SUPPLEMENTARY INFORMATION

Effect of long term application of tetrakis(hydroxymethyl)phosphonium sulfate (THPS) in a light oil producing oilfield

Mohita Sharma*, Priyesh Menon, Johanna Voordouw, Yin Shen and Gerrit Voordouw*

Table S1: Pairwise P-values for the data in Table 1. The number of observations (n) as well as average and standard deviation (Ave±SD) are given for samples of Type I, II and III. P<0.05 means that the observed differences are statistically significant. This applies to all combinations except for those marked in red.

Parameter	n_I	$(Ave±SD)_I$	n_{II}	$(Ave±SD)_{II}$	n_{III}	$(Ave±SD)_{III}$	$P_{I/II}$	$P_{I/III}$	$P_{II/III}$
Sulfate	13	0.69±0.42	13	2.24±2.02	19	0.20±0.36	0.0061	0.0007	7.4E-05
P_i	11	0.04±0.06	13	0.68±0.57	19	2.80±2.61	0.0007	0.0008	0.00366
Acetate	13	5.1±3.2	13	18.5±20.7	19	3.72±6.72	0.0152	0.2482	0.00338
logMPN_APB	13	4.34±2.26	13	0.92±2.24	19	4.79±2.21	0.0004	0.291	1.8E-05
logMPN_SRB	13	1.37±2.63	13	0.00±0.00	19	3.01±3.17	0.0363	0.0676	0.00095

Table S2: Predominant phyla present in the Type III solid samples

	Phylum%	Date	14-11-01	14-11-10	14-11-11	14-11-11	15-01-09	15-03-09	15-03-22	15-06-15	15-06-16	15-06-20	15-08-05	15-08-30	15-09-09	16-02-03	16-02-15
		Avg.	PNG15_2014	PNG11_2014	PNG12_2014	PNG13_2014	PNG14_2014	PNG1_2015	PNG2_2015	PNG3_2015	PNG5_2015	PNG11_2015	PNG4_2015	PNG6_2015	PNG12_2015	PNG16_2016	PNG17_2016
1	***Proteobacteria***	54.34	51.17	57.52	48.51	63.18	12.22	42.99	69.50	38.65	93.47	99.77	57.43	54.17	46.89	45.83	33.81
2	***Firmicutes***	32.22	35.36	36.03	16.70	27.20	69.26	54.89	29.88	49.58	2.11	0.17	13.01	31.70	15.27	44.11	58.10
3	***Bacteroidetes***	5.44	5.29	1.51	13.82	5.21	7.14	1.19	0.31	11.55	0.32	0.01	15.38	7.81	1.82	5.25	4.92
4	***Thermotogae***	2.55	0.29	1.38	2.42	0.08	0.00	0.03	0.02	0.01	0.04	0.00	0.14	0.03	33.16	0.49	0.14
5	***Spirochaetae***	1.78	2.07	0.88	11.32	0.76	0.35	0.02	0.00	0.00	0.03	0.00	0.05	4.74	0.01	3.78	2.67
6	***Deinococcus-Thermus***	1.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.34	0.00	11.41	1.06	1.78	0.00	0.00
7	***Cyanobacteria***	0.71	0.00	0.02	0.00	0.00	10.19	0.00	0.00	0.00	0.17	0.01	0.15	0.02	0.12	0.00	0.01
8	***Tenericutes***	0.53	2.75	0.41	1.84	2.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00
9	***Actinobacteria***	0.19	0.00	0.22	0.10	0.00	0.14	0.08	0.28	0.12	0.22	0.01	1.53	0.06	0.10	0.02	0.03
10	***Chloroflexi***	0.18	1.10	0.28	0.43	0.10	0.62	0.14	0.01	0.00	0.00	0.00	0.06	0.00	0.04	0.00	0.00

Table S3: Percentage fraction of different classes of the phylum *Proteobacteria* present in the Type III solid samples

	Proteobacteria class %	Date	14-11-01	14-11-10	14-11-11	14-11-11	15-01-09	15-03-09	15-03-22	15-06-15	15-06-16	15-06-20	15-08-05	15-08-30	15-09-09	16-02-03	16-02-15
		Avg.	PNG15_2014_	PNG11_2014_	PNG12_2014_	PNG13_2014_	PNG14_2014_	PNG1_2015	PNG2_2015	PNG3_2015	PNG5_2015	PNG11_2015	PNG4_2015	PNG6_2015	PNG12_2015_	PNG16_2016_	PNG17_2016_
1	***Gammaproteobacteria***	43.39	36.80	52.12	34.08	17.97	2.46	40.80	66.48	36.75	68.45	96.95	41.26	51.57	43.80	36.31	25.02
2	***Betaproteobacteria***	4.02	6.01	2.06	2.35	36.54	7.09	0.84	0.09	0.07	0.76	0.03	3.40	0.20	0.54	0.09	0.19
3	***Alphaproteobacteria***	4.01	3.08	2.37	2.11	5.92	0.29	1.34	2.91	1.82	24.03	2.76	9.14	2.03	2.26	0.05	0.05
4	***Deltaproteobacteria***	2.91	5.28	0.97	9.92	2.75	2.37	0.00	0.01	0.01	0.22	0.03	3.58	0.37	0.28	9.38	8.55
5	***Epsilonproteobacteria***	0.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.07	0.00	11.50	0.00	1.05

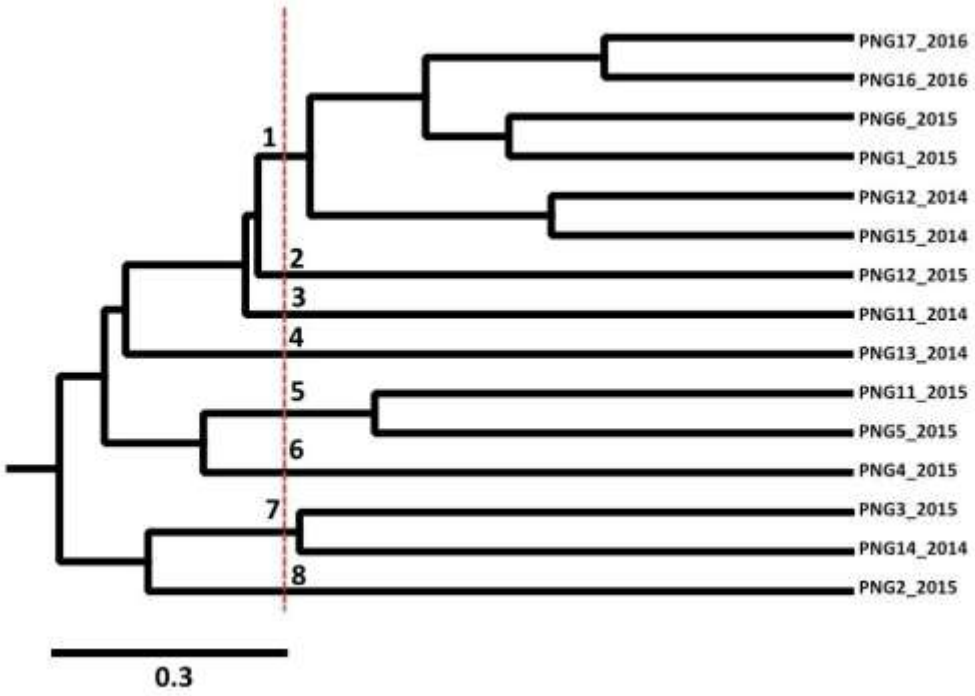

Figure S1: Bray-Curtis dendrogram for 15 microbial communities from type III solids samples from a light oil producing oil field. Microbial community compositions and metadata for these samples are given in Table 2. Eight clades are indicated at 30% sequence divergence.

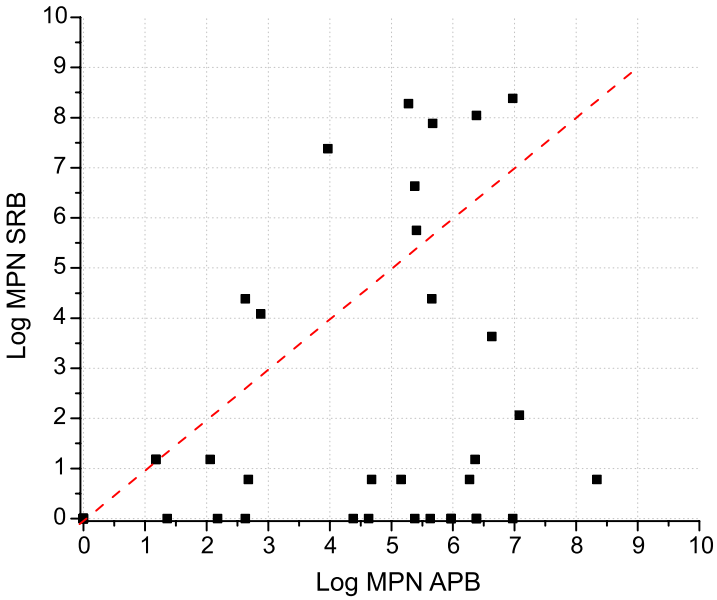

Figure S2: Logarithm of the MPN for APB plotted against that for SRB for 45 samples from PNG fields. Of these, 14 had a zero MPN for both. The dotted line represents samples with equal MPNs for APB and SRB. Only 9 samples, located above the dotted line, had a higher MPN for SRB than for APB. In contrast there were 16 samples with APB, but with zero SRB (points on the X- axis).