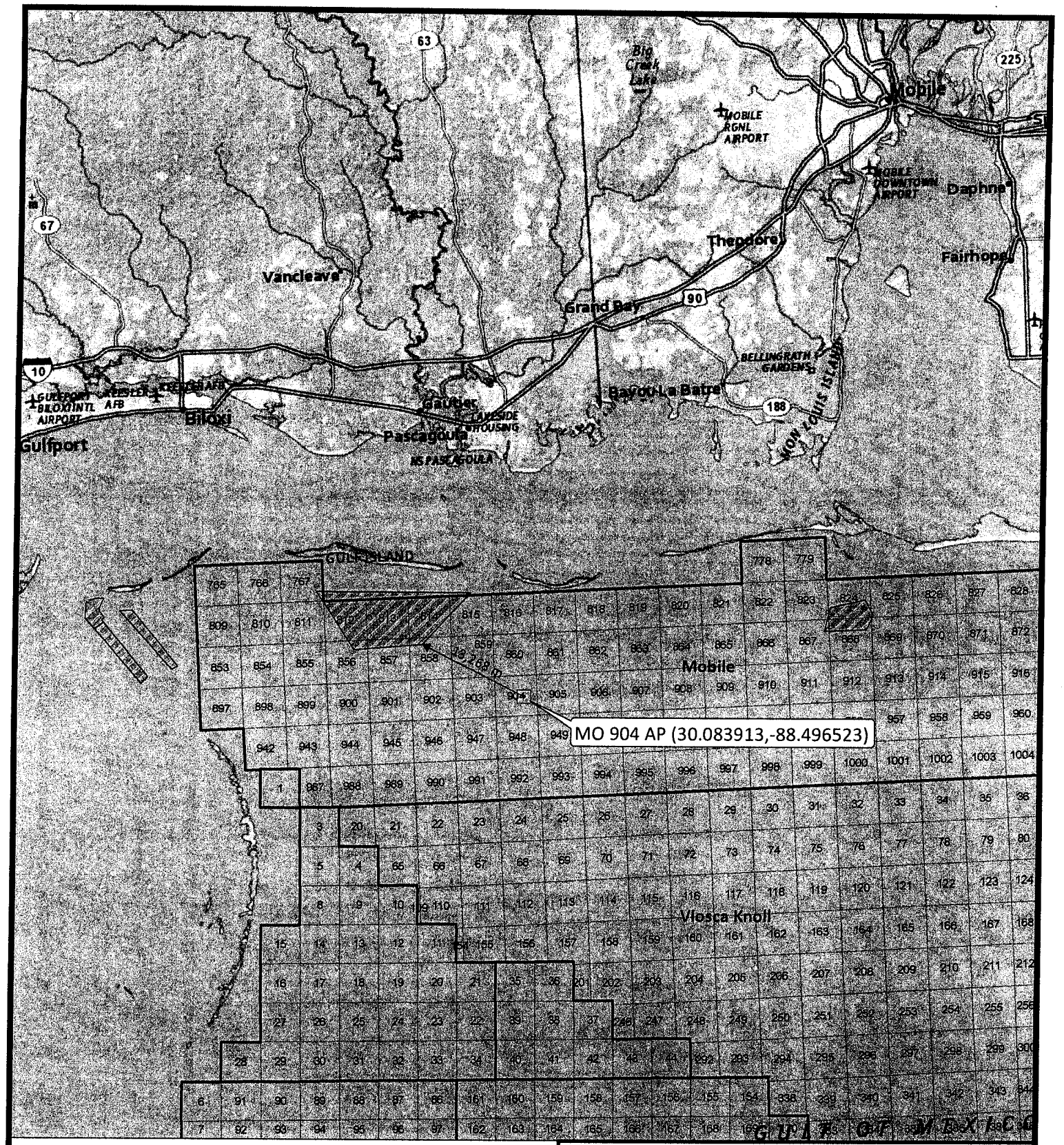
Part 1.A.4 of GEG460000
GEG460501 Mobile (MO) Block 904 AP
Notice of Intent
Cox Operating, LLC

I certify that I am an authorized official of my Company as described in 40 CFR 122.22(d) and as set forth in Part II.D.10 of the permit. I further certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature: _____ Name: Jason Rains-Love

Company: Cox Operating, LLC Title: HSE Manager

Date: 22 Mar 2018



MO 904 AP

Protraction Areas (BOEM)

Dredged Material Disposal Area (BOEM)

N

S

0 10

Miles

Base Map: National Geographic World Map

esri Partner Network Silver

Cox Operating

New Orleans, Louisiana

COX OPERATING

Notice of Intent (NOI)

Site Location Map

Gulf of Mexico

CK ASSOCIATES Environmental Consultants

Drawn: CAL		Checked: JLD	
Date: 03/21/18		Approved: JLD	
Dwg. No.: A15955-02		**Figure 1**	

1615 Poydras Street, Suite 830
New Orleans, LA 70112
Ph-504-267-9138, Fax-504-267-9139

March 22, 2018

Attention: Director
U. S. Environmental Protection Agency - Region 4
Water Protection Division
Sam Nunn Atlanta Federal Center
61 Forsyth Street, S.W.
Atlanta, Georgia 30303-8960

Re: Updated Notification of Intent for Coverage under Final NPDES General Permit No. GEG460000 for Offshore Oil and Gas Activities in the Eastern Gulf of Mexico, Mobile 904 AQ
Current Permit No. GEG460501 / new number given GEG460964

Director:

In accordance with part I.A.4 of the *Final NPDES General Permit for New and Existing Sources in the Offshore Subcategory of the Oil and Gas Extraction Category for the Eastern Portion of the Outer Continental Shelf of the Gulf of Mexico*, GEG460000 (Permit), Cox Operating, LLC is requesting general permit coverage for the Mobile 904 AQ facility. This facility is currently covered under the 2010 administratively continued permit. It is covered under Permit No. GEG460501. This paper Notice of Intent (NOI) is being submitted within 30 days from the effective date of the recently promulgated final renewed Permit and because the eNOI system is currently not operational for NOI submittal. Once the system becomes operational, an eNOI will be submitted in accordance with the Permit. Per instruction of Ms. Bridget Staples, this is an updated NOI for the original NOI dated February 15, 2018.

In accordance with Part I.A.4 of the Permit, information required in a) - w) is provided in the attached NOI table.

In accordance with Part II.D.13.d. (Certification) of General Permit No. GEG460000,

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

1615 Poydras Street, Suite 830
New Orleans, LA 70112
Ph-504-267-9138, Fax-504-267-9139

The review and approval of our request for coverage is greatly appreciated. If you have any questions or need additional information, please contact me via phone at (504) 267-9138 or via email at jrl@coxoil.com, or our environmental consultant, James Durbin (CK Associates) via phone at (225) 755-1000 or via e-mail at james.durbin@c-ka.com.

Sincerely,
Cox Operating, LLC

Mr. Jason Rains-Love
HSE Manager

Enclosures: As stated.

	ii) facilities or equipment; or the clearing or removal of existing structures or facilities	
g.	The date on which the facility plans to commence exploration activities at the site, if applicable:	Not applicable - This is an existing facility that is currently permitted. There are no exploration activities planned.
h.	The date on which the owner/operator entered into a binding contract for the purchase of facilities or equipment intended to be used in its operation within a reasonable time (if applicable):	June 1, 2016 – This facility was bought from Union Oil Company of California (UNOCAL) (Owned and operated by Chevron USA, Inc.). Permit coverage was transferred on this date.
i.	The date on which the owner/operator plans to commence development:	Not applicable - This is an existing facility that is currently permitted. There are no development activities planned.
j.	The date on which the owner/operator plans to commence production:	This is an existing facility that is currently permitted. Production commenced prior to purchase of the facility on June 1, 2016 by the previous owner.
k.	Technical information on the characteristics of the sea bottom in accordance with BOEM Notice to Lessees (NTL) no. 2008-G05, *Shallow Hazards Program*, or the most current BOEM guidelines for shallow hazard investigation and analysis within 300 meters (965 feet) of the discharge point. For those facilities that submitted this information to EPA-Region 4 as part of the previous NPDES general permit (GEG460000), only indicate the previous submittal date of the information to meet the requirement of this NOI element:	Not Applicable - This is an existing facility that is currently permitted. This facility was bought from Union Oil Company of California (UNOCAL) (Owned and operated by Chevron USA, Inc.) June 1, 2016. This information would have been submitted by the previous owner.
l.	For facilities in less than 100 meters water depth for offshore Mississippi and Alabama in the Mobile and Viosca Knoll lease blocks, permittees must submit a Live-Bottom Survey using either digital high-resolution acoustic data (sidescan sonar) or photo documentation...(etc):	Not Applicable – Although this facility is less than 100 meters water depth, it is an existing facility that is currently permitted. This facility was bought from Union Oil Company of California (UNOCAL) (Owned and operated by Chevron USA, Inc.) June 1, 2016. This information would have been submitted by the previous owner.
m.	The type of drilling fluids to be used (e.g., water-based and/or synthetic-based):	Not applicable - This is an existing facility that is currently permitted. There are no drilling activities planned and thus, no drilling fluids will be used.

n.	Documentation that an Application for Permit to Drill (APD) has been submitted to BSEE and the EP, DOCD or DPP has been submitted to BOEM or approved by BOEM:	Not applicable - This is an existing facility that is currently permitted.
o.	For facilities installed after March 4, 1993, the NOI must also identify that the facility is a new source and state the date on which the facility's protection from more stringent new source performance standards or technology-based limitations ends. That data is the soonest of ten years from the date that construction is completed, ten years from the date the source begins to discharge process or non-construction related wastewater, or the end of the period of depreciation or amortization of the facility for the purposes of Section 167 or 169 (or both) of the Internal Revenue Code of 1954:	Not applicable for Mobile 904 AQ. This facility was installed prior to March 4, 1993. . This is an existing facility that is currently permitted. This facility was bought from Union Oil Company of California (UNOCAL) (Owned and operated by Chevron USA, Inc.) June 1, 2016. This information would have been submitted by the previous owner.
p.	The general permit coverage number for the previous general permit (GMG460000) and/or the individual NPDES permit number of any individual permit issued by EPA Region 4 for this activity:	The current permit number for this facility is GEG460501.
q.	For production platforms, indicate the estimated distance (in meters) from the platform to the nearest Federally Designated Dredged Material Ocean Disposal Site:	The estimated distance from the facility to the nearest Federally Designated Dredged Material Ocean Disposal Site is 13,300 m. A location map is attached.
r.	Any permit violations under the previous Region 4 General Permit for the facility:	There were no permit violations under the previous Region 4 General Permit, GEG460501.
s.	Indicate if Phase III of EPA's Cooling Water Intake Structure Rule (CWIS) applies to the facility for which you are applying for coverage under this permit. Also indicate if the facility plans to comply under Track I or Track II of the CWIS. See Part I.D.3. Note that the Phase III CWIS rule applies to new	Phase III of EPA's Cooling Water Intake Structure (CWIS) Rule does not apply to this facility. The facility was constructed before July 17, 2006 and does not have any CWIS.

	offshore oil and gas extraction facilities for which construction commenced after July 17, 2006, that meet the following criteria 1) it is a point source that uses or proposes to use a cooling water intake structure; 2) it has at least one cooling water intake structure that uses at least 25% of the water it withdraws for cooling purposes; 3) it has a design intake flow greater than two million gallon per day (MGD). Use of a cooling water intake structure includes obtaining cooling water by any sort of contract or arrangement with an independent supplier (or multiple suppliers) of cooling water if the supplier or suppliers withdraw(s) water from the waters of the United States. The threshold requirement that at least 25% of water withdrawn be used for cooling purposes must be measured on an average monthly basis. A new offshore oil and extraction facility meets the 25% cooling water threshold if, based on the new facility's design, any monthly average over a year for the percentage of cooling water withdrawn is expected to equal or exceed 25% of the total water withdrawn:	
t.	If known, indicate the name and NPDES permit coverage number under GEG460000 for vessel operators/contractors that are, or will be, performing work at your facility that are new oil and gas facilities subject to Phase III of the CWIS Rule:	Not applicable – There are no planned work operations that would require a vessel operator/contractor.

u.	Information on the specific chemical composition of any additives currently being used or proposed for use in well treatment, completion or workover operations or as biocides for sump/drain systems. If the information on the additive is not known at the time of the submittal of this NOI, operators shall include the information in a report that shall be submitted on to EPA Region 4 on September 30th of each year. Aside from submitting this information with the NOI, this information is also required to be recorded and retained on site for no less than five years from the issuance of the permit. These record retention requirements in this section supersede the general record keeping requirements for all NPDES permits in Part II.C.5, of this permit,	There are no planned well treatment, completion or workover operations.
v.	Certification statement per 40 C.F.R. §§ 122.22(d) and signature of the responsible party per 40 C.F.R. §§ 122.22(a)	See below following the NOI table.
w.	Statement indicating intent, or not, to participate in the alternative Industry-wide Study regarding Whole Effluent Toxicity Testing of Well Treatment, Completion and Workover Fluids (Part I.B.6.b. page 50).	There are no planned well treatment, completion or workover operations for this facility in this permit area. However, Cox Operating, LLC does intend to participate in the alternative Industry-Wide Study for the GOM.

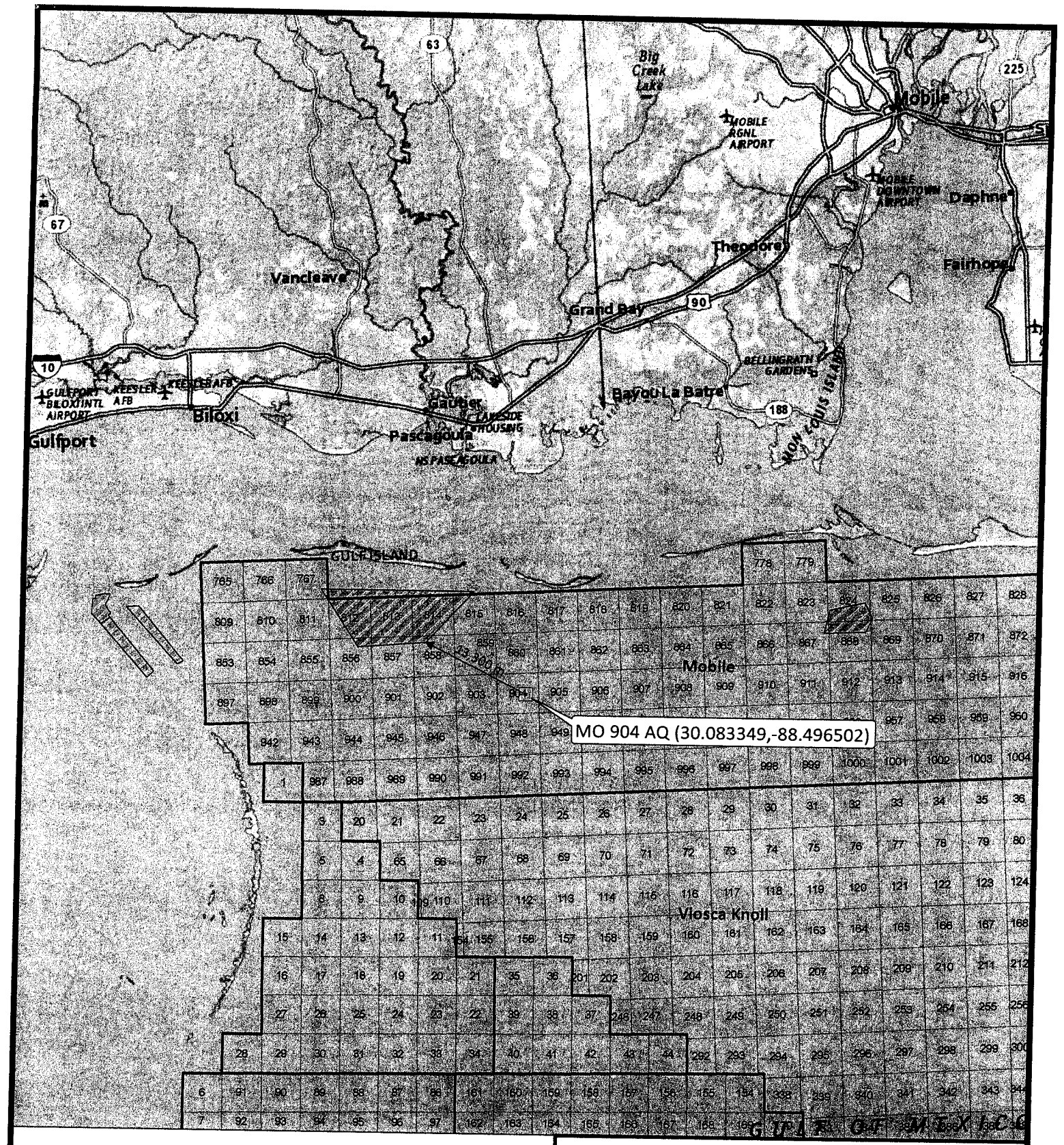
Part 1.A.4 of GEG460000
GEG460501 Mobile (MO) Block 904 AQ
Notice of Intent
Cox Operating, LLC

I certify that I am an authorized official of my Company as described in 40 CFR 122.22(d) and as set forth in Part II.D.10 of the permit. I further certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature: _____ Name: Jason Rains-Love

Company: Cox Operating, LLC Title: HSE Manager

Date: 22 Mar 2018



Cox Operating
New Orleans, Louisiana

COX OPERATING

Notice of Intent (NOI)

Site Location Map

Gulf of Mexico

CK ASSOCIATES Environmental Consultants

Drawn:	CAL	Checked:	JLD
Date:	03/21/18	Approved:	JLD
Dwg. No.:	A15955-03		**Figure 1**

1615 Poydras Street, Suite 830
New Orleans, LA 70112
Ph-504-267-9138, Fax-504-267-9139

March 22, 2018

Attention: Director
U. S. Environmental Protection Agency - Region 4
Water Protection Division
Sam Nunn Atlanta Federal Center
61 Forsyth Street, S.W.
Atlanta, Georgia 30303-8960

Re: Updated Notification of Intent for Coverage under Final NPDES General Permit No. GEG460000 for Offshore Oil and Gas Activities in the Eastern Gulf of Mexico, Mobile 904 B
Current Permit No. GEG460501

Director:

In accordance with part I.A.4 of the *Final NPDES General Permit for New and Existing Sources in the Offshore Subcategory of the Oil and Gas Extraction Category for the Eastern Portion of the Outer Continental Shelf of the Gulf of Mexico*, GEG460000 (Permit), Cox Operating, LLC is requesting general permit coverage for the Mobile 904 B facility. This facility is currently covered under the 2010 administratively continued permit. It is covered under Permit No. GEG460501. This paper Notice of Intent (NOI) is being submitted within 30 days from the effective date of the recently promulgated final renewed Permit and because the eNOI system is currently not operational for NOI submittal. Once the system becomes operational, an eNOI will be submitted in accordance with the Permit. Per instruction of Ms. Bridget Staples, this is an updated NOI for the original NOI dated February 15, 2018.

In accordance with Part I.A.4 of the Permit, information required in a) - w) is provided in the attached NOI table.

In accordance with Part II.D.13.d. (Certification) of General Permit No. GEG460000,

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

1615 Poydras Street, Suite 830
New Orleans, LA 70112
Ph-504-267-9138, Fax-504-267-9139

The review and approval of our request for coverage is greatly appreciated. If you have any questions or need additional information, please contact me via phone at (504) 267-9138 or via email at jrl@coxoil.com, or our environmental consultant, James Durbin (CK Associates) via phone at (225) 755-1000 or via e-mail at james.durbin@c-ka.com.

Sincerely,
Cox Operating, LLC

Mr. Jason Rains-Love
HSE Manager

Enclosures: As stated.

f.	The date on which the owner/operator commenced/will commence on-site construction, including: i) any placement assembly or installation of facilities or equipment; or ii) the clearing or removal of existing structures or facilities	Not applicable – This is an existing facility that is currently permitted.
g.	The date on which the facility plans to commence exploration activities at the site, if applicable:	Not applicable - This is an existing facility that is currently permitted. There are no exploration activities planned.
h.	The date on which the owner/operator entered into a binding contract for the purchase of facilities or equipment intended to be used in its operation within a reasonable time (if applicable):	June 1, 2016 – This facility was bought from Union Oil Company of California (UNOCAL) (Owned and operated by Chevron USA, Inc.). Permit coverage was transferred on this date.
i.	The date on which the owner/operator plans to commence development:	Not applicable - This is an existing facility that is currently permitted. There are no development activities planned.
j.	The date on which the owner/operator plans to commence production:	This is an existing facility that is currently permitted. Discharges commenced prior to purchase of the facility on June 1, 2016 by the previous owner.
k.	Technical information on the characteristics of the sea bottom in accordance with BOEM Notice to Lessees (NTL) no. 2008-G05, *Shallow Hazards Program*, or the most current BOEM guidelines for shallow hazard investigation and analysis within 300 meters (965 feet) of the discharge point. For those facilities that submitted this information to EPA-Region 4 as part of the previous NPDES general permit (GEG460000), only indicate the previous submittal date of the information to meet the requirement of this NOI element:	Not Applicable - This is an existing facility that is currently permitted. This facility was bought from Union Oil Company of California (UNOCAL) (Owned and operated by Chevron USA, Inc.) June 1, 2016. This information would have been submitted by the previous owner.

l.	For facilities in less than 100 meters water depth for offshore Mississippi and Alabama in the Mobile and Viosca Knoll lease blocks, permittees must submit a Live-Bottom Survey using either digital high-resolution acoustic data (sidescan sonar) or photo documentation...(etc):	Not Applicable – Although this facility is less than 100 meters water depth, it is an existing facility that is currently permitted. This facility was bought from Union Oil Company of California (UNOCAL) (Owned and operated by Chevron USA, Inc.) June 1, 2016. This information would have been submitted by the previous owner.
m.	The type of drilling fluids to be used (e.g., water-based and/or synthetic-based):	Not applicable - This is an existing facility that is currently permitted. There are no drilling activities planned and thus, no drilling fluids will be used.
n.	Documentation that an Application for Permit to Drill (APD) has been submitted to BSEE and the EP, DOCD or DPP has been submitted to BOEM or approved by BOEM:	Not applicable - This is an existing facility that is currently permitted.
o.	For facilities installed after March 4, 1993, the NOI must also identify that the facility is a new source and state the date on which the facility's protection from more stringent new source performance standards or technology-based limitations ends. That data is the soonest of ten years from the date that construction is completed, ten years from the date the source begins to discharge process or non-construction related wastewater, or the end of the period of depreciation or amortization of the facility for the purposes of Section 167 or 169 (or both) of the Internal Revenue Code of 1954:	Mobile 904 B is a caisson that was installed August 15, 1996; however, there are no discharges from this facility. This is an existing facility that is currently permitted. This facility was bought from Union Oil Company of California (UNOCAL) (Owned and operated by Chevron USA, Inc.) June 1, 2016. This information would have been submitted by the previous owner.
p.	The general permit coverage number for the previous general permit (GMG460000) and/or the individual NPDES permit number of any individual permit issued by EPA Region 4 for this activity:	The current permit number for this facility is GEG460501.
q.	For production platforms, indicate the estimated distance (in meters) from the platform to the nearest Federally Designated Dredged Material Ocean Disposal Site:	The estimated distance from the facility to the nearest Federally Designated Dredged Material Ocean Disposal Site is 13,220 m. A location map is attached.

r.	Any permit violations under the previous Region 4 General Permit for the facility:	There were no permit violations under the previous Region 4 General Permit, GEG460501.
s.	Indicate if Phase III of EPA's Cooling Water Intake Structure Rule (CWIS) applies to the facility for which you are applying for coverage under this permit. Also indicate if the facility plans to comply under Track I or Track II of the CWIS. See Part I.D.3. Note that the Phase III CWIS rule applies to new offshore oil and gas extraction facilities for which construction commenced after July 17, 2006, that meet the following criteria 1) it is a point source that uses or proposes to use a cooling water intake structure; 2) it has at least one cooling water intake structure that uses at least 25% of the water it withdraws for cooling purposes; 3) it has a design intake flow greater than two million gallon per day (MGD). Use of a cooling water intake structure includes obtaining cooling water by any sort of contract or arrangement with an independent supplier (or multiple suppliers) of cooling water if the supplier or suppliers withdraw(s) water from the waters of the United States. The threshold requirement that at least 25% of water withdrawn be used for cooling purposes must be measured on an average monthly basis. A new offshore oil and extraction facility meets the 25% cooling water threshold if, based on the new facility's design, any monthly average over a year for the percentage of cooling water withdrawn is expected to equal or exceed 25% of the total water withdrawn:	Phase III of EPA's Cooling Water Intake Structure (CWIS) Rule does not apply to this facility. The facility was constructed before July 17, 2006 and does not have any CWIS.

t.	If known, indicate the name and NPDES permit coverage number under GEG460000 for vessel operators/contractors that are, or will be, performing work at your facility that are new oil and gas facilities subject to Phase III of the CWIS Rule:	Not applicable – There are no planned work operations that would require a vessel operator/contractor.
u.	Information on the specific chemical composition of any additives currently being used or proposed for use in well treatment, completion or workover operations or as biocides for sump/drain systems. If the information on the additive is not known at the time of the submittal of this NOI, operators shall include the information in a report that shall be submitted on to EPA Region 4 on September 30th of each year. Aside from submitting this information with the NOI, this information is also required to be recorded and retained on site for no less than five years from the issuance of the permit. These record retention requirements in this section supersede the general record keeping requirements for all NPDES permits in Part II.C.5, of this permit,	There are no planned well treatment, completion or workover operations.
v.	Certification statement per 40 C.F.R. §§ 122.22(d) and signature of the responsible party per 40 C.F.R. §§ 122.22(a)	See below following the NOI table.
w.	Statement indicating intent, or not, to participate in the alternative Industry-wide Study regarding Whole Effluent Toxicity Testing of Well Treatment, Completion and Workover Fluids (Part I.B.6.b. page 50).	There are no planned well treatment, completion or workover operations for this facility in this permit area. However, Cox Operating, LLC does intend to participate in the alternative Industry-Wide Study for the GOM.

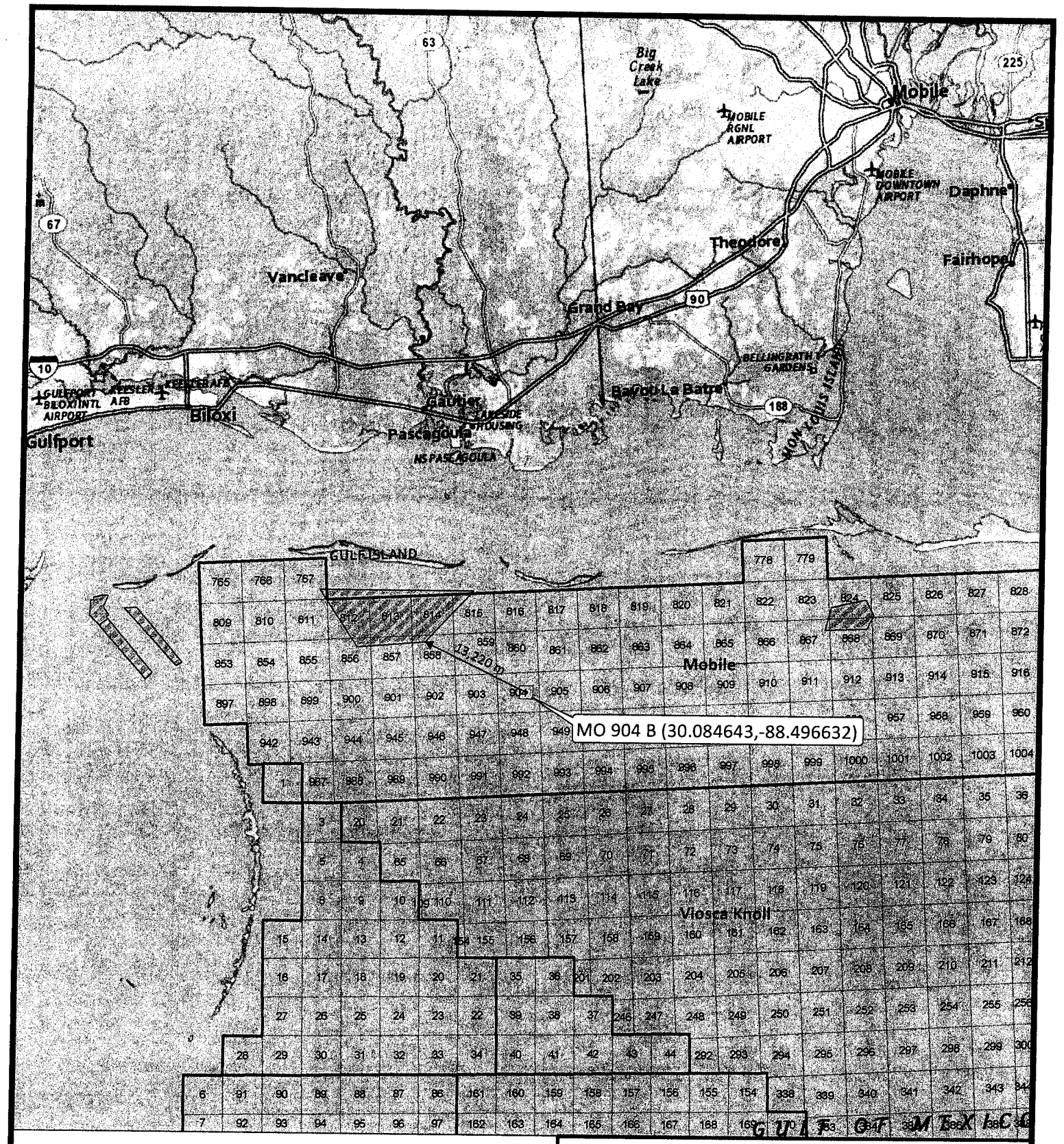
Part 1.A.4 of GEG460000
GEG460501 Mobile (MO) Block 904 B
Notice of Intent
Cox Operating, LLC

I certify that I am an authorized official of my Company as described in 40 CFR 122.22(d) and as set forth in Part II.D.10 of the permit. I further certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature: _____ Name: Jason Rains-Love

Company: Cox Operating, LLC Title: HSE Manager

Date: 22 MAR 2018



MO 904 B

Protraction Areas (BOEM)

Dredged Material Disposal Area (BOEM)

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Miles

Base Map: National Geographic World Map

esri Partner Network Silver

Cox Operating

New Orleans, Louisiana

COX OPERATING

Notice of Intent (NOI)

Site Location Map

Gulf of Mexico

CK ASSOCIATES Environmental Consultants

Drawn:	CAL	Checked:	JLD
Date:	03/21/18	Approved:	JLD
Dwg. No.:	A15955-05		**Figure 1**

1615 Poydras Street, Suite 830
New Orleans, LA 70112
Ph-504-267-9138, Fax-504-267-9139

March 22, 2018

Attention: Director
U. S. Environmental Protection Agency - Region 4
Water Protection Division
Sam Nunn Atlanta Federal Center
61 Forsyth Street, S.W.
Atlanta, Georgia 30303-8960

Re: Updated Notification of Intent for Coverage under Final NPDES General Permit No. GEG460000 for Offshore Oil and Gas Activities in the Eastern Gulf of Mexico, Mobile 916 AP
Current Permit No. [redacted]

Director:

In accordance with part I.A.4 of the *Final NPDES General Permit for New and Existing Sources in the Offshore Subcategory of the Oil and Gas Extraction Category for the Eastern Portion of the Outer Continental Shelf of the Gulf of Mexico*, GEG460000 (Permit), Cox Operating, LLC is requesting general permit coverage for the Mobile 916 AP facility. This facility is currently covered under the 2010 administratively continued permit. It is covered under Permit No. GEG460470. This paper Notice of Intent (NOI) is being submitted within 30 days from the effective date of the recently promulgated final renewed Permit and because the eNOI system is currently not operational for NOI submittal. Once the system becomes operational, an eNOI will be submitted in accordance with the Permit. Per instruction of Ms. Bridget Staples, this is an updated NOI for the original NOI dated February 15, 2018.

In accordance with Part I.A.4 of the Permit, information required in a) - w) is provided in the attached NOI table.

In accordance with Part II.D.13.d. (Certification) of General Permit No. GEG460000,

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

1615 Poydras Street, Suite 830
New Orleans, LA 70112
Ph-504-267-9138, Fax-504-267-9139

The review and approval of our request for coverage is greatly appreciated. If you have any questions or need additional information, please contact me via phone at (504) 267-9138 or via email at jrl@coxoil.com, or our environmental consultant, James Durbin (CK Associates) via phone at (225) 755-1000 or via e-mail at james.durbin@c-ka.com.

Sincerely,
Cox Operating, LLC

Mr. Jason Rains-Love
HSE Manager

Enclosures: As stated.

	ii) the clearing or removal of existing structures or facilities	
g.	The date on which the facility plans to commence exploration activities at the site, if applicable:	Not applicable - This is an existing production facility that is currently permitted. There are no exploration activities planned.
h.	The date on which the owner/operator entered into a binding contract for the purchase of facilities or equipment intended to be used in its operation within a reasonable time (if applicable):	June 1, 2016 – This facility was bought from Union Oil Company of California (UNOCAL) (Owned and operated by Chevron USA, Inc.). Permit coverage was transferred on this date.
i.	The date on which the owner/operator plans to commence development:	Not applicable - This is an existing production facility that is currently permitted. There are no development activities planned.
j.	The date on which the owner/operator plans to commence production:	This is an existing production facility that is currently permitted. Production commenced prior to purchase of the facility on June 1, 2016 by the previous owner.
k.	Technical information on the characteristics of the sea bottom in accordance with BOEM Notice to Lessees (NTL) no. 2008-G05, *Shallow Hazards Program*, or the most current BOEM guidelines for shallow hazard investigation and analysis within 300 meters (965 feet) of the discharge point. For those facilities that submitted this information to EPA-Region 4 as part of the previous NPDES general permit (GEG460000), only indicate the previous submittal date of the information to meet the requirement of this NOI element:	Not Applicable - This is an existing production facility that is currently permitted. This facility was bought from Union Oil Company of California (UNOCAL) (Owned and operated by Chevron USA, Inc.) June 1, 2016. This information would have been submitted by the previous owner.
l.	For facilities in less than 100 meters water depth for offshore Mississippi and Alabama in the Mobile and Viosca Knoll lease blocks, permittees must submit a Live-Bottom Survey using either digital high-resolution acoustic data (sidescan sonar) or photo documentation...(etc):	Not Applicable – Although this facility is less than 100 meters water depth, it is an existing production facility that is currently permitted. This facility was bought from Union Oil Company of California (UNOCAL) (Owned and operated by Chevron USA, Inc.) June 1, 2016. This information would have been submitted by the previous owner.
m.	The type of drilling fluids to be used (e.g., water-based and/or synthetic-based):	Not applicable - This is an existing production facility that is currently permitted. There are no drilling activities planned and thus, no drilling fluids will be used.

n.	Documentation that an Application for Permit to Drill (APD) has been submitted to BSEE and the EP, DOCD or DPP has been submitted to BOEM or approved by BOEM:	Not applicable - This is an existing production facility that is currently permitted.
o.	For facilities installed after March 4, 1993, the NOI must also identify that the facility is a new source and state the date on which the facility's protection from more stringent new source performance standards or technology-based limitations ends. That data is the soonest of ten years from the date that construction is completed, ten years from the date the source begins to discharge process or non-construction related wastewater, or the end of the period of depreciation or amortization of the facility for the purposes of Section 167 or 169 (or both) of the Internal Revenue Code of 1954:	The Mobile 916 AP was installed after March 4, 1993. The facility discharges Untreated Miscellaneous Discharges, Produced Water and Deck Drainage. This is an existing production facility that is currently permitted. This facility was bought from Union Oil Company of California (UNOCAL) (Owned and operated by Chevron USA, Inc.) June 1, 2016. This information would have been submitted by the previous owner.
p.	The general permit coverage number for the previous general permit (GMG460000) and/or the individual NPDES permit number of any individual permit issued by EPA Region 4 for this activity:	The current permit number for this facility is GEG460470.
q.	For production platforms, indicate the estimated distance (in meters) from the platform to the nearest Federally Designated Dredged Material Ocean Disposal Site:	The estimated distance from the complex to the nearest Federally Designated Dredged Material Ocean Disposal Site is 20,095 m. A location map is attached.
r.	Any permit violations under the previous Region 4 General Permit for the facility:	There was one permit violation under the administratively continued Region 4 General Permit, GEG460470. On February 3, 2017 a Daily Maximum exceedance for Produced Water Oil & Grease occurred; however, the Monthly Average permit limit was met.
s.	Indicate if Phase III of EPA's Cooling Water Intake Structure Rule (CWIS) applies to the facility for which you are applying for coverage under this permit. Also indicate if the facility plans to comply under Track I or	Phase III of EPA's Cooling Water Intake Structure (CWIS) Rule does not apply to this facility. The facility was constructed before July 17, 2006 and does not have any CWIS.

	Track II of the CWIS. See Part I.D.3. Note that the Phase III CWIS rule applies to new offshore oil and gas extraction facilities for which construction commenced after July 17, 2006, that meet the following criteria 1) it is a point source that uses or proposes to use a cooling water intake structure; 2) it has at least one cooling water intake structure that uses at least 25% of the water it withdraws for cooling purposes; 3) it has a design intake flow greater than two million gallon per day (MGD). Use of a cooling water intake structure includes obtaining cooling water by any sort of contract or arrangement with an independent supplier (or multiple suppliers) of cooling water if the supplier or suppliers withdraw(s) water from the waters of the United States. The threshold requirement that at least 25% of water withdrawn be used for cooling purposes must be measured on an average monthly basis. A new offshore oil and extraction facility meets the 25% cooling water threshold if, based on the new facility's design, any monthly average over a year for the percentage of cooling water withdrawn is expected to equal or exceed 25% of the total water withdrawn:	
t.	If known, indicate the name and NPDES permit coverage number under GEG460000 for vessel operators/contractors that are, or will be, performing work at your facility that are new oil and gas facilities subject to Phase III of the CWIS Rule:	Not applicable – There are no planned work operations that would require a vessel operator/contractor.

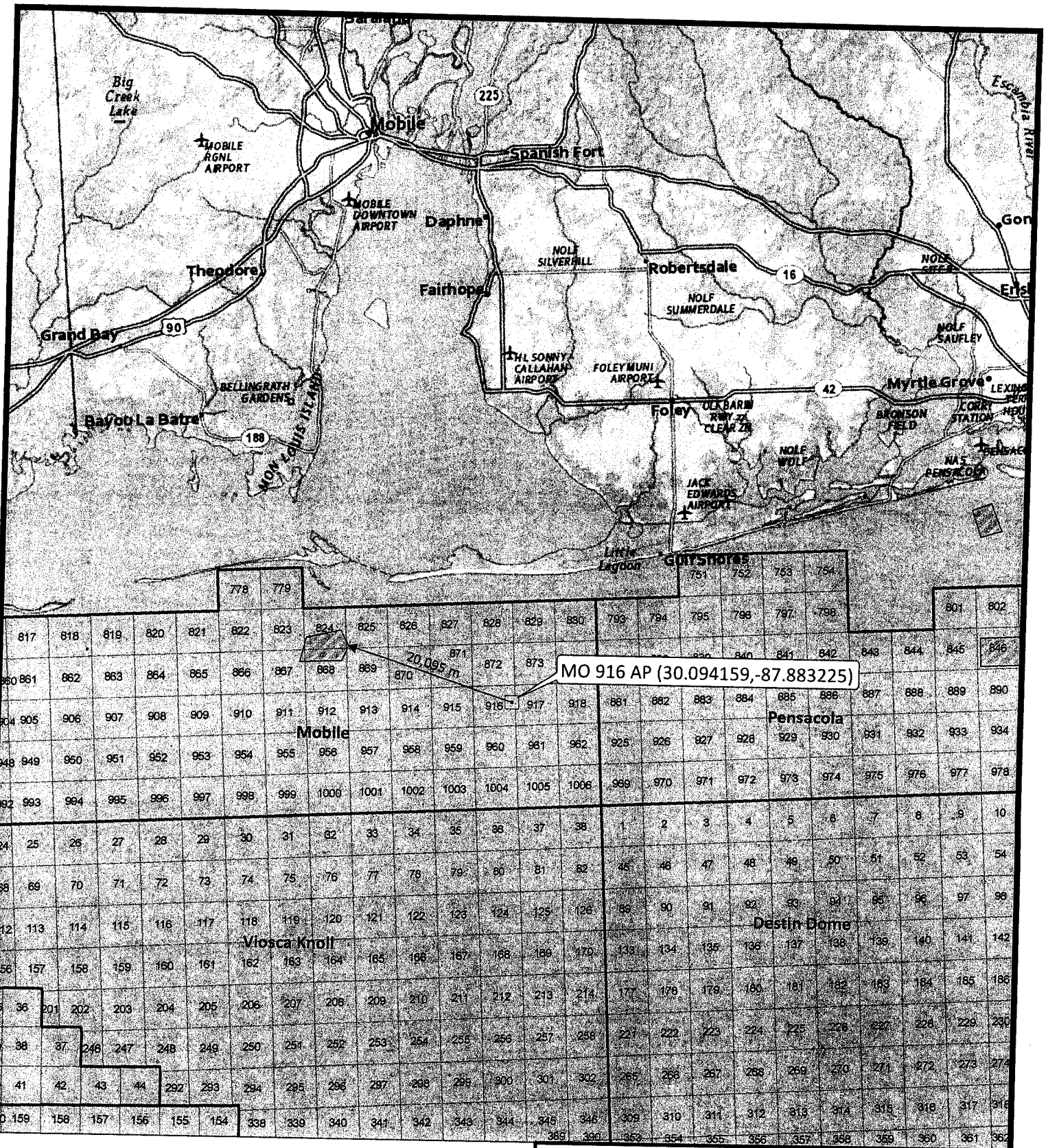
u.	Information on the specific chemical composition of any additives currently being used or proposed for use in well treatment, completion or workover operations or as biocides for sump/drain systems. If the information on the additive is not known at the time of the submittal of this NOI, operators shall include the information in a report that shall be submitted on to EPA Region 4 on September 30th of each year. Aside from submitting this information with the NOI, this information is also required to be recorded and retained on site for no less than five years from the issuance of the permit. These record retention requirements in this section supersede the general record keeping requirements for all NPDES permits in Part II.C.5, of this permit,	There are no planned well treatment, completion or workover operations. Currently a biocide, Nalco, Bactron K-103 Antimicrobial (see attached Safety Data Sheet) is being used intermittently to comply with proper operation and maintenance requirements of the sump/drain system. This biocide meets the requirements of 40 CFR 122.42(a)(2)(i-iii).
v.	Certification statement per 40 C.F.R. §§ 122.22(d) and signature of the responsible party per 40 C.F.R. §§ 122.22(a)	See below following the NOI table.
w.	Statement indicating intent, or not, to participate in the alternative Industry-wide Study regarding Whole Effluent Toxicity Testing of Well Treatment, Completion and Workover Fluids (Part I.B.6.b. page 50).	There are no planned well treatment, completion or workover operations for this facility in this permit area. However, Cox Operating, LLC does intend to participate in the alternative Industry-Wide Study for the GOM.

I certify that I am an authorized official of my Company as described in 40 CFR 122.22(d) and as set forth in Part II.D.10 of the permit. I further certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature: _____ Name: Jason Rains-Love

Company: Cox Operating, LLC Title: HSE Manager

Date: 22 Mar 2018



MO 916 AP

Protraction Areas (BOEM)

Dredged Material Disposal Area (BOEM)

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Base Map: National Geographic World Map

esri Partner Network Silver

Cox Operating

New Orleans, Louisiana

COX OPERATING

Notice of Intent (NOI)

Site Location Map

Gulf of Mexico

CK Associates Environmental Consultants

Drawn: CAL	Checked: JLD
Date: 03/21/18	Approved: JLD
Dwg. No.: A15955-06	**Figure 1**

May 31, 2016

US Environmental Protection Agency, Region 4
Water Protection Division
Sam Nunn Federal Center
61 Forsyth Center, S.W.
Atlanta, GA 30303
Attention: Director

RE: **Transfer of General Permit Coverage – GEG460000 for Facilities Recently Acquired**

Director:

In accordance with Part I.A.9, Cox Operating, LLC (Cox) respectfully submits this letter the transfer general permit coverage for GEG460000 for permitted facilities. Cox recently acquired these facilities from Chevron USA, Inc. The change of operatorship and ownership becomes effective June 1, 2016.

The attached table outlines all the required information outlined at Part A.I.9 for the facilities permit transfer is requested.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Please direct any questions concerning this matter to Mr. Jason Rains-Love, HSE Training & Special Projects Manager at (504) 267-9138 or via email at jrl@coxoil.com or our Environmental Consultant, Mr. James Durbin, Sr. Environmental Scientist, CK Associates at (225) 755 1000 or via email at james.durbin@c-ka.com.

Sincerely,
Cox Operating, LLC

Rodney Dykes
President/COO

Enclosures: As Stated

COX OPERATING, LLC
PERMIT TRANSFERS – GEG460000

Permit No.	OCS No.	Facility Name	Lease Block Name	Existing Permittee	Coverage Being Transferred to	Effective Date of Transfer
GEG460559	G06850	MO 872 A	Mobile	Union Oil Company of California (UNOCAL) (Owned and operated by Chevron USA, Inc.) 100 Northpark Blvd. Covington, LA 70433 (985) 773-7157	Cox Operating, LLC 1615 Poydras Street, Suite 830 New Orleans, LA 70112 (504) 267-9130	June 1, 2016
GEG460501	G05749	MO 904 "AP, AQ, AW & B"	Mobile			June 1, 2016
GEG460470	G05753	MO 916 "AP, AQ & AW"	Mobile			June 1, 2016
GEG460492	G05754	MO 917 A	Mobile			June 1, 2016
GEG460494	G05761	MO 961 A	Mobile			June 1, 2016

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations"

Rodney Dykes
President/COO
Cox Operating, LLC

6/1/2016
DATE

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations"

Gary Chiasson
Manager, Operations, Asset Development Shelf
UNOCAL/Chevron USA, Inc.

6/3/16
DATE

May 31, 2016

US Environmental Protection Agency, Region 4
Water Protection Division
Sam Nunn Federal Center
61 Forsyth Center, S.W.
Atlanta, GA 30303
Attention: Director

RE: **Transfer of General Permit Coverage – GEG460000 for Facilities Recently Acquired**

Director:

In accordance with Part I.A.9, Cox Operating, LLC (Cox) respectfully submits this letter the transfer general permit coverage for GEG460000 for permitted facilities. Cox recently acquired these facilities from Chevron USA, Inc. The change of operatorship and ownership becomes effective June 1, 2016.

The attached table outlines all the required information outlined at Part A.I.9 for the facilities permit transfer is requested.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Please direct any questions concerning this matter to Mr. Jason Rains-Love, HSE Training & Special Projects Manager at (504) 267-9138 or via email at jrl@coxoil.com or our Environmental Consultant, Mr. James Durbin, Sr. Environmental Scientist, CK Associates at (225) 755 1000 or via email at james.durbin@c-ka.com.

Sincerely,
Cox Operating, LLC

Rodney Dykes
President/COO

Enclosures: As Stated

Permit No.
GEG460559
GEG460501
GEG46047
GEG46049
GEG4604

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COX OPERATING, LLC
PERMIT TRANSFERS – GEG460000

Permit No.	OCS No.	Facility Name	Lease Block Name	Existing Permittee	Coverage Being Transferred to	Effective Date of Transfer
GEG460559	G06850	MO 872 A	Mobile	Union Oil Company of California (UNOCAL) (Owned and operated by Chevron USA, Inc.) 100 Northpark Blvd. Covington, LA 70433 (985) 773-7157	Cox Operating, LLC 1615 Poydras Street, Suite 830 New Orleans, LA 70112 (504) 267-9130	June 1, 2016
GEG460501	G05749	MO 904 "AP, AQ, AW & B"	Mobile			June 1, 2016
GEG460470	G05753	MO 916 "AP, AQ & AW"	Mobile			June 1, 2016
GEG460492	G05754	MO 917 A	Mobile			June 1, 2016
GEG460494	G05761	MO 961 A	Mobile			June 1, 2016

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations"

Rodney Dykes
President/COO
Cox Operating, LLC

6/1/2016
DATE

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations"

Gary Chiasson
Manager, Operations, Asset Development Shelf
UNOCAL/Chevron USA, Inc.

6/3/16
DATE

1615 Poydras Street, Suite 830
New Orleans, LA 70112
Ph-504-267-9138, Fax-504-267-9139

February 15, 2018

Attention: Director
U. S. Environmental Protection Agency - Region 4
Water Protection Division
Sam Nunn Atlanta Federal Center
61 Forsyth Street, S.W.
Atlanta, Georgia 30303-8960

Re: Notification of Intent for Coverage under Final NPDES General Permit No. GEG460000 for Offshore Oil and Gas Activities in the Eastern Gulf of Mexico,
Mobile 904 Complex
Current Permit No. GEG460501

Director:

In accordance with part I.A.4 of the *Final NPDES General Permit for New and Existing Sources in the Offshore Subcategory of the Oil and Gas Extraction Category for the Eastern Portion of the Outer Continental Shelf of the Gulf of Mexico*, GEG460000 (Permit), Cox Operating, LLC is requesting general permit coverage for the Mobile 904 Complex (facility). This facility is currently covered under the 2010 administratively continued permit. It is covered under Permit No. GEG460501. This paper Notice of Intent (NOI) is being submitted within 30 days from the effective date of the recently promulgated final renewed Permit and because the eNOI system is currently not operational for NOI submittal. Once the system becomes operational, an eNOI will be submitted in accordance with the Permit.

In accordance with Part I.A.4 of the Permit, information required in a) - w) is provided in the attached NOI table.

In accordance with Part II.D.13.d. (Certification) of General Permit No. GEG460000,

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

1615 Poydras Street, Suite 830
New Orleans, LA 70112
Ph-504-267-9138, Fax-504-267-9139

The review and approval of our request for coverage is greatly appreciated. If you have any questions or need additional information, please contact Mr. Jason Rains-Love, HSE Training Special Projects Manager via phone at (504) 267-91383 or via email at jrl@coxoil.com, or our environmental consultant, James Durbin (CK Associates) via phone at (225) 755-1000 or via e-mail at james.durbin@c-ka.com.

Sincerely,
Cox Operating, LLC

Rodney Dykes
President/COO

Enclosures: As stated.

f.	The date on which the owner/operator commenced/will commence on-site construction, including: i) any placement assembly or installation of facilities or equipment; or ii) the clearing or removal of existing structures or facilities	Not applicable – This is an existing production facility that is currently permitted.
g.	The date on which the facility plans to commence exploration activities at the site, if applicable:	Not applicable - This is an existing production facility that is currently permitted. There are no exploration activities planned.
h.	The date on which the owner/operator entered into a binding contract for the purchase of facilities or equipment intended to be used in its operation within a reasonable time (if applicable):	June 1, 2016 – This facility was bought from Union Oil Company of California (UNOCAL) (Owned and operated by Chevron USA, Inc.). Permit coverage was transferred on this date.
i.	The date on which the owner/operator plans to commence development:	Not applicable - This is an existing production facility that is currently permitted. There are no development activities planned.
j.	The date on which the owner/operator plans to commence production:	This is an existing production facility that is currently permitted. Production commenced prior to purchase of the facility on June 1, 2016 by the previous owner.
k.	Technical information on the characteristics of the sea bottom in accordance with BOEM Notice to Lessees (NTL) no. 2008-G05, *Shallow Hazards Program*, or the most current BOEM guidelines for shallow hazard investigation and analysis within 300 meters (965 feet) of the discharge point. For those facilities that submitted this information to EPA-Region 4 as part of the previous NPDES general permit (GEG460000), only indicate the previous submittal date of the information to meet the requirement of this NOI element:	Not Applicable - This is an existing production facility that is currently permitted. This facility was bought from Union Oil Company of California (UNOCAL) (Owned and operated by Chevron USA, Inc.) June 1, 2016. This information would have been submitted by the previous owner.

l.	For facilities in less than 100 meters water depth for offshore Mississippi and Alabama in the Mobile and Viosca Knoll lease blocks, permittees must submit a Live-Bottom Survey using either digital high-resolution acoustic data (sidescan sonar) or photo documentation...(etc):	Not Applicable – Although this facility is less than 100 meters water depth, it is an existing production facility that is currently permitted. This facility was bought from Union Oil Company of California (UNOCAL) (Owned and operated by Chevron USA, Inc.) June 1, 2016. This information would have been submitted by the previous owner.
m.	The type of drilling fluids to be used (e.g., water-based and/or synthetic-based):	Not applicable - This is an existing production facility that is currently permitted. There are no drilling activities planned and thus, no drilling fluids will be used.
n.	Documentation that an Application for Permit to Drill (APD) has been submitted to BSEE and the EP, DOCD or DPP has been submitted to BOEM or approved by BOEM:	Not applicable - This is an existing production facility that is currently permitted.
o.	For facilities installed after March 4, 1993, the NOI must also identify that the facility is a new source and state the date on which the facility's protection from more stringent new source performance standards or technology-based limitations ends. That data is the soonest of ten years from the date that construction is completed, ten years from the date the source begins to discharge process or non-construction related wastewater, or the end of the period of depreciation or amortization of the facility for the purposes of Section 167 or 169 (or both) of the Internal Revenue Code of 1954:	Not applicable for Mobile 904 AP, AW and AQ. These facilities were all installed prior to March 4, 1993. Mobile 904 B is a caisson that was installed August 15, 1996; however, there are no discharges from this facility. This is an existing production facility that is currently permitted. This facility was bought from Union Oil Company of California (UNOCAL) (Owned and operated by Chevron USA, Inc.) June 1, 2016. This information would have been submitted by the previous owner.
p.	The general permit coverage number for the previous general permit (GMG460000) and/or the individual NPDES permit number of any individual permit issued by EPA Region 4 for this activity:	The current permit number for this facility is GEG460501.
q.	For production platforms, indicate the estimated distance (in meters) from the platform to the nearest Federally Designated Dredged Material Ocean Disposal Site:	The estimated distance from the complex to the nearest Federally Designated Dredged Material Ocean Disposal Site is 13,268 m. A location map is attached.

r.	Any permit violations under the previous Region 4 General Permit for the facility:	There were no permit violations under the previous Region 4 General Permit, GEG460501.
s.	Indicate if Phase III of EPA's Cooling Water Intake Structure Rule (CWIS) applies to the facility for which you are applying for coverage under this permit. Also indicate if the facility plans to comply under Track I or Track II of the CWIS. See Part I.D.3. Note that the Phase III CWIS rule applies to new offshore oil and gas extraction facilities for which construction commenced after July 17, 2006, that meet the following criteria 1) it is a point source that uses or proposes to use a cooling water intake structure; 2) it has at least one cooling water intake structure that uses at least 25% of the water it withdraws for cooling purposes; 3) it has a design intake flow greater than two million gallon per day (MGD). Use of a cooling water intake structure includes obtaining cooling water by any sort of contract or arrangement with an independent supplier (or multiple suppliers) of cooling water if the supplier or suppliers withdraw(s) water from the waters of the United States. The threshold requirement that at least 25% of water withdrawn be used for cooling purposes must be measured on an average monthly basis. A new offshore oil and extraction facility meets the 25% cooling water threshold if, based on the new facility's design, any monthly average over a year for the percentage of cooling water withdrawn is expected to equal or exceed 25% of the total water withdrawn:	Phase III of EPA's Cooling Water Intake Structure (CWIS) Rule does not apply to this facility. The facility was constructed before July 17, 2006 and does not have any CWIS.

t.	If known, indicate the name and NPDES permit coverage number under GEG460000 for vessel operators/contractors that are, or will be, performing work at your facility that are new oil and gas facilities subject to Phase III of the CWIS Rule:	Not applicable – There are no planned work operations that would require a vessel operator/contractor.
u.	Information on the specific chemical composition of any additives currently being used or proposed for use in well treatment, completion or workover operations or as biocides for sump/drain systems. If the information on the additive is not known at the time of the submittal of this NOI, operators shall include the information in a report that shall be submitted on to EPA Region 4 on September 30th of each year. Aside from submitting this information with the NOI, this information is also required to be recorded and retained on site for no less than five years from the issuance of the permit. These record retention requirements in this section supersede the general record keeping requirements for all NPDES permits in Part II.C.5, of this permit,	There are no planned well treatment, completion or workover operations. Currently a biocide, Nalco, Bactron K-103 Antimicrobial (see attached Safety Data Sheet) is being used intermittently to comply with proper operation and maintenance requirements of the sump/drain system. This biocide meets the requirements of 40 CFR 122.42(a)(2)(i-iii).
v.	Certification statement per 40 C.F.R. §§ 122.22(d) and signature of the responsible party per 40 C.F.R. §§ 122.22(a)	See below following the NOI table.
w.	Statement indicating intent, or not, to participate in the alternative Industry-wide Study regarding Whole Effluent Toxicity Testing of Well Treatment, Completion and Workover Fluids (Part I.B.6.b. page 50).	There are no planned well treatment, completion or workover operations for this facility in this permit area. However, Cox Operating, LLC does intend to participate in the alternative Industry-Wide Study for the GOM.

Part 1.A.4 of GEG460000
GEG460501 Mobile (MO) Block 904 Complex (Platforms AP, AQ, AW, B)
Notice of Intent
Cox Operating, LLC

I certify that I am an authorized official of my Company as described in 40 CFR 122.22(d) and as set forth in Part II.D.10 of the permit. I further certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

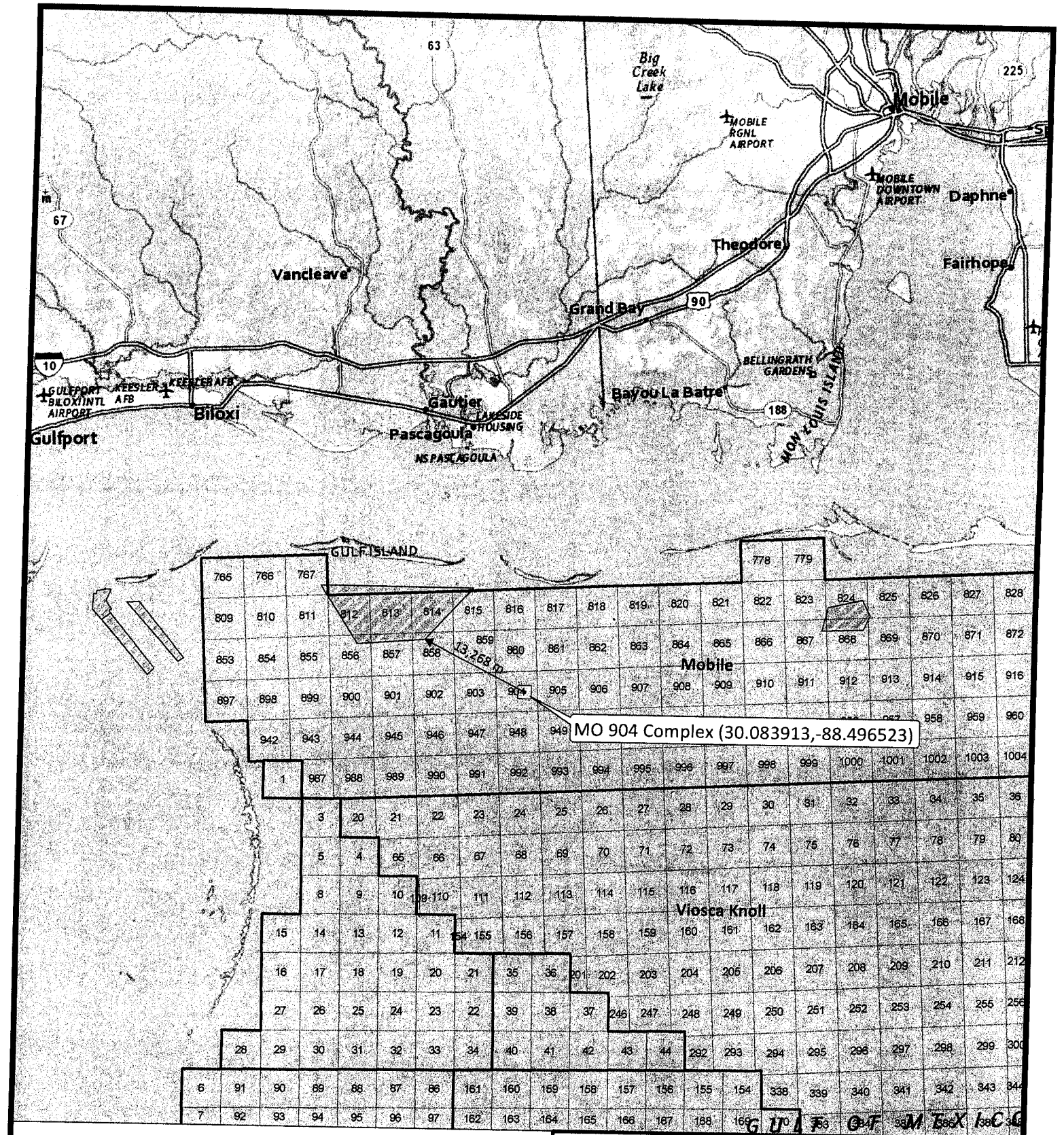
Signature: Rodney Dykes

Name: Rodney Dykes

Company: Cox Operating, LLC

Title: President/COO

Date: 02/15/2018



MO 904 Complex

Protraction Areas (BOEM)

Dredged Material Disposal Area (BOEM)

N

S

0 10

Miles

Base Map: National Geographic World Map

esri Partner Network Silver

Cox Operating

New Orleans, Louisiana

COX OPERATING

Notice of Intent (NOI)

Site Location Map

Gulf of Mexico

CK ASSOCIATES Environmental Consultants

Drawn:	CAL	Checked:	JLD
Date:	02/09/18	Approved:	JLD
Dwg. No.:	A13753-02		**Figure 1**

NALCO Champion
An Ecolab Company

SAFETY DATA SHEET

Bactron® K-103 Antimicrobial

Section: 1. PRODUCT AND COMPANY IDENTIFICATION

Product name	:	Bactron® K-103 Antimicrobial
Other means of identification	:	Not applicable.
Recommended use	:	BIOCIDE
Restrictions on use	:	Refer to available product literature or ask your local Sales Representative for restrictions on use and dose limits.
Company	:	Nalco Champion Company 7705 Highway 90-A Sugar Land, Texas 77478 USA TEL: (281) 263-7000
Emergency telephone number	:	(800) 424-9300 (24 Hours) CHEMTREC
Issuing date	:	04/01/2015

Section: 2. HAZARDS IDENTIFICATION

GHS Classification

Acute toxicity (Inhalation)	:	Category 4
Acute toxicity (Oral)	:	Category 3
Acute toxicity (Dermal)	:	Category 4
Serious eye damage	:	Category 1
Skin sensitization	:	Category 1
Reproductive toxicity	:	Category 2

GHS Label element

Hazard pictograms :

Signal Word : Danger

Hazard Statements : Causes serious eye damage.
Toxic if swallowed.
Harmful in contact with skin or if inhaled
May cause an allergic skin reaction.
Suspected of damaging fertility or the unborn child.

Precautionary Statements : **Prevention:**
Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray. Use only outdoors or in a well-ventilated area. Contaminated work clothing should not be allowed out of the workplace. Wear eye protection/face protection. Wear protective gloves. Use personal protective equipment as required.
Response:

IF ON SKIN: Wash with plenty of soap and water. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. IF exposed or concerned: Get medical advice/attention. Immediately call a POISON CENTER or doctor/ physician. If skin irritation or rash occurs: Get medical advice/ attention. Wash contaminated clothing before reuse.

Storage:

Store in a well-ventilated place. Keep container tightly closed. Store locked up.

Disposal:

Dispose of contents/ container to an approved waste disposal plant.

Other hazards : None known.

Section: 3. COMPOSITION/INFORMATION ON INGREDIENTS

Pure substance/mixture : Mixture

Chemical Name	CAS-No.	Concentration: (%)
Tetrakis(hydroxymethyl) phosphonium sulfate	55566-30-8	10 - 30

Section: 4. FIRST AID MEASURES

In case of eye contact : Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention immediately.

In case of skin contact : Wash off immediately with plenty of water for at least 15 minutes. Use a mild soap if available. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

If swallowed : Rinse mouth with water. Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Get medical attention immediately.

If inhaled : Remove to fresh air. Treat symptomatically. Get medical attention.

Protection of first-aiders : In event of emergency assess the danger before taking action. Do not put yourself at risk of injury. If in doubt, contact emergency responders.Use personal protective equipment as required.

Notes to physician : Treat symptomatically.

Most important symptoms and effects, both acute and delayed : See Section 11 for more detailed information on health effects and symptoms.

Section: 5. FIREFIGHTING MEASURES

Suitable extinguishing media : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media : None known.

Specific hazards during firefighting	: Not flammable or combustible.
Hazardous combustion products	: Decomposition products may include the following materials: Carbon oxides Sulphur oxides Oxides of phosphorus
Special protective equipment for firefighters	: Use personal protective equipment.
Specific extinguishing methods	: Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. In the event of fire and/or explosion do not breathe fumes.

Section: 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	: Ensure adequate ventilation. Keep people away from and upwind of spill/leak. Avoid inhalation, ingestion and contact with skin and eyes. When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. Ensure clean-up is conducted by trained personnel only. Refer to protective measures listed in sections 7 and 8.
Environmental precautions	: Do not allow contact with soil, surface or ground water.
Methods and materials for containment and cleaning up	: Stop leak if safe to do so. Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13). For large spills, dike spilled material or otherwise contain material to ensure runoff does not reach a waterway. Flush away traces with water.

Section: 7. HANDLING AND STORAGE

Advice on safe handling	: Do not ingest. Do not breathe dust/fume/gas/mist/vapours/spray. Do not get in eyes, on skin, or on clothing. Wash hands thoroughly after handling. Use only with adequate ventilation.
Conditions for safe storage	: Keep out of reach of children. Keep container tightly closed. Store in suitable labeled containers.
Suitable material	: Keep in properly labelled containers.
Unsuitable material	: not determined

Section: 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Form of exposure	Permissible concentration	Basis
Tetrakis(hydroxymethyl) phosphonium sulfate	55566-30-8	TWA	2 mg/m3	ACGIH

Engineering measures : Effective exhaust ventilation system Maintain air concentrations

below occupational exposure standards.

Personal protective equipment

Eye protection	:	Safety goggles Face-shield
Hand protection	:	Wear the following personal protective equipment: Standard glove type. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.
Skin protection	:	Wear suitable protective clothing.
Respiratory protection	:	When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.
Hygiene measures	:	Handle in accordance with good industrial hygiene and safety practice. Remove and wash contaminated clothing before re-use. Wash face, hands and any exposed skin thoroughly after handling. Provide suitable facilities for quick drenching or flushing of the eyes and body in case of contact or splash hazard.

Section: 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	liquid
Colour	:	colourless
Odour	:	no data available
Flash point	:	> 93.3 °C Method: Pensky-Martens closed cup
pH	:	3.0 - 5.0, (undiluted)
Odour Threshold	:	no data available
Melting point/freezing point	:	pour point: -3.9 °C
Initial boiling point and boiling range	:	no data available
Evaporation rate	:	no data available
Flammability (solid, gas)	:	no data available
Upper explosion limit	:	no data available
Lower explosion limit	:	no data available
Vapour pressure	:	6.89467 hPa (37.8 °C)
Relative vapour density	:	no data available
Relative density	:	1.0739 - 1.1039 (15.6 °C)
Density	:	1.0721 - 1.102 g/cm3
Water solubility	:	soluble
Solubility in other solvents	:	no data available
Partition coefficient: n-octanol/water	:	no data available
Auto-ignition temperature	:	no data available

Thermal decomposition temperature	: no data available
Viscosity, dynamic	: 1 - 3 mPa.s
Viscosity, kinematic	: 1.2 mm2/s (40 °C)
VOC	: no data available

Section: 10. STABILITY AND REACTIVITY

Chemical stability	: Stable under normal conditions.
Possibility of hazardous reactions	: No dangerous reaction known under conditions of normal use.
Conditions to avoid	: None known.
Incompatible materials	: no data available
Hazardous decomposition products	: Decomposition products may include the following materials: Carbon oxides Sulphur oxides Oxides of phosphorus

Section: 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure	: Inhalation, Eye contact, Skin contact

Potential Health Effects

Eyes	: Causes serious eye damage.
Skin	: Harmful in contact with skin. May cause allergic skin reaction.
Ingestion	: Toxic if swallowed.
Inhalation	: Harmful if inhaled.
Chronic Exposure	: Suspected of damaging fertility or the unborn child.

Experience with human exposure

Eye contact	: Redness, Pain, Corrosion
Skin contact	: Redness, Irritation, Allergic reactions
Ingestion	: No information available.
Inhalation	: No information available.

Toxicity

Product

Acute oral toxicity	: Acute toxicity estimate : < 300 mg/kg

Acute inhalation toxicity	: Acute toxicity estimate : 2.2 mg/l Exposure time: 4 h
Acute dermal toxicity	: no data available
Skin corrosion/irritation	: no data available
Serious eye damage/eye irritation	: no data available
Respiratory or skin sensitization	: no data available
Carcinogenicity	: no data available
Reproductive effects	: no data available
Germ cell mutagenicity	: no data available
Teratogenicity	: no data available
STOT - single exposure	: no data available
STOT - repeated exposure	: no data available
Aspiration toxicity	: no data available

Components

Acute dermal toxicity	: Tetrakis(hydroxymethyl) phosphonium sulfate LD50 rat: > 1,500 mg/kg

Section: 12. ECOLOGICAL INFORMATION

Ecotoxicity

Environmental Effects	: Toxic to aquatic life. Harmful to aquatic life with long lasting effects.

Components

Toxicity to daphnia and other aquatic invertebrates	: Tetrakis(hydroxymethyl) phosphonium sulfate LC50 : 0.16 mg/l Exposure time: 48 h

Persistence and degradability

no data available

Mobility

no data available

Bioaccumulative potential

no data available

Other information

no data available

Section: 13. DISPOSAL CONSIDERATIONS

Disposal methods : The product should not be allowed to enter drains, water courses or the soil. Where possible recycling is preferred to disposal or incineration. If recycling is not practicable, dispose of in compliance with local regulations. Dispose of wastes in an approved waste disposal facility.

Disposal considerations : Dispose of as unused product. Empty containers should be taken to an approved waste handling site for recycling or disposal. Do not re-use empty containers.

Section: 14. TRANSPORT INFORMATION

The shipper/consignor/sender is responsible to ensure that the packaging, labeling, and markings are in compliance with the selected mode of transport.

Land transport (DOT)

Proper shipping name : PRODUCT IS NOT REGULATED DURING TRANSPORTATION

Air transport (IATA)

Proper shipping name : PRODUCT IS NOT REGULATED DURING TRANSPORTATION

Sea transport (IMDG/IMO)

Proper shipping name : PRODUCT IS NOT REGULATED DURING TRANSPORTATION

Section: 15. REGULATORY INFORMATION

EPCRA - Emergency Planning and Community Right-to-Know Act

CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
Formaldehyde	50-00-0	100	111111

SARA 304 Extremely Hazardous Substances Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
Formaldehyde	50-00-0	100	111111

SARA 311/312 Hazards : Acute Health Hazard
Chronic Health Hazard

SARA 302 : No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

California Prop 65
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

INTERNATIONAL CHEMICAL CONTROL LAWS :

TOXIC SUBSTANCES CONTROL ACT (TSCA)
On TSCA Inventory

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA)
All components of this product are on the Canadian DSL.

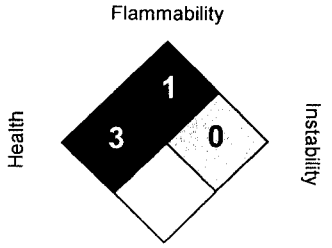
AUSTRALIA
On the inventory, or in compliance with the inventory

CHINA
On the inventory, or in compliance with the inventory

NEW ZEALAND
On the inventory, or in compliance with the inventory

Section: 16. OTHER INFORMATION

NFPA:



HMIS III:

HEALTH	3*
FLAMMABILITY	1
PHYSICAL HAZARD	0

0 = not significant, 1 =Slight,
2 = Moderate, 3 = High
4 = Extreme, * = Chronic

Revision Date : 04/01/2015
Version Number : 1.0
Prepared By : Regulatory Affairs

REVISED INFORMATION: Significant changes to regulatory or health information for this revision is indicated by a bar in the left-hand margin of the SDS.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific

material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.
For additional copies of an MSDS visit www.nalco.com and request access.

1615 Poydras Street, Suite 830
New Orleans, LA 70112
Ph-504-267-9138, Fax-504-267-9139

February 15, 2018

Attention: Director
U. S. Environmental Protection Agency - Region 4
Water Protection Division
Sam Nunn Atlanta Federal Center
61 Forsyth Street, S.W.
Atlanta, Georgia 30303-8960

Re: Notification of Intent for Coverage under Final NPDES General Permit No. GEG460000 for Offshore Oil and Gas Activities in the Eastern Gulf of Mexico,
Mobile 916 Complex
Current Permit No. GEG460470

Director:

In accordance with part I.A.4 of the *Final NPDES General Permit for New and Existing Sources in the Offshore Subcategory of the Oil and Gas Extraction Category for the Eastern Portion of the Outer Continental Shelf of the Gulf of Mexico*, GEG460000 (Permit), Cox Operating, LLC is requesting general permit coverage for the Mobile 916 Complex (facility). This facility is currently covered under the 2010 administratively continued permit. It is covered under Permit No. GEG460470. This paper Notice of Intent (NOI) is being submitted within 30 days from the effective date of the recently promulgated final renewed Permit and because the eNOI system is currently not operational for NOI submittal. Once the system becomes operational, an eNOI will be submitted in accordance with the Permit.

In accordance with Part I.A.4 of the Permit, information required in a) - w) is provided in the attached NOI table.

In accordance with Part II.D.13.d. (Certification) of General Permit No. GEG460000,

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

1615 Poydras Street, Suite 830
New Orleans, LA 70112
Ph-504-267-9138, Fax-504-267-9139

The review and approval of our request for coverage is greatly appreciated. If you have any questions or need additional information, please contact Mr. Jason Rains-Love, HSE Training Special Projects Manager via phone at (504) 267-91383 or via email at jrl@coxoil.com, or our environmental consultant, James Durbin (CK Associates) via phone at (225) 755-1000 or via e-mail at james.durbin@c-ka.com.

Sincerely,
Cox Operating, LLC

Rodney Dykes
President/COO

Enclosures: As stated.

f.	The date on which the owner/operator commenced/will commence on-site construction, including: i) any placement assembly or installation of facilities or equipment; or ii) the clearing or removal of existing structures or facilities	Not applicable – This is an existing production facility that is currently permitted.
g.	The date on which the facility plans to commence exploration activities at the site, if applicable:	Not applicable - This is an existing production facility that is currently permitted. There are no exploration activities planned.
h.	The date on which the owner/operator entered into a binding contract for the purchase of facilities or equipment intended to be used in its operation within a reasonable time (if applicable):	June 1, 2016 – This facility was bought from Union Oil Company of California (UNOCAL) (Owned and operated by Chevron USA, Inc.). Permit coverage was transferred on this date.
i.	The date on which the owner/operator plans to commence development:	Not applicable - This is an existing production facility that is currently permitted. There are no development activities planned.
j.	The date on which the owner/operator plans to commence production:	This is an existing production facility that is currently permitted. Production commenced prior to purchase of the facility on June 1, 2016 by the previous owner.
k.	Technical information on the characteristics of the sea bottom in accordance with BOEM Notice to Lessees (NTL) no. 2008-G05, *Shallow Hazards Program*, or the most current BOEM guidelines for shallow hazard investigation and analysis within 300 meters (965 feet) of the discharge point. For those facilities that submitted this information to EPA-Region 4 as part of the previous NPDES general permit (GEG460000), only indicate the previous submittal date of the information to meet the requirement of this NOI element:	Not Applicable - This is an existing production facility that is currently permitted. This facility was bought from Union Oil Company of California (UNOCAL) (Owned and operated by Chevron USA, Inc.) June 1, 2016. This information would have been submitted by the previous owner.

l.	For facilities in less than 100 meters water depth for offshore Mississippi and Alabama in the Mobile and Viosca Knoll lease blocks, permittees must submit a Live-Bottom Survey using either digital high-resolution acoustic data (sidescan sonar) or photo documentation...(etc):	Not Applicable – Although this facility is less than 100 meters water depth, it is an existing production facility that is currently permitted. This facility was bought from Union Oil Company of California (UNOCAL) (Owned and operated by Chevron USA, Inc.) June 1, 2016. This information would have been submitted by the previous owner.
m.	The type of drilling fluids to be used (e.g., water-based and/or synthetic-based):	Not applicable - This is an existing production facility that is currently permitted. There are no drilling activities planned and thus, no drilling fluids will be used.
n.	Documentation that an Application for Permit to Drill (APD) has been submitted to BSEE and the EP, DOCD or DPP has been submitted to BOEM or approved by BOEM:	Not applicable - This is an existing production facility that is currently permitted.
o.	For facilities installed after March 4, 1993, the NOI must also identify that the facility is a new source and state the date on which the facility's protection from more stringent new source performance standards or technology-based limitations ends. That data is the soonest of ten years from the date that construction is completed, ten years from the date the source begins to discharge process or non-construction related wastewater, or the end of the period of depreciation or amortization of the facility for the purposes of Section 167 or 169 (or both) of the Internal Revenue Code of 1954:	The three platforms, Mobile 916 AP, AQ and AW were all installed after March 4, 1993. The facility discharges Untreated Miscellaneous Discharges, Produced Water, Deck Drainage, Sanitary Waste and Domestic Waste. This is an existing production facility that is currently permitted. This facility was bought from Union Oil Company of California (UNOCAL) (Owned and operated by Chevron USA, Inc.) June 1, 2016. This information would have been submitted by the previous owner.
p.	The general permit coverage number for the previous general permit (GMG460000) and/or the individual NPDES permit number of any individual permit issued by EPA Region 4 for this activity:	The current permit number for this facility is GEG460470.
q.	For production platforms, indicate the estimated distance (in meters) from the platform to the nearest Federally Designated Dredged Material Ocean Disposal Site:	The estimated distance from the complex to the nearest Federally Designated Dredged Material Ocean Disposal Site is 20,095 m. A location map is attached.

r.	Any permit violations under the previous Region 4 General Permit for the facility:	There was one permit violation under the administratively continued Region 4 General Permit, GEG460470. On February 3, 2017 a Daily Maximum exceedance for Produced Water Oil & Grease occurred; however, the Monthly Average permit limit was met.
s.	Indicate if Phase III of EPA's Cooling Water Intake Structure Rule (CWIS) applies to the facility for which you are applying for coverage under this permit. Also indicate if the facility plans to comply under Track I or Track II of the CWIS. See Part I.D.3. Note that the Phase III CWIS rule applies to new offshore oil and gas extraction facilities for which construction commenced after July 17, 2006, that meet the following criteria 1) it is a point source that uses or proposes to use a cooling water intake structure; 2) it has at least one cooling water intake structure that uses at least 25% of the water it withdraws for cooling purposes; 3) it has a design intake flow greater than two million gallon per day (MGD). Use of a cooling water intake structure includes obtaining cooling water by any sort of contract or arrangement with an independent supplier (or multiple suppliers) of cooling water if the supplier or suppliers withdraw(s) water from the waters of the United States. The threshold requirement that at least 25% of water withdrawn be used for cooling purposes must be measured on an average monthly basis. A new offshore oil and extraction facility meets the 25% cooling water threshold if, based on the new facility's design, any monthly average over a year for the percentage of cooling water withdrawn is expected to equal or exceed 25% of the total water withdrawn:	Phase III of EPA's Cooling Water Intake Structure (CWIS) Rule does not apply to this facility. The facility was constructed before July 17, 2006 and does not have any CWIS.

t.	If known, indicate the name and NPDES permit coverage number under GEG460000 for vessel operators/contractors that are, or will be, performing work at your facility that are new oil and gas facilities subject to Phase III of the CWIS Rule:	Not applicable – There are no planned work operations that would require a vessel operator/contractor.
u.	Information on the specific chemical composition of any additives currently being used or proposed for use in well treatment, completion or workover operations or as biocides for sump/drain systems. If the information on the additive is not known at the time of the submittal of this NOI, operators shall include the information in a report that shall be submitted on to EPA Region 4 on September 30th of each year. Aside from submitting this information with the NOI, this information is also required to be recorded and retained on site for no less than five years from the issuance of the permit. These record retention requirements in this section supersede the general record keeping requirements for all NPDES permits in Part II.C.5, of this permit,	There are no planned well treatment, completion or workover operations. Currently a biocide, Nalco, Bactron K-103 Antimicrobial (see attached Safety Data Sheet) is being used intermittently to comply with proper operation and maintenance requirements of the sump/drain system. This biocide meets the requirements of 40 CFR 122.42(a)(2)(i-iii).
v.	Certification statement per 40 C.F.R. §§ 122.22(d) and signature of the responsible party per 40 C.F.R. §§ 122.22(a)	See below following the NOI table.
w.	Statement indicating intent, or not, to participate in the alternative Industry-wide Study regarding Whole Effluent Toxicity Testing of Well Treatment, Completion and Workover Fluids (Part I.B.6.b. page 50).	There are no planned well treatment, completion or workover operations for this facility in this permit area. However, Cox Operating, LLC does intend to participate in the alternative Industry-Wide Study for the GOM.

Part 1.A.4 of GEG460000
GEG460470 Mobile (MO) Block 916 Complex (Platforms AP, AQ, AW)
Notice of Intent
Cox Operating, LLC

I certify that I am an authorized official of my Company as described in 40 CFR 122.22(d) and as set forth in Part II.D.10 of the permit. I further certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

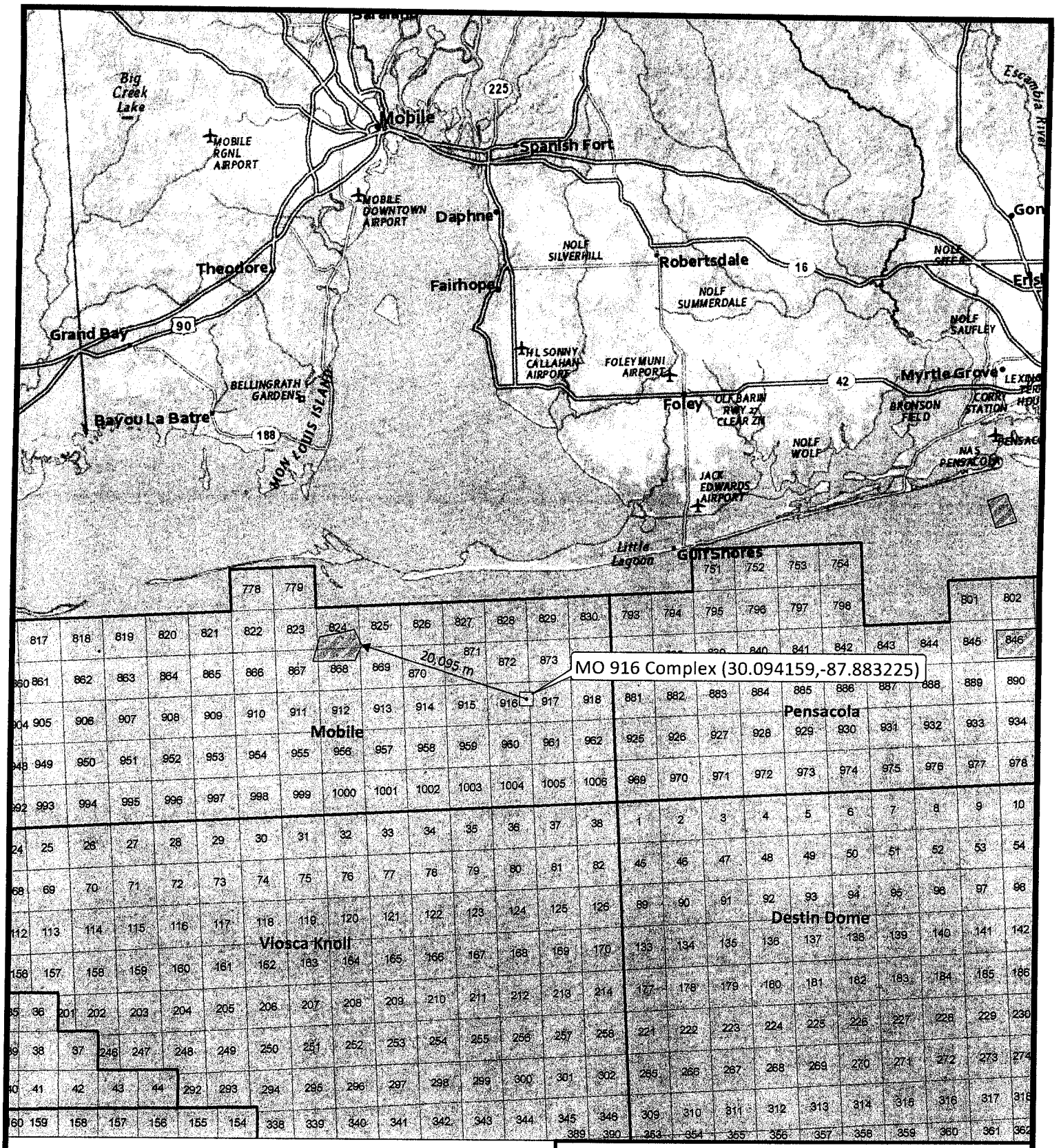
Signature: Rodney Dykes

Name: Rodney Dykes

Company: Cox Operating, LLC

Title: President/COO

Date: 02/15/2018



MO 916 Complex

Protraction Areas (BOEM)

Dredged Material Disposal Area (BOEM)

N

S

0 10

Miles

Base Map: National Geographic World Map

esri Partner Network Silver

Cox Operating

New Orleans, Louisiana

COX OPERATING

Notice of Intent (NOI)

Site Location Map

Gulf of Mexico

CK ASSOCIATES Environmental Consultants

Drawn: CAL	Checked: JLD
Date: 02/09/18	Approved: JLD
Dwg. No.: A13753-03	**Figure 1**

NALCO Champion
An Ecolab Company

SAFETY DATA SHEET

Bactron® K-103 Antimicrobial

Section: 1. PRODUCT AND COMPANY IDENTIFICATION

Product name	:	Bactron® K-103 Antimicrobial
Other means of identification	:	Not applicable.
Recommended use	:	BIOCIDE
Restrictions on use	:	Refer to available product literature or ask your local Sales Representative for restrictions on use and dose limits.
Company	:	Nalco Champion Company 7705 Highway 90-A Sugar Land, Texas 77478 USA TEL: (281) 263-7000
Emergency telephone number	:	(800) 424-9300 (24 Hours) CHEMTREC
Issuing date	:	04/01/2015

Section: 2. HAZARDS IDENTIFICATION

GHS Classification

Acute toxicity (Inhalation)	:	Category 4
Acute toxicity (Oral)	:	Category 3
Acute toxicity (Dermal)	:	Category 4
Serious eye damage	:	Category 1
Skin sensitization	:	Category 1
Reproductive toxicity	:	Category 2

GHS Label element

Hazard pictograms :

Signal Word : Danger

Hazard Statements : Causes serious eye damage.
Toxic if swallowed.
Harmful in contact with skin or if inhaled
May cause an allergic skin reaction.
Suspected of damaging fertility or the unborn child.

Precautionary Statements : **Prevention:**
Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray. Use only outdoors or in a well-ventilated area. Contaminated work clothing should not be allowed out of the workplace. Wear eye protection/face protection. Wear protective gloves. Use personal protective equipment as required.
Response:

IF ON SKIN: Wash with plenty of soap and water. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. IF exposed or concerned: Get medical advice/attention. Immediately call a POISON CENTER or doctor/ physician. If skin irritation or rash occurs: Get medical advice/ attention. Wash contaminated clothing before reuse.

Storage:

Store in a well-ventilated place. Keep container tightly closed. Store locked up.

Disposal:

Dispose of contents/ container to an approved waste disposal plant.

Other hazards : None known.

Section: 3. COMPOSITION/INFORMATION ON INGREDIENTS

Pure substance/mixture : Mixture

Chemical Name	CAS-No.	Concentration: (%)
Tetrakis(hydroxymethyl) phosphonium sulfate	55566-30-8	10 - 30

Section: 4. FIRST AID MEASURES

In case of eye contact : Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention immediately.

In case of skin contact : Wash off immediately with plenty of water for at least 15 minutes. Use a mild soap if available. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

If swallowed : Rinse mouth with water. Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Get medical attention immediately.

If inhaled : Remove to fresh air. Treat symptomatically. Get medical attention.

Protection of first-aiders : In event of emergency assess the danger before taking action. Do not put yourself at risk of injury. If in doubt, contact emergency responders.Use personal protective equipment as required.

Notes to physician : Treat symptomatically.

Most important symptoms and effects, both acute and delayed : See Section 11 for more detailed information on health effects and symptoms.

Section: 5. FIREFIGHTING MEASURES

Suitable extinguishing media : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media : None known.

Specific hazards during firefighting	:	Not flammable or combustible.
Hazardous combustion products	:	Decomposition products may include the following materials: Carbon oxides Sulphur oxides Oxides of phosphorus
Special protective equipment for firefighters	:	Use personal protective equipment.
Specific extinguishing methods	:	Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. In the event of fire and/or explosion do not breathe fumes.

Section: 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	Ensure adequate ventilation. Keep people away from and upwind of spill/leak. Avoid inhalation, ingestion and contact with skin and eyes. When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. Ensure clean-up is conducted by trained personnel only. Refer to protective measures listed in sections 7 and 8.
Environmental precautions	:	Do not allow contact with soil, surface or ground water.
Methods and materials for containment and cleaning up	:	Stop leak if safe to do so. Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13). For large spills, dike spilled material or otherwise contain material to ensure runoff does not reach a waterway. Flush away traces with water.

Section: 7. HANDLING AND STORAGE

Advice on safe handling	:	Do not ingest. Do not breathe dust/fume/gas/mist/vapours/spray. Do not get in eyes, on skin, or on clothing. Wash hands thoroughly after handling. Use only with adequate ventilation.
Conditions for safe storage	:	Keep out of reach of children. Keep container tightly closed. Store in suitable labeled containers.
Suitable material	:	Keep in properly labelled containers.
Unsuitable material	:	not determined

Section: 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Form of exposure	Permissible concentration	Basis
Tetrakis(hydroxymethyl) phosphonium sulfate	55566-30-8	TWA	2 mg/m3	ACGIH

Engineering measures	:	Effective exhaust ventilation system Maintain air concentrations

below occupational exposure standards.

Personal protective equipment

Eye protection	:	Safety goggles Face-shield
Hand protection	:	Wear the following personal protective equipment: Standard glove type. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.
Skin protection	:	Wear suitable protective clothing.
Respiratory protection	:	When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.
Hygiene measures	:	Handle in accordance with good industrial hygiene and safety practice. Remove and wash contaminated clothing before re-use. Wash face, hands and any exposed skin thoroughly after handling. Provide suitable facilities for quick drenching or flushing of the eyes and body in case of contact or splash hazard.

Section: 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	liquid
Colour	:	colourless
Odour	:	no data available
Flash point	:	> 93.3 °C Method: Pensky-Martens closed cup
pH	:	3.0 - 5.0, (undiluted)
Odour Threshold	:	no data available
Melting point/freezing point	:	pour point: -3.9 °C
Initial boiling point and boiling range	:	no data available
Evaporation rate	:	no data available
Flammability (solid, gas)	:	no data available
Upper explosion limit	:	no data available
Lower explosion limit	:	no data available
Vapour pressure	:	6.89467 hPa (37.8 °C)
Relative vapour density	:	no data available
Relative density	:	1.0739 - 1.1039 (15.6 °C)
Density	:	1.0721 - 1.102 g/cm3
Water solubility	:	soluble
Solubility in other solvents	:	no data available
Partition coefficient: n-octanol/water	:	no data available
Auto-ignition temperature	:	no data available

Thermal decomposition temperature	: no data available
Viscosity, dynamic	: 1 - 3 mPa.s
Viscosity, kinematic	: 1.2 mm2/s (40 °C)
VOC	: no data available

Section: 10. STABILITY AND REACTIVITY

Chemical stability	: Stable under normal conditions.
Possibility of hazardous reactions	: No dangerous reaction known under conditions of normal use.
Conditions to avoid	: None known.
Incompatible materials	: no data available
Hazardous decomposition products	: Decomposition products may include the following materials: Carbon oxides Sulphur oxides Oxides of phosphorus

Section: 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure	: Inhalation, Eye contact, Skin contact

Potential Health Effects

Eyes	: Causes serious eye damage.
Skin	: Harmful in contact with skin. May cause allergic skin reaction.
Ingestion	: Toxic if swallowed.
Inhalation	: Harmful if inhaled.
Chronic Exposure	: Suspected of damaging fertility or the unborn child.

Experience with human exposure

Eye contact	: Redness, Pain, Corrosion
Skin contact	: Redness, Irritation, Allergic reactions
Ingestion	: No information available.
Inhalation	: No information available.

Toxicity

Product

Acute oral toxicity	: Acute toxicity estimate : < 300 mg/kg

Acute inhalation toxicity	: Acute toxicity estimate : 2.2 mg/l Exposure time: 4 h
Acute dermal toxicity	: no data available
Skin corrosion/irritation	: no data available
Serious eye damage/eye irritation	: no data available
Respiratory or skin sensitization	: no data available
Carcinogenicity	: no data available
Reproductive effects	: no data available
Germ cell mutagenicity	: no data available
Teratogenicity	: no data available
STOT - single exposure	: no data available
STOT - repeated exposure	: no data available
Aspiration toxicity	: no data available

Components

Acute dermal toxicity	: Tetrakis(hydroxymethyl) phosphonium sulfate LD50 rat: > 1,500 mg/kg

Section: 12. ECOLOGICAL INFORMATION

Ecotoxicity

Environmental Effects	: Toxic to aquatic life. Harmful to aquatic life with long lasting effects.

Components

Toxicity to daphnia and other aquatic invertebrates	: Tetrakis(hydroxymethyl) phosphonium sulfate LC50 : 0.16 mg/l Exposure time: 48 h

Persistence and degradability

no data available

Mobility

no data available

Bioaccumulative potential

no data available

Other information

no data available

Section: 13. DISPOSAL CONSIDERATIONS

Disposal methods : The product should not be allowed to enter drains, water courses or the soil. Where possible recycling is preferred to disposal or incineration. If recycling is not practicable, dispose of in compliance with local regulations. Dispose of wastes in an approved waste disposal facility.

Disposal considerations : Dispose of as unused product. Empty containers should be taken to an approved waste handling site for recycling or disposal. Do not re-use empty containers.

Section: 14. TRANSPORT INFORMATION

The shipper/consignor/sender is responsible to ensure that the packaging, labeling, and markings are in compliance with the selected mode of transport.

Land transport (DOT)

Proper shipping name : PRODUCT IS NOT REGULATED DURING TRANSPORTATION

Air transport (IATA)

Proper shipping name : PRODUCT IS NOT REGULATED DURING TRANSPORTATION

Sea transport (IMDG/IMO)

Proper shipping name : PRODUCT IS NOT REGULATED DURING TRANSPORTATION

Section: 15. REGULATORY INFORMATION

EPCRA - Emergency Planning and Community Right-to-Know Act

CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
Formaldehyde	50-00-0	100	111111

SARA 304 Extremely Hazardous Substances Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
Formaldehyde	50-00-0	100	111111

SARA 311/312 Hazards : Acute Health Hazard
Chronic Health Hazard

SARA 302 : No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

California Prop 65
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

INTERNATIONAL CHEMICAL CONTROL LAWS :

TOXIC SUBSTANCES CONTROL ACT (TSCA)
On TSCA Inventory

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA)
All components of this product are on the Canadian DSL.

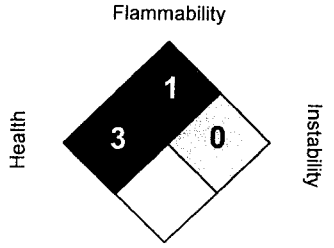
AUSTRALIA
On the inventory, or in compliance with the inventory

CHINA
On the inventory, or in compliance with the inventory

NEW ZEALAND
On the inventory, or in compliance with the inventory

Section: 16. OTHER INFORMATION

NFPA:



HMIS III:

HEALTH	3*
FLAMMABILITY	1
PHYSICAL HAZARD	0

0 = not significant, 1 =Slight,
2 = Moderate, 3 = High
4 = Extreme, * = Chronic

Revision Date : 04/01/2015
Version Number : 1.0
Prepared By : Regulatory Affairs

REVISED INFORMATION: Significant changes to regulatory or health information for this revision is indicated by a bar in the left-hand margin of the SDS.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific

material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.
For additional copies of an MSDS visit www.nalco.com and request access.

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Number issued

CWIS

DIAMOND
OFFSHORE

March 23, 2015

Attention: Director
U. S. Environmental Protection Agency Region 4
Water Protection Division
Pollution Control & Implementation Branch
Atlanta Federal Center
61 Forsyth Street
Atlanta, Georgia 30303

Re: Notification of Intent for Coverage under Final NPDES and Continued Coverage under Subsequent General Permit No GEG460000 for Offshore Oil and Gas Activities in the Eastern Gulf of Mexico, De Soto Canyon 134 Ocean Black Rhino

Dear Director:

In accordance with part I.A.4 of general permit GEG460000, **Diamond Offshore Drilling, Inc. (Diamond)** is requesting general permit coverage under the requirements for existing and new sources for the Ocean BlackRhino (BlackRhino) drill ship and locattion listed in this Notice of Intent for permit coverage. The required information under Part 1.A.4 is included in the attached table. Specifically, Diamond is requesting permit coverage for the BlackRhino Cooling Water Intake Structure (CWIS) and other potential discharges for operations it will be conducting for Murphy Exploration & Production Company - USA.

Diamond Offshore Drilling, Inc. (BlackRhino) plans to commence operations during the 3rd Quarter on or before August 1, 2015.

Additionally, this letter serves to request continued permit coverage, for the locations listed in this NOI, under a reissued subsequent permit since the current permit will expire on March 31, 2015.

DIAMOND OFFSHORE DRILLING, INC.
15415 Katy Freeway, Houston, Texas 77094
P.O. Box 4558, Houston, Texas 77210-4558
Phone: 281-492-5300 Fax: 281-492-5316

G E•M•S
GLOBAL EXCELLENCE MANAGEMENT SYSTEM

In accordance with Part II.D.13.d. (Certification) of General Permit No. GEG460000,

I certify that I am an authorized official of my Company as described in 40 CFR 122.22(d) and as set forth in Part II.D.10 of the permit. I further certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

The review and approval of this NOI at your earliest convenience is greatly appreciated. If you have any questions or need additional information, please contact me via phone at (281) 647-8093 or via email at ldesousa@dodi.com or our environmental consultant, James Durbin (C-K Associates) via phone at (225) 755-1000 or via e-mail at james.durbin@c-ka.com .

Sincerely,
Diamond Offshore Drilling, Inc.

Leonardo DeSousa REM, CESCO
Manager – Environmental Affairs (World Wide)

Enclosures: As stated.

DIAMOND OFFSHORE DRILLING, INC.
15415 Katy Freeway, Houston, Texas 77094
P.O. Box 4558, Houston, Texas 77210-4558
Phone: 281-492-5300 Fax: 281-492-5316

Notice of Intent
Diamond Offshore Drilling, Inc.
Ocean BlackRhino

GEG460000, Part I.A 4 Specific Information

	GEG460000, Part I.A.4	
a.	The legal name and address of the owner or operator:	Diamond Offshore Drilling, Inc. 15414 Katy Freeway, Suite 100 Houston, TX 77094-1810
b.	The facility name, Offshore Continental Shelf (OCS) number location, including the lease block assigned by the Mineral Management Service (MMS)[1], or if none, the name commonly assigned to the lease area:	Facility Name: Diamond Ocean BlackRhino (BlackRhino) OCS-G 23488, DeSoto Canyon 134 The Lease Block is owned and operator by Murphy Exploration & Production Company – USA (Murphy).
c.	The number and type of facilities and activities proposed within the lease block:	One (1) Dynamically Positioned Drillship (BlackRhino), drill one (1) exploratory well (DC134-C). The Lease block/well is owned and operated by Murphy. Upon completion of drilling the well(s), they will be either temporarily or permanently abandoned in accordance with 30 CFR 250, Subpart Q.

	its operation within a reasonable time (if applicable):	
h.	The date on which the owner/operator plans to commence development:	Drilling is expected to commence during 3rd Quarter on or before August 1, 2015. Exploratory well (DC134-C) is proposed to be drilled by Murphy (the lease/well owner and operator). Upon completion of drilling the well, they will be either temporarily or permanently abandoned in accordance with 30 CFR 250, Subpart Q. If further exploration, development, or production activities are to be undertaken, appropriate plans will be submitted to BOEM by Murphy.
i.	The date on which the owner/operator plans to commence production:	Drilling is expected to commence during 3rd Quarter August 1, 2015. Exploratory well (DC134-C) is proposed to be drilled by Murphy (the lease/well owner and operator). Upon completion of drilling the well, they will be either temporarily or permanently abandoned in accordance with 30 CFR 250, Subpart Q. If further exploration, development, or production activities are to be undertaken, appropriate plans will be submitted to BOEM by Murphy.
j.	Technical information on the characteristics of the sea bottom in accordance with MMS[1] Notice to Lessees (NTL) no. 98-20, *Shallow Hazard Requirements*, or the most current MMS[1] guidelines for shallow hazard investigation and analysis within 1,000 meters of the discharge point. For those facilities that submitted this information to EPA-Region 4 as part of the previous NPDES general permit (GEG460000), only indicate the previous submittal date of the information to meet the requirement of this NOI element:	Not applicable to BlackRhino. See Murphy's NOI (submitted on March 16, 2015) for this information.

Notice of Intent
Diamond Offshore Drilling, Inc.
Ocean BlackRhino

k.	For facilities in less than 100 meters water depth for offshore Mississippi and Alabama in the Mobile and Viosca Knoll lease blocks, permittees must submit a Live-Bottom Survey using either digital high-resolution acoustic data (sidescan sonar) or photodocumentation...(etc):	Not applicable. All well locations are greater than 100 meters in water depth.
l.	The type of drilling fluids to be used (e.g., water-based and/or synthetic-based):	Not applicable. Drilling fluids will be monitored and reported by Murphy.
m.	Documentation that an Application for Permit to Drill (APD), EP, DOCD or DPP has been submitted to MMS[1] or approved by MMS[1]:	Not applicable to this operation. See Murphy's NOI (submitted on March 16, 2015) for this information.
n.	For facilities installed after March 4, 1993, the NOI must also identify that the facility is a new source and state the date on which the facility's protection from more stringent new source performance standards or technology-based limitations ends. That data is the soonest of ten years from the date that construction is completed, ten years from the date the source begins to discharge process or non-construction related wastewater, or the end of the period of depreciation or amortization of the facility for the purposes of Section 167 or 169 (or both) of the Internal Revenue Code of 1954:	Not applicable for this operation.
o.	The general permit coverage number for the previous general permit (GMG460000) and/or the individual NPDES permit number of any	This well location was not previously permitted by Diamond BlackRhino. Therefore, no previous general or individual permit number has been assigned for this activity.

	individual permit issued by EPA Region 4 for this activity:	
p.	For production platforms, indicate the estimated distance (in meters) from the platform to the nearest Federally Designated Dredged Material Ocean Disposal Site:	Not applicable, these are well locations.
q.	Any permit violations or under the previous Region 4 General Permit (NPDES No. GEG460000 issued December 9, 2004) for the facility:	No permit violations under pervious Region 4 General Permit (NPDES No. GEG460000 issued December 9, 2004. Permit coverage was not requested.
r.	Indicate if Phase III of EPA's Cooling Water Intake Structure Rule (CWIS) applies to the facility for which you are applying for coverage under this permit. Also indicate if the facility plans to comply under Track I or Track II of the CWIS. See Part I.D.3. Note that the Phase III CWIS applies to new offshore oil and gas extraction facilities for which construction commenced after July 17, 2006, that meet the following criteria 1) it is a point source that uses or purposes to use a cooling water intake structure; 2) it has at least one cooling water intake structure that uses at least 25% of the water it withdraws for cooling purposes; 3) it has a design intake flow greater than two million gallon per day (MGD). Use of a cooling water intake structure includes obtaining cooling water by any sort of contract or arrangement with an independent supplier (or	Phase III of EPA's Cooling Water Intake Structure (CWIS) Rule applies to this facility. In accordance with Part I.D.3 of GEG460000, Diamond Offshore Drilling is submitting a CWIS supplemental notification package with this NOI (see attachment). The BlackRhino Drillship was built after July 17, 2006, with a cooling water intake structure greater than two million gallons of water per day, and more than 500,000 gallons a day (25%) will be used for cooling purposes.

	multiple suppliers) of cooling water if the supplier or suppliers withdraw(s) water from the waters of the United States. The threshold requirement that at least 25% of water withdrawn be used for cooling purposes must be measured on an average monthly basis. A new offshore oil and extraction facility meets the 25% cooling water threshold if, based on the new facility's design, any monthly average over a year for the percentage of cooling water withdrawn is expected to equal or exceed 25% of the total water withdrawn:	
s.	If known, indicate the name and NPDES permit coverage number under GEG460000 for contractors that are, or will be, performing work at your facility that are new oil and gas facilities subject to Phase III of the CWIS Rule:	Diamond Offshore Drilling does not currently have GEG460000 general permit coverage for CWIS. Since this is new drill ship and is just entering the permit area under each respective permit, coverage was not yet needed. In addition to requesting coverage under GEG460000, Diamond is also requesting coverage under GMG2900000 (GMG290403). As indicated in item r, attached to this NOI is CWIS supplemental notification package for BlackRhino.

1 – MMS has been reorganized into the Bureau of Ocean Energy Management (BOEM) and Bureau of Safety and Environmental Enforcement (BSEE).

Part 1.A.4 of GEG460000
OCS-G 23488 De Soto Canyon (DC) Block 134

Notice of Intent
Diamond Offshore Drilling, Inc.
Ocean BlackRhino

I certify that I am an authorized official of my Company as described in 40 CFR 122.22(d) and as set forth in Part II.D.10 of the permit. I further certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature:	23-Mar-15	Name:	Leonardo DeSousa REM, CESCO
Company:	Diamond Offshore Drilling, Inc.	Title:	Manager– Environmental Affairs (World Wide)

316(b) CWIS Addendum

NPDES Notice of Intent

Ocean BlackRhino Drill Ship

Diamond Offshore Drilling, Inc.

Houston, TX

December 2014

Prepared by:

CK Associates
Environmental Consultants

17170 Perkins Road
Baton Rouge, LA 70810
225-755-1000

CK Project Number: 11753

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INTRODUCTION

Diamond Offshore Drilling, Inc. (Diamond) proposes to operate the Ocean BlackRhino Drill Ship (drill ship) in the Gulf of Mexico (GOM). The drill ship will use once-through cooling water as part of its normal operations. This permit Notice of Intent (NOI) addendum is being submitted to the United States Environmental Protection Agency (USEPA) Region IV to address requirements set forth by regulations under Section 316(b) of the Clean Water Act (CWA), 33 U.S.C. 1326(b) to address concerns of Cooling Water Intake Structures (CWIS) on impingement and entrainment (IM&E) of vulnerable marine organisms. The permit NOI submission is in accordance with the provisions of the National Pollutant Discharge Elimination System (NPDES) permitting regulations as set forth in Title 40 of the Code of Federal Regulations (CFR) at §122.21.

The information required for submission of the NOI and related to this addendum are as follows:

Design Intake Capacity (million gallons per day)	**85.7**
Design Intake Velocity (in feet per second)	**0.45**
Percentage of Intake Water for Cooling	**59**

Specifically, this permit NOI addendum is intended to satisfy the requirements cited under the Final NPDES General Permit for New and Existing Sources in the Offshore Sub-Category of the Oil and Gas extraction Category for the Eastern Portion of the Outer Continental Shelf of the Gulf of Mexico, effective April 1, 2010 (GEG460000, General Permit). The order of this addendum follows that of the General Permit requirements, with excerpts included. The following sections discuss how Diamond meets the requirements of the General Permit for:

- Baseline study requirements;
- Operating the CWIS in the GOM; and
- Maintaining and monitoring the CWIS during operation;

§I.D.3.a. BASELINE STUDY REQUIREMENTS

Operators of new facilities must submit sufficient information to characterize the biological community of commercial, recreational, and forage base fish and shellfish in the vicinity of the intake structure and to characterize the effects of the CWIS operation on aquatic life. The biological characterization must include any available existing information along with field studies to obtain localized data.

A comprehensive review of literature was conducted for the projected operating locations, including a list of species for all life stages and their relative abundance, life histories, list of threatened and endangered species, etc. The information provided is consistent with a 2009 industry-wide study by the Offshore Operators Committee (OOC), Gulf of Mexico Cooling Water Intake Structure: Source Water Biological Baseline Characterization Study. The purpose of this study was to provide a comprehensive review of fishery data for the GOM and to evaluate the impacts of future CWIS on fish and shellfish in the GOM.

This study concluded that the greatest biological concentration of key marine species and their spawning habitat is restricted to waters of the continental shelf in depths of less than 656 ft (200m). There is no projected CWIS development for this area. A vicinity map and an essential fish habitat are included as Figures 1 and 2, respectively.

§I.D.3.a.i. List of the data required by this section that are not available and efforts made to identify sources of the data

It was concluded that the existing information included in the literature is consistent with the OOC study and is sufficient to characterize the biological community and effects of the CWIS's operation on aquatic life. Therefore, no additional data collection efforts are required.

§I.D.3.a.ii. List of species (or relevant taxa) for all life stages and their relative abundance in the vicinity of the cooling water intake structure

There are approximately 45 species and 17 families of pelagic fishes associated with offshore platforms in the GOM:

Family Carcharhinidae	Spinner shark (*Carcharhinus brevipinna*)
	Blacktip shark (Carcharhinus limbatus)
	Dusky shark (Carcharhinus obscurus)
	Tiger shark (Galeocerdo cuvier)
	Atlantic sharpnose (Rhizoprionodon terraenovae)
Family Sphyrnidae	Great hammerhead shark (*Sphyrna mokarran*)
	Smooth hammerhead shark (*Sphyrna zygaena*)
Family Elopidae	Atlantic tarpon (*Megalops atlanticus*)
Family Clupeidae	Scaled sardine (*Harengula jaguana*)
	Round Sardinella (*Sardinella aurita*)
Family Pomatomidae	Bluefish (*Pomatomus saltatrix*)
Family Rachycentridae	Cobia (*Rachycentron canadum*)
Family Echeneidae	Live sharksucker (*Echeneis naucrates*)
Family Carangidae	Blue runner (*Caranx fuscus*)
	Crevalle jack (*Caranx hippos*)
	Horse-eye jack (*Caranx latus*)
	Black jack (Caranx lugubris)
	Bar jack (Caranx ruber)
	Round scad (Decapterus punctatus)
	Rainbow runner (Elagatis bipinnulata)
	Lookdown (Selene vomer)
	Greater amberjack (*Seriola dumerili*)
	Lesser amberjack (*Seriola fasciata*)
	Almaco jack (Seriola rivoliana)
	Rudderfish (Seriola zonata)
	Florida pompano (Trachinotus carolinus)

	Rough scad (Trachurus lathami)
Family Coryphaenidae	Dolphinfish (*Coryphaena hippurus*)
Family Lobotidae	Atlantic tripletail (*Lobotes surinamensis*)
Family Ephippidae	Atlantic spadefish (*Chaetodipterus faber*)
Family Mugilidae	Flathead mullet (*Mugil cephalus*)
Family Sphyraenidae	Barracuda (*Sphyraena barracuda*)
Family Scombridae	Wahoo (*Acanthocybium solandri*)
	Little tunny (Euthynnus alletteratus)
	Striped bonito (*Euthynnus pelamis*)
	King mackerel (Scomberomorus cavalla)
	Atlantic Spanish mackerel (*Scomberomorus maculatus*)
	Yellowfin tuna (*Thunnus albacares*)
	Blackfin tuna (Thunnus atlanticus)
	Atlantic bluefin tuna (*Thunna thynnus*)
Family Istiophoridae	Atlantic blue marlin (*Makaira nigricans*)
	White marlin (Tetrapterus albidus)
Family Balistidae	Grey triggerfish (*Balistis capriscus*)
	Ocean triggerfish (Canthidermis sufflamen)
Family Tetraodontidae	Smooth puffer (*Lagocephalus laevigatus*)

The most abundant pelagic fishes at offshore platforms tend to be bluefish, Atlantic spadefish, blue runner, Crevalle jack, lookdown, greater amberjack, and Almaco jack. The most abundant large predators tend to be barracuda, cobia, and hammerhead sharks. Most of the large predators do not appear to be permanent residents of platforms, but rather believed to be highly transient and migratory.

In addition, there are many species of bottom fishes, coastal fishes, and shellfish which may not occupy the water column as adults in the vicinity of the CWIS, but nevertheless may have eggs or larvae that may migrate with the prevailing water currents and become entrained in the CWIS. The OOC industry-wide study provides a list of important commercial and recreational species which may be present in the vicinity of the CWIS as either zooplankton or ichthyoplankton:

Brown shrimp (Farfantepenaeus aztecus)
White shrimp (Litopenaeus setiferus)
American oyster (Crassostrea virginica)
Gulf menhaden (Brevoortia patronus)
Blue crab (Callinectes sapidus)
Pink shrimp (Farfantepenaeus duorarum)
Gulf stone crab (*Menippe adina)*
Red grouper (Ephinephelus morio)
Red snapper (Lutjanus campechanus)
Red drum (Sciaenops ocellatus)
Spotted seatrout (*Cynoscion nebulosus*)
Anchovies (family Engraulidae)

§I.D.3.a.iii. Identification of the species and life stages that would be most susceptible to IM&E. Species evaluated should include the forage base as well as those most important in terms of significance to commercial and recreational fisheries

Commercial Fisheries

The marine fisheries in the GOM include both migratory, pelagic species and reef fishes. The most important commercial pelagic fishes include Spanish mackerel, king mackerel, dolphinfish, cobia, and yellowfin tuna. Spanish mackerel and king mackerel tend to form large schools and comprise the majority of harvested species. The highest abundance of all species occurs in summer and fall. Adult pelagic fishes are not candidates for entrainment in the CWIS due to their size and ability to swim away from the CWIS.

With regard to commercial fisheries, the OOC industry-wide study assessed the most commercially-important species (based on dollar value of annual landings) in the GOM. According to the OOC industry-wide study, of the top eleven species harvested in the GOM, the top nine species all have shallow water distributions and would not be affected by the CWIS. The two remaining species are red snapper and yellowfin tuna whose eggs and larvae could be entrained in the CWIS, but at very nominal occurrences. There are fifteen species of shark that are fished commercially in the GOM; however, each one has reproductive strategies that would not make them subject to egg and larvae entrainment.

Yellowfin tuna is a large pelagic fish found year round throughout the continental shelf in the GOM. Yellowfin tuna have a life span 6-7 years. Females are multiple spawners with average annual spawning frequency of 45 times and an average of 1-4 million eggs per batch. Yellowfin tuna spawn from May to September so that eggs and larvae would be exposed to CWIS entrainment for total of five months.

Red snapper is a commercially-important fish, and occurs throughout the continental shelf in the GOM. Red snapper is a demersal species found over sandy bottoms, around reefs, and underwater platforms at depths between 0 and 200 meters. Red snapper is a long-lived fish which can live up to 50 years. Spawning occurs in offshore waters from May through September. Red snapper begin their spawning activities in the early afternoon and stop at dusk. Females are capable of producing 50 million eggs per year. Eggs and larvae could be exposed to CWIS entrainment for a total of six months. Red snapper have a high reproductive output and an extremely low entrainment rate.

Recreational Fisheries

With regard to recreational fisheries, the OOC industry-wide study assessed the most recreationally-important species (based on weight landed) in the GOM. According to the OOC industry-wide study, of the top ten recreational species taken in the GOM, seven species have shallow water distributions and would not be affected by the CWIS. The three remaining taxonomic groups are red snapper, dolphinfish (for which there is

insufficient life-history information available), and other fish (for which no assessment was possible).

Forage Fishes

According to the OOC industry-wide study, anchovies are one of the most important forage fishes in the GOM. There are five species found in the GOM. The bay anchovy (*Anchoa mitchilli*), which is restricted to inshore waters, and the striped anchovy (*Anchoa hepsetus*) are the most common species. Anchovies spawn throughout the year with peak spawning from March to September. Adult anchovies are not candidates for entrainment in the CWIS because they tend to frequent brackish bays and inshore coastal waters. Eggs and larvae drift with prevailing currents and could be exposed to CWIS entrainment, but it is unlikely for this to occur because of the distance, prevailing currents, and the duration of the larval stage.

Assessment

For purposes of this assessment, yellowfin tuna was selected as a representative species that has commercial significance and is located in the deepwater continental shelf waters of the GOM as eggs, larvae, and adult. Red snapper was selected as a representative species that has commercial significance and may be located in the deepwater continental waters of the GOM as eggs and larvae only.

§I.D.3.a.iv. Identification and evaluation of the primary period of reproduction, larval recruitment, and period of peak abundance for relevant taxa

The primary period of reproduction of the pelagic fishes whose eggs and larvae may be susceptible to entrainment in the CWIS varies, but the characterization for yellowfin tuna and red snapper indicates that spawning occurs in the warmer months of May through October. Many pelagic fishes are capable of dispersing eggs and larvae long distances from the release sites. The pelagic stage for yellowfin tuna eggs and larvae lasts for approximately 25 days. Juveniles are pelagic. The pelagic stage for red snapper eggs and larvae last approximately four weeks until the larvae develop and settle on the water bottom. Larval recruitment and development are typically associated with fine sand bottom away from reefs and ranging in depth of 20-180 meters.

§I.D.3.a.v. Data representative of the seasonal and daily activities (e.g., feeding and water column migration) of biological organisms in the vicinity of the cooling water intake structure

For purposes of this assessment, yellowfin tuna was selected as a representative species that has commercial significance and is located in the deepwater continental shelf waters of the GOM as eggs, larvae, and adult. Red snapper was selected as a representative species that has commercial significance and may be located in the deepwater continental waters of the GOM as eggs and larvae only.

Yellowfin tuna are highly migratory pelagic fishes that are found in the open waters of the GOM away from coastal areas. Yellowfin tuna make both seasonal and daily migrations. Each night, they can travel up to nine miles offshore to feed and return to the same area the next day. Yellowfin tuna typically remain in the surface and mixed water layer at night and dive to deeper waters during the day. Adults may be found in the vicinity of the CWIS, but are too large to be entrained in the CWIS. Eggs and larvae could be exposed to CWIS entrainment.

Red snapper live in areas with high relief (i.e., natural reefs, plaftorms) where these structures provide both food and protection from predators. Red snapper forage at night for shrimp, worms, and crabs that live in adjacent seabeds so that they do tend to migrate horizontally, but not vertically. Adults are not typically found in the deep waters of the continental shelf or close to the surface (in the vicinity of the CWIS). Eggs and larvae drift with the prevailing water currents and could be exposed to CWIS entrainment.

§I.D.3.a.vi. Identification of all threatened, endangered, and other protected species that might be susceptible to impingement and entrainment at the cooling water intake structures

The only species of fish or shellfish listed as endangered in the GOM is the smalltooth sawfish (*Pristis pectinata*). Smalltooth sawfish are limited to inshore brackish waters. Embryonic development is ovoviviparous where eggs develop in the female and hatch immediately after extrusion from the female. Egg and larvae entrainment in the CWIS is not likely because of its distribution and reproductive strategy.

The only species of fish or shellfish listed as threatened in the GOM is the Gulf sturgeon (*Acipenser oxyrinchus desoti*). Gulf sturgeon are limited to major river systems and spawn in freshwater. Egg and larvae entrainment in the CWIS is not likely because of its distribution.

There are seven species of concern (fish) that may be found in the GOM. They include the speckled hind (*Ephinephelus drummondhayi*), Nassau grouper (*Ephinephelus striatus*), Warsaw grouper (*Ephinephelus nigritus*), dusky shark (*Carcharhinus obscurus*), largetooth sawfish (*Pristis pristis*), sand tigershark (*Carcharias taurus*), and the night shark (*Carcharhinus signatus*). Speckled hind and Warsaw are deepwater groupers with little information available on its life history. Eggs and larvae could potentially be impacted by entrainment by the CWIS. Nassau grouper occur between the shoreline and 90 meters. Adults are found on coral reefs and juveniles are found in seagrass beds. It is unlikely that eggs and larvae are susceptible to entrainment by the CWIS. The shark species are either ovoviviparous or viviparous (live birth); therefore entrainment is not likely because of its reproductive strategy.

Twenty-eight cetaceans (whales and dolphins) and one sirenian (manatee) species are present in the GOM. The northern right (*Eubalaena glacialis)*, blue (*Balaenoptera musculus)*, fin (*Balaenoptera physalus)*, sei (*Balaenoptera borealis)*, humpback

(*Megaptera novaeangliae*), and the sperm whale (*Physeter macrocephalus)* are listed as endangered or threatened. The only member of the Order Sirenia found in the GOM is the endangered West Indian manatee (*Trichechus manatus manatus*). There are no critical habitats designated within the offshore GOM for the threatened and endangered species of mammals listed above.

Five species of sea turtles are found in the waters of the GOM. They include Kemp's ridley (*Lepidochelys kempii*), loggerhead (*Caretta caretta*), green (*Chelonia mydas*), leatherback (*Dermochelys coriacea*), and hawksbill (*Eretmochelys imbricata*). All are listed as endangered, except the loggerhead turtle, which is listed as threatened. Sea turtles spend nearly all of their lives in the water. Females must emerge periodically from the ocean to nest on beaches. Sea turtles are long-lived, slow-reproducing animals. It is generally believed that all sea turtle species spend the first few years of their lives in pelagic waters, occurring in driftlines and convergence zones (in Sargassum rafts) where they find refuge and food in items that accumulate in surface circulation features. No critical habitat has been designated for these species in the GOM. Marine mammals and sea turtles are not susceptible for entrainment because of their size and reproductive strategies (no planktonic eggs and larvae).

§I.D.3.a.vii. If the information above is supplemented with data from field studies, the supplemental data must include a description of all methods and quality assurance procedures for sampling and data analysis

Adequate references are provided for field studies or supplemental data that supports the information provided in this document.

§I.D.3.b. SUPPLEMENTAL NOTIFICATION REQUIREMENTS

Design information must be submitted at least 30 days in advance of a facility commencing operations in the geographical area covered by this permit.

New non-fixed facilities must submit a narrative description and/or maps providing sufficient information on predicted locations during the permit term in sufficient detail for the Director to determine the appropriateness of additional impingement requirements. This information is only required to be submitted once for any facility.

Diamond will commence operation no sooner than 30 days after the submittal of this addendum document.

Diamond plans on contracting the drill ship to work in the GOM, at locations over 100 miles from the nearest shore. The drillship will be operating at areas within the continental slope of the GOM, which is mostly frequented by species of pelagic fish, of which there are approximately 45 species and 17 families of pelagic fishes associated with offshore platforms in the GOM. Adult pelagic fishes are not candidates for entrainment and impingement due to their size and ability to swim away from the CWIS. Most pelagic fishes inhabiting the GOM have pelagic eggs and larvae that can drift with the prevailing water currents and could be susceptible to entrainment in the CWIS. The GOM is the largest semi-enclosed coastal sea in

the western Atlantic, encompassing about 579,150 mi2 (1,500,000 km2). The coastal areas contain more than 750 estuaries, bays, and sub-estuaries that are associated with 47 major estuaries. The GOM is divided into the continental shelf, continental slope and the GOM basin.

During 2011-2013 OOC conducted an industry-wide Gulf of Mexico Cooling Water Intake Structure Entrainment Monitoring Study. The final report of this study was issued in March 2014. Results of the 2014 OOC GOM CWIS Entrainment Monitoring Study indicated that plankton and ichthyoplankton densities in deeper water of the GOM were only a small fraction of those found at the shallow depths (i.e. less than 200 meters) and the areas closer to shore along the continental shelf. The study concluded that the entrainment of ichthyoplankton by CWIS will not have a noticeable or biologically significant impact to commercially or recreationally important species.

CWIS impacts within the continental slope can be assessed using the two representative species, yellowfin tuna and red snapper due to their commercial and recreational significance. Yellowfin tuna adults may be found in the vicinity of the CWIS, but are too large to be entrained within the CWIS. Red snapper adults are not typically found in the deep waters of the continental slope.

The drillship will have no significant impacts on commercially or recreationally important aquatic species due to the projected operating locations and the engineering controls to be implemented to prevent impingement and entrainment.

A vicinity map and an essential fish habitat map for predicted locations are included as Figures 1 and 2, respectively. See previous section for a thorough description of the GOM.

Velocity Information

The following velocity information and CWIS data are provided to satisfy the supplemental notification requirements for non-fixed facilities listed in §I.D.3.b of the General Permit. The requirements in this section of the General Permit regarding new fixed facilities do not apply.

> **§I.D.3.b.i. A narrative description of the design, structure, equipment, and operation used to meet the requirements of a maximum through screen intake velocity of 0.5 ft/s at each cooling water intake structure.**
>
> The CWIS have been designed to have a maximum through-screen intake velocity, under clean-screen conditions, less than 0.5 ft/s. Calculations verifying the through-screen velocity can be found in Appendix A. Biomass growth on the screens will be limited through cathodic protection. Through-screen velocities will be maintained through an air backwash system to remove any accumulated biomass. Additional screen cleaning may be performed by divers and/or remotely operated underwater vehicles (ROVs) when conditions permit if monitoring indicates the need for such additional measures and it is safe to do so.

§I.D.3.b.ii. For surface cooling water intake screens only, design calculations showing that the velocity requirement will be met at the minimum ambient source water surface elevation and maximum head loss across the screens or other device.

Each of the four Diamond CWIS is located below the water line. At no time will a CWIS operate in a partially submerged state; therefore, the requirements of §I.D.3.b.ii. do not apply.

Cooling Water Intake Structure Data

The drill ship has a total design intake flow (DIF) of 85.7 million gallons per day (MGD) with at least 25% of that DIF designated for cooling purposes. The actual intake flow (AIF) is 59.7 MGD, which is estimated by actual pump usage and percent utilization.

§I.D.3.b.i. Design and construction technology plans and a description of operational measures which will be implemented to minimize impingement.

The technology utilized by Diamond to minimize impingement is reduced intake velocity equal to 0.5 ft/s or less, which is achieved through the design and construction of the sea chest openings for each CWIS and the gratings covering those openings.

The USEPA has defined a reduced intake velocity equal to 0.5 ft/s or less as a "best performing technology" in Volume 76, Section 76 of the Federal Register (page 22203) and states that greater than 90% of all species can avoid impingement when intake velocities are below the 0.5 ft/s threshold. Each of the CWIS has been designed and constructed to have through-screen velocities less than 0.5 ft/s under clean-screen conditions.

This design feature has been verified through calculations provided in Appendix A. These calculations also allow for evaluation of the intake flows at which each CWIS must operate to maintain the through-screen intake velocity below the 0.5 ft/s threshold.

§I.D.3.b.i.1. A narrative description of the design, operation of the design, and construction technologies, including fish handling and return systems, that the facility will utilize to maximize the survival of species expected to be most susceptible to impingement. Provide species specific information that demonstrates the efficacy of the technology.

The drill ship has four CWIS, two located forward and two located aft. Each CWIS consists of one high sea chest, one low sea chest, and each sea chest is provided with access to sea water via gravity flow into one of four pump rooms with two pump rooms located forward and two pump rooms located aft. Each pump room receives sea water from two sets of intake screens. The number of intake screens associated with each pump room is variable and ranges from sixteen to eighteen individual screens per pump room.

The calculations in Appendix A confirm that the design of the sea chest openings provide sufficient open flow area for each CWIS to have a through-screen velocity

below the 0.5 ft/s threshold under clean-screen conditions, which maximizes the survival of species expected to be susceptible to impingement according to the source water physical data.

Operational measures to be taken in order to maintain these intake velocities include routine monitoring and maintenance using an air backwash system provided for each screen to remove accumulated biological growth, as well as cathodic protection to prevent biomass growth on screen surfaces.

There is minimal potential for environmental impact associated with impingement onto the screens of any of the CWIS due to a low occurrence of impingeable organisms in the projected operating area of the CWIS, reduced intake velocities less than 0.5 ft/s, and velocity maintenance devices.

The design technologies utilized by Diamond include low intake velocity and a small Hydraulic Zone of Influence (HZI). The HZI has been referenced in 40 CFR 125.134(b)(94)(i) for intake structures in terms of selecting and implementing technologies and measures to reduce impingement mortality and entrainment. Calculation details and results are provided in Appendix B, and indicate that the HZI for each CWIS extend between 0.12 and 1.78 feet from the intake screens.

The HZI would likely be further reduced with the inclusion of tidal current sweeping velocities. In order for potential IM&E impacts to occur, aquatic organisms would have to pass through the HZI. Since the HZI is a small geographical reach when compared to the overall habitats available within the GOM, the opportunity for IM&E impacts is significantly diminished. Also, the ambient water currents in the GOM may be greater than the intake velocity whereby the CWIS effects will be further minimized.

§I.D.3.b.i.2. Design calculations, drawings, and estimates to support the descriptions above.

CK Associates (CK) performed an analysis of the Diamond CWIS design to verify that maximum through-screen velocities would be below the 0.5 ft/s threshold (Appendix A) and separate calculations to determine the HZI for each of the CWIS (Appendix B).

Figures 3 through 6 contain engineering drawings of the CWIS that were used in these calculations.

§I.D.3.b.ii. A narrative description of the configuration of each of the cooling water intake structures and its location in the water body and in the water column.

Each of the four Diamond CWIS are located at least 22 feet below the water line and at no time will a CWIS operate in a partially submerged state.

The Diamond drill ship is anticipated to be operating at locations greater than 100 miles from nearest shore in portions of the GOM with water depths greater than 200 meters.

The limited number of species whose reproductive strategies rely on deep water indicates that impingement and entrainment will be minimal.

§I.D.3.b.iii. A narrative description of the operation of each of the cooling water intake structures, including design intake flows, daily hours of operation, number of days of the year in operation, and seasonal changes, if applicable.

The Diamond drill ship will collect sea water via four CWIS comprised of eight sea chests. The CWIS will provide sea water to four pump rooms that distribute the water throughout the ship. The four CWIS are as follows:

- No. 1 Aft High and Low Sea Chests with a combined DIF equal to 28.2 MGD (AIF equal to 24.0 MGD);
- No. 2 Aft High and Low Sea Chests with a combined DIF equal to 30.3 MGD (AIF equal to 24.6 MGD);
- No. 1 Forward High and Low Sea Chests with a combined DIF equal to 16.5 MGD (AIF equal to 5.6 MGD); and
- No. 2 Forward High and Low Sea Chests with a combined DIF equal to 10.7 MGD (AIF equal to 5.6 MGD).

Each CWIS is operated 24 hours per day and 365 days per year when operating under the NPDES permit. No seasonal changes in cooling water intake are anticipated due to the distance from land and low number of impingeable organisms present, the low through-screen intake velocities, and the low HZI.

§I.D.3.b.iv. A flow distribution and water balance diagram that includes all sources of water to the facility, recirculating flows, and discharges.

A water balance diagram is provided on Figure 7. This figure depicts flow distribution in terms of DIF, which differs from the AIF mentioned above.

§I.D.3.b.v. Engineering drawings of the cooling water intake structure.

Figures 3 through 6 contain engineering drawings of each CWIS.

§I.D.3.c. COOLING WATER INTAKE STRUCTURE REQUIREMENTS

The following operational information is provided to satisfy the supplemental notification requirements for non-fixed facilities listed in §I.D.3.c. of the General Permit. The requirements in this section of the General Permit regarding new fixed facilities do not apply.

§I.D.3.c.i. The cooling water intake structure(s) must be designed and constructed so that the maximum through-screen design intake velocity is 0.5 ft/s or less.

Each of the Diamond CWIS have been designed and constructed so that the maximum through-screen design intake velocity is 0.5 ft/s, which has been verified in Appendix A. The HZI was also evaluated in Appendix B to determine the distance from the screen in which the intake velocity is greater than 0.25 ft/s.

§I.D.3.c.ii. The operator must minimize impingement mortality of fish and shellfish through use of cooling water intake design and construction technologies or operational measures.

The reduced intake velocity calculated in Appendix A is considered effective technology for minimizing mortality of fish and shellfish. These calculations were performed under clean-screen conditions. Appendix B calculations take into consideration additional operating conditions to confirm that the through-screen velocity maximum will be met and impingement mortality minimized to the greatest extent possible.

§I.D.3.d. MONITORING REQUIREMENTS

The following operational information is provided to satisfy the supplemental notification requirements for new non-fixed facilities listed in §I.D.3.d. of the General Permit. The requirements in this section of the General Permit regarding new fixed facilities do not apply.

§I.D.3.d.i. Beginning two years after the effective date of this permit, the operator must conduct either visual inspections or use remote monitoring devices during the period the cooling water intake structure is in operation. The operator must conduct visual inspections at least weekly, or at a lesser frequency as approved by the director, to ensure that the required design and construction technologies are maintained and operated so they continue to function as designed. Alternatively, the operator must inspect using remote monitoring devices to ensure that the impingement and entrainment technologies are functioning as designed.

Diamond will conduct visual inspections and/or remote monitoring during CWIS operation to ensure that the design and construction technologies are functioning as designed. Monitoring will be performed at least weekly, or at a lesser frequency as approved by the director. In the event that such monitoring is not possible due to hazardous factors beyond Diamond's control, an explanation will be provided on the Discharge Monitoring Report (DMR) submittal.

§I.D.3.d.ii. For facilities utilizing devices other than surface intake screens, the facility shall monitor intake velocity at the point of entry through the intake device or through a comparable method such as pump curve calculations. The operator shall monitor velocity during initial facility startup, and thereafter, at a frequency of no less than once per quarter.

Diamond will use visual inspections to estimate screen occlusion and combine these estimates with a linear occlusion model (Appendix C) to monitor velocity across the intake screens. Although an exponential increase in percent occlusion is the most physically descriptive occlusion model, the linear model has multiple benefits including:

- Conservative estimates of through-screen velocity. These conservative estimates serve to offset errors in the estimation of percent occlusion through visual monitoring;
- The ability to determine when the facility exceeds the maximum permissible velocity; and

- Ease and reproducibility of the calculations.

The monitoring assessments will be maintained with the facility records.

FIGURES

FIGURE 1

VICINITY MAP

DIAMOND
OFFSHORE

December 22, 2014

U. S. Environmental Protection Agency Region 4
Water Protection Division
Pollution Control & Implementation Branch
Atlanta Federal Center
61 Forsyth Street
Atlanta, Georgia 30303

Re: Notification of Intent for Coverage under Final NPDES General Permit No. GEG460000 for Offshore Oil and Gas Activities in the Eastern Gulf of Mexico, De Soto Canyon 852, 853, 854, 897 and Lloyd Ridge 534, 539
Ocean BlackHawk

Dear Director:

In accordance with part I.A.4 of general permit GEG460000, Diamond Offshore Drilling, Inc. (Diamond) is requesting general permit coverage under the requirements for existing and new sources for the Ocean BlackHawk (BlackHawk) and wells listed in this Notice of Intent for permit coverage. The required information under Part 1.A.4 is included in the attached table. Specifically, Diamond is requesting permit coverage for the BlackHawk Cooling Water Intake Structure (CWIS) and other potential discharges for operations it will be conducting for Anadarko Petroleum Corporation.

Diamond BlackHawk plans to commence operations during the first quarter of 2015.

I certify that I am an authorized official of my Company as described in 40 CFR 122.22(d) and as set forth in Part II.D.10 of the permit. I further certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system,

or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

The review and approval of our NOI at your earliest convenience is greatly appreciated. If you have any questions or need additional information, please contact me via phone at (281) 647-8093 or via email at ldesousa@dodi.com or our environmental consultant, James Durbin (C-K Associates) via phone at (225) 755-1000 or via e-mail at james.durbin@c-ka.com .

Sincerely,
Diamond Offshore Drilling, Inc.

Leonardo DeSousa REM, CESCO
Manager – Environmental Affairs

Enclosures: As stated.

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ROWAN COMPANIES, INC.
2800 POST OAK BOULEVARD, SUITE 5450
HOUSTON, TEXAS 77056-6189

March 30, 2015

Director
Water Protection Division
US EPA - Region 4
Sam Nunn Atlanta Federal Center
61 Forsyth Street, SW
Atlanta, GA 30303-8960

Re: Rowan Companies, Inc.
Request for Subsequent Coverage
NPDES General Permit No. GEG460000 for Offshore Oil & Gas Activities in the Eastern Gulf of Mexico

Dear Director:

In accordance with Part I.A.8 of NPDES General Permit GEG460000, Rowan Companies, Inc. (Rowan) hereby requests subsequent coverage under the reissuance of a subsequent general permit of the permits requested in our Notice of Intent submitted on March 24, 2015. Attached is a list of the locations. The current permit will expire March 31, 2015.

If you have any questions, please contact Andy Cline at (713) 960-7544.

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

MAR 30, 2015

Michael Lawson
Vice President- HSE & Marine

Attachment

2015 APR 01 15:17 CAES

ROWAN COMPANIES, INC.
2800 POST OAK BOULEVARD, SUITE 5450
HOUSTON, TEXAS 77056-6189

CWIS

March 24, 2015

Director
Water Protection Division
US EPA - Region 4
Sam Nunn Atlanta Federal Center
61 Forsyth Street, SW
Atlanta, GA 30303-8960

Re: Notice of Intent (NOI)
NPDES General Permit No. GEG460000 for Offshore Oil & Gas Activities in the Eastern Gulf of Mexico
Desoto Canyon 620,621,852,853,854,and 897
Lloyd Ridge 1
Lloyd Ridge 2/ LL 1 No. 1 ST
Lloyd Ridge 2
Lloyd Ridge 399
Lloyd Ridge 400

Dear Director:

In accordance with Part I.A.4 of the NPDES General Permit GEG460000, Rowan Companies, Inc. (Rowan) is requesting general permit coverage for Cooling Water Intake System discharges under the requirements for existing and new sources for the wells listed in this Notice of Intent for permit coverage. The required information under Part 1.A.4 is included in the attachments as well as a list of well locations and the 316(b) CWIS Addendum.

If you have any questions, please contact Andy Cline (713) 960-7544.

"I certify that I am an authorized official as described in 40 CRR 122.22(d) and as set forth in Part II.D.10 of the permit. I further certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

M Lawson MAR 24, 2015

Michael Lawson
Vice President- HSE & Marine

Attachment

316(b) CWIS Addendum

NPDES Notice of Intent

Resolute Drill Ship

Rowan Companies, Inc.

Houston, TX

March 2015

Prepared by:

CK Associates
Environmental Consultants

17170 Perkins Road
Baton Rouge, LA 70810
225-755-1000

CK Project Number: 11996

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INTRODUCTION

Rowan Companies Inc. (Rowan) proposes to operate the Resolute Drill Ship (drill ship) in the Gulf of Mexico (GOM). The drill ship will use once-through cooling water as part of its normal operations. This permit Notice of Intent (NOI) addendum is being submitted to the United States Environmental Protection Agency (USEPA) Region IV to address requirements set forth by regulations under Section 316(b) of the Clean Water Act (CWA), 33 U.S.C. 1326(b) to address concerns of Cooling Water Intake Structures (CWIS) on impingement, mortality and entrainment (IM&E) of vulnerable marine organisms. The permit NOI submission is in accordance with the provisions of the National Pollutant Discharge Elimination System (NPDES) permitting regulations as set forth in Title 40 of the Code of Federal Regulations (CFR) at §122.21.

The information required for submission of the NOI and related to this addendum are as follows:

Design Intake Capacity (million gallons per day)	**89.06**
Design Intake Velocity (in feet per second)	**0.42**
Percentage of Intake Water for Cooling	**64**

Specifically, this permit NOI addendum is intended to satisfy the requirements cited under the Final NPDES General Permit for New and Existing Sources in the Offshore Sub-Category of the Oil and Gas extraction Category for the Eastern Portion of the Outer Continental Shelf of the Gulf of Mexico, effective April 1, 2010 (GEG460000, General Permit). The order of this addendum follows that of the General Permit requirements, with excerpts included.

The following sections discuss how Rowan meets the requirements of the General Permit for:

- Baseline study requirements;
- Operating the CWIS in the GOM; and
- Maintaining and monitoring the CWIS during operation;

§I.D.3.a. BASELINE STUDY REQUIREMENTS

Operators of new facilities must submit sufficient information to characterize the biological community of commercial, recreational, and forage base fish and shellfish in the vicinity of the intake structure and to characterize the effects of the CWIS operation on aquatic life. The biological characterization must include any available existing information along with field studies to obtain localized data.

A comprehensive review of literature was conducted for the projected operating locations, including a list of species for all life stages and their relative abundance, life histories, list of threatened and endangered species, etc. The information provided is consistent with a 2009 industry-wide study by the Offshore Operators Committee (OOC), Gulf of Mexico Cooling Water Intake Structure: Source Water Biological Baseline Characterization Study. The purpose of this study was to provide a comprehensive review of fishery data for the GOM and to evaluate the impacts of future CWIS on fish and shellfish in the GOM.

This study concluded that the greatest biological concentration of key marine species and their spawning habitat is restricted to waters of the continental shelf in depths of less than 656 ft (200m). There is no projected CWIS development for this area. A vicinity map and an essential fish habitat are included as Figures 1 and 2, respectively.

§I.D.3.a.i. List of the data required by this section that are not available and efforts made to identify sources of the data

It was concluded that the existing information included in the literature is consistent with the OOC study and is sufficient to characterize the biological community and effects of the CWIS's operation on aquatic life. Therefore, no additional data collection efforts are required.

§I.D.3.a.ii. List of species (or relevant taxa) for all life stages and their relative abundance in the vicinity of the cooling water intake structure

There are approximately 45 species and 17 families of pelagic fishes associated with offshore platforms in the GOM:

Family Carcharhinidae	Spinner shark (*Carcharhinus brevipinna*)
	Blacktip shark (Carcharhinus limbatus)
	Dusky shark (Carcharhinus obscurus)
	Tiger shark (Galeocerdo cuvier)
	Atlantic sharpnose (Rhizoprionodon terraenovae)
Family Sphyrnidae	Great hammerhead shark (*Sphyrna mokarran*)
	Smooth hammerhead shark (*Sphyrna zygaena*)
Family Elopidae	Atlantic tarpon (*Megalops atlanticus*)
Family Clupeidae	Scaled sardine (*Harengula jaguana*)
	Round Sardinella (*Sardinella aurita*)
Family Pomatomidae	Bluefish (*Pomatomus saltatrix*)
Family Rachycentridae	Cobia (*Rachycentron canadum*)
Family Echeneidae	Live sharksucker (*Echeneis naucrates*)
Family Carangidae	Blue runner (*Caranx fuscus*)
	Crevalle jack (*Caranx hippos*)
	Horse-eye jack (*Caranx latus*)
	Black jack (Caranx lugubris)
	Bar jack (Caranx ruber)
	Round scad (Decapterus punctatus)
	Rainbow runner (Elagatis bipinnulata)
	Lookdown (Selene vomer)
	Greater amberjack (*Seriola dumerili*)
	Lesser amberjack (*Seriola fasciata*)
	Almaco jack (Seriola rivoliana)
	Rudderfish (Seriola zonata)
	Florida pompano (Trachinotus carolinus)

	Rough scad (Trachurus lathami)
Family Coryphaenidae	Dolphinfish (*Coryphaena hippurus*)
Family Lobotidae	Atlantic tripletail (*Lobotes surinamensis*)
Family Ephippidae	Atlantic spadefish (*Chaetodipterus faber*)
Family Mugilidae	Flathead mullet (*Mugil cephalus*)
Family Sphyraenidae	Barracuda (*Sphyraena barracuda*)
Family Scombridae	Wahoo (*Acanthocybium solandri*)
	Little tunny (Euthynnus alletteratus)
	Striped bonito (*Euthynnus pelamis*)
	King mackerel (Scomberomorus cavalla)
	Atlantic Spanish mackerel (*Scomberomorus maculatus*)
	Yellowfin tuna (*Thunnus albacares*)
	Blackfin tuna (Thunnus atlanticus)
	Atlantic bluefin tuna (*Thunna thynnus*)
Family Istiophoridae	Atlantic blue marlin (*Makaira nigricans*)
	White marlin (Tetrapterus albidus)
Family Balistidae	Grey triggerfish (*Balistis capriscus*)
	Ocean triggerfish (Canthidermis sufflamen)
Family Tetraodontidae	Smooth puffer (*Lagocephalus laevigatus*)

The most abundant pelagic fishes at offshore platforms tend to be bluefish, Atlantic spadefish, blue runner, Crevalle jack, lookdown, greater amberjack, and Almaco jack. The most abundant large predators tend to be barracuda, cobia, and hammerhead sharks. Most of the large predators do not appear to be permanent residents of platforms, but rather believed to be highly transient and migratory.

In addition, there are many species of bottom fishes, coastal fishes, and shellfish which may not occupy the water column as adults in the vicinity of the CWIS, but nevertheless may have eggs or larvae that may migrate with the prevailing water currents and become entrained in the CWIS. The OOC industry-wide study provides a list of important commercial and recreational species which may be present in the vicinity of the CWIS as either zooplankton or ichthyoplankton:

Brown shrimp (Farfantepenaeus aztecus)
White shrimp (Litopenaeus setiferus)
American oyster (Crassostrea virginica)
Gulf menhaden (Brevoortia patronus)
Blue crab (Callinectes sapidus)
Pink shrimp (Farfantepenaeus duorarum)
Gulf stone crab (*Menippe adina)*
Red grouper (Ephinephelus morio)
Red snapper (Lutjanus campechanus)
Red drum (Sciaenops ocellatus)
Spotted seatrout (*Cynoscion nebulosus*)
Anchovies (family Engraulidae)

§I.D.3.a.iii. Identification of the species and life stages that would be most susceptible to IM&E. Species evaluated should include the forage base as well as those most important in terms of significance to commercial and recreational fisheries

Commercial Fisheries

The marine fisheries in the GOM include both migratory, pelagic species and reef fishes. The most important commercial pelagic fishes include Spanish mackerel, king mackerel, dolphinfish, cobia, and yellowfin tuna. Spanish mackerel and king mackerel tend to form large schools and comprise the majority of harvested species. The highest abundance of all species occurs in summer and fall. Adult pelagic fishes are not candidates for entrainment in the CWIS due to their size and ability to swim away from the CWIS.

With regard to commercial fisheries, the OOC industry-wide study assessed the most commercially-important species (based on dollar value of annual landings) in the GOM. According to the OOC industry-wide study, of the top eleven species harvested in the GOM, the top nine species all have shallow water distributions and would not be affected by the CWIS. The two remaining species are red snapper and yellowfin tuna whose eggs and larvae could be entrained in the CWIS, but at very nominal occurrences. There are fifteen species of shark that are fished commercially in the GOM; however, each one has reproductive strategies that would not make them subject to egg and larvae entrainment.

Yellowfin tuna is a large pelagic fish found year round throughout the continental shelf in the GOM. Yellowfin tuna have a life span 6-7 years. Females are multiple spawners with average annual spawning frequency of 45 times and an average of 1-4 million eggs per batch. Yellowfin tuna spawn from May to September so that eggs and larvae would be exposed to CWIS entrainment for total of five months.

Red snapper is a commercially-important fish, and occurs throughout the continental shelf in the GOM. Red snapper is a demersal species found over sandy bottoms, around reefs, and underwater platforms at depths between 0 and 200 meters. Red snapper is a long-lived fish which can live up to 50 years. Spawning occurs in offshore waters from May through September. Red snapper begin their spawning activities in the early afternoon and stop at dusk. Females are capable of producing 50 million eggs per year. Eggs and larvae could be exposed to CWIS entrainment for a total of six months. Red snapper have a high reproductive output and an extremely low entrainment rate.

Recreational Fisheries

With regard to recreational fisheries, the OOC industry-wide study assessed the most recreationally-important species (based on weight landed) in the GOM. According to the OOC industry-wide study, of the top ten recreational species taken in the GOM, seven species have shallow water distributions and would not be affected by the CWIS. The three remaining taxonomic groups are red snapper, dolphinfish (for which there is

insufficient life-history information available), and other fish (for which no assessment was possible).

Forage Fishes

According to the OOC industry-wide study, anchovies are one of the most important forage fishes in the GOM. There are five species found in the GOM. The bay anchovy (*Anchoa mitchilli*), which is restricted to inshore waters, and the striped anchovy (*Anchoa hepsetus*) are the most common species. Anchovies spawn throughout the year with peak spawning from March to September. Adult anchovies are not candidates for entrainment in the CWIS because they tend to frequent brackish bays and inshore coastal waters. Eggs and larvae drift with prevailing currents and could be exposed to CWIS entrainment, but it is unlikely for this to occur because of the distance, prevailing currents, and the duration of the larval stage.

Assessment

For purposes of this assessment, yellowfin tuna was selected as a representative species that has commercial significance and is located in the deepwater continental shelf waters of the GOM as eggs, larvae, and adult. Red snapper was selected as a representative species that has commercial significance and may be located in the deepwater continental waters of the GOM as eggs and larvae only.

§I.D.3.a.iv. Identification and evaluation of the primary period of reproduction, larval recruitment, and period of peak abundance for relevant taxa

The primary period of reproduction of the pelagic fishes whose eggs and larvae may be susceptible to entrainment in the CWIS varies, but the characterization for yellowfin tuna and red snapper indicates that spawning occurs in the warmer months of May through October. Many pelagic fishes are capable of dispersing eggs and larvae long distances from the release sites. The pelagic stage for yellowfin tuna eggs and larvae lasts for approximately 25 days. Juveniles are pelagic. The pelagic stage for red snapper eggs and larvae last approximately four weeks until the larvae develop and settle on the water bottom. Larval recruitment and development are typically associated with fine sand bottom away from reefs and ranging in depth of 20-180 meters.

§I.D.3.a.v. Data representative of the seasonal and daily activities (e.g., feeding and water column migration) of biological organisms in the vicinity of the cooling water intake structure

For purposes of this assessment, yellowfin tuna was selected as a representative species that has commercial significance and is located in the deepwater continental shelf waters of the GOM as eggs, larvae, and adult. Red snapper was selected as a representative species that has commercial significance and may be located in the deepwater continental waters of the GOM as eggs and larvae only.

Yellowfin tuna are highly migratory pelagic fishes that are found in the open waters of the GOM away from coastal areas. Yellowfin tuna make both seasonal and daily migrations. Each night, they can travel up to nine miles offshore to feed and return to the same area the next day. Yellowfin tuna typically remain in the surface and mixed water layer at night and dive to deeper waters during the day. Adults may be found in the vicinity of the CWIS, but are too large to be entrained in the CWIS. Eggs and larvae could be exposed to CWIS entrainment.

Red snapper live in areas with high relief (i.e., natural reefs, plaftorms) where these structures provide both food and protection from predators. Red snapper forage at night for shrimp, worms, and crabs that live in adjacent seabeds so that they do tend to migrate horizontally, but not vertically. Adults are not typically found in the deep waters of the continental shelf or close to the surface (in the vicinity of the CWIS). Eggs and larvae drift with the prevailing water currents and could be exposed to CWIS entrainment.

§I.D.3.a.vi. Identification of all threatened, endangered, and other protected species that might be susceptible to impingement and entrainment at the cooling water intake structures

The only species of fish or shellfish listed as endangered in the GOM is the smalltooth sawfish (*Pristis pectinata*). Smalltooth sawfish are limited to inshore brackish waters. Embryonic development is ovoviviparous where eggs develop in the female and hatch immediately after extrusion from the female. Egg and larvae entrainment in the CWIS is not likely because of its distribution and reproductive strategy.

The only species of fish or shellfish listed as threatened in the GOM is the Gulf sturgeon (*Acipenser oxyrinchus desoti*). Gulf sturgeon are limited to major river systems and spawn in freshwater. Egg and larvae entrainment in the CWIS is not likely because of its distribution.

There are seven species of concern (fish) that may be found in the GOM. They include the speckled hind (*Ephinephelus drummondhayi*), Nassau grouper (*Ephinephelus striatus*), Warsaw grouper (*Ephinephelus nigritus*), dusky shark (*Carcharhinus obscurus*), largetooth sawfish (*Pristis pristis*), sand tigershark (*Carcharias taurus*), and the night shark (*Carcharhinus signatus*). Speckled hind and Warsaw are deepwater groupers with little information available on its life history. Eggs and larvae could potentially be impacted by entrainment by the CWIS. Nassau grouper occur between the shoreline and 90 meters. Adults are found on coral reefs and juveniles are found in seagrass beds. It is unlikely that eggs and larvae are susceptible to entrainment by the CWIS. The shark species are either ovoviviparous or viviparous (live birth); therefore entrainment is not likely because of its reproductive strategy.

Twenty-eight cetaceans (whales and dolphins) and one sirenian (manatee) species are present in the GOM. The northern right (*Eubalaena glacialis)*, blue (*Balaenoptera musculus)*, fin (*Balaenoptera physalus)*, sei (*Balaenoptera borealis)*, humpback

(*Megaptera novaeangliae*), and the sperm whale (*Physeter macrocephalus)* are listed as endangered or threatened. The only member of the Order Sirenia found in the GOM is the endangered West Indian manatee (*Trichechus manatus manatus*). There are no critical habitats designated within the offshore GOM for the threatened and endangered species of mammals listed above.

Five species of sea turtles are found in the waters of the GOM. They include Kemp's ridley (*Lepidochelys kempii*), loggerhead (*Caretta caretta*), green (*Chelonia mydas*), leatherback (*Dermochelys coriacea*), and hawksbill (*Eretmochelys imbricata*). All are listed as endangered, except the loggerhead turtle, which is listed as threatened. Sea turtles spend nearly all of their lives in the water. Females must emerge periodically from the ocean to nest on beaches. Sea turtles are long-lived, slow-reproducing animals. It is generally believed that all sea turtle species spend the first few years of their lives in pelagic waters, occurring in driftlines and convergence zones (in Sargassum rafts) where they find refuge and food in items that accumulate in surface circulation features. No critical habitat has been designated for these species in the GOM. Marine mammals and sea turtles are not susceptible for entrainment because of their size and reproductive strategies (no planktonic eggs and larvae).

§I.D.3.a.vii. If the information above is supplemented with data from field studies, the supplemental data must include a description of all methods and quality assurance procedures for sampling and data analysis

Adequate references are provided for field studies or supplemental data that supports the information provided in this document.

§I.D.3.b. SUPPLEMENTAL NOTIFICATION REQUIREMENTS

Design information must be submitted at least 30 days in advance of a facility commencing operations in the geographical area covered by this permit.

New non-fixed facilities must submit a narrative description and/or maps providing sufficient information on predicted locations during the permit term in sufficient detail for the Director to determine the appropriateness of additional impingement requirements. This information is only required to be submitted once for any facility.

Rowan will commence operation no sooner than 30 days after the submittal of this addendum document.

Rowan plans on contracting the drill ship to work in the GOM, at locations over 100 miles from the nearest shore. The drillship will be operating at areas within the continental slope of the GOM, which is mostly frequented by species of pelagic fish, of which there are approximately 45 species and 17 families of pelagic fishes associated with offshore platforms in the GOM. Adult pelagic fishes are not candidates for entrainment and impingement due to their size and ability to swim away from the CWIS. Most pelagic fishes inhabiting the GOM have pelagic eggs and larvae that can drift with the prevailing water currents and could be susceptible to entrainment in the CWIS. The GOM is the largest semi-enclosed coastal sea in the western

Atlantic, encompassing about 579,150 mi2 (1,500,000 km2). The coastal areas contain more than 750 estuaries, bays, and sub-estuaries that are associated with 47 major estuaries. The GOM is divided into the continental shelf, continental slope and the GOM basin.

During 2011-2013 OOC conducted an industry-wide Gulf of Mexico Cooling Water Intake Structure Entrainment Monitoring Study. The final report of this study was issued in March 2014. Results of the 2014 OOC GOM CWIS Entrainment Monitoring Study indicated that plankton and ichthyoplankton densities in deeper water of the GOM were only a small fraction of those found at the shallow depths (i.e. less than 200 meters) and the areas closer to shore along the continental shelf. The study concluded that the entrainment of ichthyoplankton by CWIS will not have a noticeable or biologically significant impact to commercially or recreationally important species.

CWIS impacts within the continental slope can be assessed using the two representative species, yellowfin tuna and red snapper due to their commercial and recreational significance. Yellowfin tuna adults may be found in the vicinity of the CWIS, but are too large to be entrained within the CWIS. Red snapper adults are not typically found in the deep waters of the continental slope.

The drillship will have no significant impacts on commercially or recreationally important aquatic species due to the projected operating locations and the engineering controls to be implemented to prevent impingement and entrainment.

A vicinity map and an essential fish habitat map for predicted locations are included as Figures 1 and 2, respectively. See previous section for a thorough description of the GOM.

Velocity Information

The following velocity information and CWIS data are provided to satisfy the supplemental notification requirements for non-fixed facilities listed in §I.D.3.b of the General Permit. The requirements in this section of the General Permit regarding new fixed facilities do not apply.

> **§I.D.3.b.i. A narrative description of the design, structure, equipment, and operation used to meet the requirements of a maximum through screen intake velocity of 0.5 ft/s at each cooling water intake structure.**
>
> The CWIS have been designed to have a maximum through-screen intake velocity, under clean-screen conditions, less than 0.5 ft/s. Calculations verifying the through-screen velocity can be found in Appendix A. Biomass growth on the screens will be limited through cathodic protection. Through-screen velocities will be maintained through an air backwash system to remove any accumulated biomass. Additional screen cleaning may be performed by divers and/or remotely operated underwater vehicles (ROVs) when conditions permit if monitoring indicates the need for such additional measures and it is safe to do so.

§I.D.3.b.ii. For surface cooling water intake screens only, design calculations showing that the velocity requirement will be met at the minimum ambient source water surface elevation and maximum head loss across the screens or other device.

Each of the four Rowan CWIS is located below the water line. At no time will a CWIS operate in a partially submerged state; therefore, the requirements of §I.D.3.b.ii. do not apply.

Cooling Water Intake Structure Data

The drill ship has a total design intake flow (DIF) of 89 million gallons per day (MGD) with 64% of that DIF designated for cooling purposes. The actual intake flow (AIF) is 34 MGD, which is estimated by actual pump usage and percent utilization.

§I.D.3.b.i. Design and construction technology plans and a description of operational measures which will be implemented to minimize impingement.

The technology utilized by Rowan to minimize impingement is reduced intake velocity equal to 0.5 ft/s or less, which is achieved through the design and construction of the sea chest openings for each CWIS and the gratings covering those openings.

The USEPA has defined a reduced intake velocity equal to 0.5 ft/s or less as a "best performing technology" in Volume 76, Section 76 of the Federal Register (page 22203) and states that greater than 90% of all species can avoid impingement when intake velocities are below the 0.5 ft/s threshold. Each of the CWIS has been designed and constructed to have through-screen velocities less than 0.5 ft/s under clean-screen conditions.

This design feature has been verified through calculations provided in Appendix A. These calculations also allow for evaluation of the intake flows at which each CWIS must operate to maintain the through-screen intake velocity below the 0.5 ft/s threshold.

§I.D.3.b.i.1. A narrative description of the design, operation of the design, and construction technologies, including fish handling and return systems, that the facility will utilize to maximize the survival of species expected to be most susceptible to impingement. Provide species specific information that demonstrates the efficacy of the technology.

The drill ship has four CWIS, two located forward and two located aft. Each CWIS consists of one high sea chest, one low sea chest, and a pump room that has the capacity to provide water for multiple purposes. Each sea chest contains between five and twelve hull openings. There are five types of screens that are used to cover a given hull opening. This design and construction result in an open flow area that ranges from between 3.2 to 12.8 ft^2 per hull opening (see Figures 3-5).

The calculations in Appendix A confirm that the design of the sea chest openings provide sufficient open flow area for each CWIS to have a through-screen velocity below the 0.5 ft/s threshold under clean-screen conditions, which maximizes the

survival of species expected to be susceptible to impingement according to the source water physical data.

Operational measures to be taken in order to maintain these intake velocities include routine monitoring and maintenance using an air backwash system provided for each screen to remove accumulated biological growth, as well as cathodic protection to prevent biomass growth on screen surfaces.

There is minimal potential for environmental impact associated with impingement onto the screens of any of the CWIS due to a low occurrence of impingeable organisms in the projected operating area of the CWIS, reduced intake velocities less than 0.5 ft/s, and velocity maintenance devices.

The design technologies utilized by Rowan include low intake velocity and a small Hydraulic Zone of Influence (HZI). The HZI has been referenced in 40 CFR 125.134(b)(94)(i) for intake structures in terms of selecting and implementing technologies and measures to reduce impingement mortality and entrainment. Calculation details and results are provided in Appendix B, and indicate that the HZI for each CWIS to be less than 1.25 ft.

The HZI would likely be further reduced with the inclusion of tidal current sweeping velocities. In order for potential IM&E impacts to occur, aquatic organisms would have to pass through the HZI. Since the HZI is a small geographical reach when compared to the overall habitats available within the GOM, the opportunity for IM&E impacts is significantly diminished. Also, the ambient water currents in the GOM may be greater than the intake velocity whereby the CWIS effects will be further minimized.

§I.D.3.b.i.2. Design calculations, drawings, and estimates to support the descriptions above.

CK Associates (CK) performed an analysis of the Rowan CWIS design to verify that maximum through-screen velocities would be below the 0.5 ft/s threshold (Appendix A) and separate calculations to determine the HZI for each of the CWIS (Appendix B).

Figures 3 through 5 contain engineering drawings of the CWIS that were used in these calculations.

§I.D.3.b.ii. A narrative description of the configuration of each of the cooling water intake structures and its location in the water body and in the water column.

Each of the four Rowan CWIS is configured with one high sea chest located approximately 7 meters below the water line and one low sea chest located approximately 11 meters below the water line. At no time will a CWIS operate in a partially submerged state.

The Rowan drill ship is anticipated to be operating at locations greater than 100 miles from nearest shore in portions of the GOM with water depths greater than 200 meters. The limited number of species whose reproductive strategies rely on deep water indicates that impingement and entrainment will be minimal.

§I.D.3.b.iii. A narrative description of the operation of each of the cooling water intake structures, including design intake flows, daily hours of operation, number of days of the year in operation, and seasonal changes, if applicable.

The Rowan drill ship will collect sea water via four CWIS comprised of eight sea chests. The CWIS will provide sea water to four pump rooms that distribute the water throughout the ship. The four CWIS are as follows:

- Aft Port CWIS with an AIF equal to 22.03 MGD;
- Aft Starboard CWIS with an AIF equal to 6.58 MGD ;
- Forward Starboard Pump Room CWIS with an AIF equal to 4.75 MGD; and
- Forward Port Pump Room CWIS with an AIF equal to 0.70 MGD.

Each CWIS is operated 24 hours per day and 365 days per year when operating under the NPDES permit. No seasonal changes in cooling water intake are anticipated due to the distance from land and low number of impingeable organisms present, the low through-screen intake velocities, and the low HZI.

§I.D.3.b.iv. A flow distribution and water balance diagram that includes all sources of water to the facility, recirculating flows, and discharges.

A water balance diagram is provided on Figure 6. This figure depicts flow distribution in terms of DIF, which differs from the AIF mentioned above.

§I.D.3.b.v. Engineering drawings of the cooling water intake structure.

Figures 3 through 5 contain engineering drawings of each CWIS.

§I.D.3.c. COOLING WATER INTAKE STRUCTURE REQUIREMENTS

The following operational information is provided to satisfy the supplemental notification requirements for non-fixed facilities listed in §I.D.3.c. of the General Permit. The requirements in this section of the General Permit regarding new fixed facilities do not apply.

§I.D.3.c.i. The cooling water intake structure(s) must be designed and constructed so that the maximum through-screen design intake velocity is 0.5 ft/s or less.

Each of the Rowan CWIS have been designed and constructed so that the maximum through-screen design intake velocity is 0.5 ft/s, which has been verified in Appendix A. The HZI was also evaluated in Appendix B to determine the distance from the screen in which the intake velocity is greater than 0.25 ft/s.

§I.D.3.c.ii. The operator must minimize impingement mortality of fish and shellfish through use of cooling water intake design and construction technologies or operational measures.

The reduced intake velocity calculated in Appendix A is considered effective technology for minimizing mortality of fish and shellfish. These calculations were performed under clean-screen conditions. Appendix B calculations take into consideration additional operating conditions to confirm that the through-screen velocity maximum will be met and impingement mortality minimized to the greatest extent possible.

§I.D.3.d. MONITORING REQUIREMENTS

The following operational information is provided to satisfy the supplemental notification requirements for new non-fixed facilities listed in §I.D.3.d. of the General Permit. The requirements in this section of the General Permit regarding new fixed facilities do not apply.

§I.D.3.d.i. Beginning two years after the effective date of this permit, the operator must conduct either visual inspections or use remote monitoring devices during the period the cooling water intake structure is in operation. The operator must conduct visual inspections at least weekly, or at a lesser frequency as approved by the director, to ensure that the required design and construction technologies are maintained and operated so they continue to function as designed. Alternatively, the operator must inspect using remote monitoring devices to ensure that the impingement and entrainment technologies are functioning as designed.

Rowan will conduct visual inspections and/or remote monitoring during CWIS operation to ensure that the design and construction technologies are functioning as designed. Monitoring will be performed at least weekly, or at a lesser frequency as approved by the director. In the event that such monitoring is not possible due to hazardous factors beyond Rowan's control, an explanation will be provided on the Discharge Monitoring Report (DMR) submittal.

§I.D.3.d.ii. For facilities utilizing devices other than surface intake screens, the facility shall monitor intake velocity at the point of entry through the intake device or through a comparable method such as pump curve calculations. The operator shall monitor velocity during initial facility startup, and thereafter, at a frequency of no less than once per quarter.

Rowan will use visual inspections to estimate screen occlusion and combine these estimates with a linear occlusion model (Appendix C) to monitor velocity across the intake screens. Although an exponential increase in percent occlusion is the most physically descriptive occlusion model, the linear model has multiple benefits including:

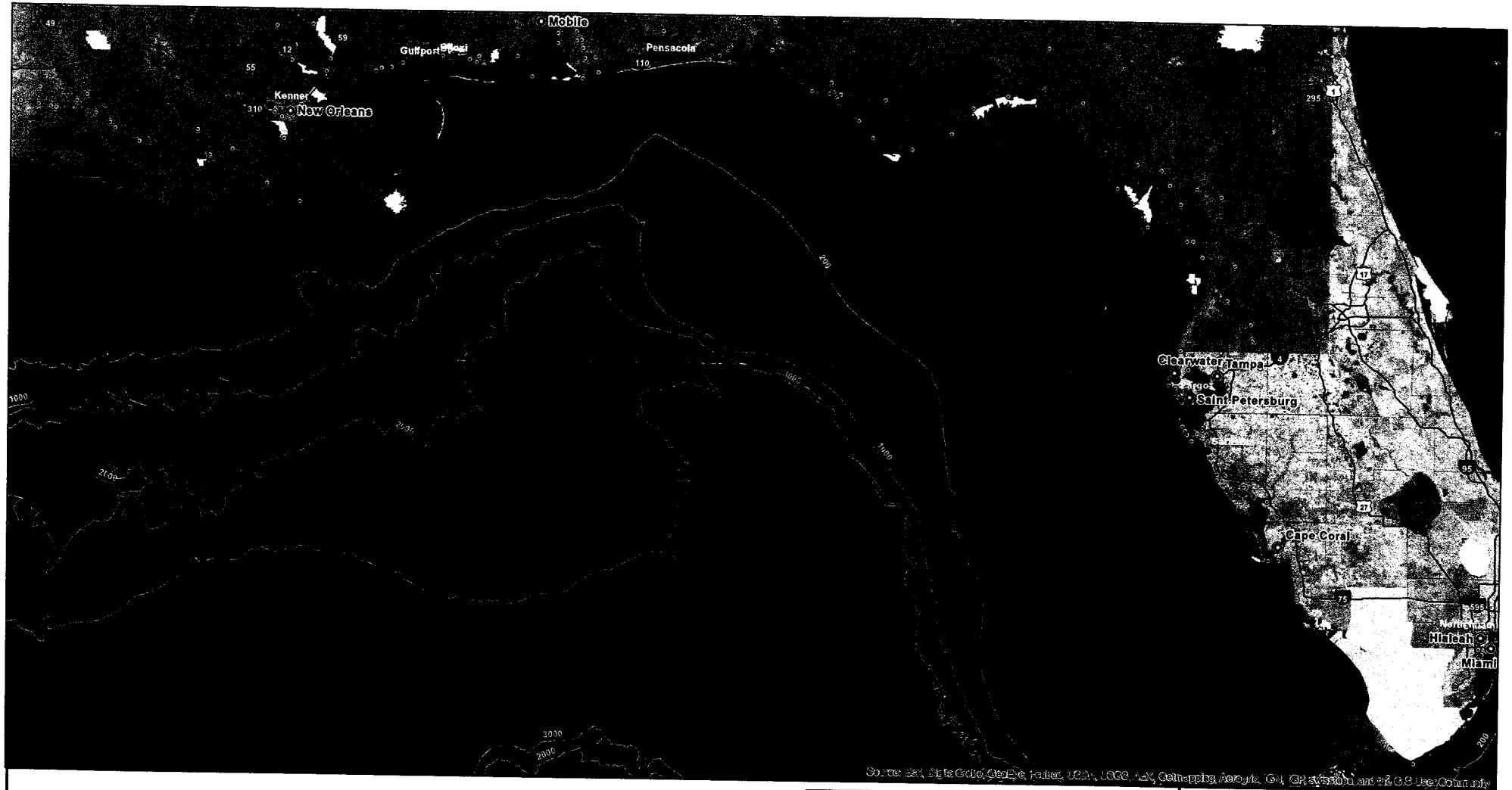
- Conservative estimates of through-screen velocity. These conservative estimates serve to offset errors in the estimation of percent occlusion through visual monitoring;
- The ability to determine when the facility exceeds the maximum permissible velocity; and
- Ease and reproducibility of the calculations.

The monitoring assessments will be maintained with the facility records.

FIGURES

FIGURE 1

VICINITY MAP



Coastal Cities (ESRI-POP2000)

- 0 - 50,000
- 50,001 - 100,000
- > 100,000

Bathymetric Contour in Meters (NOAA)

Planning Areas (BOEM-GOMR)

Protraction Areas (BOEM-GOMR)

Federal Lands (ESRI)

- Forest Service
- Fish and Wildlife Service
- National Park Service

DRILL SHIP WILL OPERATE =100 MILES OFFSHORE

0 20 40
Miles

ROWAN COMPANIES, INC
HOUSTON, TEXAS

NPDES 316(b) REQUIREMENTS

VICINITY MAP

RESOLUTE DRILL SHIP

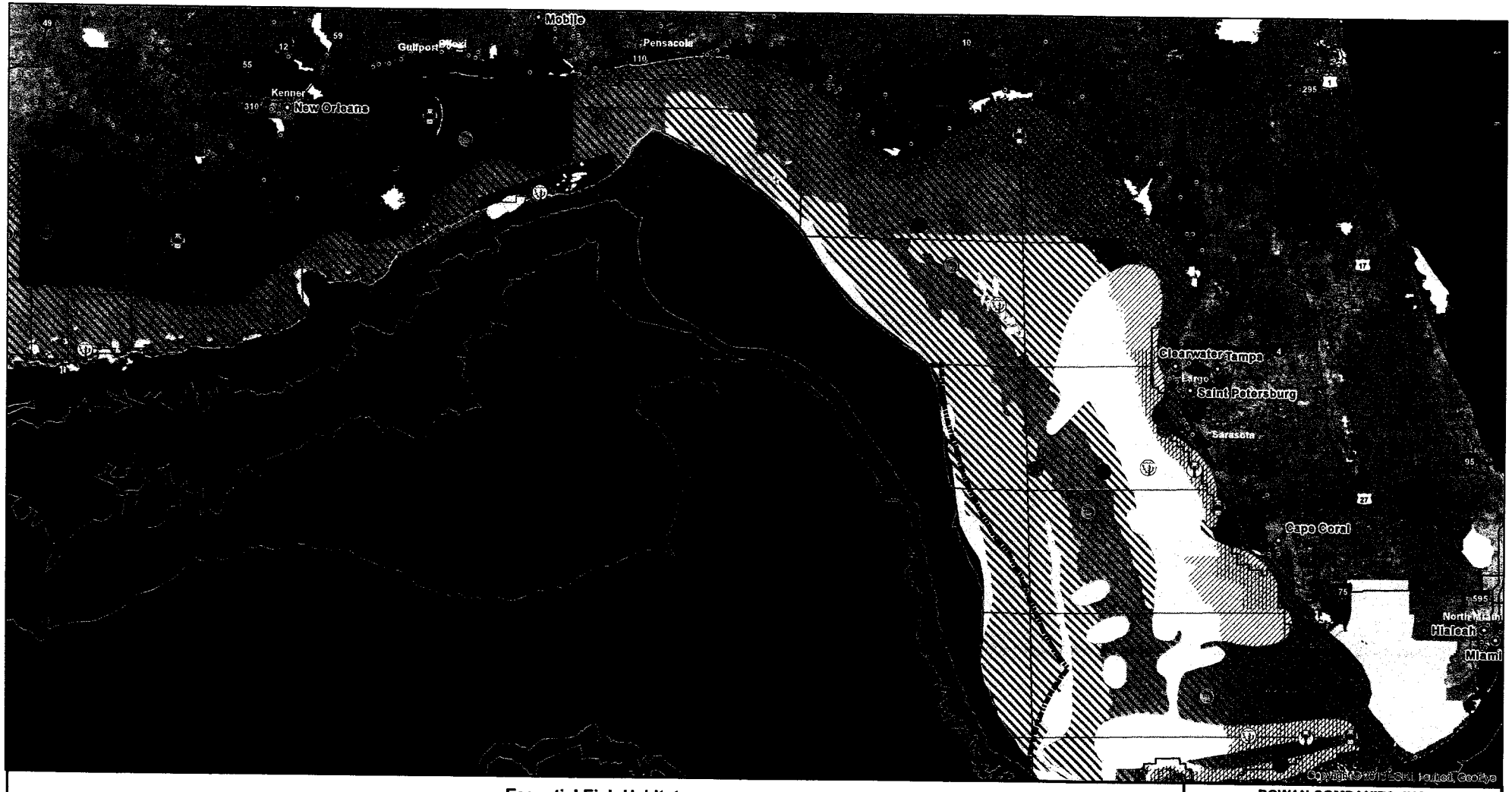
CK ASSOCIATES Environmental Consultants

Drawn:	SKM/AM10.2.2
Checked:	JLD
Approved:	JLD
Date:	3/12/2015
Dwg. No.:	B11996-01

FIGURE 1

FIGURE 2

POTENTIAL OPERATING LOCATIONS & ESSENTIAL FISH HABITATS



Coastal Cities (ESRI-POP2000)

- 0 - 50,000
- 50,001 - 100,000
- > 100,000
- Bathymetric Contour in Meters (NOAA)
- Planning Areas (BOEM-GOMR)
- Protraction Areas (BOEM-GOMR)

Federal Lands (ESRI)

- Forest Service
- Fish and Wildlife Service
- National Park Service

Essential Fish Habitats

- Stone Crab
- Spiny Lobster
- Coral
- Coastal Migratory Pelagics
- Red Drum
- Shrimp
- Reef Fish
- Coral
- Red Drum
- Shrimp
- Reef Fish
- Coastal Migratory Pelagics
- Spiny Lobster
- Stone Crab

DRILL SHIP WILL OPERATE ≈100 MILES OFFSHORE

0 20 40
Miles

ROWAN COMPANIES, INC
HOUSTON, TEXAS

NPDES 316(b) REQUIREMENTS

POTENTIAL OPERATING LOCATIONS & ESSENTIAL FISH HABITAT

RESOLUTE DRILL SHIP

CK ASSOCIATES

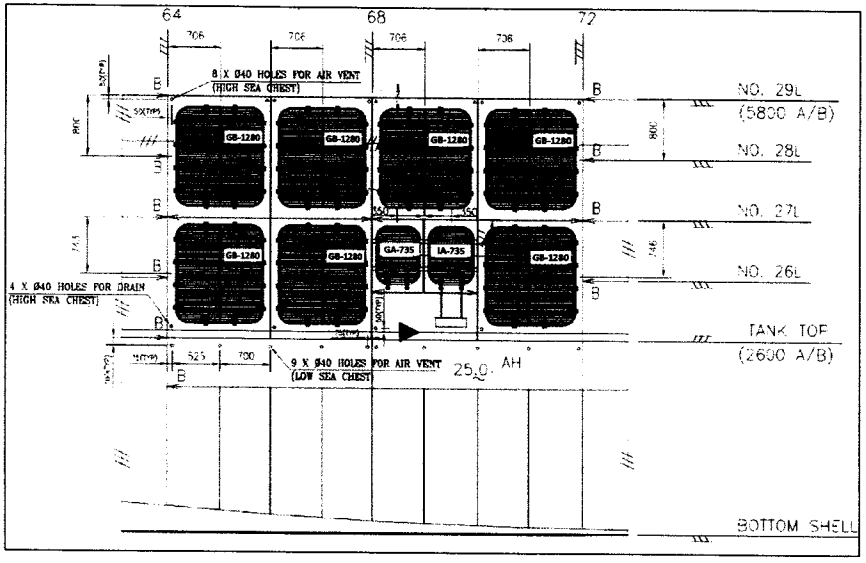
Drawn:	SKM/AM10.2.2
Checked:	JLD
Approved:	JLD
Date:	3/12/2015
Dwg. No.:	B11996-02

FIGURE 2

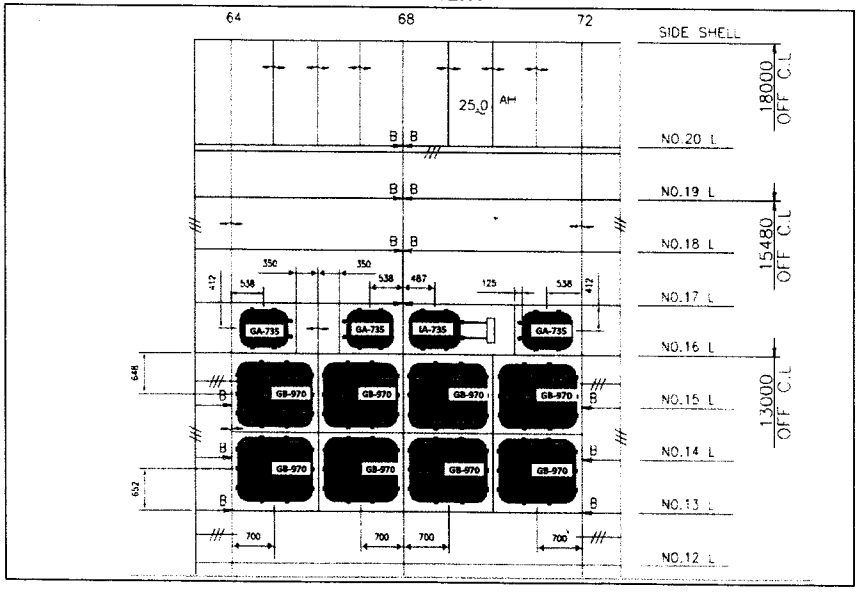
FIGURE 3

ENGINEERING DRAWINGS FOR AFT COOLING WATER INTAKE STRUCTURE (PORT AND STARBOARD)

AFT HIGH SEA CHEST GRATING ARRANGEMENT



AFT LOW SEA CHEST GRATING ARRANGEMENT

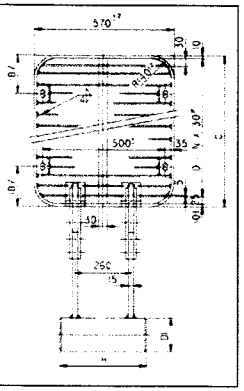


GRATING DETAILS

IA-735

Open Flow Area = 3300 cm²
3.552 ft²

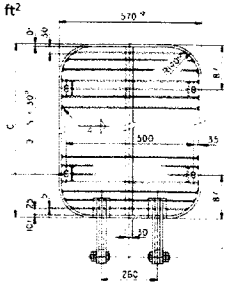
Where:
C = 735 mm
D = 690 mm
DI = 120 mm
H = 400 mm
N = 23



GA-735

Open Flow Area = 3300 cm²
3.552 ft²

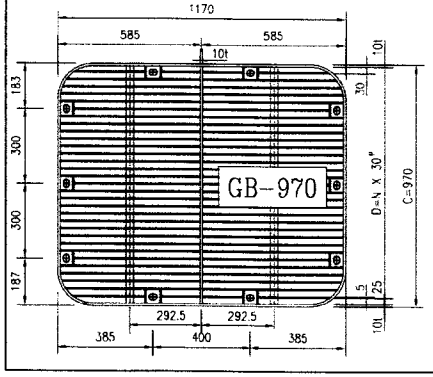
Where:
C = 735 mm
D = 690 mm
N = 23



GB-970

Open Flow Area = 9120 cm²
9.817 ft²

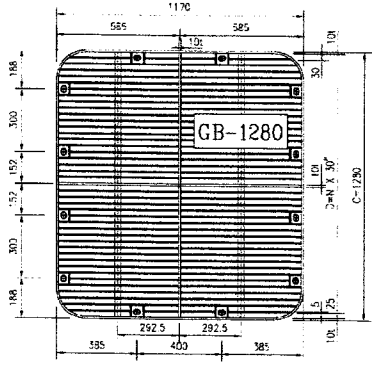
Where:
C = 970 mm
D = 925 mm
N = 31



GB-1280

Open Flow Area = 11970 cm²
12.884 ft²

Where:
C = 1280 mm
D = 1235 mm
N = 41



Each Aft CWIS, one located on the port side and one located on the starboard side of the drill ship, consists of a high sea chest and a low sea chest

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HOUSTON, TX

NPDES 316(b) REQUIREMENTS

ENGINEERING DRAWINGS FOR EACH AFT CWIS (PORT AND STARBOARD)

RESOLUTE DRILL SHIP

CK ASSOCIATES

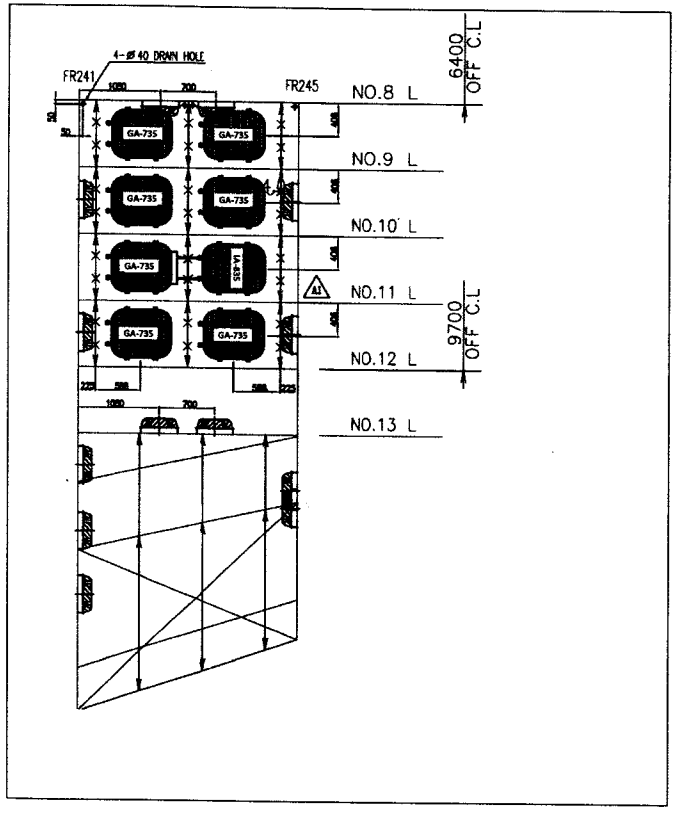
Drawn:	SKM/PPT
Checked:	JLD
Approved:	JLD
Date:	3/12/2015
Project No.	11996

FIGURE 3

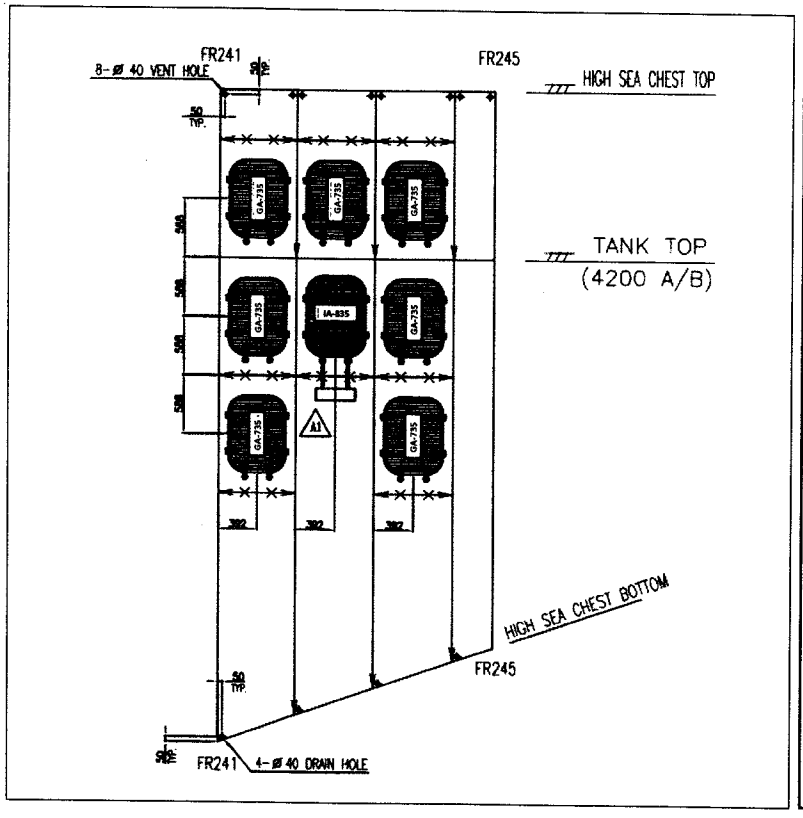
FIGURE 4

ENGINEERING DRAWINGS FOR THE STARBOARD FORWARD COOLING WATER INTAKE STRUCTURE

STBD FWD LOW SEA CHEST GRATING ARRANGEMENT



STBD FWD HIGH SEA CHEST GRATING ARRANGEMENT

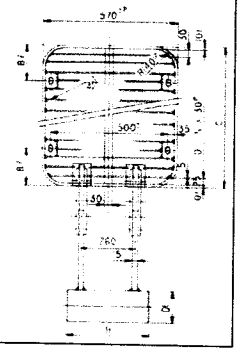


GRATING DETAILS

IA-835

Open Flow Area =
3000 cm²
3.229 ft²

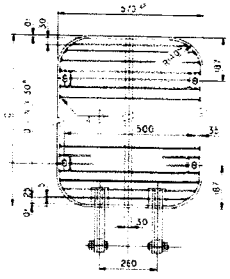
Where:
C = 835 mm
D = 690 mm
DI = 120 mm
H = 400 mm
N = 31



GA-735

Open Flow Area =
3300 cm²
3.552 ft²

Where:
C = 735 mm
D = 690 mm
N = 23



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HOUSTON, TX

NPDES 316(b) REQURIEMENTS

ENGINEERING DRAWINGS FOR THE STARBOARD FORWARD CWIS

RESOLUTE DRILL SHIP

CK ASSOCIATES

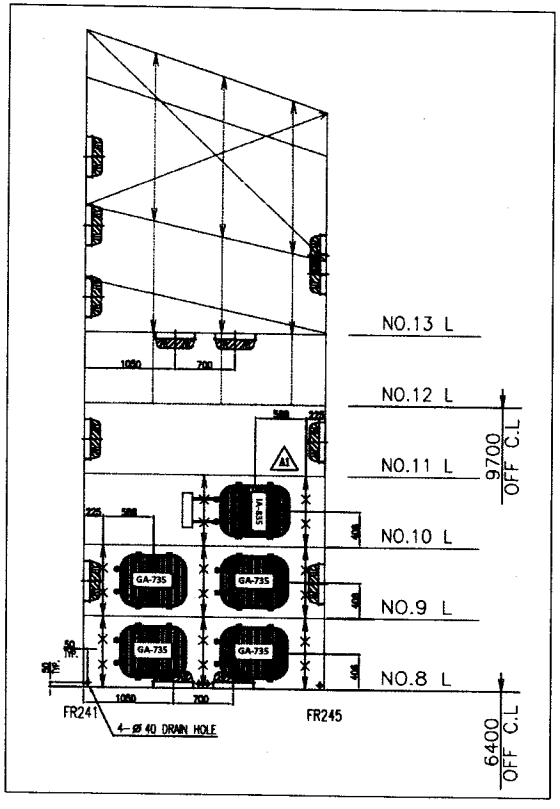
Drawn:	SKM/PPT
Checked:	JDL
Approved:	JDL
Date:	3/12/2015
Project No.	11996

FIGURE 4

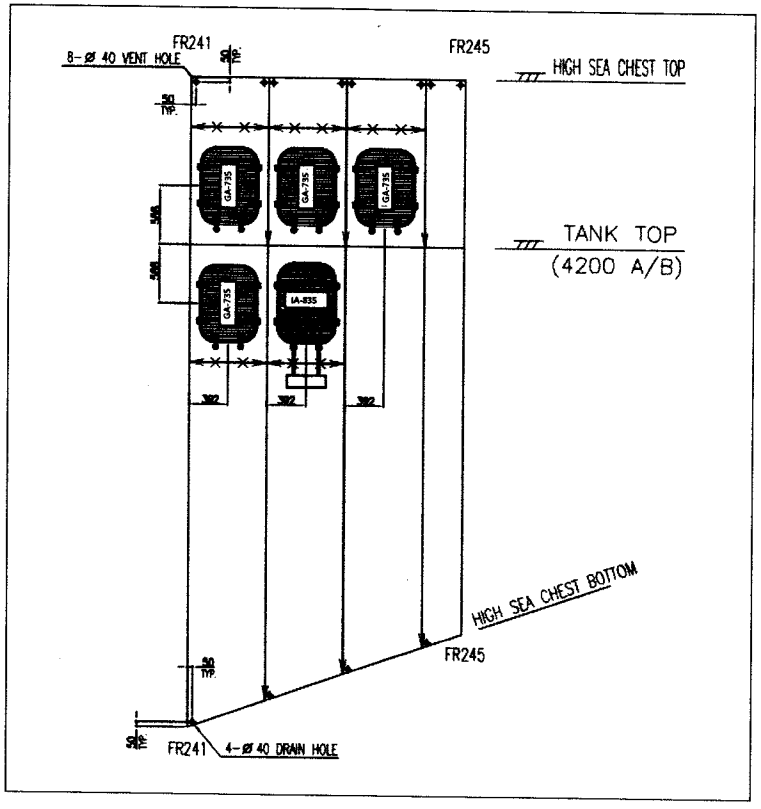
FIGURE 5

ENGINEERING DRAWINGS FOR THE PORT FORWARD COOLING WATER INTAKE STRUCTURE

PORT FWD LOW SEA CHEST



PORT FWD HIGH SEA CHEST

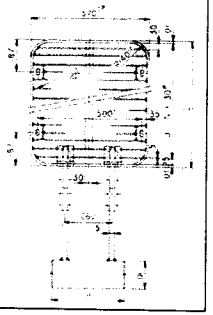


GRATING DETAILS

IA-835

Open Flow Area =
3000 cm²
3.229 ft²

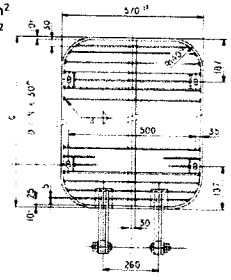
Where:
C = 835 mm
D = 690 mm
DI = 120 mm
H = 400 mm
N = 31



GA-735

Open Flow Area =
3300 cm²
3.552 ft²

Where:
C = 735 mm
D = 690 mm
N = 23



. ROWAN COMPANIES, INC
HOUSTON, TX

NPDES 316(b) REQURIEMENTS

ENGINEERING DRAWINGS FOR THE PORT FORWARD CWIS

RESOLUTE DRILL SHIP

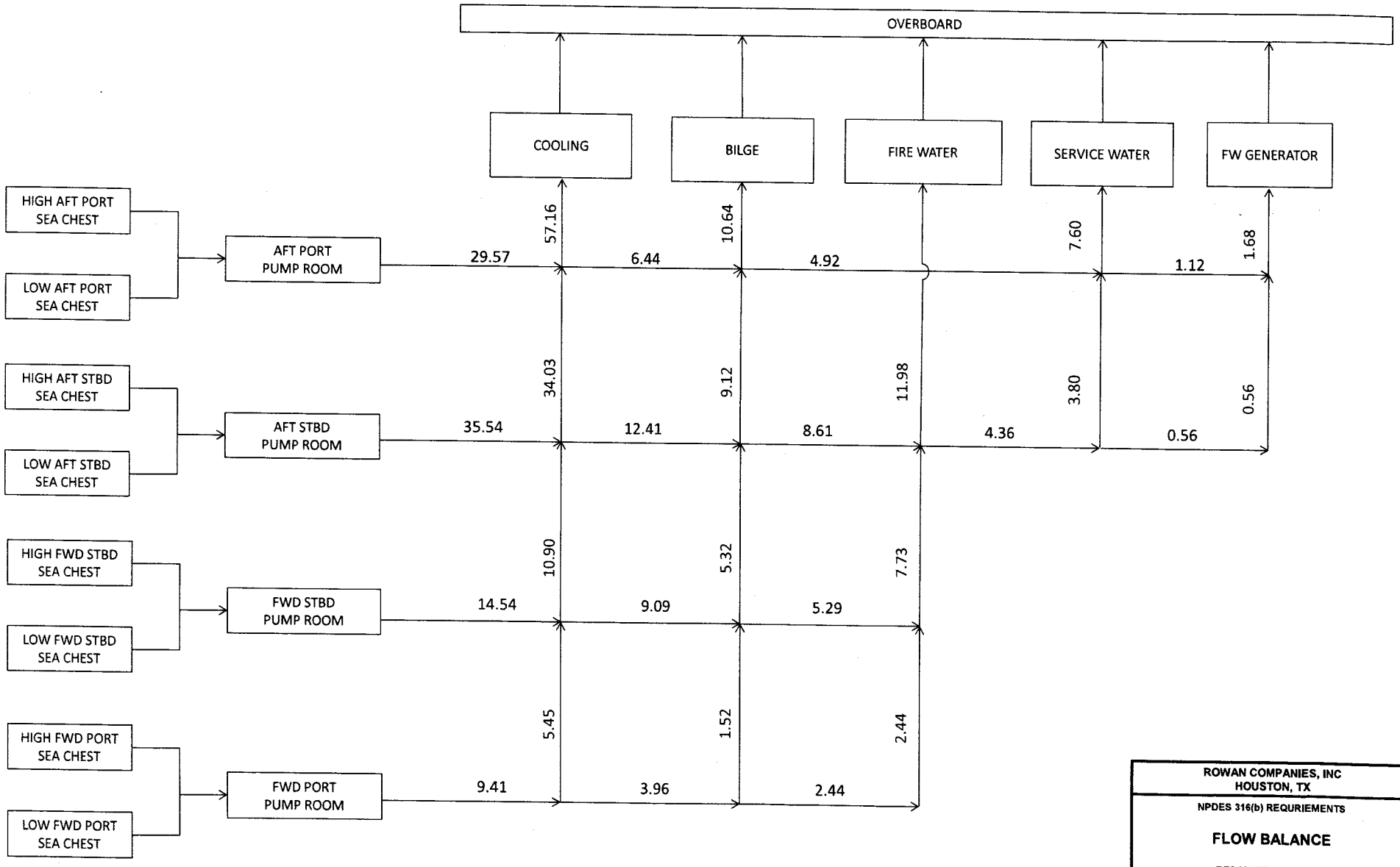
CK ASSOCIATES

Drawn:	SKM/PPT
Checked:	JDL
Approved:	JDL
Date:	3/12/2015
Project No.	11996

FIGURE 5

FIGURE 6

FLOW BALANCE DIAGRAM



Note: Design Intake Flow (DIF) in Million Gallons Per Day (MGD)

ROWAN COMPANIES, INC
HOUSTON, TX

NPDES 316(b) REQURIEMENTS

FLOW BALANCE

RESOLUTE DRILL SHIP

CK ASSOCIATES

Drawn:	SKM/PPT
Checked:	JDL
Approved:	JDL
Date:	3/12/2015
Project No.	11996

FIGURE 6

APPENDICES

APPENDIX A

INTAKE VELOCITY CALCULATIONS

NPDES 316(b) NOI ADDENDUM

APPENDIX A: INTAKE VELOCITY CALCULATIONS

ROWAN COMPANIES INC.

RESOLUTE DRILL SHIP

OBJECTIVE

To calculate the through-screen intake velocity for each of the four CWIS aboard the Rowan Drill Ship in order to demonstrate that the CWIS is designed and constructed to meet the requirements of Section 316(b) of the Clean Water Act and 40 CFR 125.134 and thus protective of impingeable species.

GENERAL EQUATION & DEFINITIONS

The intake velocity, v_{intake} for a CWIS is directly proportional to the intake flow rate (Q) for the pumps associated with the CWIS and indirectly proportional to the open flow area (A_{open}) through the sea chests of the CWIS. This is summarized in the equation:

$$v_{intake} = \frac{Q}{A_{open}}$$

Where:

- v_{intake} is the through-screen velocity for a given CWIS;
- A_{open} is the area of a sea chest opening through which water enters the CWIS, which is the area of the hull opening minus the area of the screen covering the opening; and
- Q is the volumetric flow rate of cooling water collected via a given CWIS, which can be based on the design capacity of the pump or the actual utilization of the pump itself when the CWIS is operating.

ASSUMPTIONS

1. The CWIS is operating under clean-screen conditions, in which the open flow area of each sea chest opening is not reduced by biological growth. The CWIS will be monitored during operation and the sea chest screens cleaned as necessary to maintain an open flow area that keeps the intake velocity below the 0.5 ft/s threshold.
2. The open flow area for a given CWIS is the cumulative open area of all screens serving a given CWIS.
3. The Intake Flow used to demonstrate the CWIS design and construction is the Actual Intake Flow (AIF), which represents the pumps utilized when the CWIS is operating, rather than the full capacity of all pumps associated with the CWIS.

CALCULATION RESULTS

The calculation results for each CWIS based on DIF and AIF are provided below.

CWIS ID	Open Flow Area (ft^2)[A]	DIF (ft^3/s)[B]	Intake Velocity based on DIF (ft/s)	AIF (ft^3/s)[B]	Intake Velocity based on AIF (ft/s)
Aft Port	190.04	45.77	0.24	34.10	0.18
Aft Starboard	190.04	55.01	0.29	10.18	0.05
Forward Starboard	56.19	22.51	0.40	7.36	0.13
Forward Port	34.88	14.57	0.42	1.08	0.03

[A] Data used to calculate Open Flow Area is provided in Table 1.

[B] Data used to calculate Design Intake Flow (DIF) and Actual Intake Flow (AIF) is provided in Table 2.

Table 1 Summary of Open Flow Area Data for each CWIS

Data obtained from engineering drawings for the configuration of each sea chest opening and the dimensions of the grating on each opening

CWIS ID	Grating Type	Open Flow Area (ft^2)	Number of Identical Grating Types	Net Open Flow Area (ft^2)
Aft Port	IA-735	3.552	2	190.04
	GA-735	3.552	4	
	GB-970	9.817	8	
	GB-1280	12.884	7	
Aft Starboard	IA-735	3.552	2	190.04
	GA-735	3.552	4	
	GB-970	9.817	8	
	GB-1280	12.884	7	
Forward Starboard	GA-735	3.552	14	56.19
	IA-835	3.229	2	
Forward Port	GA-735	3.552	8	34.88
	IA-835	3.229	2	

Table 2 Summary of Intake Flows by Usage Type

CWIS ID	Design Intake Flow: Maximum Capacity of each pump associated with the CWIS (MGD) (Actual Intake Flow: Estimated by projected pump usage or utilization during operation [MGD])					
	Cooling Water	Ballast/Bilge	Fire Water	Service	FW Generator	Total
Aft Port	23.13 (17.11)	1.52 (0.00)	--	3.80 (3.80)	1.12 (1.12)	29.57 (22.03)
Aft Starboard	23.13 (6.02)	3.80 (0.00)	4.25 (0.00)	3.80 (0.00)	0.56 (0.56)	35.54 (6.58)
Forward Starboard	5.45 (4.75)	3.80 (0.00)	5.29 (0.00)	--	--	14.54 (4.75)
Forward Port	5.45 (0.70)	1.52 (0.00)	2.44 (0.00)	--	--	9.41 (0.70)
Total	57.16 (28.58)	10.64 (0.00)	11.98 (0.00)	7.60 (3.80)	1.68 (1.68)	89.06 (34.06)

APPENDIX B

HYDRAULIC ZONE OF INFLUENCE CALCULATIONS

NPDES 316(b) NOI ADDENDUM
APPENDIX B: HYDRAULIC ZONE OF INFLUENCE CALCULATIONS

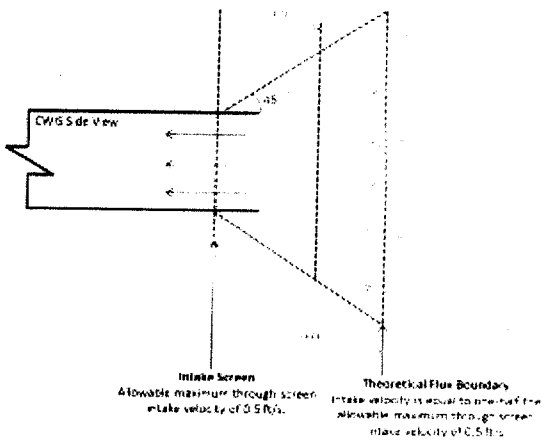
ROWAN COMPANIES INC.

RESOLUTE DRILL SHIP

OBJECTIVE

To calculate the hydraulic zone of influence (HZI) for each CWIS aboard the Rowan Drill Ship by use of a readily definable and calculable geometric shape.

Formula	Description
$d_{eq} = \sqrt{\frac{4 \times A_{open}}{\pi}}$	Diameter of a circle with area equivalent to the Open Flow Area, A_{open}, of the sea chest
$A(z) = \frac{\pi}{4}(d_{eq} + 2z)^2$	Area of the flux plane whose diameter increases by 2 feet for every foot of increase in z. The boundaries of the flux plan radiate at 45° angles.
$v(z) = \frac{Q}{A(z)}$	Velocity of water through the flux plane.
$\text{HZI} = \frac{\sqrt{\frac{Q}{0.25\,\frac{ft}{s}}} - \sqrt{A_{open}}}{\sqrt{\pi}}$	The HZI for each CWIS is provided in Table 1, as indicated by z when v(z)=0.25 ft/s.



ASSUMPTIONS

1. The HZI is defined as the volume bounded by the intake screen and an imaginary plane (flux plane) at some distance, z, from the CWIS screen at which the velocity through the flux plane is equal to one-half of the maximum allowable through-screen velocity (see figure). This assumption relies on the definition of reduced intake velocity by the USEPA where it is state that "90% of all species can avoid impingement when intake velocities are below the 0.5 ft/s threshold." Therefore, greater than 90% of all species can avoid impingement at the flux plane at which the velocity is 0.25 ft/s.
2. Each CWIS sea chest consists of multiple openings with overlapping HZI. Therefore, the HZI was calculated by combining the multiple screens into a single equivalent circular intake for each sea chest. This assumes that cooling water flows to the CWIS within a theoretical geometric shape. This assumption is conservative because it ignores edge effects of water flowing outside of the cone to the CWIS thus projecting the HZI to be slightly farther from the screen surface that it actually may be.
3. The shape of the HZI is represented as truncated cone with the edges defined as the surface of the equivalent circular intake and the flux plane defining the edge of the HZI; and with sides radiating at 1:0.5 (H:V) angles from the CWIS perimeter such that the diameter of the flux plane increases by 2 feet for each foot that separates the flux plane from the screen.

CALCULATION RESULTS

Each CWIS consists of two sea chests that are hydraulically connected. The impact of screen maintenance was evaluated for each CWIS by calculating the HZI when all intake flow for a given CWIS was collected through a single sea chest along with normal flow conditions (flow split between high and low sea chests). The HZI for a CWIS is equal to 0.0 ft because the through-screen velocity is equal to or less than 0.25 ft/s under clean screen and normal operating conditions as shown in Table 1:

TABLE 1

CWIS ID	Q (ft^3/s)[A]	Sea Chest	A_{open} (ft^2)	V_{intake} (ft/s)	*HZI*(ft)
Aft Port	34.10	High	97.29	0.35	1.02
		Low	92.74	0.37	1.16
		High and Low	**190.04**	**0.18**	**0.0**
Aft Starboard	10.18	High	97.29	0.12	0.0
		Low	92.74	0.20	0.0
		High and Low	**190.04**	**0.07**	**0.0**
Forward Starboard	7.36	High	28.09	0.28	0.07
		Low	28.09	0.28	0.07
		High and Low	**56.19**	**0.14**	**0.0**
Forward Port	1.08	High	17.44	0.07	0.0
		Low	17.44	0.07	0.0
		High and Low	**34.88**	**0.03**	**0.0**

[A] The Intake Flow used for these calculations is the Actual Intake Flow (AIF)

APPENDIX C

MONITORING METHODOLOGY

INTRODUCTION

This report summarizes the methodology to be used to monitor the through-screen intake velocity for the Cooling Water Intake Structures (CWIS) at the proposed Rowan Companies Inc. (Rowan) drill ship. To ensure that intake velocities are maintained at or below the 0.5 ft/s threshold, 40 CFR 125.139(b) and Section I.D.3.d.ii of the *Final NPDES General Permit for New and Existing Sources in the Offshore Sub-Category of the Oil and Gas extraction Category for the Eastern Portion of the Outer Continental Shelf of the Gulf of Mexico, effective April 1, 2010 (GEG460000, General Permit)* require new facilities to monitor intake flow velocity across the intake screens to ensure that the maximum intake flow velocity does not exceed 0.5 ft/s.

The general permit requires quarterly velocity monitoring, however Rowan plans to monitor at least monthly. Rowan proposes to use a through-screen velocity monitoring program that is based on an estimate of percent screen occlusion developed from visual inspection of the CWIS. The number of days with intake velocity greater than 0.5 ft/s due to occlusion will be estimated using the model presented below.

VELOCITY MONITORING BASIS

Rowan proposes to use a through-screen velocity monitoring program that is based on an estimate of percent screen occlusion developed from visual inspection of the CWIS. The following assumptions have been used to determine the daily through-screen velocity based on percent screen occlusion.

Assumption 1: The Through-Screen Velocity of the Clean-Screen Condition is Known

An engineering analysis of the CWIS has indicated that the through-screen design intake velocity of each sea chest does not exceed the 0.5 ft/s threshold required by the general permit conditions.

Assumption 2: A Mechanism Exists to Estimate Screen Occlusion

Screen occlusion will be estimated on a monthly basis using the results of visual inspections.

Assumption 3: Daily Screen Occlusion can be Conservatively Modeled

Operating locations are restricted to locations greater than 100 miles from the nearest land in deep water. As such, the intake screens are not subject to the rapid occlusion that can occur in nearshore and onshore applications due to leaf and branch impingement. Occlusion in the offshore intake screens is likely to be dominated by the growth of organic matter, such as barnacles, on the screens.

Biological growth on these screens is limited by surface area. As biological matter grows on the screens, the matter itself provides additional surface area on to which other organisms can attach. In theory, the attachment process, and hence screen occlusion, occurs in a non-linear manner if viewed over long time spans. However, if viewed over short time spans, the assumption of linear growth overestimates percent screen occlusion and hence daily through-screen velocity.

The exponential form of the occlusion model can be expressed as:

$$\frac{dO}{dt} = kO \qquad \textbf{(1)}$$

Where O represents percent occlusion (%); k is an empirical constant (1/day); and dO/dt is the derivative representing the change in occlusion as a function of time (%/day). Note that k must be greater than or equal to 0 1/day for occlusion to increase over time. Equation 1 states that

the change in occlusion at any time is proportional to the amount of occlusion that is present. Integrating equation 1 yields:

$$O = O_0 e^{kt} \qquad \textbf{(2)}$$

Where O_0 is the initial screen occlusion and e is the exponential function.

The linear form of the occlusion model can be expressed as:

$$\frac{dO}{dt} = c \qquad \textbf{(3)}$$

Where c is an empirical constant (%/day). Note that c must be greater than zero for occlusion to increase over time. Equation 3 states that the rate of change in occlusion is constant over time. Integrating equation 3 yields:

$$O = ct \qquad \textbf{(4)}$$

Figure 1 shows a graphical example of the exponential occlusion model from Equation 2 where O_0 = 1%, and k = 1.416 1/day is comparison to linear approximations of the exponential model for each time interval. Note that the occlusion pattern shown in the figure is explanatory in nature and does not represent actual occlusion data. The figure shows an accelerating change in occlusion as a function of time. For instance, occlusion increases by 3% between months 0 and 1; by 13% between months 1 and 2; and 53% between months 2 and 3.

The interval from 0 to 1 month shows that the linear model (red line) slightly overestimates the "true" exponential occlusion. The same observation holds for the remaining two intervals (months 1 – 2 and months 2 – 3). It can be shown mathematically that the linear approximation will be greater than or equal to the exponential value any time c is greater than zero and k is greater than or equal to zero. These two constants must fall into these restricted ranges for any occlusion model. Therefore the linear approximation will always provide an estimate of occlusion that is greater than or equal to that provided by the exponential model.

Assumption 4: Permit Compliance can be Determined with a Linear Occlusion Model

The intent behind velocity monitoring is twofold. Most importantly, a facility must be able to demonstrate that the through-screen velocity is less than the maximum allowable velocity of 0.5 ft/s. The actual velocity has relatively little import provided that the maximum permissible velocity is not exceeded. The secondary purpose of velocity monitoring is to determine the number of days a facility was out of compliance for purposes of permit compliance reporting on the facility's discharge monitoring report. The linear occlusion model accomplishes each of these goals in a conservative manner.

Linear regression between months 2 and 3 yields the following equation to estimate percent occlusion for month 3:

$$O = 1.767t + 17 \qquad \textbf{(5)}$$

The general equation to determine the daily velocity based on percent screen occlusion is:

$$v = \frac{Q}{A_{clean} * (1 - O/100)} \qquad \textbf{(6)}$$

Where v is the through screen velocity (ft/s); Q is the measured intake flow (ft^3/s); and O is the percent occlusion. Note that O is divided by 100 to convert from percent to a fraction.

Based on Equation 5, the percent occlusion on the first day of month 3 (day 0) is 17%. Assuming an intake flow of 37.1 ft^3/s for the Aft CWIS and given A_{clean} =169.1 (see Section 1.2 of this document), the velocity on the first day of month 2 is estimated to be:

$$v = \frac{37.1\frac{ft^3}{s}}{169.1ft^2*(1-17/100)} = 0.26\frac{ft}{s} \qquad \textbf{(7)}$$

The calculation for each day of the month is presented on Figure 1 along with the estimates of through-screen velocity using the exponential model. The use of the linear model indicates that the facility was out of compliance for 12 days in month 3. Assuming that the exponential model represents the "true" occlusion, the facility was out of compliance for 7 days. The linear model provides a reasonable estimate of the daily intake velocity and a conservative estimate of the days that the facility was out of compliance.

Summary and Discussion of Methodology

Monthly visual monitoring of each CWIS can be used in conjunction with a linear model of percent occlusion to calculate the daily through-screen velocity of its CWIS. Although an exponential increase in percent occlusion is the most physically descriptive model of occlusion, the linear model has multiple benefits including:

- Conservative estimates of through-screen velocity. These conservative estimates serve to offset errors in the estimation of percent occlusion through visual monitoring;
- The ability to determine when the facility exceeds the maximum permissible velocity; and
- Ease and reproducibility of the calculations.

VELOCITY MONITORING IMPLEMENTATION

Velocity monitoring will be implemented through use of visual monitoring inspections of each CWIS in conjunction with the linear occlusion model. During visual inspection, the operator will follow the procedure outlined herein using the ***CK CWIS Monitoring Workbook*** (See Figure 2). The information that will be required by the operator for input includes:

- Date of occlusion estimation;
- Estimated occlusion (% blockage);
- Maximum measured daily intake flow or design intake flow; and
- Date of CWIS maintenance (if applicable).

NPDES REPORTING

The general permit requires that the intake flow velocity across the CWIS screens be monitored to ensure that the 0.5 ft/s threshold is not exceeded. Implementation of these requirements will be documented in facility records.

The percent occlusion that will be observed each month will be used to estimate the intake velocity across the CWIS screens. The number of days that the intake velocity is estimated to exceed the 0.5 ft/s threshold will be reported in the records kept at the facility.

Occlusion without velocity exceeding 0.5 ft/s

If the percent blockage estimated by the operator does not result in an intake velocity that exceeds the 0.5 ft/s threshold, zero days will be reported on the facility records for that month. This will be the case regardless of if the estimated blockage is due to removable debris or biological growth. Maintenance of the CWIS is not required to remove debris or clean the CWIS screens.

Occlusion due to removable debris

If the percent blockage estimated by the operator is due to debris (i.e. trash, algae, etc.) and results in an intake velocity that exceeds the 0.5 ft/s threshold, CWIS maintenance is required to remove the debris. The number of days recorded will be the number of days between the day the blockage was identified and the day the blockage was removed. However, in the event that maintenance is unable to be performed during the current month, the number of days estimated will be those between the day the blockage was identified and the last day of the month.

Occlusion due to biological growth

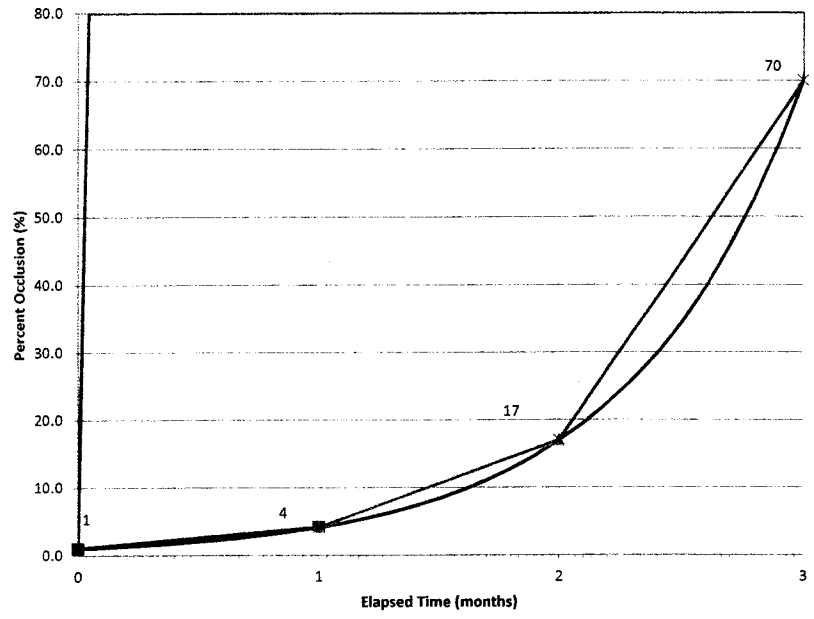
If the percent blockage estimated by the operator is due to biological growth and results in an intake velocity that exceeds the 0.5 ft/s threshold, CWIS maintenance is required to clean the biological growth off of the screen. The linear occlusion model will use the percent blockage estimated during the previous month to project the velocity across the intake screens for each day during the time period, which will provide the number of days that the intake velocity exceeded 0.5 ft/s from the first day of the month to the date of maintenance.

Tabular Comparison of the Linear Model and Exponential Model to Estimate % Occlusion and Through-Screen Velocity

Day	Linear Model Percent Occlusion (%)	Exponential Model Percent Occlusion (%)	Linear Model Through-Screen Velocity (ft/s)	Exponential Model Through Screen Velocity (ft/s)
0	17	17	0.30	0.30
1	19	18	0.31	0.30
2	21	19	0.32	0.31
3	22	20	0.32	0.31
4	24	21	0.33	0.31
5	26	21	0.34	0.32
6	28	23	0.35	0.32
7	29	24	0.35	0.33
8	31	25	0.36	0.33
9	33	26	0.37	0.34
10	35	27	0.38	0.34
11	36	29	0.39	0.35
12	38	30	0.40	0.36
13	40	31	0.42	0.36
14	42	33	0.43	0.37
15	44	34	0.45	0.38
16	45	36	0.45	0.39
17	47	38	0.47	0.40
18	49	40	0.49	0.41
19	51	42	0.51	0.43
20	52	44	0.52	0.44
21	54	46	0.54	0.46
22	56	48	0.57	0.48
23	58	50	0.60	0.50
24	59	53	0.61	0.53
25	61	55	0.64	0.56
26	63	58	0.68	0.59
27	65	61	0.71	0.64
28	66	64	0.74	0.69
29	68	67	0.78	0.75
30	70	70	0.83	0.83

Yellow shaded cells indicate days in excess of the maximum permissible through-screen velocity.

Graphical Comparison of CWIS Intake Screen Occlusion as an exponential function of time (red line) and the same data set as linear approximations of the exponential function.



These are example measurements for explanatory purposes and do NOT represent actual measurements

ROWAN COMPANIES, INC
HOUSTON, TX

NPDES 316(b) REQURIEMENTS

CWIS MONITORING EXAMPLE USING EXPONENTIAL OCCLUSION MODEL

RESOLUTE DRILL SHIP

CK ASSOCIATES

Drawn:	SKM/PPT
Checked:	JLD
Approved:	JLD
Date:	3/12/2015
Project No.	11996

FIGURE C-1

316(b) CWIS Velocity Reporting Log
Rowan Companies, Inc.
Resolute Drill Ship

Email completed form on Sundays and at EOW to:

AREA & LEASE BLOCK:
WELL ID:
ACTIVITY (WELL) START DATE:
NPDES PERMIT #:
PERMITTED FEATURE ID:
ACTIVITY (WELL) STOP DATE:

YEAR: 2014

CWIS 1
Initial Estimated Blockage (%):
Date of First Reading:

CWIS 2
Initial Estimated Blockage (%):
Date of First Reading:

CWIS 3
Initial Estimated Blockage (%):
Date of First Reading:

CWIS 4
Initial Estimated Blockage (%):
Date of First Reading:

Month	Input Page									Maintenance Completed? (If not, leave blank)		[illegible]	[illegible]
	CWIS ID:	AREA (FT2):	Operator who Performed Visual Inspection	Inspection Type	Visual Inspection Date	Estimated Blockage (%)	Due to removable debris?	Estimated Maximum Daily Flow (FT3/S)*	# of Fish/Shellfish Impinged	Date of Maintenance	Estimated Blockage after Maintenance (%)	[illegible]	[illegible]
January	CWIS 1												0
January	CWIS 2												0
January	CWIS 3												0
January	CWIS 4												0
February	CWIS 1												0
February	CWIS 2												0

During visual inspection, estimate the % blockage due to biological growth or debris and obtain maximum daily intake flow for current month.

What was the cause of the % blockage?

BIOLOGICAL GROWTH

Use linear occlusion model to project the maximum intake velocity (Vmax) for the current month.

REMOVABLE DEBRIS

Use the general equation to project the maximum Intake velocity (Vmax) based on estimated % blockage (O) and maximum daily intake flow (Q).

$$Vmax = \frac{Q}{A_{clean} * (1 - O/100)}$$

Was maintenance performed?

NO → # days over threshold projected for the current month is estimated using either the linear occlusion model if due to biological growth; or the general equation if due to removable debris) until the last day of the month.

YES → # days over threshold for the current month is estimated using number of days between the visual Inspection and the day of maintenance.

Is Vmax for the current month projected to be greater than 0.5ft/s?

NO → # days over threshold for the current month is zero.

YES → Was maintenance performed?

ROWAN COMPANIES, INC
HOUSTON, TX

NPDES 316(b) REQURIEMENTS

CWIS MONITORING AND REPORTING PROGRAM EXAMPLE & FLOW CHART

RESOLUTE DRILL SHIP

CK ASSOCIATES

Drawn:	SKM/PPT
Checked:	JLD
Approved:	JLD
Date:	3/12/2015
Project No.	11996

FIGURE C-2

BLANK PAGE

Shell Offshore Inc.
An affiliate of Shell Oil Company

One Shell Square
PO Box 61933
New Orleans LA 70161-1933
(504) 425-6161

February 7, 2014

CERTIFIED MAIL
RETURN RECEIPT REQUESTED
7011 3500 0000 3033 9485

Director
Water Protection Division
U. S. Environmental Protection Agency Region IV
Sam Nunn Federal Center
61 Forsyth Street, S.W.
Atlanta, GA 30303-8960

Gentlemen:

SUBJECT: NOTICE OF INTENT
PERMIT # GEG460000
DE SOTO CANYON BLOCK 398 – GETTYSBURG WEST
SHELL EXPLORATION & PRODUCTION COMPANY (SEPCo)

In accordance with part I.A.4 of the general permit GEG460000, SEPCo is requesting on behalf of Shell Offshore Inc. (SOI) general permit coverage under the requirements for an existing source. The required information under part I.A.4 is shown in the following attachments:

Gettysburg West (DC Block 398)	Attachment 1 - Part I.A.4 Attachment 2 – Plot Plan Attachment 3 – Copy of EP Submittal Letter

If you have any questions or comments, please contact Mr. Jeff McMenis at (504) 425-6021.

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Kind Regards
Shell Offshore Inc.

Kevin Castleman
Wells Operations Manager (WE/CWI)

JBM/sal

Attachments

Attachment 1
Gettysburg W (DC Block 398) - Part I.A.4

General NOI Information:

- All facility owners for newly acquired leases must submit a written NOI prior to the date of discharge and no later than 14 days prior to the expiration date of this permit. All NOIs shall be signed in accordance with 40 C.F.R. § 122.22
- The effective date of coverage will be the postmarked date of the NOI, or if the postmarked date is illegible, the effective date of coverage will be two days prior to the receipt date of the NOI.
- EPA will notify the applicant within 21 days of the receipt date regarding the new permit coverage number(s) and effective date of permit coverage.
- If an NOI is determined to be incomplete, EPA will notify the applicant within 21 days of receipt of the NOI regarding any discrepancies, and/or possible termination of coverage.

GEG 460000, Part I.A.4 Specific Information

GEG 460000, Part I.A.4....	**Information**
a. the legal name and address of the owner or operator	Shell Offshore Inc. One Shell Square P. O. Box 61933 New Orleans, LA 70161-1933
b. the facility name, Offshore Continental Shelf (OCS) number location, including the lease block assigned by the Minerals Management Service (MMS)[1], or if none, the name commonly assigned to the lease area;	Facility name: Noble Globetrotter 1 Mobile Offshore Drilling Unit OCS-G 25854 - De Soto Canyon (DC) Block 398
c. the number and type of facilities and activities proposed within the lease block;	This plan includes four (4) proposed exploration wells, each taking approximately 135 days to drill. The wells will be drilled and temporarily abandoned with cement plugs and corrosion caps in accordance with 30 CFR 250.1721 until the wells are completed and developed under future plans. If the wells are unsuccessful, they will be permanently plugged and abandoned in accordance with the Bureau of Safety and Environmental Enforcement (BSEE) regulations in 30 CFR 250.1710.

[1] Subsequent to the issuance of GEG460000, the MMS has been reorganized into the Bureau of Ocean Energy Management

GEG 460000, Part I.A.4....	Information
f. the date on which the facility plans to commence exploration activities at the site, if applicable;	The drilling activities are planned to commence on or about June 1, 2014 and last approximately 135 days per well.
g. the date on which the owner/operator entered into a binding contract for the purchase of facilities or equipment intended to be used in its operation within a reasonable time (if applicable);	Shell and Noble entered into a binding contract in July 2012 for the lease of the Noble Globetrotter I. If Noble Globetrotter 1 does not execute the wells, a similar Mobile Offshore Drilling Unit (MODU) will be used.
h. the date on which the owner/operator plans to commence development	This plan includes four (4) proposed exploration wells, each taking approximately 135 days to drill. The wells will be drilled and temporarily abandoned with cement plugs and corrosion caps in accordance with 30 CFR 250.1721 until the wells are completed and developed under future plans. If the wells are unsuccessful, they will be permanently plugged and abandoned in accordance with the Bureau of Safety and Environmental Enforcement (BSEE) regulations in 30 CFR 250.1710.
i. the date on which the owner/operator plans to commence production	This plan includes four (4) proposed exploration wells, each taking approximately 135 days to drill. The wells will be drilled and temporarily abandoned with cement plugs and corrosion caps in accordance with 30 CFR 250.1721 until the wells are completed and developed under future plans. If the wells are unsuccessful, they will be permanently plugged and abandoned in accordance with the Bureau of Safety and Environmental Enforcement (BSEE) regulations in 30 CFR 250.1710.

<table>
<tr><th>GEG 460000, Part I.A.4....</th><th>Information</th></tr>
<tr><td>j. Technical information on the characteristics of the sea bottom in accordance with MMS Notice to Lessees (NTL) no. 98-20[2], Shallow Hazard Requirements, or the most current MMS guidelines for shallow hazard investigation and analysis within 1000 meters of the discharge point.</td><td>Sea bottom characteristics are summarized as follows:
<table>
<tr><th>Well Identifier</th><th>OCSG</th><th>Block, surface location</th><th>Water depth, ft</th></tr>
<tr><td>J</td><td>G-25854</td><td>DC 398</td><td>7,590</td></tr>
<tr><td>K</td><td>G-25854</td><td>DC 398</td><td>7,593</td></tr>
<tr><td>L</td><td>G-25854</td><td>DC 398</td><td>7,601</td></tr>
<tr><td>M</td><td>G-25854</td><td>DC 398</td><td>7,593</td></tr>
</table>
There is no evidence of seafloor or near-surface slumping, faulting, amplitude or fluid expulsion features within 2000' of the four well locations.

No marine avoidance zones are identified within 2000' of the proposed well locations.

Currently, there are no wells, flowlines or umbilicals in the vicinity of the proposed well locations.

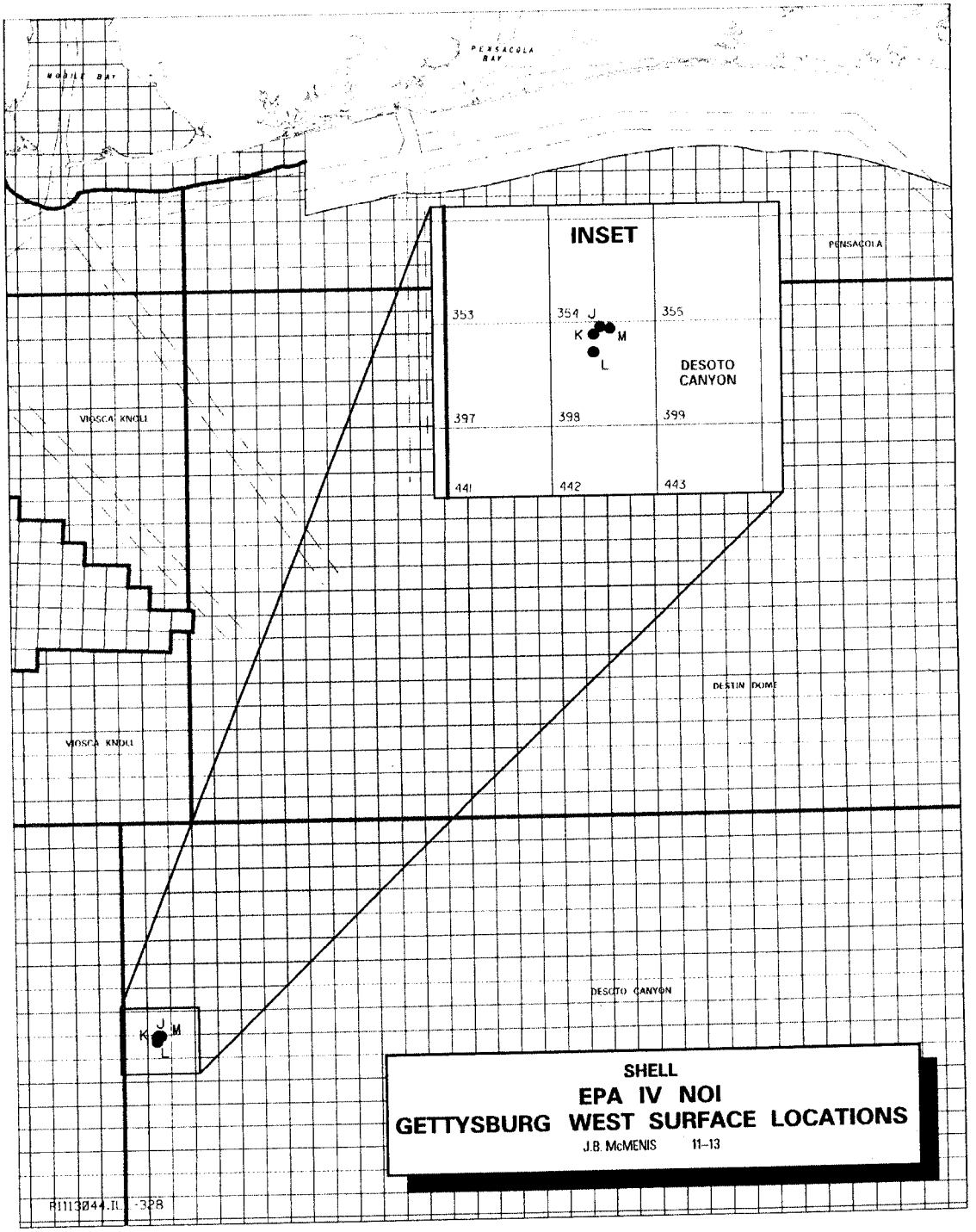
Based on high-resolution surveys consisting of AUV Side Scan Sonar, and Sub-bottom Profiler, frequency enhanced 3-D Seismic, Enhanced Surface renderings (ESR's), ESR's with amplitudes applied, DC 398, proposed locations appear suitable for the planned activity.</td></tr>
<tr><td>k. For facilities in less than 100 meters water depth for offshore Mississippi and Alabama in the Mobile and Vioska Knoll lease blocks, permittee's must submit a Live-Bottom survey using either digital high-resolution acoustic data (sidescan sonar) or photo documentation.(etc).</td><td>Not Applicable - all locations are greater than 100m water depths.</td></tr>
</table>

[2] NTL 2008-G05 contains the current BOEM guidelines on the Shallow Hazards Program.

GEG 460000, Part I.A.4....	Information
l. the type of drilling fluids to be used (e.g., water-based and/or synthetic-based);	Water-based and synthetic-based.
m. documentation that an Application for Permit to Drill (APD), EP, DOCD or DPP has been submitted to MMS or approved by MMS;	Shell submitted the Supplemental Exploration Plan for DC 398 to the BOEM on January 21, 2014. A scanned copy of the submittal letter is provided in Attachment 3.
n. For facilities installed after March 4, 1993, the NOI must also identify that the facility is a new source and state the date on which the facility's protection from more stringent new source performance standards or technology-based limitations ends.	Exploration wells are not "new sources" per section I.C.1 (page 6) of GEG460000 *FACT SHEET for Proposed NPDES General Permit* located on the EPA Region IV Website.
o. the general permit coverage number for the previous general permit (GEG460000) and/or the individual NPDES permit number of any individual permit issued by EPA Region 4 for this activity;	GEG460000 No individual NPDES permit numbers have been previously assigned for these well locations.
p. For production platforms, indicate the estimated distance (in meters) from the platform to the nearest Federally Designated Dredged Material Ocean Disposal Site;	Not Applicable.
q. any permit violations or under the previous Region 4 General Permit (NPDES No. GEG460000 issued December 9, 2004) for the facility	None.

GEG 460000, Part I.A.4....	Information
r. Indicate if Phase III of EPA's Cooling Water Intake Structure Rule (CWIS) applies to the facility for which you are applying for coverage under this permit. Also indicate if the facility plans to comply under Track I or Track II of the CWIS.	The drillship, Noble Globetrotter I, triggers the cooling water intake requirements of the NPDES permit: the CWIS design intake capacities will exceed two million gallons per day (mmgd) and of the two mmgd withdrawal volumes, at least 25% will be used for cooling purposes. Furthermore, this vessel will meet the definition in the subject permits for "new, non-fixed facilities" under the CWIS requirements. Noble Drilling (U.S.) LLC submitted – to US EPA Regions 4 and 6- the required supplemental information and NOI request for this rig on March 1, 2012. Noble Drilling (U.S.) LLC will be the permittee for CWIS compliance purposes. If Noble Globetrotter 1 does not execute the wells, a similar MODU will be utilized. If this MODU triggers the cooling water intake requirements of the NPDES permit, the rig owner will submit the required supplemental information and NOI request.
s. If known, indicate the name and NPDES permit coverage number under GEG460000 for contractors that are, or will be, performing work at your facility that are new oil and gas facilities subject to Phase III of the CWIS Rule.	See response to r. above.

Attachment 2
Gettysburg West (DC Block 398)
Plot Plan


PENSACOLA BAY
MOBILE BAY
INSET
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PENSACOLA
VIOSCA KNOLL
DESTIN DOME
VIOSCA KNOLL
DESOTO CANYON
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M
L
SHELL
EPA IV NOI
GETTYSBURG WEST SURFACE LOCATIONS
J.B. McMENIS 11-13

Attachment 3
Gettysburg West (DC Block 398)
Copy of EP Submittal Letter

Shell Offshore Inc.
P. O. Box 61933
New Orleans, LA 70161-1933
United States of America
Tel +1 504.425.7215
Fax +1 504.425.6747
Email Sylvia.bellone@shell.com

Proprietary Copy

January 21, 2014

Bureau of Ocean Energy Management
1201 Elmwood Park Boulevard
New Orleans, LA 70123-2394

Attn: Plans Group MS GM1053C

SUBJECT: Supplemental Exploration Plan
OCS-G 25854, DeSoto Canyon Block 398
Offshore Alabama and Florida

Gentlemen:

In compliance with 30 CFR 550.211 and NTLs 2008-G04, 2009-G27 and 2010-N06 giving Exploration Plan guidelines, Shell Offshore Inc. (Shell) requests your approval of this Supplemental Exploration Plan to drill Well Locations J, K, L and M. Operations are targeted to commence in July 2014.

This plan consists of a series of attachments describing our intended operations. The attachments we desire to be exempted from disclosure under the Freedom of Information Act are marked "Proprietary" and excluded from the Public Information Copies of this submittal. The cost recovery fee receipt is attached to the Proprietary copy of the Plan.

Should you require additional information, please contact Tracy Albert at 504.425.4652 or tracy.albert@shell.com.

Sincerely,

Sylvia A. Bellone

NC Department of Environment and Natural Resources

Water Quality - NPDES Public Calendar

NPDES Event Calendar & Public Notices

North Carolina General Statutes 143.215.1 and Administrative Code 15A NCAC 02H.0109 (http://portal.ncdenr.org/web/wq/swp/ps/npdes/regs) require the Division to provide public notice of permitting actions through local newspapers. The NPDES unit uses this webspace to announce publications in newspapers on a biweekly schedule.

Public comments are due 30 days from the date these notices were published in the newspapers. Actual date of publication may vary by newspaper. The date of notice shown below represents the date the unit requested publication.

Please click on the event date for full details. Columns can be sorted by category by clicking the header.

Contact:

Julie.Grzyb@ncdenr.gov

Send Comments To:

DWR/Water Quality Permit Section, Wastewater Branch, 1617 Mail Service Center, Raleigh, NC 27699-1617

Comment Period Ends:

30-days from publish date

EVENT

« Back to Events List

Date: 2014-02-26
Type: Notice-Permit
Name: 89460-Craven County Water Treatment Plant (Proposed)

The Division has made an attempt to post notices in the following newspaper(s): News and Observer Craven County [2830 Neuse Blvd., New Bern, NC 27560] has requested a new permit, NC0089460, for its proposed Water Treatment Plant in Craven County. This permitted facility, discharges filtration wastewaters from a membrane water purification system through a diffuser into the Neuse River Estuary, in the Neuse River Basin. The Total Residual Chlorine permit standard is water quality limited. This discharge may affect future allocations in this segment of the Neuse River Estuary.

Facility: 89460-Craven County Water Treatment Plant (Proposed)
Counties: Craven
Permit No.: NC0089460
River Basins: Neuse
Program: NPDES (http://portal.ncdenr.org/web/wq/swp/ps/npdes)

N.C. Department of Environment and Natural Resources
1601 Mail Service Center, Raleigh, NC 27699-1601
Headquarters (Environment and Natural Resources Building): 217 W. Jones St.
Archdale Building: 512 N. Salisbury St.
Toll Free: (877) 623-6748

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

MAR 07 2014

Mr. Tom Reeder
Director
Division of Water Resources
North Carolina Department of Environment
and Natural Resources
1617 Mail Service Center
Raleigh, North Carolina 27699-1617

Dear Mr. Reeder:

The purpose of this letter is to approve the revisions to *15A NCAC 2B Surface Water and Wetlands Standards, Section .0300 Assignment of Stream Classification*, submitted to the Environmental Protection Agency for review by letter, dated June 24, 2013 and received on July 2, 2013. This letter addresses the revisions to modify the use designations for the following waterbodies:

Stream	Basin	From	To
Roanoke River, Cononho Creek, Beaverdam Creek, Mill Branch and Skewakee Gut	*15A NCAC 02B .0313 – Roanoke River Basin*	Class C	Water Supply (WS)-IV or WS-IV Critical Area (CA) or Protected Area (PA)
Maiden Creek, Bee Branch, Maiden Reservoir and Allen Creek	*15A NCAC 02B .0308 – Catawba River Basin*	WS-II HQW	WS-V

The protective management strategies for WS-IV and WS-V watersheds are outlined in *15A NCAC 2B .0104 Considerations/Assigning/Implementing Water Supply Classifications, 15A NCAC 2B .0216 Fresh Surface Water Quality Standards for WS-IV waters and 15A NCAC 2B .0218 Fresh Surface Water Quality Standards for WS-V waters.*

A certification dated May 20, 2013, was included in this submission from the North Carolina Attorney General stating that this revision was duly adopted pursuant to State law and is valid and enforceable in the State of North Carolina. In accordance with 40 CFR Section 131.21(c), new and revised State and Tribal water quality standards are not effective for Clean Water Act (CWA) purposes until approved by the EPA. The EPA approves the revision modifying the designated uses for these waterbodies.

Roanoke River Basin

In 2011, Martin County Regional Water and Sewer Authority requested that a portion of the Roanoke River be reclassified from Class C to Class Water Supply (WS) IV, WS-IV Critical Area (CA) and

From	Subject	Received	S...	C...
DWRMIW_PM	FLA177610-007-CF Industries Plant City North Phosphogypsum Stack_ SIC...	Fri 12/6/2013 3:15 PM	47 ...	
DWRMIW_PM	FL0824569-001-IW1S/NR - TMDL Aggregate Total Nitrogen Permit - Inten...	Thu 12/5/2013 9:14 ...	41 ...	
DWRMIW_PM	FL0001589-017-019-020-Bartow Chemical Complex	Mon 12/2/2013 10:2...	47 ...	
DWRMIW_PM	FL0177130-006-Riverview Closed West Phosphogypsum Stack	Tue 11/19/2013 10:0...	46 ...	
Nuhfer, Mark	FW: FL0334944-004-Mulberry Phosphogypsum Stack Closure	Mon 11/18/2013 7:4...	24 ...	
Nuhfer, Mark	FW: FL0030139-012-Nichols Plant	Mon 11/18/2013 7:4...	24 ...	
Nuhfer, Mark	FW: FL0132381-003-Brewster Phosphogypsum Stack System	Wed 11/13/2013 12:...	31 ...	
Nuhfer, Mark	FW: FL0000752-012 (includes FLA267929-008); Green Bay Chemical Compl...	Thu 11/7/2013 10:16...	23 ...	
Categories: SIC 4941 Water Supply (10 items, 1 unread)				
Holt, Wayne A	FW: ADEM - NPDES Public Notice for December 2013	Wed 12/18/2013 11:...	99 ...	
Categories: SIC 4952 Sewerage Systems (259 items, 33 unread)				
Holt, Wayne A	ADEM - NPDES Public Notice for February 2014	Fri 2/14/2014 1:50 PM	94 ...	
Holt, Wayne A	ADEM - NPDES Public Notice for January 2014	Tue 1/21/2014 10:00...	70 ...	
Holt, Wayne A	FW: ADEM - NPDES Public Notice for December 2013	Wed 12/18/2013 11:...	99 ...	

AR 463
1368

May 12, 2014

Certified Mail Receipt No. 91 7108 2133 3931 6685 5441

Director
Water Protection Division
U.S. EPA-Region 4
Sam Nunn Federal Center
61 Forsyth Street S.W.
Atlanta, GA 30303-8960

Re: Termination of Operations
Marathon Oil Company
Permit No. GEG460906
De Soto Canyon 757, OCS-G31570, Structure Well A

Dear Director:

Marathon Oil Company (MOC) is requesting termination of coverage under the National Pollutant Elimination System (NPDES) General Permit (GMG460000). MOC was granted coverage on June 21, 2013 for Permit No. GEG460906, Desoto Canyon Area, Block 757. MOC has permanently terminated discharges from their facility as of December 31, 2013 and has no future plans to return to this location.

If you have any questions or require any additional information, please contact me at 713-296-4573 or via email at cklostermann@marathonoil.com.

Sincerely,

Chrissi Klostermann
Marathon Oil Corporation
WWD&C GOM HES Professional
5555 San Felipe Street
Houston, Texas 77056
Cell: 713.412.5102
Office: 713.296.4573
cklostermann@marathonoil.com

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Director
Water Protection Division
U.S. EPA Region 4
Sam Nunn Federal Center
61 Forsyth Street S.W.
Atlanta, GA 30303-8960

COMPLETE THIS SECTION ON DELIVERY

A. Received by *(Please Print Clearly)*

B. Date of Delivery

C. Signature

X

☐ Agent
☐ Addressee

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

2. Article Number *(Copy from service label)* 91 7108 2133 3931 6685 5441

PS Form 3811, July 1999 Domestic Return Receipt 102595-00-M-0952

UNITED STATES POSTAL SERVICE

First-Class Mail
Postage & Fees Paid
USPS
Permit No. G-10

• Sender: Please print your name, address, and ZIP+4 in this box •

Chrissi Klostermann
Marathon Oil Corp.
5555 San Felipe St
Houston, TX 77056

M/S 39:06

91 7108 2133 3931 6685 5441

PLACE STICKER AT TOP OF ENVELOPE TO THE RIGHT OF THE RETURN ADDRESS. FOLD AT DOTTED LINE

CERTIFIED MAIL

91 7108 2133 3931 6685 5441

May 10, 2016

OVERNIGHT

U. S. Environmental Protection Agency
Region IV
Office of Water Protection Division
Attn: Director James Giattina
Atlanta Federal Center
61 Forsyth Street, SW
Atlanta, GA 30303-3104

SUBJECT: POWERS OF ATTORNEY – SHELL OFFSHORE INC. & SHELL GULF OF MEXICO INC.

Dear Mr. Giattina:

Enclosed are updated Powers of Attorney for Shell Offshore Inc. and Shell Gulf of Mexico Inc.

If there are any questions regarding this submittal, please contact Andy Englande at (504) 425-2999.

Kind Regards,

Shell Offshore Inc.

Donna Tarka
Executive Vice President

Shell Gulf of Mexico Inc.

Donna Tarka
Executive Vice President

POWER OF ATTORNEY

SHELL OFFSHORE INC.

SHELL OFFSHORE INC. ("SOI"), a Delaware corporation (herein, the "Corporation") with its principal executive offices at 150 North Dairy Ashford, Houston, Texas 77079, hereby nominates, appoints and authorizes the

Position Title	**Info Only- Related Organization**
Operations Managers	Deepwater- Upstream - Shell Exploration & Production Company (hereinafter "SEPCo")
Abandonment Managers	Deepwater- Upstream - SEPCo
GM Wells Operations	Wells- Deepwater- Gulf of Mexico- SEPCo Wells- Deepwater- French Guiana & Colombia- Shell International Exploration & Production (hereinafter "SIEP")
Wells Operations Managers	Wells- Deepwater- Gulf of Mexico- WE/CWI- SIEP Wells- Deepwater- Gulf of Mexico- Production- SIEP

and each of them, acting together or individually, as its true and lawful Attorney-in-Fact, to execute, deliver, accept, assign, amend, extend, ratify, verify, terminate, release or surrender, in the name of the Corporation and on its behalf, the following described instruments and documents in the usual course of the Corporation's business:

> Applications for permits, forms and reports, and other information required by Federal, State or Local environmental, regulatory, administrative and/or permit-issuing agencies and/or authorities pursuant to, and to the extent permitted by, any statute, law, rule, regulation, ordinance, order, or program applicable to the Corporation's operations, including but not limited to requirements of the Clean Water Act, Clean Air Act and Resource Conservation and Recovery Act, as amended.

SHELL OFFSHORE INC. also hereby nominates, appoints and authorizes the

Position Title	**Info Only- Related Organization**
Operations Managers	Deepwater- Upstream - SEPCo
Abandonment Managers	Deepwater- Upstream - SEPCo
GM Wells Operations	Wells- Deepwater- Gulf of Mexico- SEPCo Wells- Deepwater- French Guiana & Colombia- SIEP
Wells Operations Managers	Wells- Deepwater- Gulf of Mexico- WE/CWI- SIEP Wells- Deepwater- Gulf of Mexico- Production- SIEP
Environmental Manager	Safety, Environment and Regulatory- Upstream SEPCo
Drilling Supervisors	Projects & Technology -Wells- Upstream- SEPCo
CWI Engineering Manager	Projects & Technology- Wells- Upstream - SEPCo
Wells Engineering Manager	Projects & Technology- Wells- Upstream - SEPCo

and each of them, acting together or individually, as its true and lawful Attorney-in-Fact, to execute, deliver, accept, assign, amend, extend, ratify, verify, terminate, release or surrender, in the name of the

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> Routine forms and reports, and other information required by Federal, State or Local environmental, regulatory, administrative and/or permit-issuing agencies and/or authorities pursuant to, and to the extent permitted by, any statute, law, rule, regulation, ordinance, order, or program applicable to the Corporation's operations.

This Power of Attorney is effective as of the date executed and shall continue in full force and effect until specifically revoked in writing. This Power of Attorney shall not be revoked, rescinded or impaired by any change in the individuals serving in the positions of the

Position Title	**Info Only- Related Organization**
Operations Managers	Deepwater- Upstream SEPCo
Abandonment Managers	Deepwater- Upstream SEPCo
GM Wells Operations	Wells- Deepwater- Gulf of Mexico- SEPCo Wells- Deepwater- French Guiana & Colombia- SIEP
Wells Operations Managers	Wells- Deepwater- Gulf of Mexico- WE/CWI- SIEP Wells- Deepwater- Gulf of Mexico- Production- SIEP
Environmental Manager	Safety, Environment and Regulatory- Upstream- SEPCo
Drilling Supervisors	Projects & Technology- Wells- Upstream - SEPCo
CWI Engineering Manager	Projects & Technology- Wells- Upstream - SEPCo

IN WITNESS WHEREOF, the Corporation has caused this Power of Attorney to be signed by its Executive Vice President and sealed with its corporate seal and attested by its Secretary.

ATTEST:

Lynn S. Borgmeier

Lynn S. Borgmeier
Secretary

SHELL OFFSHORE INC.

Donna Tarka
Executive Vice President

SHELL OFFSHORE INC. DELAWARE 1981

Date Executed: 5-10-2016

WITNESS:

WITNESS:

Debra McKilpin

STATE OF TEXAS §
§
COUNTY OF HARRIS §

This instrument was acknowledged before me this 10th day of May, 2016 by Donna Tarka, Executive Vice President of Shell Offshore Inc., a Delaware corporation, on behalf of said corporation.

Linda L. Meagher
Notary Public in and for
the State of Texas

LINDA L. MEAGHER
MY COMMISSION EXPIRES
September 15, 2018

POWER OF ATTORNEY

SHELL GULF OF MEXICO INC.

SHELL GULF OF MEXICO INC., a Delaware corporation (herein, the "Corporation") with its principal executive offices at 150 North Dairy Ashford, Houston, Texas 77079, hereby nominates, appoints and authorizes the

Position Title	**Info Only- Related Organization**
Operations Managers	Deepwater- Upstream - Shell Exploration & Production Company (hereinafter "SEPCo")
Abandonment Managers	Deepwater- Upstream - SEPCo
GM Wells Operations	Wells- Deepwater- Gulf of Mexico- SEPCo Wells- Deepwater- French Guiana & Colombia- Shell International Exploration & Production (hereinafter "SIEP")
Wells Operations Managers	Wells- Deepwater- Gulf of Mexico- WE/CWI- SIEP Wells- Deepwater- Gulf of Mexico- Production- SIEP

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SHELL GULF OF MEXICO INC. also hereby nominates, appoints and authorizes the

Position Title	**Info Only- Related Organization**
Operations Managers	Deepwater- Upstream - SEPCo
Wells Operations Managers	Projects & Technology- Wells- Upstream - SEPCo
Abandonment Managers	Deepwater- Upstream - SEPCo
GM Wells Operations	Wells- Deepwater- Gulf of Mexico- SEPCo Wells- Deepwater- French Guiana & Colombia- Shell International Exploration & Production (hereinafter "SIEP")
Wells Operations Managers	Wells- Deepwater- Gulf of Mexico- WE/CWI- SIEP Wells- Deepwater- Gulf of Mexico- Production- SIEP
Environmental Manager	Safety, Environment and Regulatory- Upstream- SEPCo
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CWI Engineering Manager	Projects & Technology- Wells- Upstream - SEPCo
Wells Engineering Manager	Projects & Technology- Wells- Upstream - SEPCo

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This Power of Attorney is effective as of the date executed and shall continue in full force and effect until specifically revoked in writing. This Power of Attorney shall not be revoked, rescinded or impaired by any change in the individuals serving in the positions of the

Position Title	**Info Only- Related Organization**
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Wells Operations Managers	Wells- Deepwater- Gulf of Mexico- WE/CWI- SIEP Wells- Deepwater- Gulf of Mexico- Production- SIEP
Environmental Manager	Safety, Environment and Regulatory- Upstream - SEPCo
Drilling Supervisors	Projects & Technology- Wells- Upstream - SEPCo
CWI Engineering Manager	Projects & Technology- Wells- Upstream - SEPCo

IN WITNESS WHEREOF, the Corporation has caused this Power of Attorney to be signed by its Executive Vice President and sealed with its corporate seal and attested by its Secretary.

ATTEST:

Lynn S. Borgmeier

Lynn S. Borgmeier
Secretary

SHELL GULF OF MEXICO INC.

Donna Tarka
Executive Vice President

Date Executed: 5-10-2016

SHELL GULF OF MEXICO INC. CORPORATE SEAL 1996 DELAWARE

WITNESS:

WITNESS:

Debora McKillin

STATE OF TEXAS §
§
COUNTY OF HARRIS §

This instrument was acknowledged before me this 10th day of May, 2016 by Donna Tarka, Executive Vice President, of Shell Gulf of Mexico Inc., a Delaware corporation, on behalf of said corporation.

Linda L. Meagher
Notary Public in and for
the State of Texas

LINDA L. MEAGHER
MY COMMISSION EXPIRES
September 15, 2018

B8

Shell Offshore Inc.
An affiliate of Shell Oil Company

One Shell Square
PO Box 61933
New Orleans LA 70161-1933
(504) 425-6161

March 11, 2015

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Director
Water Protection Division
U. S. Environmental Protection Agency Region IV
Sam Nunn Federal Center
61 Forsyth Street, S.W.
Atlanta, GA 30303-8960

Gentlemen:

SUBJECT: COVERAGE CONTINUATION
PERMIT # GEG460000
SHELL EXPLORATION & PRODUCTION COMPANY (SEPCo)

In accordance with part I.A.8 of the general permit GEG460000, SEPCo is requesting on behalf of Shell Offshore Inc. (SOI) continued coverage for all the facilities and projects listed in attachment until the general permit is re-issued.

The current permit expires midnight EST March 31, 2015.

If you have any questions or comments, please contact Mr. Bertrand Montchanin at (504) 425-2113.

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Kind Regards
Shell Offshore Inc.

Malcolm Jones

Malcolm Jones
General Manager Wells Operations

BM/sal

Attachment

Area	Block	Permittee	OCS-G	EPA Region	Permit Number	Well Number	Permit Status	Facility
DESOTO CANYON	268	SHELL OFFSHORE INC.	23501	4	GEG460843	B	Active	Antietam
DESOTO CANYON	268	SHELL OFFSHORE INC.	23501	4	GEG460844	C	Active	Antietam
DESOTO CANYON	268	SHELL OFFSHORE INC.	23501	4	GEG460845	D	Active	Antietam
DESOTO CANYON	268	SHELL OFFSHORE INC.	23501	4	GEG460846	E	Active	Antietam
DESOTO CANYON	268	SHELL OFFSHORE INC.	23501	4	GEG460842	A	Active	Antietam
DESOTO CANYON	353	SHELL OFFSHORE INC.	25852	4	GEG460864	K	Active	Vicksburg
DESOTO CANYON	353	SHELL OFFSHORE INC.	25852	4	GEG460867	N	Active	Vicksburg
DESOTO CANYON	353	SHELL OFFSHORE INC.	25852	4	GEG460865	L	Active	Vicksburg
DESOTO CANYON	353	SHELL OFFSHORE INC.	25852	4	GEG460863	J	Active	Vicksburg
DESOTO CANYON	353	SHELL OFFSHORE INC.	25852	4	GEG460769	B	Active	Vicksburg
DESOTO CANYON	353	SHELL OFFSHORE INC.	25852	4	GEG460866	M	Active	Vicksburg
DESOTO CANYON	397	SHELL OFFSHORE INC.	25853	4	GEG460770	C	Active	Vicksburg
DESOTO CANYON	397	SHELL OFFSHORE INC.	25853	4	GEG460771	D	Active	Vicksburg
DESOTO CANYON	397	SHELL OFFSHORE INC.	25853	4	GEG460868	O	Active	Vicksburg
DESOTO CANYON	398	SHELL OFFSHORE INC.	25854	4	GEG460775	H	Active	Vicksburg
DESOTO CANYON	398	SHELL OFFSHORE INC.	25854	4	GEG460772	E	Active	Vicksburg
DESOTO CANYON	398	SHELL OFFSHORE INC.	25854	4	GEG460776	I	Active	Vicksburg
DESOTO CANYON	398	SHELL OFFSHORE INC.	25854	4	GEG460774	G	Active	Vicksburg
DESOTO CANYON	398	SHELL OFFSHORE INC.	25854	4	GEG460773	F	Active	Vicksburg
DESOTO CANYON	486	SHELL OFFSHORE INC.	25855	4	GEG460798	A	Active	Fredericksburg
DESOTO CANYON	486	SHELL OFFSHORE INC.	25855	4	GEG460799	B	Active	Fredericksburg
DESOTO CANYON	487	SHELL OFFSHORE INC.	25856	4	GEG460800	C	Active	Fredericksburg
DESOTO CANYON	487	SHELL OFFSHORE INC.	25856	4	GEG460801	D	Active	Fredericksburg
DESOTO CANYON	529	SHELL OFFSHORE INC.	23517	4	GEG460885	H	Active	Petersburg
DESOTO CANYON	529	SHELL OFFSHORE INC.	23517	4	GEG460884	G	Active	Petersburg
DESOTO CANYON	529	SHELL OFFSHORE INC.	23517	4	GEG460883	F	Active	Petersburg
DESOTO CANYON	529	SHELL OFFSHORE INC.	23517	4	GEG460882	E	Active	Petersburg
DESOTO CANYON	799	SHELL OFFSHORE INC.	31572	4	GEG460876	A	Active	Swordfish

Notice of Intent continuation
Shell Offshore Inc.

Area	Block	Permittee	OCS-G	EPA Region	Permit Number	Well Number	Permit Status	Facility
DESOTO CANYON	799	SHELL OFFSHORE INC.	31572	4	GEG460877	B	Active	Swordfish
DESOTO CANYON	799	SHELL OFFSHORE INC.	31572	4	GEG460878	C	Active	Swordfish
DESOTO CANYON	843	SHELL OFFSHORE INC.	23540	4	GEG460881	F	Active	Swordfish
DESOTO CANYON	843	SHELL OFFSHORE INC.	23540	4	GEG460880	E	Active	Swordfish
DESOTO CANYON	843	SHELL OFFSHORE INC.	23540	4	GEG460879	D	Active	Swordfish
DESOTO CANYON	398	SHELL OFFSHORE INC.	25854	4	GEG460911	J	Active	Gettysburg West
DESOTO CANYON	398	SHELL OFFSHORE INC.	25854	4	GEG460912	K	Active	Gettysburg West
DESOTO CANYON	398	SHELL OFFSHORE INC.	25854	4	GEG460913	L	Active	Gettysburg West
DESOTO CANYON	398	SHELL OFFSHORE INC.	25854	4	GEG460914	M	Active	Gettysburg West

Shell Offshore Inc.
An affiliate of Shell Oil Company

One Shell Square
PO Box 61933
New Orleans LA 70161-1933
(504) 425-6161

March 30, 2015

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Director
Water Protection Division
U. S. Environmental Protection Agency Region IV
Sam Nunn Federal Center
61 Forsyth Street, S.W.
Atlanta, GA 30303-8960

Gentlemen:

SUBJECT: NOTICE OF INTENT
PERMIT # GEG460000
DE SOTO CANYON BLOCK 939 – BULL RUN
SHELL EXPLORATION & PRODUCTION COMPANY (SEPCo)

In accordance with part I.A.4 of the general permit GEG460000, SEPCo is requesting on behalf of Shell Offshore Inc. (SOI) general permit coverage under the requirements for an existing source. The required information under part I.A.4 is shown in the following attachments:

Bull Run (DC Block 939)	Attachment 1 - Part I.A.4 Attachment 2 – Plot Plan Attachment 3 – Copy of Exploration Plan BOEM Approval letter

If you have any questions or comments, please contact Mr. Bertrand Montchanin at (504) 425-2113.

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Kind Regards
Shell Offshore Inc.

Malcolm Jones
General Manager Wells Operations

BM/sal
Attachment

bc: via email w/o Attachments
Bellone, Sylvia
Albert, Tracy
Englande, Andy
Isham, Ragini
Kuehn, Rob

via email with Attachments
Dupont, Marsha

Electronic copy w/Attachments
\\Americas.shell.com\americas\E & P\SEPCo One Shell Square\PROJ_03\HSE\HSE OSS\ENV\DMR DATA\NOIs\OCS- NOI R4\2015\Bull Run

Hardcopy w/Attachments
Env File No. 553

Attachment 1
Bull Run (DC Block 939) - Part I.A.4

General NOI Information:

- All facility owners for newly acquired leases must submit a written NOI prior to the date of discharge and no later than 14 days prior to the expiration date of this permit. All NOIs shall be signed in accordance with 40 C.F.R. § 122.22
- The effective date of coverage will be the postmarked date of the NOI, or if the postmarked date is illegible, the effective date of coverage will be two days prior to the receipt date of the NOI.
- EPA will notify the applicant within 21 days of the receipt date regarding the new permit coverage number(s) and effective date of permit coverage.
- If an NOI is determined to be incomplete, EPA will notify the applicant within 21 days of receipt of the NOI regarding any discrepancies, and/or possible termination of coverage.

GEG 460000, Part I.A.4 Specific Information

GEG 460000, Part I.A.4....	Information
a. the legal name and address of the owner or operator	Shell Offshore Inc. One Shell Square P. O. Box 61933 New Orleans, LA 70161-1933
b. the facility name, Offshore Continental Shelf (OCS) number location, including the lease block assigned by the Minerals Management Service (MMS)[1], or if none, the name commonly assigned to the lease area;	Facility name: Noble Globetrotter 1 Mobile Offshore Drilling Unit (MODU) or similar MODU. OCS-G 31591 Desoto Canyon (DC) Block 939 Additional lease blocks may be involved in this exploration- Shell will submit a revised NOI as appropriate.
c. the number and type of facilities and activities proposed within the lease block;	Plans are to drill up to six (6) exploration wells, each taking approximately 150 days to drill. Upon completion of drilling the well(s), they will be either temporarily or permanently abandoned in accordance with 30 CFR, Subpart G.

[1] Subsequent to the issuance of GEG460000, the MMS has been reorganized into the Bureau of Ocean Energy Management

GEG 460000, Part I.A.4....	Information
g. the date on which the owner/operator entered into a binding contract for the purchase of facilities or equipment intended to be used in its operation within a reasonable time (if applicable);	Shell and Noble entered into a binding contract in July 2012 for the lease of the Noble Globetrotter I. If Noble Globetrotter 1 does not execute the wells, a similar Mobile Offshore Drilling Unit (MODU) will be used.
h. the date on which the owner/operator plans to commence development	On or about September 2016. Plans are to drill up to six (6) exploration wells, each taking approximately 150 days to drill. Upon completion of drilling the well(s), they will be either temporarily or permanently abandoned in accordance with 30 CFR, Subpart G. If further exploration, development, or production activities are to be undertaken, appropriate plans will be submitted. Due to rig schedule variability, Shell may wish to drill these wells in 2015 and so is protectively filing this NOI before 3/31/15 due to the expiring general permit.
i. the date on which the owner/operator plans to commence production	Plans are to drill up to six (6) exploration wells, each taking approximately 150 days to drill. Upon completion of drilling the well(s), they will be either temporarily or permanently abandoned in accordance with 30 CFR, Subpart G. If further exploration, development, or production activities are to be undertaken, appropriate plans will be submitted.

GEG 460000, Part I.A.4....	Information
j. Technical information on the characteristics of the sea bottom in accordance with MMS Notice to Lessees (NTL) no. 98-20[2], Shallow Hazard Requirements, or the most current MMS guidelines for shallow hazard investigation and analysis within 1000 meters of the discharge point.	Sea bottom characteristics are summarized as follows:

Well Identifier	OCSG	Block, surface location	Water depth, ft
A	31591	DC 939	9290
B	31591	DC 939	9278
C	31591	DC 939	9279
D	31591	DC 939	9262
E	31591	DC 939	9289
F	31591	DC 939	9266

There is no evidence of seafloor or near-surface faulting, slumping, amplitudes or fluid expulsion features in the vicinity of the planned wells in De Soto Canyon 939.

Currently, there are no pipelines in the vicinity of the proposed locations.

For De Soto Canyon 939 Proposed Well Locations and the associated anchor patterns:
• Features or areas that could support high-density chemosynthetic communities are **not** located within 1,500 feet of each proposed mud and cuttings discharge location.
• Features or areas that could support high-density chemosynthetic communities are **not** located within 500 feet of any seafloor disturbances resulting from our use of anchors (including those caused by anchors, anchor chains and wire ropes).

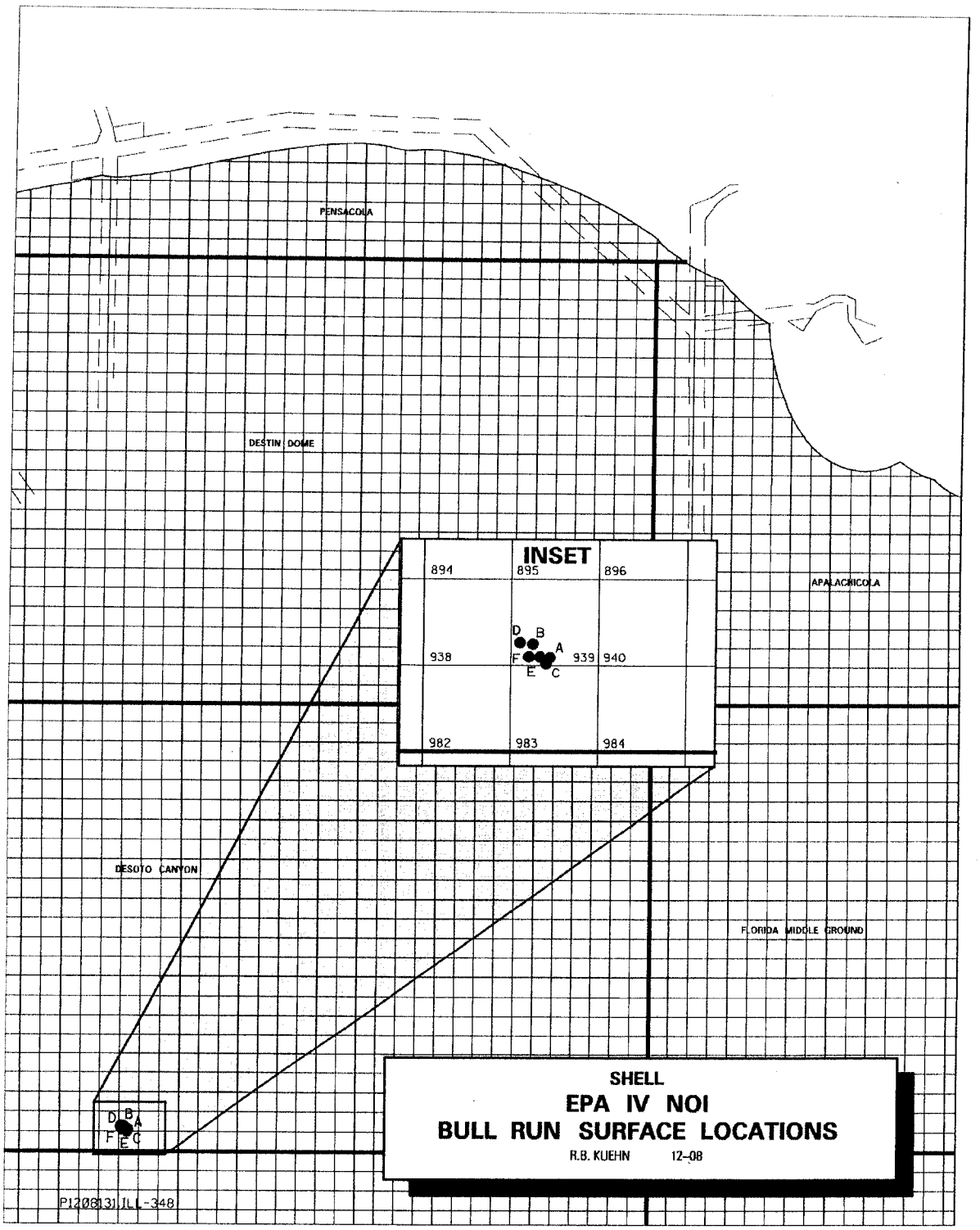
The DC 939 lease is not part of Biological Sensitive Area, known Chemosynthetic Area, Shipping Fairway, or Archeological Area.

[2] NTL 2008-G05 contains the current BOEM guidelines on the Shallow Hazards Program.

GEG 460000, Part I.A.4....	Information
k. For facilities in less than 100 meters water depth for offshore Mississippi and Alabama in the Mobile and Vioska Knoll lease blocks, permittee's must submit a Live-Bottom survey using either digital high-resolution acoustic data (sidescan sonar) or photo documentation.(etc).	Not Applicable - all locations are greater than 100m water depths.
l. the type of drilling fluids to be used (e.g., water-based and/or synthetic-based);	Water-based and synthetic-based.
m. documentation that an Application for Permit to Drill (APD), EP, DOCD or DPP has been submitted to MMS or approved by MMS;	The Initial Exploration Plan for DC 939 was submitted to MMS December 15, 2008. However, an updated plan will be submitted as early as Q3 2015
n. For facilities installed after March 4, 1993, the NOI must also identify that the facility is a new source and state the date on which the facility's protection from more stringent new source performance standards or technology-based limitations ends.	Exploration wells are not "new sources" per section I.C.1 (page 6) of GEG460000 *FACT SHEET for Proposed NPDES General Permit* located on the EPA Region IV Website.
o. the general permit coverage number for the previous general permit (GEG460000) and/or the individual NPDES permit number of any individual permit issued by EPA Region 4 for this activity;	GEG460000 No individual NPDES permit numbers have been previously assigned for these well locations.

GEG 460000, Part I.A.4....	Information
p. For production platforms, indicate the estimated distance (in meters) from the platform to the nearest Federally Designated Dredged Material Ocean Disposal Site;	Not Applicable.
q. any permit violations or under the previous Region 4 General Permit (NPDES No. GEG460000 issued December 9, 2004) for the facility	None.
r. Indicate if Phase III of EPA's Cooling Water Intake Structure Rule (CWIS) applies to the facility for which you are applying for coverage under this permit. Also indicate if the facility plans to comply under Track I or Track II of the CWIS.	The drillship, Noble Globetrotter I, triggers the cooling water intake requirements of the NPDES permit: the CWIS design intake capacities will exceed two million gallons per day (mmgd) and of the two mmgd withdrawal volumes, at least 25% will be used for cooling purposes. Furthermore, this vessel will meet the definition in the subject permits for "new, non-fixed facilities" under the CWIS requirements. Noble Drilling (U.S.) LLC submitted – to US EPA Regions 4 and 6- the required supplemental information and NOI request for this rig on March 1, 2012. Noble Drilling (U.S.) LLC will be the permittee for CWIS compliance purposes. If Noble Globetrotter 1 does not execute the wells, a similar MODU will be utilized. If this MODU triggers the cooling water intake requirements of the NPDES permit, the rig owner will submit the required supplemental information and NOI request.
s. If known, indicate the name and NPDES permit coverage number under GEG460000 for contractors that are, or will be, performing work at your facility that are new oil and gas facilities subject to Phase III of the CWIS Rule.	See response to r. above.

Attachment 2
Bull Run (DC Block 939)
Plot Plan


PENSACOLA
DESTIN DOME
APALACHICOLA
DESOTO CANYON
FLORIDA MIDDLE GROUND
INSET
894
895
896
938
939
940
982
983
984
D
B
A
F
E
C
SHELL
EPA IV NOI
BULL RUN SURFACE LOCATIONS
R.B. KUEHN 12-08
P120613 JLL-348

Attachment 3
Bull Run (DC Block 939)
BOEM Approval letter

United States Department of the Interior

MINERALS MANAGEMENT SERVICE
Gulf of Mexico OCS Region
1201 Elmwood Park Boulevard
New Orleans, Louisiana 70123-2394

In Reply Refer To: GM 274E January 17,2013, 2012

Ms. Sylvia Bellone
Shell Offshore Inc.
One Shell Square
P.O. Box 61933
New Orleans, Louisiana 70161-1933

Dear Ms. Bellone:

Reference is made to the following plan, approved March 19, 2009:

Control No.	N-09317
Type	Initial Exploration Plan
Lease(s)	OCS-G 31591, Block 939, Desoto Canyon Area

This plan was conditionally approved on March 19, 2009, for Subsea Wells A, B, C, D, E, and F.

You are hereby notified that BOEM has been notified of the issuance of your air quality permit by the Environmental Protection Agency per 40 CFR 55.6.

As a reminder Shell must still comply with NTL 2010-N06, before drilling permits can be issued.

If you have any questions or comments concerning this letter, please contact Michelle Griffitt Evans at (504)736-2975.

Sincerely,

Elizabeth Peuler

Digitally signed by Elizabeth Peuler
DN: cn=Elizabeth Peuler, o=Field Operations, ou=Plans Section, email=elizabeth.peuler@mms.gov, c=US
Date: 2013.01.17 08:53:34 -06'00'

for Robert Sebastian
Regional Supervisor
Leasing and Plans

June 26, 2018

OVERNIGHT

U. S. Environmental Protection Agency
Region IV
Office of Water Protection Division
Attn: Director Jeaneanne Gettle
Atlanta Federal Center
61 Forsyth Street, SW
Atlanta, GA 30303-3104

SUBJECT: POWER OF ATTORNEY – SHELL OFFSHORE INC. & SHELL GULF of MEXICO INC.

Dear Ms. Gettle:

Enclosed are updated Power of Attorney for Shell Offshore Inc. (SOI) and Shell Gulf of Mexico Inc. (SGOMI). This written delegation of authority is required as stated in 40 CFR 122.22.

If there are any questions regarding this submittal, please contact Andy Englande at (504) 425-2999.

Kind Regards,

Shell Offshore Inc.

Deforester L. Jones

Executive Vice President

Shell Gulf of Mexico Inc.

Deforester L. Jones

Executive Vice President

POWER OF ATTORNEY

SHELL OFFSHORE INC.

SHELL OFFSHORE INC. ("SOI"), a Delaware corporation (herein, the "Corporation") with its principal executive offices at 150 North Dairy Ashford, Houston, Texas 77079, hereby nominates, appoints and authorizes the

Position Title	**Info Only- Related Organization**
GM Mars Corridor	Deepwater- Upstream - Shell Exploration & Production Company (hereinafter "SEPCo")
GM GoM South	Deepwater- Upstream - SEPCo
GM GoM West	Deepwater- Upstream - SEPCo
Operations Managers	Deepwater- Upstream - SEPCo
Abandonment Managers	Deepwater- Upstream - SEPCo
GM Wells Operations	Wells- Deepwater- Gulf of Mexico- SEPCo Wells- Deepwater- French Guiana & Colombia- Shell International Exploration and Production Inc. (hereinafter "SIEP")
Wells Operations Managers	Wells- Deepwater- Gulf of Mexico- WE/CWI- SIEP Wells- Deepwater- Gulf of Mexico- Production- SIEP

and each of them, acting together or individually, as its true and lawful Attorney-in-Fact, to execute, deliver, accept, assign, amend, extend, ratify, verify, terminate, release or surrender, in the name of the Corporation and on its behalf, the following described instruments and documents in the usual course of the Corporation's business:

> Applications for permits, forms and reports, and other information required by Federal, State or Local environmental, regulatory, administrative and/or permit-issuing agencies and/or authorities pursuant to, and to the extent permitted by, any statute, law, rule, regulation, ordinance, order, or program applicable to the Corporation's operations, including but not limited to requirements of the Clean Water Act, Clean Air Act and Resource Conservation and Recovery Act, as amended.

SHELL OFFSHORE INC. also hereby nominates, appoints and authorizes the

Position Title	**Info Only- Related Organization**
GM Mars Corridor	Deepwater- Upstream - SEPCo
GM GoM South	Deepwater- Upstream - SEPCo
GM GoM West	Deepwater- Upstream - SEPCo
Operations Managers	Deepwater- Upstream - SEPCo
Abandonment Managers	Deepwater- Upstream - SEPCo
GM Wells Operations	Wells- Deepwater- Gulf of Mexico- SEPCo Wells- Deepwater- French Guiana & Colombia- SIEP
Wells Operations Managers	Wells- Deepwater- Gulf of Mexico- WE/CWI- SIEP Wells- Deepwater- Gulf of Mexico- Production- SIEP
Environmental Manager	Safety, Environment and Regulatory- Upstream SEPCo
Drilling Supervisors	Projects & Technology -Wells- Upstream- SEPCo
CWI Engineering Manager	Projects & Technology- Wells- Upstream - SEPCo
Wells Engineering Manager	Projects & Technology- Wells- Upstream - SEPCo

and each of them, acting together or individually, as its true and lawful Attorney-in-Fact, to execute, deliver, accept, assign, amend, extend, ratify, verify, terminate, release or surrender, in the name of the Corporation and on its behalf, the following described instruments and documents in the usual course of the Corporation's business:

> Routine forms and reports, and other information required by Federal, State or Local environmental, regulatory, administrative and/or permit-issuing agencies and/or authorities pursuant to, and to the extent permitted by, any statute, law, rule, regulation, ordinance, order, or program applicable to the Corporation's operations.

This Power of Attorney is effective as of the date executed and shall continue in full force and effect until specifically revoked in writing. This Power of Attorney shall not be revoked, rescinded or impaired by any change in the individuals serving in the positions of the

Position Title	**Info Only- Related Organization**
GM Mars Corridor	Deepwater- Upstream - SEPCo
GM GoM South	Deepwater- Upstream - SEPCo
GM GoM West	Deepwater- Upstream - SEPCo
Operations Managers	Deepwater- Upstream SEPCo
Abandonment Managers	Deepwater- Upstream SEPCo
GM Wells Operations	Wells- Deepwater- Gulf of Mexico- SEPCo Wells- Deepwater- French Guiana & Colombia- SIEP
Wells Operations Managers	Wells- Deepwater- Gulf of Mexico- WE/CWI- SIEP Wells- Deepwater- Gulf of Mexico- Production- SIEP
Environmental Manager	Safety, Environment and Regulatory- Upstream- SEPCo
Drilling Supervisors	Projects & Technology- Wells- Upstream - SEPCo
CWI Engineering Manager	Projects & Technology- Wells- Upstream - SEPCo

IN WITNESS WHEREOF, the Corporation has caused this Power of Attorney to be signed by its Executive Vice President and sealed with its corporate seal and attested by its Secretary.

ATTEST:

Lynn S. Borgmeier
Secretary

SHELL OFFSHORE INC.

Deforester L. Jones
Executive Vice President

Date Executed: June 26, 2018

WITNESS:

WITNESS:

STATE OF TEXAS §
§
COUNTY OF HARRIS §

This instrument was acknowledged before me this 26th day of June, 2018 by Deforester L. Jones, Executive Vice President of Shell Offshore Inc., a Delaware corporation, on behalf of said corporation.

DEBORA MCKIBBIN
Notary Public, State of Texas
Comm. Expires 05-23-2020
Notary ID 5057350

Debora McKibbin
Notary Public in and for
the State of Texas

POWER OF ATTORNEY

SHELL GULF OF MEXICO INC.

SHELL GULF OF MEXICO INC., a Delaware corporation (herein, the "Corporation") with its principal executive offices at 150 North Dairy Ashford, Houston, Texas 77079, hereby nominates, appoints and authorizes the

Position Title	**Info Only- Related Organization**
GM Mars Corridor	Deepwater- Upstream – Shell Exploration & Production Company (hereinafter "SEPCo")
GM GoM South	Deepwater- Upstream - SEPCo
GM GoM West	Deepwater- Upstream - SEPCo
Operations Managers	Deepwater- Upstream - SEPCo
Abandonment Managers	Deepwater- Upstream - SEPCo
GM Wells Operations	Wells- Deepwater- Gulf of Mexico- SEPCo Wells- Deepwater- French Guiana & Colombia- Shell International Exploration and Production Inc. (hereinafter "SIEP")
Wells Operations Managers	Wells- Deepwater- Gulf of Mexico- WE/CWI- SIEP Wells- Deepwater- Gulf of Mexico- Production- SIEP

and each of them, acting together or individually, as its true and lawful Attorney-in-Fact, to execute, deliver, accept, assign, amend, extend, ratify, verify, terminate, release or surrender, in the name of the Corporation and on its behalf, the following described instruments and documents in the usual course of the Corporation's business:

> Applications for permits, forms and reports, and other information required by Federal, State or Local environmental, regulatory, administrative and/or permit-issuing agencies and/or authorities pursuant to, and to the extent permitted by, any statute, law, rule, regulation, ordinance, order, or program applicable to the Corporation's operations, including but not limited to requirements of the Clean Water Act, Clean Air Act and Resource Conservation and Recovery Act, as amended.

SHELL GULF OF MEXICO INC. also hereby nominates, appoints and authorizes the

Position Title	**Info Only- Related Organization**
GM Mars Corridor	Deepwater- Upstream - SEPCo
GM GoM South	Deepwater- Upstream - SEPCo
GM GoM West	Deepwater- Upstream - SEPCo
Operations Managers	Deepwater- Upstream - SEPCo
Wells Operations Managers	Projects & Technology- Wells- Upstream - SEPCo
Abandonment Managers	Deepwater- Upstream - SEPCo
GM Wells Operations	Wells- Deepwater- Gulf of Mexico- SEPCo Wells- Deepwater- French Guiana & Colombia- SIEP
Wells Operations Managers	Wells- Deepwater- Gulf of Mexico- WE/CWI- SIEP Wells- Deepwater- Gulf of Mexico- Production- SIEP
Environmental Manager	Safety, Environment and Regulatory- Upstream- SEPCo
Drilling Supervisors	Projects & Technology- Wells- Upstream - SEPCo
CWI Engineering Manager	Projects & Technology- Wells- Upstream - SEPCo
Wells Engineering Manager	Projects & Technology- Wells- Upstream - SEPCo

and each of them, acting together or individually, as its true and lawful Attorney-in-Fact, to execute, deliver, accept, assign, amend, extend, ratify, verify, terminate, release or surrender, in the name of the Corporation and on its behalf, the following described instruments and documents in the usual course of the Corporation's business:

> Routine forms and reports, and other information required by Federal, State or Local environmental, regulatory, administrative and/or permit-issuing agencies and/or authorities pursuant to, and to the extent permitted by, any statute, law, rule, regulation, ordinance, order, or program applicable to the Corporation's operations.

This Power of Attorney is effective as of the date executed and shall continue in full force and effect until specifically revoked in writing. This Power of Attorney shall not be revoked, rescinded or impaired by any change in the individuals serving in the positions of the

Position Title	**Info Only- Related Organization**
GM Mars Corridor	Deepwater- Upstream - SEPCo
GM GoM South	Deepwater- Upstream - SEPCo
GM GoM West	Deepwater- Upstream - SEPCo
Operations Managers	Deepwater- Upstream - SEPCo
Wells Operations Managers	Projects & Technology- Wells- Upstream - SEPCo
Abandonment Managers	Deepwater- Upstream - SEPCo
GM Wells Operations	Wells- Deepwater- Gulf of Mexico- SEPCo Wells- Deepwater- French Guiana & Colombia- SIEP
Wells Operations Managers	Wells- Deepwater- Gulf of Mexico- WE/CWI- SIEP Wells- Deepwater- Gulf of Mexico- Production- SIEP
Environmental Manager	Safety, Environment and Regulatory- Upstream - SEPCo
Drilling Supervisors	Projects & Technology- Wells- Upstream - SEPCo
CWI Engineering Manager	Projects & Technology- Wells- Upstream - SEPCo

IN WITNESS WHEREOF, the Corporation has caused this Power of Attorney to be signed by its Executive Vice President and sealed with its corporate seal and attested by its Secretary.

ATTEST:

Lynn S. Borgmeier
Secretary

SHELL GULF OF MEXICO INC.

Deforester L. Jones
Executive Vice President

SHELL GULF OF MEXICO INC. CORPORATE SEAL 1996 DELAWARE

Date Executed: June 26, 2018

WITNESS:

WITNESS:

STATE OF TEXAS §
§
COUNTY OF HARRIS §

This instrument was acknowledged before me this 26th day of June, 2018 by Deforester L. Jones, Executive Vice President, of Shell Gulf of Mexico Inc., a Delaware corporation, on behalf of said corporation.

DEBORA MCKIBBIN
Notary Public, State of Texas
Comm. Expires 05-23-2020
Notary ID 5057350

Debora McKibbin
Notary Public in and for
the State of Texas