## Candidate Phyla K DeepCast 250m m1 172 - CP Aenigmarchaeota I M DeepCast 200m m2 220 CP Aminicemantes (OP8) K\_DeepCast\_250m\_m2\_015 - CP Bathvarchaeota CP Eisenbacteria K\_DeepCast\_65m\_m1\_133 - CP Handelsmanbacteria M\_DeepCast\_400m\_m2\_082 -E Nb.of.genes M\_DeepCast\_65m\_mx\_140 25 20 CP Poribacteria 15 CP Rokubacteria CP Tanganyikabacteria 10 K DeepCast 65m m2 066 5 M\_DeepCast\_400m\_m2\_128 - CP Verstrae CP WOR-2 Omnitrophica K\_BeepCast\_158m\_m2 CP WOR-3 CP WWE1 CP Ziwabacteria K\_Offshore\_80m\_m2\_058-E CP Zixibacteria XYGE ULFU RSEN CONO brog ETHAI TRILE ROG LENI JREA N FIX DSR ETAI fate or sulfate reduction sulfide oxidation sulfur oxidation Urease Formaldehyde oxidation SHP/4HB CBB cycle – Rubisco Wood Ljundahl pathway ancillary genes associated with the electron transport chain sulfite reduction Chlorite reduction Halogenated compounds breakdown FeFeHydrogenase NiFe Hydrogenase Metal (Iron/Manganese) oxidation/Reduction Oxygen metabolism – cytochrome (quinone) oxidase, bd type oxygen metabolism – cytochrome coxidase, caa3-type Oxygen metabolism – cytochrome coxidase, caa3-type Oxygen metabolism – cytochrome coxidase, cab3-type Selenate Reduction core genes CO Oxidation Formate oxidation methane production Nitrile hydratase Arsenate reduction

Reaction