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Table 4-1: Fe isotope compositions of the experimental reagents and enrichment culture inoculums. In the analyses column, up to triplicate mass spectrometry runs of a sample conducted on different days are reported; the errors are 2-SE from in-run statistics and reflect machine uncertainties and/or processing errors. The Mass Spec Average is the average of up to three analyses of a single sample, 1-SD is one standard deviation external; note that if there is only one mass spectrometry analysis, the error is 2-SE. The Average of Replicate is the average of processing replicates of a sample throughout the entire analytical procedure; the best estimate of external reproducibility. ¹Inoculum refers to the cells and small amount of Fe(III) precipitates (~1.2 millimoles) transferred from a grown culture of the enrichments to the fresh filtered Fe(II) medium used for these experiments. Inoculum cultures where the Fe(II) substrate initially provided was oxidized to completion were used to minimize Fe carryover. ²Yellow crystals among the bulk of the green crystals of the solid FeCl₂·H₂O used for the isotopic experiments indicate slight oxidation of the reagent. The isotopic composition of the solid FeCl₂·H₂O reagent is heterogeneous on the 100 mg scale. ³1M FeCl₂·H₂O stock solution used for enrichment medium preparation. ⁴10 mM FeCl₂·H₂O was added to 25 mls of medium. The resulting ferrous minerals were allowed to precipitate to completion. Under an aerobic atmosphere, the medium was mixed well and 1 ml was extracted with a syringe and transferred to a microcentrifuge tube. The precipitate and soluble phases were

separated by centrifugation. The soluble phase was removed with a pipette and filtered through a 0.22 μm filter into a clean microcentrifuge tube. The precipitate fraction was washed three times with ultra pure water equilibrated with an anoxic atmosphere. Supernatant 1, 2 and 3 are triplicate samples of the soluble phase and precipitate 1 and 2 are duplicate samples of the precipitate phase72

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