



# Full wwPDB X-ray Structure Validation Report

Feb 26, 2014 – 09:05 PM GMT

PDB ID : 1GAO  
Title : CRYSTAL STRUCTURE OF THE L44S MUTANT OF FERREDOXIN I  
Authors : Stout, C.D.; Burgess, B.K.; Prasad, G.S.; Sridhar, V.; Jung, Y.S.  
Deposited on : 2000-11-30  
Resolution : 2.20 Å(reported)

This is a full wwPDB validation report for a publicly released PDB entry.  
We welcome your comments at [validation@mail.wwpdb.org](mailto:validation@mail.wwpdb.org)  
A user guide is available at <http://wwpdb.org/ValidationPDFNotes.html>

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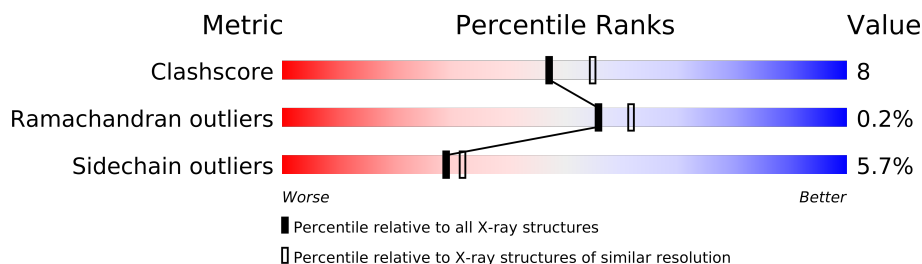
The following versions of software and data (see [references](#)) were used in the production of this report:

MolProbity : 4.02b-467  
Mogul : 1.15 2013  
Xtriage (Phenix) : **NOT EXECUTED**  
EDS : **NOT EXECUTED**  
Percentile statistics : 21963  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et. al. (1996)  
Validation Pipeline (wwPDB-VP) : stable22683

# 1 Overall quality at a glance

The reported resolution of this entry is 2.20 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
Clashscore	79885	3751 (2.20-2.20)
Ramachandran outliers	78287	3681 (2.20-2.20)
Sidechain outliers	78261	3682 (2.20-2.20)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments on the lower bar indicate the fraction of residues that contain outliers for  $\geq 3$ , 2, 1 and 0 types of geometric quality criteria. The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density.

Note EDS was not executed.

Mol	Chain	Length	Quality of chain
1	A	106	
1	B	106	
1	C	106	
1	D	106	

## 2 Entry composition

There are 4 unique types of molecules in this entry. The entry contains 3673 atoms, of which 0 are hydrogen and 0 are deuterium.

In the tables below, the ZeroOcc column contains the number of atoms modelled with zero occupancy, the AltConf column contains the number of residues with at least one atom in alternate conformation and the Trace column contains the number of residues modelled with at most 2 atoms.

- Molecule 1 is a protein called FERREDOXIN I.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	106	Total	C	N	O	S	0	0	0
			839	528	129	172	10			
1	B	106	Total	C	N	O	S	0	0	0
			839	528	129	172	10			
1	C	106	Total	C	N	O	S	0	0	0
			839	528	129	172	10			
1	D	106	Total	C	N	O	S	0	0	0
			839	528	129	172	10			

There are 4 discrepancies between the modelled and reference sequences:

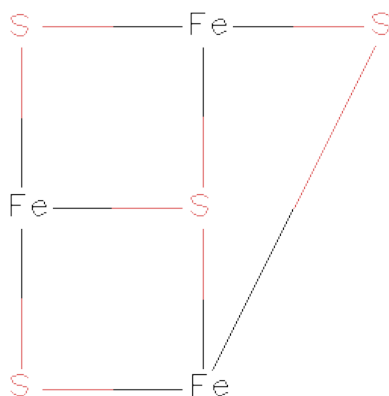
Chain	Residue	Modelled	Actual	Comment	Reference
A	44	SER	LEU	ENGINEERED	UNP P00214
B	244	SER	LEU	ENGINEERED	UNP P00214
C	444	SER	LEU	ENGINEERED	UNP P00214
D	644	SER	LEU	ENGINEERED	UNP P00214

- Molecule 2 is IRON/SULFUR CLUSTER (three-letter code: SF4) (formula: Fe<sub>4</sub>S<sub>4</sub>).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
2	A	1	Total	Fe	S	0	0
			8	4	4		
2	B	1	Total	Fe	S	0	0
			8	4	4		
2	C	1	Total	Fe	S	0	0
			8	4	4		
2	D	1	Total	Fe	S	0	0
			8	4	4		

- Molecule 3 is FE3-S4 CLUSTER (three-letter code: F3S) (formula:  $\text{Fe}_3\text{S}_4$ ).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
3	A	1	Total	Fe	S	0	0
			7	3	4		
3	B	1	Total	Fe	S	0	0
			7	3	4		
3	C	1	Total	Fe	S	0	0
			7	3	4		
3	D	1	Total	Fe	S	0	0
			7	3	4		

- Molecule 4 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	63	Total	O	0	0
			63	63		
4	B	69	Total	O	0	0
			69	69		
4	C	66	Total	O	0	0
			66	66		
4	D	59	Total	O	0	0
			59	59		

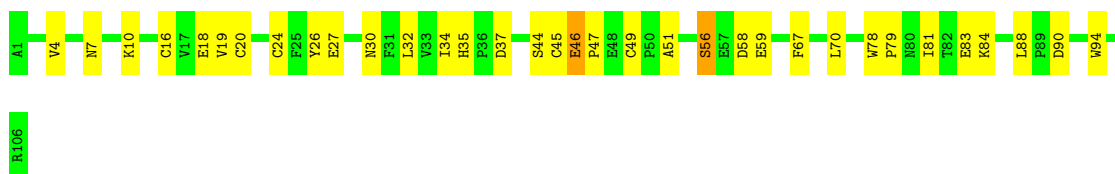
### 3 Residue-property plots

These plots are drawn for all protein, RNA and DNA chains in the entry. The first graphic for a chain summarises the proportions of errors displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red dot above a residue indicates a poor fit to the electron density ( $RSRZ > 2$ ). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

Note EDS was not executed.

#### • Molecule 1: FERREDOXIN I

Chain A: 



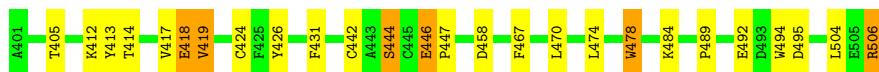
#### • Molecule 1: FERREDOXIN I

Chain B: 



#### • Molecule 1: FERREDOXIN I

Chain C: 



#### • Molecule 1: FERREDOXIN I

Chain D: 



## 4 Data and refinement statistics

Xtriage (Phenix) and EDS were not executed - this section will therefore be incomplete.

Property	Value	Source
Space group	C 1 2 1	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	130.80Å 85.60Å 67.20Å 90.00° 117.90° 90.00°	Depositor
Resolution (Å)	50.00 – 2.20	Depositor
% Data completeness (in resolution range)	(Not available) (50.00-2.20)	Depositor
$R_{merge}$	0.14	Depositor
$R_{sym}$	(Not available)	Depositor
Refinement program	X-PLOR 3.851	Depositor
R, $R_{free}$	0.243 , 0.286	Depositor
Estimated twinning fraction	No twinning to report.	Xtriage
Total number of atoms	3673	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	45.0	wwPDB-VP

## 5 Model quality i

### 5.1 Standard geometry i

Bond lengths and bond angles in the following residue types are not validated in this section: SF4, F3S

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with  $|Z| > 5$  is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z  >5	RMSZ	# Z  >5
1	A	0.83	0/860	1.35	4/1172 (0.3%)
1	B	0.83	0/860	1.40	6/1172 (0.5%)
1	C	0.84	0/860	1.44	12/1172 (1.0%)
1	D	0.84	0/860	1.44	8/1172 (0.7%)
All	All	0.83	0/3440	1.41	30/4688 (0.6%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand. A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
1	A	0	1
1	D	0	2
All	All	0	3

There are no bond length outliers.

All (30) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	D	706	ARG	NE-CZ-NH1	-10.72	114.94	120.30
1	B	294	TRP	CD1-CG-CD2	8.39	113.01	106.30
1	C	494	TRP	CD1-CG-CD2	7.83	112.56	106.30
1	C	478	TRP	CD1-CG-CD2	7.74	112.49	106.30
1	C	419	VAL	N-CA-CB	-7.65	94.66	111.50
1	D	694	TRP	CD1-CG-CD2	7.62	112.40	106.30
1	B	294	TRP	CE2-CD2-CG	-7.54	101.27	107.30
1	B	278	TRP	CD1-CG-CD2	7.49	112.29	106.30
1	D	694	TRP	CE2-CD2-CG	-7.45	101.34	107.30
1	A	94	TRP	CD1-CG-CD2	7.34	112.17	106.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	278	TRP	CE2-CD2-CG	-7.15	101.58	107.30
1	C	506	ARG	NE-CZ-NH2	7.14	123.87	120.30
1	C	478	TRP	CE2-CD2-CG	-7.12	101.60	107.30
1	A	78	TRP	CD1-CG-CD2	7.04	111.93	106.30
1	D	678	TRP	CE2-CD2-CG	-6.96	101.73	107.30
1	C	494	TRP	CE2-CD2-CG	-6.93	101.75	107.30
1	D	678	TRP	CD1-CG-CD2	6.82	111.75	106.30
1	A	78	TRP	CE2-CD2-CG	-6.75	101.90	107.30
1	A	94	TRP	CE2-CD2-CG	-6.58	102.04	107.30
1	D	706	ARG	NE-CZ-NH2	6.12	123.36	120.30
1	D	695	ASP	CB-CG-OD1	-6.09	112.82	118.30
1	C	494	TRP	CG-CD2-CE3	6.05	139.34	133.90
1	D	694	TRP	CG-CD2-CE3	5.94	139.24	133.90
1	C	413	TYR	CB-CG-CD1	-5.77	117.54	121.00
1	C	495	ASP	CB-CG-OD2	5.43	123.18	118.30
1	B	306	ARG	NE-CZ-NH2	5.42	123.01	120.30
1	C	419	VAL	CB-CA-C	5.40	121.66	111.40
1	C	494	TRP	CB-CG-CD1	-5.12	120.35	127.00
1	C	494	TRP	CG-CD1-NE1	-5.05	105.05	110.10
1	B	264	MET	CA-CB-CG	-5.05	104.71	113.30

There are no chirality outliers.

All (3) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	26	TYR	Sidechain
1	D	626	TYR	Sidechain
1	D	706	ARG	Sidechain

## 5.2 Close contacts ⓘ

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogens added by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, and the number in parentheses is this value normalized per 1000 atoms of the molecule in the chain. The Symm-Clashes column gives symmetry related clashes, in the same way as for the Clashes column.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	839	0	772	17	0
1	B	839	0	769	10	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	C	839	0	769	14	0
1	D	839	0	769	12	0
2	A	8	0	0	2	0
2	B	8	0	0	1	0
2	C	8	0	0	1	0
2	D	8	0	0	2	0
3	A	7	0	0	0	0
3	B	7	0	0	1	0
3	C	7	0	0	1	0
3	D	7	0	0	0	0
4	A	63	0	0	2	0
4	B	69	0	0	0	0
4	C	66	0	0	1	0
4	D	59	0	0	1	0
All	All	3673	0	3079	52	0

Clashscore is defined as the number of clashes calculated for the entry per 1000 atoms (including hydrogens) of the entry. The overall clashscore for this entry is 8.

All (52) close contacts within the same asymmetric unit are listed below.

Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:D:620:CYS:HA	2:D:707:SF4:S1	2.37	0.64
1:D:624:CYS:SG	2:D:707:SF4:S2	2.95	0.64
1:D:619:VAL:HG22	1:D:644:SER:HB3	1.81	0.63
1:D:646:GLU:HG3	1:D:647:PRO:HD3	1.79	0.63
1:A:20:CYS:HA	2:A:107:SF4:S1	2.39	0.62
1:C:424:CYS:SG	2:C:507:SF4:S2	3.01	0.58
1:A:56:SER:HB3	1:A:59:GLU:HG2	1.85	0.58
1:C:446:GLU:HG3	1:C:447:PRO:HD3	1.85	0.58
1:A:27:GLU:HB2	1:A:81:ILE:HB	1.87	0.56
1:A:7:ASN:HB2	4:A:836:HOH:O	2.06	0.56
1:B:219:VAL:HG11	1:B:248:GLU:HG3	1.86	0.55
1:A:49:CYS:SG	1:A:51:ALA:HB3	2.47	0.55
1:B:214:THR:O	1:B:217:VAL:HG22	2.07	0.55
1:B:246:GLU:HG3	1:B:247:PRO:HD3	1.89	0.54
1:C:489:PRO:HD2	4:C:842:HOH:O	2.08	0.54
1:A:30:ASN:HA	1:A:88:LEU:HD11	1.90	0.54
1:A:79:PRO:HB2	1:B:306:ARG:NH1	2.22	0.53
1:D:619:VAL:HG11	1:D:645:CYS:HA	1.91	0.52
1:C:442:CYS:SG	1:C:444:SER:HB2	2.51	0.51
1:A:46:GLU:HB3	1:A:47:PRO:HD3	1.94	0.50
1:C:412:LYS:HA	3:C:508:F3S:S1	2.51	0.50

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:A:10:LYS:HE3	4:A:829:HOH:O	2.11	0.50
1:D:626:TYR:CE2	1:D:635:HIS:HB2	2.47	0.50
1:C:431:PHE:CD2	1:C:504:LEU:HD11	2.47	0.49
1:B:213:TYR:HD2	3:B:308:F3S:S4	2.36	0.49
1:D:609:ILE:HD13	1:D:701:LEU:HA	1.94	0.49
1:C:474:LEU:HD13	1:C:478:TRP:CH2	2.48	0.49
1:A:19:VAL:HG11	1:A:45:CYS:HA	1.95	0.48
1:D:667:PHE:HA	1:D:670:LEU:HB2	1.94	0.48
1:A:19:VAL:HG22	1:A:44:SER:HB3	1.96	0.47
1:D:618:GLU:OE1	1:D:684:LYS:HB2	2.15	0.47
1:D:613:TYR:HB3	1:D:615:ASP:OD1	2.14	0.47
1:A:24:CYS:SG	2:A:107:SF4:S2	3.14	0.46
1:C:506:ARG:HG3	1:C:506:ARG:HH21	1.81	0.46
1:B:270:LEU:HD11	1:B:301:LEU:HD11	1.98	0.45
1:A:18:GLU:HG2	1:A:84:LYS:HB2	1.98	0.45
1:A:4:VAL:HG23	1:A:34:ILE:HG13	1.98	0.45
1:C:405:THR:HA	1:C:467:PHE:CD1	2.52	0.45
1:D:623:ASP:HA	4:D:991:HOH:O	2.16	0.45
1:C:426:TYR:N	1:C:426:TYR:CD2	2.85	0.44
1:C:414:THR:O	1:C:417:VAL:HG22	2.18	0.44
1:D:684:LYS:HG2	1:D:685:LYS:N	2.33	0.43
1:C:467:PHE:HA	1:C:470:LEU:HB2	2.01	0.43
1:B:245:CYS:O	1:B:248:GLU:HB2	2.18	0.42
1:C:418:GLU:OE1	1:C:484:LYS:HB2	2.19	0.42
1:B:290:ASP:O	1:B:294:TRP:HD1	2.03	0.42
1:B:220:CYS:HA	2:B:307:SF4:S1	2.60	0.42
1:A:67:PHE:HA	1:A:70:LEU:HB2	2.02	0.41
1:C:470:LEU:HA	1:C:470:LEU:HD23	1.79	0.41
1:A:16:CYS:O	1:A:19:VAL:HG12	2.21	0.41
1:B:269:GLN:O	1:B:273:GLU:HG2	2.21	0.41
1:A:35:HIS:CE1	1:A:37:ASP:HB2	2.56	0.40

There are no symmetry-related clashes.

## 5.3 Torsion angles

### 5.3.1 Protein backbone ⓘ

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution. The Analysed column shows the number of residues for which the backbone conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	104/106 (98%)	102 (98%)	2 (2%)	0	100	100
1	B	104/106 (98%)	92 (88%)	11 (11%)	1 (1%)	22	18
1	C	104/106 (98%)	96 (92%)	8 (8%)	0	100	100
1	D	104/106 (98%)	101 (97%)	3 (3%)	0	100	100
All	All	416/424 (98%)	391 (94%)	24 (6%)	1 (0%)	56	62

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	B	252	GLN

### 5.3.2 Protein sidechains ⓘ

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution. The Analysed column shows the number of residues for which the sidechain conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	96/96 (100%)	90 (94%)	6 (6%)	25	27
1	B	96/96 (100%)	90 (94%)	6 (6%)	25	27
1	C	96/96 (100%)	90 (94%)	6 (6%)	25	27
1	D	96/96 (100%)	92 (96%)	4 (4%)	40	48
All	All	384/384 (100%)	362 (94%)	22 (6%)	29	32

All (22) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	32	LEU
1	A	46	GLU
1	A	56	SER
1	A	58	ASP
1	A	83	GLU
1	A	90	ASP
1	B	218	GLU
1	B	246	GLU
1	B	252	GLN
1	B	261	PRO
1	B	292	GLU

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Mol	Chain	Res	Type
1	B	306	ARG
1	C	418	GLU
1	C	419	VAL
1	C	444	SER
1	C	446	GLU
1	C	458	ASP
1	C	492	GLU
1	D	618	GLU
1	D	646	GLU
1	D	692	GLU
1	D	706	ARG

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. There are no such sidechains identified.

### 5.3.3 RNA ⓘ

There are no RNA chains in this entry.

## 5.4 Non-standard residues in protein, DNA, RNA chains ⓘ

There are no non-standard protein/DNA/RNA residues in this entry.

## 5.5 Carbohydrates ⓘ

There are no carbohydrates in this entry.

## 5.6 Ligand geometry ⓘ

8 ligands are modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the chemical component dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with  $|Z| > 2$  is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
2	SF4	A	107	1	12,12,12	5.87	11 (91%)	0,24,24	0.00	-
3	F3S	A	108	1	3,9,9	6.25	2 (66%)	0,15,15	0.00	-
2	SF4	B	307	1	12,12,12	7.39	11 (91%)	0,24,24	0.00	-
3	F3S	B	308	1	3,9,9	4.68	3 (100%)	0,15,15	0.00	-
2	SF4	C	507	1	12,12,12	5.85	12 (100%)	0,24,24	0.00	-
3	F3S	C	508	1	3,9,9	3.74	3 (100%)	0,15,15	0.00	-
2	SF4	D	707	1	12,12,12	5.60	12 (100%)	0,24,24	0.00	-
3	F3S	D	708	1	3,9,9	5.24	2 (66%)	0,15,15	0.00	-

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the chemical component dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	SF4	A	107	1	-	0/0/48/48	0/0/5/5
3	F3S	A	108	1	-	0/0/24/24	0/0/3/3
2	SF4	B	307	1	-	0/0/48/48	0/0/5/5
3	F3S	B	308	1	-	0/0/24/24	0/0/3/3
2	SF4	C	507	1	-	0/0/48/48	0/0/5/5
3	F3S	C	508	1	-	0/0/24/24	0/0/3/3
2	SF4	D	707	1	-	0/0/48/48	0/0/5/5
3	F3S	D	708	1	-	0/0/24/24	0/0/3/3

All (56) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	307	SF4	S1-FE3	-13.76	2.24	2.33
2	A	107	SF4	S4-FE3	-9.10	2.27	2.33
2	B	307	SF4	S3-FE1	-8.82	2.27	2.33
3	A	108	F3S	S3-FE4	-8.72	2.27	2.33
2	A	107	SF4	S4-FE1	-8.35	2.27	2.33
2	D	707	SF4	S4-FE3	-8.15	2.27	2.33
2	C	507	SF4	S1-FE3	-7.99	2.27	2.33
2	B	307	SF4	S4-FE1	-7.62	2.28	2.33
2	D	707	SF4	S1-FE4	-7.56	2.28	2.33
2	B	307	SF4	S1-FE4	-7.54	2.28	2.33
2	C	507	SF4	S1-FE2	-7.51	2.28	2.33
2	B	307	SF4	S2-FE4	-7.38	2.28	2.33
2	B	307	SF4	S4-FE3	-7.26	2.28	2.33

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	C	507	SF4	S2-FE1	-7.26	2.28	2.33
2	A	107	SF4	S2-FE4	-7.22	2.28	2.33
2	B	307	SF4	S2-FE1	-6.96	2.28	2.33
2	A	107	SF4	S1-FE4	-6.76	2.28	2.33
3	D	708	F3S	S3-FE4	-6.75	2.28	2.33
2	C	507	SF4	S4-FE1	-6.66	2.28	2.33
2	C	507	SF4	S3-FE1	-6.60	2.28	2.33
3	B	308	F3S	S3-FE3	-6.44	2.28	2.33
2	B	307	SF4	S4-FE2	-6.42	2.28	2.33
3	A	108	F3S	S3-FE3	-6.40	2.28	2.33
2	A	107	SF4	S1-FE3	-6.30	2.29	2.33
2	D	707	SF4	S3-FE4	-6.28	2.29	2.33
2	D	707	SF4	S1-FE2	-6.27	2.29	2.33
2	C	507	SF4	S4-FE2	-6.11	2.29	2.33
2	D	707	SF4	S4-FE2	-6.08	2.29	2.33
2	D	707	SF4	S2-FE3	-5.94	2.29	2.33
3	D	708	F3S	S3-FE3	-5.86	2.29	2.33
2	A	107	SF4	S1-FE2	-5.32	2.29	2.33
2	A	107	SF4	S3-FE2	-5.31	2.29	2.33
2	B	307	SF4	S3-FE4	-5.26	2.29	2.33
2	B	307	SF4	S3-FE2	-5.16	2.29	2.33
2	C	507	SF4	S4-FE3	-5.04	2.29	2.33
2	D	707	SF4	S3-FE1	-4.97	2.29	2.33
2	C	507	SF4	S1-FE4	-4.95	2.29	2.33
2	D	707	SF4	S2-FE1	-4.66	2.30	2.33
3	C	508	F3S	S3-FE3	-4.63	2.30	2.33
2	B	307	SF4	S1-FE2	-4.63	2.30	2.33
2	C	507	SF4	S3-FE4	-4.56	2.30	2.33
2	C	507	SF4	S2-FE4	-4.51	2.30	2.33
2	D	707	SF4	S4-FE1	-4.24	2.30	2.33
2	A	107	SF4	S2-FE1	-4.23	2.30	2.33
3	B	308	F3S	S3-FE1	-4.19	2.30	2.33
2	A	107	SF4	S3-FE1	-4.11	2.30	2.33
3	C	508	F3S	S3-FE1	-3.97	2.30	2.33
2	A	107	SF4	S4-FE2	-3.92	2.30	2.33
2	C	507	SF4	S2-FE3	-3.81	2.30	2.33
2	D	707	SF4	S3-FE2	-3.80	2.30	2.33
2	D	707	SF4	S1-FE3	-3.74	2.30	2.33
2	A	107	SF4	S3-FE4	-3.63	2.30	2.33
2	D	707	SF4	S2-FE4	-3.03	2.31	2.33
2	C	507	SF4	S3-FE2	-2.62	2.31	2.33
3	B	308	F3S	S3-FE4	-2.59	2.31	2.33

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	C	508	F3S	S3-FE4	-2.16	2.31	2.33

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

## 5.7 Other polymers ⓘ

There are no such residues in this entry.

## 5.8 Polymer linkage issues

There are no chain breaks in this entry.



## 6 Fit of model and data ⓘ

### 6.1 Protein, DNA and RNA chains ⓘ

EDS was not executed - this section will therefore be empty.

### 6.2 Non-standard residues in protein, DNA, RNA chains ⓘ

EDS was not executed - this section will therefore be empty.

### 6.3 Carbohydrates ⓘ

EDS was not executed - this section will therefore be empty.

### 6.4 Ligands ⓘ

EDS was not executed - this section will therefore be empty.

### 6.5 Other polymers ⓘ

EDS was not executed - this section will therefore be empty.