Supplementary Material

Table S1 Bacterial community diversity and OTU number in treatments of different alkane contamination levels

Treatments	Number of OTUs	Shannon index	Chao1	Phylotypes
S_o_0%_0d	12335	6.32	5999.56	1613
S_o_0%_10d	7365	3.49	764.50	338
S_o_0%_30d	14496	5.82	4287.28	1228
S_o_0%_50d	14185	5.83	4278.68	969
S_o_1%_0d	12335	6.32	5999.56	1613
S_o_1%_10d	11796	4.05	1285.67	582
S_o_1%_30d	23076	4.18	2451.80	764
S_o_1%_50d	21921	4.73	2879.43	775
S_o_3%_0d	12335	6.32	5999.56	1613
S_o_3%_10d	12403	3.94	928.00	505
S_o_3%_30d	14724	4.57	2435.38	692
S_o_3%_50d	21690	4.52	2424.86	655
S_o_5%_0d	12335	6.32	5999.56	1613
S_o_5%_10d	11835	4.01	1180.77	559
S_o_5%_30d	21958	4.61	3344.21	1054
S_o_5%_50d	21017	4.74	2862.06	771

Table S2 Correlations between the abundance of alkane-monooxygenase genes and alkanes of different chain lengths in treatments of different alkane contamination levels

Alkanes	*alk_A*	*alk_P*	*alk_R*
S_o-1%	0.4496	0.5015	0.003
C_{11}	0.6067	0.4447	0.0029
C_{13}	0.6067	0.4447	0.0029
C_{14}	0.6067	0.4447	0.0029
C_{16}	0.6067	0.4447	0.0029
C_{17}	0.428	0.4893	0.0052
C_{18}	0.6067	0.4447	0.0029
C_{21}	0.169	0.4911	0.009
C_{26}	0.3066	0.5009	0.0069
C_{27}	0.4278	0.4893	0.0052
S_o-3%	0.2344	0.5054	0.067
C_{11}	0.0053	0.2441	0.8387
C_{13}	0.0053	0.2441	0.8387
C_{14}	0.0053	0.2441	0.8387
C_{16}	0.2736	0.8207	0.3335
C_{17}	0.0346	0.3927	0.1342
C_{18}	0.0113	0.3839	0.1866
C_{21}	0.4501	0.4446	0.0061
C_{26}	0.2925	0.7493	0.2332
C_{27}	0.3084	0.5197	0.0512
S_o-5%	0.2452	0.8841	0.0232
C_{14}	0.281	0.8155	0.0015
C_{16}	0.0075	0.6259	0.3565
C_{17}	0.3097	0.8854	0.004
C_{18}	0.1951	0.9212	0.0911
C_{21}	0.3729	0.9927**	0.0141
C_{26}	0.1811	0.903	0.0877
C_{27}	0.2795	0.8203	0.002

Table S3 Correlations between the abundance of key bacterial families and alkane monooxygenase gene in treatments of different alkane contamination levels

		Rhodospirillaceae	*Bradyrhizobiaceae*	*Acidobacteriaceae*	*Alteromonadaceae*	*Thermodesulfovibrionaceae*
S_o_1%	*alk_A*	0.0045	0.8400	0.9906**	0.9414	0.7521
	alk_P	0.0022	0.4323	0.2435	0.3889	0.4425
	alk_R	0.0106	0.0055	0.0158	0.0219	0.0004
S_o_3%	*alk_A*	0.0038	0.0407	0.1356	0.2574	0.2593
	alk_P	0.298	0.7588	0.0141	0.2146	0.2894
	alk_R	0.8964	0.8336	-0.5037	-0.0131	0.0002
S_o_5%	*alk_A*	-0.1011	-0.1096	0.0878	0.3126	0.2578
	alk_P	0.0035	0.0032	0.0604	0.7852	0.7562
	alk_R	-0.4753	-0.4934	0.159	0.0007	0.0004