



Conclusions:

Description	Depth of Leak	Accessories	Reference log	Reference log page
Short String	802.8 m	GLM#1	Fig 2-4	Page 7-9
Short String	1882.1 m	GLM#2	Fig 5	Page 10
Long String	1911.2 m	GLM#2 DV	Fig 6	Page 11
Long String	2915.5 m	GLM#3	Fig 8 - 10	Page 13 - 15
Short String	3507.6 m	GLM#4	Fig 11 – 13	Page 16 – 18
BHD Packer at 3556.9 m	No BHD Packer Leak	BHD Packer	Fig 14	Page 19
Perforation interval 3700.0 - 3732.0 m	Reservoir activity within the interval 3700 – 3710 m	Perforation zone	Fig 15 - 17	Page 20 - 22
BHR Packer at 3850.1 m	Leaking	BHR Packer	Fig 18 - 20	Page 23 - 25

- Short String (SS) GLM#1 Leak at 802.8 m from both ALFA and Temperature data (fig. 2-4)
- Short String (SS) GLM#2 Leak at 1882.1 m from ALFA data (fig. 5)
- Long String (LS) GLM#2 DV Leak at 1911.2 m from both ALFA and Temperature data (fig. 6)
- Long String (LS) GLM#3 Leak at 2915.5 m from both ALFA and Temperature data (fig. 8-10)
- Short String (SS) GLM#4 Leak at 3507.6 m from both ALFA and Temperature data (fig. 11-13)
- No BHD Packer Leak confirmed by both ALFA and Temperature data (fig. 14).
- Reservoir activity within the interval 3700 – 3710 m from ALFA data (fig. 15-17)
- BHR Packer leak at 3850.1 m from both ALFA and Temperature data (fig. 18-20)



3. ALFA-TEMP log Interpretation

Description	Depth of Leak	Frequency range detected	Associated survey condition	Remarks	Reference log	Reference log page
Short String GLM#1	802.8 m	0 – 22.5 kHz	A annulus bleed-off	Sharp temperature anomaly in bleed-off condition	Fig 2-4	Page 7-9
Short String GLM#2	1882.1 m	0 - 15 kHz	A annulus bleed-off	Temperature gradient change in both well conditions	Fig 5	Page 10
Long String GLM#2 DV	1911.2 m	0 - 24 kHz	Long String production	Minor temperature anomaly during Long String production	Fig 6	Page 11
Long String GLM#3	2915.5 m	High amplitude 0.1 - 30 kHz	A annulus bleed-off and Long String production	Sharp temperature anomaly in bleed-off condition and Long String production	Fig 8-10	Page 13-15
Short String GLM#4	3507.6 m	0.1 - 24 kHz	All conditions	Sharp temperature anomaly in shut-in condition. Temperature anomaly during Long String production	Fig 11-13	Page 16-18
BHD Packer at 3556.9 m	No BHD Packer Leak	No noise	All conditions	No Temperature anomalies in all conditions	Fig 14	Page 19
Perforation interval 3700.0 - 3732.0 m	Reservoir activity within the interval 3700 – 3710 m	7 - 19 kHz	Both conditions	Temperature gradient change in all well conditions	Fig 15-17	Page 20-22
BHR Packer at 3850.1 m	Leaking	7 - 20 kHz	All conditions	Temperature gradient change in bleed-off condition and during Long String production	Fig 18-20	Page 23-25

Short String GLM#1 Leak at 802.8 m

0.1 – 22.5 kHz noise in A-annulus bleed-off condition at around the depth 802.8 m associated with Short String GLM#1 leak (Fig.2-4).



Sharp temperature anomaly at around the depth 802.8 m in bleed-off condition associated with Short String GLM#1 leak (Fig.2-4).

Short String GLM#2 Leak at 1882.1 m

0.1 – 15 kHz noise in A-annulus bleed-off condition at around the depth 1882.1 m associated with Short String GLM#2 leak (Fig.5).

Long String GLM#2 DV Leak at 1911.2 m

0.1 - 24 kHz noise during Long String production and noise amplitude increasing around the depth 1911.2 m associated with Long String GLM#2 DV leak (Fig.6).

Minor temperature anomaly at around the depth 1911.2 m during Long String production associated with Long String GLM#2 DV leak (Fig.6).

Long String GLM#3 Leak at 2915.5 m

High amplitude 0.1 - 30 kHz noise in A-annulus bleed-off condition around the depth 2915.5 m associated with Long String GLM#3 leak (Fig.8-10).

Sharp temperature anomaly at around the depth 2915.5 m in bleed-off condition and during Long String production associated with Long String GLM#3 leak (Fig.8-10).

Short String GLM#4 Leak at 3507.6 m

Low amplitude 0.1 – 19 kHz noise was observed in both shut-in and A-annulus bleed-off conditions at around the depth 3507.6 m indicating the possible Short String GLM#4 leak (Fig.11-13).

Temperature anomaly at around the depth 3507.6 m in shut-in condition and during Long String production associated with Short String GLM#4 leak (Fig. 11-13).

BHD Packer at 3556.9 m

No BHD packer leak from ALFA and TEMP data was detected (Fig.14).

Perforation interval 3700.0 - 3732.0 m

Low amplitude 7 – 19 kHz noise was observed in all shut-in, A-annulus bleed-off and Long String production conditions within the interval 3700 – 3710 m indicating the reservoir activity opposite this interval. Also some temperature gradient change was detected in all well conditions (Fig.15-17).

BHR Packer leak at 3850.1 m

7 – 20 kHz noise was observed in both shut-in and A-annulus bleed-off conditions at around the depth 3850.1 m indicating the BHR Packer leak (Fig.18-20).

Temperature gradient change right above the BHR packer depth of 3850.1 m during A-annulus bleed-off and Long String production associated with BHR packer leak (Fig.18-20).

4. ALFA-Temperature data entire survey interval from 0 – 3915 m.

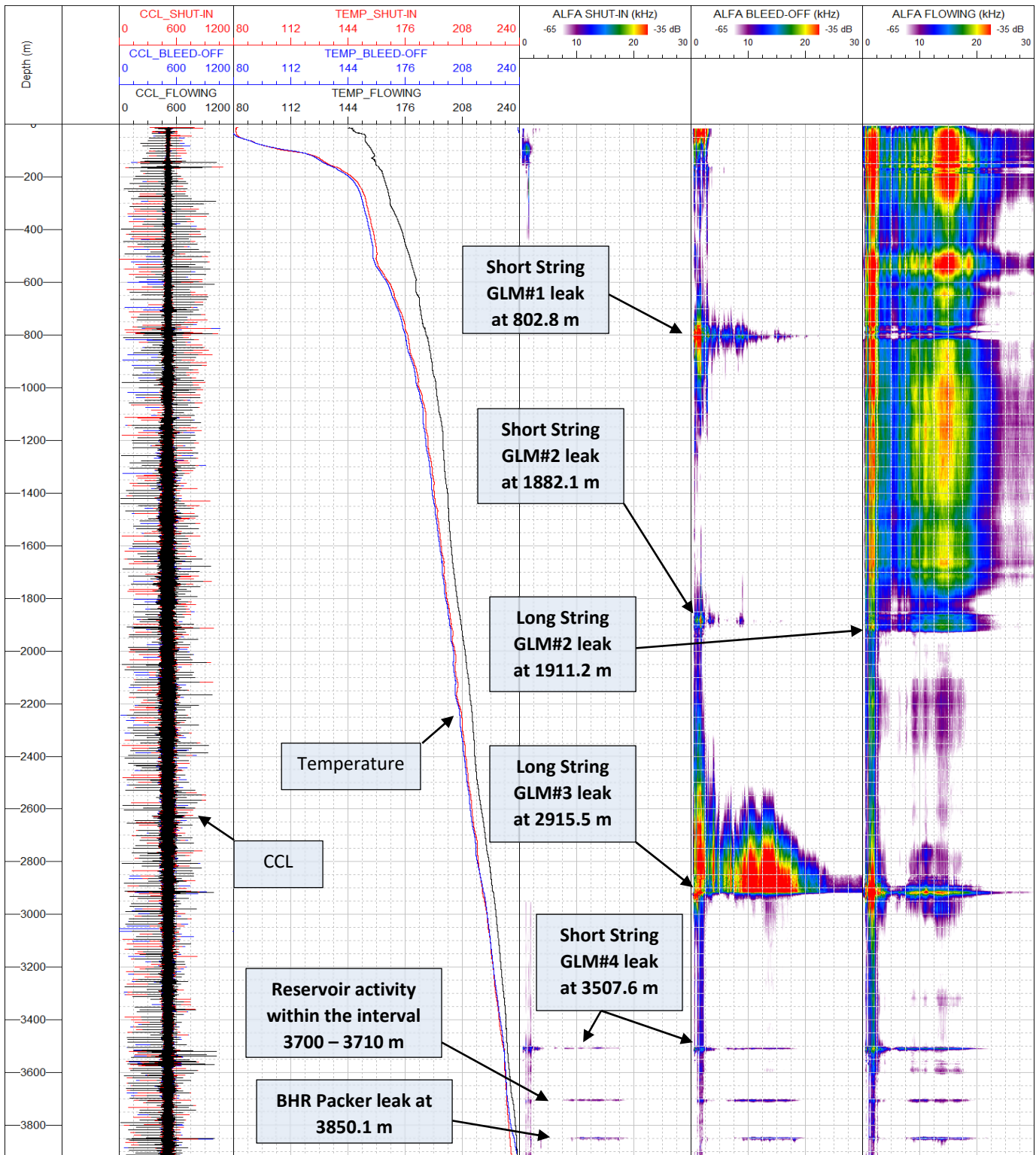


Figure 1 – ALFA-Temperature data entire survey interval from 0 – 3915 m